



ULPHA MEADOWS, FOULSHAW MOSS NATURE RESERVE, MEATHOP, CUMBRIA

Archaeological Rapid Desk-Based Assessment and Evaluation



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SUMMARY

Cumbria Wildlife Trust submitted a planning application for the creation of an area of wetland and reed bed at Ulpha Meadows, Foulshaw Moss Nature Reserve, Meathop, Cumbria (NGR SD 4594 8216; Fig 1). The proposals for the development of the site comprise the excavation of a small mere, *c* 170m by 70m by 0.5m deep and the creation of clay bunds around the site to inhibit drainage and thus allow development of a wetland environment. Additional works include the re-profiling of the three ditches that run across the site, from 2m in width, to 10m in width. The proposed development site is considered to lie within an area of archaeological potential and, accordingly, the Lake District National Park Authority Archaeologist (LDNPAA) issued a brief for a programme of archaeological investigation to be undertaken in advance of the development, in order to further inform the planning process. Oxford Archaeology North (OA North) were subsequently commissioned by Cumbria Wildlife Trust to fulfil the requirements of the archaeological condition placed on the development, which included a rapid desk-based assessment and evaluation excavation. Also of concern to the LDNPAA was the possibility of peat deposits worthy of sampling in order to aid palaeoenvironmental reconstruction of the area.

The desk-based assessment demonstrated that prehistoric remains have been found within the environs of the development site, but have not been identified within it. The most significant of these comprised two corduroy trackways located to the north of the site, but which had the potential to extend into the development area. Drainage of the local mosses probably commenced during the post-medieval period, and intensified from the early nineteenth century onwards, with the passing of Parliamentary Acts in 1803. Most of the identified sites within the vicinity of the development, as recorded on the Lake District National Park Historic Environment Record, relate to the development of this drainage system, elements of which survive within the modern landscape.

The evaluation revealed no peat with potential for palaeoenvironmental sampling within the development area, and the natural marine clay was generally located immediately beneath the shallow, humic, topsoil. Three features were located within two of the four excavated trenches and, although no dating evidence was found, comparison with historic maps suggested that two were drainage or boundary features relating to the enclosed landscape of the first half of the nineteenth century, whilst the third may have dated to the eighteenth-century.

The development is unlikely to have a negative impact upon significant stratified prehistoric remains. Some form of archaeological monitoring and surveying may be of value in establishing the location and extent of elements of the pre-1859 field system, allowing the identification of any earlier features meriting more detailed investigation and the recovery of dating evidence.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank John Dunbavin of the Cumbria Wild Life Trust for commissioning the project, and for his co-operation during the work. Thanks are also due to Eleanor Kingston of the Lake District National Park Authority for her advice and assistance with the project, and to staff of the Cumbria Records Office (Kendal).

The rapid desk-based assessment and walkover survey was undertaken by Andy Bates, who also directed the fieldwork with the assistance of Kathryn Levey and Steve Clarke. The report was compiled by Andy Bates and Stephen Rowland, and illustrated by Marie Rowland. Stephen Rowland managed the project and edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 Cumbria Wildlife Trust (hereafter the 'client') has submitted a planning application (7/2006/5702) for the creation of an area of wetland and reed bed at Ulpha Meadows, Foulshaw Moss Nature Reserve, Meathop, Cumbria (NGR SD 4594 8216). The proposals for the development of the site comprise the excavation of a small mere, c 170m by 70m by 0.5m deep, and the creation of clay bunds around the site to inhibit drainage and thus allow development of a wetland environment. Additional works include the re-profiling of the three ditches that run across the site, from 2m in width, to 10m in width. The proposed development site is considered to lie within an area of archaeological potential and, accordingly, the Lake District National Park Authority Archaeologist (LDNPAA) issued a brief (*Appendix 1*) for a programme of archaeological investigation to be undertaken in advance of the development, in order to further inform the planning process. At the request of the client, Oxford Archaeology North (OA North) compiled a project design (*Appendix 2*) for an archaeological rapid desk-based assessment and evaluation to meet the requirements of the LDNPAA brief. The OA North project design was approved by the LDNPAA, and OA North were duly commissioned to undertake the works, which were carried out in June 2007.

1.2 SITE LOCATION AND TOPOGRAPHY:

1.2.1 Foulshaw Moss lies in southern Cumbria, just to the north of Milnthorpe Sands on the Kent Estuary and just to the south-east of Witherslack. Ulpha Meadows covers about 17ha located in the Winster Valley at the southern end of Foulshaw Moss, and is bound by Ulpha Woods and Ulpha Fell to the west, and by the Main Drain to the south and east. The proposed development area is essentially flat and low-lying. The site lies within the Countryside Character Morecambe Bay Limestone Area, although in many places the solid geology is covered by glacial till and, in the more coastal areas, marine clays (Hodgkinson *et al* 2000). Peat deposits are known to have covered much of Foulshaw Moss, and are likely to have extended into the proposed development area (*ibid*). However, due to historical peat cutting, drainage schemes and twentieth-century agriculture, the extent of the survival of such deposits within Ulpha Meadows is unknown.

2. METHODOLOGY

2.1 INTRODUCTION:

- 2.1.1 The LDNPA-approved project design (*Appendix 2*) was adhered to in full, and all works were consistent with IFA standards and generally acknowledged best practice.

2.2 RAPID DESK-BASED ASSESSMENT:

- 2.2.1 The rapid desk-based assessment involved visits to the LDNPA Historic Environment Record (LDHER) and to the Cumbria Record Office (CRO), both in Kendal. The LDHER, a detailed list of all known archaeological sites within the LDNP, was consulted in order to establish the presence and nature of any archaeological sites within a 1km radius of the proposed development site. The CRO was consulted as a source of primary (particularly cartographic) and secondary records pertaining to the proposed development site. Relevant information in the OA North library, including the results of studies and investigation undertaken both as OA North and in the former guise of Lancaster University Archaeological Unit, was also collated. The results of the rapid desk-based assessment are presented in the historical background.

- 2.2.2 A rapid walkover survey was also undertaken as part of this preliminary phase of the work. This comprised a thorough inspection of the proposed development site, paying particular attention to any exposed ditch profiles that might provide information on the presence and depth of any peat deposits on site. The walkover survey also sought to identify the presence of any surface remains of archaeological features, together with any constraints to undertaking the archaeological evaluation.

2.3 EVALUATION EXCAVATIONS:

- 2.3.1 In accordance with the LDNPA brief (*Appendix 1*), approximately 5% of the total area of the proposed mere was evaluated by four trial trenches. Each trench measured 50m by 1.8m, to cover a total area of 360m², and were placed in locations approved by LDNPA prior to fieldwork taking place (Fig 2). All trenches were excavated by a 360-degree mechanical excavator fitted with a 2m toothless ditching bucket down to the level of the natural drift geology or to the top of the first archaeologically-significant horizon, whereupon further investigation was undertaken by manual techniques. All excavated material was systematically searched for finds, both by eye and with the aid of a metal detector.
- 2.3.2 All archaeological contexts were recorded on OA North's *pro-forma* sheets, using a system based on that of the English Heritage Centre for Archaeology. Hand drawn plans and sections were produced at scales of 1:10 or 1:50, and an indexed photographic record was maintained using colour slide and monochrome formats. Trenches were located on the Ordnance Survey grid and

levels recorded in relation to Ordnance datum using a Total Station Theodolite (TST). A monochrome and colour slide photographic record was maintained throughout the work.

2.4 ARCHIVE

- 2.4.1 A full professional archive has been compiled in accordance with the current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited with Kendal Record Office on completion of the project, and a synthesis, comprising a copy of the report and index to the archive, will be submitted to the LDHER.

3. BACKGROUND

3.1 INTRODUCTION

- 3.1.1 The archaeological and historical background has been principally compiled from secondary sources and is intended to place the results of the present investigation into a wider context. The results of the walkover survey are also presented.

3.2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 3.2.1 **Prehistoric:** significant archaeological remains are known from the area of the proposed development site, which suggest occupation of the nearby coastal plain and of the surrounding area from the Mesolithic period onwards (and even earlier when the Late Upper Palaeolithic occupation of cave sites, exemplified by that at Kirkhead, is considered). A pair of “Irish” elk antlers (LDHER 4140) found close to Ulpha Meadows, on the southern side of the Main Dyke, is likely to date to this period, if not before. The most noteworthy remains within the immediate vicinity are Bronze Age in date, and include a corduroy trackway (LDHER 2487) identified running north-east/south-west within the northern part of Foulshaw Moss, some 4km from the proposed development site. The Foulshaw corduroy trackway is one of two closely-located similar ‘roads’ described by AJ Barnes in 1903 (Barnes 1904). The other, recorded on Rawson’s Moss, to the north of the current A590(T), followed a north-west/south-east alignment and indeed, had the course of each trackway continued, they would have adjoined just to the south of Gilpin Bridge. The well-preserved Rawson’s Moss trackway, 4.5 – 4.8m wide, was of solid construction and comprised transverse timbers laid on three lines of supporting logs. That at Foulshaw Moss is generally believed to be of similar construction. More recent work in the area of the Foulshaw trackway would indicate that at a depth of 1.2m, it lies at the junction of two different types of peat, which have been independently dated to 1592-1260 cal BC (Hodgkinson *et al* 2000).
- 3.2.2 Further prehistoric remains within the wider area include a perforated whetstone found at a depth 1.5m within the peat at Witherslack (LDHER 4132), about 3.5km to the north of Ulpha Meadows. This is presumably the same artefact that Barnes records as being discovered in 1895, in which case he also mentions a poorly-provenanced bronze spearhead/dagger from a similar location (Barnes 1904). Cropmark sites have been identified in conditions similar to those prevailing at Foulshaw Moss, as demonstrated by the undated, unclassified (but potentially prehistoric) example at Meathop Marsh (LDHER 6912) *c* 1km to the south-west of the development area.
- 3.2.3 **Iron Age and Roman:** there are no sites of Iron Age date within close proximity of Ulpha Meadows, and the closest settlement is that of Castlehead promontory fort, near Grange, which radiocarbon dating would suggest first occupied in the Bronze Age and abandoned in the Iron Age (Matthews 2002;

Hodgkinson *et al* 2000). Similarly, almost nothing is known of Roman activity within the vicinity, although a Roman tombstone from Eller How, 4km to the west, would indicate some form of local presence

- 3.2.4 **Medieval and post-medieval periods:** there is a certain amount of later medieval and early post-medieval documentary evidence to suggest that the South Cumbrian peat mosses were on occasion subdivided, enclosed and cut for peat (Hodgkinson *et al* 2000, 50-53). Certainly, since at least the eighteenth century, the area has been exploited for peat cutting in a concerted manner (*ibid*), and it is possible that such activity has greatly reduced the depth of organic deposits within the area. Furthermore, agricultural improvement has led to the imposition of a comprehensive drainage programme feeding into the Main Dyke, which runs to the east of the nature reserve, emptying the mosses into the River Kent (*ibid*). This drainage was established by a series of Acts passed between 1803 and 1843, which essentially established the modern landscape of the area (*ibid*). This system continued to be developed over the remainder of the nineteenth century and the early part of the twentieth century. Several elements of this drainage system are listed on the LDHER, including the floodgates for the Main Drain, (LDHER 12612), just to the south of Ulpha Meadows, as well as those at Meathop Marsh (dated to the Victorian period) (LDHER 12613), Meathop (LDHER 12659) and Meathop Moss (LDHER 12660), all located within drains to the south and west of Ulpha Meadows. Other important elements of the drainage system included pumps for the removal of water from low-lying areas of land, as exemplified by those at Meathop Yard (LDHER 12658) and Saltcote (LDHER 12663), 1.5km to the west and south-west, respectively.
- 3.2.5 Elements of the early nineteenth-century drainage system are visible on the 1845 Tithe map of Meathop and Ulpha (Fig 2), which shows the present development area as being occupied by portions of seven fields, the boundaries of which conform to a north/south aligned drain and its more acutely-angled western projection. This field system within the development area appears not to have been particularly long-lived, and the basic elements of the present system were established by the time of the survey for the 1859 1:10,560 OS map (Fig 3). This demonstrates the removal of the majority of field boundaries to leave just three fields (the central of which was sub-divided on the 1899 1:10,560 map on a north-west/south-east alignment by the insertion of a drain that remains extant to date).
- 3.2.6 Other attempts to improve the productivity of the land are demonstrated by the presence of several limekilns in the area. The closest, about 300m to the north-west on the opposite side of Ulpha Wood and at the foot of Ulpha Fell is both well-preserved and is of an unusual shape likely to date to the early to mid-eighteenth century (LDHER 12610; Keates 1985). Not only is it the oldest limekiln locally (*ibid*), it may also provide a clue to the date of some of the drainage schemes in the area, since attempts to improve fertility were likely to have been combined with general agricultural expansion. A second limekiln (LDHER 12661) is located just to the west of Meathop, and was connected by a track to Meathop Quarry (LDHER 12541). Lime burning on the Meathop estate for the manuring of reclaimed mossland is first mentioned in connection

with a lease of 1774: “the trustees are to furnish John Redhead with not less than 30 tons of coal to be delivered at Meathop in order to burn lime with the sole purpose of mixing the same with earth for manuring the estate” (Satchel 1984, 92). Further evidence for post-medieval agricultural expansion is provided by the Foulshaw End Field Barn (LDHER 12611), the putative site of which, on the basis of cartographic evidence, is located about 300m to the south-east of the proposed development site.

- 3.2.7 These drainage schemes are noticeably more intense around the wetter, northern part of the reserve, but it is likely that any organic deposits within the proposed development area have also been degraded by these long-term drainage schemes and by later agriculture. It is possible that survival of organic horizons on site is limited to a thin band of peat (Eleanor Kingston *pers comm*).

3.3 WALK OVER SURVEY RESULTS

- 3.3.1 No features of archaeological interest were identified during the walkover survey, whilst examination of the existing ditches showed they were too overgrown to determine the presence of any peat deposits within the area. Probing of the ground suggested that firm clay deposits, rather than more easily-yielding peat, lay at fairly shallow depth.

4. EVALUATION RESULTS

4.1 INTRODUCTION

- 4.1.1 Four evaluation trenches were excavated (Fig 4), each measuring 50m in length and 2m wide as detailed in the methodology. An overview of the results is given below, and detailed descriptions of each deposit and archaeological feature is provided in *Appendix 3*.
- 4.1.2 Within each of the trenches the blackish-brown topsoil was fairly thin, generally in the region of 0.2m, and lay directly above mid-grey mottled natural marine clay. Although there was some suggestion that the topsoil had once had a fairly humic content, there was no survival of a distinct peat horizon within the area. Where archaeological features were found, these lay at a relatively shallow depth between 0.2m and 0.3m below the present ground surface. No artefacts were recovered from either the topsoil or from stratified deposits, despite careful scanning of the spoil and the use of a metal detector.

4.2 TRENCH 1 (FIGS 4 AND 5)

- 4.2.1 Trench 1, aligned north/south, was excavated to a depth of 0.35m, whereupon natural clay, **103**, was encountered. Two linear ditches, both roughly east/west aligned, were located cutting this clay. The most northerly, ditch **105**, measured 1.2m wide and 1.48m deep, with an irregular northern side and a near vertical southern side. The depth of the ditch precluded safe hand excavation of its entire depth, which was instead investigated through a machine-excavated sondage to a depth of 1.65m below the modern ground surface. Its lower fill, **104**, comprised a black or very dark brown silty clay with a high humic or peat content from vegetation within the ditch. This was overlain by backfill **106**, a layer of redeposited natural light grey clay, up to 0.5m thick. The second ditch, **102**, was located towards the centre of the trench and, although of a similar width to ditch **105**, sloped more gently and evenly to a base only 0.15m below the surface of the natural clay. The silty clay fill of the ditch, deposit **101**, represents an episode of natural silting of the feature. This feature had subsequently been truncated at an oblique angle by a modern land drain. Three further land drains, running north-east/south-west were found at fairly even intervals within the trench.

4.3 TRENCH 2 (FIGS 4 AND 5)

- 4.3.1 Although six field drains (five running north/south, the other perpendicular) crossed this north-east/south-west aligned trench, the only feature of possible archaeological interest was a north-west/south-east aligned negative linear feature, **202**. The uneven sides and base of this c 2m wide and 0.2m deep feature suggested that it had formerly been the site of a hedged field boundary or possibly a tree.

4.4 TRENCHES 3 AND 4

- 4.4.1 Trenches 3 and 4, running east/west and north-east/south-west, respectively, revealed the presence of numerous ceramic field drains. These were mostly on a north/south alignment, and appeared to be the product of an organised drainage scheme. No remains of archaeological significance were found.

5. DISCUSSION

5.1 INTRODUCTION

5.1.1 Two phases of archaeological work were carried out prior to the development of the area to inform the planning process. This included a rapid desk-based assessment and an archaeological evaluation. Below is presented the conclusions of the work undertaken, discussed in terms of the significance of any archaeological remains and the impact of the development on the same, with a concluding paragraph outlying recommendations for further work where appropriate.

5.2 SIGNIFICANCE OF THE RESULTS

5.2.1 The results of the desk-based assessment indicated that no known sites of archaeological interest lie within the site boundary and, whilst there is evidence of significant prehistoric activity within the wider area, the majority of sites within the vicinity relate to post-medieval drainage schemes. Similarly, those features encountered during the evaluation are most likely to relate to drainage or to removed field boundaries. The importance of these drainage schemes can be seen from the modern network of straight linear drains that skirt Ulpha Wood and Foulshaw Moss. Considering the comprehensiveness of these drainage schemes, which began in the early eighteenth century when other attempts to improve arable land were being made, such as the limekiln to the west of Ulpha Wood (LDHER 12610), it is not so surprising that peat deposits have not survived within the area presently investigated.

5.2.2 However, none of the features identified during the fieldwork can be equated with those shown on the Ordnance Survey mapping and, considering the dearth of artefactual dating evidence, it must be assumed that they pre-date the mid-nineteenth century, and that some, if not all, post-date the Ulpha Enclosure Act of 1803. Nor can the features be particularly easily equated with those shown on the 1845 Tithe map, although problems with digitising this image implied a certain amount of inaccuracy during its original survey and production. There is thus some conjecture as to whether one or two of the features pertain to those shown on the Tithe map, or represent features, potentially of eighteenth-century date, that had fallen out of use as boundaries prior to the survey for that document. The profile of ditch **105** in Trench 1 would suggest that it had been cut for drainage purposes, rather than as a mere field boundary; unlike ditch **102**, which was so shallow that it may have been excavated principally to provide soil for a parallel hedge bank. The shallow depth of feature **203** implied that it shared a similar origin, but its alignment suggested that it was part of the network shown on the Tithe map (most probably between fields marked 6 and 8). The juxtaposition of ditches **203**, **102** and **105** would suggest that one of the latter two represented the field boundary between those fields marked 7 and 8, but problems with the Tithe map means that they cannot be married specifically. Suffice to say, the close spacing of features **102** and **105** would imply that they were unlikely to be

contemporary, and that one of them probably pre-dated the survey for the Tithe map and as such, may be of eighteenth-century date.

5.3 POTENTIAL IMPACT OF THE DEVELOPMENT

5.3.1 Whilst it is possible that significant archaeological remains may be preserved within gaps between the excavated evaluation trenches, it seems most likely that the site reflects a post-medieval landscape that has been drained for agriculture. On the present evidence, the occurrence within the proposed development area of peat deposits and deeply-stratified archaeological remains, other than those associated with post-medieval drainage schemes, seems unlikely. As such, groundworks associated with the excavation of the mere are unlikely to have a negative impact on significant archaeological remains of prehistoric date. The impact of the development on elements of the later eighteenth- and early nineteenth-century drainage schemes or field system, would be more severe. Although the small mere would only be in the region of 0.6m to 0.8m deep, this would be sufficient to truncate the majority of these features.

5.4 RECOMMENDATIONS

5.4.1 It may be appropriate to undertake a programme of archaeological monitoring of groundworks associated with the mere in order to establish the wider extent of the identified boundary and drainage features, and to collect dating evidence. The production of a plan following topsoil stripping would make it possible to compare the exposed features with those shown on the 1845 Tithe map, potentially identifying any earlier features, which could then be targeted for more detailed investigation.

6. BIBLIOGRAPHY

6.1 PRIMARY SOURCES

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- 2487 Gilpin Bridge Wheel and Corduroy Road, Crosthwaite and Lyth
- 4132 Stakes Moss, High Foulshaw Whetstone Find
- 4140 Kent Estuary Antlers Find
- 12541 Low Meathop Quarry
- 12610 Ulpha Line Kiln
- 12611 Foulshaw End Field Barn
- 12612 Main Drain Floodgates, Meathop and Ulpha
- 12613 Meathop Marsh Floodgates, Meathop and Ulpha
- 12658 Meathop Yard Pump, Meathop and Ulpha
- 12659 Meathop Floodgates, Meathop and Ulpha
- 12660 Meathop Moss Floodgates, Meathop and Ulpha
- 12661 Meathop Lime Kiln, Meathop and Ulpha
- 12663 Saltcote Pump, Meathop and Ulpha

6.2 SECONDARY SOURCES

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7. ILLUSTRATIONS

7.1 LIST OF FIGURES

Figure 1: Site Location Plan

Figure 2: Map of Lands in the Township of Meathop and Ulpha in the Parish of Beetham in the County of Westmorland

Figure 3: 1859 25 inch OS map, Sheet 61.2

Figure 4: Trench Location Plan

Figure 5: Plan of Trenches 1 and 2

Figure 6: Sections through features within Trenches 1 and 2

7.2 LIST OF PLATES

Plate 1: West-facing section of ditch **105** within Trench 1

Plate 2: West-facing section of ditch **102** within Trench 1

APPENDIX 1: PROJECT BRIEF

APPENDIX 2: PROJECT DESIGN

ULPHA MEADOWS, FOULSHAW MOSS NATURE RESERVE, MEATHOP, CUMBRIA

ARCHAEOLOGICAL
DESK-BASED
ASSESSMENT AND
EVALUATION PROJECT
DESIGN: V2



Oxford Archaeology North

May 2007

Cumbria Wildlife Trust

Grid Reference: SD 4594 8216
Planning Reference 7/2006/5702
OA North Tender No: t3000

1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Cumbria Wildlife Trust (hereafter the 'client') has submitted a planning application (7/2006/5702) for the creation of an area of wetland and reed bed at Ulpha Meadows, Foulshaw Moss Nature Reserve, Meathop, Cumbria (NGR SD 4594 8216). The proposed development site is considered to lie within an area of archaeological potential and, accordingly, the Lake District National Park Authority Archaeologist (LDNPAA) issued a brief for a programme of archaeological investigation to be undertaken in advance of the development, in order to further inform the planning process. At the request of the client, the following project design for an archaeological desk-based assessment and evaluation has been compiled by Oxford Archaeology North (OA North) to meet the requirements of the LDNPAA brief. Foulshaw Moss lies in southern Cumbria, just to the north of Milnthorpe Sands on the Kent Estuary and just to the south-east of Witherslack. Ulpha Meadows covers about 17ha located in the Winster Valley at the southern end of Foulshaw Moss, and is bound by Ulpha Woods and Ulpha Fell to the west, and by the Main Drain to the south and east. The proposals for the development of the site comprise the excavation of a small mere, c 170m by 70m by 0.5m deep and the creation of clay bunds around the site to inhibit drainage and thus allow development of a wetland environment. Additional works include the re-profiling of the three ditches that run across the site, from 2m in width, to 10m in width.

1.2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

1.2.1 A number of significant archaeological remains are known from the area of the proposed development site, which suggest occupation of the nearby coastal plain and of the surrounding area from the Mesolithic period onwards (and even earlier when the Palaeolithic occupation of cave sites, exemplified by that at Kirkhead, is considered). The most noteworthy remains within the immediate vicinity are Bronze Age in date, and include a corduroy trackway (LDNP HER 2487) identified within the northern part of Foulshaw Moss, which has been dated to 1592-1260 cal BC. The well-preserved trackway was of solid construction, and was preserved at the junction of two different types of peat. There is thus a possibility that contemporary remains may be preserved in the area of the proposed reed-bedding. However, a number of factors may have affected the preservation of both archaeological organic remains, and also of organic deposits. Since at least the eighteenth century, the area has been exploited for peat cutting, and it is possible that such activity has greatly reduced the depth of organic deposits within the area. Furthermore, agricultural improvement has led to the imposition of a comprehensive drainage programme feeding into the Main Dyke, which runs to the east of the reserve. The drainage scheme is noticeably more intense around the wetter, northern part of the reserve, but it is likely that organic deposits within the proposed development area have also been degraded by drainage and by later agriculture. It is possible that survival of organic horizons on site is limited to a thin band of peat (Eleanor Kingston 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. The company has been closely-involved with the North West Wetlands Archaeological Survey, having published volumes on the wetlands of Cheshire, Lancashire and most relevantly, on the lowland wetlands of Cumbria (Hodgkinson *et al* 2000).

- 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 identify any known surviving archaeological deposits in and immediately around the development area and to assess the subsoil deposits within the development area in order to determine the presence, extent, nature, quality and significance of any archaeological deposits that may be threatened by the proposed residential development. To this end, the following programme of archaeological work has been designed. The results of each stage will influence that which ensues and will provide information as to whether further mitigation works are required prior to, or during, ground works associated with the development. The required stages to achieve these ends are as follows:
- 2.2 **Desk-based assessment:** to provide a desk-based assessment of the site to identify the archaeological potential prior to any development (in accordance with the IFA standards (1999)).
- 2.3 **Visual Inspection:** to conduct a walkover of the development site in order to identify surface features of potential archaeological interest, areas of disturbance, hazards and constraints.
- 2.4 **Archaeological Evaluation:** to implement a programme of trial trenching examining 340m² of the area that will be occupied by the small mere.
- 2.5 **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 DESK-BASED ASSESSMENT

- 3.1.1 **Introduction:** a desk-based assessment is usually undertaken as the first stage of a programme of archaeological recording. Prior to development of the site, further intrusive investigation may be required. It is not intended to reduce the requirement for evaluation, excavation or preservation of known or presumed archaeological deposits, but it will provide an appraisal of archaeological constraints and a guide to any requirement for further archaeological work.
- 3.1.2 The following will be undertaken as appropriate, depending on the availability of source material. The level of such work will be dictated by the time scale of the project.
- 3.1.3 **Documentary and Cartographic Material:** this work will include consultation of the Lake District National Park Historic Environment Record (LDNP HER), as well as the County Records Office in Kendal. Data from these sources will inform a review of all known and available resources of information relating to a study area within an appropriate radius centred on the site of the proposed development. The aim of this is to give consideration not only to the application site, but also its setting in terms of historical and archaeological contexts. These include:
- published and unpublished documentary sources, including Hodgkinson *et al* *The Lowland Wetlands of Cumbria*, 2000

- data held in local and national archaeological databases
- printed and manuscript maps
- place and field-name evidence
- evidence for township, ecclesiastical and other ancient boundaries
- aerial photographs in both national and local collections
- other photographic/illustrative evidence
- local museum catalogues and artefactual evidence
- engineering/borehole data where applicable
- geological/soil surveys

3.1.4 ***LDNP HER, Kendal:*** the LDNP HER is a database of known archaeological sites within the National Park. It also holds an extensive library of published materials and aerial photographs for consultation.

3.1.5 ***Cumbria County Record Office, Kendal:*** the office in Kendal holds the main source of primary documentation; both maps and documents for Kendal and its immediate surroundings.

3.1.6 ***Map regression analysis:*** a cartographic analysis will be undertaken as it has and its development through to its modern-day or most recent use. This provides one method of highlighting areas of potential archaeological interest. Particular emphasis will be on the early cartographic evidence and will include estate maps, tithe maps, and Ordnance Survey maps, through to present mapping, where possible.

3.1.7 ***Geological/Soil Surveys:*** a rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information will be undertaken. It will be based on published geological mapping and any local geological surveys in the possession of the County Council or the client.

3.2 VISUAL INSPECTION

3.2.1 Following the desk-based assessment, the site will be visited in order to relate the existing topography and land use to research findings, and assess evidence not available through documentary sources. It will also provide an understanding for areas of impact by the proposed redevelopment.

3.2.2 The survey will note present land use, the condition and visibility of features identified in the documentary research and any features of potential archaeological interest, any areas of potentially significant disturbance, and hazards and constraints to undertaking further archaeological work on site. The inspection will pay particular attention to any open sections demonstrating the local stratigraphy, for example, those exhibited by open and clear ditches, that might provide clues concerning the survival and depth of any preserved organic horizons on site.

3.3 EVALUATION

- 3.3.1 The programme of trial trenching will establish the presence or absence of any previously unsuspected archaeological deposits and, if established, will then test their date, nature, depth and quality of preservation. In this way, it will adequately sample the threatened available area.
- 3.3.2 **Trench configuration:** the evaluation is required to examine the area of the mere through the excavation of four trenches each totalling 50m in length by 1.7m in width. The exact configuration and positioning of the trenches will be dependent upon the results of the desk-based assessment and site visit, together with a consideration of the proposed development; a plan of the proposed trench locations will be submitted for the approval of the LDNPAA.
- 3.3.3 **Methodology:** within each trench, the upper horizons of overburden, topsoil, disturbed subsoil and any recent made-ground will be rapidly removed by a mechanical excavator fitted with a 1.7m-wide toothless ditching bucket and working under archaeological supervision to the surface of the first significant archaeological deposit or to the level of the natural drift geology. This deposit will be cleaned by hand, using either hoes, shovel scraping, and/or trowels, depending on the subsoil conditions, and inspected for archaeological features. Should peat deposits survive between the topsoil and drift geology, they should be cleaned and inspected for archaeological features, but can then be removed by machine. A sample of features of archaeological interest sufficient to characterise the full stratigraphic sequence within each trench will be investigated and recorded, unless otherwise agreed by LDNPAA. The trenches will not be excavated deeper than 1.2m to accommodate health and safety constraints; any requirements to excavate below this depth will involve recosting.
- 3.3.4 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. 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*.
- 3.3.5 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.
- 3.3.6 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.
- 3.3.7 **Reinstatement:** it is understood that there may be a requirement for the backfilling of trenches, dependent upon the amount of time between the evaluation and the excavation of the mere. If there was no requirement for backfilling, topsoil and any excavated subsoil will be kept in separate spoil heaps to aid the client's removal or redeposition of such material. Should there be a requirement by the client for backfilling, the arisings will be returned to the trench so that the topsoil is laid on top, and gently graded and compacted by the machine. Costs for machine-hire for backfilling are included as a contingency, as are costs for a member of OA North staff to supervise the backfilling, if required.

- 3.3.8 **Fencing/hoarding requirements:** it is understood from the client that the area is secure from public egress and free from grazing animals. It is thus proposed that the long edges of trenches would be demarcated by their spoil heaps, and that the short edges would be secured by orange netlon fencing. Should the client wish to see the trenches fully secured, or if dictated by health and safety considerations, heras fencing or other materials can be hired-in, charges for which, together with those for staff to erect and disassemble the fencing, would be agreed with the client as a variation.
- 3.3.9 **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). Following agreement with the client as a variation, it may be necessary for an OA North palaeoenvironmentalist to visit the site in order to provide further advice on developing and modifying onsite environmental sampling strategies and on the treatment of organic remains. 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.
- 3.3.10 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. Any deposits of peat that would be impacted upon by the development would be sampled through the use of vertical monoliths. The costs for the palaeoecological assessment of bulk and for monolith samples 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 LDNPAA and the client. Similarly, it is possible that material suitable for absolute dating could be recovered from these deposits and, accordingly, a contingency cost for radiocarbon dating is provided.
- 3.3.11 **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.
- 3.3.12 **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. LDNPAA 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 health regulations. The cost of removal or treatment will be agreed with the client and costed as a variation.
- 3.3.13 **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. All excavated deposits, whether topsoil, subsoil or from archaeological features, would be scanned for finds visually and with the aid of a metal detector. 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.
- 3.3.14 **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.
- 3.3.15 **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 separately provided Costings document, and would be charged in agreement with the client.

- 3.3.16 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.

3.4 REPORT AND ARCHIVE

- 3.4.1 **Report:** one bound and one unbound copy of the final report will be submitted to the client within two months of completion of fieldwork. Should the client require a draft report, or a separate copy of the desk-based assessment report, bound and unbound copies of such reports can be provided on request, within three weeks of the completion of each stage of the programme of work. Four copies of the report will be submitted to the LDNPA HER. 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
- an interpretation of the desk-based assessment results and their significance, using the 'Secretary of State's criteria for scheduling ancient monuments' included as Annex 4 of PPG 16 (DoE 1990)
- 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 significant 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 of the LDNPA brief together with indications of any agreed departure from that design
- the report will also include a complete bibliography of sources from which data has been derived
- an index to the project archive

- 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 LDNPA 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. An Archaeological Data Service OASIS (online access to the index of archaeological investigations) will be completed and submitted as part of the archiving processes.
- 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 LDNPA 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.
- 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. **Information regarding services within the study area have been received and will be used during the course of the evaluation.**

5 PROJECT MONITORING

- 5.1 Whilst the work is undertaken for the client, the LDNPAA 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 the LDNPAA in consultation with the client. Fieldwork will be monitored by the LDNPAA on behalf of the developer.

6 WORK TIMETABLE

6.1 DESK-BASED ASSESSMENT AND VISUAL INSPECTION

- 6.1.1 Approximately five days will be required for this stage of the programme.

6.2 EVALUATION TRENCHING

- 6.2.1 Approximately two days will be required to complete this element. The provisional coring programme, if required, would take about one day.

6.2.2 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).

6.3 **REPORT**

6.3.1 Copies of the report, as outlined in *Section 3.4.1*, will be issued to the client and other relevant parties within two months of the completion of fieldwork, unless otherwise agreed prior to the commencement of fieldwork.

6.4 **ARCHIVE**

6.4.1 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. Soil micromorphological assessment and supervision of onsite sampling will be undertaken by Dr Lucy Verril (OA North Palaeoenvironmentalist). 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**

English Heritage, 1991 *Management of Archaeological Projects*, second edition, 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

APPENDIX 3: DETAILED TRENCH RESULTS

Trench 1	Dimensions 50.0m by 1.8m	Orientation north/south
Context	Description	Depth
100	Topsoil, a blackish brown silty clay.	0.22m
101	Fill of ditch 102 . A blackish brown silty clay. Natural silting of ditch from sediment eroded from surrounding topsoil, and humic matter from decayed vegetation.	0.15m
102	Ditch. Shallow linear feature, orientated on a east-west alignment, 1.2m wide.	0.15m
103	Natural. A mid-grey marine clay with mid-orange mottles.	-
104	Lower fill of ditch 105 . A deposit of black peat.	0.98
105	Ditch. A shallow linear feature 2.2m wide, orientated in a east/west orientation.	1.48m
106	Upper fill off ditch 105 . A light grey clay deposit, natural marine clay backfilling, and capping, ditch 105 .	0.50m

Trench 2	Dimensions 50.0m.1.8m	Orientation north-east/south-west
Context	Description	Depth
200	Topsoil. A mid-dark grey silt clay.	0.18m
201	Fill of ditch 202 . A black/very dark brown silty clay.	0.22m
202	A shallow ditch, 2.15m wide orientated on a east/west alignment. The base of the feature has significant quantities of root action, creating an uneven surface, and it is debatable as to whether this feature really represents the location of grubbed out hedge.	0.22m
203	Natural. A mid-grey marine clay with mid-orange mottles.	-

Trench 3	Dimensions 20.0m.1.8m	Orientation east /west
Context	Description	Depth
300	Topsoil. A very dark grey silty fine sand.	0.60m
301	Natural. A mid-grey marine clay with mid-orange mottles.	-

Trench 4	Dimensions 50.0m.1.8m	Orientation north-east/south-west
Context	Description	Depth
400	Topsoil. A dark orange brown silty fine sand.	0.38m
401	Natural. A mid-grey marine clay with mid-orange mottles.	-



Figure 1: Site Location

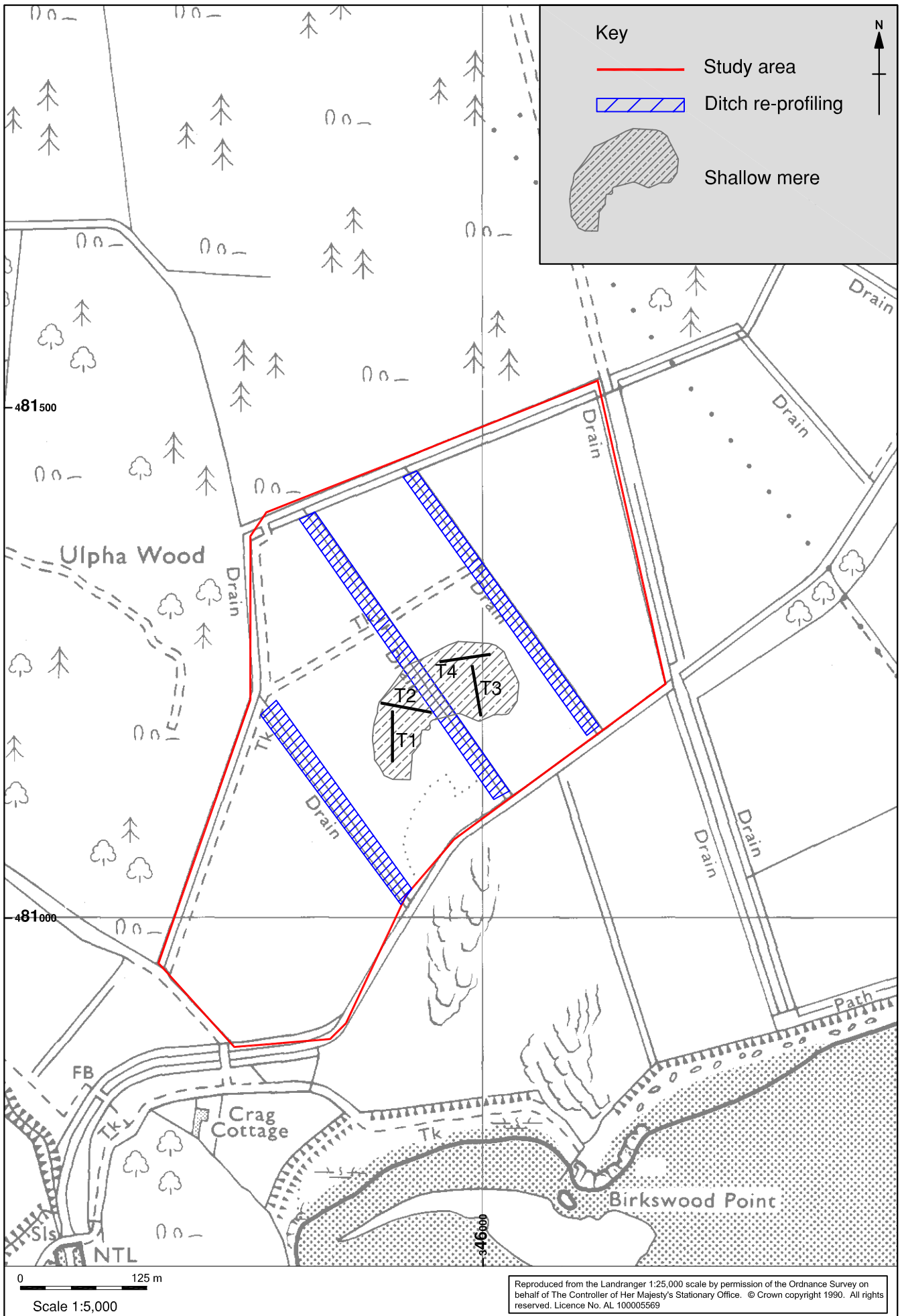


Figure 2: Trench location plan

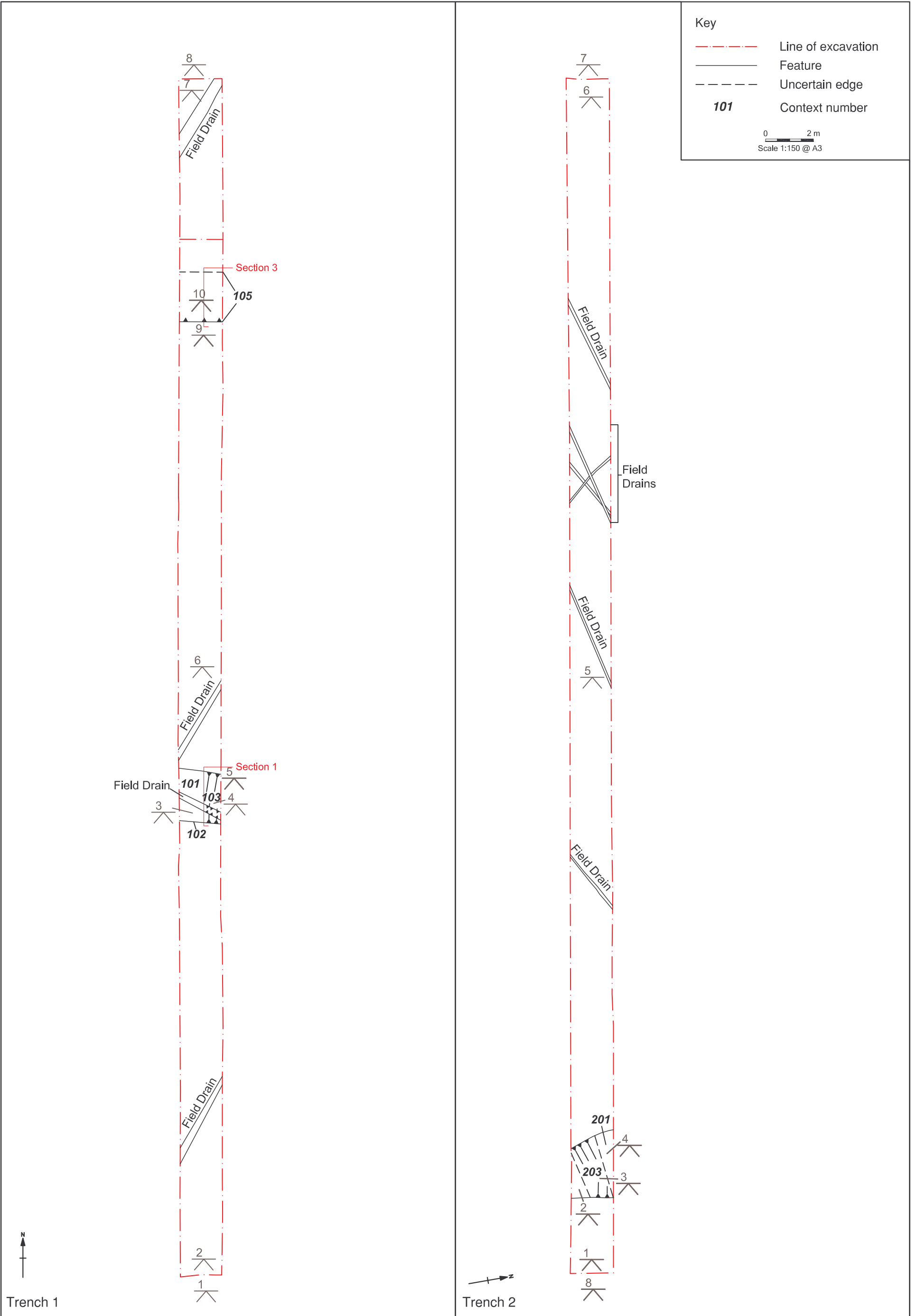


Figure 3: Plan of Trenches 1 and 2

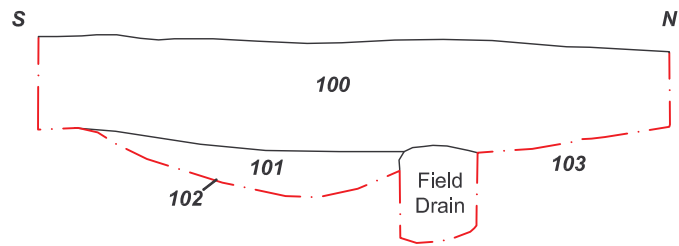
Key

--- Line of excavation

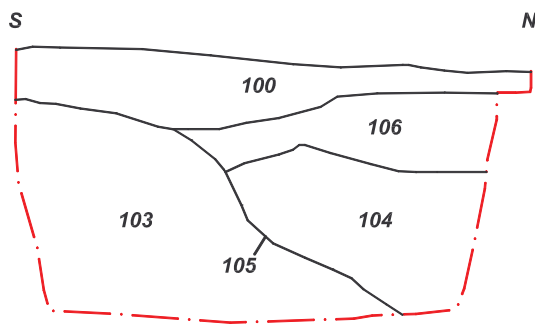
— Feature

101 Context number

0 1 m
Scale 1:50 @ A4



East-facing section of **102**, Trench 1



East-facing section of **105**, Trench 1

Figure 4: Sections through features within Trench 1





Plate 1: West-facing section of ditch *105* within Trench 1



Plate 2: West-facing section of ditch *102* within Trench 1