Jackdaw Crag Quarry Extension North Yorkshire

Written Scheme of Investigation for Final Archaeological Mitigation

1. Introduction

1.1 A scheme of archaeological investigation is proposed that will mitigate the destruction of the known and potential archaeological remains identified and inferred through earlier evaluation of the proposed southern extension to Jackdaw Crag Quarry, operated by Darrington Quarried Limited. The scheme is required in order to assist North Yorkshire County Council in making an informed decision on the planning application for this quarry extension and has been prepared at the request of Waste Recycling Group Limited.

2. Site location

2.1 The site lies approximately 1.5km west of the village of Stutton, to the south-west of Tadcaster, at SE 4650 4105. Topographically the eastern part of the site lies at about 60m aOD, falling to 50m AOD in the central and western areas. The geology is Lower Magnesian Limestone, overlain by glacial sand and gravel drift (British Geological Survey 1974). The soils are of the Aberford Association, being shallow, brashy and well drained calcareous fine loams (Soil Survey of England and Wales 1980). The site is crossed from east to west by a high pressure gas main.

3. Archaeological Background

3.1 A Desk-based Assessment revealed that although there was no known archaeology within the proposed extension area, or its immediate vicinity, the wider landscape contained extensive areas of cropmarks, typical of Late Iron Age and Romano-British settlement (Grassam 2009). A subsequent geophysical survey of virtually the whole site, excluding the area of the gas pipeline, confirmed the existence of several former enclosures and field boundaries, as well as a double-ditched trackway (Webb and Wilkins 2009).

3.2 A programme of trial trenching targeted the geophysical anomalies, apparently blank areas of the site and those areas rendered blind to the geophysical survey by the gas pipeline. The results revealed that landscape division here had begun in the pre-Roman Iron Age, the principal trackway containing a human burial radiocarbon dated to 400-200 cal. BC. A number of features were found to contain pottery dating to between 100 BC – AD 100, although the main enclosures seem to have been in use in the 2nd and 3rd centuries AD (McIntyre 2010).

3.3 In the vast majority of cases the targeted geophysical anomalies were confirmed as being archaeological. Additional archaeological features were also found in some parts of the site where no geophysical response had been

obtained, and in areas not subject to geophysical survey due to the presence of the pipeline.

4. Aims and Objectives

4.1 The aim of the proposed archaeological investigations is to provide detailed information on the form, character, spatial arrangement, function and date of the archaeological evidence, as previously identified by known geophysical survey and trial trenching.

4.2 The excavation objectives will be to phase the various archaeological elements of the site and to try and establish how the site developed chronologically. The work will endeavour to reveal changes in land-use, settlement form and economy and resourcing and trade, as revealed by key artefact types and environmental evidence.

4.3 The results will provide a significant addition to the understanding of to changes in rural settlements from the Late Iron Age to the Roman period in the hinterland of Roman York and in the vicinity of key Roman sites at Tadcaster and Newton Kyme. The work will also aim to provide further characterisation of settlement on the Magnesian Limestone geology of this part of North Yorkshire, in the context of work carried elsewhere on this geology, and compare it with the findings from other parts of the county and region generally.

5. Investigation Strategy

5.1 The outline strategy for archaeological investigation has been formulated following consultation with Lucie Hawkins, the Development Management Archaeologist for North Yorkshire County Council.

5.2 As the evaluation work has demonstrated that some archaeological features are not represented in the geophysical data, it is required by the Development Management Archaeologist that the whole of the proposed extraction area be stripped of plough soil, and any subsoil, in a way that is conducive of detecting, recording and sampling all of the archaeological components of the site, prior to mineral extraction commencing. It is implicit that the same strategy be employed for the ground works necessary for the relocation of the gas pipeline.

5.3 Although the mineral extraction will take place over a period of six years, the upper tier or rock containing the archaeology will be removed in the first three years, due to the stepped nature of the extraction. It is assumed that the first phase of archaeological investigation will be to facilitate the relocation of the gas pipeline around the southern perimeter of the site. The archaeological work shall be carried out in accordance with the requirements of Planning Policy Statement 5: Planning for the Historic Environment (PPS5); Policies HE9.2(i) and HE12.3.

5.4 Whilst in principle the archaeology of the site will be impacted progressively upon over a three year period, the initial act of stripping the topsoil, to create a 3m high screening bund around the southern perimeter, will expose the

archaeology across the whole site. The trial trenching evaluation revealed that the plough soil was on average 0.36m thick and its removal exposed the archaeological features in plan. Sub-soil was largely absent, surviving in localised areas (usually depressions in the top of ditch fills) to a depth of 0.15m. The absence of sub-soil means that the stripping for the creation of the screen will expose the archaeology across the whole site all at once. The Development Management Archaeologist for North Yorkshire County Council has deemed it unacceptable that exposed archaeological features in the southern half of the site should be left to weather for 2-3 years once exposed by stripping. Therefore, this requires the whole site, rather than just the northern half, to be archaeologically investigated in advance of the first phase of extraction.

6. Methodology

6.1 All work will be carried out in accordance with the IfA Standard and Guidance for Archaeological Excavation (2008). The investigated areas will be surveyed using a Trimble 5600 total station theodolite and a site grid established, which will be tied into permanent landscape features and used to plot the archaeological features revealed by the stripping of the site. The survey stations and semi-permanent marker pegs used will be left on site, so that the grid can be accurately re-located in successive phases of work.

6.2 For the gas pipe relocation works and the removal of plough soil, stripping will be carried out in a controlled way to the archaeologically required level using a 360º tracked excavator equipped with a toothless ditching bucket. This work shall be under direct archaeological supervision. Stripping will take place in level spits to the top of the first archaeological horizon or undisturbed natural. The resulting surface will be inspected for archaeological remains. Where archaeological remains require clarification, the relevant area will be cleaned by hand. Under no circumstances will the machine be used to cut arbitrary trenches down to natural deposits, nor shall plant run upon the already stripped area unless it is agreed with the supervising archaeologist.

6.3 Archaeological features will be planned and then manually excavated in a controlled and stratigraphic manner in order to meet the aims and objectives outlined above. The features will be investigated employing the following sampling strategies:

- Linear features (ditches, gullies and walls): a minimum of 10% sample dispersed along the length of the feature (each sample section to be not less than 1m), or a minimum of a 1m sample section if the feature is less than 10m long or if only a small part of it is exposed. Feature intersections will always be excavated in such a way to determine a stratigraphic relationship.

- Discrete features (pits, post–holes and other discrete features): will be half-sectioned to determine and record their form with a minimum sample of 50% of discrete features in each area. The complete excavation of such features may be appropriate, but will only take

place following only following consultation with the Development Management Archaeologist for North Yorkshire County Council.

- Structures such as houses, kilns or hearths shall be 50% excavated in the first instance. The complete excavation of such features may be appropriate, but will only take place following only following consultation with the Development Management Archaeologist for North Yorkshire County Council.

- All human and ancient animal burials will be 100% excavated.

6.4 A full written, drawn and photographic record of all material revealed during the course of the work shall be made. The excavation limits will be surveyed using electronic survey equipment with larger scale hand drawn plans of features at 1:20 or 1:50, as appropriate. Sections of linear and discrete features will be drawn at 1:10. All sections, plans and elevations will include spot-heights related to Ordnance Datum in metres as correct to two decimal places and survey. Tie-in information will be undertaken during the course of the evaluation and will be fixed in relation to nearby permanent structures and roads and to the National Grid.

6.5 All artefacts recovered will be retained and removed from the site for assessment and analysis, and where it is appropriate finds shall be recorded three dimensionally. Non–modern artefacts will be collected from the excavated topsoil and subsoil. Finds material will be stored in controlled environments, where appropriate. All artefacts recovered will be retained, cleaned, labelled and stored as detailed in the guidelines laid out in the IfA Guidelines for Finds Work. Any conservation work will be undertaken by approved conservators working to UKIC guidelines.

6.6 All excavated archaeological contexts shall be recorded by detailed written records giving details of location, composition, shape, dimensions, relationships, finds, samples, and cross-references to other elements of the record and other relevant contexts, in accordance with best practice and in accordance with methods previously approved by the North Yorkshire County Council Historic Environment Team. All contexts, and any small finds and samples from them will be given unique numbers. Bulk finds will be collected by context. Colour digital and monochrome negative photographs at a minimum format of 35mm will be taken.

6.7 A soil-sampling programme shall be undertaken during the course of the investigation for the identification and recovery of carbonised and waterlogged remains, vertebrate remains, molluscs and small artefactual material. English Heritage's Regional Science Advisor, environmental and soil specialists will be consulted during the course of the excavation with regard to the implementation of this sampling programme. Provision should be made for the removal of soil samples of a minimum 30 litres from deposits with clear potential, and larger samples (40–60 litres) from any rich carbonised deposits. Samples may also be taken from seemingly sterile deposits. Particular attention will be paid to the sampling of the primary fills from ditches and pits any surviving buried soils beneath banks or other

positive features. Environmental material removed from site will be stored in appropriate controlled environments. The collection and processing of environmental samples will be undertaken in accordance with guidelines set out in the Association for Environmental Archaeology's (1995) Working Paper No. 2, *Environmental Archaeology and Archaeological Evaluations - Recommendations concerning the environmental archaeology component of archaeological evaluations in England* and English Heritage's (2002) guidelines *Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post-excavation.* In addition, the processing of environmental samples will only take place within facilities approved for such purposes by English Heritage's Regional Science Advisor.

6.8 In the event of human remains being discovered they will be left *in situ* and covered and protected in the first instance. The removal of human remains will only take place in compliance with the Burial Act 1857 and with an exhumation licence obtained form the Ministry of Justice (MoJ) prior to the removal of the remains. Provision will be made for the specialist reporting of the remains by a recognised osteoarchaeologist.

6.9 Provision will be made for the recovery of samples suitable for scientific dating (e.g. radiocarbon/AMS dating, archaeomagnetic and dendrochronological dating).

6.10 All finds of gold and silver and associated objects shall be reported to HM Coroner according to the procedures relating to the Treasure Act 1997, after discussion with the North Yorkshire County Council Historic Environment Team.

7. Post-Excavation Assessments

7.1 The site archive will contain all the data collected during the excavation, including records, finds and environmental samples. It will be quantified, ordered, indexed and internally consistent. Adequate resources will be provided during fieldwork to ensure that all records are checked and internally consistent. Archive consolidation will be undertaken immediately following the conclusion of fieldwork:

- the site record will be checked, cross–referenced and indexed as necessary;
- all retained finds will be cleaned, conserved, marked and packaged in accordance with the requirements of the recipient museum;
- all retained finds will be assessed and recorded using pro forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating will be integrated within the site matrix;
- all retained environmental samples will be processed by suitably experienced and qualified staff and recorded using pro forma recording sheets.

7.2 The archive will be assembled in accordance with the specification set out in English Heritage's (1991) *Management of Archaeological Projects*; *Appendix 3*. In addition to the site records, artefacts, ecofacts and other sample residues, the archive shall contain:

- site matrices where appropriate;
- a summary report synthesising the context record;
- a summary of the artefact record;
- a summary of the environment record.

7.3 The integrity of the primary field record will be preserved and security copies maintained if appropriate.

7.4 Provision will be made for the deposition of the archive, artefacts and environmental material, subject to the permission of the relevant landowner (and if no further archaeological work is to be initiated), in the appropriate recipient museum. The museum will be advised of the timetable for the proposed investigation prior to excavation commencing. The archive will be prepared in accordance with the guidelines published in "*Guidelines for the preparation of Excavation Archives for long–term storage"* (United Kingdom Institute for Conservation, 1990) and *Standards in the Museum care of archaeological collections* (Museums and Galleries Commission 1994). Provision will be made for the stable storage of paper records and their long–term storage.

7.5 Upon completion of the investigations, the artefacts, ecofacts and stratigraphic information shall be assessed as to their potential and significance for further analysis.

7.6 An assessment report for each phase of the work (gas pipeline relocation and extraction stripping, will be prepared within an agreed timescale following the completion of on-site archaeological investigations and include the following:

- a non–technical summary of the results of the work;
- a summary of the project's background;
- the site location;
- an account of the method;
- the results of the excavation, including phasing and interpretation of the site sequence and spot–dating of artefacts, if recovered;
- an assessment of the stratigraphic and other written, drawn and photographic records;

- a catalogue of the archaeological material recovered during the excavation
- a summary of the contents of the project archive and its location
- recommendations for any changes to the investigative strategy in future phases of the work.

7.7 The reports will be produced within an agreed timetable and will be supported by an overall plan of the site, accurately identifying the location of the excavations.

8. Analysis and Reporting

8.1 When all archaeological filed investigations have been completed, the final assessment report will also include a Post-Excavation Project Design for the analysis and reporting of the recovered evidence, drawing upon the results from the assessment reports resulting from the different stages of the work. The Post-Excavation Project Design will outline the archaeological significance of the findings, justifying the need for the further analysis. The scope of work proposed will be endorsed by the North Yorkshire Development Management Archaeologist and English Heritage's Science Advisor before work on the final programme of analysis and reporting commences.

8.2 The final report, including all justified finds analysis and scientific dating results, shall be produced in accordance with English Heritage's *Management of Archaeological Projects* (English Heritage 1991). It shall include a a descriptive narrative of the archaeology and a phased (chronological) interpretation of the site development. The report shall be fully illustrated with plans at different scales, as required, with an appropriate selection of sections and photographs, such as are needed to convey a proper understanding of the site.

8.3 It is likely that the results of the work will warrant some form of publication, although the nature of this requirement will be informed by Project Design for Analysis and Reporting. The preparation of a an article for an appropriate journal, such as the *Yorkshire Archaeological Journal* or *CBA Forum*, as appropriate, and the contingent costs, should be anticipated.

8.4 Upon completion of the work, the archaeological contractor will 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/).

9. Dissemination, Copyright, Confidentiality and Publicity

9.1 Copies of the assessment reports, Project Design of Analysis and Reporting and the final report will be supplied to Waste Recycling Group Limited, The North Yorkshire Development Management Archaeologist, English Heritage and to the North Yorkshire Historic Environment Record, to which a digital copy shall also be sent.

9.2 Copyright in the documentation prepared by the archaeological contractor and specialist sub-contractors should be the subject of additional licences in favour of the repository accepting the archive and North Yorkshire County Council 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.

9.3 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'.

9.4 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.

9.5 Unless the Client commissioning the project wishes to state otherwise, the copyright of any written, graphic or photographic record and reports will rest with the originating body (Archaeological Services WYAS).

10. Health and Safety

10.1 Archaeological Services WYAS has its own Health and Safety policy which has been compiled using national guidelines such as FAME. The guidelines conform to all relevant Health and Safety legislation.

10.2 In addition each project undergoes a 'Risk Assessment' which sets project specific Health and Safety requirements to which all members of staff are made aware of prior to on–site work commencing. Necessary Health and safety precautions will take priority over archaeological matters.

11. Insurance

11.1 Archaeological Services WYAS is covered by the insurance and indemnities of the City of Wakefield Metropolitan District Council. Insurance has been effected with: Zurich Municipal Insurance, Park House, 57–59 Well Street, Bradford, BD1 5SN (policy number RMP 03GO39–0143). Any further enquiries should be directed to: The Chief Financial Officer, Insurance Section, Wakefield MDC, PO Box 55, Newton Bar, Wakefield WF1 2TT.

12. Monitoring

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

12.2 It is the archaeological contractor's responsibility to ensure that Health and Safety requirements are fulfilled.

12.3 The project will be monitored by North Yorkshire County Council's Historic Environment Team, to whom written documentation should be sent before the start of the work confirming:

- the date of commencement,
- the names of all finds and archaeological science specialists likely to be used in the evaluation, and
- notification to the proposed archive repository of the nature of the works and opportunity to monitor the works.

12.4 Where appropriate, the advice of the Regional Advisor for Archaeological Science (Yorkshire and the Humber Region) at English Heritage will be called upon.

12.5 It is the responsibility of the archaeological contractor to ensure that any significant results are brought to the attention of the Historic Environment Team and the commissioning body as soon as is practically possible.

13. Resources and Programming

13.1 Key project personnel:

Project Management:	Ian Roberts BSc FSA MIfA
Surveyor	Mitch Pollington BA MA
Project Supervisor:	Phil Weston BA MA or David Williams BA AIfA

13.2 Post–excavation specialists:

Prehistoric pottery specialists:	Dr Chris Cumberpatch
Roman pottery specialist:	Dr Ruth Leary
Medieval pottery specialist:	Dr Chris Cumberpatch
Flint specialist:	Dr Ian P Brooks
Environmental specialist:	Dr Jane Richardson
Faunal analyst:	Dr Jane Richardson
Human bone specialist:	Malin Holst MA
Metalwork specialist:	Dr Hilary Cool
Artefact conservationist:	Karen Barker

13.3 The list of Archaeological Services WYAS project personnel may be subject to change.

References

Grassam, A., 2009, 'Jackdaw Crag Quarry, North Yorkshire: Archaeological Desk-based Assessment', ASWYAS Report 1981

McIntyre, I., 2010, 'Jackdaw Crag Quarry Southern Extension, Tadcaster, North Yorkshire: Archaeological Evaluation by Trial Trenching', ASWYAS Report 2082

Webb, A. and Wilkins, I., 2009, 'Jackdaw Crag Quarry, Proposed Southern Extension, North Yorkshire: Geophysical Survey', ASWYAS Report 2002