Todmorden Wind Farm Geotechnical Site Investigations, Calderdale,
West Yorkshire

Archaeological Watching Brief Report

Oxford Archaeology North

March 2013

I and H Brown

Issue No: 2012-13/1370
OA North Job No: L10570
NGR: SD 898 248

Document Title: **TODMORDEN WIND FARM GEOTECHNICAL SITE INVESTIGATIONS, CALDERDALE, WEST YORKSHIRE**

Document Type: **Archaeological Watching Brief Report**

Client Name: **I and H Brown**

Issue Number: 2012-13/1370
OA Job Number: L10570

National Grid Reference: **SD 898 248**

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SUMMARY

Calderdale Council approved a series of geotechnical investigations to facilitate a full design for a wind farm on Todmorden Moor, to the west of the town of Todmorden in Calderdale, West Yorkshire (NGR centred SD 898 248). This followed the submission of an Environmental Impact Assessment (EIA) to accompany a planning application for five wind turbines, a meteorological mast, sub-station and access tracks. The EIA identified that the majority of heritage assets in the area relate to post-medieval coal mining, with an isolated Mesolithic find spot suggesting possible prehistoric activity in the area. Consequently, with a potential for encountering unknown archaeological remains during any ground breaking works, a watching brief was required during the geotechnical investigations. I and H Brown commissioned Oxford Archaeology North (OA North) to conduct the watching brief which took place over two days on 23rd and 24th January 2013.

Eleven trial trenches were excavated under archaeological supervision at five proposed turbine positions (TT01-10), and one at the proposed site of the meteorological mast (TT11). They measured 10m long by 0.5m wide and varied in depth from 1.4m deep to 3m deep. The trenches mostly comprised peat in varying depths, from 0.2m to 1.6m, and weathered sandstone. No archaeological features or deposits were identified in any of the trenches. However, the peat appeared to be undisturbed, which suggests that any below-ground archaeological remains have a potential for good preservation. There was also evidence of the known remains associated with the mine working, such as spoil heaps, of which further evidence could be encountered during the future proposed groundworks.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Simon Wray of I and H Brown for commissioning the project.

The watching brief was undertaken by Paul Dunn, with the drawings produced by Anne Stewardson. The project was managed by Emily Mercer, who also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 Calderdale Council approved a series of geotechnical investigations to facilitate a full design for a wind farm on Todmorden Moor, Calderdale, West Yorkshire following the submission of an Environmental Impact Assessment (EIA) to accompany a planning application (Dulas Ltd 2010). The proposed development is for five wind turbines, a meteorological mast, sub-station and access tracks. The EIA identified that the majority of heritage assets in the area related to post-medieval coal mining, with an isolated Mesolithic find spot suggesting possible prehistoric activity in the area. Consequently, there is a potential for encountering unknown archaeological remains beneath the current ground surface during any ground breaking works and, therefore, a watching brief was required during the geotechnical investigations to record any archaeological features or deposits encountered. I and H Brown commissioned Oxford Archaeology North (OA North) to conduct the watching brief during the works over two days on 23rd and 24th January 2013. The following report documents the results of the archaeological watching brief.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 The proposed development site is positioned either side of Flower Scar Road on Todmorden Moor, to the west of the town of Todmorden, West Yorkshire (NGR centred SD 898 248; Fig 1), and consists of upland moor on gently undulating land, in general between 400 m and 441 m OD. The area of the groundworks was between Bacup Road (A681) to the south and south-west, and Tower Causeway to the east and north-east.

1.2.2 The solid geology of the site consists of carboniferous shales and sandstones (Ragg *et al* 1984). The soils are of the Winter Hill association, with soils of the Belmont association on steep valley sides (*ibid*).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

1.3.1 A desk-based assessment was conducted by AOC Archaeology for the purposes of an EIA prepared by Dulas Ltd (2010). Although there had been little in the way of any archaeological intervention in the area, the assessment showed there to be possible potential for remains associated with prehistoric activity in the area of the proposed development due to a Mesolithic flint find spot in the environs. However, the majority of heritage assets were associated with post-medieval coal mining and associated quarrying, including earthworks such as spoil tips. In addition, several post-medieval estate boundary stones are known along the northern edge of the proposed development site boundary. Therefore, there is potential for unknown archaeological remains concealed beneath the blanket peat on the site (*op cit*, 209).

2. METHODOLOGY

2.1 INTRODUCTION

2.1.1 A request for an archaeological watching brief was made by I and Brown, based on the proposed mitigation in the EIA (*ibid*). The work was consistent with the relevant IfA and English Heritage guidelines (Institute for Archaeologists 2008a, 2008b, 2012; English Heritage 2006).

2.2 WATCHING BRIEF

2.2.1 A permanent archaeological presence was maintained during the trial trenching. This was carried out by an 11 tonne 360° excavator with a 0.5m wide toothless bucket. Two trenches were excavated at each of the five turbine locations and one trench at the meteorological mast. The trenches measured 10m in length and were 0.5m wide, the depth of the trenches varied from 1.4m to 3m, depending on the depth of the bedrock encountered. The purpose was to identify, investigate and record any archaeological remains encountered.

2.2.2 A daily record of the nature, extent and depths of groundworks was maintained throughout the duration of the project. All archaeological contexts were recorded on OA North's *pro-forma* sheets, using a system based on that of the English Heritage former Centre for Archaeology.

2.3 ARCHIVE

2.3.1 A full professional archive has been compiled, and in accordance with current IfA and English Heritage guidelines (English Heritage 2006). The paper and digital archive will be deposited in the West Yorkshire Archaeology Advisory Service (WYAAS), Halifax, on completion of the project.

3. WATCHING BRIEF RESULTS

3.1 INTRODUCTION

3.1.1 The objective of the watching brief was to identify, investigate and record any archaeological remains encountered during the site investigation works for the proposed wind farm, and the following is a summary of the findings. The positions of the geotechnical works excavated under archaeological watching brief are plotted in Figure 2. Two trial trenches (TT) were excavated per turbine location, and one at the position of the proposed meteorological mast. The list of contexts used is in *Appendix 1*

3.2 RESULTS

3.2.1 ***Turbine 1:*** was located to the north side of Flower Scar Road midway along the track. Both trenches (TT01 and TT02) contained very similar deposits (Plate 1). A layer of peat (***101*** and ***201***) varying from 0.3–0.4m in thickness was observed overlying a layer of weathered sandstone (***102*** and ***202***), which was an orange-yellow loose sand with frequent angular sandstone fragments ranging in size from 0.05–0.3m in diameter. The natural sandstone was excavated to 2.2m in TT01 and 1.5m in TT02. There were no archaeological deposits or features identified in either trench.

Plate 1: North-facing section of TT01

3.2.2 ***Turbine 2:*** was the western-most proposed turbine position on the north side of Flower Scar Road. The trenches (TT03 and TT04) showed the peat surviving to a greater extent than in other areas: in TT03 the peat, ***301***, survived to 1.2m depth; in TT04 (Plate 2) the peat, ***401***, survived to 1.6m. The natural deposit in both trenches was the same weathered sandstone (***302*** and ***402***) seen in TT01 and TT02 and was excavated to 2.3m in TT03 and 2.5m in

TT04. There were no archaeological deposits or features identified in either trench.

Plate 2: North-facing section of TT04

3.2.3 ***Turbine 3:*** was the western-most turbine position on the south side of Flower Scar Road. The trenches (TT05 and TT06) were similar in findings to each other, with the peat (***501*** and ***601***) varying in thickness from 0.2-0.5m (Plate 3). The underlying natural was the same weathered sandstone layer seen previously (***502*** and ***602***). Both trenches were excavated to 1.8m There were no archaeological deposits or features identified in either trench.

Plate 3: General shot of TT06

3.2.4 ***Turbine 4:*** was the eastern-most turbine location on the north side of Flower Scar Road, to the east of TT01. TT07 and TT08 contained slightly different

deposits to the other trenches excavated. TT07 had a thin layer of peat, ***701***, measuring 0.2m thick, overlying a weathered sandstone, ***702***, consisting of a light brown loose sand, with frequent angular sandstone fragments ranging in size from 0.05–0.3m in diameter. Beneath this was a dark brown loose sand. TT07 was excavated to 3m as this was the maximum reach of the mechanical excavator.

3.2.5 TT08 had a thicker layer of peat, ***801***, measuring 0.4m thick, overlying a subsoil, ***802***, that was 0.3m thick, and consisted of a dark brown-grey fairly firm silt with few inclusions. The underlying natural, ***803***, was the same weathered sandstone as in TT07, and was excavated to a depth of 1.4m. There were no archaeological deposits or features identified in either trench.

3.2.6 ***Turbine 5:*** was the eastern-most proposed turbine position on the south side of Flower Scar Road. Both trial trenches (TT09 and TT10) contained large rounded boulders. The peat (***901*** and ***1001***) was 0.3–0.4m thick in both trenches (Plate 4), with the peat having formed around the boulders. The natural (***902*** and ***1002***) was a yellowish-grey firm clay with occasional angular sandstone fragments, as well as large rounded boulders that measured 0.5–1m in diameter. The underlying natural, consisting of orange-yellow clay faded into a grey mudstone at 0.6m deep, with petrified deposits resembling coal occurring at a depth of 2.4m in TT10. TT09 was excavated to 1.4m deep and TT10 to a depth of 2.6m. There were no archaeological deposits or features identified in either trench.

Plate 4: General shot of TT10

3.2.7 ***Meteorological Mast:*** only one trial trench (TT11, Plate 5) was excavated, positioned to the west of the proposed turbine locations. The peat, ***1101***, was 0.4m thick, and the natural deposit, ***1102***, was a light brown-grey firm sandy-clay, becoming a darker grey at a depth of 0.6m, before becoming loose mudstone at 2.7m. The trench was excavated to a depth of 3m, as this was the

maximum reach of the mechanical excavator. There were no archaeological deposits or features identified.

Plate 5: North-facing section of TT11

4. CONCLUSION

4.1 DISCUSSION

4.1.1 Eleven trial trenches were excavated under archaeological supervision at five proposed turbine positions (TT01-10), and one at the proposed site of the meteorological mast (TT11). No archaeological features or deposits were identified in any of the trial trenches. This is possibly due to the nature of the investigations, as the trenches only exposed a small area of the natural ground surface, combined with the weather conditions, inhibiting any features surviving from being observed.

4.1.2 The peat appeared to be undisturbed which suggests that any below-ground archaeological remains have a potential for good preservation. There was also evidence of the known remains associated with the mine working, such as earthworks, of which further remains could be encountered during the future proposed groundworks.

5. BIBLIOGRAPHY

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6. ILLUSTRATIONS

6.1 FIGURES

6.2 PLATES

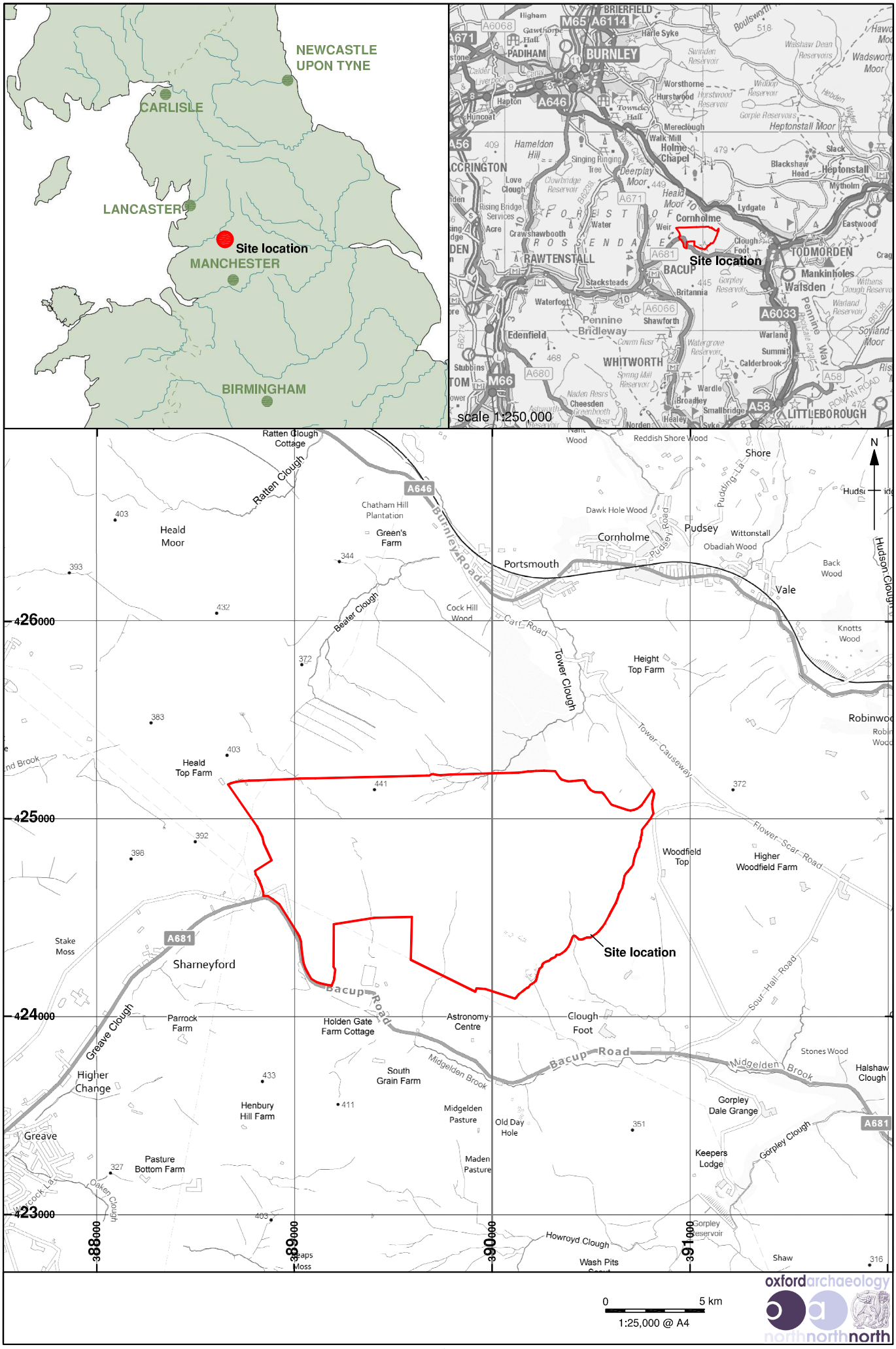

Figure 1: Site location

EM*L10570*AMS*260213

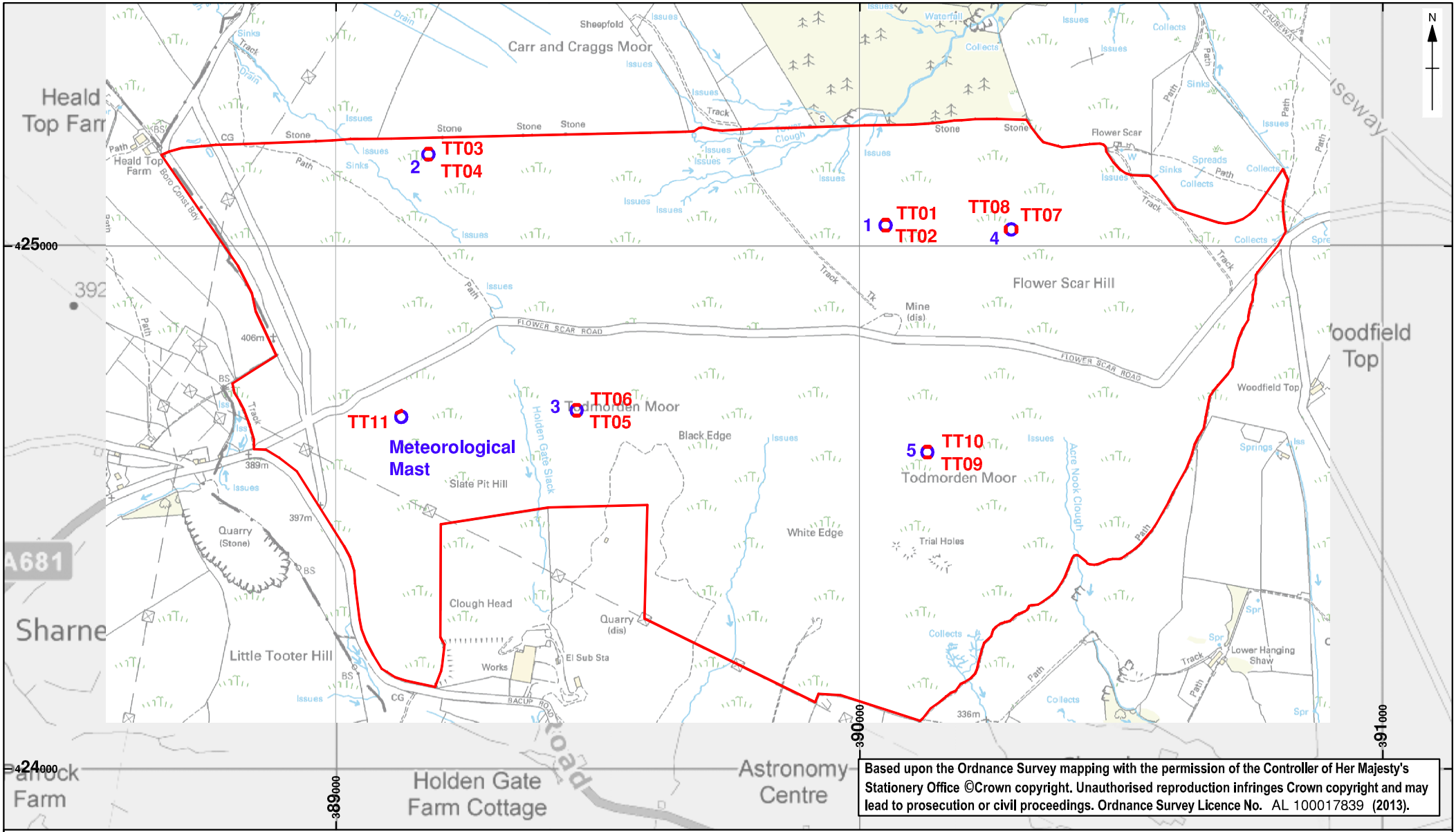

Figure 2: Trial trench locations

APPENDIX 1: CONTEXT LIST

Trial Trench	Context Number	Description
01	***101***	Peat. Dark brown, fairly firm, 0.4m thick
01	***102***	Natural. Orange-yellow, loose, sand
02	***201***	Peat. Dark brown, fairly firm, 0.3m thick
02	***202***	Natural. Orange-yellow, loose, sand
03	***301***	Peat. Dark brown, fairly firm, 1.2m thick
03	***302***	Natural. Yellow-orange, loose, sand
04	***401***	Peat. Dark brown, fairly firm, 1.6m thick
04	***402***	Natural. Yellow-orange, loose, sand
05	***501***	Peat. Dark brown, fairly firm, 0.2m thick
05	***502***	Natural. Orange-yellow, loose, sand
06	***601***	Peat. Dark brown, fairly firm, 0.4m thick
06	***602***	Natural. Orange-yellow, loose, sand
07	***701***	Peat. Dark brown, fairly firm, 0.2m thick
07	***702***	Natural. Light brownish-yellow, loose, sand, becomes darker at 1.5m deep.
08	***801***	Peat. Dark brown, fairly firm, 0.4m thick
08	***802***	Subsoil. Dark brownish-grey, firm, silt, 0.3m thick
08	***803***	Natural. Light brownish-yellow, loose, sand
09	***901***	Peat. Dark brown, fairly firm, 0.4m thick
09	***902***	Natural. Yellowish-grey, firm, clay
10	***1001***	Peat. Dark brown, firm, 0.4m thick
10	***1002***	Natural. Orange-yellow, firm, clay, becoming a dark grey mudstone at 0.6m deep, with coal at 2.4m
11	***1101***	Peat. Dark brown, firm, 0.4m thick
11	***1102***	Natural. Light brownish-grey, firm, sandy-clay, becoming a darker grey at 0.6m with mudstone.