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MAP Archaeological Practice



Windle Beck Farm, Ganton

MAP 10-18-2017
Archaeological Strip and Record
14/00712/FUL

Archaeological Strip and Record

**Windle Beck Farm, Ganton
Centred at NGR SE 99150 78176**

MAP 10.18.2017

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Date: 04/08/17	Date: 04/08/17

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Woodside Road to Windle Beck
Ganton

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Archaeological Strip and Record

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Summary

An Archaeological Strip and Record was carried out by MAP Archaeological Practice Ltd. on land at Windle Beck Farm, Woodside Road to Windle Beck, Ganton (SE 99150 78176) on the 3rd August 2017. The work involved machine excavating the area of a proposed agricultural building for the housing of livestock (14/00712/FUL).

No archaeological features, deposits or finds were encountered during the Strip and Record.

1. Introduction

1.1 This report sets out the results of an Archaeological Strip and Record that was carried out on the 3rd August 2017 prior to the erection of an agricultural building for the housing of livestock on land at Windle Beck Farm, Woodside Road to Windle Beck, Ganton (SE 99150 78176); Fig. 1). The Strip and Record was undertaken to fulfil an archaeological condition attached to the Planning Application Consent (14/00712/FUL).

1.2 The work was carried out in accordance with the recommendations of the National Planning Policy Framework (March 2012) on 'Archaeology and Planning' and according to a Written Scheme of Investigation that was prepared by MAP Archaeological Practice Ltd. at the request of Mr. Cooper

(the farmer) and agreed by the Heritage Unit at North Yorkshire County Council (NYCC).

1.3 MAP adhered to the general principles of both the ClfA (2014) '*Code of Conduct*' and '*Standard and Guidance for an Archaeological Excavation*' throughout the work.

1.4 The site code for the project was MAP 10.18.2017.

1.5 All work was funded by Mr. Cooper, the tenant farmer.

1.6 All maps within this report have been produced from the Ordnance Survey with the permission of the Controller of Her Majesty's Stationery Office, Crown Copyright, Licence No. AL 50453A.

2. Site Description (SE 99150 78176)

2.1 The site lies within a predominantly agricultural landscape c. 0.5km northeast of Ganton, on the north side of the A64. Scarborough is 10km north east of the site and Malton is 20km west of the site (Fig. 1).

2.2 The proposed agricultural unit stands on the west edge of the existing farm buildings and measures approximate 20m by 35m. The development area is currently used for storing equipment and has a small area of rubble hard standing, but is mostly unsurfaced (Fig. 2; Pls. 1 & 2).

2.3 The site lies on soils comprised of 'sand and gravel of uncertain age and origin, formed up to 3 million years ago in the Quaternary Period, overlying Speeton Clay Formation, Mudstone' (British Geological Survey, 2017). The

site stands at an elevation of around 42m AOD on land that rises gently to the south.

3. Historical and Archaeological Background

- 3.1 The development site lies within an area of high archaeological potential. An Anglo-Saxon cemetery is known in the vicinity of Windle Beck Farm, although its exact location is not known. To the north of the farm are features consistent with a Romano-British to early medieval settlement and to the south and east are features consistent with Bronze Age funerary activity. These remains are of national importance and are protected as Scheduled Ancient Monuments.

4. Aims and Objectives

- 4.1 The objectives of the archaeological work are to:
1. to determine by means of targeted archaeological excavation the character, extent and nature of the archaeological remains within the development area,
 2. to locate, recover, identify, assess and conserve (as appropriate) any archaeological artefacts exposed during the course of the excavation,
 3. where appropriate, to undertake a post-excavation assessment after completion of fieldwork and site archive to assess the potential for further analysis and publication, and to undertake such analysis and publication as appropriate,

4. to prepare and submit a suitable archive to the appropriate museum.

5. Methodology

5.1 The installation of the agricultural building involved the preliminary topsoil strip of an area c. 35m by 20m by a 6 ton, 360^o tracked excavator using a broad, toothless ditching bucket, operating under close archaeological supervision. Machining ceased at the top of archaeological or naturally-formed deposits, depending upon which was located soonest.

5.2 The work was undertaken on the 3rd August 2017 during generally, bright sunny conditions with occasional rainfall.

5.3 All work was carried out in line with the Chartered Institute of Field Archaeologists Code of Conduct (CIfA 2014).

5.4 A photographic record of the monitored groundworks was maintained throughout the Strip and Record on a high resolution digital camera.

6. Results

6.1 Natural deposits of light coloured gravel and sand were encountered across the full extent of the agricultural unit. This in turn was sealed by an intermittent deposit of brown sand subsoil (002), subsequently overlain by a uniform deposit of dark brown silty, sandy clay topsoil (001). The topsoil deposit had a maximum depth of 0.15m (Pls. 3 & 4). In places topsoil had been overlain by a dump of brick and concrete rubble in order to level and drain the area, this ranged in thickness from 0.10m to 0.80m (Pls. 3, 4 & 5).

6.2 No archaeological features, deposits or finds were encountered during the Strip and Record.

7. Conclusion

7.1 Natural deposits were revealed throughout the full extent of the agricultural unit. No archaeological features, deposits or finds were encountered during the Archaeological Strip and Record.

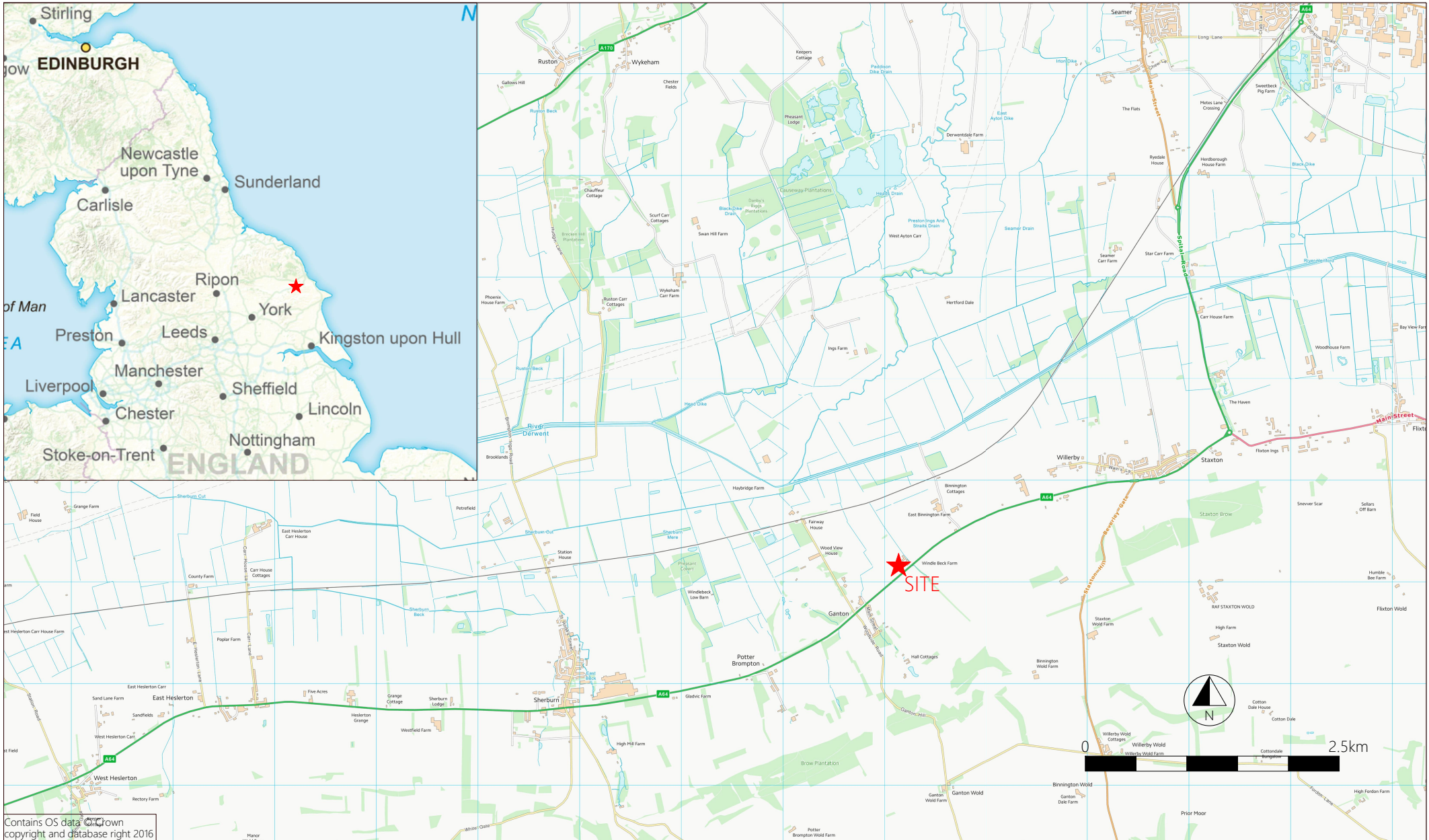


Figure 1: Site Location Plan 1:25000@A4



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Figure 2: Site Plan 1:2000@A4



Plate 1: General View of Development Area. Facing Northeast.



Plate 2: General View of Development Area. Facing Southeast.



Plate 3: South edge of Development Area. Facing East.



Plate 4: North edge of Development Area. Facing East.



Plate 5: Edge of excavated area showing Topsoil and Rubble. Facing South.

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL STRIP AND
RECORD

Windle Beck Farm
Woodside Road to Windle Beck, Ganton

Application Number: 14/00712/FUL

Prepared for Mr Cooper

Windle Beck Farm
Woodside Road to Windle Beck, Ganton

WRITTEN SCHEME OF INVESTIGATION FOR
ARCHAEOLOGICAL STRIP AND RECORD

1. Summary

- 1.1 Archaeological recording is to take place during the erection of an agricultural building for the housing of livestock at Windle Beck Farm, Woodside Road to Windle Beck, Ganton. (Planning Application 14/00712/FUL).

2. Purpose

- 2.1 This written scheme of investigation (WSI) represents a summary of the broad archaeological requirements to mitigate the impact of development proposals upon the archaeological resource and to comply with the archaeological planning condition. This is in accordance with the National Planning Policy Framework (March 2012).

3. Location and Description

- 3.1 The application site is located Windle Beck Farm, Woodside Road to Windle Beck, Ganton. (Planning Application 14/00712/FUL).

4. Archaeological and Historical Background

- 4.1 The development site lies within an area of high archaeological potential. An Anglo-Saxon cemetery is known in the vicinity of Windle Beck Farm,

although its exact location is not known. To the north of the farm are features consistent with a Romano-British to early medieval settlement and to the south and east are features consistent with Bronze Age funerary activity. These remains are of national importance and are protected as Scheduled Ancient Monuments. There is a high potential for associated archaeological deposits to be present within the development area.

5. Objectives

5.1 The objectives of the archaeological work are to :

1. to determine by means of targeted archaeological excavation the character, extent and nature of the archaeological remains within the development area,
2. to locate, recover, identify, assess and conserve (as appropriate) any archaeological artefacts exposed during the course of the excavation,
3. where appropriate, to undertake a post-excavation assessment after completion of fieldwork and site archive to assess the potential for further analysis and publication, and to undertake such analysis and publication as appropriate,
4. to prepare and submit a suitable archive to the appropriate museum.

6. Access, Safety and Monitoring

6.1 Access to the site should be arranged through the commissioning body.

- 6.2 It is the archaeological contractor's responsibility to ensure that Health and Safety requirements are fulfilled. Necessary precautions should be taken near underground services and overhead lines. A risk assessment should be provided to the commissioning body before the commencement of works.
- 6.3 The project will be monitored by the Historic Environment Team, NYCC, to whom written documentation should be sent ten days before the start of the excavation including:
1. the date of commencement,
 2. an opportunity to monitor the works.
- 6.4 Where appropriate, the advice of the Historic England Science Advisor for Yorkshire may be called upon to monitor the archaeological science components of the project. Archaeological contractors may wish to contact him to discuss the science components of the project before submission of tenders.
- 6.5 It is the archaeological contractor's responsibility to ensure that monitoring takes place by arranging monitoring points as follows:
1. a preliminary meeting or discussion at the commencement of the contract.
 2. progress meeting(s) during the fieldwork phase at appropriate points in the work schedule, to be agreed.
 3. a meeting during the post-fieldwork phase to discuss the draft report and archive before completion.

6.6 It is the responsibility of the archaeological contractor to ensure that any significant results are brought to the attention of the Historic Environment Team, NYCC, Ryedale District Council; and the commissioning body as soon as is practically possible. This is particularly important where there is any likelihood of contingency arrangements being required.

7. Brief

7.1 The archaeological contractor should be informed in advance of the correct timing and schedule of site preparation and preliminary excavation works associated with the construction of the proposed development. A specified timetable should be agreed within which the archaeological excavation may be carried out prior to further construction commencing.

7.2 All excavations within the proposed development area should be observed by an archaeologist to record any archaeological deposits, features or finds.

7.3 Archaeological work within the area of proposed development should include the initial supervision of the preliminary site/topsoil strip areas down to the top of archaeological deposits. Overburden such as turf, topsoil, made ground, rubble or other superficial fill materials may be removed by machine using a back-acting excavator which should be fitted with a toothless or ditching bucket. Mechanical excavation equipment shall be used judiciously, under archaeological supervision down to the top of archaeological deposits, or the natural subsoil (C Horizon or soil parent material), whichever appears first. Bulldozers or wheeled scraper buckets should not be used to remove overburden above archaeological deposits. Topsoil should be kept separate from subsoil or fill materials.

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- 7.4 Using the information and artefacts collected to this stage, all features and deposits should be assessed as to their origin or function, probable date, and importance for further recording. Features and layers identified as having potential for further recording should be excavated by hand, sampled, and recorded as set out below. This is in order to fulfil Objectives 5.1.1 and 5.1.2 above and in order to understand the full stratigraphic sequence.
- 7.5 The character, information content and stratigraphic relationships of features and deposits should be determined. All linear features, such as ditches, should have their shape, character, and depth determined by hand excavation of sections. A minimum sample of 20% of each linear feature of less than 5m in length and a minimum sample of 10% of each linear feature greater than 5m in length (each section will be not less than 1m wide) should be excavated. All junctions of linear features should have their stratigraphic relationships determined, if necessary using box sections. A 100% sample of all stake-holes should be excavated, and all pits, post-holes and other discrete features should be half-sectioned by hand to record a minimum of 50% of their fills, and their shape. Any other unknown or enigmatic features should be investigated similarly. Large pits, post-holes or deposits of over 1.5m diameter should be excavated sufficiently to define their extent and to achieve the objectives of the investigation, but should not be less than 25%. All intersections should be investigated to determine the relationship(s) between features.
- 7.6 The project should be undertaken in a manner consistent with the guidance of MoRPHE and professional standards and guidance (English Heritage 2006). Scientific investigations should be undertaken in a manner consistent

with the Institute for Archaeologists best-practice guidelines (2008). An outline strategy of sampling for scientific dating, geoarchaeology and soil science (English Heritage 2007), biological analysis (English Heritage 2011), artefact conservation and analysis (Watkinson and Neal 1998), and analysis of technological residues (English Heritage 2008), ceramics, and stone should be agreed with the Local Authority, in consultation with the Historic England Science Advisor for Yorkshire before commencement of site work. This strategy should be based on the results of previous archaeological work in the area. The strategy will be subject to variation as appears necessary during the excavation, following consultation with the Local Authority and the RA.

- 7.7 All specialists in Archaeological Science (both those employed in-house by the archaeological contractor or those sub-contracted) should be named in project documents. Agreement of specialists must always be obtained before their names are listed. Their competence to undertake proposed investigations, and the availability of adequate laboratory facilities and reference collections should be demonstrated. There should be agreement in writing on timetables and deadlines for all stages of work.
- 7.8 All deposits should be fully recorded on standard context sheets, photographs and conventionally-scaled plans and sections. Each excavation area should be recorded to show the horizontal and vertical distribution of contexts. The elevation of the underlying natural subsoil where encountered should be recorded. The limits of excavation should be shown in all plans and sections, including where these limits are coterminous with context boundaries.

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- 7.9 Any significant unstratified artefacts or small finds should be collected. Metal detecting, including the scanning of topsoil and spoil heaps, should only be permitted subject to archaeological supervision and recording so that metal finds are properly located, identified, and conserved.
- 7.10 Using the information and artefacts collected to this stage, all features and deposits should be assessed as to their origin or function, probable date, and importance for further excavation. Features and layers identified as having potential for further recording should be fully excavated, sampled, and recorded. Full excavation should be carried out on features and deposits of limited potential where the stratigraphic relationships, phasing or origin of these are still unclear. Further excavation may also be needed to expose the full stratigraphic sequence across the site.
- 7.11 All artefacts and ecofacts visible during excavation should be collected and processed. In some cases, sampling may be most appropriate. Finds should be appropriately packaged and stored under optimum conditions, as detailed in *First Aid for Finds* (Watkinson & Neal, 1998). A regular transfer of finds from the site to the conservation laboratory is desirable, particularly in the case of long term excavations (English Heritage 2008).
- 7.12 Where there is evidence for industrial activity, macroscopic technological residues (or a sample of them) should be collected by hand. Separate samples (c. 10ml) should be collected for micro-slugs hammer-scale and spherical droplets). In these instances, the guidance of English Heritage (2001) should be followed.

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- 7.13 Samples should be collected for scientific dating (radiocarbon, dendrochronology, luminescence dating, archaeomagnetism and/or other techniques as appropriate) (English Heritage 1998, English Heritage 2006 and English Heritage 2008). For this excavation, tenders should allow provision for a minimum of four dates using scientific techniques.
- 7.14 Buried soils and sediment sequences should be inspected and recorded on site by a recognised geoarchaeologist. Samples may be collected for analysis of chemistry, magnetic susceptibility, particle size, micromorphology and/or other techniques as appropriate, following the outline strategy presented in the Project Design, and in consultation with the geoarchaeologist. The guidance of English Heritage (2007) should be followed.
- 7.15 All securely stratified deposits should be sampled, from a range of representative features, including pit and ditch fills, postholes, floor deposits, ring gullies and other negative features. Positive features should also be sampled. Sampling should also be considered for those features where dating by other methods (for example pottery and artefacts) is uncertain. Bulk samples should be collected from contexts containing a high density of bones. Spot finds of other material should be recovered where applicable.
- 7.16 Coarse sieved samples for the recovery of animal bones and other artefact/ecofact categories should be 100 litres plus. Flotation samples, for the recovery of charred plant remains, charcoal, small animal bones and mineralised plant remains, should be between 40 and 60 litres in size, although this will be dependent upon the volume of the context. Entire

contexts should be sampled if the volume is low. Whenever possible, coarse sieved samples (wet or dry) and flotation samples should be processed during fieldwork to allow the continuous reassessment and refinement of sampling strategies. Samples from waterlogged and anoxic deposits, which might contain plant macros and entomological evidence, taken for General Biological Analysis (GBA), should normally be 20 litres in size. The English Heritage guidance (2011) should be consulted for details of sample size for other specialist samples that may be required. Allowance should be made for a site visit from the contractor's environmental specialists/consultants where appropriate.

- 7.17 In the event that any human remains are encountered, they must be treated at all stages with care and respect. Excavators must be aware of, and comply with, the relevant legislation and the Ministry of Justice Exhumation Licence and local environmental health concerns. Burials should be recorded *in situ* and subsequently lifted, washed in water (without additives), marked and packed to standards compatible with McKinley and Roberts (1993), Brickley & McKinley 2004 and English Heritage 2013. Site inspection by a recognised specialist is desirable in the case of isolated burials, and necessary for cemeteries. Proposals for the final placing of human remains following study and analysis will be required in the Updated Project Design. For this excavation, tenders should allow provision for any human remains to be subject to carbon and nitrogen isotope study.

Post-Excavation Assessment

- 7.18 Upon completion of archaeological fieldwork, where appropriate, a post-excavation assessment should be undertaken and an assessment report

produced in accordance with the guidance of MoRPHE (English Heritage 2006). The assessment report should summarise the evidence recovered and should consider its potential for further analysis, review the programme of archaeological science, update the project design as necessary and provide costings for the post-excavation analysis stage of work, with proposals for the production of a final report and/or publication. The site assessment report should include reports on all aspects of Archaeological Science investigated, and include assessment of their suitability for analysis, so as to inform the updated project design.

- 7.19 Assessment of artefacts should include x-radiography of all iron objects (Fell, Mould & White 2006), after initial screening to separate obviously modern debris, and a selection of non-ferrous artefacts (including all coins and a sample of any industrial debris relating to metallurgy). An assessment of all excavated material should be undertaken by conservators and finds researchers in collaboration English Heritage, 2008). Where necessary, active stabilisation/consolidation will be carried out, to ensure long term survival of the material, but with due consideration to possible future investigations. Once assessed, all material should be packed and stored in optimum conditions, as described in Watkinson and Neal (2001).
- 7.20 Assessment of any technological residues should be undertaken. Processing of all samples collected for biological assessment, or sub-samples of them, should be completed. Assessment will include recording the preservation state, density and significance of material retrieved, to inform up-dated project designs. Methods presented in English Heritage (2011) should be followed. Unprocessed sub-samples should be stored in conditions specified by the appropriate specialists.

7.21 Samples collected for geoarchaeological assessment should be processed as deemed necessary by the specialist, particularly where storage of unprocessed samples is thought likely to result in deterioration. Appropriate assessment should be undertaken (see English Heritage 2007, English Heritage 2011). Animal bone assemblages, or sub-samples of them, should be assessed by a recognised specialist (English Heritage 2011). Assessment of human remains should be undertaken by a recognised specialist (English Heritage 2004).

Analysis

7.22 A timetable for post-excavation work should be produced, following consultation (including team meetings for larger-scale sites), with all specialists involved in the project. Agreement of timetables should be made in writing with external specialists.

7.23 A detailed and cost-effective strategy for scientific dating should be prepared, in consultation with appropriate specialists. Samples for dating should be submitted promptly, and prior agreement should be made with the laboratory on turn-around time and report production.

7.24 All artefacts should be conserved and stored in accordance with Watkinson and Neal (1998). Investigative conservation should be undertaken on those objects selected during the assessment phase, with the aim of maximising information whilst minimising intervention (English Heritage 2008). Where necessary, active stabilisation/consolidation will be carried out, to ensure long-term survival of the material, but with due consideration to possible

future investigations. Proposals for ultimate storage should follow Walker (1990).

7.25 Appropriate analysis of technological residues should be undertaken, as outlined in English Heritage (2001). Samples or sub-samples collected for all types of biological and geoarchaeological analysis should be processed, and material retrieved analysed by recognised specialists. Any unprocessed sub-samples should be stored in conditions specified by the specialists, or a reasoned discard policy should be developed (English Heritage 2011).

7.26 Analysis of animal bones should be undertaken by a recognised specialist, as specified in the updated project design. Analysis of human remains should be undertaken by a recognised specialist, as specified in the updated project design.

8. Archive

8.1 A field archive should be compiled consisting of all primary written documents, plans, sections and photographs should be produced and cross-referenced (Brown 2007, ClfA 2014, ClfA 2014).

8.2 The archaeological contractor should liaise with an appropriate museum to establish the detailed requirements of the museum and discuss archive transfer in advance of fieldwork commencing. The relevant museum curator should be afforded to visit the site and discuss the project results. In this instance, the Malton Museum is suggested.

8.3 The archiving of any digital data arising from the project should be undertaken in a manner consistent with professional standards and

guidance (Richards & Robinson, 2000; ADS 2011). The archaeological contractor should liaise with an appropriate digital archive repository to establish their requirements and discuss the transfer of the digital archive.

- 8.4 The archaeological contractor should also liaise with the HER Officer, North Yorkshire County Council, to make arrangements for digital information arising from the project to be submitted to the North Yorkshire Historic Environment Record for HER enhancement purposes. The North Yorkshire HER is not an appropriate repository for digital archives arising from projects.

9. Copyright

- 9.1 Copyright in the documentation prepared by the archaeological contractor and specialist sub-contractors should be the subject of an additional licence in favour of the museum accepting the archive to use such documentation for their statutory educational and museum service functions, and to provide copies to third parties as an incidental to such functions.
- 9.2 Under the Environmental Information Regulations 2005 (EIR), information submitted to the HER becomes publicly accessible, except where disclosure might lead to environmental damage, and reports cannot be embargoed as 'confidential' or 'commercially sensitive'. Requests for sensitive information are subject to a public interest test, and if this is met, then the information has to be disclosed. The archaeological contractor should inform the client of EIR requirements, and ensure that any information disclosure issues are resolved before completion of the work. Intellectual property rights are not affected by the EIR.

10. Report

- 10.1 Following post-excavation assessment and analysis as appropriate, a report should be prepared following the Chartered Institute for Archaeologists Standard and Guidance for Archaeological Excavation (2008, updated 2014). The report should set out the aims of the work and the results as achieved, including photographs of operations, description of the remains including all relevant plans and sections, interpretation and assessment of the significance of the remains. The report should also include a listing of contexts, finds, plans and sections, and photographs.
- 10.2 The results from investigations in Archaeological Science, *including negative results*, should be included in the Site Archive and reported to the HER.
- 10.3 A timetable for completion of reports should be agreed with all specialists, and agreements in writing with sub-contracted external specialists are desirable. The time-table should allow for adequate provision by the excavator of contextual information, provisional dating and stratigraphic relationships of contexts. Reports should include clear statements of methodology. The results from scientific analysis should be clearly distinguished from their interpretation. Non-technical summaries of results should be included. Reports on Archaeological Science should be published fully, in the text of printed reports or in the main body of reports disseminated by electronic means, wherever the results merit it.
- 10.4 At least six copies of the report should be produced and submitted to the commissioning body, the Local Planning Authority, the museum accepting the archive, the Historic England Science Advisor for Yorkshire and, under

separate cover, Historic Environment Team at North Yorkshire County Council.

10.5 If the archaeological fieldwork produces results of sufficient significance to merit publication in their own right, allowance should be made for the preparation and publication of a summary in a local journal, such as the *Yorkshire Archaeological Journal*. This should comprise, as a minimum, a brief note on the results and a summary of the material held within the site archive, and its location.

10.6 Upon completion of the work, the archaeological contractor should make their work accessible to the wider research community by submitting digital data and copies of reports online to OASIS (<http://ads.ahds.ac.uk/project/oasis/>). Submission of data to OASIS does not discharge the planning requirements for the archaeological contractor to notify the Historic Environment Team Leader, NYCC of the details of the work and to provide the Historic Environment Record (HER) with a report on the work.

11. Further Information

11.1 Further information or clarification of any aspects of this brief may be obtained from:

MAP Archaeological Practice Ltd

Tel. 01653 697752

11.2 This written scheme of investigation is valid for a period of six months from the date of issue. After that time it may need to be revised to take into account new discoveries, changes in policy or the introduction of new

working practices or techniques. In addition, depending upon the final design of development, the methodology of the archaeological excavation may need to be modified accordingly.

12 References and Guidelines

English Heritage Guidelines

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English Heritage 1998: *Dendrochronology – Guidelines on Producing and Interpreting Dendrochronological Dates* <http://www.english-heritage.org.uk/publications/dendrochronologyguidance.pdf>

English Heritage (2006) *Archaeomagnetic Dating: Guidelines on producing and interpreting archaeomagnetic dates*

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English Heritage (2008) *Luminescence Dating: Guidelines on using luminescence dating in archaeology*

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English Heritage 2013 Advisory Panel on the Archaeology of Burial in England (APABE) *Science and the Dead: A Guideline for the Destructive Sampling of Archaeological Human Remains for Scientific Analysis*

<http://www.helm.org.uk/guidance-library/science-and-dead/>

English Heritage 2014 *Animal Bones and Archaeology: Guidelines for Best Practice*

<http://www.english-heritage.org.uk/publications/animal-bones-and-archaeology/>

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APPENDIX 1- SPECIALISTS

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Roman Pottery	Paula Ware	MAP	01653 697752
Pre-conquest Pottery	Mark Stephens	MAP	01653 697752
Medieval Pottery	Mark Stephens	MAP	01653 697752
Post Medieval Pottery	Mark Stephens	MAP	01653 697752
Clay Tobacco Pipe	Mark Stephens	MAP	01653 697752
CBM	Dr P Mills		01904 621339
Animal Bone		WYAS	0113 3837517
Small Finds	Hilary Cool		0116 9819065
Textile	Penelope Walton Rogers		01904 634585
Slag/Hearths	Rod Mackenzie		0114 235 2028
Flint	Pete Makey		01377 253695
Environmental Sampling		Diane Alldritt	0141 649 877
Human Remains	Malin Holst	York Osteology	01904 737509
Radiocarbon/C14 Dating		SUERAC	0141 270136
Dendrochronology		Sheffield University	0114 2220123
Archaeomagnetic	Mark Noel	Geoquest Associates	01624819364

APPENDIX 2

Conservation Strategy By Ian Panter of York Archaeological Trust

Artefacts from all categories and all periods will be recovered as a matter of routine during the excavation. When retrieved from the ground finds will be kept in a finds tray or appropriate bags in accordance with **First Aid for Finds**. Where necessary, a conservator may be required to recover fragile finds from the ground depending upon circumstances.

If waterlogged conditions are encountered a wide range of organic materials may be recovered, including wood, leather and textiles. Advice will be sought from a conservator to discuss optimum storage requirements before any attempt is made to retrieve organic finds and structural timbers from the ground.

After the completion of the fieldwork stage, a conservation assessment will be undertaken which will include the X-radiography of all the ironwork (after initial screening to separate obviously modern debris), and a selection of the non-ferrous finds (including all coins). A sample of slag may also be X-rayed to assist with identification and interpretation. Wet-packed material, including glass, bone and leather will be stabilised and consolidated to ensure their long-term preservation. All finds will be stored in optimum conditions in accordance with **First Aid for Finds** and **Guidelines for the Preparation of Excavation Archives for Long-Term Storage** (Walker, 1990).

Waterlogged wood, including structural elements will be assessed following the English Heritage guidelines, **Waterlogged wood: sampling, conservation and curation of structural wood** (Brunning 1996). The assessment will include species identification, technological examination and potential for dating.

The conservation assessment report will include statements on condition, stability and potential for further investigation (with conservation costs) for all material groups. The conservation report will be included in the updated project design prepared for the analysis stage of the project.

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Environmental Strategy By Diane Alldrit

The on-site environmental sampling strategy will systematically seek to recover a representative sample of botanical, molluscan (both terrestrial and aquatic), avian and mammalian evidence from the full range of contexts encountered during the excavation. This will enable, at the assessment stage, the possibility for radiocarbon dating material to be obtained, and for an initial analysis of the economic and environmental potential of the site. In order to achieve this, a bulk sample (BS, Dobney *et al* 1992) comprising an optimum size of 28litre of sediment (where possible) should be taken from **every stratigraphically secure and archaeologically significant context**. In practice it may not always be possible to obtain 28l of sediment from certain features during the assessment stage, for instance from partially excavated pits or post-holes, in which case a single bucket sample, c.10 to 14litre should be taken at the site supervisors discretion. Deposits of mixed origin, for instance topsoil, wall fills and obvious areas of modern contamination, should be avoided where possible, as these will contain intrusive material and not provide secure radiocarbon dates.

All buckets and other sampling equipment must be clean and free of adherent soil in order to prevent cross-contamination between samples. If dry soil is to be

stored for any length of time it should be kept in cool, dry conditions, and away from strong light sources. However, it is preferable to process samples as soon as possible after excavation.

Bulk soil samples shall be processed using an Ankara-type water flotation machine (French 1971) for the recovery of carbonised plant remains and charcoal. The flotation tank should contain a >1mm mesh for collection of the retent or 'residue' portion of the sample (which may contain pottery, lithics and animal / bird bone, in addition to the heavier fragments of charcoal which do not float). The 'flot' portion of the sample, which may include carbonised seeds, cereal grain, charcoal and sometimes mollusc shell, should be captured using a nest of >1mm and >300micron Endicot sieves. Flotation equipment, including sieves, meshes, brushes and so forth must be meticulously cleaned between samples in order to prevent contamination of potential radiocarbon dating material. All material resulting from flotation will be dried prior to microscopic examination. Flotation is not suitable for the recovery of pollen or for processing waterlogged samples, which shall be discussed below.

Where there is potential for waterlogged preservation, shown for instance by the presence of wood and other organic or wet material, then a 5 to 10litre size sample should be taken (GBA sample, Dobney *et al* 1992). This material is to be retained for later processing using laboratory methods to enable the recovery of waterlogged plant material and insects. For assessment purposes a 1litre sub-sample of the organic sediment from each potential waterlogged sample shall be processed using laboratory wash-over methods, and once processed **kept wet**. All waterlogged samples awaiting processing should be kept damp, preferably stored in plastic sealable tubs, and in cool conditions. Where large waterlogged timbers are recovered these should be stored under refrigerated conditions and an appropriate conservator consulted.

If sediment suitable for pollen analysis is encountered, for instance rich organic peaty deposits, or deep ditch sections with organic preservation, the archaeobotanical specialist is to be consulted prior to any sampling taking place. These deposits would require sampling with large kubiena tins and require the specialist to be on-site. Pollen analysis, even at assessment level, would subsequently impose a considerable cost implication should it be carried out.

The specialist is available to provide consultation and advice on the environmental sampling strategy throughout the course of the excavation and during post-excavation processing if required.

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