

**AN ARCHAEOLOGICAL WATCHING BRIEF ON
THE NEW WALKER TECHNOLOGY COLLEGE SITE
WAVERDALE AVENUE, WALKER,
NEWCASTLE, TYNE AND WEAR**

**An Archaeological Watching Brief on the New Walker Technology College Site,
Waverdale Avenue, Walker, Newcastle, Tyne and Wear**

Central National Grid Reference: NZ 2924 6530

Site Code: WOS 10

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1. NON-TECHNICAL SUMMARY

- 1.1 An archaeological monitoring and recording exercise was undertaken in March 2010 by Pre-Construct Archaeology Limited at the site of the new Walker Technology College, on the 'Waverdale Open Space', Walker, Newcastle-upon-Tyne, Tyne and Wear. The central National Grid Reference of the site is NZ 2924 6530.
- 1.2 The archaeological work was commissioned by Sir Robert McAlpine Limited and was carried out during construction groundworks for the new Walker Technology College, as part of Phase 2 of the 'Building Newcastle's Schools for the Future' programme.
- 1.3 The site is located in an area of considerable archaeological sensitivity, particularly for the post-medieval industrial and modern military eras. East Pit of Walker Colliery was located within the eastern boundary of the site and an overground waggonway serving the pit ran through the north-eastern portion of the site. During the Second World War, a heavy anti-aircraft battery occupied south-easternmost portion of the site and remains of this feature were to form the focus of the archaeological work.
- 1.4 A Specification for the work was provided by the Tyne and Wear Specialist Conservation Team. This stipulated that all ground preparation and ground disturbing works were to be monitored by an archaeologist in order that any remains of the anti-aircraft battery could be recorded.
- 1.5 Across the footprint of the main new build in the development, bulk ground reduction had already occurred when archaeological monitoring began. In the southern part of the main new build footprint, ground level had been reduced to at least 1m depth into the natural clay substratum. Modern dump layers overlying natural clay were recorded in trenches excavated for drainage runs in and around the main footprint. Monitoring of these excavations was curtailed due to Health and Safety considerations. No definite archaeological evidence of the anti-aircraft battery was recorded during the work.

2. INTRODUCTION

2.1 General Background

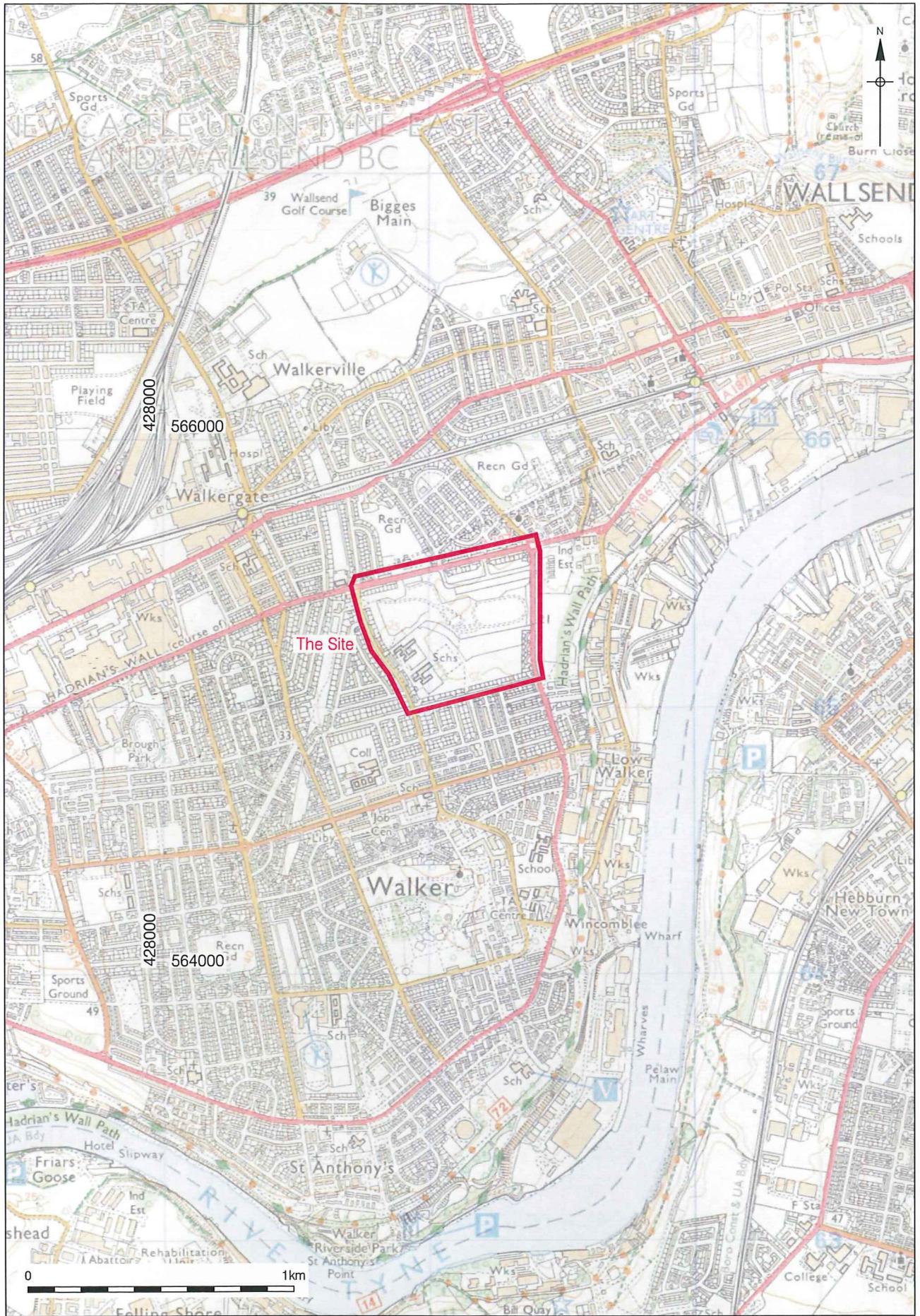
- 2.1.1 This report details the results of an archaeological monitoring and recording exercise (hereafter 'watching brief') undertaken between in March 2010 by Pre-Construct Archaeology Limited (PCA) on the site of the new Walker Technology College, Newcastle.
- 2.1.2 The work was commissioned by Sir Robert McAlpine Limited, the school development forming part of Phase 2 of the 'Building Newcastle's Schools for the Future' programme.
- 2.1.3 A Specification for the watching brief was produced by the Tyne and Wear Specialist Conservation Team.¹
- 2.1.4 The site is located in an area of considerable archaeological sensitivity, as identified by an archaeological desk-based assessment undertaken by PCA in 2009.² There is particular potential for archaeological remains of the post-medieval industrial and modern military eras. East Pit of Walker Colliery was located within the eastern boundary of the site and an associated waggonway ran through the north-eastern portion of the site. However, identification of remains of a Second World War heavy anti-aircraft battery, which occupied south-easternmost portion of the site, was to form the focus of the archaeological work.
- 2.1.5 The complete Site Archive, comprising written, drawn, and photographic records, will be deposited at Tyne and Wear Museum Archive, Arbeia, South Shields, under the site code WOS 10. The Online Access to the Index of Archaeological Investigations (OASIS) reference number for the project is: preconst1-80361.

2.2 Site Location and Description

- 2.2.1 The site of the new Walker Technology College is located in the northern part of the Walker suburb of Newcastle, east of the city centre, and is situated at National Grid Reference NZ 2924 6530 (Figure 1). The overall site - known prior to the development as the 'Waverdale Open Space' - is roughly rectangular in shape covering an area of c. 10 hectares (Figure 2).
- 2.2.2 The overall site is bounded to the south by Ennerdale Road, to the north by Fossway, to the east by Waverdale Avenue and to the west by the remainder of Waverdale Open Space, with Sir Charles Parsons School and St. Albans Roman Catholic Primary School to the south-west, beyond which lies Westbourne Avenue.
- 2.2.3 Prior to development as the new Walker Technology College, the majority of the site was scrubland, with perimeter tree cover to the north and north-east, while the southernmost margin comprised a corridor of pasture. At the time of the work herein described the site was a major construction project with the development in progress (Figure 3). The area of particular focus for the archaeological work was the footprint of and the area surrounding the main new build in the south-eastern portion of the site (Figures 2 and 3).

¹ Tyne and Wear Specialist Conservation Team 2009. This document forms Appendix B to this report.

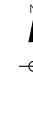
² PCA 2009.



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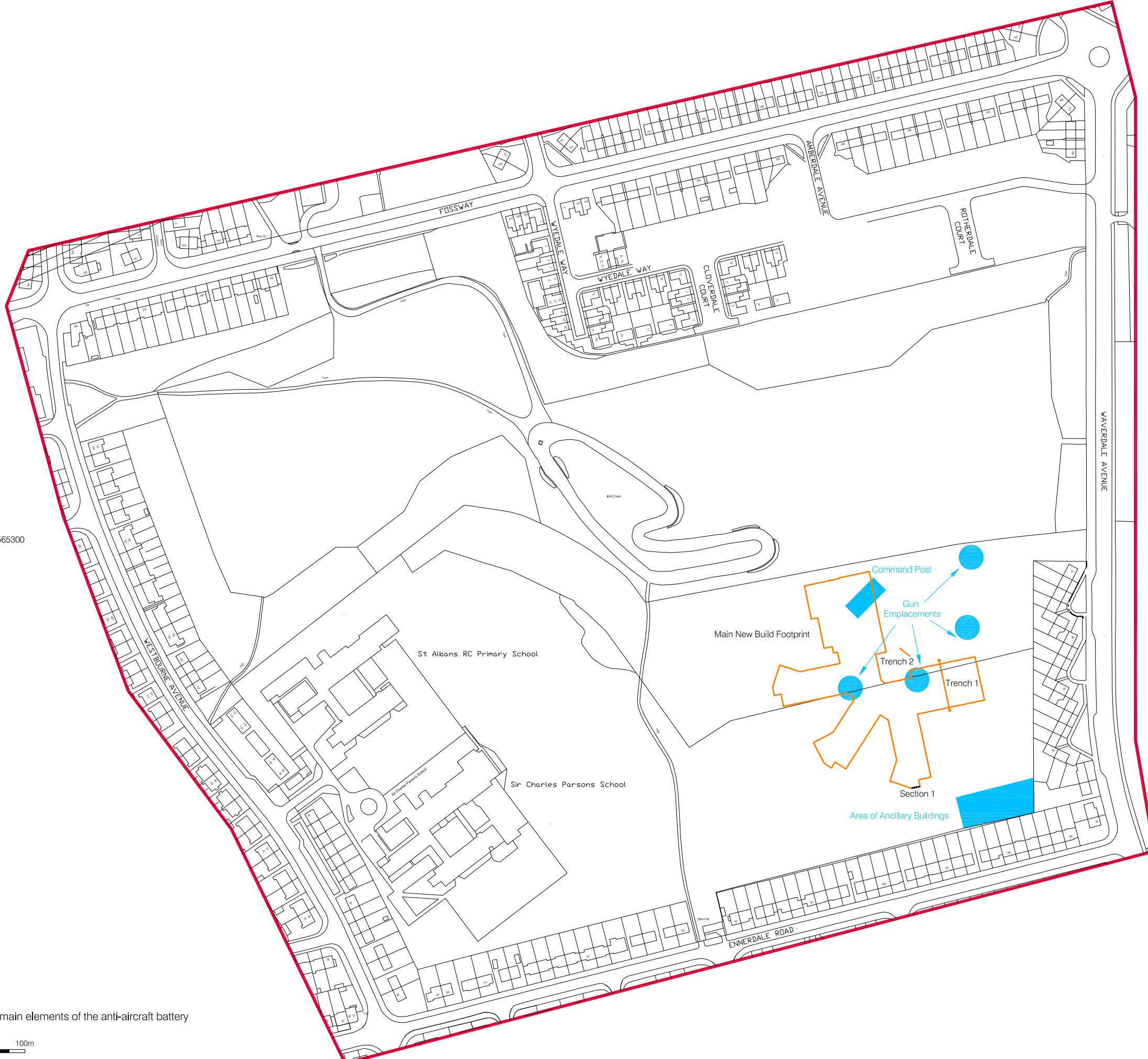
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Figure 1
Site Location
1:20,000 at A4



428700/565300
+

429500/565300
+



■ Probable location of the main elements of the anti-aircraft battery



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Figure 2
Location of Monitored Areas
1:2,500 at A3

2.3 Geology and Topography

- 2.3.1 The solid geology of this part of Newcastle is formed by the Westphalian Coal Measures of the Upper Carboniferous. In the Wallsend area specifically, the solid geology comprises sandstone beds high in the Middle Coal Measures.³
- 2.3.2 The drift geology of this part of Newcastle is characterised by Quaternary till, which, in the Wallsend area, only thinly masks the Carboniferous bedrock.
- 2.3.3 In the wider area, ground level falls away to the south and east towards the main geographical feature in the vicinity, the River Tyne. In recent times ground level at the site was roughly level, at c. 25m OD. However, it is known that the natural topography of the site has been much altered, firstly by 19th century colliery activity in the central eastern portion of the site and secondly - and most significantly - by extensive tipping of domestic and industrial waste, including incinerator waste in the 1950-1970s. This activity infilled the dene⁴ of a branching stream depicted within the central portion of the site on 18th-19th century mapping, thereby creating the existing relatively flat landform. Since the 1970s, surface landscaping was undertaken, particularly in the north-western part of the overall site.

2.4 Planning Background

- 2.4.1 The development of the site as the new Walker Technology College was an element of the Building Schools for the Future (BSF) initiative. In Newcastle, this is being delivered and partly funded by Newcastle City Council's private sector partner, Aura, with Sir Robert McAlpine Limited the Principal Contractor for the programme. The existing Walker Technology College, to the south-west on Middle Street, Walker was to be replaced by a new facility on the Waverdale Open Space.
- 2.4.2 When the development proposal was conceived, the aforementioned archaeological DBA of the archaeological potential of the site was undertaken by PCA and submitted in early 2009. The site does not lie within one of the eleven conservation areas in Newcastle and there are no scheduled monuments, listed buildings or historic parks and gardens within its boundaries or within its immediate vicinity. However, the site does lie within an area of considerable archaeological sensitivity, particularly with regard to the post-medieval industrial and modern military eras. East Pit of Walker Colliery was located within the eastern boundary of the site and an overground waggonway serving the pit ran through the north-eastern portion of the site. In addition, a heavy anti-aircraft battery occupied south-easternmost portion of the site during the Second World War.
- 2.4.3 In 2009, planning permission (application reference 2009/0605/01/DET) was granted for a 2-3 storey secondary school, energy centre, with an associated car park, hard and soft play areas, landscape planting and fencing. Planning permission contained a condition requiring that an archaeological watching brief must be undertaken during construction groundworks.

³ Johnson 1997.

⁴ Dene' is a familiar term throughout Northumberland and Durham meaning a typically steep-sided, wooded valley through which a burn (stream) runs.

2.4.4 The planning condition was imposed on the advice of the Tyne and Wear Specialist Conservation Team, part of the Historic Environment Section of Newcastle City Council, the body which provides archaeological development control in Newcastle. The aforementioned Specification for the watching brief required that ground preparation and ground disturbing works (excavation of foundation and service trenches, etc.) were to be monitored by an archaeologist as a watching brief, in order that any remains of the Second World War anti aircraft battery could be recorded. No filed evaluation of the site ahead of the development was requested because the layout of the anti-aircraft battery was known from aerial photographs.

2.4.5 The planning condition was in line with national planning policy in place at the time, namely *Planning Policy Guidance Note 16: 'Archaeology and Planning'* (PPG16)⁵ and local policies within the *Newcastle City Unitary Development Plan* (UDP),⁶ specifically the following:

POLICY C04. DEVELOPMENT THAT WOULD HARM SITES OR AREAS OF ARCHAEOLOGICAL INTEREST AND THEIR SETTINGS WILL NOT BE ALLOWED.

POLICY C04.2. WHERE A PROPOSAL MAY AFFECT A SITE OR AREA OF ARCHAEOLOGICAL INTEREST, THE DEVELOPER WILL BE REQUIRED TO SUBMIT AN APPROPRIATE ASSESSMENT OF ITS POTENTIAL IMPACT UPON THE ARCHAEOLOGICAL REMAINS AND WHERE NECESSARY UNDERTAKE AN ARCHAEOLOGICAL EVALUATION.

POLICY C04.3. WHERE ASSESSMENT AND EVALUATION HAVE ESTABLISHED THAT PROPOSED DEVELOPMENT WILL ADVERSELY AFFECT A SITE OR AREA OF ARCHAEOLOGICAL INTEREST, DEVELOPERS WILL BE REQUIRED TO PRESERVE ARCHAEOLOGICAL REMAINS IN SITU UNLESS THIS IS CLEARLY INAPPROPRIATE OR THE DESTRUCTION OF THE REMAINS IS DEMONSTRABLY UNAVOIDABLE, IN WHICH CASE A PROGRAMME OF ARCHAEOLOGICAL WORKS SHALL BE SUBMITTED TO AND AGREED WITH THE COUNCIL BEFORE THE START OF DEVELOPMENT.

2.5 Archaeological and Historical Background

A summary of the information set out in PCA's desk-based assessment is included below. The research and writing of those responsible is gratefully acknowledged.

Prehistoric

2.5.1 There are some indications of potential prehistoric activity within the wider area but none has been recorded at the site.

Roman

2.5.2 The most notable evidence of Roman activity within the area of the site is that of Hadrian's Wall, which runs c. 200m to the north.

2.5.3 Within the stretch of the Wall corridor nearest to the site, there are five scheduled sections, some with more than one distinct element. The closest of these is a 171m length of the stone curtain wall in Miller's Dene playing fields, this lying c. 200m to the north-west of the north-westernmost corner of the site.

⁵ Department of the Environment 1990.

⁶ Available at the *Planning Portal* website.

2.5.4 Beyond the core of the *vicus* associated with the Roman fort at Wallsend there is evidence of outbuildings at a much greater distance from the fort, these probably lining the Military Way as it ran westwards from the west gate of the fort. The road itself would have run within c. 100m of the line of the Wall and to its south, thus potentially very close to the northern limit of the site.

2.5.5 The remaining evidence for the Roman period in the wider area relates to chance finds of artefactual material.

Anglo-Saxon

2.5.6 No Anglo-Saxon activity is known at the site or within the wider area.

Medieval

2.5.7 The medieval village of Walker lay c. 0.6km to the west of the site. While the site itself was almost certainly not settled during the medieval period, the land may have been utilised for agriculture and any remains from this era.

Post-medieval and Early Modern

2.5.8 The earliest workings of Walker Colliery, namely Ann Pit and B Pit, were located c. 0.5km south of the site. An 18th century origin is certain for these workings. Delight Pit of Walker Colliery lay immediately to the west of the site, in the area now occupied by St. Albans Primary School. The date at which Delight Pit was first worked is uncertain but it is mentioned in a document from 1824. On the extreme eastern edge of the site was East Pit of Walker Colliery. A documentary account establishes a late 18th century origin, at least, for this working. Gosforth Pit of Walker Colliery lay further west.

2.5.9 A network of colliery waggonways existed across the wider area, reflecting the marked increase in coal extraction in the area in the 18th century. One such feature served East Pit of Walker Colliery and ran NNW-SSE through the north-easternmost portion of the site. Stott's Burn is shown on Thomas Oliver's estate plan of 1840, by which time East Pit of Walker Colliery was in place on the eastern margin of the site. The pithead was evidently sited on the south side of the dene of Stott's Burn. The various waggonways serving East Pit are clearly depicted on this plan. A pond-like stretch of Stott's Burn is shown immediately west of East Pit, beyond the junction of two tributaries of the watercourse.

2.5.10 When the Ordnance Survey 1st editions were surveyed in the 1850s, East Pit of Walker Colliery was probably still active. There is no detail of pithead buildings, although the shaft position, 'East Pit (Coal)' is probably depicted, and a short terrace of colliery housing, 'Eastpit Row', with associated allotment gardens, is shown to the east, just beyond the limit of the site. Extensive pit heaps are depicted around the pit head and dumping of this material presumably necessitated culverting Stott's Burn under the pit heap in the central eastern portion of the site.

- 2.5.11 In addition, there appears to be a continuous waggonway route passing to the west of East Pit, annotated 'Old Wagonway', including the portion running through the north-eastern portion of the site. This suggests that the dumping of pit waste allowed the construction of a continuous waggonway route over the culverted stream prior to abandonment of the working. The two tributaries of the burn are depicted as tree-lined to the west of their convergence in the centre of the site and a feature, 'Dean Well', is annotated alongside the burn in the north-western portion of the site. The same burn is skirted by a footpath running along the south side of the dene and this appears to continue to the north-west, to Hadrian Wall.
- 2.5.12 The smaller scale 1st edition Ordnance Survey map gives a clear idea of the landscape in which the site was set by that date, an essentially rural setting having various elements of industrialisation forced upon it. Low Walker – the riverside settlement area centred around the earliest workings of Walker Colliery - was relatively well developed by this time, with shipyards on the riverfront and other early modern industrial activity prominent.
- 2.5.13 By the time the Ordnance Survey 2nd editions were surveyed in the 1890s, urbanisation in Walker had increased apace, with the site by then lying on the semi-rural margin of the developed riverside. To the west of the study site, Delight Pit of Walker Colliery was probably not operational, with Ann, B, Gosforth and East Pits all more certainly abandoned by this time; both Gosforth and East Pits are annotated 'Old Shaft'. The aforementioned brickfield, immediately to the south-east of East Pit, had by then been developed as a brick works, with a cluster of small buildings depicted.
- 2.5.14 On the Ordnance Survey 'Special Edition' of 1912 two buildings are shown lying close to the south-western limit of the site; the larger is rectangular in shape and abuts a former waggonway route, while the smaller squarish structure lies to the north and a small circular feature is shown between the two. Although the buildings are not named on the 1912 map, the Ordnance Survey Town Map (at 1:500) of Newcastle from 1908 shows these buildings to be 'Walker Refuse Destructor' and 'Walker Electric Sub-Station' respectively, with the aforementioned circular feature being a chimney associated with the refuse destructor.

Modern

- 2.5.15 During the Second World War a heavy anti-aircraft battery from occupied the south-eastern part of the site. The installation is shown in detail on a RAF aerial photograph from 1946. This shows a static heavy anti-aircraft battery typical of the middle and later years of the War. Such a facility would have used large cannon and large calibre ammunition, capable of a range of 25,000 feet or more. Such capabilities were required to combat the high-altitude heavy bombers used by the Luftwaffe; in this case the industrial riverside of the East End of Newcastle was an obvious target, particularly the Walker shipyards to the east of the site.
- 2.5.16 The layout depicted on the 1946 aerial photograph is broadly typical of a heavy anti-aircraft battery of the Second World War. A rectangular semi-sunken concrete or brick structure to the north-west and protected by earthen banks is the command post. Arranged in a semi-circle around this are four hexagonal concrete gun emplacements with possibly a shelter immediately to the south-east of the command post.

- 2.5.17 The positions of the magazine and store for spare gun parts are not certain, but they were usually sited relatively close to the emplacements for obvious reasons. A service road snakes from the access point to the battery – close to the south-eastern corner of the site - to the command post, with an offshoot to each gun emplacement. Towards the entrance and south of the service road is a cluster of rectangular buildings, probably including workshops, garages, canteens and the guardroom. A north-south aligned row of similar buildings, probably barracks and other living quarters, lies beyond eastern site boundary, fronting a crude version of the route that would eventually be developed as Waverdale Avenue.
- 2.5.18 Large-scale tipping of refuse began at the site in the mid 20th century and continued into the 1970s. Existing ground levels are much elevated above those of the 19th and early 20th centuries. Geotechnical investigations indicate that ground levels have been raised by more than 11m the along the line of the Stott's Burn. On the naturally higher ground above the former dene, dumping of refuse has raised ground levels by c. 3m or more to the north, but by lesser amounts to the south. The south-easternmost portion of the site has the least modern overburden and the southernmost margin is the least affected area in this respect, with the natural sub-stratum lying within c. 0.50m of the existing ground surface.

2.6 Aims and Objectives

- 2.6.1 In broad terms, the aim of the watching brief was to record the nature and extent of any archaeological remains exposed during groundworks for construction of the new Walker Technology College. Such remains could encompass buried structures, deposits and features along with any associated artefactual and ecofactual evidence.
- 2.6.2 Recording of archaeological remains of the Second World War anti aircraft battery formed the site specific project objective. The project had the potential to make a significant contribution to archaeological knowledge of the remains from the modern military era.

3. ARCHAEOLOGICAL METHODOLOGY

3.1 Fieldwork

- 3.1.1 The fieldwork was undertaken on the recommendation of, and following the Specification produced by the Tyne and Wear Specialist Conservation Team. Fieldwork was undertaken in accordance with the relevant standard and guidance document of the Institute for Archaeologists (IfA).⁷ PCA is an IfA-Registered Organisation.
- 3.1.2 The watching brief was undertaken in March 2010. Site attendance was provided on 3, 30 and 31 March. The initial attendance established that bulk ground reduction to project formation level had already taken place across and in the area surrounding the footprint of the main new build (Figures 2 and 3). To the south-east of the footprint, bulk excavation extended to a depth of least 1m into the natural sub-stratum (Figure 4). Therefore, there appeared to be very low potential for archaeological remains of the anti aircraft battery to survive at the site.
- 3.1.3 Site attendance at the end of March was undertaken to monitor excavation of deep drainage runs within and adjacent to the eastern part of the main new build footprint (Figures 2, 5 and 6). This was undertaken in an attempt to establish whether or not archaeological remains of the anti aircraft battery had survived initial ground reduction. Monitoring of drainage excavations was curtailed due to Health and Safety considerations, although the work did appear to confirm that no archaeological remains of the anti aircraft battery probably survived *in situ* at the site.
- 3.1.4 Archaeological and geological deposits were recorded on *pro forma* 'Context Recording Sheets'. A brief photographic record of the work was compiled using digital photography.

3.2 Post-excavation

- 3.2.1 The stratigraphic data for the project is represented by the written, drawn and photographic records. A total of seven archaeological contexts were defined during the work (Appendix A). Post-excavation work involved checking and collating site records. A written summary of the archaeological sequence was then compiled, as described below.
- 3.2.2 No artefactual or organic material was recovered and no bulk samples for palaeoenvironmental remains were collected during the watching brief.
- 3.2.3 The complete Site Archive, in this case comprising only written, drawn and photographic records (including all material generated electronically during post-excavation), will be packaged for long term curation. No material was recovered that required specialist stabilisation or an assessment of potential for conservation research. The depositional requirements of the receiving body, in this case the Tyne and Wear Museum Archive, Arbeia, South Shields, will be met in full.

⁷ IFA 1999.

4. RESULTS: THE ARCHAEOLOGICAL SEQUENCE

During the watching brief, separate stratigraphic entities were assigned unique and individual 'context' numbers, which are indicated in the following text as, for example [123]. The archaeological sequence has been assigned to broad phases on a site-wide basis. Interpretation has been added to the data, where possible, and the phases have been correlated with recognised historical and geological periods, again where possible.

4.1 Phase 1 – Natural Sub-stratum

4.1.1 The natural Boulder Clay sub-stratum was the earliest material to be encountered in Section 1, formed by bulk ground reduction at the southern edge of the main new build footprint (Figure 2). The deposit, [100], comprised firm light to mid yellowish brown clay, becoming greyer with depth (Figure 4). A thickness of at least 1.0m of this material was exposed, continuing below the basal limit of excavation.

4.1.2 The same natural Boulder Clay sub-stratum, in places becoming greyer, or in places bluer, with depth, was exposed as the basal deposit along Trenches 1 and 2, the drainage run excavations monitored in and around the eastern part of the main new build footprint (Figure 2). At the southern end of Trench 1, where the drainage run was widened for the construction of an inspection chamber, sterile mid grey natural Boulder Clay extended to a depth of at least c. 2.50m below existing ground level (Figure 6).

4.2 Phase 2 – Modern

4.2.1 In the widened excavation for the inspection chamber at the southern end of Trench 1, a layer, [105], comprising loose dark greyish brown silty sand with occasional coal and stone fragments, was recorded in section overlying natural Boulder Clay. Its maximum thickness was c. 0.15m. No dating evidence was observed within the deposit, which was probably a dump layer of modern origin. Overlying deposit [105] was a layer, [104], of redeposited natural clay, up to c. 0.40m thick. This was probably a capping dump laid down following refuse tipping at the site in the modern era.

4.2.2 Further north, in the main element of Trench 1, another dump layer, [102] was recorded, extending for c. 10m in section and overlying natural Boulder Clay. This comprised compact dark greyish brown and orange silty clay, up to c. 0.40m thick. Again no artefactual material was observed within this material, which was also likely of modern origin.

4.2.3 Overlying natural Boulder Clay in Trench 2, a drainage run which ran NW-SE to the east of the main new build footprint, a dump deposit, [107], was recorded remotely in section. It comprised a mixture of building rubble, wood, concrete and clay and was of modern origin. It possibly represented demolition material from a former structure at the site and was thus potentially related to the former anti-aircraft battery. At least 1.0m thick, this deposit continued below the basal limit of excavation, this at a depth of c. 2.50m below existing ground level.

- 4.2.4 Recorded in section overlying dump deposit [102] in the main element of Trench 1, was a layer of geotextile, recorded at an average depth of c. 1.10m below existing ground level. This underlay a mixed dump layer, [103], comprising firm dark reddish grey sandy silt and building rubble, which was traced for c. 20m in section. It was up to c. 1.0m thick and represents 'made ground' laid down following bulk ground reduction at the onset of the development groundworks. In Section 1, at the southern edge of the main new build footprint, a thin layer of probably the same deposit, [103], recorded at that location as a grey clayey silt, survived above the natural clay sub-stratum (Figure 4).
- 4.2.5 The uppermost deposit to be recorded in Trenches 1 and 2 was layer, [101], comprising compact 'dolomite' building stone, up to c. 0.50m thick, dumped to create project formation level for the development (Figures 3-6). This material formed the existing ground surface across the monitored area, with its upper surface recorded at a depth of c. 1.0m below the top of the natural sub-stratum in Section 1, indicating the extent of bulk ground reduction in the southern part of the main new build footprint (Figure 4).



Figure 3. Overview of construction groundworks (3 March 2010), looking west across the main new build footprint



Figure 4. Section 1, north facing, at the southern end of the main new build footprint



Figure 5. Excavation of Trench 1, looking south



Figure 6. Trench 1, southern inspection chamber excavation, looking south

5. CONCLUSIONS

- 5.1 No archaeological remains of significance were recorded during the programme of watching brief at the site of the new Walker Technology College.

- 5.2 The work appeared to confirm that no archaeological remains of the Second World War anti aircraft battery probably survived *in situ* at the site at the time the watching brief took place.

6. REFERENCES

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7. ACKNOWLEDGEMENTS AND CREDITS

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PCA Credits

Fieldwork: Amy Roberts

Report: Amy Roberts and Robin Taylor-Wilson

Project Management: Robin Taylor-Wilson

CAD: Hayley Baxter

**APPENDIX A
CONTEXT INDEX**

WOS 10: CONTEXT INDEX

Context	Phase	Type	Type	Description
100	1	Deposit	Layer	Natural clay in Section 1 & Trench 1
101	2	Deposit	Layer	Dolomite dump
102	2	Deposit	Layer	Made ground
103	2	Deposit	Layer	Made ground
104	2	Deposit	Layer	Made ground
105	2	Deposit	Layer	Made ground
106	1	Deposit	Layer	Natural clay in part of Trench 1
107	2	Deposit	Layer	Demolition dump?

APPENDIX B
PROJECT SPECIFICATION

Specification for an Archaeological Watching Brief on the site of a new secondary school, Waverdale Open Space, Walker, Newcastle

Introduction

Planning permission has been granted for a 2-3 storey secondary school, energy centre, with an associated 175 space car park, hard and soft play areas, landscape planting and fencing.

An archaeological desk based assessment has been produced (Pre-Construct Archaeology Ltd, 2008).

The site was once occupied by a Heavy Anti-Aircraft Battery (designated as Tyne N). The battery is shown on a RAF aerial photograph of 1946. As part of their Hadrian's Wall National Mapping Programme, English Heritage have digitised the buildings and labelled them (see attached plan). The battery comprised four hexagonal concrete gun emplacements arranged in a semi-circle. In the centre is the command post, and immediately north of this is the magazine. The cluster of buildings would have included workshops, garages, canteens, barracks and a guardroom.

Large scale tipping of refuse into the stream valleys began on this site in the mid 20th century and continued into the 1970s, but geotechnical work has suggested that the south-east part of the Waverdale site, where the battery was located, has natural subsoil within 0.50m of the present ground surface.

As the layout of the battery is already known from aerial photographs, evaluation trenching on the site of the battery has not been requested. There is also a possible (but slim) danger of unexploded ordnance on the site, although Roger JC Thomas of English Heritage has reassured the County Archaeologist that the site would have been swept clean after the War.

Instead, it is required that ground preparation and ground disturbing works (excavation of foundation and service trenches etc.) are monitored by an archaeologist as a Watching Brief, in order that any remains of the battery can be recorded. The purpose of this exercise is to record the degree of survival, the depth below present ground surface, the construction materials and the construction methodology used for the individual elements of the battery.

The watching brief must be carried out by a suitably qualified and experienced archaeological organisation.

All work must be carried out in compliance with the codes of practice of the Institute of Field Archaeologists and must follow the IFA Standard and Guidance for Watching Briefs (revised 2001).

The work will record, excavate and environmentally sample (if necessary) any archaeological deposits of importance found on the plot. The purpose of this brief is to obtain tenders for this work. The report must be the definitive record for deposition in the Tyne and Wear HER.

A toothless bucket will be used on the plant employed on site to reduce damage to archaeological remains.

The North-East Regional Research Framework for the Historic Environment (2006) notes the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions.

The commissioning client will provide plans indicating the location of the proposed work.

Notification

The County Archaeologist needs to know when archaeological fieldwork is taking place in Tyne and Wear so that he can inform the local planning authority and can visit the site to monitor the work in progress. The Archaeological Contractor must therefore inform the County Archaeologist of the start and end dates of the Watching Brief. He must also keep the County Archaeologist informed as to progress on the site. The CA must be informed of the degree of archaeological survival. The Client will give the County Archaeologist reasonable access to the development to undertake monitoring.

The tasks

1 A construction timetable has yet to be agreed. Tenders for the Watching Brief should therefore be a cost per day including overheads such as travel costs and equipment. Contingency costs will be provided for environmental sampling and scientific dating per sample and for finds analysis. Any variation on the agreed timetable will be notified by the client, who will give a minimum of 48 hours notice of a change on the days of site attendance. Close liaison between the parties involved will be needed to co-ordinate this element of the work.

2 The work involves undertaking a structured watching brief to observe and record any archaeological deposits and finds from this locality. The absence of deposits and finds must be recorded as negative evidence. **The Watching Brief will not aim to hinder the construction programme, however should remains of the battery be found, the appointed archaeologist must be allowed sufficient time to fully record (by photograph and scale plan and section), excavate and environmentally sample (if necessary) the archaeological deposits.** Within the course of the Watching Brief, it may be possible to record sections through the stratigraphy exposed during the construction work.

Should any ordnance be found then the archaeologists must abandon the recording exercise until the site is made safe and the site manager would be responsible for seeking professional advice.

General Conditions

All staff employed by the Archaeological Contractor shall be professional field archaeologists with appropriate skills and experience to undertake work to the highest professional standards.

The Archaeological Contractor must maintain a Site Diary for the benefit of the Client, with full details of Site Staff present, duration of time on site, etc. and contact with third parties.

The Archaeological Contractor must be able to provide written proof that the necessary levels of Insurance Cover are in place.

Environmental Sampling and Scientific Dating

Scientific investigations should be undertaken in a manner consistent with "The Management of Archaeological Projects", English Heritage 1991 and with "Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists", English Heritage, 2003.

Aims of environmental sampling – to determine the abundance/concentration of the material within the features and how well the material is preserved, to characterise the resource (the site) and each phase, to determine the significance of the material and its group value, what crop processing activities took place on the site? What does this tell us about the nature of the site? Is there any evidence for changes in the farming practice through time? How did people use this landscape? Can we place certain activities at certain locations within the site? Function and date of individual features such as pits, hearths etc. Are the charred assemblages the result of ritual deposition or rubbish? Is the charcoal the result of domestic or industrial fuel?

Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Regional Advisor for Archaeological Science (0191 3341137 or 07713 400387) **before** the evaluation begins. The sampling strategy should include a reasoned justification for selection of deposits for sampling.

Deposits should be sampled for retrieval and assessment of the preservation conditions and potential for analysis of biological remains (English Heritage 2002). Flotation samples and samples taken for coarse-mesh sieving from dry deposits should be processed at the time of fieldwork wherever possible. Sieving recovers fish, amphibian, small bird and mammal bone, small parts of adult mammals and young infused bones which may be under-represented otherwise. However it is noted that clay soils in this region make sieving difficult. Discuss the potential for sieving with Regional Advisor for Archaeological Science.

Environmental samples (bulk soil samples of 30 litres volume, to be sub-sampled at a later stage) will be collected by the excavator from suitable (i.e. uncontaminated) deposits. It is suggested that a large number of samples be collected during evaluation from which a selection of the most suitable (uncontaminated) can be processed. All tenders will give a price for the full analysis, report production and publication per sample.

Deposits will be assessed for their potential for radiocarbon, archaeomagnetic (guidance is available in the Centre for Archaeology Guideline on Archaeometallurgy 2001) and Optically Stimulated Luminescence dating.

Timbers will be assessed for their potential for dendrochronology dating. Sampling should follow procedures in "Dendrochronology: guidelines on producing and interpreting dendrochronological dates", Hillam, 1998. All tenders will quote the price of these techniques per sample.

The following information should be provided with the environmental samples to be processed – brief account of nature and history of the site, aims and objectives of the project, summary of archaeological results, context types and stratigraphic relationships, phase and dating information, sampling and processing methods, sample locations, preservation conditions, residuality/contamination etc.

Laboratory processing of samples shall only be undertaken if deposits are found to be reasonably well dated, or linked to recognisable features and from contexts the derivation of which can be understood with a degree of confidence.

A range of features, and all phases of activity, need to be sampled for charred plant remains and charcoal. Ceramic features should not be avoided as the plant remains from these features may help to date them. Deep features should be sampled in spits to pick up changes over time. Part, or all of each of the contexts should be processed. In general samples should be processed in their entirety. All flots should be scanned, and some of the residues.

Pollen samples can be taken from features such as lakes, ponds, palaeochannels, estuaries, saltmarshes, mires, alluvium and colluvium, and from waterlogged layers in wells, ditches and latrines etc. Substances such as honey, beer or food residues can be detected in vessels. Activities such as threshing, crop processing and the retting of flax can be identified. When taken on site, pollen samples should overlap. Your regional science advisor can advise on the type of corer or auger which would be most appropriate for your site. Samples need to be wrapped in clingfilm and kept dark and cool. Make a description of the sediments in which the pollen was found, and send this with the sample to be assessed.

Coastal or estuary sites (even those which are now well drained) are suitable for sampling for foraminifera. Diatoms can also be found on marine sites, but also in urban settings (sewers, wells, drains, ditches etc). They only survive in waterlogged conditions. These aquatic microfossils are used as proxy indicators of the former aquatic ecological conditions on site, changes in sea levels and temperature, salinity, PH and pollution. Forams are taken from cores, monolith tins or bulk samples. Diatoms are cut from monolith tins or cores or taken as spot samples.

Insects, which are useful as palaeoenvironmental indicators, survive best in waterlogged deposits such as palaeochannels and wells. They can provide information on climate change and landscape reconstruction as some species are adapted to particular temperatures, habitats or even particular trees. Certain insects can indicate the function of a feature or building (eg. Weevils, which were introduced by the Romans, often indicate granary sites, parasites will indicate the presence of particular animals such as sheep or horse, latrine flies survive in the mineral deposits in latrines, or in the daub of medieval buildings etc). Samples need to be sealed (eg. in a plastic box).

Where there is evidence for industrial activity, macroscopic technological residues should be collected by hand. Separate samples should be collected for micro-slugs (hammer-scale and spherical droplets). Guidance is available in the English Heritage "Archaeometallurgy" guidelines, 2001.

Buried soils and sediment sequences should be inspected and recorded on site by a recognised geoarchaeologist. Procedures and techniques in the

English Heritage document “Environmental Archaeology”, 2002 and “Geoarchaeology”, 2004 should be followed.

Sampling strategies for wooden structures should follow the methodologies presented in “Waterlogged wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood” R. Brunning, 1996. If timbers are likely to be present on your site, contact a wood specialist beforehand. Pre-excavation planning – determine questions to ask, agree on a sampling strategy, allocate reasonable time and budget. Soil samples should be taken of the sediments surrounding the timber. Keep the timbers wet! Record them asap on-site – plan, photograph, record the size and orientation of the wood (radial, tangential, transverse), any toolmarks, joints, presence of bark, insect damage, recent breaks, and if another piece of wood was on top of or below the piece sampled. Both vertical and horizontal positioning of wattling must be recorded. Wood samples can provide information on woodland management such as medieval coppicing, type of taxa (native or foreign), conversion technology (how the wood was turned into planks), building techniques and type of tools used.

Waterlogged organic materials should be dealt with following recommendations in “Guidelines for the care of waterlogged archaeological leather”, English Heritage and Archaeological Leather Group 1995.

Animal Bone

Animal bone can explore themes such as hunting and fowling, fishing, plant use and trade, seasonality, diet, age structures, farrowing areas, species ratios, local environment.

Animal bone assemblages should be assessed by a recognised specialist.

The specialist will need to know a brief account of the nature and history of the site, an account of the purpose, methods (details of sampling) for recovery of animal bones, and the main aims and results of the excavation, details of any specific questions that the excavator wants the animal bone specialist to consider, information about other relevant finds from the excavation (e.g. bone tools, fishing equipment, weaving equipment), specific information about each context that has produced significant quantities of animal bone (recovery method, phase, context type, position in relation to major structures, contamination by more recent material, some indication of the amount of bone (by weight or by container size). See “Ancient Monuments Laboratory Advisory Note, “Assessment of animal bone collections from excavations”, Sebastian Payne, 1991 and “The Assessment of a collection of animal bones”, S. Davis, n.d., Ancient Monuments Laboratory.

Human Remains

Human remains must be treated with care, dignity and respect.

Excavators must comply with the relevant legislation (essentially the Burial Act 1857) and local environmental health concerns. If found, human remains must be left in-situ, covered and protected. The archaeological contractor will be responsible for informing the police, coroner and County Archaeologist. If it is agreed that removal of the remains is essential, the archaeological contractor will apply for a licence from the Home Office and their regulations must be complied with.

Site inspection by a recognised osteologist is desirable for isolated burials and essential for cemeteries. The remains will be recorded in-situ and subsequently lifted, washed in water (without additives). They will be marked and packed to standards compatible with “Excavation and post-excavation

treatment of cremated and inhumed human remains”, McKinley and Roberts, 1993. After excavation, the remains will be subject to specialist assessment.

Analysis of the osteological material should take place according to published guidelines “Human Remains from Archaeological Sites, Guidelines for producing assessment documents and analytical reports, English Heritage, 2002.

Some of the potential benefits from the study of human skeletons – demography, growth profiles, patterns of disease, genetic relationships, activity patterns, diet, burial practices, human evolution. New scientific techniques available include DNA and stable isotope analyses.

The final placing of the remains after scientific study and analysis will be agreed beforehand.

Further guidance is available in:

“Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England”, The Church of England and English Heritage, 2005 (www.english-heritage.org.uk/upload/pdf/16602_HumanRemains1.pdf)

“Church Archaeology: its care and management”, Council for the Care of Churches, 1999

The Advisory Panel on the Archaeology of Christian burials in England can provide free well-informed advice with consideration of relevant religious, ethical, legal, archaeological and scientific issues. Panel’s website: <http://www.britarch.ac.uk/churches/humanremains/index.html> or email the secretary simon.mays@english-heritage.org.uk

Treasure

Defined as:

- Any metallic object, other than a coin, provided that at least 10% by weight of metal is precious metal and that is at least 300 years old when found
- Any group of two or more metallic objects of any composition of prehistoric date that come from the same find
- All coins from the same find provided that they are at least 300 years old when found, but if the coins contain less than 10% gold or silver there must be at least ten
- Any object, whatever it is made of, that is found in the same place as, or had previously been together with, another object that is Treasure
- Any object that would previously have been treasure trove, but does not fall within the specific categories given above. Only objects that are less than 300 years old, that are made substantially of gold or silver, that have been deliberately hidden with the intention of recovery and whose owners or heirs are unknown will come into this category

If anything is found which could be Treasure, under the Treasure Act 1996, it is a legal requirement to report it to the local coroner within 14 days of discovery. The Archaeological Contractor must comply with the procedures set out in The Treasure Act 1996. Any treasure must be reported to the coroner and to The Portable Antiquities Scheme Finds Liaison Officer, Rob Collins (0191 2225076 or Robert.Collins@newcastle.ac.uk) who can provide guidance on the Treasure Act procedures.

Finds Processing and Storage

Finds shall be recorded and processed in accordance with the IFA Guidelines for Finds Work

Finds will be assessed by an experienced finds specialist.

The Archaeological Contractor will process and catalogue the finds in accordance with Museum and Galleries Commissions Guidelines (1992) and the UKIC Conservation Guidelines, and arrange for the long term disposal of the objects on behalf of the Client. A catalogue of finds and a record of discard policies, will be lodged with the finds for ease of curation.

Assessment should include x-radiography of all iron objects (after initial screening to exclude recent debris) and a selection of non-ferrous artefacts (including all coins). Refer to "Guidelines on the x-radiography of archaeological metalwork, English Heritage, 2006.

If necessary, pottery sherds and bricks should be recommended for Thermoluminescence dating.

Finds processing, storage and conservation methods must be broadly in line with current practice, as exemplified by the IFA "Standard and guidance for the collection, documentation, conservation and research of archaeological materials", 2001. Finds should be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication "First Aid for Finds" (Watkinson and Neal 1998). Proposals for ultimate storage of finds should follow the UKIC publication "Guidelines for the Preparation of Excavation Archives for Long-term Storage" (Walker 1990). Details of methodologies may be requested from the Archaeological Contractor.

Other useful guidance – "A Strategy for the Care and Investigation of Finds", English Heritage, 2003, "Finds and Conservation Training Package", English Heritage, 2003.

All objects must be stored in appropriate materials and conditions to ensure minimal deterioration. Advice can be sought from Jacqui Huntley of English Heritage (0191 3341137 or 07713 400387) where necessary.

The report

The production of Site Archives and Finds Analysis will be undertaken according to English Heritage Guidelines (Managing Archaeological Projects 2nd Edition).

The report

6 The archaeological contractor will provide a report of archaeological operations, including:

- a site location plan and grid reference
- brief description of recording procedures
- plans and sections of stratigraphy recorded (if practical)
- report on the finds (if any)
- environmental report (if relevant)
- colour photographs of the site and any significant archaeological features/finds
- a summary of the results of the work
- copy of this specification

The report will form an addition to the *Short Reports* files in the Tyne and Wear Historic Environment Record.

7 Three bound and collated paper copies of the report need to be submitted:

- one for the commissioning client
- one for the planning authority (Newcastle City Council) – the applicant must submit this formally to the planning department with the correct fee.
- and one for deposition in the County HER at the address below. A digital copy of the report on CD is also required by the HER, in a plastic case and not attached to the report.

The report and CD for the HER must be sent by the archaeological consultant or their client directly to the address below. If the report is sent via the planning department, every page of the report will be stamped with the planning application number which ruins the illustrations. The HER is also often sent a photocopy instead of a bound colour original which is unacceptable.

Site Archive

The archive should be a record of every aspect of an archaeological project – the aims and methods, information and objects collected, results of analysis, research, interpretation and publication. It must be as complete as possible, including all relevant documents, records, data and objects {Brown, 2007, 1}.

The site archive (records and materials recovered) should be prepared in accordance with Managing Archaeological Projects, Second Edition, 5.4 and appendix 3 (HBMC 1991), “Archaeological documentary archives” IFA Paper No. 1, “Archaeological Archives – creation, preparation, transfer and curation” Archaeological Archives Forum etc., Guidelines for the Preparation of Excavation Archives for Long Term Storage (UKIC 1990) and “Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation” by Duncan H. Brown, Archaeological Archives Forum, July 2007.

Documentary Archive

The documentary archive comprises all records made during the archaeological project, including those in hard copy and digital form.

This should include written records, indexing, ordering, quantification and checking for consistency of all original context sheets, object records, bulk find records, sample records, skeleton records, photographic records (including negatives, prints, transparencies and x-radiographs), drawing records, drawings, level books, site note-books, spot-dating records and conservation records, publication drafts, published work, publication drawings and photographs etc.

A summary account of the context record, prepared by the supervising archaeologist, should be included.

All paper-based material must at all times be stored in conditions that minimise the risk of damage, deterioration, loss or theft.

Do not fold documents

Do not use self-adhesive labels or adhesive or tape of any kind

High quality paper (low-acid) and permanent writing materials must be used.

Original drawings on film must be made with a hard pencil, at least 4H.

Do not ink over original pencil drawings.

Use polyester based film for drawings (lasts longer than plastic).

Store documents in acid-free, dust-proof cardboard boxes

Store documents flat

All documents must be marked with the project identifier (e.g. site code) and/or the museum accession number.

All types of record must use a consistent terminology and format.

Use non-metal fastenings, and packaging and binding materials that ensure the longevity of documents.

Copies of reports and appropriate drafts, with associated illustrative material, must be submitted for inclusion with the archive.

Material Archive

The material archive comprises all objects (artefacts, building materials or environmental remains) and associated samples of contextual materials or objects.

All artefacts and ecofacts retained from the site must be packed in appropriate materials.

All finds must be cleaned as appropriate to ensure their long-term survival

All metal objects retained with the archive must be recorded by x-radiograph (except gold or lead alloys or lead alloys with a high lead content and objects too thick to be x-rayed effectively e.t.c.)

All finds must be marked or labelled with the project and context identifiers and where relevant the small-finds number

Use tie-on rot-proof labels where necessary

Bulk finds of the same material type, from the same context, may be packed together in stable paper or polythene bags

Mark all bags on the outside with site and context identifiers and the material type and include a polyethylene label marked with the same information

Use permanent ink on bags and labels

Sensitive finds must be supported, where appropriate, on inert plastic foam or acid-free tissue paper. It is not advisable to wrap objects in tissue as the unwrapping could cause damage.

The archive will be placed in a suitable form in the appropriate museum (typically Museum of Antiquities for Newcastle and Tyne and Wear Museums for the rest of Tyne and Wear (check with these institutions) with the landowner's permission.

A letter will be sent to the County Archaeology Officer within six months of the report having been submitted, confirming where the archive has been deposited.

Monitoring

The Archaeological Contractor will inform the County Archaeologist of the start and end dates of the Watching Brief to enable the County Archaeologist to monitor the work in progress. The Client will give the County Archaeologist reasonable access to the development to undertake monitoring.

OASIS

The Tyne and Wear County Archaeologist supports the Online Access to the Index of Archaeological Investigations (OASIS) project. This project aims to provide an online index/access to the large and growing body of archaeological grey literature, created as a result of developer-funded fieldwork.

The archaeological contractor is therefore required to register with OASIS and to complete the online OASIS form for their watching brief at <http://www.oasis.ac.uk/>. Please ensure that tenders for this work takes into account the time needed to complete the form.

Once the OASIS record has been completed and signed off by the HER and NMR the information will be incorporated into the English Heritage Excavation Index, hosted online by the Archaeology Data Service.

The ultimate aim of OASIS is for an online virtual library of grey literature to be built up, linked to the index. The unit therefore has the option of uploading their grey literature report as part of their OASIS record, as a Microsoft Word document, rich text format, pdf or html format. The grey literature report will only be mounted by the ADS if both the unit and the HER give their agreement. The grey literature report will be made available through a library catalogue facility.

Please ensure that you and your client understand this procedure. If you choose to upload your grey literature report please ensure that your client agrees to this in writing to the HER at the address below.

For general enquiries about the OASIS project aims and the use of the form please contact: Mark Barratt at the National Monuments Record (tel. 01793 414600 or oasis@english-heritage.org.uk). For enquiries of a technical nature please contact: Catherine Hardman at the Archaeology Data Service (tel. 01904 433954 or oasis@ads.ahds.ac.uk). Or contact the Tyne and Wear Archaeology Officer at the address below.

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Ref: MON7250
23rd July 2009
Planning Application: 2009/0605/01/DET

If you need this information in another format or language, please contact Jennifer Morrison at the above address.