HYNDBURN WIND FARM, Oswaldtwistle Moor, Lancashire

Archaeological Trenching Report

Oxford Archaeology North

March 2011

Energiekontor UK Ltd
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OA North Job No: L10314
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SUMMARY

Energiekontor UK Ltd was granted consent to construct a wind farm on Oswaldtwistle Moor, Hyndburn, Lancashire (centred at SD 745 244) in March 2010 subject to a programme of archaeological work on the site, in accordance with Condition 23, as outlined in the cultural heritage assessment that supported the planning application (Energiekontor 2009). A survey report (OA North 2010) recorded a number of archaeological sites, including field boundaries, ridge and furrow, quarries, and a trackway, and made recommendations for further work. OA North was subsequently commissioned to undertake a programme of archaeological trenching on the site. The location of the trenches was designed to mitigate the predicted effects of the development upon recorded archaeological sites and also examine the sites of the proposed turbines, service roads, and compound. This second phase of fieldwork was undertaken in November and December of 2010, the results of which are presented in this document.

The excavation of the trenches was focussed upon archaeological sites recorded by the previous work, and also identified a number of additional features that were associated with the eighteenth century enclosure of the common lands on the moor, in 1774, and the subsequent attempts to improve the pasture. These included drystone walls (in Trenches 19, 21, 22, 25 and 26), drainage features (in Trenches 1, 2, 3, 4, 13, 14, 18, 19, 21, 22, 23, 25 and 26), a trackway (in Trenches 4, 17 and 18), a marl pit (in Trench 17) and two quarries (in Trenches 17 and 23). Four undated pits were located in Trenches 1, 8, 9 and 18.

The field boundary walls investigated were all in either poor repair or a derelict state, and were constructed directly onto the ground surface with no foundation. They were consistent in form and construction technique with being parliamentary enclosure walls. The quarry in Trench 17 was confined in depth to the overlying glacial till, and is most likely to be a marl pit for extracting clay to improve surrounding mosses. The quarry in Trench 23 was excavated to a depth of 2.34m, but the base was not reached, and was possibly intended to extract stone for the enclosure walls.

Ridge and furrow, evident as earthworks, and investigated by Trench 4, produced no features cutting the glacial till. Stone, culverted, field drains, however, were located in Trenches 1, 2, 3, 4, 13, 14, 18, 19 and 23, in addition to those mentioned above running parallel to field boundaries; they were typically less than 0.20m wide and c. 0.10m deep. Although no direct dating evidence was obtained from them, they were likely to have been put in place in the eighteenth century when the area was enclosed. Other discreet features include four small pits in Trenches 1, 8, 9 and 18, which were for the most part filled with peat, although a pit from Trench 8 was backfilled with stones; no finds were obtained from these features, and they are undated.

The archaeology identified within the development area is considered to be of post-medieval date, although a small number of discreet features remain undated, and their origin is as yet unresolved.

It is recommended that a programme of further archaeological works be undertaken to inform whether the discreet features identified comprise part of larger sites of archaeological significance, and to identify any as yet unknown sites. This would entail targeted archaeological strip and recording, examining sites where archaeology has been identified, and areas of impact omitted from the evaluation. The following sites are
recommended for strip and record investigation: the works compound, which has been moved subsequent to the evaluation; the area of Turbine 3, where archaeological remains were identified; Turbines 4, 5, and 12, which were not examined during the evaluation and the site of Trench 20, which could not be accessed during the evaluation.
ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Peter Cardwell (archaeological and heritage consultant), working on behalf of Energiekontor UK Ltd, for commissioning and supporting the project.

The evaluation was directed by Andy Bates and assisted by Tim Christian, Ric Buckle and Alistair Vannan. The report was compiled by Andy Bates, and the illustrations were produced by Anne Stewardson. The wood was examined by Denise Druce, and the environmental samples processed by Mairead Rutherford. The project was managed by Jamie Quartermaine, who also edited the report.
1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 Energiekontor UK Ltd was granted consent to construct a wind farm on Oswaltwistle Moor, Hyndburn, Lancashire (centred at SD 745 244) subject to a programme of archaeological work on the site as outlined in the cultural heritage assessment that supported the planning application (Energiekontor 2009) (Fig 1). The principal elements of the development comprises 12 wind generator turbines, as well as ancillary equipment, on-site infrastructure and a new site access off the B6236. Access tracks to the site, and between the turbine bases, would be floating tracks across deeper peat deposits. Underground electric cables would run in trenches between the turbines and switchgear house, which would be adjacent to the access road along with a temporary construction compound.

1.1.2 Hyndburn Borough Council placed a condition on Planning consent (Condition 23 Hyndburn Borough Council dated 11 March 2010 (11/09/0512)), which states:

23. No development shall take place until a written scheme of investigation for archaeological work has been submitted and approved in writing by the Local Planning Authority. The approved scheme of investigation shall be implemented subject to any variations agreed in writing by the Local Planning Authority.

1.1.3 Peter Cardwell, acting on behalf of Energiekontor, compiled a Written Scheme of Investigation (WSI), incorporating the results of an earlier desk-based assessment (Energiekontor 2009), for a topographic boundary and palaeoenvironmental survey of the site. Oxford Archaeology North was invited to produce costs for the implementation of this WSI, and were subsequently commissioned to undertake the work, the results of which are presented in OA North (2010). Based on these results, a second WSI was requested from OA North for the archaeological trenching of the site (Appendix 1). This was prepared in order to set out the scale and scope of a programme of archaeological evaluation to fulfil Condition 23 of the decision to grant permission for the development, which further states:

Reason:

To ensure adequate investigation and protection of unknown archaeological remains and in order to comply with Policy EM1 of the North West of England Plan Regional Spatial Strategy to 2021.

1.1.4 Following submission and approval of this WSI, OA North were commissioned to implement the programme of trenching which was undertaken in November and December of 2010. The location of the trenches was designed to mitigate the predicted effects of the development upon recorded archaeological sites and also examine the sites of the proposed turbines, service roads, and temporary construction compound. This document presents the results obtained from the trenching. The concluding chapter assesses the significance of the archaeological resource, and recommends an appropriate strategy for further archaeological investigations.
2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A Written Scheme of Investigation (WSI) (*Appendix 1*) was issued by OA North to fulfil Condition 23 of the planning permission issued by Hyndburn Borough Council (*see Section 1.1*) and agreed with Lancashire County Council Archaeological Service on behalf of the planning authority. All work was carried out in accordance with the agreed WSI, with the exception of Trenches 15, 20, 24 and 25. Trench 15 was moved from its original location and Trench 20 was not excavated, as safe access could not be obtained to the area in which these two trenches were originally positioned. Trench 24 was shortened by one metre, due to the machine slipping on the steep slope, and Trench 25 was shortened by 2.5m as safe access could not be gained to one side of a stock proof fence which divided the trench. (Fig 2-4). The work carried out was consistent with the relevant standards and procedures of the Institute for Archaeologists (2008b), and generally accepted best practice.

2.2 TRENCHING STRATEGY

2.2.1 *Trench configuration:* in total, 25 of the intended 26 trenches were excavated across the study area of varying lengths and measuring 2.0m wide (Fig 2-4). All trenches were located at either the proposed site compound, at turbine sites or along the route of the access road to test these areas for archaeology. Trenches 4 and 17 to 26 were excavated to mitigate the destruction of known archaeological sites, including field boundaries, drainage features, quarries, and a trackway identified in the survey report (OA North 2010).

<table>
<thead>
<tr>
<th>TRENCH NO.</th>
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<td>25m x 2m</td>
<td>Evaluation</td>
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<td>3</td>
<td>Turbine 2 and hardstanding</td>
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2.2.2 **Excavation:** Each trench was excavated by a 13 ton 360° mechanical excavator, fitted with a 1.9m wide toothless bucket. The machine was operated under archaeological supervision, down to the depth of the archaeological deposits or natural geology, and thereafter all excavation was undertaken manually. All spoil was scanned for artefacts.

2.2.3 Recording comprised a full description and preliminary classification of the deposits and materials revealed on OA North *pro-forma* sheets. The trenches were located with a differential GPS (accuracy ± 0.01m). Hand-drawn plans were produced in the field showing the contents of the trenches, with representative sections being drawn at a scale of 1:10 or 1:20 as appropriate. The field survey data was incorporated with digital map data in a CAD system to create the figures used in this report.

2.2.4 A full and detailed photographic record of the trenches was maintained, and general views of the trench locations were also produced. Photography was undertaken using 35mm cameras on archival black and white film and digital images using a 7.1 megapixel digital camera, which provided the illustrations for the present report.

2.3 **Finds**

2.3.1 The recovery of finds and sampling programmes were in accordance with current best practice (e.g., IFA 2008a, and other specialist guidelines) and subject to appropriate expert advice. Handling of finds, their management and storage during and after fieldwork followed professional guidelines (IFA 2008a; UKIC 1984). All artefacts recovered from the evaluation trenches were retained for assessment.
2.4 ARCHIVE

2.4.1 The results of the archaeological trenching will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (2006) and the Guidelines for the Preparation of Excavation Archives for Long Term Storage (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation’s code of conduct.

2.4.2 OA North conforms to best practice in the preparation of project archives for long-term storage. It is intended that the paper archive material be deposited with Lancashire County Record Office in Preston, and a further copy of the archive can be made available for deposition in the National Archaeological Record. In addition, the Arts and Humanities Data Service (AHDS) online database project Online Access to index of Archaeological Investigations (OASIS) will be completed as part of the archiving phase of the project. The only artefact is of little archaeological significance and has been discarded. The paper archive generated from the evaluation will be transferred in accordance with the guidelines on archive transfer (AAF 2007).
3. BACKGROUND

3.1 LOCATION, TOPOGRAPHY AND GEOLOGY

3.1.1 Location: the Hyndburn Wind Farm on Oswaldtwistle Moor is centred some 2.1km to the south of Oswaldtwistle and some 3.5km to the west of Haslingden. The turbines and associated infrastructure (centred at SD 745 244) will be located entirely within the Borough of Hyndburn in the County of Lancashire, but immediately to the north of the boundary with the Borough of Rossendale.

3.1.2 The land where the wind farm will be located is between the B6236 Haslingden Road to the north and the A6177 (previously B6232) to the south. It is mainly on Oswaldtwistle Moor but includes some enclosed in-bye land between the moor and the B6236 to the north. Haslingden Moor is located to the south, and Thirteen Stone Hill to the east.

3.1.3 Geology: the geology and soils within the area are dominated by various strata of the Carboniferous Lower Coal Measures and Millstone Grit series. The predominant rock type is sandstone with subsidiary siltstone and mudstone. The structure of the strata is relatively simple with gentle dips towards the north-east and no folding. Faults occur to the north-west, north, north-east and south-west and it is these which have helped to define the elevated block of land which forms Oswaldtwistle and Haslingden Moors, and Thirteen Stone Hill.

3.1.4 The bedrock is overlain by glacial till or boulder clay, and almost all of Oswaldtwistle and Haslingden Moors is overlain by peat, although this is largely absent from Thirteen Stone Hill. Two rounded hills that stand proud of the surrounding flatter landscape on Oswaldtwistle Moor are part of a hummocky moraine with a non-statutory designation as a Regionally Important Geological and Geomorphological Site (RIGS).

3.1.5 Topography: the wind farm site is to be located on a gentle, north-facing, dip slope at elevations of between approximately 250m to 370m OD. The steep scarp slope is to the south of the site and defines the southern extent of the adjacent Haslingden Moor. The slope is dissected by streams that run northwards and a network of man-made ditches, mainly on north to south and east to west alignments.

3.1.6 Oswaldtwistle Moor is almost entirely dominated by blanket bog, wet heath and acid grassland habitats with scattered sphagnum pools, drainage ditches and areas of rush dominated vegetation. Although originally a wet peatland area the recent artificial drainage has resulted in considerable areas of peat degradation. Enclosed fields (in-bye land) to the north of the moor comprise semi-improved pasture.

3.2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

3.2.1 Introduction: an archaeological and historical background to the development area was compiled of the study area for an earlier desk-based assessment (Energiekontor 2009) and subsequent WSI (Peter Cardwell 2010); it is from this document that the following background was sourced.
3.2.1 **Neolithic:** during the Neolithic period woodland was in a state of decline, partly as a result of natural and artificial pressures. This reduction in afforestation is reflected in the expansion of heather from about 3500 BC and coincides with an episode of upland peat formation (Tallis 1999, 113–114), which has allowed the preservation of trees within the peat. This is confirmed by palaeoenvironmental analysis from a Russian core taken in the central part of the development area which reveals Neolithic woodland (OA North 2010), but there was also peat initiation and build up from this period, which would suggest at least localised woodland decline. There are no certain Neolithic sites from the study area, but Neolithic flint artefacts have been recorded from Calf Hey Reservoir in Haslingden Grane to the south (WPMAMC 1991, 7), from Hameldon and Moleside to the north-east, and further to the south-east on Knowl Hill (OA North 2006, 11).

3.2.2 **Bronze and Iron Age:** the Bronze Age landscape represented by the palaeoenvironmental analysis (OA North 2010) was a period of transition from mixed deciduous forest, being replaced by more open ground, with mires and peat bog developing in the latter part of the Bronze Age. The earliest archaeological sites within the environs of the wind farm are of probable Bronze Age date and include a probable stone circle on Thirteen Stone Hill, and is 1.3km to the east of the development; however, only two packing stones survive on the surface on its western side and a further three on its eastern side. A further putative stone circle may have existed to the north-west of the study area at Cocker Beck to the south of Brewer Lot; however, this has been heavily disturbed and no stones survive (Cardwell 2010). A possible round barrow has been identified on Dry Hill near to the wind farm on the easternmost of two small morainal rounded hills on Oswaldtwistle Moor; however, the authenticity of the round barrow is uncertain, as there is no indication of a quarry ditch around the mound. A possible barrow is located at Knave Low, approximately 1km to the west of the study area (ibid). No sites or finds of Iron Age date have been identified in the wider vicinity of Oswaldtwistle Moor; however, physical remains from the Iron Age in the north-west are typically scarce, particularly within the upland zone.

3.2.3 **Roman:** no certain sites or finds of Roman date have been identified within the study area, but the principal Roman road between Manchester and Ribchester (Margary 7b, 1972, 370–1) passes some 3km to the west of Oswaldtwistle Moor at its closest point. A further, putative minor Roman road, crossing the western edge of Oswaldtwistle Moor has been suggested on the basis of antiquarian references (Whittaker 1872, 12; Halstead 1916, 2). A trackway there possibly corresponds with the line of this road, although it is also close to the route of a later medieval saltway.

3.2.4 **Medieval:** the wider area was located on the margins of the Forest of Rossendale and from the thirteenth century until 1548, the manor was held by the Radcliffe family (Baines 1836, 408; Farrer and Brownbill 1911, 405). Expansion of settlement within the area is suggested by the first documented references to Oswaldtwistle and Haslingden from the thirteenth century onwards (Ekwall 1922, 90–91). The documented references to expanded settlement correspond to an increase in forest clearance activity (WPMAMC 1991), but no archaeological evidence for settlement of later medieval date has been recorded on Oswaldtwistle Moor. The only probable site of medieval date on the moor is the route of the
saltway from Cheshire to Penrith (NMR 43941), which possibly followed a line around the north-western edge of the moor in the vicinity of Westerlot.

3.2.5 **Post-Medieval:** from the early post-medieval period the Oswaldtwistle and Haslingden Moors area were more closely integrated with the economic development of the region (WPMAMC 1991, 14). Haslingden had adopted a market by 1555 and biannual fairs by 1610, and by the seventeenth century Haslingden had become more significant than Accrington (*ibid*; Lancashire County Council and Egerton Lea Consultancy 2005, 2). This expansion resulted in pressure on the surrounding land for more pasture, and led to illegal encroachments onto Haslingden Moor.

3.2.6 Agricultural changes within the environs of Oswaldtwistle Moor were precipitated by the enclosure of the common lands on the moor in 1774, but the area of Haslingden Moor remained unenclosed. The enclosure of Oswaldtwistle Common was associated with the establishment of farmsteads, many of which had loomshops for spinning and weaving to supplement the income from agriculture. Continued agricultural development on Oswaldtwistle Moor into the nineteenth century resulted in the establishment of farmsteads at Lower Warmwithens and Higher Warmwithens.

3.2.7 The survey work undertaken at the site (OA North 2010) has revealed the remains of an essentially post-medieval, post parliamentary enclosure, agricultural landscape. Long, straight dry-stone field walls extend across the area and there is in some instances limited improvement, by drainage, of the large fields. Within the vicinity of Oswaldtwistle Moor are a number of areas of ridge and furrow cultivation, which were relatively narrow (*c* 2m–3m wide); they were not the product of oxen ploughing and are probably of post-medieval date. They indicate some arable cultivation on the marginal land of Oswaldtwistle Moor during this period.

3.2.8 **Other industry:** there were significant levels of quarrying activity on Oswaldtwistle and Haslingden Moors in the eighteenth and nineteenth centuries (Rothwell 1978, 23), which exploited the sandstone for ashlar, flags or rubble for building construction. There is also evidence of coal mining but this is mostly to the north and west of the study area; the principal colliery was at Broadfield and dates from the early nineteenth century. The topographic survey (OA North 2010, 33) revealed a series of quarries which were for the most part fairly small and consistent with low level extraction to provide materials for the surrounding dry-stone walls.

3.2.9 During the nineteenth century reservoirs were being constructed to supply the increasing urban population and industry; Warmwithens Reservoir was completed by 1844, and the acquisition of the land for it resulted in some local depopulation. The nearby farm at Lower Warmwithens was abandoned before 1893, although that at Higher Warmwithens survived until the first half of the twentieth century. Because of the abandonment of the former industries and agricultural activities that exploited the moor, the area of Oswaldtwistle Moor is characterised as a ‘Reverted Moorland’ by the Lancashire Historic Landscape Characterisation Programme (Ede and Darlington 2002, 72–75).
4. TRENCHING RESULTS

4.1 INTRODUCTION
4.1.1 Twenty-five of the intended 26 trenches were excavated across the study area, measuring between 15m and 25m in length and 2m wide (Fig 2-4). An overview of the results is presented below; the detailed description of each deposit and archaeological feature is provided in Appendix 1. Only one trench, Trench 23, produced any finds, a piece of wood recovered from a former quarry.

4.2 TRENCH 1
4.2.1 Trench 1 was aligned north-west/south-east near the northern limit of the study area as defined by Haslingden Road (B6236), and was located within the proposed site compound (Figs 1, 2 and 5; Plate 1). It was excavated to a maximum depth of 0.52m below the existing surface.

4.2.2 Topsoil, 100, was excavated to a maximum depth of 0.30m, whereupon glacial till, 101, was encountered. Archaeological remains within the trench comprised a pit 102 (Fig 5, Plate 2), which measured at least 1.18m by 0.35m in size and 0.22m deep, and most of the feature was seemingly located to the south-west of the excavated trench. The pit had been backfilled with a mix of topsoil and glacial clay, deposit 103, from which no finds were recovered. In addition, at the northern end of the trench, a stone filled field drain was located measuring 0.52m wide; it was still active, and was left in-situ.

4.3 TRENCH 2
4.3.1 Trench 2 was aligned east/west in the northern part of the development area, at the proposed location of Turbine 1 (Figs 1, 2 and 6; Plate 3). It measured 25m in length, and the topsoil, 200, was excavated to a depth of 0.35m whereupon glacial till, 201, was encountered. Four nineteenth / twentieth century ceramic field drains were observed cutting across the trench. In the eastern half of the trench a clearly recent excavation was located, with fresh turf in its backfill, which was a recent geotechnical test pit. No significant archaeological deposits were encountered.

4.4 TRENCH 3
4.4.1 Trench 3 was aligned north-west/south-east in the central part of the development area, measuring 25m in length and was located at the proposed site of Turbine 2 (Figs 1, 2 and 7; Plate 4). It was excavated to a maximum depth of 0.27m.

4.4.2 Topsoil 300 was excavated to a maximum depth of 0.33m, whereupon glacial till, 303, was encountered. Two culverted field drains were located, 301 and 302, which cut across the trench on a east-north-east/west-south-west alignment. Culvert 301 was itself truncated by a north/south aligned ceramic field drain, which was of a design prevalent in the mid to late nineteenth / early twentieth century. No further archaeologically significant features were encountered.
4.5 TRENCH 4
4.5.1 Trench 4 was aligned east/west in the eastern part of the development area, at the site of the proposed Turbine 3. The trench measured 25m in length and was positioned across a former trackway visible as an earthwork, and surveyed by OA North (2010, 11) as Site B1 (Figs 1, 3 and 8; Plate 5).

4.5.2 The trench was excavated to a maximum depth of 1.46m; however, the depth of the trench varied across its length, being only 0.50m deep at its western most end. To the west of, and running parallel to, the trackway in the western half of the trench was a north-north-west/south-south-east aligned ditch, 402, which truncated the glacial till, 407 (Fig 9; Plate 6). It measured 0.50m wide and 0.10m deep, and was filled with a deposit of natural peaty silt, 401.

4.5.3 Within the area of the trackway, where the trench was deepest, three deposits were recorded overlying the glacial till, 407, and underlying the make-up of the aforementioned track, 403 (Fig 9: Plate 7). The lowest of these, 406, comprised a very dark-grey layer of peat, overlain by deposit 405, a dark-brown peat within which abundant plant remains were visible, and which in turn was overlain by a second deposit a very dark-grey peat, 404. Layer 404, directly below trackway 403, also seals ditch 402 and is the layer visible in section across most of the trench.

4.5.4 The trackway, 403, comprised a single deposit of sub-angular stone and sand; it was 0.34m thick, and forms a positive earthwork visible above the natural ground surface. Overlying the trackway was a thin layer of turf and topsoil, deposit 400.

4.5.5 In the eastern end of the trench was a stone, culverted, field drain, 408, on a north-east/south-west alignment. The culvert was removed during the excavation of the trench, being located within layer 404, but its position is depicted in Figure 8.

4.6 TRENCH 5
4.6.1 Trench 5 was aligned east-north-east/west-south-west, and measured 25m in length (Fig 3) as located in the south-eastern part of the development area at the site of the proposed Turbine 6. The peat, layer 500, was excavated to a maximum depth of 1.2m, whereupon glacial till 501 was located. No archaeological deposits were located within Trench 5.

4.7 TRENCH 6
4.7.1 Trench 6 was aligned east-north-east/west-south-west, and measured 25m in length (Fig 3; Plate 8); it was located in the south-eastern part of the development area at the site of the proposed Turbine 10. Topsoil and peat deposits, 600 and 601, were excavated to a maximum depth of 0.74m whereupon glacial till, 602, was encountered. No archaeologically significant deposits were present within Trench 6.

4.8 TRENCH 7
4.8.1 Trench 7 was aligned north-east/south-west, and measured 25m in length (Fig 4; Plate 9); it was located in the southern part of the development area at the site of the proposed Turbine 9. Topsoil and peat deposits, 700 and 701, were excavated to a
depth of 0.94m, whereupon glacial till 702 was encountered. No archaeologically significant deposits were located in Trench 7.

4.9 TRENCH 8
4.9.1 Trench 8 was aligned east-north-east/west-south-west, measuring 25m in length and was excavated to a maximum depth of 0.57m. It was positioned in the western part of the development area at the proposed location of Turbine 8 (Figs 4 and 10; Plate 10).

4.9.2 The peat, layer 800, was excavated to a maximum depth of 0.35m, whereupon the glacial till, 803, was encountered. Located in the north-western corner of the trench was pit 802, about half of which was located beyond the western limit of the trench (Fig 10; Plate 11). It measured 0.68m wide and 0.34m deep, and was filled with a single peat deposit, 801.

4.10 TRENCH 9
4.10.1 Trench 9 was aligned north/south, measuring 25m in length and excavated to a maximum depth of 0.50m. It was positioned in the western part of the development area at the proposed location of Turbine 9 (Figs 4 and 11; Plate 12).

4.10.2 The peat, layer 900, was excavated to a maximum depth of 0.50m, whereupon glacial till 901 was revealed. In the southern part of Trench 9, two discreet features were located. Pit 902 had a sub-rectangular shape in plan, and measured 1.10m in length, 0.57m wide and 0.59m deep (Fig 11; Plate 13), and had a fill of peat, 903. The upper part of 903 was loose, suggesting that this was a fairly recent feature.

4.10.3 To the east of 902, was a sub-circular discreet feature, 904, measuring 0.38m in length, 0.23m wide and 0.09m, deep (Fig 11; Plate 14). Its only fill was a deposit of peat, 905. Although recorded as a feature, 904 may simply be the result of bioturbation or where a stone has been removed from the natural till, rather than being of archaeological origin.

4.11 TRENCH 10
4.11.1 Trench 10 was aligned east/west measuring 25m in length, located in the western part of the development area at the site of the proposed Turbine 7 (Fig 4 and 12; Plate 15). Peat deposits, 1000, were excavated to a maximum depth of 0.55m to reveal the underlying glacial till, 1001. In the south-western corner of the trench a modern feature, the backfill of which contained green turfs, was located and was a recent geotechnical pit. No archaeologically significant deposits were located in Trench 10.

4.12 TRENCH 11
4.12.1 Trench 11 was aligned east/west, measuring 15m in length and excavated to a maximum depth of 0.63m (Fig 2; Plate 16). It was located in the northern part of the site, across the proposed access track, and on the western edge of an area of ridge and furrow previously surveyed by OA North (2010, 11). A peaty topsoil and subsoil, 1100 and 1101, were excavated to a depth of 0.33m whereupon glacial till,
1102, was encountered. A sondage at the north-eastern end of the trench was excavated into the glacial till to a depth of 0.30m to test the natural. No archaeological deposits were located within Trench 11.

4.13  TRENCH 12

4.13.1 Trench 12 was aligned north-east/south-west, and measured 25m in length (Fig 2; Plate 17), and was located along the length of the proposed access track, in the northern part of the development area. A peaty topsoil, 1200, was excavated to a maximum depth of 0.50m whereupon glacial till 1201 was revealed. In total, four ceramic field drains were located cutting across the trench on a north-west/south-east alignment; these were of a design prevalent in the second half of the nineteenth / early twentieth centuries. No significant archaeological deposits were located within Trench 12.

4.14  TRENCH 13

4.14.1 Trench 13 was aligned north/south, and measured 25m in length (Figs 2 and 13; Plate 18, and was located across the proposed access track in the north-western part of the development area. A peaty topsoil, 1300, was excavated to reveal the glacial till, 1301, at a maximum depth of 0.30m.

4.14.2 Cutting across the trench, on east/west alignments, were two stone culverted field drains, structures 1302 and 1303. They were constructed of millstone grit, and measured 0.50m wide and 0.10m deep, with water still present within them; the capping stones were on average 0.4m x 0.3m in size (Plate 19).

4.15  TRENCH 14

4.15.1 Trench 14 was aligned east-north-east/west-south-west, and measured 25m in length (Fig 2 and 14; Plate 20), and was positioned over the proposed access track in the north-western part of the study area. The peaty topsoil, 1400, was excavated to a depth of 0.35m whereupon glacial till 1403 was encountered.

4.15.2 Two culverted field drains, 1401 and 1402, cut across the trench, both on a north-west/south-east alignment (Plate 21). They were constructed of millstone grit, and measured 0.48m and 0.40m wide and 0.20 and 0.22m deep respectively; both drains still contained water.

4.16  TRENCH 15

4.16.1 Trench 15 was aligned north-east/south-west, and measured 25m in length; it was positioned over the proposed access track in the south-western part of the site (Fig 4). It was moved from its original location, to the north of Trench 16, as it was not feasible to get an excavator to this area. A peaty topsoil, 1500, was excavated to a maximum depth of 0.46m to reveal the underlying glacial till, 1501. No archaeologically significant deposits were located in Trench 15.
4.17 TRENCH 16

4.17.1 Trench 16 was aligned north/south, and measured 25m in length, positioned over the proposed access track in the western part of the site (Fig 4). A peaty topsoil, 1600, was excavated, to a maximum depth of 0.55m to reveal the underlying glacial till, 1601. No archaeologically significant deposits were located in Trench 16.

4.18 TRENCH 17

4.18.1 Trench 17 was aligned north-east/south-west, measured 25m length and was excavated to a maximum depth of 1.0m (Figs 3 and 15; Plate 22). It was positioned across the proposed access track in the eastern part of the development area, to record a trackway and quarry surveyed by OA North (2010, 11-12) as Sites B1 and B2.

4.18.2 The quarry, 1706, was located across the western half of the trench measuring 13.68m wide and 0.74m deep, and was cut back into the natural slope (Fig 16; Plate 23). It contained a deposit of peat, 1701, at its base measuring 0.24m thick, overlain by 0.50m of saturated sphagnum moss and rushes, layer 1700.

4.18.3 The trackway, 1703/1705, was located to the north-east of the quarry on a north/south alignment (Fig 16; Plate 24). Two deposits were identified which created the positive earthwork surveyed by OA North (2010), layers 1705 and 1703. Layer 1701, identified at the base of the quarry, continued as a layer of peat across the entire trench and overlay the trackway.

4.18.4 At the eastern most end of the trench, on a north/south alignment, a culverted field drain was present, 1704 (Fig 15). It measured 0.42m wide and 0.23m deep, and was identical in form to those detailed in Trenches 13 and 14 (Plates 19 and 21).

4.19 TRENCH 18

4.19.1 Trench 18 was aligned north/west, measuring 0.25m in length and was excavated to a maximum depth of 0.66m (Figs 3 and 17; Plate 25). It was positioned in the eastern part of the study area, to record a trackway surveyed by OA North as Site B1 (2010, 11-12).

4.19.2 The peat, layer 1800, was excavated to a depth of 0.20m to reveal the underlying glacial till, 1801, and across the centre of the trench was a ditch, 1802, on a north/south alignment (Fig 17 and 18; Plate 26), and is an extension of ditch 402 that was identified in Trench 4. It measured 0.69m wide and 0.15m deep, and ran parallel to the aforementioned trackway, 1804, which was 0.39m to the east of the ditch. The ditch was filled with a single deposit of peat, 1803, and although it was not visibly doing so, ditch 1802 most likely originally cut peat deposit 1800, but the two deposits, 1803 and 1800, were identical and could not be distinguished.

4.19.3 Trackway 1804 comprised a single deposit of stone and sand, forming the extant positive earthwork (Site B1), overlying peat 1800 (Figs 17 and 18; Plate 27). It measured 1.67m wide and 0.26m thick, and was overlain by a thin layer of turf, 1805.
4.19.4 To the west of ditch 1802 was a small pit, 1806, partially visible against the northern edge of the trench. It measured 1.10m wide and 0.30m deep, and had been backfilled with sediment and stone deposit 1807. As the whole feature was not excavated, its function could not be resolved.

4.19.5 At the eastern and western ends of the trench, two stone culverted field drains were located, structures 1808 and 1809 (Fig 17). They measured 0.48m and 0.51m wide and 0.15 and 0.14m deep respectively; they were identical in form to those detailed in Trenches 13 and 14 (Plates 21 and 23).

4.20 TRENCH 19

4.20.1 Trench 19 was aligned north-east/south-west, measuring 25m in length, and was excavated to a maximum depth of 0.50m (Figs 2 and 19; Plate 28). It was located along the proposed trackway in the north-western part of the development area, to record an east/west aligned field boundary, Field Boundary 5 (detailed in OA North 2010, 13).

4.20.2 A peaty topsoil, 1900, and subsoil, 1906, were excavated to a depth of 0.38m to reveal the underlying glacial till, 1901. The boundary wall, 1909, located at the southern most end of the trench had been built directly on top of the topsoil, 1900. Directly to the south of, and running parallel to, the wall was a stone culvert, 1902, built within construction cut 1907 (Fig 19; Plate 29). The culvert measured 0.58m wide and 0.29m deep, and was still actively draining the land. The remainder of the construction cut was backfilled with a mixture of peaty topsoil and glacial clay, deposit 1908. Construction cut 1907 measured 1.5m wide and 0.29m deep, the northern edge of which was located below the wall 1909. The culvert must, therefore, have been built before the wall, although it is highly likely that the two were built in the same phase of construction.

4.20.3 Cutting across the trench were three stone, culverted, field drains, 1903, 1904 and 1905. They measured between 0.32m and 0.35m wide, and between 0.10m and 0.14m deep, of an identical form to those detailed in Trenches 13 and 14 (Plates 19 and 21). In addition, in the southern half of the trench on a north-east/south-west alignment, was a ceramic field drain, which was of a design prevalent in the mid to late nineteenth / early twentieth century.

4.21 TRENCH 21

4.21.1 Trench 21 was aligned north-east/south-west, measuring 25m in length and was excavated to a maximum depth of 1.02m (Figs 4 and 20; Plate 29). It was positioned along the proposed access track in the south-western part of the development area to mitigate an east/west aligned field boundary, surveyed as Field Boundary 8 (OA North 2010, 13-14).

4.21.2 Peaty topsoil, 2100 and 2104, and sub-soil, 2105, were excavated to a maximum depth of 0.66m, whereupon the glacial till, 2103, was located. The aforementioned field boundary wall, 2106, was located across the centre of the trench and build directly onto the former ground surface 2104 (Fig 20). The peaty soil 2100 appears to have formed against wall. To the south of this wall, and running parallel to it, was a stone culvert, 2101 (Plate 30). Attempts to excavate the culvert resulted in rapid flooding of the trench, as the culvert was clearly still active and, as such, was left in-
situ. It measured 0.58m wide and at least 0.28m deep. It was built within construction cut 2102, which was seen in section to truncate sub-soil 2105 (Fig 17).

4.22 TRENCH 22

4.22.1 Trench 22 was aligned east/west, measuring 25m in length and adjoined Trench 23 (Figs 4 and 21 Plate 31), and was positioned along the route of the proposed access track in the western part of the development area, to record a field boundary surveyed as Field Boundary 9 (OA North 2010, 12). It was excavated to a maximum depth of 0.8m.

4.22.2 A peaty topsoil, 2200, was excavated to a depth of 0.26m, whereupon glacial till 2201 was located. In the section of the trench a shallow ditch, 2202, running parallel to the aforementioned field boundary wall, 2204, was located (Fig 22; Plate 32). It measured 0.77m wide and 0.18m deep, and contained a single peaty deposit, 2203, indistinguishable from layer 2200. To the west of this ditch, below wall 2204, was a thin layer of clay, 2205, which was probably up-east clay from the excavation of the ditch, although notably there is no former ground surface located below this clay which logically would be expected. Stratigraphically, layer 2200 has formed over layer 2205, and prior to the construction of wall 2204, suggesting that a bank and ditched boundary may have existed prior to the construction of the wall.

4.22.3 To the west of the ditch, below the position of the wall and prior to it being removed by the excavation of the trench, was a small sub-circular discreet feature, 2206 (Fig 22). It measured 0.30m in diameter and 0.16m deep, and was filled with a single peaty deposit, 2207. Although recorded as a feature, 2206 may simply represent bioturbation of some form or where a stone has been removed from the natural till rather than being of archaeological origin.

4.23 TRENCH 23

4.23.1 Trench 23 was aligned north/south, measuring 25m in length and excavated to a maximum depth of 2.34m, adjoining Trench 22 (Figs 4 and 21; Plate 33). It was positioned across the route of the proposed access track in the western part of the study area to record a former quarry, surveyed as Site C1 (OA North 2010, 11), and its southern spoil heaps, Sites C5 and C6 (ibid).

4.23.2 The former quarry, 2308, was excavated to a depth of 2.34m, the maximum depth that the excavation could safely reach after the trench had been stepped (Fig 21; Plate 34). As a result, Trench 23 was widened to 5.40m in the northern 4.08m of the trench. The maximum depth of the quarry was not, however, reached by these works and only glacial clay, 2305, was visible in the side of the quarry. The millstone grit, which is thought to have been the extracted from the quarry, must, therefore, be located at a greater depth.

4.23.3 Three layers of peat were excavated from the quarry, layers 2304, 2303 and 2302, being deposited in that order (Fig 23). Of these layers 2303, showed a greater degree of decay suggesting that it had dried out at some point. Overlying these deposits was layer 2301, a mixed deposit of predominantly peat, but with lenses of coarser material. This deposit may have derived from material backfilled into the quarry to firm up a potentially dangerous boggy area. Overlying layer 2301 was the uppermost
peat deposit, 2300, which continued beyond the quarry as the surface peat across most of the trench.

4.23.4 Trench 23 was also excavated though a spoil heap at the southern end of the trench, depicted in Figures 21, 23 and Plate 35. Overlying the natural at this end of the trench was layer 2307, a buried peat deposit indistinguishable from layer 2300. Overlying this peat was layer 2306, which comprised up to 0.28m of sand and angular stone. This material was probably spoil waste from the extraction of stone from quarry 2308. Overlying 2306 was a thin layer of topsoil and turf, 2300.

4.23.5 In addition, across the middle of the trench on a north-west/south-east alignment, was a stone culverted field drain (Fig 21). This was identical in form to those in Trenches 13 and 14 depicted in Plates 20 and 22.

4.23.6 Wood Find: a piece of possible worked wood was recovered from deposit 2303 of quarry 2308, but on closer examination it proved to be a longitudinally split piece of oak wood, which is likely to have come from a trunk or major limb. It was roughly 0.50m in length, with bark on one side, and exhibited no signs of working. It is likely to have broken away from the tree by natural means, or by animals, and has no significant archaeological value.

4.24 TRENCH 24

4.24.1 Trench 24 was aligned north/south, excavated to a maximum depth of 1.15m (Figs 4 and 24; Plate 36). It was positioned along the proposed route of the across track in the western part of the development area, and across a boundary ditch surveyed by OA North (2010, 12) as site D1. The trench measured 24m in length as the southern 1m of the intended 25m length of this trench could not be excavated, because the gradient of the slope here was too great and the mechanical excavator was prone to sliding. At the northern end of the trench a sondage was excavated to examine the glacial till.

4.24.2 A layer of peat, 2400, was excavated to a maximum depth of 0.44m, to reveal the underlying glacial till 2404. Ditch 2403 was located across the centre of the trench, measuring 4.7m wide and 0.38m deep (Fig 25; Plate 37). It was filled with a single deposit, 2402, which comprised a mixture of coarse sand, sub-angular stone, and peat. This material was presumably eroded from the steep slope located to south of the ditch. To the north of ditch 2404, below peat 2400 and overlying the glacial till, was a layer of redeposited glacial till, 2401. This was possibly up-cast sediment from the excavation of ditch 2403, forming a low bank, although if this were so it is perhaps surprising that no preserved peat or soil horizon is present below the layer. Alternatively, layer 2401 represents colluvium accumulated at the base of the slope to the south of its location, and which was subsequently truncated by ditch 2403.

4.25 TRENCH 25

4.25.1 Trench 25 was aligned north-north-east/south-south-west, and was positioned along the route of the proposed access track in the eastern part of the study area, and across an active drainage ditch and drystone wall surveyed as Field Boundary 7 in OA North (2010, 12). It was excavated to a maximum depth of 0.85m (Figs 4 and 26; Plate 38). The northern 2.5m of the trench could not be excavated, as it was located
on the opposing side of a stock proof fence which needed to be left intact, and no alternative access could safely be arranged to the opposite side.

4.25.2 The excavation of the trench removed up to 0.67m of turf and peat, 2500, to reveal the underlying glacial till, 2501. The drystone wall, 2503, was built directly onto of the ground surface, with no foundation. Ditch 2502 was excavated in the northern end of the trench, up to 2.74m deep as measured from the ground surface to the south of the ditch to its base (Fig 27; Plate 44). Most of this depth contains no deposits, as the ditch is still open. The only fill of the features was layer 2500, which continued beyond the limits of the ditch as a single deposit, across the length of the trench. At the base of ditch 2502, layer 2500 was waterlogged and the excavation of the ditch rapidly flooded.

4.26 TRENCH 26

4.26.1 Trench 26 was aligned north-east/south-west, measuring 25m in length and was positioned along the route of the proposed access track in the north-western part of the development area. The trench was excavated across the field boundary surveyed as Field Boundary 4 by OA North (2010, 13). It was excavated to a maximum depth of 0.30m (Figs 2 and 28; Plate 39).

4.26.2 Excavation of the trench removed up to 0.30m of topsoil, 2600, to reveal the underlying glacial till 2601. The north/south aligned drystone wall, 2605, located across the centre of the trench, had largely collapsed at this point; however, it had evidently been built directly onto the ground surface with no foundation. Running parallel to the wall, on its eastern side, was a stone culvert, 2602, measuring 0.74m wide and 0.25m deep (Fig 28; Plate 40). It had been built within construction cut 2603, with deposit 2604 used to backfill the feature.
5. CONCLUSIONS

5.1 DISCUSSION

5.1.1 In total, 25 trial trenches were excavated, nine of which were excavated to mitigate the predicted disturbance of six field boundaries (Field Boundaries 4, 5, 7, 8 and 9), a boundary ditch (Site D1), two quarries (Site B2 and Sites C1-6), and a trackway (Site B1) by the development. Only one of the trenches produced any finds, a single fragment of wood (Trench 23). The general lack of finds recovered demonstrates both the rapid deposition of sediments and masonry associated with the features or structures excavated, as well as the general lack of activity at the sites. Despite this, all of these sites are thought to be post-medieval in date.

5.1.2 Field Boundaries: the field boundary walls investigated were all in either poor repair or a derelict state, and were constructed directly onto the ground surface with no foundation. Field Boundaries 4, 5 and 8, investigated by Trenches 26, 19 and 21 respectively, all had a stone culvert running parallel to them. These walls enclosed the common land of Oswaldtwistle Moor, following an Act of Parliament, in 1774 (Cardwell 2010). These culverts demonstrate an attempt to improve the moorland, and they would have run the water off the moor towards the two former reservoirs, Warmwithens Reservoir, constructed in 1844, was located at SD 7395 2463 to the east of Trench 19 and Field Boundary 5, and a former reservoir at SD 7411 2625 to the north of the study area. All of these culverts contained some water, and are still draining the land to varying degrees.

5.1.3 Two field boundaries did not have culverts. Field Boundary 7, recorded by Trench 25, had a large, still active, drainage ditch, 2502. This ditch was most likely excavated at the same time as the boundary wall was put in place, to drain and improve the surrounding moor. Field Boundary 9 (2204), investigated by Trench 22, had a much smaller ditch running parallel to it rather than a culvert. The up-cast from this ditch, deposit 2205 (Fig 22; Plate 31), appears to be directly below the drystone wall 2206, possibly suggesting that it was an earlier boundary to the wall. However, the position and alignment of this boundary strongly suggests it is of the same date as the parliamentary enclosures, and it could also be that the wall was deliberately built upon the up-cast clay.

5.1.4 Quarries: two quarries were recorded by the trenching. Site B2, investigated by Trench 17, was excavated to the base of the original quarry. This did not reach bedrock, but was confined to the overlying glacial till. The site is, therefore, most likely a marl pit and was extracting clay to improve surrounding mosses. The lack of any apparent spoil heaps, and the close proximity of a trackway (Site B1), is probably significant in this respect. The practise of extracting marl for this purpose has been known of since Roman times, but was widely practised in the eighteenth and mid-nineteenth centuries. It was abandoned after this time due to the ready availability of lime and other new fertilisers (Harvey 1980, 68).

5.1.4 Trench 23 investigated quarry C1-6, and, despite excavating to a depth of 2.34m, the base of the quarry was not reached. It is, however, evident, from the composition of the spoil heap to the south of the quarry, that stone had been extracted from it. The stone of the surrounding boundary walls may have been sourced from this quarry. The apparent size of spoil heaps C2 to C6 does not
appear to account for the quantity of clay that must have been extracted from the quarry prior to reaching bedrock. This is also, therefore, likely to have been utilised as marl.

5.1.5 **Trackway B1:** Trackway B1 was excavated by Trenches 4, 18 and 17 and in Trenches 4 and 18, a drainage ditch on the western side of the track was present. This would probably be unnecessary on the eastern side, as the natural slope leads down to a large drainage gully. In Trench 18, a marl pit (Site B2), occupies the projected position of the ditch. No dating evidence was obtained from the trackway, but it is likely to have been constructed at the same time, or shortly after, the enclosure of the land in the eighteenth century.

5.1.6 **Other Features:** the ridge and furrow, evident as earthworks, and investigated by Trench 4, produced no features cutting the glacial till. Stone, culverted, field drains, however, were located in Trenches 1, 2, 3, 4, 13, 14, 18, 19 and 23, in addition to those mentioned above running parallel to field boundaries; they were typically less than 0.20m wide and c 0.10m deep. Although no direct dating evidence was obtained from them, they were likely to have been put in place in the eighteenth century when the area was enclosed, and would have connected to the culverts adjacent to the field walls in an effort to improve the pasture. A number of these field drains are evidently still active. In addition, within Trenches 2, 12 and 19, were a number of ceramic field drains, which was of a design prevalent in the mid to late nineteenth / early twentieth century; this potentially reflects a second phase of drainage and land improvement.

5.1.7 Other discreet features include four small pits in Trenches 1, 8, 9 and 18. They were for the most part filled with peat, although pit 1806, from Trench 8, was backfilled with stones. No finds were obtained from these features, and they are undated. In addition two very small discreet features were found in Trenches 9 and 22, although these were more likely to be of natural origin.

5.2 **RECOMMENDATIONS**

5.2.1 Most of the features or structures recorded by the trenches are associated with the enclosure of the land and the corresponding attempts to improve it in or after 1774. A small number of discreet features, however, remain ambiguous in their origin. It is recommended that a programme of watching brief during ground works or a targeted archaeological strip and record be undertaken at selected sites. A strip and record excavation entails the removal of topsoil and peat in advance of the development by mechanical excavator under archaeological supervision, to natural geology or the first archaeologically significant deposits. The exposed areas, where archaeology is identified, would be cleaned and examined by archaeologists. Where significant sites are identified, these may be subject to further archaeological works. It is intended that this work takes place prior to, or at the initial stages of, development ground works in each targeted area. This work may inform on whether the discreet features identified are components of larger sites of archaeological significance, and also to identify any, as yet unknown, sites.

5.2.2 The strip and record excavations / watching brief works would be targeted on areas of known archaeological features and where there are areas not previously trenched. These areas are as follows (Fig 29):
• **Works Compound and Sub-station Areas:** the proposed locations of the works compound has changed subsequent to the evaluation and there is a need to examine the area of this compound and the sub-station, which are adjacent to the access tracks in the northern part of the site (Fig 29).

• **Turbine 3 (T3) and adjacent hard standing:** this is an area where archaeological features are located, and which have been investigated by Trenches 4, 17, 18 and 25. It is recommended that the strip and record excavations incorporate the extent of the Turbine 3 foundations, the hardstanding and the access track between Turbine 3 and 10m to the north-west of Trench 17 in order to record the full extent of the known features in this area;

• **Turbine 4, 5 and 12 (T4, T5 and T12):** three turbines were not investigated by evaluation trenching because they were within areas of deep peat, and the excavation of narrow trenches here would have entailed considerable logistic difficulties. Instead it is proposed that these be examined by watching brief during the initial ground works at the sites. The area examined in the course of the watching brief will be limited to the extent of the turbine base, and not the adjacent hardstanding, as it is within this area that the deeper peat deposits will be exposed and to enable these to be compared with those identified and recorded on the site during the palaeoenvironmental survey;

• **Site of Trench 20:** Trench 20 in the western part of the site was not excavated as physical access to this area could not be obtained, and was originally targeted to mitigate the destruction of an historical field boundary. It is recommended that a localised area of strip and record excavation be undertaken in this area when the turbine access track is being constructed.

5.2.3 Any further archaeological works would be undertaken in accordance with a Written Scheme of Investigation that would be submitted to and agreed in advance by the Lancashire County Council Archaeological Service (on behalf of the planning authority) and English Heritage.
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APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

1.1.1 Oxford Archaeology North has been invited by Peter Cardwell, on behalf of Energiekontor, to submit a WSI for evaluation and mitigation recording on the site of the proposed windfarm at Hyndburn, Oswaldtwistle, Lancashire by means of archaeological trial trenching. The evaluation and mitigation recording will examine the sites of the proposed turbines, the service roads, and compound.

1.1.2 The principal elements of the development comprises 12 wind turbines, associated hardstandings, access roads into the site and between the wind turbines, an anemometry mast, a switchgear building, underground electricity cables and a temporary construction compound. The present written scheme of investigation (WSI) has been prepared in order to set out the scale and scope of a programme of archaeological evaluation in relation to the development proposal, and is in accordance with Condition 23 of the decision by Hyndburn Borough Council dated 11 March 2010 (11/09/0512) to grant permission for the development, which states:

23. No development shall take place until a written scheme of investigation for archaeological work has been submitted and approved in writing by the Local Planning Authority. The approved scheme of investigation shall be implemented subject to any variations agreed in writing by the Local Planning Authority.

Reason:

To ensure adequate investigation and protection of unknown archaeological remains and in order to comply with Policy EM1 of the North West of England Plan Regional Spatial Strategy to 2021.

1.1.3 The document accordingly sets out a programme of archaeological evaluation and mitigation recording for the development area, and will entail a programme of trenches located in areas of greatest impact by the development and archaeological potential.

1.2 Location and Project Description

1.2.1 Location: the Hyndburn Wind Farm on Oswaldtwistle Moor is centred some 2.1km to the south of Oswaldtwistle and some 3.5km to the west of Haslingden. The turbines and associated infrastructure (centred at SD 745 244) will be located entirely within the Borough of Hyndburn in the County of Lancashire, but immediately to the north of the boundary with the Borough of Rossendale.

1.2.2 The land where the wind farm will be located is between the B6236 Haslingden Road to the north and the A6177 (previously B6232) to the south. It is mainly on Oswaldtwistle Moor but includes some of the enclosed in-bye land between the moor and the B6236 to the north. Haslingden Moor is located to the south, and Thirteen Stone Hill to the east.

1.2.3 Geology: the geology and soils within the area are dominated by various strata of the Carboniferous Lower Coal Measures and Millstone Grit series. The predominant rock type is sandstone with subsidiary siltstone and mudstone. The structure of the strata is relatively simple with gentle dips towards the north-east and no folding. Faults occur to the north-west, north, north-east and south-west and it is these which have helped to define the elevated block of land which forms Oswaldtwistle and Haslingden Moors, and Thirteen Stone Hill.

1.2.4 The bedrock is overlain by glacial till or boulder clay. In addition, almost all of Oswaldtwistle and Haslingden Moors is overlain by peat, although this is largely absent from Thirteen Stone Hill. Two rounded hills that stand proud of the surrounding flatter landscape on Oswaldtwistle Moor are part of a hummocky moraine with a non-statutory designation as a Regionally Important Geological and Geomorphological Site (RIGS).
1.2.5 **Topography:** the wind farm site is to be located on a gentle, north-facing, dip slope at elevations of between approximately 250m to 370m OD. The steep scarp slope is to the south of the site and defines the southern extent of the adjacent Haslingden Moor. The slope is dissected by streams that run northwards and a network of man-made ditches, mainly on north to south and east to west alignments.

1.2.6 Oswaldtwistle Moor is almost entirely dominated by blanket bog, wet heath and acid grassland habitats with scattered sphagnum pools, drainage ditches and areas of rush dominated vegetation. Although originally a wet peatland area the recent artificial drainage has resulted in considerable areas of peat degradation. Enclosed fields (in-bye land) to the north of the moor comprise semi-improved pasture.

1.2.7 **Proposed Development:** the Hyndburn Wind Farm consists of 12 wind generator turbines (with a hub height of up to 80m and blade tip of 122m) as well as ancillary equipment, on-site infrastructure and a new site access off the B6236 (Figure 1). The foundations for the 12 turbine bases would be dependent upon topographical, geotechnical and hydrological conditions, but it is anticipated that the foundations would be a reinforced concrete gravity structure. This would involve the excavation and removal of peat or soil within an area of up to 20m by 20m to a depth of up to 3.5m below ground level. The excavated material would be temporarily stored around the foundations within an area extending up to 25m by 25m for re-use as backfill upon completion of construction. A reinforced concrete foundation approximately 16m by 16m by up to 1.75m would then be constructed on top of the excavated level.

1.2.8 An area of hardstanding measuring approximately 40m by 20m would be required adjacent to each turbine position in order to accommodate the cranes required for turbine installation. The precise design of the crane hardstandings would be determined by the ground conditions at the turbine locations. Within areas of shallow peat or mineral soils the hardstandings would be of cut construction, with the peat or soils removed to a depth of up to approximately 0.4m and replaced with stone. The excavated material would be stored adjacent to the hardstanding in an area extending up to 10m by 3m for re-use upon decommissioning. In deeper peat a floating construction would be used for the hardstandings of turbines T4, T5, T7 and T12. No peat would be removed, with compacted stone up to 0.75m in height being laid upon a geotextile membrane reinforced with geogrid. This method would be used in conjunction with crane outrigger pads excavated through the peat to more competent soils or weathered rock. The depth of the outrigger pads may therefore vary, but would typically measure 3m by 3m in plan for the main crane and 2m by 2m for the secondary crane. They would be formed of compacted granular material, possibly in conjunction with pre-cast manhole rings.

1.2.9 Access tracks to the site and between the turbine bases would total some 5.2km in length. These would incorporate a running surface approximately 4.5m wide (or locally wider at bends) within an easement 15m wide and would be either of cut construction or floating tracks. The former would extend to a total length of some 3.2km and involve excavation of the mineral soil and subsoil to a depth of up to approximately 0.4m to be replaced with road stone over a geotextile layer as necessary. Wider cuts would be required on cross slopes. The excavated material would be stored as a shallow bund alongside the track for re-use during decommissioning. Floating tracks would extend to a total length of some 2km and consist of road stone laid to a height of some 0.75m onto the existing ground surface over a geotextile membrane and geogrid where peat deposits are present. Cross drainage would be incorporated into the construction to minimise any impacts on existing surface and groundwater hydrology. This would use an upslope ditch together with drainage at intervals along the track alignment.

1.2.10 A total of some 5.6km of underground electric cables and earthing would run between the turbines and switchgear house in trenches approximately 1m deep and up to 0.9m wide. Where possible these would be positioned alongside the internal access tracks (on the opposite side from any drainage ditch). To prevent the trenches acting as water conduits clay bunds would be laid at regular intervals.

1.2.11 The single storey electrical switchgear building would be located adjacent to the access road between the site entrance and turbine T1 and would measure approximately 15m by 10m and 6m high, with foundations to a depth of up to 1.5m.

1.2.12 The temporary construction compound would be located adjacent to the access road between the site entrance and turbine T1 and would measure approximately 50m by 30m. This would involve the excavation of soil within this area to a depth of up to 0.2m, the excavated material being
replaced with graded and compacted stone. The excavated material would be temporarily stored around the compound within an area extending up to 30m by 6m for re-use as backfill upon completion of construction.

1.3 Archaeological Background

1.3.1 Archaeological Background: the present background is derived from the earlier WSI for archaeological and palaeoenvironmental surveys by Peter Cardwell (2010). The earliest sites within the environs of the wind farm are of probable Bronze Age date and include a probable stone circle on Thirteen Stone Hill, and is 1.3km to the east of the study area, and a further putative stone circle existed to the north-west of the study area at Cocker Beck. A possible round barrow has been identified on Dry Hill near to the wind farm on the easternmost of two small morainal rounded hills on Oswaldtwistle Moor; and a possible barrow is located at Knave Low, approximately 1km to the west of the study area.

1.3.2 Roman: no certain sites or finds of Roman date have been identified within the study area, but the principal Roman road between Manchester and Ribchester (Margary 7b, 1972, 370–1) passes some 3km to the west of Oswaldtwistle Moor at its closest point. A further, putative minor Roman road, crossing the western edge of Oswaldtwistle Moor has been suggested on the basis of antiquarian references (Whittaker 1872, 12; Halstead 1916, 2). A trackway there possibly corresponds with the line of this road, although it is also close to the route of a later medieval saltway.

1.3.3 Medieval: the wider area was located on the margins of the Forest of Rossendale and from the thirteenth century until 1548, the manor was held by the Radcliffe family (Baines 1836, 408; Farrer and Brownhill 1911, 405). Expansion of settlement within the area is suggested by the first documented references to Oswaldtwistle and Haslingden from the thirteenth century onwards (Ekwall 1922, 90–91). The documented references to expanded settlement correspond to an increase in forest clearance activity (WPMAMC 1991), but no archaeological evidence for settlement of later medieval date has been recorded on Oswaldtwistle Moor. The only probable site of medieval date on the moor is the route of the saltway from Cheshire to Penrith (NMR 43941), which possibly followed a line around the north-western edge of the moor in the vicinity of Westerlot.

1.3.4 Post-Medieval: from the early post-medieval period the Oswaldtwistle and Haslingden Moors area were more closely integrated with the economic development of the region (WPMAMC 1991, 14). Haslingden had adopted a market by 1555 and biannual fairs by 1610, and by the seventeenth century Haslingden had become more significant than Accrington (ibid; Lancashire County Council and Egerton Lea Consultancy 2005, 2). This expansion resulted in pressure on the surrounding land for more pasture, and led to illegal encroachments onto Haslingden Moor.

1.3.5 Agricultural changes within the environs of Oswaldtwistle Moor were precipitated by the enclosure of the common lands on the moor in 1774, but the area of Haslingden Moor remained unenclosed. The enclosure of Oswaldtwistle Common was associated with the establishment of farmsteads, many of which had loomshops for spinning and weaving to supplement the income from agriculture. Continued agricultural development on Oswaldtwistle Moor into the nineteenth century resulted in the establishment of farmsteads at Lower Warmwithens and Higher Warmwithens. Within the vicinity of Oswaldtwistle Moor are a number of areas of ridge and furrow cultivation, which were relatively narrow (c. 3m–4m wide); they were not the product of oxen ploughing and are probably of post-medieval date. They indicate some arable cultivation on the marginal land of Oswaldtwistle Moor during this period.

1.3.6 Other industry: there were significant levels of quarrying activity on Oswaldtwistle and Haslingden Moors in the eighteenth and nineteenth centuries (Rothwell 1978, 23), which exploited the sandstone for ashlar, flags or rubble for building construction. There is also evidence of coal mining but this is mostly to the north and west of the study area; the principal colliery was at Broadfield and dates from the early nineteenth century.

1.3.7 Survey Results: a programme of survey was undertaken of selected areas of the site (OA North 2010), primarily within four areas (Areas A-D) as well as sections of nine field boundaries. A summary is presented below:
1.3.8 **Area A:** this was an area of ridge and furrow situated in the field immediately to the south of the B6236 road between Blackburn and Haslingden (SD 74474 25242 centred). There were approximately 40 visible ridges, with the western part of the area comprising ridges that were c.3m across wide, and the eastern part that were 2m across.

1.3.9 **Area B:** in Area B, close to turbine T3, was a length of trackway, a possible pond, a former quarry, a deep ditch and a field boundary. The former trackway is a continuation of a track crossing the field to the north as marked on the Ordnance Survey maps. Both the former quarry and possible pond lie on the western edge of the track. The quarry has a flat bottom which is now boggy and waterlogged. Situated to the north-west of the quarry is a field boundary comprising a ditch, bank and drystone wall.

1.3.10 **Area C:** at Area C was a former quarry site situated on the proposed access road to the east of Turbine T11 (Fig 1; SD 7393 2395 centred), and comprised a shallow rectangular scrape with spoil heaps at both the northern and southern ends.

1.3.11 **Area D:** this area is situated to the north west of Area C and consisted of a former field boundary, which consists of a linear ditch running almost east/west down the slope and a low bank on the northern side.

1.3.12 **Palaeoenvironmental Survey:** a palaeoenvironmental survey revealed that Oswaldtwistle Moor comprises a series of small peat plateau areas with peat accumulations of up to 4.0m. The upper (c.1.0-2.0m) sections were wet, often *Sphagnum*– dominated peat overlying a more humified, consolidated peat. The organic deposits sit directly on clays, silts and sands (Millstone Grit). Wood peat was discovered in some of the boreholes (especially in the east) and the presence of extensive sections with exposed trees suggest that woodland developed at the site. The assessment of four spot samples from the gouge-collected cores at turbine locations T4 and T5 show that pollen is well preserved and the recovery is good to abundant. Palaeoenvironmental analysis is being undertaken as part of the present project.

1.3.13 The study identified shallow peats particularly in the northern and western parts of the area, and corresponds with the area of the western access road. These areas of shallow peats for the most part will be examined in the course of the present programme of trenching.

1.2 **OXFORD ARCHAEOLOGY NORTH**

1.2.1 Oxford Archaeology North (OA North) has considerable experience of the archaeological survey and evaluation of sites and monuments of all periods, having undertaken a great number of small and large projects during the past 20 years. Projects have been undertaken to fulfil the different requirements of various clients and planning authorities, and to very rigorous timetables. OA North has considerable experience of the recording of historic buildings together with the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 20 years. Fieldwork has taken place within the planning process and construction programmes, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North undertook the earlier survey and environmental study (OA North 2010) on the site and has considerable familiarity with the site and its archaeology.

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 main aim of the investigation will be to characterise the level of preservation and significance of any buried archaeological remains surviving *in situ* within the site. The work will evaluate the archaeological resource and potential for further archaeological deposits, in order to determine their extent and nature of the remains that may be threatened by the proposed development. In addition some of the trenches will provide a mitigative record of structures that will be destroyed by the development. The results will provide information as to whether further investigation or
mitigation work is necessary prior to the development taking place. To this end, the following programme has been designed:

2.2 TRENCHING PROGRAMME

2.2.1 To implement a programme of trial trenching targeted at turbine locations, the site compound and access routes to determine the quality, extent and importance of any archaeological remains on the site (in accordance with the IFA standards (1999b)). In addition some trenches will augment the previous recording programme, and will provide a mitigative record of selected features.

2.3 REPORT

2.3.1 A written report will present an assessment of the significance of the data generated by this programme within a local and regional context. It will present the evaluation and make an assessment of the archaeological potential of the area, and make recommendations for further work. An archive will be produced to English Heritage guidelines (MAP 2 (1991)).

3. METHOD STATEMENT

3.1 EVALUATION TRENCHING

3.1.1 Introduction: 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 extent of the windfarm and assess whether any further work will be required on site prior to extraction.

3.1.2 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) and the IFA’s code of conduct.

3.1.3 The evaluation will entail examination of selected turbines, site compound and access routes in accordance with a defined trenching plan (Figs 1-5). The majority of the trenches are 25m in length by 2m width, but some set across the access routes are 15m long by 2m width. The intention of the trench locations is to examine areas of impact by the development, and also to examine areas of archaeological potential highlighted by the Hyndburn windfarm EIA (Peter Cardwell and E4environment 2009) and the survey interim report (OA North 2010). The numbers of trenches are defined in the table below and on the attached figure.

<table>
<thead>
<tr>
<th>Trench no</th>
<th>Name</th>
<th>Actual trenches</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site Compound</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
</tr>
<tr>
<td>2</td>
<td>Turbine 1 foundation</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
</tr>
<tr>
<td>3</td>
<td>Turbine 2 foundation</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
</tr>
<tr>
<td>4</td>
<td>Turbine 3 foundation</td>
<td>25m x 2m trench</td>
<td>Mitigation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trackway (Site 153)</td>
</tr>
<tr>
<td>5</td>
<td>Turbine 6 foundation</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
</tr>
<tr>
<td>6</td>
<td>Turbine 10 foundation</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
</tr>
<tr>
<td>7</td>
<td>Turbine 9 foundation</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
</tr>
<tr>
<td>8</td>
<td>Turbine 8 foundation</td>
<td>25m x 2m trench</td>
<td>Evaluation</td>
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<td>9</td>
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<tr>
<td>11</td>
<td>Access Roads</td>
<td>15m x 2m trench</td>
<td>Mitigation</td>
</tr>
</tbody>
</table>
### 3.1.4 Methods:
The programme of 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. The arrangement will be adjusted so as to target any surface features of particular significance. The initial layout of the trenches will be agreed with the Lancashire County Archaeologist and Peter Cardwell, the Energiekontur Archaeological Consultant.

### 3.1.5 The trenches will be excavated by a combination of mechanised and manual techniques; the topsoil will be removed by mechanical excavator, fitted with a 1.8m wide toothless bucket, down to the first significant archaeological horizon or natural. Any archaeological deposits identified will be manually cleaned and then any features identified will be manually excavated. The machine excavation will not intrude into any potential archaeological stratigraphy and all machine excavation will be undertaken under careful archaeological supervision. One long section of each trench will be manually cleaned to enable close examination and recording, and the trench floor will be manually cleaned by hoe and manual excavation techniques around any suspected archaeological features or deposits. Typically the entire floor of the trench will not be cleaned in its entirety unless extensive features are revealed by the mechanical cleaning within the trench. Any revealed features will be subject to evaluation, which will entail the excavation of 50% of discrete features, 25% of linear features with non-uniform fill, and 10% of linear features with uniform fill. Sensitive deposits will be manually excavated, which will enable an assessment of the nature, date, survival and depth of deposits and features. Excavation will not exceed 1.25m deep to
3.1.6 **Environmental Sampling:** environmental samples (bulk samples of 60 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). An assessment of the environmental potential of the site will be undertaken through the examination of suitable deposits by the in-house palaeoecological specialist, who will examine the potential for further analysis. 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, the samples would be assessed for plant macrofossils, insect, molluscs and pollen from waterlogged deposits. The costs for the palaeoecological assessment are defined as a contingency and will only be called into effect if good deposits are identified.

3.1.7 Advice will also be sought as to whether a soil micromorphological study or any other analytical techniques will enhance the understanding of the site formation processes, including the amount of truncation to buried deposits and the preservation of deposits within negative features. Should this be required the costs for analysis will be provided as a variation.

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

3.1.9 **Human Remains:** 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. LCAS and the local Coroner will be informed immediately. If removal is essential the exhumation of any funerary remains will require the provision of a Ministry of Justice licence, 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 and in accordance with English Heritage and IFA guidance (English Heritage 2005; Mays et al 2002; McKinley 2004). Such removal may also require costing as a variation, the amount of which will be made in agreement with the client.

3.1.10 **Treatment of finds:** all finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) First Aid For Finds, 1998 (new edition) and the recipient museum’s guidelines.

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

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

3.1.13 **Recording:** the trench will be located by use of differential GPS equipment which is accurate to +/- 0.05m; altitude information will be established with respect to GPS Ordnance Survey Datum. Archaeological features within the trenches will be planned using manual techniques. All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

3.1.14 Results of the field investigation will be recorded using a paper system, adapted from that used by Centre for Archaeology of English Heritage. The 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. A Harris matrix will be compiled for any stratified deposits encountered.
3.2 **REPORT**

3.2.1 **Archive:** the results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork, which will be catalogued by context. This archive can be provided in the English Heritage Centre for Archaeology format and a synthesis will be included in the Lancashire Historic Environment Record. A copy of the archive can also be made available for deposition with the National Archaeological Record. OA North practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office, and a full copy of the record archive (microform or microfiche) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum.

3.2.2 **Report:** one bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further two copies will be submitted to the Lancashire Historic Environment Record. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and present an assessment of the history of the site. The report will include the following:

- a front cover to include the planning application number and the NGR
- the dates on which the fieldwork 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
- a description of the results
- a list of and dates for any finds recovered and a description and interpretation of the deposits identified
- a description of any environmental or other specialist work undertaken and the results obtained
- A description of the collective assemblage
- a complete bibliography of sources from which data has been derived
- a list of further sources identified during the programme of work, but not examined in detail
- a copy of this project design, and indications of any agreed departure from that design
- a set of recommendations for further work.

3.2.3 Illustrative material will include a location map, site map, a trench location map, trench plans, survey maps, and also pertinent photographs.

3.2.4 The Arts and Humanities Data Service (AHDS) online database project *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.

3.2.5 **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.
3.3 OTHER MATTERS

3.3.1 Health and Safety: OA North conforms to all health and safety guidelines as contained in the Lancaster University Manual of Health and Safety and the safety manual compiled by the Standing Conference of Archaeological Unit Managers. The work will be in accordance with Health and Safety at Work Act (1974), the Council for British Archaeology Handbook No. 6, Safety in Archaeological Fieldwork (1989).

3.3.2 Full regard will, of course, be given to all constraints (services etc) during the watching brief as well as to all Health and Safety considerations. As a matter of course the Unit uses a Cable Avoidance Tool (CAT) prior to any excavation to test for services. However, this is not fool-proof and it is assumed that the client will provide any available information regarding services within the study area. All available service plans will be considered in the positioning of the trenches.

3.3.3 OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. A risk assessment will be completed in advance of the project's commencement. If there is a requirement to excavate trenches deeper than 1.25m the trenches will be stepped out to minimise section collapse.

3.3.4 Access: liaison for basic site access will be undertaken through the client and it is understood that there will be access for both pedestrian and vehicular traffic to the site. Should there be any unforeseen delays resulting from access difficulties beyond the control of OA North a stand down rate will be charged.

3.3.5 Reinstatement: it is understood that there will be no requirement for reinstatement of the ground beyond backfilling. The ground will be backfilled so that the topsoil is laid on the top, and the ground will be roughly graded with the machine. Should there be a requirement by the client other than that stated this will involve recosting.

3.3.6 Fencing requirements: the trenches will be protected during the course of the evaluation using barrier tape. However, if the client deems this as not suitable OA North must be informed prior to commencement of site works. For deep trenches netlon fencing will be used. If heras fencing is required this will be costed as a variation.

3.3.7 Insurance: the insurance in respect of claims for personal injury to or the death of any person under a contract of service with the unit and arising out of an in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North, in respect of personal injury or damage to property by negligence of OA North or any of its employees, there applies the insurance cover of £2m for any one occurrence or series of occurrences arising out of one event.

3.3.8 Confidentiality: the report is designed as a document for the specific use of the Client, for the particular purpose as defined in the project design, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose will be fulfilled by separate arrangement.

3.3.9 Project Monitoring: whilst the work is undertaken for the client, the Assistant County Archaeologist will be kept fully informed of the work and its results and will be afforded all reasonable access to the site during the ongoing evaluation. Any proposed changes to the agreed project design will be agreed with Assistant County Archaeologist in consultation with the Client.

3.3.10 Contingency: contingencies are defined for the provision of a palaeoenvironmental assessment, and faunal remains analysis. The palaeoenvironmental analysis would be subject to an assessment by the OA North palaeoenvironmental specialist (E Huckerby).

4. WORK PROGRAMME

4.1 WORK TIMETABLE

4.1.1 Evaluation Trenching: approximately 15 working days will be required to complete this element with a team of three people, and it is anticipated that the programme will start on the 22nd November.
4.1.2 **Report:** the report will be produced following the completion of all the fieldwork. A draft report will be submitted within eight weeks of completion of the fieldwork for approval by the client. A final version will be submitted within two weeks of receipt of detail of amendments.

4.1.3 **Archive:** the archive will be deposited within six months.

4.1.4 OA North requires a formal written agreement or order, subsequent to which the work can be scheduled.

4.1.5 The project will be managed by Jamie Quartermaine BA Surv Dip MIFA (Unit Project Manager) to whom all correspondence should be addressed. OA North adheres by the IFA’s Code of Conduct and the Code of Approved Practice for the regulation of Contractual Arrangements in Field Archaeology.

4.1.6 All elements of the assessment will be supervised by either an OA North project officer or supervisor experienced in this type of project, and assisted by two OA North project assistants. Due to scheduling requirements it is not possible to provide these details at the present time. All OA North project officers and supervisors are experienced field archaeologists capable of carrying out projects of all sizes.

4.1.7 Assessment of the finds from the evaluation will be undertaken under the auspices of OA North's in-house finds specialist Christine Howard-Davis (OA North finds manager). Christine has extensive knowledge of finds from many periods.

4.1.8 Assessment of any palaeoenvironmental samples will be undertaken by or under the auspices of Elizabeth Huckerby MSc (OA North environmental manager). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey.
APPENDIX 2: TRENCH DESCRIPTIONS

### Trench 1
Dimensions: 25.0m by 2.0m  
Orientation: North-West/South-East

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Layer</td>
<td>Topsoil. This comprised dark-brown-grey silty clay, with occasional sub-angular stone, a maximum of 0.5m by 0.3m by 0.3m in size.</td>
<td>0.3</td>
</tr>
<tr>
<td>101</td>
<td>Layer</td>
<td>Natural clay till. A light mid-greyish yellow clay, with occasional sub-angular stone, a maximum of 0.5m by 0.3m by 0.3m in size.</td>
<td>Unknown</td>
</tr>
<tr>
<td>102</td>
<td>Cut</td>
<td>Most likely a sub-circular pit, but only part of the feature was visible within the trench. It measured at least 1.18m wide, with steep straight sides and a flat base.</td>
<td>0.22</td>
</tr>
<tr>
<td>103</td>
<td>Fill</td>
<td>Fill of 103. This comprised dark-brown-grey silty clay mixed with mid-brownish yellow clay. A mix of topsoil and natural clay backfilled into the pit.</td>
<td>0.22</td>
</tr>
</tbody>
</table>

### Trench 2
Dimensions: 25.0m by 2.0m  
Orientation: East/West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Layer</td>
<td>Topsoil. This comprised dark-brown-grey clayey silt with occasional sub-rounded stone, a maximum of 0.10m by 0.10m by 0.10m in size.</td>
<td>0.35</td>
</tr>
<tr>
<td>201</td>
<td>Layer</td>
<td>Natural clay till. A mid-yellowish grey clay with occasional sub-rounded stone, a maximum of 0.10m by 0.10m by 0.10m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

### Trench 3
Dimensions: 25.0m by 2.0m  
Orientation: North-West/South-East

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Layer</td>
<td>Topsoil/peat. This comprised dark-grey clayey silt.</td>
<td>0.33</td>
</tr>
<tr>
<td>301</td>
<td>Structure</td>
<td>Culverted field drain. Capping stone measured, a maximum of 0.38m by 0.33m by 0.04m. The stones at the side of the culvert measured, a maximum of 0.25m by 0.18m by 0.04m. The culvert measured 0.54m in width and was laid on a north-west/south-east alignment. It contained a very dark-grey silt and water.</td>
<td>Min 0.10m</td>
</tr>
<tr>
<td>302</td>
<td>Structure</td>
<td>Culverted field drain. Capping stone measured, a maximum of 0.45m by 0.25m by 0.10m. The stones at the side of the culvert measured, a maximum of 0.30m by 0.15m by 0.12m. The culvert measured 0.50m in width and was laid on a north-west/south-east alignment. It contained a very dark-grey silt and water.</td>
<td>Min 0.10m</td>
</tr>
</tbody>
</table>
**Trench 4**  
Dimensions: 25.0m by 2.0m  
Orientation: North-West/South-East

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>Layer</td>
<td>Topsoil/peat. Very dark-grey silt.</td>
<td>0.10</td>
</tr>
<tr>
<td>401</td>
<td>Fill</td>
<td>Fill of ditch 402. A very dark-grey peaty silt.</td>
<td>0.10</td>
</tr>
<tr>
<td>402</td>
<td>Cut</td>
<td>Ditch. A shallow linear feature measuring 0.5m wide, aligned north-north-west/south-south-east, with a concave base.</td>
<td>0.10</td>
</tr>
<tr>
<td>403</td>
<td>Layer</td>
<td>Trackway. This comprised mid-orange grey silty sand, with c. 20% sub-angular stone inclusions, a maximum of 0.20m by 0.20m by 0.10m in size.</td>
<td>0.34</td>
</tr>
<tr>
<td>404</td>
<td>Layer</td>
<td>Peat deposit. A very dark-grey silt.</td>
<td>0.38</td>
</tr>
<tr>
<td>405</td>
<td>Layer</td>
<td>Peat deposit. A dark-brown silt, with abundant plant remains visible.</td>
<td>0.66</td>
</tr>
<tr>
<td>406</td>
<td>Layer</td>
<td>Peat deposit A very dark-grey silt.</td>
<td>0.35</td>
</tr>
<tr>
<td>407</td>
<td>Layer</td>
<td>Natural clay till. This comprised a mid-orange grey clay.</td>
<td>Unknown</td>
</tr>
<tr>
<td>408</td>
<td>Structure</td>
<td>Culverted field drain, located within layer 404. This comprised millstone grit forming capping stones, a maximum of 0.62m by 0.20m by 0.07m in size. The stone as the side of the culvert measured, a maximum of 0.20m by 0.20m by 0.10m in size. The drain was on a north-east/south-west alignment, and measured 0.62m wide.</td>
<td>0.25</td>
</tr>
</tbody>
</table>

**Trench 5**  
Dimensions: 25.0m by 2.0m  
Orientation: East-North-East/West-South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey silt.</td>
<td>1.2</td>
</tr>
<tr>
<td>501</td>
<td>Layer</td>
<td>Natural clay till. A mid-blue grey clay, with occasional sub-angular stone inclusions, a maximum of 0.50m by 0.40m by 0.40m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Trench 6**  
Dimensions: 25.0m by 2.0m  
Orientation: East-North-East/West-South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey silt.</td>
<td>0.51</td>
</tr>
<tr>
<td>601</td>
<td>Layer</td>
<td>Peat. A dark-brown clayey silt.</td>
<td>0.17</td>
</tr>
<tr>
<td>602</td>
<td>Layer</td>
<td>Natural clay till. A light grey clay, with rare sub-rounded stone inclusions, a maximum of 0.25m by 0.24m by 0.08m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
### Trench 7
**Dimensions:** 25.0m by 2.0m  
**Orientation:** North-East/South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>Layer</td>
<td>Topsoil/peat. A dark orangey brown silt.</td>
<td>0.58</td>
</tr>
<tr>
<td>701</td>
<td>Layer</td>
<td>Peat. A very dark-grey silt.</td>
<td>0.25</td>
</tr>
<tr>
<td>702</td>
<td>Layer</td>
<td>Natural clay till. A mid-orangey grey clay, with rare sub-rounded stone inclusions, a maximum of 0.12m by 0.12m by 0.05m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

### Trench 8
**Dimensions:** 25.0m by 2.0m  
**Orientation:** East-North-East/West-South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey silt.</td>
<td>0.35</td>
</tr>
<tr>
<td>801</td>
<td>Fill</td>
<td>Fill of pit 802. This comprised a very dark-grey silty peat deposit, with a lens of light orangey grey medium sand clay. Potentially redeposited peat and natural used to backfill feature.</td>
<td>0.34</td>
</tr>
<tr>
<td>802</td>
<td>Cut</td>
<td>Most likely a sub-circular pit, although only part of feature was located within the trench. It measured at least 0.68m wide, with steep, straight sides and a concave base.</td>
<td>0.34</td>
</tr>
<tr>
<td>803</td>
<td>Layer</td>
<td>Natural clay till. A light to mid-orangey grey clay.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

### Trench 9
**Dimensions:** 25.0m by 2.0m  
**Orientation:** North/South

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>Layer</td>
<td>Topsoil/peat. A dark-greyish brown clayey silty, containing less than 10% sub-rounded stones, a maximum of 0.10m by 0.10m by 0.10m in size.</td>
<td>0.58</td>
</tr>
<tr>
<td>901</td>
<td>Layer</td>
<td>Natural clay till. A light to mid-grey orange clay.</td>
<td>Unknown</td>
</tr>
<tr>
<td>902</td>
<td>Cut</td>
<td>A sub-rectangular pit, measuring 1.10m in length and 0.57m wide, with straight vertical sides and a flat base.</td>
<td>0.59</td>
</tr>
<tr>
<td>903</td>
<td>Fill</td>
<td>Fill of pit 902. This comprised loose very dark-grey clayey silty peat. Most likely a deposit of peat used to backfill the feature.</td>
<td>0.59</td>
</tr>
<tr>
<td>904</td>
<td>Cut</td>
<td>A shallow slightly sub-circular discrete feature, measuring 0.38m in length and 0.23m wide, with an concave base.</td>
<td>0.09</td>
</tr>
<tr>
<td>905</td>
<td>Fill</td>
<td>Fill of 904. A dark-brownish grey clayey silt, containing c 10% sub-rounded stones, a maximum of 50mm by 50mm by 50mm in size.</td>
<td>0.09</td>
</tr>
</tbody>
</table>

### Trench 10
**Dimensions:** 25.0m by 2.0m  
**Orientation:** East/West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey silt.</td>
<td>0.55</td>
</tr>
<tr>
<td>1001</td>
<td>Layer</td>
<td>Natural clay till. A mid-grey orange clay, containing rare sub-angular stone inclusions, a</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
Trench 11  Dimensions: 25.0m by 2.0m  Orientation: North-East/South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey fine sand silty clay.</td>
<td>0.15</td>
</tr>
<tr>
<td>1101</td>
<td>Layer</td>
<td>Subsoil/peat. A mid-orange grey silty clay.</td>
<td>0.13</td>
</tr>
<tr>
<td>1102</td>
<td>Layer</td>
<td>Natural clay till. A mid-grey orange clay with c 1-5% sub-rounded stone inclusions, a maximum of 0.27m by 0.23m by 0.18m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Trench 12  Dimensions: 25.0m by 2.0m  Orientation: North-East/South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>Layer</td>
<td>Topsoil/peat. A dark-brownish grey clayey silt with rare sub-angular stone, a maximum of 0.50m by 0.40m by 0.30m in size.</td>
<td>0.50</td>
</tr>
<tr>
<td>1201</td>
<td>Layer</td>
<td>Natural clay till. A mid-yellowish grey clay, containing occasional sub-angular stone, a maximum of 0.50m by 0.40m by 0.30m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Trench 13  Dimensions: 25.0m by 2.0m  Orientation: North/South

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1300</td>
<td>Layer</td>
<td>Topsoil/peat. A dark-brownish grey clayey silt with rare sub-rounded stone, a maximum of 0.10m by 0.10m by 0.10m in size.</td>
<td>0.30</td>
</tr>
<tr>
<td>1301</td>
<td>Layer</td>
<td>Natural clay till. A mid-yellowish grey clay, containing occasional sub-angular stone, a maximum of 0.10m by 0.10m by 0.10m in size.</td>
<td>Unknown</td>
</tr>
<tr>
<td>1302</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.40m by 0.30m by 0.07m in size. The stone as the side of the culvert measured, a maximum of 0.20m by 0.20m by 0.10m in size. The drain was on a north/east alignment, measuring 0.47m wide.</td>
<td>Unknown</td>
</tr>
<tr>
<td>1303</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.40m by 0.20m by 0.07m in size. The stone as the side of the culvert measured, a maximum of 0.20m by 0.20m by 0.10m in size. The drain was on a north/east alignment, and measured 0.53m wide.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Trench 14  Dimensions: 25.0m by 2.0m  Orientation: East-North-East/West-South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>Layer</td>
<td>Topsoil/peat. Very dark-grey clayey silt.</td>
<td>0.35</td>
</tr>
<tr>
<td>1401</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.55m by 0.35m by 0.07m in size. The stone as the side of the culvert measured, a maximum of 0.20m by 0.20m by 0.10m in size. The drain was on a north/east alignment, and measured 0.53m wide.</td>
<td>0.22</td>
</tr>
<tr>
<td>Context</td>
<td>Category</td>
<td>Description</td>
<td>Depth</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>1402</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.33m by 0.30m by 0.07m in size. The stone as the side of the culvert measured, a maximum of 0.27m by 0.18m by 0.06m in size. The drain was on a north-east/south-west alignment.</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Trench 15 Dimensions: 25.0m by 2.0m Orientation: North-East/South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500</td>
<td>Layer</td>
<td>Topsoil/peat. Very dark-grey silt.</td>
<td>0.46</td>
</tr>
<tr>
<td>1501</td>
<td>Layer</td>
<td>Natural clay till. A mid-orangey grey clay, containing rare sub-angular stone, a maximum of 0.12m by 0.11m by 0.08m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Trench 16 Dimensions: 25.0m by 2.0m Orientation: East/West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600</td>
<td>Layer</td>
<td>Topsoil/peat. Very dark-grey silt.</td>
<td>0.55</td>
</tr>
<tr>
<td>1601</td>
<td>Layer</td>
<td>Natural clay till. Varied from a mid-orangey grey to a mid-grey medium sandy clay, containing rare sub-angular and sub-rounded stone, a maximum of 0.16m by 0.14m by 0.08m in size.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Trench 17 Dimensions: 25.0m by 2.0m Orientation: East-North-East/West-South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700</td>
<td>Layer</td>
<td>Thick layer of waterlogged sphagnum moss and rushes.</td>
<td>0.50</td>
</tr>
<tr>
<td>1701</td>
<td>Layer</td>
<td>Peat. A very dark-grey silt.</td>
<td>0.24</td>
</tr>
<tr>
<td>1702</td>
<td>Layer</td>
<td>Natural clay till. A mid-orangey grey and mid-grey clay, containing rare sub-rounded stone, a maximum of 0.18m by 0.15m by 0.15m in size.</td>
<td>Unknown</td>
</tr>
<tr>
<td>1703</td>
<td>Layer</td>
<td>Make up of trackway. A compacted dark-brown orange coarse sand.</td>
<td>0.16</td>
</tr>
<tr>
<td>1704</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.22m by 0.17m by 0.07m in size. The stone as the side of the culvert measured, a maximum of 0.25m by 0.12m by 0.12m in size. The drain was on a north/south alignment, and measured 0.48m</td>
<td>0.53</td>
</tr>
<tr>
<td>1705</td>
<td>Layer</td>
<td>Make up of trackway. A compacted mid-orange coarse sand with lenses of very dark-grey silt.</td>
<td>0.14</td>
</tr>
<tr>
<td>1706</td>
<td>Cut</td>
<td>Quarry. The straight sides of the cut varied from a steep to moderate gradient. The quarry measured 13.68m wide, and had a flat base.</td>
<td>0.74</td>
</tr>
</tbody>
</table>
### Trench 18  Dimensions: 25.0m by 2.0m  Orientation: North-West/South-East

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>Layer</td>
<td>Topsoil/peat. A dark-brownish-grey clayey silt, with less than 10% small rounded stone inclusions.</td>
<td>0.20</td>
</tr>
<tr>
<td>1801</td>
<td>Layer</td>
<td>Natural clay till. A mid-orangey grey and mid-grey clay, containing rare sub-rounded stone, a maximum of 0.18m by 0.15m by 0.15m in size.</td>
<td>Unknown</td>
</tr>
<tr>
<td>1802</td>
<td>Cut</td>
<td>Ditch. A shallow U-shaped linear, with a concave base, measuring 0.69m wide.</td>
<td>0.15</td>
</tr>
<tr>
<td>1803</td>
<td>Fill</td>
<td>Fill of 1802. A dark-brownish grey silty clay, with 10% to 20% small sub-rounded stone inclusions.</td>
<td>0.15</td>
</tr>
<tr>
<td>1804</td>
<td>Layer</td>
<td>Trackway. A mid-orangey brown, loose, silty sand with 20% to 30% rounded stone inclusions, a maximum of 0.20m in diameter.</td>
<td>0.26</td>
</tr>
<tr>
<td>1805</td>
<td>Layer</td>
<td>Turf layer above trackway 1804. A dark-brownish grey silty clay.</td>
<td>0.05</td>
</tr>
<tr>
<td>1806</td>
<td>Cut</td>
<td>Pit. A sub-circular cut with a flat bottom and near vertical sides, measuring at least 1.10m wide, continuing beyond the northern limit of the trench.</td>
<td>0.30</td>
</tr>
<tr>
<td>1807</td>
<td>Fill</td>
<td>Fill of 1806. A dark-brown silty clay with c 90% sub-rounded stone inclusions, a maximum of 0.20m by 0.10m by 0.10m in size.</td>
<td>0.30</td>
</tr>
<tr>
<td>1808</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.41m by 0.38m by 0.05m in size. The stone as the side of the culvert measured, a maximum of 0.14m by 0.10m by 0.09m in size. The drain was on a north-west/south-east alignment, and measured 0.48m wide.</td>
<td>0.15</td>
</tr>
<tr>
<td>1809</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.38m by 0.38m by 0.05m in size. The stone as the side of the culvert measured, a maximum of 0.15m by 0.09m by 0.09m in size. The drain was on a north-east/south-west alignment, and measured 0.51m wide.</td>
<td>0.14</td>
</tr>
</tbody>
</table>

### Trench 19  Dimensions: 25.0m by 2.0m  Orientation: North-East/South-West

<table>
<thead>
<tr>
<th>Context</th>
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<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey clayey silt.</td>
<td>0.30</td>
</tr>
<tr>
<td>1901</td>
<td>Layer</td>
<td>Subsoil/peat. A dark orangey grey silty clay.</td>
<td>0.08</td>
</tr>
<tr>
<td>1902</td>
<td>Structure</td>
<td>Culvert within cut 1907. This comprised roughly hewn millstone grit forming the sides of the structure and the capping stones, measuring, a maximum of 0.38m by 0.30m by 0.12m. The culvert measured 0.58m wide, on a north-east/south-west alignment.</td>
<td>0.29</td>
</tr>
<tr>
<td>1903</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.40m by 0.35m by 0.05m in size. The stone as the side of the culvert measured, a maximum of 0.15m by 0.08m by 0.07m in size. The drain measured 0.37m wide,</td>
<td>0.14</td>
</tr>
</tbody>
</table>
and was on a north-west/south-east alignment.

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1904</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.25m by 0.20m in size. The stone as the side of the culvert measured, a maximum of 0.08m by 0.04m in size. The drain measured 0.32m wide, and was on a north-west/south-east alignment.</td>
<td>0.10</td>
</tr>
<tr>
<td>1905</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.30m by 0.04m in size. The stone as the side of the culvert measured, a maximum of 0.10m by 0.06m in size. The drain measured 0.35m wide, and was on a north-west/south-east alignment.</td>
<td>0.10</td>
</tr>
<tr>
<td>1906</td>
<td>Layer</td>
<td>Natural clay till. A mid-orangey grey and mid-grey clay.</td>
<td>Unknown</td>
</tr>
<tr>
<td>1907</td>
<td>Cut</td>
<td>Construction cut for culvert 1901. Linear feature on a north-east/south-west alignment, measuring at least 1.5m wide. The cut had straight sides, the incline of which varied from a ratio of 2:1 to 1:2.</td>
<td>0.29</td>
</tr>
<tr>
<td>1908</td>
<td>Fill</td>
<td>Fill of 1907. A mix of topsoil and natural clay used to backfill over culvert 1902. This comprised a mix of dark-grey clayey silt and mid-orangey grey clay.</td>
<td>0.29</td>
</tr>
<tr>
<td>1909</td>
<td>Structure</td>
<td>Drystone wall. This comprised roughly hewn and angular millstone grit, a maximum of 0.45m by 0.38m by 0.11m. It was largely collapsed, measuring 1.98m wide, and built on a west-north-west/east-south-east alignment.</td>
<td>0.78</td>
</tr>
</tbody>
</table>

**Trench 21**  
**Dimensions: 15.0m by 2.0m**  
**Orientation: North-East/ South-West**

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2100</td>
<td>Layer</td>
<td>Topsoil/peat. Very dark-grey silt.</td>
<td>0.47</td>
</tr>
<tr>
<td>2101</td>
<td>Structure</td>
<td>Culvert. This comprised roughly hewn millstone grit, with capping stone, a maximum of 0.42m by 0.38m by 0.09m and the stone forming the side of the culvert, a maximum of 0.22m by 0.15m by 0.08m in size. The culvert measured 0.58m wide, and was on west-north-west/east-south-east alignment.</td>
<td>Min 0.28m</td>
</tr>
<tr>
<td>2102</td>
<td>Cut</td>
<td>Construction cut for culvert 2101. Cut no excavated due culvert still being active, resulting in flooding where culvert disturbed. Cut measured 0.58m wide, on west-north-west/east-south-east alignment.</td>
<td>Min 0.28m</td>
</tr>
<tr>
<td>2103</td>
<td>Layer</td>
<td>Natural clay till. A mid-orangey grey and mid-grey clay, with rare small stone inclusions.</td>
<td>Unknown</td>
</tr>
<tr>
<td>2104</td>
<td>Layer</td>
<td>Decayed peat. Located below wall 2106, comprising buried soil horizon or peat. Comprised a very dark-grey silt.</td>
<td>0.30</td>
</tr>
<tr>
<td>2105</td>
<td>Layer</td>
<td>Subsoil. A mid-orangey brown silt, with high organic/peat content.</td>
<td>0.15</td>
</tr>
<tr>
<td>2106</td>
<td>Structure</td>
<td>Drystone wall. This comprised roughly hewn and angular millstone grit, a maximum of 0.40m by 0.31m by 0.08m. It measured 1.05m wide, built on a west-north-west/east-south-east alignment.</td>
<td>0.80</td>
</tr>
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</table>
### Trench 22

**Dimensions:** 24.0m by 2.0m  
**Orientation:** East/West

<table>
<thead>
<tr>
<th>Context</th>
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<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2200</td>
<td>Layer</td>
<td>Topsoil/peat. A dark-greyish brown silt, with less than 10% small sub-rounded stone inclusions.</td>
<td>0.26</td>
</tr>
<tr>
<td>2201</td>
<td>Layer</td>
<td>Natural clay till. A mid-greyish orange sandy clay to a mid-bluish grey clay, with rare small sub-angular stone inclusions.</td>
<td>Unknown</td>
</tr>
<tr>
<td>2202</td>
<td>Cut</td>
<td>Ditch. Linear U-shaped cut measuring 0.77m wide on a north-south alignment. It comprised straight sides and concave base.</td>
<td>0.18</td>
</tr>
<tr>
<td>2203</td>
<td>Fill</td>
<td>Fill of 2202. A dark-brownish grey clayey silt, with rare small sub-angular stone inclusions.</td>
<td>0.18</td>
</tr>
<tr>
<td>2204</td>
<td>Structure</td>
<td>Drystone wall. This comprised roughly hewn, angular, millstone grit, a maximum of 0.30m by 0.50m by 0.20m in size. It measured 2.25m wide, and was built on an east/west alignment.</td>
<td>0.30</td>
</tr>
<tr>
<td>2205</td>
<td>Layer</td>
<td>Up-cast natural clay. A mid-orangey grey silt clay.</td>
<td>0.14</td>
</tr>
<tr>
<td>2206</td>
<td>Cut</td>
<td>Discreet feature, possibly a small pit or posthole. Sub-circular U-shaped feature 0.30m in diameter, with steep sides and a concave base.</td>
<td>0.16</td>
</tr>
<tr>
<td>2207</td>
<td>Fill</td>
<td>Fill of 2206. This comprised a mix of dark-brownish grey and mid-orangey grey silty clay.</td>
<td>0.16</td>
</tr>
</tbody>
</table>

### Trench 23

**Dimensions:** 15.38m by 5.40m  
**Orientation:** North/South

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
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<tbody>
<tr>
<td>2300</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey silt.</td>
<td>0.22</td>
</tr>
<tr>
<td>2301</td>
<td>Fill</td>
<td>Fill of 2308. Possibly sediment backfilled into quarry. A very dark-grey silt with lenses of light grey silty fine sand.</td>
<td>0.32</td>
</tr>
<tr>
<td>2302</td>
<td>Fill</td>
<td>Fill of 2308. Layer of peat. Very dark-brown-grey silt.</td>
<td>0.75</td>
</tr>
<tr>
<td>2303</td>
<td>Fill</td>
<td>Fill of 2308. Layer of decayed peat. A very dark-brown-grey silt.</td>
<td>0.25</td>
</tr>
<tr>
<td>2304</td>
<td>Fill</td>
<td>Fill of 2308. Layer of peat. Very dark-brown-grey silt.</td>
<td>Min 0.28</td>
</tr>
<tr>
<td>2305</td>
<td>Layer</td>
<td>Natural glacial till. Layers of mid-orangey grey clay above mid-grey clay.</td>
<td>Unknown</td>
</tr>
<tr>
<td>2306</td>
<td>Layer</td>
<td>Upcast from quarry 2308. A lightish-brown silty sand, with c 70% angular stone inclusions, a maximum of 0.10m by 0.05m by 0.05m in size.</td>
<td>0.28</td>
</tr>
<tr>
<td>2307</td>
<td>Layer</td>
<td>Buried topsoil/peat. A dark-greyish brown clayey silt.</td>
<td>0.53</td>
</tr>
<tr>
<td>2308</td>
<td>Cut</td>
<td>Quarry. Not fully excavated, but with steep, straight to slightly concave sides.</td>
<td>Min 2.3</td>
</tr>
<tr>
<td>2309</td>
<td>Layer</td>
<td>Turf/peaty topsoil. A very dark-grey brown silt.</td>
<td>0.05</td>
</tr>
<tr>
<td>2310</td>
<td>Structure</td>
<td>Culverted field drain. This comprised millstone grit forming capping stones, a maximum of 0.28m by 0.04m in size. The stone as the side of the culvert measured, a maximum of 0.12m by 0.05m in size. The drain measured 0.36m wide, and was on a north-west/south-east alignment.</td>
<td>0.11</td>
</tr>
</tbody>
</table>
**Trench 24**  
Dimensions: 25.0m by 2.0m  
Orientation: North/South

<table>
<thead>
<tr>
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<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey silt.</td>
<td>0.44</td>
</tr>
<tr>
<td>2401</td>
<td>Layer</td>
<td>Either colluvium or up-cast from ditch 2403. A mid-orangey grey coarse sand clay.</td>
<td>0.31</td>
</tr>
<tr>
<td>2402</td>
<td>Fill</td>
<td>Fill of 2403. A dark-grey coarse sandy silt with 10% to 20% sub-angular stone inclusions, a maximum of 0.18m by 0.18m by 0.12m in size.</td>
<td>0.38</td>
</tr>
<tr>
<td>2403</td>
<td>Cut</td>
<td>Ditch. Linear feature with concave sides and a flat base. It measured 4.70m wide, and was excavated on an east/west alignment.</td>
<td>0.38</td>
</tr>
<tr>
<td>2404</td>
<td>Layer</td>
<td>Natural glacial till. A mid-orangey grey clay with rare small sub-angular stone inclusions.</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Trench 25**  
Dimensions: 17.5m by 0.20m  
Orientation: North/South

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2500</td>
<td>Layer</td>
<td>Topsoil/peat. A very dark-grey clayey silty.</td>
<td>0.67</td>
</tr>
<tr>
<td>2501</td>
<td>Layer</td>
<td>Natural glacial till. A mid-grey clay.</td>
<td>Unknown</td>
</tr>
<tr>
<td>2502</td>
<td>Cut</td>
<td>Ditch. U-shaped linear feature with a flat base, on an east-north-east/west-south-west alignment.</td>
<td>2.74</td>
</tr>
<tr>
<td>2503</td>
<td>Structure</td>
<td>Drystone wall. This comprised roughly hewn millstone grit measuring, a maximum of 0.55m by 0.50m by 0.13m in size. The wall measured, a maximum of 0.10m wide, built on an east-north-east/west-south-west alignment.</td>
<td>0.48</td>
</tr>
</tbody>
</table>

**Trench 26**  
Dimensions: 25.0m by 2.0m  
Orientation: North-East/South-West

<table>
<thead>
<tr>
<th>Context</th>
<th>Category</th>
<th>Description</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2600</td>
<td>Layer</td>
<td>Topsoil. Dark-brownish grey clayey silt, with rare small sub-rounded stone inclusions.</td>
<td>0.30</td>
</tr>
<tr>
<td>2601</td>
<td>Layer</td>
<td>Natural glacial till. A mid-brownish orange silty clay with 10% to 20% small sub-rounded stone inclusions.</td>
<td>Unknown</td>
</tr>
<tr>
<td>2602</td>
<td>Structure</td>
<td>Culvert. This comprised capping stones, a maximum of 0.30m by 0.235m by 0.07m in size, and stones forming the sides of the culvert, a maximum of 0.15m by 0.10m by 0.10m in size. The culvert measured 0.70m wide, and had been built on a north/south alignment.</td>
<td>0.25</td>
</tr>
<tr>
<td>2603</td>
<td>Cut</td>
<td>Construction cut for culvert 2602. It measured 0.90m wide, comprised of straight near vertical sides and a flat base, on a north/south alignment.</td>
<td>0.30</td>
</tr>
<tr>
<td>2604</td>
<td>Fill</td>
<td>Fill of 2603. Sediment used to backfill 2603 after culvert 2602 in place. This comprised a mid-brown silty clay.</td>
<td>0.30</td>
</tr>
<tr>
<td>2605</td>
<td>Structure</td>
<td>Drystone wall. Completely collapsed at this location, measuring 0.75m wide, comprised sub-angular stone, a maximum of 0.48m by 0.38m by 0.15m in size</td>
<td>1.00</td>
</tr>
</tbody>
</table>
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- Archeological feature
- Limit of excavation
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Archaeological feature
Limit of excavation
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Archaeological Feature

Limit of Excavation
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