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SUMMARY

English Heritage invited Oxford Archaeology North to undertake an archaeological evaluation at Furness Abbey, Cumbria (centred on NGR SD 218 717). This evaluation entailed the excavation of a 1.5m by 1.5m trench over an area of subsidence, which had been observed within the abbey grounds, close to the Abbott’s lodgings. The aim of the evaluation was to discover the cause of this subsidence and, in particular, to determine if the subsidence related to any collapsed below-ground structures, which might require repair or reinstatement.

The evaluation, undertaken in March 2007, indicated that no buried structures existed in the area of the trench; rather, the cause of subsidence could be attributed to the remains of a decaying tree stump. Surrounding this natural feature a number of archaeological deposits were encountered, and these were associated with a small assemblage of artefacts. These artefacts dated predominantly to the eighteenth and nineteenth centuries, though medieval and early post-medieval floor tiles and a possible sherd of medieval pottery were included within the assemblage. It is likely that these deposits accumulated in this area during an episode of stone clearance and/or were used to build up the ground level within this part of the abbey.
ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Iain Whittick of English Heritage for commissioning the work and for his assistance during the project.

The evaluation was undertaken by Jeremy Bradley, aided by Rebekah Pressler, and the finds were examined by Chris Howard-Davis. The drawings were produced by Marie Rowland. The report was written by Jeremy Bradley and Dr Richard Gregory and was edited by Stephen Rowland, who also managed the project.
1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 In the winter of 2006, a small area of subsidence was observed approximately 15m east of the infirmary chapel at Furness Abbey, Barrow-in-Furness, Cumbria (SD 218 717; Fig 1). It was suspected that this movement could relate to the collapse of a subterranean vaulted drain, or tunnel, of the type that has been identified at various locations around the abbey grounds (J Quartermaine pers comm). Accordingly, English Heritage (EH), the abbey guardian, issued a brief (Appendix 1) for a programme of intrusive investigation of the area of subsidence. Following submission of a project design (Appendix 2) to meet the requirements of the EH brief, Oxford Archaeology North (OA North) was commissioned to undertake the works. The aims of the archaeological investigation, as set out in the project design, were to establish the cause of subsidence by excavating an evaluation trench. It was also anticipated that this would, in turn, provide sufficient information to enable EH to develop an appropriate repair, or mitigation, strategy of any possible collapsed structures exposed during the evaluation. Furness Abbey is a Scheduled Ancient Monument (SMC 13572), and subsequent to the issuing of the Scheduled Monument Consent (SMCC: S00001899), OA North undertook the excavation in March 2007.

1.2 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 Furness Abbey lies in a small, but steep-sided, rural valley located on the north-eastern edge of the town of Barrow-in-Furness. The site of the evaluation lay some 15m to the east of the infirmary chapel, at the western end of the abbey complex, and focused on the area of subsidence (Fig 2).

1.2.2 The Furness Peninsula, Cumbria, is largely dominated by undulating fells, within which a pastoral landscape, with substantial woodlands, has developed. The southern limit of the county is defined by the broad expanse of Morecambe Bay and the surrounding limestone lowlands (Hodgkinson et al 2000).

1.2.3 The underlying solid geology found within the area of the Furness Abbey consists of Silurian Ludlow greywackes (Coniston Grits) and banded mudstones and siltstones (Countrywide Commission 1998). These lie beneath superficial glacial drift deposits, which are overlain by typical brown earths of the Eardiston 1 association, as categorised by Ordnance Survey mapping (1983).

1.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

1.3.1 The following section provides a brief overview of the archaeological and historical background relevant to the present programme of fieldwork. It is not intended to be an exhaustive account of the local archaeology or the history of Furness Abbey.
1.3.2 Although there is an expanding body of data relating to prehistoric activity on the Furness Peninsula, very little is known of later prehistoric, Roman and early medieval settlement in the immediate vicinity of the abbey, and it is not until the medieval period that a more complete understanding of human activity within the vicinity of the site can be gained. The settlement of Barrow is not mentioned in the Domesday survey of 1086 (Faull and Stinson 1986), though this may relate to the Scottish annexation of parts of Cumbria in the wake of the Norman invasion. Although Barrow not mentioned in the Domesday survey of 1086, previously it was the centre of a large estate, including the township of Dalton, belonging to Earl Tostig, brother to Harold Godwinson, until his rebellion in 1065. At the Conquest it fell to Roger of Poitou, whose later defection left it in the hands of the crown (ibid).

1.3.3 Furness Abbey was established as a Savignac House in c 1124 by Stephen, Count of Mortain, who in 1135 ascended to the throne of England to become King Stephen I. Only thirteen monasteries following the French order of Savigny (founded c 1090) were established in Britain. Furness Abbey was the earliest monastic house in the region, after which it continued as ‘the largest, richest and most important of the Lancashire houses’ (Pevsner 1967, 16).

1.3.4 When the Savignac order merged with the Cistercians in 1147, the Furness house was already partially built. The Cistercians adapted the site, incorporating all of the components usual in their foundations. However, a number of distinctive variations were made to the abbey during this period and a slightly unorthodox alignment was adopted, which was dictated by the shape of the valley, the situation of the Mill Beck, and nearby springs.

1.3.5 At the time of its dissolution in 1537, a survey described ‘divers granges, fields, meadows, mills, fisheries, within the manor’ and ‘orchards, mill, and certain closes adjoining [the abbey]’ (West 1774, 100). By 1549, the abbey and various parts of its land were leased to John Preston of Preston Patrick. The Prestons were known to be recusants from at least the early seventeenth century and in 1674 the then owner, Sir Thomas, became a Jesuit. The estate was forfeited in the early eighteenth century, and became the property of the Cavendish family, who were another branch of the Preston family. Subsequently, the Cavendish family placed the ruins in the guardianship of the state in 1923 (Wood 1998, 36).
2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The EH-approved OA North project design (Appendix 2), was adhered to throughout the course of project. The archaeological work was consistent with the relevant standards and procedures established by the Institute for Archaeologists, and generally accepted best practice.

2.2 EVALUATION TRENCHING

2.2.1 The evaluation entailed the excavation of a single trench measuring 1.5m by 1.5m over the site of the area of subsidence (Fig 2). The turf was removed by hand and the trench was excavated manually to a maximum depth of 1m. Spoil from the excavation was stored adjacent to the trench, which was then used to backfill the evaluation trench upon completion of the archaeological work. Following backfilling the turf was reinstated.

2.2.2 Recording comprised a full description and preliminary classification of features or structures revealed on OA North pro-forma sheets, and their accurate location in plan. An indexed photographic record in colour slide and monochrome formats was also compiled, with digital photographs taken for illustrative purposes.

2.3 ARTEFACTS

2.3.1 The recovery of finds was carried out in accordance with best practice (following current Institute for Archaeologists guidelines), and subject to expert advice in order to minimise deterioration. All artefacts recovered from the evaluation trench were retained and a description and assessment of the assemblage is outlined in Section 4 of this report. Finds selected for retention in accordance with EH guidelines will be deposited with the EH store at Helmsley.

2.4 ARCHIVE

2.4.1 A full archive has been produced in accordance with current English Heritage guidelines (EH 1991). The archive will be deposited in the County Record Office, and a copy of this report submitted to the Cumbria Historic Environment Record (Kendal and Barrow). The Arts and Humanities Data Service (AHDS) online database Online Access to index of Archaeological Investigations (OASIS) will be completed as part of the archiving phase of the project.
3. RESULTS

3.1 TRENCH 1

3.1.1 The earliest feature found within the evaluation trench, and also the likely cause of the subsidence, was a tree stump (104; Plate 2). The top of the tree stump was located 0.52m below the present ground level (PGL), whilst probing suggested that it extended for a depth of 0.6m below the base of the evaluation trench (1.6m below PGL). Further probing indicated that the tree stump extended beyond the eastern and northern limits of the excavation trench, although the limits of the tree stump to the south were approximately 0.2m from the edge of the evaluation trench.

3.1.2 Lying to the east of the tree stump was a deposit of orange/brown coarse sandy gravel (103), which was over 0.3m deep and which extended below the base of the trench. This material appeared to have been tipped to one side of the tree stump sometime after the tree had been felled. This sandy gravel also contained fragments of eighteenth- to nineteenth-century pottery.

3.1.3 Lying above deposit 103 and tree stump 104, was a deposit of sandy clay silt (102), which was up to 0.8m thick. This deposit extended beyond the limits of excavation and continued below the base of the trench. With excavation, it was found to contain pottery dating from the eighteenth to twentieth centuries, slag, and fragments of medieval ceramic floor tile.

3.1.4 The topsoil/turf layer (101) formed the uppermost and most recent deposit within the evaluation trench. This was composed of clean orange brown sandy silt, which was 0.12m thick. The topsoil contained pottery, slag and ceramic floor tile fragments.

3.2 FINDS

3.2.1 Introduction: a total of 114 artefacts were recovered during the evaluation at Furness Abbey. Catalogued in Appendix 3, these artefacts comprised: five fragments of bone; five fragments of ceramic building materials, two fragments of clay tobacco pipe; one copper-alloy coin; 27 fragments of glass; 66 fragments of pottery; three fragments of shell; one fragment of iron slag; and three fragments of stone.

3.2.2 Bone: the five fragments of bone consisted mainly of domestic cattle and, although not intrinsically datable, probably date to the post-medieval period.

3.2.3 Ceramic Building Materials: of the five fragments of ceramic building material retrieved during the evaluation, three of the fragments recovered from the topsoil (101) and subsoil (102) are fragmentary and thus difficult to identify, save that their fabric is early in appearance. The remaining two fragments included two sand-tempered floor tiles, one of which was partially reduced, and these are more typically medieval in appearance. These finds
appear to hold some significance, as ceramic building materials dating to the medieval and early post-medieval period are generally rare within the North West.

3.2.4 **Clay tobacco pipe:** two fragments of clay tobacco pipe were recovered. The first came from the topsoil (101), and was a bowl fragment with distinctive ribbing, typical of the period c 1790-1820, whilst the second fragment, a near complete bowl found in the subsoil (102), dates to the early eighteenth century.

3.2.5 **Copper alloy:** a single copper-alloy coin was recovered from the subsoil (103). Although this coin is heavily corroded, it is probably a nineteenth- to twentieth-century halfpenny.

3.2.6 **Glass:** twenty-seven fragments of glass were recovered from subsoil deposits 102 and 103. These included 14 fragments of glass slag and 13 fragments of vessel glass, mainly derived from glass bottles. On the whole, the vessel glass mainly dates to the nineteenth to twentieth centuries, with the exception of an eighteenth- to nineteenth-century wine glass and a seventeenth- to eighteenth-century bottle neck. The latter fragments were both recovered from subsoil 103. The glass slag is of some significance, in that it suggests the presence of glass working. Although this slag might be modern, it might also suggest on-site glass making dating to the medieval period.

3.2.7 **Pottery:** sixty-six fragments of pottery were recovered from the evaluation and the majority of these dated between the eighteenth and twentieth centuries, and most had also been heavily abraded by water. The pottery types present within this assemblage included whitewares, stonewares and transfer-printed pottery, dating from the eighteenth century onwards.

3.2.8 An unstratified (context 100) small fragment of (presumed) local redware was also recovered from the evaluation trench, which appears to be a foot from a pipkin. Unfortunately, it cannot be closely dated, but its fabric and appearance suggest it is medieval in date.

3.2.9 **Shell:** a cockle and an oyster shell were recovered from the evaluation trench.

3.2.10 **Iron slag:** a single fragment of iron slag was recovered from the evaluation trench.

3.2.11 **Stone:** three fragments of stone were recovered during the excavation. One of the fragments is inscribed with graffiti and a date of 1887, whilst the remaining two fragments appear to be pieces of masonry, one fragment possibly decorative.
4. DISCUSSION

4.1 ARCHAELOGICAL REMAINS

4.1.1 The earliest feature uncovered during the evaluation was the remains of a decaying tree stump, which presumably marks the position of a former tree in this part of the abbey.

4.1.2 The evaluation suggested that following the felling of this tree, its remaining stump was covered by layers of gravel 103, and sandy-silt-clay, 102. Artefacts contained within these deposits suggest that this event dates to between the eighteenth to nineteenth centuries. These deposits also led to the formation of a higher area of ground, on the southern border of the abbey, and it is possible that they were deposited during stone clearance within the abbey. This suggestion is confirmed, in some measure, by the slag and ceramic floor tile fragments within deposits 101-02, which might also have been dumped into this area as part of the clearance process within the abbey. Another suggestion is that these deposits were used to build-up the level of a road, whose metalled surface is possibly represented by gravel deposit 103.

4.2 CAUSES OF THE SUBSIDENCE

4.2.1 The decaying remains of the tree stump appears to be the cause of the observed subsidence in this part of the abbey. Significantly, there was no evidence for any buried structures, such as a vault or drain, in the area of the evaluation. Indeed, it is probable that as the tree stump decayed below-ground hollows appeared, which led to the collapse of the loosely compacted materiel surrounding the stump (Plate 3). This process ultimately resulted in the subsidence of the present ground surface.

4.2.2 It was also clear from the excavation that the limits of the subsidence extended beyond the trench. This was evinced by cracks and voids around the tree-stump, seen in the west and northern trench sections. In these areas probing revealed that these voids extended for a depth of 0.60m. Probing immediately adjacent to the tree-stump also revealed that there was loose/uncompacted material to depths ranging between 0.30m and 0.60m below the base of the trench (1.30m to 1.60m below PGL).

4.3 REMEDIAL ACTION

4.3.1 Given the cause of the subsidence, and the absence of any buried structures, no further remedial work is recommended.
5. BIBLIOGRAPHY

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5.2 SECONDARY SOURCES


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APPENDIX 1: ENGLISH HERITAGE BRIEF
FURNESS ABBEY, CUMBRIA:

BRIEF FOR ARCHAEOLOGICAL INVESTIGATION

Background

1. The ruins of Furness Abbey, a Cistercian monastery founded in 1127 and dissolved in 1537, are situated in the Valley of Nightshade, east of Barrow-in-Furness, at SD 218 717. The ruins themselves are in the guardianship of English Heritage, and managed as a monument open to the public.

2. Subsidence has recently occurred towards the southern end of the guardianship area, approximately 15m east of the Infirmary Chapel. Probing suggests that, although currently small in area, the subsidence is at least a metre deep. Archaeological excavation of the affected area is required, so that the cause of the subsidence can be established and appropriate measures for its mitigation developed.

Requirements

3. It is assumed that the subsidence may be due to the partial collapse of a vaulted tunnel or drain. Excavation should aim to establish the nature of the feature which has collapsed, exposing sufficient of its structure to enable proposals for repair or other mitigation to be developed.

4. The area excavated should be the minimum necessary to achieve these results; it is assumed that the trench size is unlikely to exceed 1.5 metres by 1.5 metres in area. As the monument is a managed ruin open to the public, care should be taken to minimise disturbance to lawns and grassed areas – turf should be carefully lifted and stored, and spoil heaps sited as directed by EH – whilst appropriate barriers or fences should be erected to prevent public access to the excavation. Requirements for backfilling will be confirmed by EH (Iain Whittick, address as below).

5. Following completion of the excavation, an initial report on the results should be supplied to the EH contacts (Iain Whittick and Andrew Davison, address details below) within 14 days. A full report on the excavation, if justified by the results, should be sent to each of the EH contacts within 3 months of completion of the on-site works.

Tenders

6. The tender should take the form of a costed project design for the work, supported by a health and safety statement. The project design and costings should provide for all site work (including backfilling if required by EH), for post-excavation assessment of the results, and for the compilation of the initial report identified at paragraph 5 above (should a more extensive report prove necessary, a separate costing
will be agreed). The costed project design should be sent to Iain Whittick, with a copy to Andrew Davison.

**EH contacts**

7. **Main contact for the project:**

   Iain Whittick,  
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8. **Archaeological contact for the project:**

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APPENDIX 2: PROJECT DESIGN

1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 English Heritage (hereafter the ‘client’) has requested that Oxford Archaeology North (OA North) submit proposals for an intrusive archaeological investigation at Furness Abbey, Cumbria (NGR SD 218 717). The site of the proposed evaluation lies some 15m to the west of the infirmary chapel at the western end of the abbey complex, and is focused on a recently-appeared depression. This depression is thought to have formed as a result of subsidence associated with the collapse of an underground feature, possibly a vaulted tunnel or drain. The site lies within the Scheduled Area of the abbey, and is clearly within an area of high archaeological potential, administered by English Heritage (EH). Accordingly, EH have issued a brief, to which the following project design adheres. The aim of the archaeological evaluation is to establish the nature of the collapsed feature and provide sufficient information for EH to establish a suitable repair or mitigation strategy for the collapsed feature. All works would be undertaken in consideration of the fact that the site is open to the public.

1.2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

1.2.1 Furness Abbey originated as a Savignac house in the early twelfth century, but, by 1148 the community had been forcibly absorbed by the Cistercians, eventually becoming the most influential religious house in the north-west and the second richest in England (Coppack 1998). Between 1150 and 1500, various elements of the complex were either rebuilt or newly-constructed, before, in 1537, the abbey was dissolved and partially demolished (ibid). A number of stone-built culverts and drains are known from Furness Abbey, and it may not be coincidental that a discharging sluice is located just to the west of the present area. Such drainage features range in size and depths from about 0.5m square to 2m square and many are still likely to channel water (Rachel Newman pers comm).

1.3 OXFORD ARCHAEOLOGY NORTH

1.3.1 The company, both as Oxford Archaeology North and under the former guise of Lancaster University Archaeological Unit (LUAU), has considerable experience of sites of all periods, having undertaken a great number of small and large scale projects throughout Northern England during the past 25 years. Evaluations, assessments, watching briefs and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables.

1.3.2 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

2.1 The following programme has been designed to evaluate the presence, extent, nature, quality and significance of any archaeological deposits within the immediate area of subsidence in order to allow EH to establish a suitable mitigation and management strategy for the putative collapsed feature and surrounding area:
2.2  **Archaeological Evaluation:** to implement a programme of trial trenching examining an area 1.5m square around the current area of subsidence.

2.3  **Report and Archive:** a written report will assess the significance of the data generated by this programme within a local and regional context. It will present the results of the evaluation and would make an assessment of the archaeological potential of the area, and any recommendations for further work.

3  METHOD STATEMENT

3.1  **Evaluation**

3.1.1  The programme of trial trenching will determine the presence or absence of any archaeological deposits within the area of investigation and, if present, will then test their date, nature, depth and quality of preservation.

3.1.2  **Trench configuration:** the evaluation is required to examine an area 1.5m by 1.5m focused upon the point of subsidence. Prior to any excavation, it will be necessary for the team to probe the area of subsidence in order to establish the depth of any void, and to ensure the safety of the working area. Plastic or hessian sheeting will be laid around the outside of the trench area, and in the location of spoil heaps. It is estimated that area approximately 7m square would be required to enable the safe excavation of the trench and for the placement of any spoil heaps away from public egress.

3.1.3  **Methodology:** the area of the trench will initially be stripped of turf by hand, using a turf cutter and spades/shovels. De-turfing will be conducted in strips c. 0.25m wide (the width of a spade), and either rolled, or cut into shorter lengths for stacked storage beside the trench. The upper horizons of overburden, topsoil, subsoil and any recent made-ground will be rapidly removed by hand excavation to the surface of the first significant archaeological deposit or to the level of the natural subsoil, with the topsoil and subsequent horizons stored separately. Care will be taken to avoid the central area of subsidence and, as much as possible, excavation will be conducted from outside of the trench. Due to the limited space afforded by the trench and the uncertain stability of the underlying ground/structures, only one archaeologist should enter the trench at any one time, during which time they would stand on sawn scaffolding boards placed around the edge of the trench in order to better distribute their weight. The area will be regularly and vigorously probed to test the integrity of the ground, and if there was any suspicion that the ground was unstable or that further subsidence might occur, all works would cease, and discussion with EH concerning a safe means of working would ensue. Providing it is safe to do so, the first significant natural/archaeological horizon will be cleaned by hand, using either hoes, shovel scraping, and/or trowels, depending on the subsoil conditions, and inspected for archaeological features. All features of archaeological interest will be investigated and recorded unless otherwise agreed by EH. Because of the small initial area of investigation, the trench will not be excavated deeper than 1m to accommodate health and safety constraints and, for the same reasons, it may be necessary to introduce an angle of batter, depending upon the solidity of the soil deposits; any requirement to excavate below a depth of 1m is likely to involve either the expansion of the trench, or the insertion of some form of shoring, and will therefore involve recosting.

3.1.4  All trenches will be excavated in a stratigraphical manner, whether by machine or by hand. Trenches will be located by use of GPS equipment, which is accurate to +/- 0.25m, or Total Station. Altitude information will be established with respect to Ordnance Survey Datum.

3.1.5  Any investigation of intact archaeological deposits will be exclusively manual. Selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal. It is hoped that in terms of the vertical stratigraphy, maximum information retrieval will be achieved through the examination of sections of cut features. All
excavation will be undertaken with a view to avoiding damage to any archaeological features, which appear worthy of preservation in situ.

3.1.6 All information identified in the course of the site works will be recorded stratigraphically, using a system, adapted from that used by Centre for Archaeology Service of English Heritage, with sufficient pictorial record (plans, sections, colour slides and monochrome contacts) to identify and illustrate individual features. Primary records will be available for inspection at all times.

3.1.7 Results of all field investigations will be recorded on pro-forma context sheets. The site archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20 and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

3.1.8 **Reinstatement:** it is possible that the Client would require OA North staff to undertake the reinstatement of the trench, and the costs for such work have been included as a contingency. During reinstatement, the trench will be backfilled so that the topsoil is laid on the top and, if the trench is safe to enter, backfill will be compacted by trampling at regular intervals. The stored turf would then be re-laid. It would be preferable for the landowner to agree to the finished reinstated trenches prior to leaving site and, should there be a requirement by the client for specific reinstatement other than that stated this will involve recosting for an agreed variation.

3.1.9 **Fencing/hoarding requirements:** the site is open to the public, and it is therefore critical that the trench and associated spoil heaps are made as secure as practicable by heras fencing.

3.1.10 **Welfare facilities:** it is assumed that the public conveniences at the Furness Abbey visitor centre would be made available for the use of OA North staff during the fieldwork and that there would, therefore, be no requirement to hire such items. Similarly, it is assumed that during periods of bad weather, the staff would be able to shelter in the visitor centre.

3.1.11 **Environmental Sampling:** environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). An assessment of the environmental potential of the site will be undertaken through the examination of suitable deposits by the in-house palaeoecological specialist, who will examine the potential for further analysis.

3.1.12 The assessment would include soil pollen analysis and the retrieval of charred plant macrofossils and land molluscs from former dry-land palaeosols and cut features. In addition, samples from waterlogged deposits would be assessed for plant macrofossils, insects, molluscs and pollen. The costs for the palaeoecological assessment are defined as a contingency and will only be called into effect if good deposits are identified and will be subject to the agreement of EH and the client.

3.1.13 **Faunal remains:** if there is found to be the potential for discovery of bones of fish and small mammals, a sieving programme will be carried out. These will be assessed as appropriate by OA North’s specialist in faunal remains, and subject to the results, there may be a requirement for more detailed analysis. A contingency has been included for the assessment of such faunal remains for analysis.

3.1.14 **Human Remains:** although not expected at this stage, any human remains uncovered will be left in situ, covered and protected. No further investigation will continue beyond that required to establish the date and character of the burial. EH and the local Coroner will be informed immediately. If removal is essential, the exhumation of any funerary remains will require the provision of a Home Office license, under section 25 of the Burial Act of 1857. An application will be made by OA North for the study area on discovery of any such remains and the removal will be carried out with due care and sensitivity under the environmental
3.1.15 **Treatment of finds:** all finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *First Aid For Finds*, 1998 (new edition) and the recipient museum's guidelines.

3.1.16 All identified finds and artefacts will be retained, although certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained on advice from the recipient museum's archive curator.

3.1.17 **Treasure:** any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Where removal cannot take place on the same working day as discovery, suitable security will be employed to protect the finds from theft.

3.1.18 **Contingency plan:** a contingency costing may also be employed for unseen delays caused by prolonged periods of bad weather, vandalism, discovery of unforeseen complex deposits and/or artefacts which require specialist removal, use of shoring to excavate important features close to the excavation sections etc. This has been included in the Costings document (Section 10) and would be charged in agreement with the client.

3.1.19 The evaluation will provide a predictive model of surviving archaeological remains detailing zones of relative importance against known development proposals. In this way, an impact assessment will also be provided.

### 3.2 Report and Archive

3.2.1 **Report:** provisional reports on the results of the fieldwork will be submitted to the client within two weeks of completion of fieldwork, and a full report, if required, will be submitted within three months of completion of the onsite works. To aid the speed of reporting, it is requested that the client provide any suitable maps and plans of the area in digital format. Three copies of the final report will be submitted to the Cumbria Historic Environment Record. The report will include:

- a site location plan related to the national grid
- a front cover to include the planning application number and the NGR
- the dates on which each phase of the programme of work was undertaken
- a concise, non-technical summary of the results
- an explanation to any agreed variations to the brief, including any justification for any analyses not undertaken
- a description of the methodology employed, work undertaken and results obtained
- plans and sections at an appropriate scale showing the location and position of deposits and finds located as well as sites identified during the desk-based assessment
- monochrome and colour photographs as appropriate
- a list of and dates for any finds recovered and a description and interpretation of the deposits identified
- a description of any environmental or other specialist work undertaken and the results obtained
• a summary of the impact of the development on any archaeological remains and, where possible, a model of potential archaeological deposits within as-yet unexplored areas of the development site

• a copy of this project design, and indications of any agreed departure from that design

• the report will also include a complete bibliography of sources from which data has been derived.

3.4.2 This report will be in the same basic format as this project design; a copy of the report can be provided on CD, if required. Recommendations concerning any subsequent mitigation strategies and/or further archaeological work following the results of the field evaluation will be provided in a separate communication.

3.4.3 Confidentiality: all internal reports to the client are designed as documents for the specific use of the client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

3.4.4 Archive: the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (Management of Archaeological Projects, 2nd edition, 1991). The project archive will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork, which will be catalogued by context.

3.4.5 The deposition of a properly ordered and indexed project archive in an appropriate repository is essential and archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the Cumbria HER (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects with the appropriate Record Office (in this case, Barrow).

3.4.6 All artefacts will be processed to MAP2 standards and will be assessed by our in-house finds specialists. The deposition and disposal of any artefacts recovered in the evaluation will be agreed with the legal owner and an appropriate recipient museum. Discussion regarding the museum’s requirement for the transfer and storage of finds will be conducted prior to the commencement of the project, and EH will be notified of the arrangements made.

4. HEALTH AND SAFETY

4.1 OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties. All archaeological works would be undertaken in compliance with the provided health and safety plan.

4.2 Full regard will, of course, be given to all constraints (services etc) during the fieldwork as well as to all Health and Safety considerations. OA North would be grateful if any information regarding services within the study area could be provided by the client, and will then be used during the course of the evaluation.

5 PROJECT MONITORING

5.1 Whilst the work is undertaken for the client, EH will be kept fully informed of the work and its results, and will be notified a week in advance of the commencement of the fieldwork. Any proposed changes to the project design will be agreed with EH, whom will also monitor fieldwork.
6       WORK TIMETABLE

6.1     EVALUATION TRENCHING

6.1.1    Approximately three days will be required to complete this element.

6.1.2    OA North can execute projects at very short notice once an official order/confirmation has
         been received from the client. A team could mobilise with one to two weeks notice (to allow
         the necessary arrangements to be made to commence the task).

6.2     REPORT

6.2.1    Copies of the report, as outlined in Section 3.2.1, will be issued to the client and other
         relevant parties within two weeks or three months of the completion of fieldwork, as
         appropriate, unless otherwise agreed prior to the commencement of fieldwork.

6.3     ARCHIVE

6.3.1    The archive will be deposited within six months following submission of the report, unless
         otherwise instructed.

7       STAFFING

7.1    The project will be under the direct management of Stephen Rowland (OA North Project
       Manager) to whom all correspondence should be addressed. The finds will be processed,
       studied and reported upon, either by, or under the guidance, of Chris Howard-Davies (OA
       North Finds Manager) who has extensive experience of finds from all periods, but particularly
       prehistoric and Roman material. All environmental sampling and assessment will be
       undertaken under the auspices of Elizabeth Huckerby (OA North Environmental Manager)
       who has unparalleled experience of palaeoenvironmental work in the North West and who
       heads an excellent team of environmental archaeologists. Any faunal remains will be studied
       by Andrew Bates (OA North Project Officer), who has a large amount of experience in
       undertaking the assessment and analysis of faunal assemblages of all sizes from a wide range
       of periods and locations. Current time-tabling precludes the allocation of specific members of
       staff at this juncture, but OA North can guarantee that the desk-based assessment and
       walkover survey will be undertaken by an OA North Supervisor experienced in such work
       and capable of carrying out projects of all sizes. Similarly, the evaluation will comprise a
       suitably-sized team of experienced archaeologists led by an OA North Project Officer or
       Supervisor. All OA North Project Officers and Supervisors are experienced archaeologists
       capable of undertaking small-, medium- and large-scale projects in a range of urban and rural
       situations.

8       INSURANCE

8.1    OA North has a professional indemnity cover to a value of £2,000,000; proof of which can be
       supplied as required.

9       REFERENCES

(Batsford - London)


SCAUM (Standing Conference of Archaeological Unit Managers), 1997 Health and Safety
Manual, Poole

UKIC, 1990 Guidelines for the Preparation of Archives for Long-Term Storage, London

UKIC, 1998 First Aid for Finds, London
<table>
<thead>
<tr>
<th>Context No</th>
<th>Description</th>
<th>Thickness</th>
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<td></td>
</tr>
<tr>
<td>101</td>
<td>Topsoil/turf</td>
<td>0.12m</td>
</tr>
<tr>
<td>102</td>
<td>Sandy clay silt subsoil</td>
<td>0.55-0.8m</td>
</tr>
<tr>
<td>103</td>
<td>Orange/brown coarse sandy gravel subsoil</td>
<td>0.3m</td>
</tr>
<tr>
<td>104</td>
<td>Tree stump</td>
<td></td>
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</table>
## APPENDIX 4: FINDS SUMMARY

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<tr>
<th>Trench</th>
<th>Context</th>
<th>ORN</th>
<th>Material</th>
<th>Category</th>
<th>Count</th>
<th>Description</th>
<th>Date</th>
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<td>1001</td>
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<tr>
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<td>1002</td>
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<td>Vessel</td>
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<td>Eighteenth to nineteenth century</td>
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<td>1 101</td>
<td>1003</td>
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<td>Vessel</td>
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<td>Nottingham-type stoneware (bottle)</td>
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<tr>
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<td>1004</td>
<td>Bone</td>
<td>Animal</td>
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<td>Cow ulna (chopped)</td>
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<tr>
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<td>1004</td>
<td>Bone</td>
<td>Animal</td>
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<tr>
<td>1 101</td>
<td>1004</td>
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<td>1005</td>
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<td>Unidentifiable CBM</td>
<td>Medieval-early post-medieval</td>
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<tr>
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<td>1005</td>
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<td>Fine partially reduced sand tempered tile frag</td>
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<td>1005</td>
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<td>Building materials</td>
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<td>Fully reduced/gritty floor tile frag</td>
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<td>1006</td>
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<td>Slag</td>
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<td></td>
<td>Not closely datable</td>
<td></td>
</tr>
<tr>
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<td>Building materials</td>
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<td>Unidentifiable CBM</td>
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<td></td>
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<tr>
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<tr>
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<tr>
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<td>1009</td>
<td>Kaolin</td>
<td>Clay pipe</td>
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<tr>
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<td>1010</td>
<td>Glass</td>
<td>Bottle</td>
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<tr>
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<td>1011</td>
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</tr>
<tr>
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<td>Ceramic</td>
<td>Vessel</td>
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<td>Yellow-glazed red earthenware</td>
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<tr>
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<td>Vessel</td>
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<td>White salt-glazed stoneware (jar)</td>
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<tr>
<td>1 102</td>
<td>1012</td>
<td>Glass</td>
<td>Slag</td>
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<td>1013</td>
<td>Stone</td>
<td>Masonry</td>
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<td>Slate stone incised with 1887 and other graffiti</td>
<td>Victorian or older</td>
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<tr>
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<td>Incised</td>
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<td>Slag</td>
<td>3</td>
<td></td>
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<tr>
<td>1 103</td>
<td>1014</td>
<td>Glass</td>
<td>Vessel</td>
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<td>Wine glass</td>
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<tr>
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<td>1014</td>
<td>Glass</td>
<td>Bottle</td>
<td>2</td>
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<tr>
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<td>1014</td>
<td>Glass</td>
<td>Bottle</td>
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<td>Bottle</td>
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<td>Small blue shard</td>
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<tr>
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<td>Bottle</td>
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<td>Trench</td>
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<td>1020</td>
<td>Cu/alloy</td>
<td>Coin</td>
<td>1</td>
<td>Halfpenny?</td>
<td>Eighteenth to nineteenth century?</td>
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ILLUSTRATIONS

LIST OF FIGURES

Figure 1: Site location

Figure 2: Plan showing location of the trench

LIST OF PLATES

Plate 1: The infirmary Chapel, viewed from the north-east, with the site of the excavation seen to the left

Plate 2: The tree-stump, 104, and associated layers, 102-03, within the south-facing section of the evaluation trench. Voids can be seen to the right and left of the tree-stump

Plate 3: The east-facing section of the evaluation trench showing voids and areas of subsidence around the tree-stump
Figure 1: Site Location
Plate 1: The Infirmary Chapel, viewed from the north-east with the site of the excavation seen to the left

Plate 2: The tree-stump, 104, and associated layers, 102-03, within the south-facing section. Voids can be seen to the right and left of the tree-stump
Plate 3: The east-facing section, showing voids and areas of subsidence around the tree-stump