

Archaeology Wales

Highfields Farm, Cambridgeshire

Archaeological Evaluation



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Report No. 1017

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Non Technical Summary

This report results from work undertaken by Archaeology Wales Ltd (AW) for Engena Ltd. on behalf of Highfield Wind Energy Ltd. It draws upon the results gained by the excavation of five evaluation trenches located within fields adjacent to Highfields Farm, Cambridgeshire. The evaluation was undertaken prior to the submission of a planning application for a five turbine windfarm with associated access tracks, cabling and substation. Trenches were excavated on the proposed locations of the turbines to ensure minimal impact to the archaeological resource. The only feature of note was a wide ditch of uncertain date within Trench 4.

1 Introduction

1.1 Location and scope of work

In May 2011 Archaeology Wales (AW) carried out an archaeological evaluation on the sites of five proposed wind turbines within fields adjacent to Highfields farm, Cambridgeshire NGR TL 31812 40919 (Fig 1).

Excavation was carried out for Engena Ltd. on behalf of Highfield Wind Energy Ltd. prior to submission of a planning application for windfarm construction. Five evaluation trenches, each on the proposed location of a turbine, were excavated over five days.

A brief for the archaeological work was drawn up by Kasia Gdaniec of Cambridgeshire County Councils Archaeology Service. Using this brief, a specification for the work was drawn up by Mark Houlston of Archaeology Wales which was submitted to Ms. Gdaniec for approval prior to work taking place.

1.2 Geology and topography

The underlying solid geology of the assessment area is primarily made up of chalk deposits (British Geological Survey, 2001).

The assessment area is located within a gently undulating agricultural landscape which rises to a height of between 40 and 50m above sea level and is characterised by large open fields and small village settlements. The larger urban settlement of Royston, Herts, is located approximately 3km to the east of the assessment area.

1.3 Archaeological and Historical Background

1.3.1 The archaeological and historical background has been studied in detail in a desk based assessment (Smith 2010) drawn up in March 2010.

1.3.2 The assessment identified only a few designated archaeological sites within the development area, but noted that an abundance of prehistoric and Roman archaeological remains survived nearby.

2 Aims and Objectives

2.1 Evaluation

The evaluation was undertaken to:

- establish the presence/absence of archaeological remains within, and immediately surrounding, the proposed locations of wind turbines;
- determine the extent, condition, nature, character, quality and date of any archaeological remains present;
- establish the ecofactual and environmental potential of archaeological deposits and features;
- To produce a record of the features

3 Methodology

3.1 Evaluation

The evaluation consisted of five machine excavated trenches each measuring 17 metres by 2 metres (Fig 2, Plates 1-7). All removal of overburden deposits was undertaken by mechanical excavator under close archaeological supervision. Cleaning of the trenches was later undertaken by hand.

Project Manager Chris E Smith (MIFA) and Project Assistant Sikko van der Brug undertook the evaluation. The trenches were cleaned by hand with plans and sections being recorded and drawn at scales of 1:10, 1:20 or 1:50 as appropriate. All trenches were photographed using high resolution (14MP) digital photography.

The trenches were located so that each had the proposed location of the turbine at its centre.

All works were undertaken in accordance with the IFA's *Standards and Guidance: for an archaeological evaluation* and current Health and Safety legislation.

3.2 Finds

Finds were recovered by hand during the course of the excavation and bagged by context.

3.3 Environmental evidence

A single bulk sample was taken for possible later assessment from a ditch feature [403] located within Trench 4.

3.4 Palaeo-environmental evidence

All of the excavated trenches were examined for Palaeo-environmental potential by Dr. Martin Bates of the University of Lampeter. His report based on visual inspection is attached as Appendix 1.

4 Evaluation Results

4.1 Soils and ground conditions

Generally the site and weather conditions were dry, sunny and breezy throughout the course of the evaluation. No rain in the 10 weeks preceding the evaluation thus ensured that ground conditions remained dry.

4.2 Distribution of deposits

The topsoil was of a reasonably uniform distribution over the surface of the each trench, seemingly varying little across the assessment area. The topsoil was mainly composed of a friable mid brown/grey silt and was typically up to 0.35m deep.

4.3 Description

- 4.3.1 Trench 1 (Fig 2, Plate 1) measured 17x2m and was excavated to a depth of 0.5m max. Removal of topsoil (101) revealed a mixed chalk and pale orange silt subsoil deposit (102). Excavation into (102) revealed chalk deposits becoming more frequent and solid. As the subsoil deposit (102) was very clean, containing no charcoal or artefactual objects, excavation ceased at 0.5m below the current ground surface. No features or finds of archaeological significance were encountered.
- 4.3.2 Trench 2 (Fig 2, Plate 2) measured 17x2m and was excavated to a depth of 0.4m max. Removal of topsoil (201) revealed solid chalk bedrock almost instantly. Though small flecks of both CBM and charcoal were present within the topsoil, no features or finds of archaeological significance were encountered.
- 4.3.3 Trench 3 (Fig 2, Plate 3) measured 17x2m and was excavated to a depth of 0.35m max. Removal of topsoil (301) revealed solid chalk bedrock almost instantly. Though small flecks of both CBM and charcoal were present within the topsoil, no features or finds of archaeological significance were encountered.
- 4.3.4 Trench 4 (Figs 2&3, Plate 4-6) measured 17x2m and was excavated to a depth of 1.1m max. Removal of turf and topsoil (401) revealed chalk bedrock (402) along half the length of the trench and a mixed mid brown chalky silt layer (404) covering the other half of the trench. Excavation of the silt deposit (404) showed it to be a secondary fill located within a 7m wide ditch [403] cut into the natural chalk bedrock (402). The silt deposit (404) may once have formed a bank to accompany the ditch which has since been ploughed down. This would explain why the deposit appeared to spread beyond the confines of the ditch. Beneath (404), a primary ditch fill was noted. This primary fill (405) was composed of slightly darker silt and appeared to contain more chalk fragments than the layer above. Charcoal and CBM flecks were present in the fills of the ditch but were very few. The ditch was bottomed at a depth of 1.1m below the current ground surface. Within the very upper layers of the ditch, from deposit (404), a very small piece of highly abraded possible prehistoric pottery was located.
- 4.3.5 The ditch in Trench 4 also appeared to possibly follow the lines of a natural contour within the field which may have been utilised to make the ditch appear artificially deep. Upcast of excavated material into a bank on this higher ground would also have served to increase this appearance.
- 4.3.6 Trench 5 (Fig 2, Plate 7) measured 17x2m and was excavated to a depth of 0.35m max. Removal of topsoil (301) revealed solid chalk bedrock almost instantly. Though small flecks of both CBM and charcoal were present within the topsoil, no features or finds of archaeological significance were encountered. Modern parallel plough scars were noted cutting shallowly into the chalk bedrock.

5 Finds

- 5.1.1 A very small amount of finds were recovered from the trenches and all, apart from the tiny piece of possible prehistoric pottery, came from topsoil deposits. The finds were

made up of 3 highly abraded pieces of CBM up to 1.5cm in size (from trenches 2 and 3) and one possible worked flint fragment from the topsoil of trench 4.

- 5.1.2 Close dating of any of the finds is extremely difficult. Whilst wide ‘prehistoric’ dates can be given to the possible worked flint and prehistoric pottery, even wider dates of Roman to Post-medieval apply to the CBM pieces.
- 5.1.3 Sieving for finds was undertaken on buckets of soil taken from deposits (401, 404 & 405) within trench 4. This did not produce any artefactual material.

6 Environmental & Palaeo-environmental

- 6.1.1 The environmental bulk sample taken from the primary fill (405) of the ditch cut [403] within trench 4 has not been subject to further assessment at this stage. If required this can be undertaken, however it was felt that as mitigation is likely to lead to further excavation in the area of the ditch, this will lead to further samples being taken and analysed.
- 6.1.2 This is a summary of Dr. Martin Bates’ palaeo-environmental report based on a visual analysis: Three of the trenches examined (2, 3, 5) indicate that chalk bedrock is present immediately beneath the ground surface. However, in two trenches sediments were present beneath the topsoil that suggest sequences documenting changing local environments exist. In trench 1 chalky solifluction deposits exist at the base of the trench which probably date to the late Pleistocene. The position of this trench in the local landscape indicates that the trench lies at the bottom of a shallow slope rising southwards. Consequently it is probable that the source of this sediment is the chalk higher up the slope. There remains the possibility that in the vicinity of this trench these solifluction deposits might bury a late glacial soil horizon.
- 6.1.3 Secondly in trench 4 a sequence of colluvial sediments exist in association with a ditch. The trench lies on the slope and consequently the presence of colluvium is not entirely unexpected. The nature, age and potential of this colluvium may require investigation.
- 6.1.4 Dr. Martin Bates’ complete report is attached as Appendix 1.

7 Discussion and Conclusions

- 7.1.1 The overall findings of the evaluation were reasonably consistent with shallow soiled agricultural areas. The flecks and larger pieces of CBM within the trenches may represent past manuring of the fields. Also, given the relatively large amounts of archaeological activity noted within the surrounding landscape, the discovery of a possible prehistoric ditch feature is not unusual.
- 7.1.2 The overall interpretation gained from the evaluation is that the areas of Turbines 1, 2, 3 and 5 appear archaeologically sterile. Turbine 4, however, showed archaeology and will therefore require mitigation. On site discussions with Ms. Kasia Gdaniec and the landowner, Mr. Ralph Parker, appeared to favour larger open area excavation around turbine 4 rather than moving the turbine to a different location.
- 7.1.3 The evaluation has proved significant in that no ditch in this area (Turbine 4) was previously known. Further excavation in the area may allow us to imply a function as well as closer dating.
- 7.1.4 Although, the identification of potential solifluction and colluvial deposits in Trenches 1 and 4 respectively is significant, further, laboratory-based, assessment of deposits taken

during the evaluation is not recommended as part of the current phase of work. However, if further excavation work is recommended by the Cambridgeshire County Council Archaeology Service in either of these areas, the area around Trench 4 being the most likely, then new samples should be taken, and a full assessment undertaken as appropriate.

8 **Acknowledgements**

Thanks are due to Sikko van der Brug (AW) for his on site assistance, to Ralph Parker and to Kasia Gdaniec.

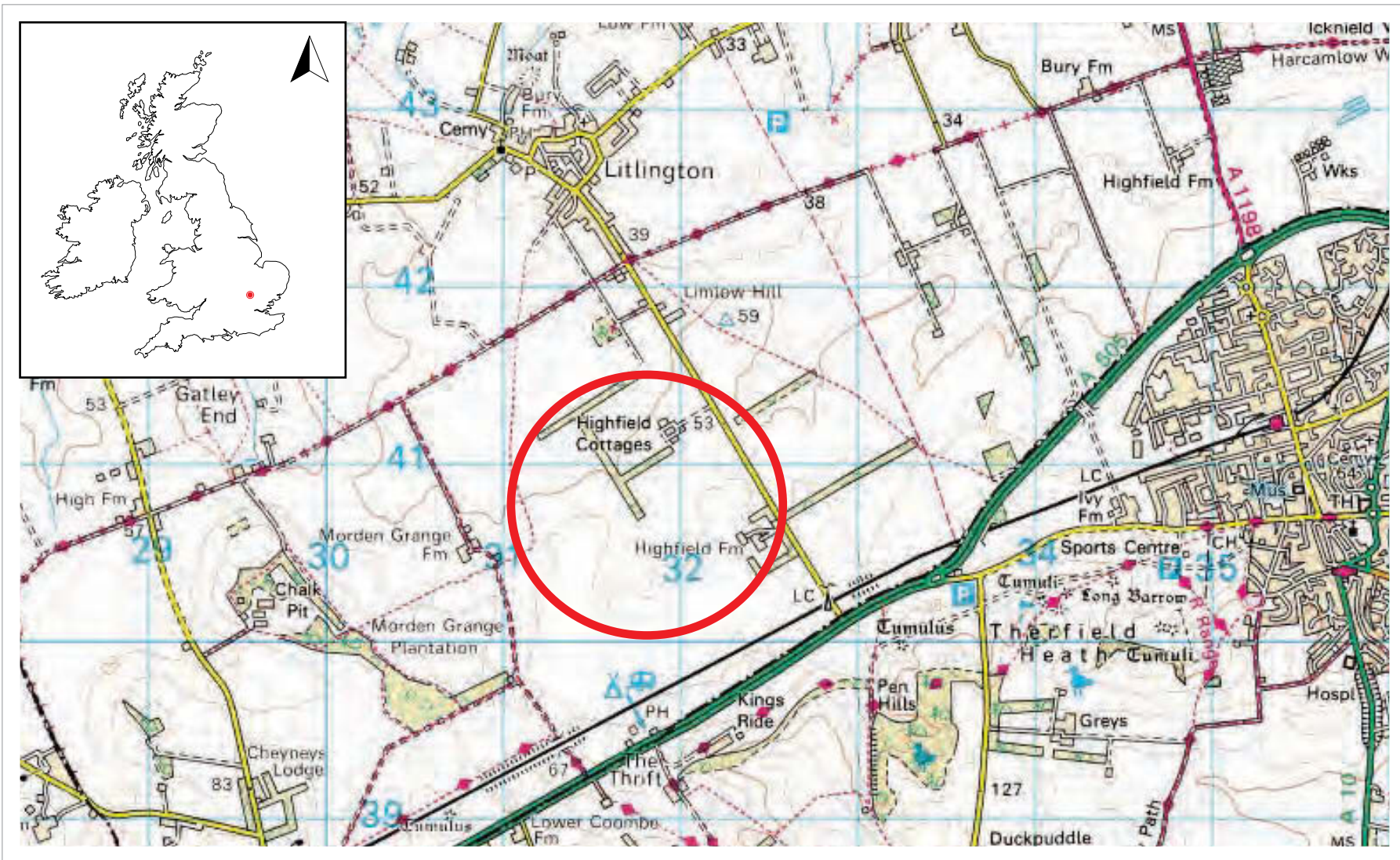
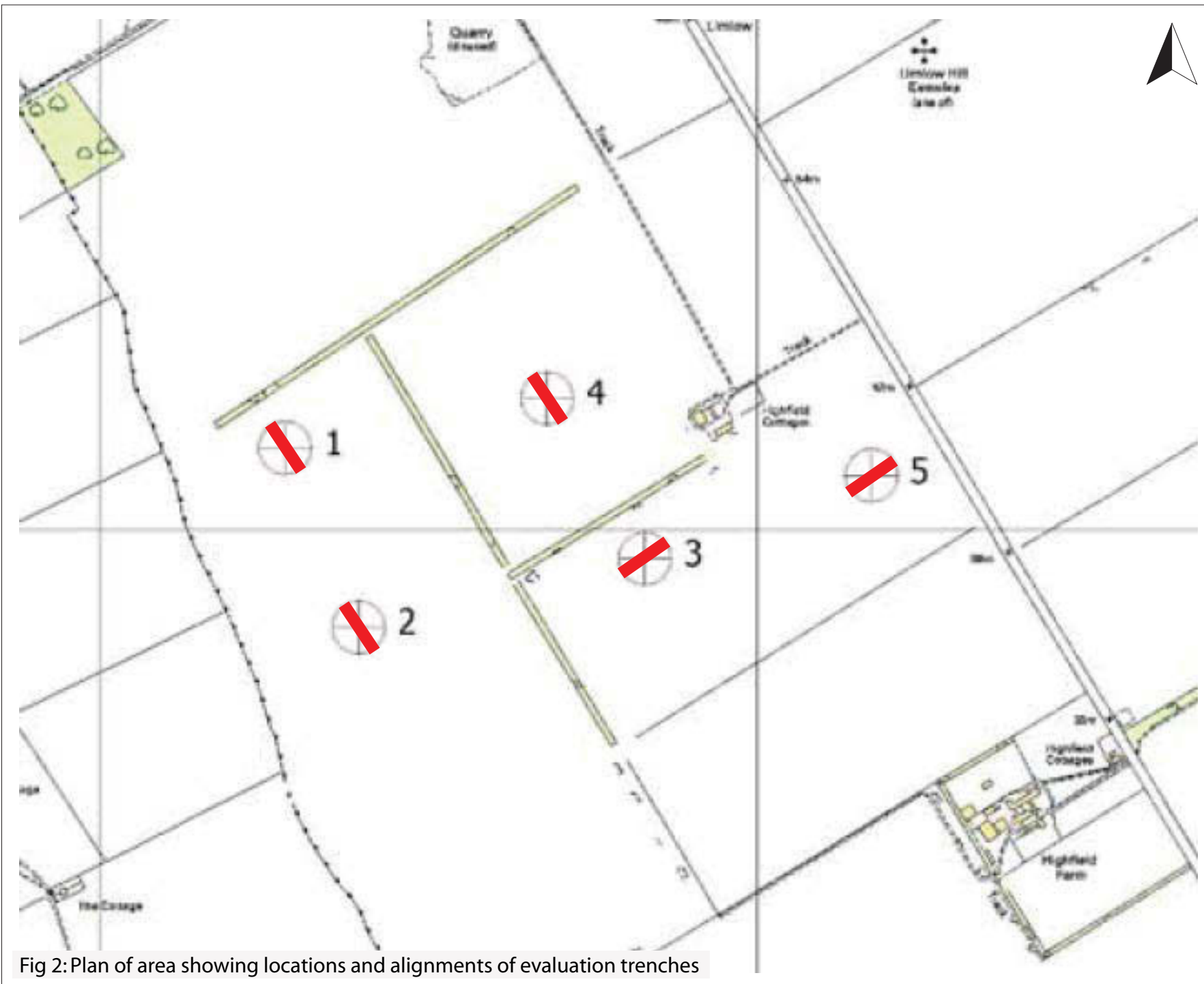


Fig 01: Figure showing location of assessment area



Grid Refs:

T1
531281 241123

T2
531393 240852

T3
531828 240955

T4
531680 241200

T5
532173 241081

Fig 2: Plan of area showing locations and alignments of evaluation trenches

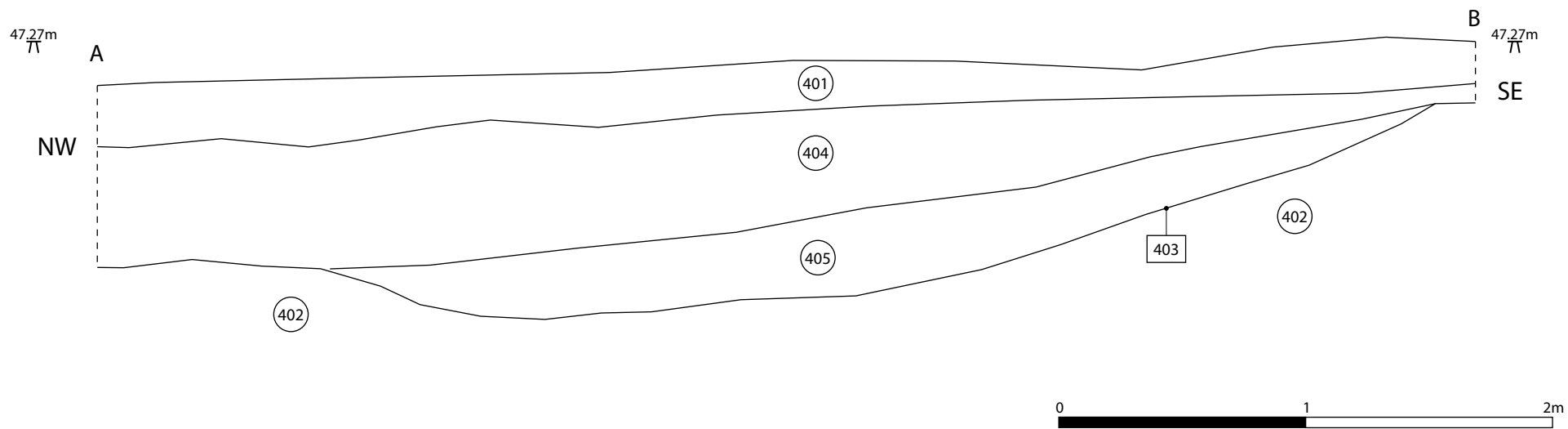
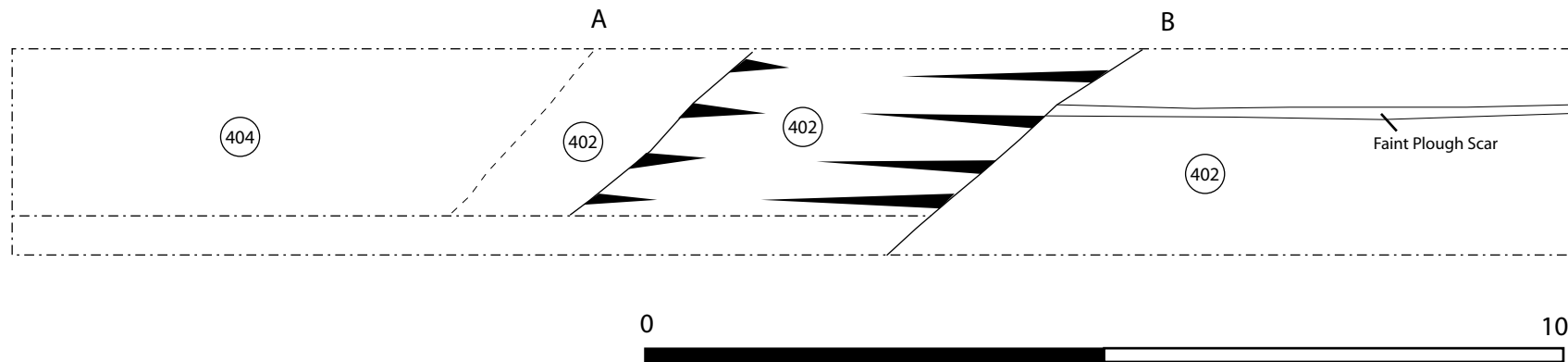


Fig 3: Plan and Section showing ditch [403] in Trench 4



Plate 1: View along Trench 1, Looking south east
Scales 2x1m



Plate 2: View along Trench 2, Looking south east
Scales 2x1m



Plate 3: View along Trench 3, Looking north east
Scales 2x1m



Plate 4: View along Trench 4, Looking north west
Scales 2x1m



Plate 5: View along Trench 4, Looking south east
Scales 2x1m



Plate 6: View of ditch cut [403] in Trench 4, Looking north east
Scales 2x1m



Plate 7: View along Trench 5, Looking north east
Scales 1x1m

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APPENDIX I: Environmental assessment

Littlington Wind Farm: Palaeoenvironmental notes

The site was visited on 25th May 2011 by Dr Martin R. Bates. The numbering of the trenches recorded by MRB is shown in Figure 1. Description of individual trenches is given below.

Trench 1.

Depth below ground surface (m)	Lithology
0.00 – 0.20	Topsoil ---diffuse contact---
0.20 – 0.36	Mid brown silt with angular flint clasts (<1 to >6cm). Loose and structureless. ---diffuse/undulating contact---
0.36 -	White to yellowish white chalky rubble mixed with overlying unit. Chalk clasts typically <1cm, sub-rounded rolled or weathered clasts. Angular flint clasts (<5cm). Loose and unconsolidated. ---base of trench 0.48m---

It is clear that the basal parts of this trench consist of redeposited chalk and flint. The basal unit consists of a chalky pellet gravel with flint clasts that was probably deposited in the late Devensian. Undisturbed bedrock was not present in this trench. It is possible that further stratified sediments exist beneath the base of this trench.

Trench 2

Depth below ground surface (m)	Lithology
0.00 – 0.25	Topsoil ---sharp contact---
0.25 -	Blocky white chalk. ---base of trench 0.25m---

Chalk bedrock was present in the base of the trench. There is no potential for stratified sediments in this trench.

Trench 3

Depth below ground surface (m)	Lithology
0.00 – 0.25	Topsoil ---diffuse contact---
0.25 -	Hard white blocky chalk. ---base of trench 0.25m---

Chalk bedrock was present in the base of the trench. There is no potential for stratified sediments in this trench.

Trench 4

Depth below ground surface (m)	Lithology
0.00 – 0.16	Topsoil
	---abrupt contact---
0.16 – 0.30	Greyish-brown silt with occasional chalk and flint clasts. Clasts typically <2cm, sub-angular. Unit is structureless and friable.
	---diffuse contact---
0.30 – 0.60	Pal greyish brown silt with occasional angular to sub-angular chalk and flint clasts (<3cm). Unit is rooted and has a slightly blocky structure (?possibly a weathered surface).
	---abrupt contact---
0.60 – 0.86	Grey brown silt with very common chalk clasts (<1-3cm), occasional angular flints (<4cm). Structureless.
	---sharp contact---
0.86 – 1.04	Grey brown silt with very common chalk clasts (<1->4cm), angular and weathered chalk clasts. Firm and compact.
	---sharp contact---
1.04 -	White chalk.
	---base of trench 1.04m---

An extensive sequence of colluvium is present in this trench. The sediments probably derive from erosion of the upper slopes following clearance and deforestation. Colluviation is a common occurrence in the mid Holocene and is probably of Bronze Age or more recent period. The colluviums may well contain a mollusc fauna that documents the clearance episode.

Trench 5

Depth below ground surface (m)	Lithology
0.00 – 0.23	Topsoil
	---diffuse contact---
0.23 -	Hard white blocky chalk.
	---base of trench 0.23m---

Chalk bedrock was present in the base of the trench. There is no potential for stratified sediments in this trench.

Conclusions

Three of the trenches examined (2, 3, 5) indicate that chalk bedrock is present immediately beneath the ground surface. However, in two trenches sediments were present beneath the topsoil that suggest sequences documenting changing local environments exist. In trench 1 chalky solifluction deposits exist at the base of the trench which probably date to the late Pleistocene. The position of this trench in the local landscape indicates that the trench lies at the bottom of a shallow slope rising southwards. Consequently it is probable that the source of this sediment is the chalk higher up the slope. There remains the possibility that in the vicinity of this trench these solifluction deposits might bury a late glacial soil horizon.

Secondly in trench 4 a sequence of colluvial sediments exist in association with a ditch. The trench lies on the slope and consequently the presence of colluvium is not entirely unexpected. The nature, age and potential of this colluvium may require investigation.

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APPENDIX II: Archive Cover Sheet

ARCHIVE COVER SHEET

Highfields Farm, Cambridgeshire

Site Name:	Highfields Farm, Cambridgeshire
Site Code:	HFC/11/EVA
HER Event No:	ECB 3614 & 3615
NPRN:	-
SAM:	-
Other Ref No:	(OASIS) – archaeol26- 103576
NGR:	TL 31812 40919
Site Type:	Rural Agricultural
Project Type:	Evaluation
Project Manager:	Chris E Smith
Project Dates:	May-June 2011
Categories Present:	Undated
Location of Original Archive:	AW
Location of duplicate Archives:	-
Number of Finds Boxes:	-
Location of Finds:	-
Museum Reference:	-
Copyright:	AW
Restrictions to access:	None

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