

# Walney Offshore Windfarm, Onshore Cable Route, Heysham, Lancashire



## Archaeological Watching Brief



**Oxford Archaeology North**

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behalf of Dong Walney (UK)  
Ltd**

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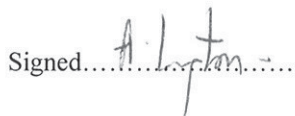
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Prepared by: Kelly Clapperton  
Position: Supervisor  
Date: April 2011

Checked by: Emily Mercer  
Position: Senior Project Manager  
Date: April 2011

Approved by: Alan Lupton  
Position: Operations Manager  
Date: April 2011

Signed.....

Signed.....

**Oxford Archaeology North**

Mill 3, Moor Lane Mills  
Moor Lane  
Lancaster  
LA1 1GF  
t: (0044) 01524 541000  
f: (0044) 01524 848606

w: [www.oxfordarch.co.uk](http://www.oxfordarch.co.uk)  
e: [info@oxfordarch.co.uk](mailto:info@oxfordarch.co.uk)

**© Oxford Archaeology Ltd (2011)**

Janus House  
Osney Mead  
Oxford  
OX2 0EA  
t: (0044) 01865 263800  
f: (0044) 01865 793496

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## SUMMARY

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RSK Environment Ltd, on behalf of their client Dong Walney (UK) Ltd, commissioned Oxford Archaeology North (OA North) to undertake an archaeological watching brief during the installation of an onshore cable from the Walney Offshore Windfarm, from Half Moon Bay to the electricity substation on Middleton Road, Heysham, Lancashire (NGR SD 34010 45913 to SD 34173 46014). The watching brief was requested as a condition of the planning permission agreed as a result of consultation between RSK Environment Ltd and Lancashire Council Archaeological Service (LCAS), and was based on an environmental assessment undertaken by Wessex Archaeology Ltd. This previous assessment had identified the potential for prehistoric remains or deposits across the development area, particularly around the area of Heysham Moss, which has high potential for palaeoenvironmental remains. Following the results of the environmental assessment, OA North carried out a programme of fieldwalking and palaeoenvironmental sampling across the area. These produced no results of archaeological or palaeoenvironmental interest.

The area of cable trench observed during its excavation was approximately 1km in length, and divided into three sections for the purposes of recording; Section A, B and C. It measured 1.2m in width, which decreased by 0.4m to a width of 0.7m towards the base, and 1.4m in depth.

Sections A and B comprised tarmac and hardcore overburden to a depth of 0.4-0.6m, most likely used to level the area up when Ocean Edge Caravan Park was established. In Section A, this area was underlain by windblown sand to depths exceeding 1.4m. Towards the northern end of the section, the depth of the overburden increased rapidly to more than 1.5m, in line with the rapid drop-off of slope towards the sea. In Section B, the overburden sealed various deposits of alluvial sands and gravels, including the remains of a palaeochannel. These probably formed part of the estuarine deposits and channels that criss-crossed the Morecambe Bay area before the land was reclaimed. A single deposit of building rubble was observed in Section B, which may have resulted from the demolition of the nearby Long Whitley Farm, and its reuse as part of the levelling overburden. Section C comprised imported topsoil, sealing an extensive deposit of rubble overburden that exceeded 2m in depth, and most likely formed the sea defences fronting the caravan park.

The composition of the cable trench indicates an area that had been relatively undisturbed before it had been reclaimed for agricultural purposes in the recent past. The majority of the area had been levelled up, most likely when the caravan park was established. The area along the shore has been filled in with quantities of refuse and rubble, partially to level the area, and partially to act as a sea defence. The heavily disturbed layer of building rubble identified in Section B was the only remains fully definable as being of archaeological interest. The palaeochannel, whilst not anthropomorphic in origin, would indicate a potentially intact, early land surface sealed below the overburden. Unfortunately, due to the depth and instability of the pipe trench the palaeochannel was not accessible and, as a result, no environmental samples were removed. No further features or deposits of archaeological interest were encountered during the watching brief.

## ACKNOWLEDGEMENTS

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Oxford Archaeology North would like to thank RSK Environment Ltd, on behalf of Dong Walney (UK) Ltd, for commissioning the project. The fieldwork was undertaken by Kelly Clapperton, Ged Callaghan and Tim Christian. The report was written by Kelly Clapperton, and the illustrations produced by Marie Rowland. The project was managed by Emily Mercer, who also edited the report.

## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 RSK Environment Ltd, on behalf of their client Dong Walney (UK) Ltd, commissioned Oxford Archaeology North (OA North) to undertake an archaeological watching brief during the installation of an onshore cable from the Walney Offshore Windfarm, from Half Moon Bay to the electricity substation on Middleton Road, Heysham, Lancashire. In 2002 an environmental assessment was undertaken by Wessex Archaeology Ltd (Wessex Archaeology 2002), which identified the potential for prehistoric remains or deposits across the development area. Specifically, the area of Heysham Moss was identified as an area of particularly high palaeoenvironmental and prehistoric potential (Wessex Archaeology 2002; Middleton *et al* 1995). As a consequence, OA North carried out a programme of fieldwalking and palaeoenvironmental coring in 2005. These produced no results of archaeological or palaeoenvironmental interest.
- 1.1.2 As a result of the programme of archaeological works, an archaeological watching brief was required as a planning condition, as agreed between Lancashire County Archaeological Services (LCAS) and RSK Environment Ltd. Consequently, a Written Scheme of Investigation (WSI; *Appendix 1*), was prepared in accordance and approved by LCAS. The following report summarises the results of the fieldwork.

### 1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.2.1 The cable route comes ashore at Red Nab rocks (NGR SD 34010 45913, Figs 1 and 2), to the south of Heysham nuclear power station. It then runs eastward, past Ocean Edge Caravan Park, the sewage works and Heysham Business Park, before turning north, following Middleton Road to the electricity substation (NGR SD 34173 46014, Figs 1 and 2).
- 1.2.2 The route passes through an area of low, gently undulating relief that does not exceed 15m OD in height. Prior to the mid-twentieth century, all the available mapping shows the route crossing a belt of agricultural land between the settlements of Heysham and Middleton, dotted throughout with occasional farmsteads (Wessex Archaeology 2002). At its north-western end, the route runs along the south-western edge of Heysham Moss, an area of marshland drained and turned over to agriculture during the nineteenth century (Middleton *et al* 1995).
- 1.2.3 The landscape of the surrounding areas includes extensive salt marshes, reclaimed mosses and marshland, a small area of remnant mossland at Heysham, and sand and shingle beaches around the Lune estuary. The underlying geology of the area consists of limited outcrops of carboniferous Millstone Grit sandstones and Triassic red sandstone, which form the rocky outcrops seen on the beaches at the site (Countryside Commission 1998, 83).

### 1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

- 1.3.1 The following section is a brief summary of the archaeological background of the development area. A more detailed archaeological assessment was undertaken by Wessex Archaeology Ltd in 2002, and should be read in conjunction with this report.
- 1.3.2 **Prehistoric Period:** finds, such as flint stone tools, have been recovered from the wider area of Heysham, dating to the Neolithic and Bronze Age, although few such findspots are recorded in the immediate vicinity of the cable route. During the 1990s, a late Mesolithic site was excavated at Heysham Head, to the north, and an area north of the harbour in Heysham was reputed to have contained later prehistoric barrows. This area, however, was developed for housing in the twentieth century. The presence of Heysham Moss significantly increases the potential for prehistoric remains (OA North 2008). The area comprises extensive buried salt marsh and peat, and could provide important information on the changing sea levels over the past millennia (*ibid*). The latest marine transgression occurred during the early Neolithic, 3331-2348 cal BC (Huddart *et al* 1977), suggesting potential for Mesolithic and early Neolithic remains located within the marine clay interface. Palaeoenvironmental work undertaken by OA North (OA North 2005), however, produced no alluvial peat deposits or palaeochannels, and no archaeological finds, feature or deposits were recorded.
- 1.3.3 **Early Medieval Period:** to the north of the development site, within the village of Heysham, is the eighth to ninth century St Patrick's Chapel. Rock cut graves within the Rectory maybe of Saxon date, attesting to early medieval activity in the wider vicinity. This activity, however, seems to be concentrated to the north as opposed to the area around the cable route.
- 1.3.4 **Medieval Period:** medieval activity is documented to the north and south of the development area; with the Chapel at Heysham and the village of Overton being the foci for settlement. Nevertheless, the marginal nature of the site would mean that the potential for medieval remains is low.
- 1.3.5 **Post-Medieval Period:** during the post-medieval period the area was subject to a programme of improvement and enclosure, as well as small-scale extraction industries. Map evidence indicates that settlement barely altered, still being centred on Heysham to the north, and Middleton and Overton to the south. Therefore, bar possible evidence relating to post-medieval agricultural or pastoral activities, potential for further historical remains are low.
- 1.3.6 **Modern Period:** during the earlier part of this period, the construction of Heysham Harbour and the railway significantly altered the nature of the area, although, again, these are focused to the north of the development site. Towards the end of the twentieth century, the construction of Heysham Nuclear Power Station, immediately to the north-west of the cable route,

heavily impacted on the local vicinity, and most likely had a considerable influence on the development site.

- 1.3.7 Several wreck sites are also documented along the nearby shoreline, such as 'The Vanadis', to the north of Heysham, while an unnamed wreck lies off Red Nab within the inter-tidal zone. Potential of disturbance related to wrecks, however, is considered to be low.



## 2. METHODOLOGY

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### 2.1 WRITTEN SCHEME OF INVESTIGATION

- 2.1.1 In response to a request from the client, OA North issued a WSI (*Appendix 1*), the methodology of which was adhered to in full. The work was consistent with the current standards and procedures of the Institute for Archaeologists (2008), and generally accepted best practice.

### 2.2 FIELDWORK

- 2.2.1 The cable trench was excavated by an eight ton 360° mechanical excavator fitted with a 0.7m wide, toothless ditching bucket under the constant supervision of an archaeologist. Initially, a 1.2m wide trench was excavated by the removal of tarmac and levelling material down to natural sand, a depth of approximately 0.4m, and taken away from site by a front-loading dumper. A narrower trench, 0.7m wide, was then excavated through the natural deposits for a further *c* 1m, therefore the cable trench measured *c* 1.4m in total depth. The sand was retained for subsequent backfilling. Due to the public nature of the site, sections of cable trench had to be excavated, assessed, and the pipe laid and backfilled within the working day. On average, 30m of trench was excavated and backfilled per day.
- 2.2.2 All deposits observed during the watching brief were recorded on *pro forma* sheets produced by OA North, and representative sample sections of the trenches were illustrated at an appropriate scale. A monochrome print photographic archive was compiled, and digital photographs were taken for reference purposes.

### 2.3 ARCHIVE

- 2.3.1 A full and professional archive has been compiled in accordance with the WSI (*Appendix 1*) and current IfA (2008) and English Heritage guidelines (1991). The original record and material archives will be deposited with the Museum of Lancashire in Preston, while a copy of the report will be submitted to the Lancashire HER, also in Preston.

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## 3. FIELDWORK RESULTS

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### 3.1 INTRODUCTION

3.1.1 The following provides a detailed summary of the deposits and results of the archaeological watching brief. As the pipeline trench observed was approximately 1km in length, comprising quite divergent deposits, it has been divided into three sections; Section A to C (Fig 2). Each one will be discussed individually.

### 3.2 RESULTS

3.2.1 **Section A:** was the central section, but excavated first, and ran north-west from the entrance of Ocean Edge Caravan Park, following the northern-most park track, for approximately 370m, before meeting the western-most road of the caravan park and Section C (Fig 2). The majority of the pipe trench, from the eastern end, comprised 0.04m of tarmac, sealing a levelling layer consisting of mid-light, coarse and friable, pinkish-brown sand, with over 75% sandstone fragments, 0.3m to 0.5m thick, which in turn sealed natural geology, a light, soft pinkish-yellow sand, formed by both alluvial and windblown deposition. A stark change in deposits was identified towards the north-western end of the section, where the natural sand began to slope steeply downwards, and significant quantities of overlying levelling material were deposited. These rapidly exceeded 1.5m in depth. Except the presence of several small service pipes for the caravan park, no features or deposits of archaeological interest were identified along Section A.

3.2.2 **Section B:** situated to the east of Section A, ran south-east for approximately 300m along the northern-most track, from the entrance of the caravan park to its eastern limit. It comprised 0.1m of tarmac, which sealed 0.3m of levelling material, identical to Section A. This overlaid 0.35m of fine and friable, mid reddish-brown sand, which was preceded by a fine and friable, mid-light pinkish-yellow sand, 0.5m thick. The final deposit in Section B was a coarse and friable, mid reddish-brown sand with 50% water-worn gravels, more than 0.4m thick. The majority of these were formed by fluvial processes. The western end of the cable trench was heavily contaminated by diesel.

3.2.3 Approximately 100m south-east from the park entrance a putative palaeochannel was observed. It was approximately 7m in width, and 0.3m to 0.36m in depth, and comprised numerous layers of mid-dark brown, blackish-brown, reddish-brown and orange-brown sands, all alluvial in nature and laid down by a series of rapid flooding events. Towards the base of the palaeochannel was a layer of water-worn gravel in a dark blackish-brown sand matrix, accumulating gradually in a watery environment. The palaeochannel was then sealed by a 0.1m thick layer of windblown, mid reddish-orange sand. Due to the instability of the sides and depth of the trench, greater than 1.4m, the palaeochannel was not safely accessible for the removal of

palaeoenvironmental samples. Therefore, assessment of the channel could only be undertaken from the ground surface.

3.2.4 Towards the eastern end of this section, an area of demolition rubble was observed, comprising bricks and stone paving slabs. This was adjacent to the location of Long Whitley Farm, identified on the first edition Ordnance Survey (1848; Fig 3). No further archaeological features or deposits were identified in Section B.

3.2.4 **Section C:** was the most westerly section, positioned on the sea front, and involved the excavation of a large 4m by 10m by 2m ‘bay’, where the cable came ashore. It comprised 0.04m of imported topsoil; a dark brown sandy-silt, overlying made-up ground; a loose, mid reddish-brown sandy-silt including more than 50% sub-angular stones measuring up to 0.1m x 0.2m x 0.3m, 20% concrete fragments, plastic and metal. This exceeded the 2m depth of the excavation. No features or deposits of archaeological interest were identified in this section.

## 4. CONCLUSIONS

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### 4.1 DISCUSSION

- 4.1.1 The composition of the cable trench indicates an area that had been relatively undisturbed before being reclaimed for farmland in the recent past. The majority of the area had been levelled up, most likely when Ocean Edge Caravan Park was established, while the area along the shore has been filled in with quantities of refuse and rubble, partially to level the area, and partially to act as a sea defence. At the eastern end of the cable trench a deposit of building rubble was identified. This may well have been associated with the former Long Whitley Farm, which was identified on the first edition Ordnance Survey map (1848, Fig 3), but was no longer in existence in later editions. The nature of the deposit, however, would suggest that the settlement had been fully razed, and that the potential for any extant remains is extremely low. The palaeochannel identified in Section B was most likely one of the many estuarine channels that criss-crossed the Morecambe Bay area before much of the land was reclaimed, and might indicate potential for intact, early ground surfaces sealed below the overburden.
- 4.1.2 Apart from the heavily disturbed layer of building rubble identified in Section B, no features or deposits of archaeological interest were encountered during the watching brief.

## 5. ILLUSTRATIONS

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### 5.1 FIGURES

Figure 1: Site location

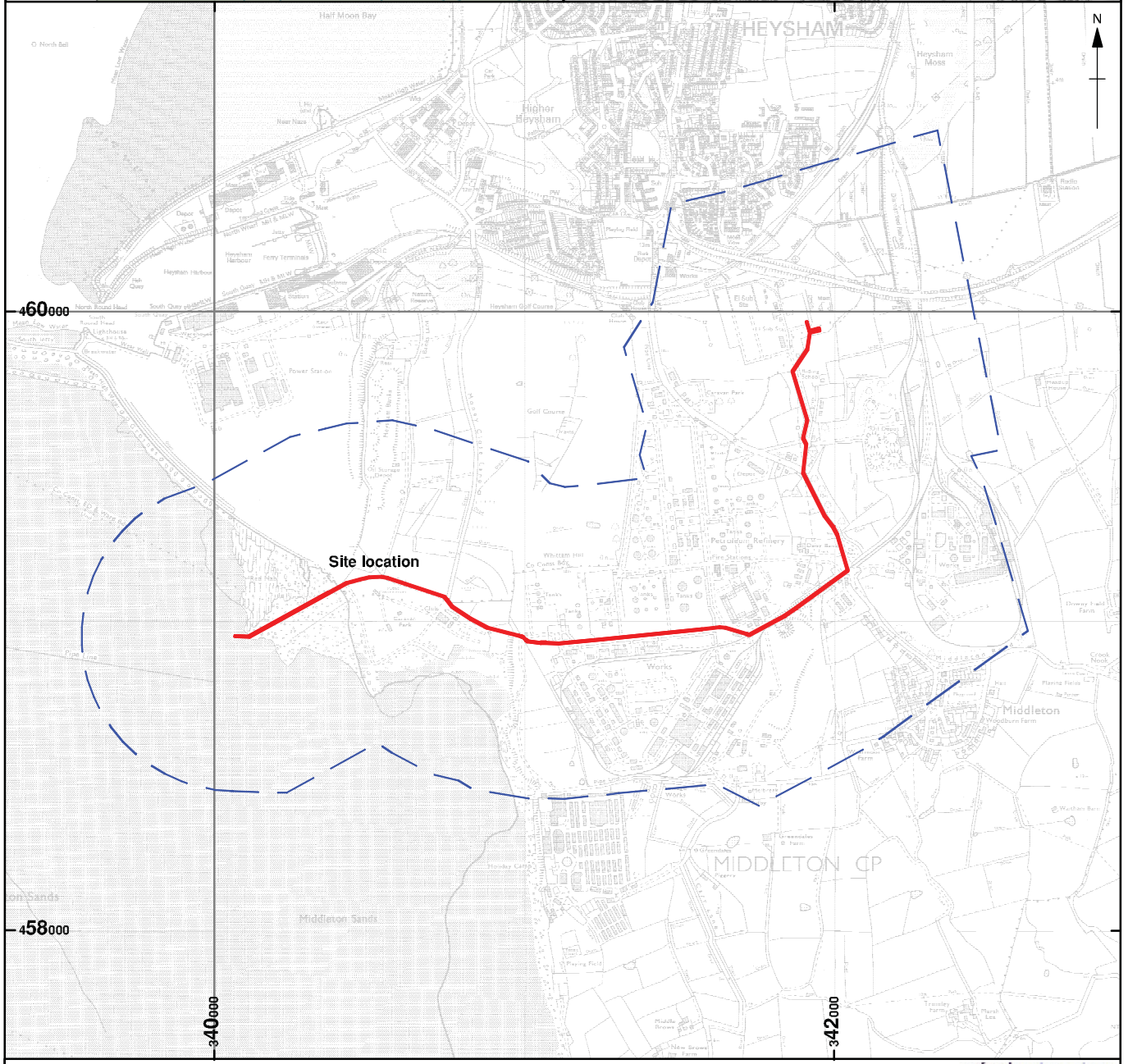
Figure 2: Location plan of Sections A to C

Figure 3: Location of Long Whitely Farm in relation to the cable route

### 5.2 PLATES

Plate 1: General section shot showing the layers making up Section A

Plate 2: Section shot of palaeochannel identified in Section B



Based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office ©Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Oxford Archaeology Licence No. AL 100005569 (2010).

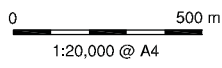


Figure 1: Site location

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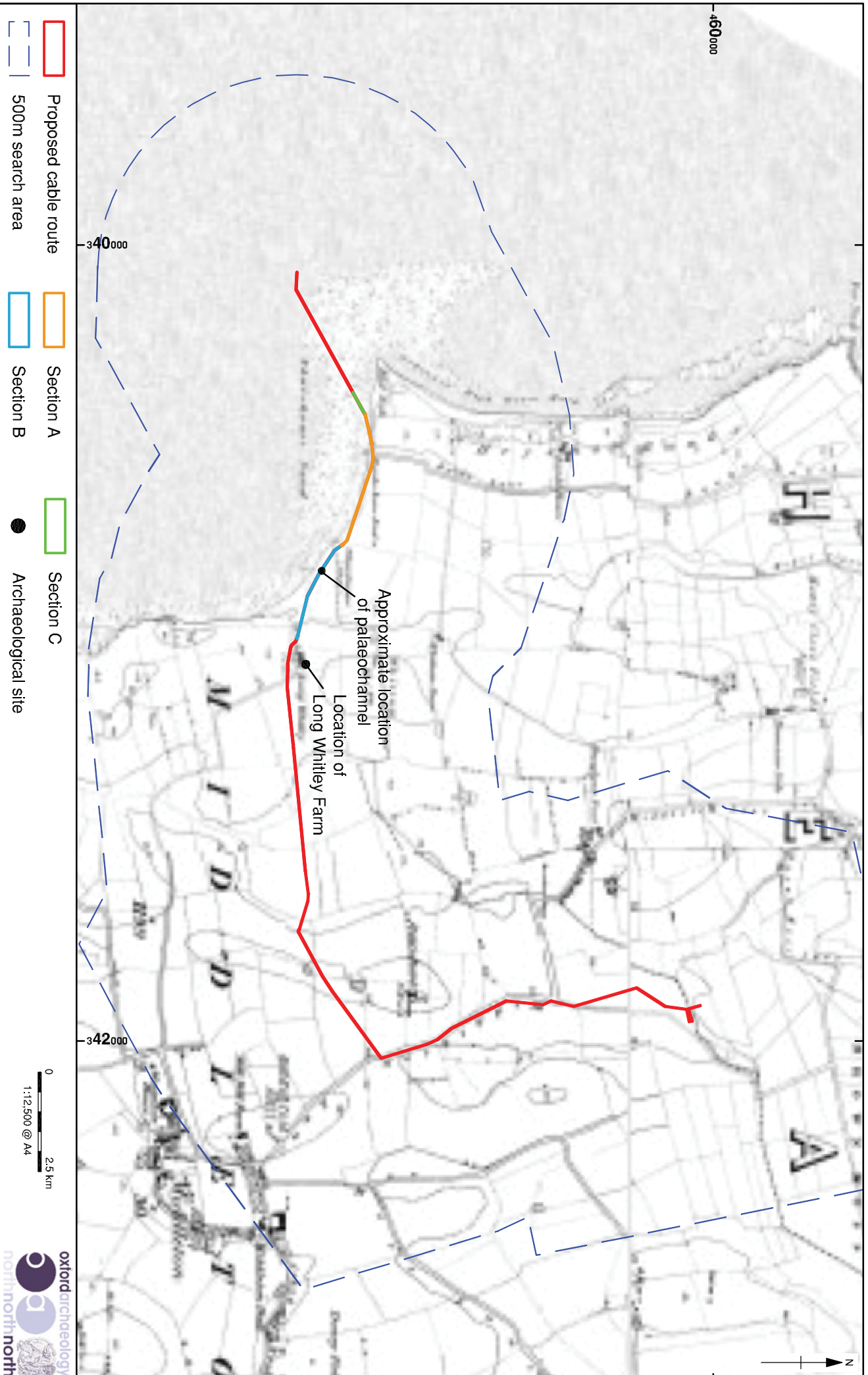


Figure 3: Location plan of Sections A to C superimposed on the Ordnance Survey First Edition 6":1 mile map of 1848





Plate 1: General section shot showing the layers making up Section A



Plate 2: Section shot of palaeochannel identified in Section B

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## APPENDIX 1: WRITTEN SCHEME OF INVESTIGATION

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### 1. INTRODUCTION

#### 1.1 PROJECT BACKGROUND

1.1.1 RSK Environment Ltd (hereafter the 'client'), on behalf of their client Dong Walney (UK) Ltd, has requested that Oxford Archaeology North (OA North) prepare a Written Scheme of Investigation (WSI) for a programme of archaeological watching brief associated with the installation of an onshore cable from the Walney Offshore Windfarm, from Half Moon Bay and around the south of Heysham, Lancashire (NGR centred 341000 460000). The groundworks necessitating a permanent archaeological presence includes the construction of a Network Rail Crossing, the construction of a Sea Defence Wall crossing, and the excavation of cable pipe trenches.

1.1.2 An environmental assessment was undertaken by Wessex Archaeology Ltd (2002) of the proposed Windfarm development, which identified the potential for prehistoric remains or deposits, although confined to areas not disturbed later nineteenth or twentieth century development. In addition, the onshore cable route runs along the south-western edge of Heysham Moss, which was an area of marshland drained and turned over to agriculture during the nineteenth century (Middleton *et al* 1995).

1.1.3 As a consequence, in 2005 OA North carried out a programme of fieldwork (OA North 2005a), which included fieldwalking (*ibid*) and palaeoenvironmental coring offshore (OA North 2005b). The archaeological assessment was updated by RSK Environment Ltd (2008) as part of a review of any outstanding consent requirements for the construction of the onshore cable route and associated substation extension. The route of the cable assessed by RSK was from the Mean Low Water Mark (MLWM), through Heysham to the existing Heysham Substation and the extension to the substation. As a result of this work, and consultation between RSK and the Lancashire County Archaeology Service (LCAS), it was decided that an archaeological watching brief was required during excavation works to enable any archaeological remains disturbed during the groundworks to be recorded in mitigation.

1.1.4 There is likely to be a requirement for palaeoenvironmental sampling and assessment during the watching brief; where the proposed cable route crosses Heysham Golf Course and near to the substation there are numerous drainage ditches marked, which is suggestive of the possibility that there may be intercalated marine and peat deposits preserved (E Huckerby pers comm.). Indeed, Heysham Moss was almost certainly more extensive than it is nowadays and therefore the likelihood of finding buried salt marsh or peat deposits is high. The land around Morecambe Bay is known to have been influenced by changing sea levels in the past and palaeoenvironmental assessment could provide some indication of the extent of the marine incursions when sea level was higher than it is now. The earliest recorded marine transgression from Heysham Head is dated to 9216-7982 cal BC (Shotton and Williams 1971), with the culmination of a later transgression (Lytham IV) dated to 3331-2348 cal BC (4190±150; Hv 2920) in the early Neolithic (Huddart *et al* 1977). Therefore, there is the possibility that both Mesolithic and Early Neolithic remains and deposits may be recovered from the interface of the marine clays and the peat if any such deposits are identified.

#### 1.2 OXFORD ARCHAEOLOGY NORTH

1.2.1 OA North has considerable experience of fieldwork and post-excavation, having undertaken a great number of small and large-scale projects during the past 30 years. Such projects have taken place to fulfil the requirements of the clients to rigorous timetables. More specifically, however, OA North has previously been involved with the Walney Offshore Windfarm scheme for the purposes of the Environmental Impact Assessment in 2005. Furthermore, considering the potential for palaeoenvironmental evidence to be encountered, OA North has unparalleled internal specialist knowledge of the area, through work undertaken as part of the North West Wetlands survey.

1.2.2 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 archaeological deposits or features that may be present during groundworks. It will be undertaken in order to mitigate the impact by means of preservation by record of any such archaeological features or deposits. The work will be carried out in line with current IFA guidelines and in line with the IFA Code of Conduct.

2.2 **Archaeological Watching Brief:** to maintain a permanent archaeological presence during groundworks. The purpose is to identify, investigate and record any archaeological remains that may be encountered. Where such remains cannot be adequately recorded under watching brief conditions it may be necessary to undertake consultation with all interested parties to determine and implement the appropriate mitigation.

2.3 **Report:** the results of the fieldwork and any post-excavation assessment will culminate in a final report to be submitted within eight weeks of completion of the fieldwork (subject to any specialist reports outstanding).

2.4 **Archive:** a site archive will be produced to English Heritage guidelines (MAP 2 (1991)). The information will be finally disseminated through the deposition of the archive at a local museum, and report at the County Historic Environment Record (HER) Office in Preston.

## 3. METHOD STATEMENT

### 3.1 HEALTH AND SAFETY

3.1.1 **Risk assessment:** 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). OA North will liaise with the client to ensure all health and safety regulations are met.

3.1.2 **Contamination:** any contamination issues must also be made known to OA North in order that adequate PPE can be supplied prior to commencement. Should any presently unknown contamination be discovered during excavation, it may be necessary to halt the works and reassess the risk assessment. Any specialist safety requirements may be costed as a variation.

### 3.2 ARCHAEOLOGICAL WATCHING BRIEF

3.2.1 **Introduction:** a programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits during the ground disturbance for the installation of the onshore cable and other ancillary works.

3.2.2 **Methodology:** the work will comprise archaeological observation during the excavation, to include the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified.

3.2.3 Discovery of archaeological remains will require stoppage of the excavation. Areas of potential archaeological remains will require fencing-off from any construction works, preferably with netlon-type fencing, to allow the OA North archaeologist sufficient time to undertake adequate recording under safe conditions. This will be carried out as efficiently as possible in order to minimise disruption. Depending on the deposits revealed, it is anticipated that the average time for the suspension of works will be approximately 2-4 hours.

- 3.2.4 Clearance will be given for construction to proceed once the archaeologist is satisfied that either no remains are present, or that they have been adequately recorded, or that the level of impact will not disturb any deeper remains that can be preserved *in situ*.
- 3.2.5 **Complex or extensive remains:** should the remains be too complex or extensive to be investigated and recorded under watching brief conditions then the area will be fenced-off and the client will be immediately contacted in order to determine the requirements for further investigation. All further construction works within the marked area will cease until clearance is given to proceed. All further works would be subject to a variation to this project design.
- 3.2.6 **Investigation and recording:** putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (i.e. 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).
- 3.2.7 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid co-ordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large-scale digital plan to be provided by the client. A photographic record will be undertaken simultaneously.
- 3.2.8 Levels will be recorded and reduced to their OD heights, with all benchmark and TBMS to be shown. The location of all features excavated will be recorded by Total Station with appropriate spot heights and tied into the OS grid. Altitude information will be established with respect to OS Datum. The location of the remains within the areas of construction will be based on site plans provided by the client containing OS information.
- 3.2.9 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more dimensioned sections will be produced.

### 3.3 GENERAL PROCEDURES

- 3.3.1 **Environmental Sampling:** previous work has shown the area to have a high potential for good preservation of palaeoenvironmental evidence. Therefore, during fieldwork one of the OA North palaeoenvironmentalist will regularly visit the site to advise on procedures and a suitable sampling strategy. It is proposed that a palaeoenvironmentalist visit the site at least at the beginning of each stage of work and every three days approximately thereafter. The cost for the palaeoenvironmentalist's attendance has been provided separately and visits will be agreed with the client at the time of the fieldwork.
- 3.3.2 Samples (bulk samples of 40 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). Monolith samples will be collected from freshly exposed sections through all buried soils/old ground surfaces by trained staff. These will be returned to OA North's offices for processing.
- 3.3.3 Deposits of particular interest may incur additional sampling, on advice from the appropriate in-house specialist.
- 3.3.4 The location of all samples will be recorded on drawings and sections with heights OD etc.
- 3.3.5 Between 50%-100% of bulk samples shall be selected for processing, based on the advice from OA North's in-house environmental manager. An assessment of the environmental potential 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, the samples would be assessed for plant macrofossils, insect, molluscs and pollen from waterlogged deposits.

- 3.3.6 In order to achieve the aims of the programme of work, it may be required to obtain dating evidence through radiocarbon dating, dendrochronological or other such techniques. This would only be undertaken in consultation with the client.
- 3.3.7 **Human Remains:** previous work has not produced any evidence for the potential for human remains. However, should any be discovered they 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. The client, LCAS curator 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. Any delays caused by unforeseen and complex excavation of inhumations may be subject to a variation to the cost of the contract and will be agreed with the client.
- 3.3.8 **Finds:** all finds recovered during the evaluation investigation (metal detecting and trial trenching) 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.
- 3.3.9 Finds recovery and sampling programmes will be in accordance with best practice (current IFA guidelines) and subject to expert advice. OA has close contact with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, the University of Durham.
- 3.3.10 Neither artefacts nor ecofacts will be collected systematically during the mechanical excavation of the topsoil unless significant deposits, for example clay pipe waster dumps, are encountered. In such an eventuality, material will be sampled in such a manner as to provide data to enhance present knowledge of the production and dating of such artefacts, although any ensuing studies will not be regarded as a major element in any post-excavation analysis of the site. Other finds recovered during the removal of overburden will be retained only if of significance to the dating and/or interpretation of the site. It is not anticipated that ecofacts (eg unmodified animal bone) will be collected during this procedure.
- 3.3.11 Otherwise, artefacts and ecofacts will be collected and handled as per specification. All material will be collected and identified by stratigraphic unit during the evaluation trenching process. Hand collection by stratigraphic unit will be the principal method of collection, but targeted on-site sieving could serve as a check on recovery levels. Objects deemed to be of potential significance to the understanding, interpretation and dating of individual features, or of the site as a whole, will be recorded as individual items, and their location plotted in 3-D. This may include, for instance, material recovered from datable medieval pit groups.
- 3.3.12 All finds will be treated in accordance with OA standard practice, which is cognisant of IFA and UKIC Guidelines. In general this will mean that (where appropriate or safe to do so) finds are washed, dried, marked, bagged and packed in stable conditions; no attempt at conservation will be made unless special circumstances require prompt action. In such case guidance will be sought from OA North's consultant conservator.
- 3.3.13 All waterlogged finds will be treated as appropriate. In the case of large deposits of waterlogged environmental material (eg unmodified wood), advice will be sought with the OA North consultant with regard to an appropriate sampling strategy.
- 3.3.14 Where possible, spot dates will be obtained on pottery and other finds recovered from the site. Artefacts will be examined and commented upon by OA North in-house specialists. Initial artefact dating shall be integrated into the site matrix.
- 3.3.15 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.

### 3.4 REPORT

3.4.1 **Final Report:** one bound and one unbound copy of a written synthetic report will be submitted to the client, together with a copy on CD, within eight weeks of completion of the fieldwork, unless an alternative deadline is agreed with the client beforehand. A pdf version will also be submitted to the Lancashire HER for reference purposes. The report will present, summarise, and interpret the results of the programme detailed above in order to come to as full an understanding as possible of the archaeology of the development area. The report will include;

- a front cover to include the NGR,
- a concise, non-technical summary of the results,
- the circumstances of the project and the dates on which the fieldwork was undertaken,
- description of the methodology, including the sources consulted,
- a summary of the historical background of the study area,
- a statement, where appropriate, of the archaeological implications of the impact,
- 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, and a list of any further sources identified but not consulted,
- a site location plan related to the national grid,
- appropriate plans showing the location and position of features or sites located,
- plans and sections showing the positions of deposits and finds,
- illustrative photographs as appropriate.

3.4.2 **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.

### 3.5 ARCHIVE

3.5.1 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*, Appendix 3, 2nd edition, 1991). The archive will contain site matrices, and summary reports of the artefact record, context records, and any other records or materials recovered.

3.5.2 This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the Lancashire HER (the index to the archive and a copy of the report). OA North will deposit the original record archive of projects (paper, magnetic and plastic media), and a full copy of the record archive (microform or microfiche), together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum, which is likely to be the Museum of Lancashire.

## 4. WORK TIMETABLE

4.1 **Archaeological Watching Brief:** the duration of the archaeological presence for the watching brief will be dictated by the client's schedule of works and is anticipated to commence in 2009.

4.2 **Report:** the client report will be completed within approximately eight weeks following completion of all fieldwork elements, subject to any outstanding specialist reports.

4.3 **Archive:** the archive will be deposited within six months following completion of the site work.

5. STAFFING

- 5.1 The project will be under the direct management of **Emily Mercer BA (Hons) MSc AIFA** (OA North Senior Project Manager) to whom all correspondence should be addressed.
- 5.2 The fieldwork will be undertaken by an OA North supervisor or assistant supervisor experienced in this type of project, who will be responsible for liaison with the site contractors and the client, and other relevant interested parties with regards to on-site work and procedures. The attending archaeologist will be supported by specialist staff based both on site and in the office in Lancaster.
- 5.3 Finds management will be undertaken by **Christine Howard-Davis** (OA North Finds Manager) who will also provide specialist input on certain finds categories.
- 5.4 Environmental management will be undertaken by **Elizabeth Huckerby** (OA North Environmental Manager) who has unparalleled experience of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey. Elizabeth will be assisted by **Denise Druce**, both of whom will provide specialist input on charred remains and pollen, and will advise on site sampling procedures and co-ordinate the processing of samples and organise internal and external specialist input as required.

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