

Carsington Pasture, Derbyshire

Report on Pre-Determination Archaeological Evaluation Work



ARS Ltd Report No. 2008/23

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Archaeological Research Services Ltd

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Executive Summary

In February 2008 Archaeological Research Services Ltd were commissioned by Carsington Wind Energy Ltd to undertake an archaeological contour and walkover survey which was to be followed by the excavation of a series of evaluation trenches based on the results of this survey. This work was carried out prior to the proposed construction of a windfarm consisting of four turbines and an associated access road.

The site of the proposed development lay within Carsington Pasture where a number of prehistoric sites have previously been identified, namely Carsington Cave and Carsington Pasture Bronze Age Barrow. Alongside these there have been numerous stray lithic finds. In more modern times, specifically during the 1800s, the site has been subject to extensive lead-mining and also sand extraction works.

During the topographical survey no pre-modern archaeological features were identified although two potential trackways seen as raised earthworks, and thought to be associated with lead-mining works, were noted. Following the survey a total of 17 trenches, measuring 25m x 2.3m, were excavated, several of which were deliberately placed to sample the identified linear earthworks.

As a result of the evaluation trenching one modern track and two linear banks identified as possible medieval field-breaks, incorporating an access way rather than a formal trackway, were identified. The sole artefact recovered during the evaluation was a re-touched flint flake dating from the Neolithic to early Bronze Age which was discovered unstratified within the overburden.

No other features of archaeological significance were identified as a result of this programme of work. The evaluation programme did not identify any significant archaeological remains, either on the surface or underground, within the principal area of impact and therefore it is considered unlikely that any remains of national importance occur in this area.

1. Introduction

- 1.1 This document reports the findings of an archaeological earthwork survey and evaluation undertaken by Archaeological Research Services Ltd on behalf of Carsington Wind Energy Ltd. The work focused on the area due to be developed during the construction of a proposed wind farm.

2. Location, Land Use and Geology

- 2.1 Carsington Pasture is located north-west of the village of Carsington, east of Brassington and adjacent to the High Peak Trail within the Civil Parish of Carsington (OS Map Reference centred on SK 247545).

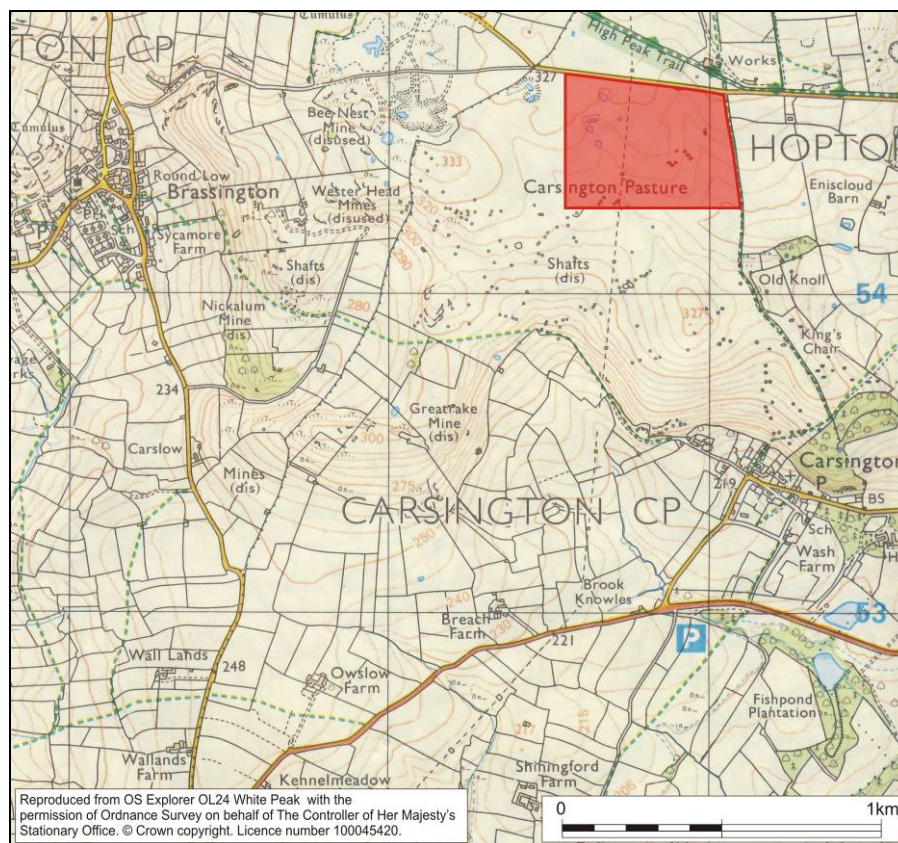


Fig.1 Location of site at Carsington Pasture.

- 2.2 The underlying geology of the survey area is dolomitised Carboniferous Limestone belonging to the Bee Low Limestone formation (Rieuwerts 2007, 9.4). This geographical area is within the area commonly known as the White Peak. The survey area falls within the southern limit of the White Peak lead-mining area and consists of unimproved upland pasture which was under active grazing at the time of survey.
- 2.3 Across the site, there are remains of a number of capped mine shafts associated with the lead mining industry which dominated this region during the post-medieval period. The majority of these shafts have been capped with concrete sleepers, while some are infilled with rubble over the top of a solid cap.

3. Aims and Objectives

- 3.1 The aim of the topographic and walkover survey was to assess the character, date, extent of survival and research potential of the earthworks in and around the principal areas of impact of the proposed development.
- 3.2 The aim of the archaeological trial trenching evaluation was to gather sufficient information to make an informed assessment of the extent, depth, condition, character and date of any archaeological features and deposits within the area of proposed development.
- 3.3 The particular objectives of the evaluation were:
 - To research the potential of the earthworks and below ground archaeological remains on the site in and around the principal areas of impact of the proposed development.
 - To provide the local authority with sufficient information to assess the significance of the earthworks and the need for further mitigation in advance of the development.

4. Background

- 4.1 The primary anthropogenic activity that is represented within the Carsington Pasture survey area are earthworks associated with Lead Mining. A desk based assessment carried out by Oxford Archaeology North (2006) identified the primary periods of lead-mining activity at Carsington Pasture to be 18th to late 19th century; however there are records to suggest that lead mining took place at Carsington Pasture as early as the 16th century (Rieuwerts 2007, 9.6). The remains of two named mines are clearly visible and are partially within the survey area, the Breck Hollow and Conday Mines. The early history of the Breck Hollow Mine is poorly documented but accounts are available from 1792-1802 (Rieuwerts 2007, 9-6) and it is known that a small amount of lead ore was still being extracted in 1880 (Ford & Rieuwerts 2000, 173). Breck Hollow was additionally mined for baryte in the 1940's (Ford & Rieuwerts 2000, 173). The Conday Mine was first opened in 1877, however it only yielded small quantities of lead ore but was again worked in the 1940s for the extraction of baryte (Ford & Rieuwerts 2000, 173).
- 4.2 The area of Carsington Pasture which falls within the survey area has also been utilised for sand extraction in the early 20th century (Rieuwerts 2007, 9.7). The physical remains of these works are characterised by irregular low hummocks and adjacent shallow excavations which at the time of survey were mostly flooded.
- 4.3 Although no prehistoric features have been positively identified within the survey area, it is known that within the wider context of Carsington Pasture several monuments have been identified including Carsington Cave and Carsington Pasture Bronze Age Barrow (Oxford Archaeology North 2006, 8). It should also be noted that numerous stray finds of flint tools have been made across the wider Carsington Pasture area (Oxford Archaeology North 2006, 8).

- 4.4 Carsington Pasture is situated within an area that contains significant Roman archaeological remains. These include the site of a high status Roman settlement 1km southwest of Carsington Pasture beneath the modern-day Carsington Reservoir. Additionally, a Roman Road with prehistoric origins known as the Portway is thought to have passed to the south-west of the survey area, and close to the survey area is the suspected Romano-British field system within Carsington Pasture (Oxford Archaeology North 2006, 9). The area around Carsington is also thought to have been involved in some form of lead mining even as far back as the Roman period (Hart 1984, 106).
- 4.5 It is known from documentary and archaeological sources that Carsington Pasture has been under plough in the post-medieval period; although it has never been intensively farmed (Oxford Archaeology North 2006, 11). The land is currently used as pasture.

5. Methodology

5.1 Topographical Survey

- 5.1.1 The survey area (Figs. 2 and 5) represents the principal area of impact which will contain the proposed development, including the turbines, substation, hardstandings and roadway. With the entire principal area of impact subject to topographic survey and evaluation trenching, this would allow for later movement of the proposed structures within this area, in order to avoid any archaeological features noted during survey or evaluation. Due to the irregular nature of the survey area, both in terms of shape and topography (Fig. 2) it was decided that a Digital Terrain Model (DTM) based on a regular grid system would be inappropriate. In light of this the survey used an irregular base grid which was then supplemented with areas of high resolution spot heights to allow relatively ephemeral features to be represented within the 1:1000 scale specified in the archaeological brief (Ottaway 2007). This data was collected over a seven day period commencing on the 5th February 2008, which included the necessary time spent at the beginning of the fieldwork to set up a baseline survey in relation to known hard detail, and to set out the irregular-shaped survey area. The survey was conducted using a Leica TCR 307 (TPS 300 series) Total Station Theodolite. The data was processed in ArcGIS to produce a Triangulated Irregular Network (TIN), which was then converted to a raster based format. From this raster a landform analysis was performed to create a contour map at a 0.25m contour interval (Fig. 3).
- 5.1.2 The walkover survey was carried out on 8th February 2008 and consisted of the survey area being walked in a systematic fashion in order to fulfil the objectives of this stage of the assessment. When earthworks were encountered basic measurements were taken, the earthworks were photographed and a description was made of the feature(s). The results of the walkover survey are recorded in Appendix 1.

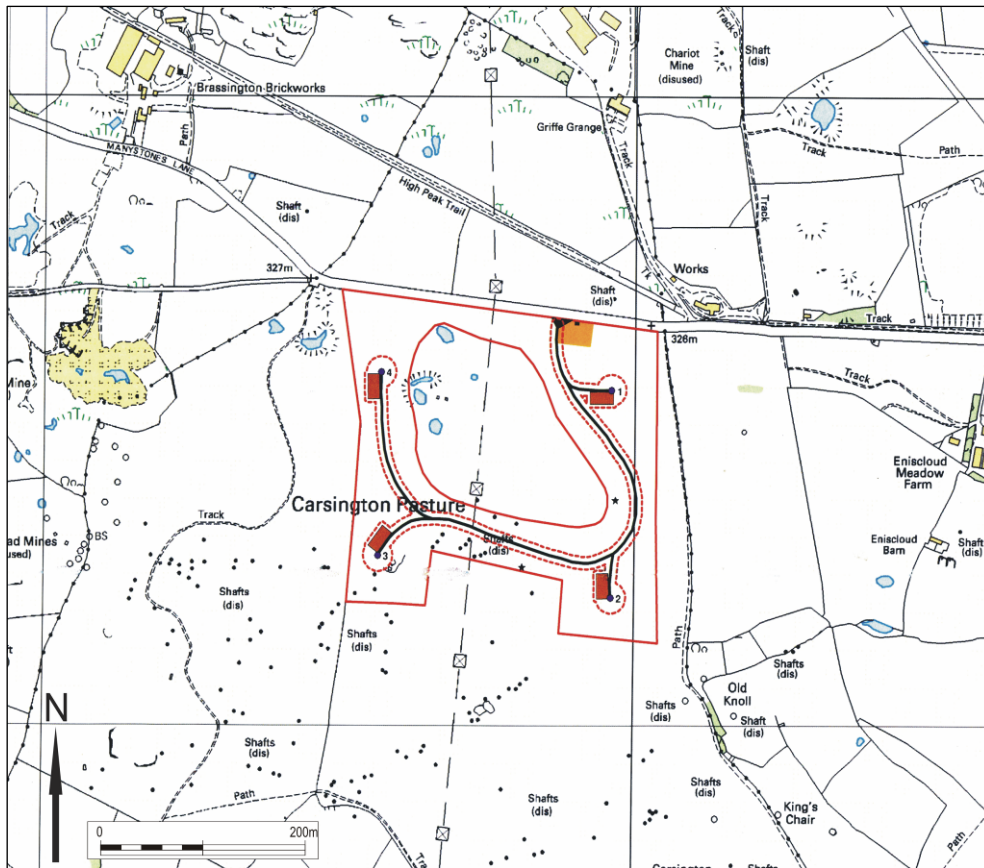


Fig. 2 Plan of the site showing the proposed turbine and access road locations.

5.2 Excavation

5.2.1 The trench locations (Fig. 5) were decided upon following careful consideration of the results of the topographic survey. All trenches were placed so as to ensure an even sample across the area which is to be directly impacted upon by the proposed development. Seven of the trenches were positioned to target possible features identified through the survey stage of the project. Trenches were also placed to examine the areas of principal impact (the turbine locations, substation, hardstandings and track) so as to ensure that the potential of below-ground remains in these areas was understood, as stated in the project aims above (paragraph 3.3). The location of the of trial trenches was agreed with the archaeological consultant and subsequently approved by the County Archaeologist.

5.2.2 The trial trenches were opened initially by machine with a toothless ditching bucket under the supervision of an archaeologist from Archaeological Research Services Ltd. The machine digging removed topsoil and overburden in level spits so that any significant archaeological deposits could be identified. Particular care was taken when controlling machine excavation in situations where vertical stratigraphy was expected or where it was considered that significant archaeological deposits may have been vulnerable to damage - in such circumstances machining was controlled by the site supervisor.

5.2.4 Each trench was cleaned by hand sufficiently to allow the identification and planning of any archaeological features and deposits. Where archaeological features were absent, sufficient work was done to demonstrate this. Each trench was planned at an appropriate scale where necessary (1:20 where complex

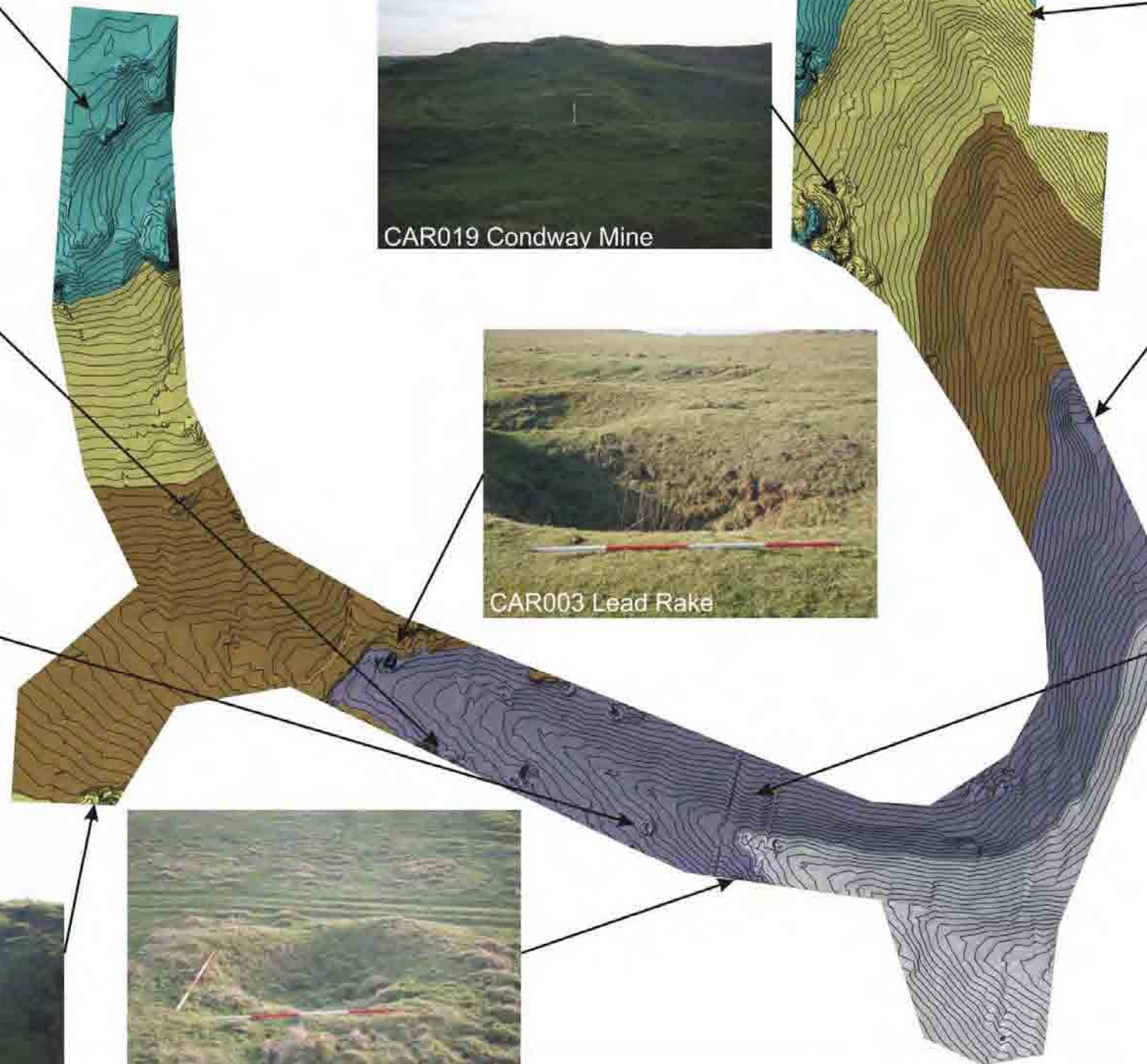
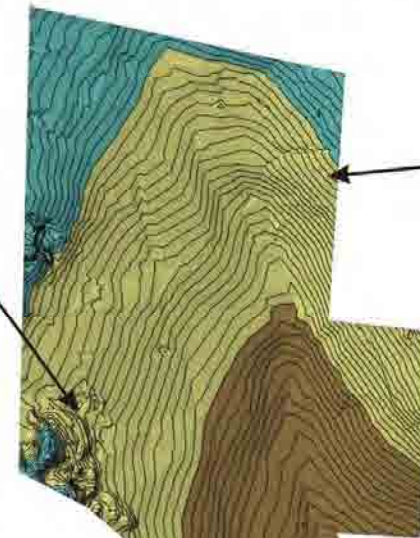
deposits were present or 1:100 in areas of lesser complexity). All levels were recorded in relation to Ordnance Datum.

- 5.2.5 The position of each trench was surveyed and the data stored digitally in CAD format with the areas located relative to the Ordnance Survey National Grid.
- 5.2.6 The stratigraphy of all trenches was recorded even where no archaeological deposits were identified. The site archive includes plans and sections at an appropriate scale, a photographic record, and full stratigraphic records on recording forms/context sheets.
- 5.2.7 Each context was recorded on pro-forma record sheets which included the following: character, contextual relationships; detailed description (dimensions and shape; soil components, colour, texture and consistency); associated finds; interpretation and phasing as well as cross-references to the drawn, photographic and finds registers. Each context was recorded on an individual record. Sections were drawn through all significant cut features at a scale of 1:20 and levelled to Ordnance Datum. Trench sides were also drawn in section where they contained significant information.
- 5.2.8 A photographic record was maintained including photographs of all significant features and overall photographs of each area or trench. All photographs were taken on black and white print, colour transparency and in digital format.
- 5.2.9 No human remains were identified during the evaluation trenching.
- 5.2.10 No suitable deposits for palaeo-environmental sampling were identified during the evaluation trenching.
- 5.2.11 The archive will be deposited in Buxton Museum.

6. Results of the topographical survey

- 6.1 The contour survey identified both positive and negative earthworks of several different types within the survey area. The main features encountered during the contour survey were 11 lead rakes and suspected lead rakes mainly concentrated within the road corridor linking Turbines 2 and 3 (Fig. 2). It should be noted that the term 'lead rake' is used to refer to mineral hillocks and associated features as defined in Barnatt and Penny (2004, 7). Additionally, the Mine heads of the Breck Hollow and Conday Mines fall partially within the survey area and are present as positive earthworks within the TIN and contour plots. The first linear feature (CAR020) that crosses the site runs roughly east-west, just north of the survey area at Turbine 4, and just enters the survey area west of Turbine 1. This linear feature consists of a bank which is visible for the majority of its length, and associated ditches to either side which are only observable as earthworks along portions of the linear. The linear feature varies in width, but is approximately 2.7m wide on average. The second linear feature (CAR012) consists of a road or track way of probable post-medieval date running approximately north-south and crossing the survey area in the road corridor linking Turbines 2 and 3 east of the power lines. This track consists of two banks and associated shallow ditches which run parallel approximately 18m apart.

Carsington Pasture Field Survey Summery

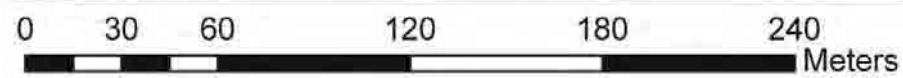


Key to Elevation Shading
car 08 tin corrected to odn

Edge type
— Soft Edge

Elevation

319.255 - 324.477
314.034 - 319.255
308.812 - 314.034
303.591 - 308.812
298.369 - 303.591



- 6.2 The walkover survey identified 20 earthworks, or features comprised of a group of associated earthworks. The majority of the earthworks were of a similar form and appeared to be the upstanding remains of lead rakes and capped mine shafts. The results of the walkover survey are summarised in Appendix One. The walkover survey was also able to confirm that several areas identified in the TIN and contour plots as potential features, were in fact natural geological features rather than being of anthropogenic origin. The walkover survey also noted that portions of the survey area included remains of 'ridge and furrow' cultivation. Though ephemeral on this site, 'ridge and furrow' represent the remains of medieval and post-medieval agriculture.
- 6.3 The 'ridge and furrow' noted during the walkover survey is evident over much of the site on Aerial Photographs taken in 1954 (Photo Ref. MAL 54082V 9455, 60-61). The aerial photographs also clearly show the areas of earthworks around the Condway Mine, the Breck Hollow Mine and the smaller clusters of lead rake earthworks observed along the 'corridor' between Turbines 2 and 3. The east-west aligned linear feature along the north of the survey area is visible as a narrow earthwork that coincides with what is observable on the ground; but the north-south aligned trackway is not visible on the aerial photographs.
- 6.4 The aerial photograph below (Fig. 4) clearly shows all the earthworks and ridge and furrow mentioned above, and also indicates the extent and size of the linear trackway feature aligned north-south. This aerial photograph indicates that the trackway (CAR012) begins at the Condway Mine in the north and runs south, bearing to the south west and appears to terminate at a concentration of lead rakes south of the survey area (Fig. 4).

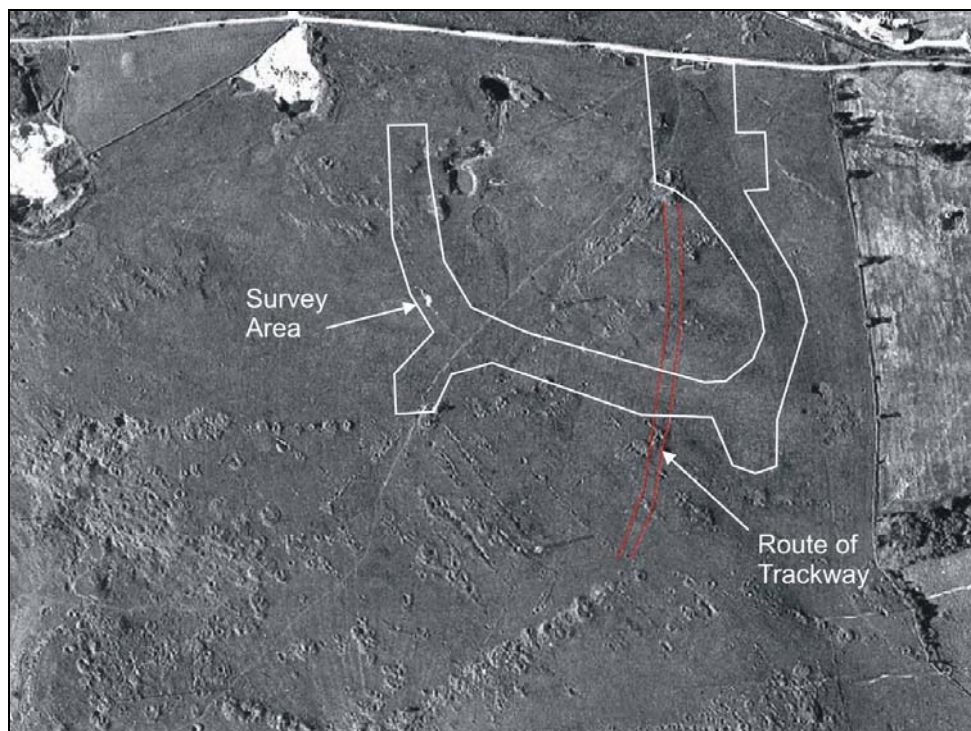



Fig. 4 Aerial photograph showing survey area & route of the linear trackway, suspected to be post-medieval (Photograph Copyright Derbyshire County Council)

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 Angel House
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 Bakewell
 Derbyshire
 DE45 1HB


Site Code: CARS08
 Drawing Ref: Report Fig.5
 Date: March 08
 Drawn: JB
 Scale: 1:2500 at A4

Location of Trenches 1 - 17


Trenches



Proposed Position of Turbines



Proposed Route of Access Road

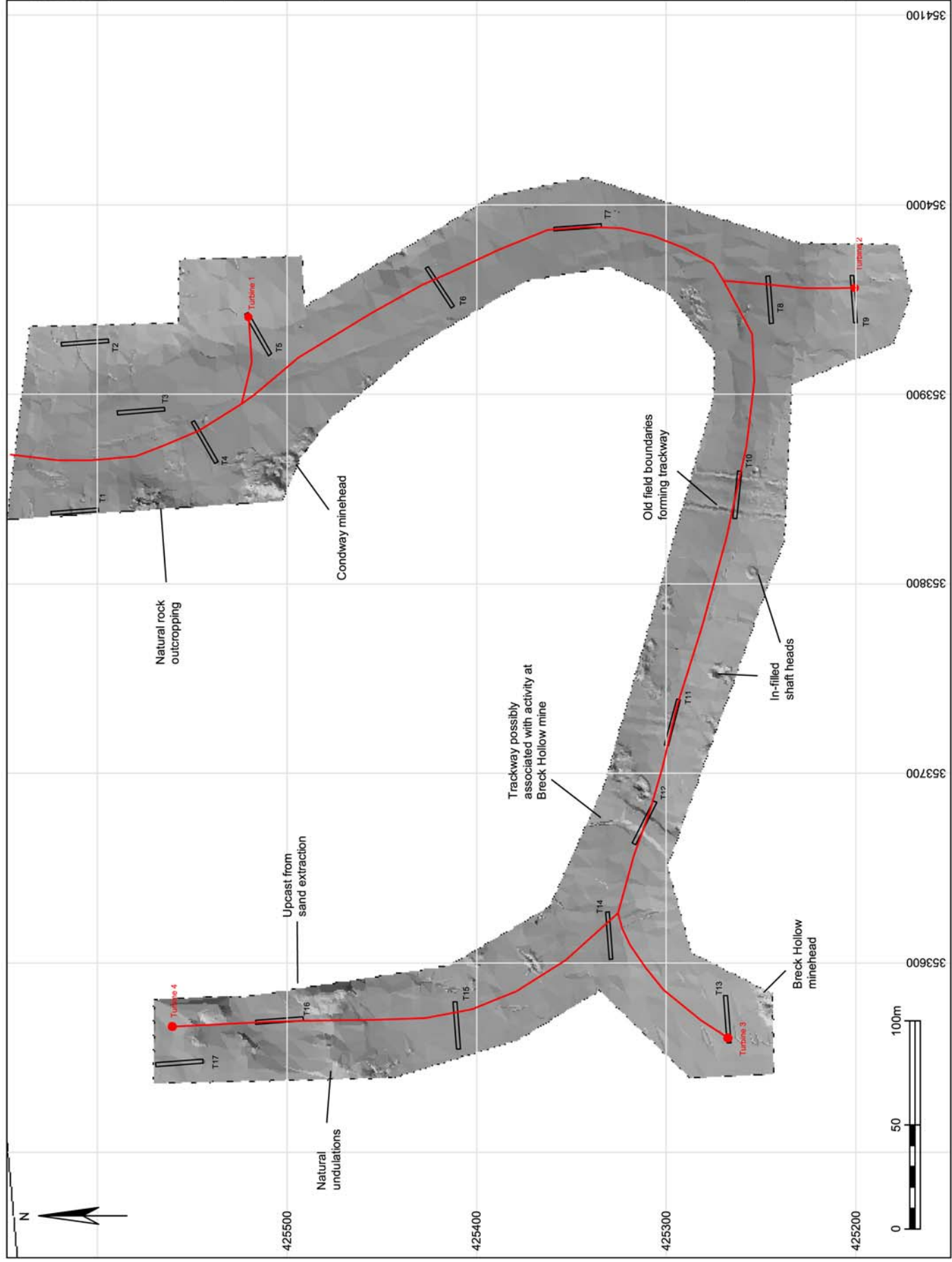


Evaluation trenches were positioned to examine:

- Potential features identified through the topographic and walkover surveys.
- The areas of principal impact (the turbines, handlandings, substation and roadway)

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 No. 100045420



354100

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7. Results of the Evaluation Trenching

7.1 Trench 1

Trench one was located in the north-eastern section of the development site lying to the north-west of the proposed site of Turbine 1 and was positioned in order to investigate an ephemeral east-west linear feature (CAR 020) identified during the walkover survey (Fig. 5). The trench was aligned on a north-south axis and measured 25m in length and was 2.3m wide (Fig. 6). The fine sandy-silt topsoil (001) existed to a depth of 0.15 - 0.25m below ground level and underlying this was a layer of yellowish-brown clayey-silt (002) which had a maximum thickness of 0.2m. Beneath this was a coarse fractured limestone (003) with a maximum depth of 0.47m which abutted rising outcrops of irregularly shaped limestone bedrock (004). A sondage measuring 10m in length by 1m wide was excavated midway along the eastern side of the trench into these two deposits in order to confirm that they were natural (Fig. 7). Despite a careful check no evidence for the east-west linear was identified and it was concluded that this was a natural feature caused by the underlying geology.



Fig. 6 Trench 1 before the excavation of a sondage (looking north).
Scale: 2m



Fig. 7 Trench 1 showing detail of limestone bedrock (looking west).
Scale: 2m

7.2 Trench 2

Trench two was located in the north-eastern section of the development site lying to the north of the proposed site of Turbine 1 and was also sited in order to investigate the ephemeral east-west linear (CAR 020) identified during the walkover survey (Fig. 8). The trench was aligned on a north-south axis and measured 25m in length and was 2.3m in width. The fine sandy-silt topsoil (001) existed to a depth of 0.2m beneath ground level and underlying this was a layer of yellowish-brown clayey-silt (002) across the trench.



Fig. 8 Trench 2 (looking south).
Scale: 1m & 2m

7.3 Trench 3

Trench three was also situated in the north-eastern section of the development site and lay halfway between, and to the south of, trenches one and two which was also to the north-west of the proposed site of turbine 1 (Fig. 5). The trench was sited in an area where no features were identified during the walkover survey. It was aligned on a north-south axis and measured 25m in length and 2.3m wide (Fig. 9). The fine sandy-silt topsoil (001) was observed to a maximum depth of 0.25m and underlying this was yellowish-brown clayey silt (002) observed to a maximum thickness of 0.2m to the base of the trench. The underlying clay/silt here was found to contain small natural pebble inclusions.



Fig. 9 Trench 3 (looking south)
Scale: 1m & 2m

7.4 Trench 4

Trench four was located to the south-west of trench three and to the west of the proposed site of turbine 1 (Fig. 5). The trench was sited in order to examine the uneven ground to the immediate north-east of the Condway Mine Head (CAR019) and was aligned on a north-east by south-west axis (Fig. 10). The topsoil (001) was observed to a maximum thickness of 0.25m. No archaeological features were identified within this trench save for some irregular deposits of limestone fragments in the topsoil which had caused the irregular land surface. Directly underlying the topsoil and pockets of crushed limestone to the south-western and north-eastern extents of the trench only was the yellowish-brown clayey silt (002). This clayey-silt was observed to a maximum depth of 0.35m where it met with the natural clay (005) which had areas of gravel inclusions within it.



Fig. 10 Trench 4 (looking east)
Scale: 1m & 2m

7.5 Trench 5

Trench five was situated to the south-east of trench four and lay directly to the west of the proposed site of Turbine 1 (Fig. 5). The trench was aligned on a north-east by south-west axis and measured 25m in length by 2.3m in width (Fig. 11). The trench was sited in a location where no potential archaeological features were identified during the walkover survey. The topsoil (001) existed to a maximum depth of 0.3m along the whole length of the trench. Below this was a layer of clayey-silt (002) which also had a maximum depth of 0.3m. This clayey-silt was only observed along three quarters of the section length and was absent at the south-western extent. Underlying (002) was the natural clay (005) which had pebble inclusions at the south western section of the trench.

- 7.5.1 A retouched flint flake, possibly an awl, dating to the late Neolithic to early Bronze Age was recovered from the subsoil (002) of trench five (Fig.12). The flint was the sole artefact recovered from all the evaluation trenches.



Fig. 11 Trench 5 (looking east)
Scale: 1m & 2m



Fig. 12 Lithic artefact
Scale: 5cm

7.6 Trench 6

Trench six was located to the south of trench five lying approximately one third of the way south along the route of the proposed access road between turbines 1 and 2 (Fig. 5). This trench was also aligned on a north-east by south-west axis and measured 25m in length by 2.3m wide. The trench was sited in a location where no potential archaeological features were identified during the walkover survey. The topsoil (001) ranged from 0.17m to 0.2m in depth and existed along the whole length of the trench. Underlying this and also observed along the full length of the trench was a layer of yellowish-brown clayey-silt (002) which was observed to a depth of up to 0.4m. Beneath this was the natural clay (005) which ran along the base of the trench. This clay abutted an outcrop of soft natural dolomite limestone observed at the far south-western extent of the trench running for a length of 1.4m by 1.4m in width into the trench section (Fig. 13). At the north-eastern end of the trench cut into (005) a sub-oval feature [013] was identified and half-sectioned (Fig. 14). The feature measured 0.83m in length by 0.45m wide and had an irregular sloping base with a depth of 0.35m to the south and just 0.08m to the north. The cut was filled with fine grey-brown (10YR 4/2) clay containing gravel and large stones. Given the irregular nature of the cut and the lack of finds it has been provisionally identified as a small tree bole.



Fig. 13 Trench 6 (looking north-east).
Scale: 1m & 2m



Fig. 14 Half-sectioned feature (012) in Trench 6.
(Looking north-west)

7.7 Trench 7

Trench seven was situated to the south-east of trench six, lying approximately two thirds of the way along the route of the proposed access road between Turbines 1 and 2 (Fig. 5). This trench was aligned on a north-south axis and measured 25m in length by 2.3m in width (Fig. 15). The trench was sited in a location where no potential archaeological features were identified during the walkover survey. The topsoil (001) was observed to exist to a maximum of 0.2m in depth and underlying this was a layer of clayey-silt (002) which had a maximum thickness of 0.4m deep. Below (002) and observed along the base of the trench was natural clay (005).



Fig. 15 Trench 7 (looking north)
Scale: 1m & 2m

7.8 Trench 8

Trench eight was located to the south-west of trench seven and directly to the north of the proposed site of Turbine 2 (Fig 5). The trench measured 25m in length by 2.2m wide and was aligned on an east-west axis. The trench was sited in a location where no potential archaeological features were identified during the walkover survey. The topsoil (001) was observed along the whole length of the trench and ranged in depth from 0.12-0.28m. Below the topsoil was a layer of clayey-silt (002) which existed to a maximum thickness of 0.35m to the base of the trench (Fig. 16). Below (002) in the northern central section of the trench were a series of soft dolomite outcrops (008). Abutting these dolomite outcrops was the natural clay (005).



Fig. 16 Trench 8 (looking east)
Scale: 1m & 2m

7.9 Trench 9

Trench nine was situated directly to the south of trench eight and lay directly across the proposed location of Turbine 2 in the far south-east of the development area (Fig. 5). The trench was aligned on an east-west axis and measured 25m in length by 2.3m wide. The trench was sited in a location where no potential archaeological features were identified during the walkover survey. The topsoil (001) extended over the whole length of the trench and measured 0.07m to 0.15m in depth. Below the topsoil was a layer of clayey-silt (002) with a maximum thickness of 0.2m and which similarly ran along the whole length of the trench (Fig. 17). Underlying (002) along the base of the trench was a deposit of natural colluvial clay (005).



Fig. 17 Trench 9 (looking east)
Scale: 1m & 2m

7.10 Trench 10

Trench 10 was located in the southern section of the development area to the west of trench nine (Fig 5). The trench was deliberately positioned on a north-west-west by south-east-east axis in order to allow the examination of a linear earthwork running from the north-north-east to south-south-west which had been identified during the topographical survey and on aerial photographs (CAR012) (Fig. 18). During excavation of the trench no features could be identified such as a track surface or any other deposits. The linear feature was observed in section to consist of two raised banks (0.28m in height) with very shallow internal ditches abutting the banks. The bank and ditch on both sides was approximately 1.8m wide with a distance between them of approximately 15.5m (Figs. 19 and 28). The topsoil (001) was observed along the full length of the trench to a maximum depth of 0.15m. Underlying the topsoil was the clay/silt deposit (002). Beneath (002) and along the base of the trench a deposit of natural dolomite limestone (008) was observed with intermittent patches of natural clay (005) between these limestone outcrops (Fig. 18). The fill of the two ditch cuts (009) to the east and (010) to the west consisted of a fine silty deposit which could not be distinguished from (002) when the trench was being excavated. The banks of the linear feature had no stone within them and appeared to have been created by the excavation of the ditches. The linear feature has been interpreted as the remains of field breaks created in the post medieval period (Hart Pers. Comm.). However, the area between the field breaks would certainly have provided an access route between the fields and the possibility that the internal space between the banks acted as a trackway in the post medieval period. This linear feature certainly appears to pre-date some of the mine workings as mine waste deposits overlay the feature to the south. The feature has been preserved because of the absence of intensive ploughing in more recent times.



Fig. 18 Trench 10 (looking east)
Scale: 1m & 2m



Fig. 19 Trench 10 (looking south)
Scale: 1m

7.11 Trench 11

Trench 11 was situated to the west of trench 10 along the site of the proposed access route between Turbines 2 and 3 (Fig. 5). The trench was aligned on a north-east by south-west axis and measured 25m in length by 2.5m wide. The trench was sited in a location where no potential archaeological features were identified during the walkover survey. The topsoil layer (001) extended the whole length of the trench and had a maximum depth of 0.15m. Below the topsoil was a clayey-silt layer (002) to a maximum depth of 0.3m and beneath this was the natural clay with gravel inclusions which extended beyond the depth of the trench (Fig. 20).



Fig. 20 Trench 11 (looking east)
Scale: 1m & 2m

7.12 Trench 12

Trench 12 was located to the west of trench 11 and lay along the site of the proposed access road between Turbines 2 and 3 (Fig. 5). The trench measured 25m in length by 2.5m wide and was located on a north-west to south-east axis (Fig. 21). The trench was positioned in order to examine a linear feature running roughly north-east to south-west which had been previously identified on aerial photographs and also as an upstanding feature during the topographical survey (CAR). The topsoil (001) was observed to exist up to a depth of 0.2m. Directly beneath this topsoil at the western extent of the trench were the remains of the linear feature which consisted of a single deposit containing numerous medium sized angular stones (011). This feature can be interpreted as the remains of a trackway measuring 6.4m in width and up to 0.35m in depth (Fig. 22). Below the trackway and directly beneath the topsoil, in the eastern half of the trench, was the same clayey-silt (002) observed across the whole site. This subsoil was

observed up to a maximum depth of 0.4m and below this was the natural clay (005).



Fig. 21 Trench 12 (looking south-east)
Scale: 1m & 2m



Fig. 22 Section through trackway in Trench 12 (looking south)
Scale: 1m

7.13 Trench 13

Trench 13 was situated in the far south-west of the proposed development site within the footprint area of Turbine 3 (Fig. 5). The trench was aligned on an east-west axis and was 25m long by 2.5m wide. The trench was sited in an area where no features were identified during the walkover survey. The topsoil (001) ranged in depth from 0.15 - 0.2m deep and was underlain by (002) which existed to a depth of up to 0.3m. Beneath (002) were a number of soft dolomite limestone outcrops (008) with patches of natural clay (005) in between (Fig. 23).



Fig. 23 Trench 13 (looking south-east)
Scale: 1m & 2m

7.14 Trench 14

Trench 14 was located to the north-east of trench 13 in the south-western section of the proposed access route way (Fig. 5). The trench was aligned on an east-west axis and measured 25m in length by 2.2m wide. The trench was sited in an area where no features were identified during the walkover survey. The topsoil layer (001) was observed to exist to a maximum depth of 0.2m and underlying this was a layer of clayey-silt (002) to a maximum depth of 0.3m (Fig. 24). Below (002) the trench came down onto natural consisting of clay with gravel inclusions (005).



Fig. 24 Trench 14 (looking west)
Scale: 1m & 2m

7.15 **Trench 15**

Trench 15 was sited to the north-west of trench 14 and lay along the proposed access route between Turbines 3 & 4 (Fig. 5). The trench was aligned on an east-west axis measuring 24m in length by 2.6m wide. The trench was sited in an area where no features were identified during the walkover survey. The topsoil (001) was observed to exist to a maximum depth of 0.2m, directly below this was the natural (Fig. 25). The natural deposits consisted of irregular outcrops of soft dolomite limestone (008) which was overlain in patches, especially along the centre of the trench, with shallow deposits of natural clay (005).



Fig. 25 Trench 15 (looking west)
Scale: 1m & 2m

7.16 **Trench 16**

Trench 16 was located to the north of trench 15 at the northern limit of the access route leading to Turbine 4 (Fig. 5). The trench was aligned on a north-south axis and measured 24m in length by 2.5m wide (Fig. 26). The trench was sited in an area where no features were identified during the walkover survey. The topsoil (001) was observed along the full length of the trench to a maximum depth of 0.2m. Underlying this topsoil was clayey-silt (002) which measured up to a maximum depth of 0.4m. Beneath (002) were natural deposits consisting primarily of clay (005) along the base of the trench with outcrops of soft dolomite limestone (008) observable both in section and in patches along the floor of the trench, especially at the northern limit of excavations.



Fig. 26 Trench 16 (looking south)
Scale: 1m & 2m

7.17 Trench 17

Trench 17 was situated in the far north-west of the development site in the proposed location of Turbine 4 to the north-north-west of trench 16 (Fig. 5). The trench was aligned on a north-south axis and measured 24.5m in length by 2.1m wide. The trench was purposely sited at the northern limit of the evaluation area in order to sample the area as close as possible to the southern limit of an ephemeral east-west linear (CAR020) identified during the walkover survey which lay just to the north of the development area. No archaeological features were identified within this trench. The topsoil (001) existed to a maximum depth of 0.2m deep. In the northern extent of the trench the topsoil came down directly onto the soft dolomite limestone natural (008) but in the southern half of the trench the topsoil was underlain by a layer of clayey-silt (002) which existed to a maximum depth of 0.22m and which in turn was above the natural dolomite (Fig. 27). This irregular natural limestone was also overlain, in patches, with small deposits of natural clay (005).



Fig. 27 Trench 17 (looking north)
Scale: 1m & 2m

8. Conclusions

- 8.1 There are remains of lead mining activity across Carsington Pastures potentially dating from post-medieval times to the 19th century. Where these remains occur within the principal area of impact, they have been discussed above as part of the topographic survey. The data for the various features has been tabulated against the criteria to establish importance as set out in Annexe 4 of PPG16 and is shown in Appendix 1 below. The scoring is based on the professional judgement of ARS Ltd and by considering the relative importance of each of the observed features it is shown that none of the features score heavily across the various importance criteria. Based on this assessment it is considered that none of the remains falling within the principal area of impact appear to be of national importance. The only known archaeological features that will be impacted upon by the development are the parallel field boundaries sampled in Trench 10 which are thought to be of post-medieval date. A section of each of the two banks will be impacted upon by the construction of the access road. None of the proposed locations for the turbines impact directly upon any known archaeological remains (see Fig. 5 above). To the south of the principal area of impact, some of the lead mining remains and Romano-British field system have been identified as having the potential to be of national importance. The desk-based assessment undertaken by Oxford Archaeology North states that “documentary evidence suggests lead mining has taken place in the vicinity of the study area since at least the early medieval period, and potential exists for evidence of early workings surviving amongst the concentration of post-medieval mines and associated features” (Oxford Archaeology North 2006, 26). The earthwork survey and

evaluation trenching did not reveal evidence for nationally important remains occurring in the principal area of impact (see also Appendix 1 below). No buried features were identified by the evaluation trenching and therefore it is unlikely that the remains of potential national importance identified to the south of the proposed development area continue into the principal area of impact. The earthwork survey did not identify any above ground remains of national archaeological importance within the principal area of impact. The proposed development area was selected in order to avoid the area proposed for scheduling.

- 8.2 The evaluation trenches revealed no further archaeological remains other than those features already identified by the topographic and walkover survey.
- 8.3 In trench 10 a pair of linear banks, with ditches running roughly north-south, was identified as a possible trackway from the aerial photographs, but the evaluation produced no evidence of a track surface. It is possible that this feature represents field breaks due to the lack of any apparent track surfacing or any other deposited material (also Clive Hart pers com.). The feature was constructed from the excavation of two ditches and the upcast created the banks, which have been preserved due to the absence of subsequent intensive ploughing. In trench 12 a pathway, visible as a raised earthwork running on a north-east by south-west axis, was observed to comprise a deposit of medium-sized crushed stones embedded in clay. This feature is probably connected to the site's use for lead mining and probably dates to the mid 1800s when the Condway and Breck Hollow mines were operational. The sole find from the site was a retouched flint flake dating from the late Neolithic to early Bronze Age which was found unstratified within the topsoil. No other extant evidence for archaeological activity pre-dating the lead mining was recorded during either the topographical survey or evaluation trenching.
- 8.4 The evaluation has shown that there is unlikely to be any significant below-ground features which would be directly impacted upon by the development. There is considered to be no need for further evaluation in advance of the development. It is recommended that if the development is permitted a strip and record of all areas affected by groundworks is undertaken to ensure that any archaeological remains are fully recorded in plan and then selectively excavated. This will ensure that if any remains do occur they will be appropriately recorded.
- 8.4 It is understood that the area of lead workings on the southern boundary of the site is has been considered, in the past, for designation by English Heritage, but at present we are unaware of any firm proposal in this regard. It is not considered that any archaeological remains of national importance occur within the principal area of impact of the proposed development. The greater density of lead workings to the south, outside the area of the windfarm proposal site, would be appropriately safeguarded through the designation process if that occurs.

Confidence Statement

- 8.6 The authors of this report believe there is a high level of confidence in the results of the evaluation work. No influencing factors could be identified that may have distorted the results.

9. Publicity, Confidentiality and Copyright

- 9.1 Any publicity will be handled by the client.
- 9.2 Archaeological Research Services Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

10. Statement of Indemnity

- 10.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

11. Acknowledgements

- 11.1 Archaeological Research Services Ltd would like to thank all those who contributed to the outcome of this project. In particular, Nick Mosley; Neil Exton of Carsington Wind Energy Ltd and Andy Myers and Dave Barrett of Derbyshire County Council.

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Appendix 1

Results of the walkover survey

APPENDIX I: RESULTS OF THE WALKING SURVEY

Feature Number	Class of Feature	Provisional Identification	L (m)	W (m)	Diameter (m)	Notes
CAR001	Positive earthwork	Mine Head	26.20	7.75	n/a	This feature is the Breck Hollow Shaft.; it is situated approx. 30% with-in the survey area.
CAR002	Positive & Negative earthwork	Lead Rake	4.00	2.51	n/a	None
CAR003	Positive & Negative earthwork	Lead Rake	12.25	10.60	n/a	Lead Rake and associated disturbance, possible up cast
CAR004	Negative earthwork	Mine Shaft	n/a	n/a	2.70	Approximately 50% inside the survey area. This shaft has been capped
CAR005	Negative earthwork	Lead Rake	n/a	n/a	3.80	None
CAR006	Positive & Negative earthwork	Lead Rake	15.96	8.58	n/a	None
CAR007	Positive earthwork	Mine Shaft	n/a	n/a	2.40	The capped shaft is outside the survey area
CAR008	Positive earthwork	Mine Shaft	12.13	4.24	n/a	Capped Mine Shaft which is approximately 60% inside the survey area
CAR009	Negative earthwork	Lead Rake	8.50	6.63	n/a	A series of two depressions extending North-east into the survey area
CAR010	Negative earthwork	Lead Rake	n/a	n/a	4.90	A series of three depressions, of which the deepest is entirely inside the survey area
CAR011	Positive earthwork	Possible Lead Rake	7.60	7.00	n/a	An earthwork which is ovoid in plan
CAR012	Positive & Negative earthwork	Suspected Road/Track way	50.37	21.62	n/a	Old field boundaries forming a roadway.
CAR013	Negative earthwork	Lead Rake	n/a	n/a	3.13	None
CAR014	Positive & Negative earthwork	Lead Rake	5.82	2.95	n/a	This Lead Rake appears to cut the suspected road/track way
CAR015	Negative earthwork	Possible Lead Rake	n/a	n/a	1.94	This depression seems to have a stone deposit in the base
CAR016	Negative earthwork	Possible natural feature	26.32	12.28	n/a	This is an area of linear and circular depressions running NE-SW. Seems to be little structure or pattern to the depressions. They are therefore most likely to be of a natural geological origin.
CAR017	Negative earthwork	Possible Lead Rake	n/a	n/a	4.34	This depression appears to have a structured stone deposit in the base.
CAR018	Positive earthwork	Mine Head	52.05	32.66	n/a	Condway Mine Shaft. This mine head is approximately 30% within the survey area.
CAR019	Positive earthwork	Capped Mine Shaft	32.54	15.32	n/a	The shaft has been capped and seems to form part of the Condway Mine complex
CAR020	Positive earthwork	Linear	96.63	2.60	n/a	This is a linear earthwork running East-West and partially within the survey area.
-	Positive and Negative earthwork	Ridge and Furrow	-	-	-	Ephemeral remains of ridge and furrow observed in patches across the survey area.

IMPORTANCE OF OBSERVED FEATURES IN RELATION TO CRITERIA SET OUT IN PPG16 ANNEX 4

Each feature is given a score of 1-10 for each criterion with 1 being of minimal importance and 10 the maximum. The scoring system is subjective and based on our professional judgement.

Feature Number	Class of Feature	Provisional Identification	Period	Rarity	Documentation	Group Value	Survival/Condition	Fragility/Vulnerability	Diversity	Potential
CAR001	Positive earthwork	Mine Head	4	3	5	6	8	2	3	4
CAR002	Positive & Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR003	Positive & Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR004	Negative earthwork	Mine Shaft	3	2	2	6	7	2	3	2
CAR005	Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR006	Positive & Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR007	Positive earthwork	Mine Shaft	3	2	2	6	7	2	3	2
CAR008	Positive earthwork	Mine Shaft	3	2	2	6	7	2	3	2
CAR009	Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR010	Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR011	Positive earthwork	Possible Lead Rake	3	2	2	3	7	2	3	2
CAR012	Positive & Negative earthwork	Suspected Road/Track way	3	4	2	3	7	2	3	4
CAR013	Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR014	Positive & Negative earthwork	Lead Rake	3	2	2	6	7	2	3	2
CAR015	Negative earthwork	Possible Lead Rake	3	2	2	6	7	2	3	2
CAR017	Negative earthwork	Possible Lead Rake	3	2	2	6	7	2	3	2
CAR018	Positive earthwork	Mine Head	4	3	5	6	8	2	3	4
CAR019	Positive earthwork	Capped Mine Shaft	3	2	2	6	7	2	3	2
CAR020	Positive earthwork	Linear	3	1	2	3	7	2	3	2

Appendix II: Carsington Pasture Photographic Record



CAR001



CAR002



CAR003



CAR004



CAR005



CAR006



CAR007



CAR008



CAR009



CAR010



CAR011



CAR012



CAR013



CAR014



CAR015



CAR016



CAR017



CAR018



CAR019



CAR020

Appendix 2

Context Register

Context Number	Location	Munsell Number	Description
001	Across the project area		Topsoil and turf, 0.1-0.3m thick. Fine grey-brown sandy silt with pebble inclusions.
002	Across the project area	10YR 5/6	Layer below (001) of varying depth. Fine yellowish-brown clayey silt with pebble inclusions.
003	Trench 1	-	Natural coarse white limestone gravel, 0.47m deep, abuts bedrock (004).
004	Trench 1	-	Natural limestone bedrock.
005	Across the project area		Natural fine silty-clay with limestone inclusions found below (002) and above and between the natural soft dolomite limestone (008).
006	Trench 4	-	Pockets of re-deposited coarse white limestone rubble found within topsoil (001) and above subsoil (002). Deposits ranged from 1m x 0.08m to 0.5m x 0.1m in size; probably a waste product of lead-mining activity.
007	Across the project area	-	Natural fine yellow-white soft sandy dolomite limestone below (001) and (002).
008	Trench 10 (to east)		Fill of a small trench dug to create a bank for a field break. Fine brown silty clay. Measures 1.36m x 0.4m.
009	Trench 10 (to west)		Fill of a small trench dug to create a bank for a field break. Fine brown silty clay. Measures 1.55m x 0.3m.
010	Trench 12		Footpath running N-S seen as a raised earthwork. Re-deposited natural clay with high level of medium sized angular stones. Below (001) and above (007).
011	Trench 6		Fill of cut [013] consisting of grey-brown clay containing large stones and gravel.
012	Trench 6		Cut containing (012). An irregular sub-oval feature with a sloping uneven base. Tentatively identified as a small tree bole or possible pit for stones.

Appendix 3

Section Drawings

Archaeological Research Services Ltd
 Angel House
 Portland Square
 Bakewell
 Derbyshire
 DE45 1HB

Site Code: CAR 08
 Drawing Ref: Report Fig. 28
 Date: 29th February
 Drawn: JS
 Scale: Various at A3

Sections of Trenches 10 and 12

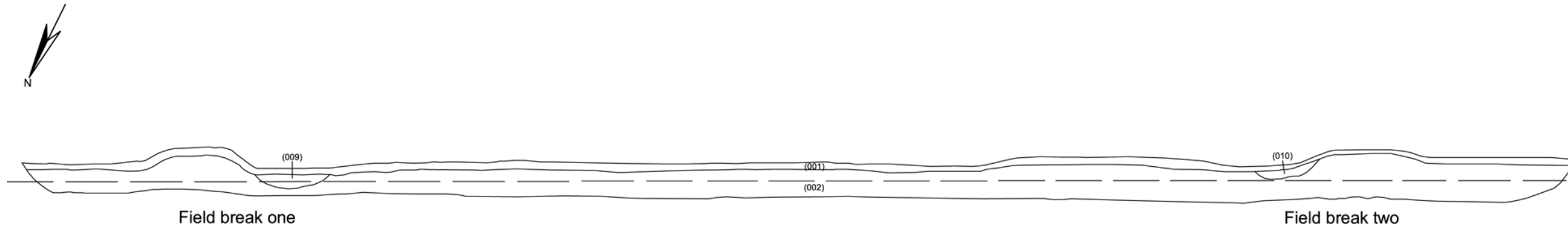
Section and plan of (012)

Key:

Notes:

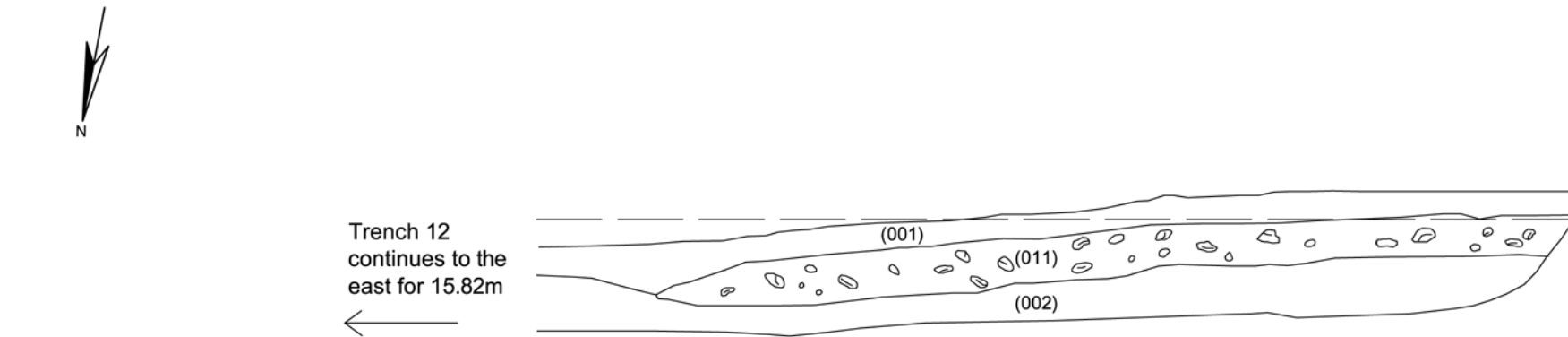
Copyright/Licencing:
 This drawing
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Ordnance Survey data if applicable
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 No. 100045420



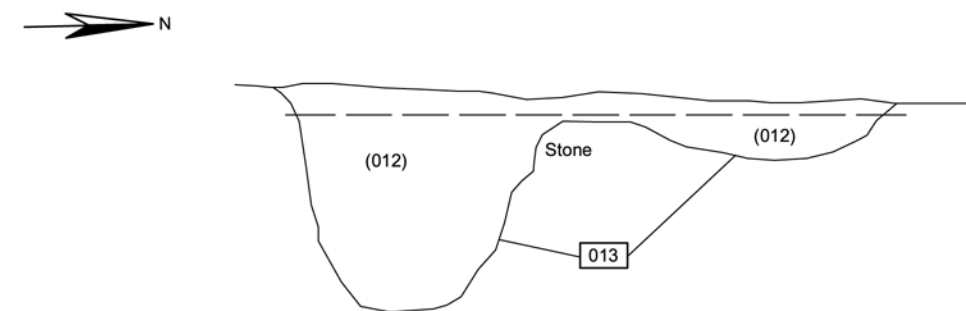
South facing section of Trench 10 showing the field breaks.

Scale 1: 75



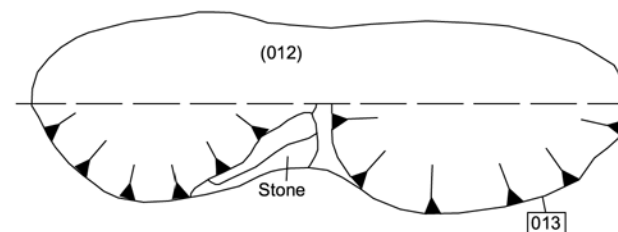
Partial south facing section on Trench 12 showing the path (012)

Scale: 1:50



West facing section of feature (012) located in Trench 6

Scale: 1:10



Plan of feature (012) located in Trench 6

Scale: 1:10

Appendix 4

Brief prepared by Patrick Ottaway

CARSINGTON PASTURE, DERBYSHIRE

BRIEF FOR ARCHAEOLOGICAL EVALUATION

Contents

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2. Site location and description
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11. Publicity
12. Resources and programming
13. Contractual arrangements
14. Specific requirements
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- 16. Timetable**
17. Price proposals
18. Payment
19. Contact address and deadline
20. Supplementary documents

Fig.1 Site plan showing area designated for topographic survey and evaluation trenching (at end of document)

Appendix 1: Notes for contributors to the *Derbyshire Archaeological Journal* of interim and short reports on developer funded archaeology

1. Scope of Document

This document is a brief to accompany an invitation to tender for an archaeological evaluation involving topographical survey and excavation at Carsington Pasture, Derbyshire.

The document sets out:

- Requirements for archaeological fieldwork
- Requirements for reporting and archive
- Conditions and other requirements governing the conduct of the work

This document has been prepared by Dr Patrick Ottaway (*PJO Archaeology*), Archaeological Consultant, on behalf of Carsington Wind Energy Ltd.

This brief is valid for six months after the date of the accompanying correspondence. After this period the Development Control Archaeologist for Derbyshire should be contacted:

Dr Andrew Myers
Derbyshire County Council
Environmental Services
Shand House
Dale Road South
Matlock
DE4 3RY

2. Site location and description

The site (centre at NGR SK248544) lies in the Civil Parish of Carsington, Derbyshire, at an elevation of c.300m OD, c.0.75km north of Carsington village.

Clearly visible on the surface and on aerial photographs is a great range of earthworks primarily relating to lead mining and extraction of sand in the post-medieval and modern periods. There are also the remains of ridge and furrow which are probably medieval and of low linear banks forming field or other boundaries which may be Roman in date.

3. Summary of archaeological knowledge

The archaeology of the site was studied in detail in a desk-based assessment by Oxford Archaeology North (2006) which accompanies this document. Mining and sand extraction have been studied by J.H. Rieuwerts and the Breck Hollow Mine by the Wirksworth Mines Research Group as part of the Environmental Statement and their reports also accompany this document.

In brief:

3.1 Prehistory : no prehistoric remains are known on the application site itself, but in the immediate vicinity there is Carsington Cave which has produced human remains of the Bronze Age. There are also a number of barrows in the immediate area, one of which lies immediately west of the application area and was part investigated by *Time Team* in 2002.

3.2 Roman : a Roman road, sometimes known as the Portway approaches the area from the north-west heading for Little Chester (Derby). Its course is thought to lie a little to the south-west of the application site. Another road originating in Buxton is thought to have joined the Portway a little to the west of the application site. To the south of Carsington excavations in the 1980s on the site of the reservoir produced remains thought to be of *Lutadarum*, a Roman lead mining centre. On the application site itself there are two parallel north – south running low banks and another which runs east-west on the north side, thought to be Roman field boundaries, although their date is by no means certain.

3.3 Medieval: aerial photographs show that almost the entire application site is covered with traces of ridge and furrow, the result of ploughing (not referred to in the Oxford Archaeology document). This is probably of medieval origin.

3.4 Post-medieval : the earliest records of lead mining in the Carsington area date to the 16th century, but the principal period of mining at Carsington Pasture appears to have been in the early 18th – late 19th centuries. Remains of the Breck Hollow and Condway mines and extensive associated earthworks are prominent on the site today.

3.5 Modern: Mining for barytes took place at the Condway mine in the 1940s and some of the earthworks may be of this date. The sand pits in the north-west corner of the application site are probably the result of late 19th – early 20th century extraction.

4. Project objectives

4.1 The objective of the evaluation is to assess the character, date, extent of survival and preservation, and research potential of the earthworks and below ground archaeological remains on the site in and around the principal zones of impact of the proposed development.

4.2 As a result the evaluation will provide the local authority with sufficient information to assess the significance of the earthworks and archaeological remains, and the need for any further mitigation in advance of development.

5. Management of the project

Work will be conducted by an archaeological contractor of recognised competence with appropriate experience in topographic survey and excavation.

Contractors registered with the Institute of Field Archaeologists (IFA) may be preferred, but any contractor will be required to conform to the Code of Conduct of the IFA (www.archaeologists.net). A senior member of the project staff should be a member of the IFA.

6. Methodology

6.1 Topographic survey

6.1.1 Within the designated area as shown on Fig.1 there will be a topographic survey at a level of detail to allow an assessment to be made of the pattern and sequence of land use represented by the earthworks. This should be undertaken using either GPS or an EDM.

6.1.2 Initial ground survey of the area should be at a scale of 1:1000. Features should be mapped as per RCHME (1999) guidelines to Level 3 standard.

6.1.3 In any zone where the earthworks are relatively ephemeral survey will probably be required at a larger scale and a contour survey should also be considered if appropriate.

6.1.4 Zones in which large scale survey may be required are designated A and B on Fig.1. They cover the earthen banks running north – south and east –west across the site which appear to pre-date the post-medieval mining remains.

6.1.5 The topographic survey shall be accompanied by detailed field notes and colour digital photographs describing and recording the observed features.

6.1.6 The survey team must include a member of staff who has knowledge and experience in the recording and interpretation of earthworks, and preferably has a knowledge of mining sites. The resulting survey record should allow the field notes and photographs to be related to points on the topographic survey and on aerial photographs of the area in the Derbyshire Sites and Monuments Record.

6.1.7 The positions of surveyed areas and survey data must be accurately recorded to enable future study, and to assist entry into the County Sites and Monuments Record. The data will be stored digitally in an agreed CAD format with the surveyed areas located relative to Ordnance Survey National Grid.

6.2 Excavation

6.2.1 Following on from the topographic survey and in light of a careful consideration of its results a series of evaluation trenches will be excavated covering up to 1000m². An exact trench design will be developed in consultation between the archaeological contractor and Development Control Archaeologist.

6.2.2 Modern overburden may be removed mechanically under archaeological supervision, but will cease at the first archaeologically significant deposit. All subsequent excavation will be by hand. **Excavation will be directed towards providing just sufficient information for meeting the objectives of the evaluation.**

6.2.3 In the event of the identification of voids derived from mining or other processes during evaluation trenching, those which are found to be man-made will need to be recorded and evaluated using the same criteria as for the rest of the evaluation. On identification of voids the Development Control Archaeologist should be immediately informed. Only individuals experienced in the below-ground exploration and survey of mining remains should be used during any investigation of voids.

6.3 Recording

6.3.1 Recording systems will be compatible with those used elsewhere in the county. This means a single context based recording system, employing suitable forms and indexed appropriately. Context descriptions, artefact registers, photographic records, etc, will be entered on pro-forma sheets similar to those used on other archaeological sites in Derbyshire. Individual measured plans will usually be produced at a scale of 1:20 for all excavated features and deposits, although there will probably be circumstances where plans showing several related features are more appropriate. Measured section drawings of trenches, major features and other parts of the site as appropriate will be produced, usually at a scale of 1:10. In addition, all layers and features will be levelled relative to Ordnance Survey datum.

6.3.2 To ensure that the positions of excavation areas are accurately recorded for future study, and to assist the entry of data into the County Sites and Monuments Record, trench locations will be accurately surveyed. The data will be stored digitally in an agreed CAD format with the areas located relative to Ordnance Survey National Grid. Major features uncovered during the excavation will be similarly located.

6.3.3 A photographic record using 35mm monochrome film and digital images will form part of the excavation record. This will consist of general site, and feature specific photographs and progress record shots.

6.4 Deposit sampling

6.4.1 Palaeoenvironmental sampling

Suitable deposits will be sampled for retrieval and analysis of biological remains.

The sampling strategy will be based on a reasoned justification for the selection of deposits for sampling and will be developed in conjunction with appropriate specialists. In addition, the sampling strategy and other matters of archaeological science should be discussed with the English Heritage Regional Science Adviser.

Sampling methods will be informed by those put forward in *Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post – Excavation* (English Heritage 2002).

6.4.2 Sampling for craft or industrial residues

Where there is evidence for any craft or industrial activity, especially metalworking, macroscopic residues (or a sample of them) will be collected by hand.

In order to guide the sampling strategy, reference will be made to the documents *Archaeometallurgy in Archaeological Projects* (English Heritage / Historical Metallurgy Society 1995) and *Archaeometallurgy* (English Heritage 2001).

6.4.3 Scientific dating samples

Samples will be collected for scientific dating as appropriate. Radiocarbon dating of bone or charred plant material will probably be the principal method of dating, but may be supplemented by archaeomagnetic dating.

For archaeomagnetic dating reference will be made to *Guidelines on Producing and Interpreting Archaeomagnetic Dates* (English Heritage 2006)

6.5 Finds and conservation

6.5.1 Finds collection and recording

Artefact collection should be aimed at the provision of adequate samples for meeting the objectives of the work.

Discarded artefactual materials should be described and quantified through assignment to broad categories in the field. The circumstances in which excavated materials are discarded will be agreed with DCA.

All bulk material will be washed. All bulk material except animal bone will be marked with materials resistant to abrasion. All bulk finds will be appropriately boxed and recorded on computer.

All small finds will be recorded both in the finds register and on computer. The small find recording system will be compatible with the Buxton Museum and Art Gallery accessioning system.

6.5.2 Finds Storage

All finds will be appropriately packaged and stored under optimum conditions to minimise damage, following methods detailed in *First Aid for Finds* (Watkinson and Neal 1998) and to the standards agreed by Buxton Museum and Art Gallery and set by the United Kingdom Institute of Conservation.

Methods will include:

- Controlled environment storage where appropriate
- Correct packaging with inert materials
- Regular checking of the condition of objects
- Immediate selection for conservation of vulnerable material
- All material stored in buildings with appropriate security

6.5.3 Finds conservation

Finds will be regularly transferred from the site to the conservation laboratory for security reasons and to ensure the long term well-being of the finds themselves.

In accordance with procedures outlined in *Management of Archaeological Projects* (MAP2; English Heritage 1991) all iron objects, a selection of non-ferrous artefacts (including all coins) and, if appropriate, a sample of any industrial debris relating to metallurgy will be x-radiographed before assessment.

6.5.4 Compliance with Treasure Act 1996

Finds of gold and silver will be removed to a safe place and their discovery reported to the Coroner in accordance with the terms of the Treasure Act 1996. Buxton Museum will also be informed.

6.5.5 Human burials

In the event of any human burials being revealed they will be immediately brought to the attention of the Department of Constitutional Affairs, the site owner and the Development Control Archaeologist. A Department of Constitutional Affairs licence for the removal of human remains will be applied for by the archaeological contractor before any burials are removed. The licence conditions will be fully adhered to.

Articulated human burials will be recorded in detail in respect of body position and alignment and degree of completeness. There will be a presumption in favour of reburial rather than excavation, but a final decision will be subject to specialist advice. Any excavated bones will be bagged separately from other finds and clearly labelled before removal from site and transport to a secure store; this to be done as soon as is feasible.

The cataloguing and analysis of any excavated human remains will be undertaken, as necessary, by a suitably qualified osteoarchaeologist.

7. Project Monitoring

7.1 Provision will be made for monitoring the progress of the archaeological work by the Development Control Archaeologist and the Developer's Archaeological Consultant in order to ensure its effectiveness and proper execution, and the maintenance of proper standards. At least two weeks notice of the commencement of archaeological works will be given to the Development Control Archaeologist.

7.2 Regular monitoring points will be agreed between the Archaeological Contractor, the Development Control Archaeologist and the Developer's Consultant so that proper notice of any site visits can be given to all interested parties. The Archaeological Contractor will provide an area within their temporary site accommodation suitable for occasional use by the interested parties for site meetings etc. The Archaeological Contractor will be required to provide a progress report on a monthly basis (or as appropriate).

7.3 The Archaeological Contractor will be required to provide the Development Control Archaeologist and the Developer's Archaeological Consultant with the name and mobile telephone number for the relevant field and project officer.

8. Health and safety

8.1 The Archaeological Contractor will make available a copy of their Health and Safety Policy to all interested parties before work commences. Whilst on site the staff of the Archaeological Contractor and any sub-contracted staff will operate with due regard to that policy and to all health and safety regulations currently in force to ensure the safety of their own staff and any other person who might have legitimate reason to visit the site.

8.2 The Archaeological Contractor will be required to produce a Health and Safety Plan and Risk Assessment for their work before it starts which must be approved by Carsington Wind Energy Ltd.

8.3 Good standards of personnel hygiene must be followed. All cuts and wounds will need to be covered with waterproof dressings. All staff must be given information and instructions regarding the controls to be followed in respect of Weil's disease.

8.4 All relevant training records for those who will be in supervision should be included in the Health and Safety Plan. All training records for plant operators should also be retained within the Plan or appended to it.

8.5 Information regarding the procedures for monitoring health and safety should be included within the Plan.

8.6 Clear reference should be made to those who hold responsibility for health and safety monitoring, such as safety managers or visiting consultants. Frequency of visits or inspections should also be confirmed.

9. Archive

9.1 Introduction

9.1.1 Arrangements will be made from the outset of the project for the preparation of the archive which is the initial result of the fieldwork stage. It will be prepared in accordance with *Management of Archaeological Projects*, Appendix 3 (MAP2; English Heritage 1991). This represents the minimum that is produced following on from the fieldwork stage. It will contain all original survey and excavation records (record sheets, original drawings, drawn plans, photographs, notes etc) suitably ordered, catalogued and indexed, as well as matrices and summaries of the context and artefact records.

9.1.2 It is expected that in addition to the hand written and drawn records, archived records will be stored in digital form. The Archaeological Contractor will ensure that systems employed are compatible with those used by Buxton Museum and Art Gallery.

9.2 Archive deposition

The archive is to be deposited in Buxton Museum and Art Gallery at the following address:

Buxton Museum and Art Gallery
Terrace Road
Buxton
Derbyshire
SK17 6DA
Tel: 01298 24658

9.3 Issues of copyright and ownership of records and artefacts will be clarified between the contractor and the site owner before the commencement of work. Agreement will also be reached with Buxton Museum and Art Gallery in order to make suitable arrangements for the deposition of the archive and to ensure standards required by the Museum (e.g. for storage) are achieved. All artefacts will, where applicable, be conserved *before* transfer to the Museum.

9.4 For digital data particular attention will be given to the Archaeological Data Services guides to good practice (www.ads.ahds.ac.uk). For artefacts particular attention will be given to the United Kingdom Institute for Conservation's *Guidelines for the Preparation of Excavation Archives for Long-term Storage* (1990).

9.5 *The site archive should be completed no later than six weeks after the completion of fieldwork. Any variation to this time scale will be discussed and agreed with the Development Control Archaeologist.*

9.6 The archive will be transferred in accordance with the procedures set-out in *Procedures for the Transfer of Archaeological Archives* (2003).

10. The Evaluation Report

10.1 Introduction

The preparation of the evaluation report will follow the guidelines published by the Institute of Field Archaeology (www.archaeologists.net).

Bound copies will be provided for the interested parties. They will include the Development Control Archaeologist, the Sites and Monuments Record and Buxton Museum and Art Gallery.

A digital copy of the report including illustrations and photographs (PDF Format) should be submitted to the Sites and Monuments Record.

10.2 Content

The report will include as a minimum:

- Non-technical summary
- Introductory statement
- Aims and purpose of the evaluation
- Method
- An objective summary statement of results
- A formal assessment of the importance of archaeological layers or features encountered using the Secretary of State's criteria (annex 4 PPG16).
- Conclusion, including a confidence statement
- Supporting illustrations and plans at appropriate scales
- Supporting data – tabulated or in appendices
- Supporting illustrations, photographs
- Index to archive and details of archive location
- References
- A copy of this document

11. Publicity

A summary of the project, with selected drawings, illustrations and photographs, will be submitted within 2 years of completion to *Derbyshire Archaeological Journal* for publication (see notes in Appendix 1 below).

At the start of fieldwork (immediately before fieldwork commences) an OASIS online record <http://ads.ahds.ac.uk/project/oasis/> will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form must be completed for submission to the SMR. This should include an uploaded .pdf version of the entire report (a paper copy should also be included with the archive).

12. Resources and programming

To accompany their tender application prospective archaeological contractors are required to:

- indicate the numbers of staff who will work on the project and identify the staff member(s) who will be responsible for the day-to-day conduct of the work.

- state the experience of both the staff members responsible for the day-to-day conduct of the work, and of any individual specialists. The CVs of all senior staff members and specialists are required to ensure their suitability for the work.
- provide a cascade chart indicating the projected timetable for fieldwork, assessment and reporting.

13. Contractual Arrangements

13.1 The Archaeological Contractor will hold a direct appointment from Carsington Wind Energy Ltd. The Employer's Agent who will be managing and administering the archaeological contract will be Neil Exton whose contact details appear below in Section 19.

13.2 A copy of the agreement between the archaeological contractor and Carsington Wind Energy Ltd. Should be provided to the Local Authority such that it is satisfied that there is a clear understanding and commitment by all parties to the extent of the work required.

14. Specific Requirements

14.1 Induction training

All staff who work on the site should be given Induction Training to familiarise them with the risks on the site and the site rules to be applied. The Archaeological Contractor's induction training procedures should be laid out in the Health and Safety Plan (see Section 8 above).

14.2 Emergency procedures

A contingency plan for dealing with emergencies such as persons being seriously injured, contact with services or dealing with serious injury should be prepared. This should highlight the location and type of rescue and first aid equipment, the means of raising the alarm, exit routes etc, as well as the means of transmitting this information to the staff.

14.3 Site management

Provision should be made to ensure a Project Manager is on site and in control of the archaeological work in progress at all times so far as is reasonably practicable. Should it be necessary for the Project Manager to leave site for short periods of time then adequate provision should be made to ensure supervision of the site is maintained.

14.4 Trench management

If the operating depth of the trenches is such that the sides require support appropriate shoring, protective barrier fencing and safe working methods must be adopted. The

supported excavations must be inspected at the start of each shift. They will require safe means of access and egress as well as edge protection.

Materials must not be stored next to the excavations and spoil heaps should be carefully managed to prevent surcharging into other areas.

Plant and machinery must be kept away from trench edges and trenches will require edge protection to prevent the falls of persons, plant and materials.

Members of the public must not be encouraged to enter the working area. Any member of the public wishing to visit the excavation may only do so under the supervision of a senior member of the Archaeological Contractor's staff and with the prior approval of West Coast Energy.

14.5 PPE

The Archaeological Contractor shall provide appropriate PPE equipment to all staff including safety helmets, high visibility jackets and boots with steel toe caps. In addition all authorised visitors must observe PPE requirements.

Additional protective equipment should be worn when operating noisy machinery or equipment that produces dust.

14.6 Work equipment, mobile plant and portable tools

All work equipment needs to be suitable for the task. It needs to be well maintained and only operated by trained, competent operatives.

Consideration will be needed for mobile and static work equipment for its access into the areas of work as well as ground load bearing issues and spatial constraints for their operation.

Hand tools used on the project should be in good condition and subject to a visual inspection before being taken into use.

Refuelling will require fire and spillage controls to be in place.

14.7 Manual handling

Assessments should be prepared for all tasks that involve manual handling. Consideration should be given to eliminating the risk of manual handling by using mechanical means.

14.8 Contamination and waste

Any contaminated waste materials should be removed on a daily basis.

Public areas and roads should be swept to avoid deposits of mud etc.

14.9 Security

The Archaeological Contractor will take all reasonable steps to ensure the security of archaeological deposits revealed by the excavation, any archaeological material which is recovered and all records of the excavation.

14.10 Services

14.10.1 Pre-existing surveys cannot guarantee the exact location and condition of all services that may be present on the site. Because of this a competent person must carry out a survey using any existing plans and cable location equipment before work takes place. The type and position of the services must be marked upon the ground before any excavation is started.

14.10.2 Safe digging practices must be in place. Hand digging of trial holes will be needed to confirm the exact location of pipes and cables. Excavators should not operate within 0.5m of gas pipes. All cables and pipes must be treated as live unless they are physically confirmed as otherwise by the relevant service owner.

14.10.3 If required, cables and pipes must be supported to prevent damage. No cable or pipe should be moved other than by a person authorised to do so. If a cable or pipe is damaged in any way it must be reported to the service owner. All unrecorded cables and pipes must be reported and work should not proceed until their status is confirmed.

14.10.4 All operatives must have been trained in safe digging practices. Emergency procedure must be in place and all must be aware of them. In the event of a cable or pipe being struck or damaged then the service owner must be contacted. If during the works an existing damaged pipe or cable is found then this should be reported to Carsington Wind Energy.

14.11 Waterways and drains

The Archaeological Contractor shall allow for taking all reasonable precautions to ensure the efficient protection of all streams and waterways against pollution arising out of, or by reason of, the execution of the works. No water can be pumped directly into the existing drainage without prior consent from the statutory authority and a filtration system will probably be required.

14.12 Access

Vehicular access will be via the gate off Manystones Lane. The Archaeological Contractor shall ensure that this and any other gates on the site are closed at all times when access is not required. The Archaeological Contractor shall allow access to the surrounding land for entitled persons and vehicles at all times.

14.13 Spoil and backfilling

Spoil from the excavation will be stored in a safe position adjacent to but well away from the trenches.

The evaluation trenches will be backfilled with the excavated material to the same level as the surrounding ground surface; there are no specific compaction requirements.

On completion of the excavation the site should be left in a tidy and safe condition.

14.14 Fencing and hoardings

Any fencing and hoardings will be the responsibility of the Archaeological Contractor and will be retained throughout the period of archaeological investigation. The Archaeological Contractor will alter and adapt the fencing and hoarding as necessary from time to time during the progress of the works, maintain it throughout the Contract Period, and remove and make good on completion. Any escape routes etc. shall be maintained at all times.

14.15 Fire precautions

The Archaeological Contractor shall comply with the Joint Code of Practice entitled Fire Prevention on Construction Sites and shall take all reasonable precautions to prevent the outbreak and spread of fire.

14.16 Welfare facilities and on-site services

Appropriate staff welfare facilities should be provided by the Archaeological Contractor. They will include running water, an adequate number of toilets, a supply of potable drinking water, a canteen / rest room, and a drying room. An area will be set aside for a compound to provide an office and secure storage for materials and equipment.

14.17 Insurance

The Archaeological Contractor shall undertake to provide statutory employer's liability insurance for all his employees or agents working on the site and provide public liability insurance to meet claims not exceeding £10 million arising from the Archaeological Contractor's negligence.

14.18 Copyright and confidentiality

The copyright of any written, graphic or photographic records and reports resides with the Archaeological Contractor. This to be agreed in writing between Carsington Wind Energy Ltd and the Archaeological Contractor before work begins.

The Archaeological Contractor must respect Carsington Wind Energy Ltd's requirements over confidentiality, but it is recognised that the Archaeological Contractor has a professional obligation to make results of work available to the wider archaeological community and general public within a reasonable period of time.

15. Conditions

15.1 The Archaeological Contractor shall be deemed to have satisfied himself regarding all matters that may in any way affect the execution of the archaeological works and to have made full provision in respect of it in the prices tendered.

15.2 The order to commence shall be given to the Archaeological Contractor by notice and the Archaeological Contractor shall thereupon commence the execution of the archaeological works and shall proceed with diligence and expedition or as may be directed by Carsington Wind Energy Ltd so that the whole of the work shall be completed by the dates agreed.

15.3 The Archaeological Contractor shall carry out and complete the execution of the archaeological works to the satisfaction of Carsington Wind Energy Ltd who may from time to time issue further drawings, details and/or instructions in regard to variation or modification of the design, quality or quantity of the archaeological works or the omission or substitution of any work as is necessary or expedient.

15.4 All the instructions of Carsington Wind Energy Ltd shall be given in the manner prescribed by Carsington Wind Energy Ltd. If any of the instructions of Carsington Wind Energy Ltd have not been confirmed in writing, such confirmation shall be given on reasonable request by the Archaeological Contractor made within fourteen days of such instructions.

15.5 Carsington Wind Energy Ltd shall have the power at any time to inspect and examine any part of the archaeological works and the Archaeological Contractor shall give all such facilities as Carsington Wind Energy Ltd may require for such inspection and examination.

15.6 The Archaeological Contractor shall not, without the consent in writing of Carsington Wind Energy Ltd, assign or transfer the Contract, or any part, share or interest therein. No instalment or other sum of money to become payable under the contract shall be payable to any other person unless the consent of Carsington Wind Energy Ltd in writing to assignment or transfer of such money to such person be produced when such payment is claimed as due.

15.7 In the event of any dispute arising out of any Agreement, Contract or other Instrument between the parties, either party may forthwith give to the other notice in writing of such a dispute or difference and this shall be referred for decision in accordance with the Rules of the Chartered Institute of Arbitrators' Arbitration Scheme for the Institute of Field Archaeologists applying at the time.

16. Timetable

16.1 Fieldwork

The land will be available for archaeological field work from January 2008.

16.2 Assessment and archive

An Archive (Section 9) and Evaluation Report (Section 10) should be produced within six weeks of the conclusion of field work.

17. Price proposals

As part of their tender archaeological contractors are invited to submit a fixed price for undertaking:

- A topographic survey as specified in Section 6.1 above
- Excavation of evaluation trenches as specified in Section 6.2 above
- Completion of an archive and evaluation report on the field work as specified in Sections 9 and 10 above.

18. Payment

Subject to approval by Carsington Wind Energy Ltd payments will be made on production of a valid invoice on completion of the topographic survey and on completion of the evaluation trenches. A final payment will be made on completion of the archive and evaluation report.

19. Contact address and deadline

Details of Archaeological Contractors' proposals in respect of resources and programme (Section 12 above) and prices should be sent in writing to:

Neil Exton
Carsington Wind Energy Ltd
The Long Barn
Waen Farm
Nercwys Road
Mold
Flintshire
CH7 4EW

to arrive no later than 16.00 on 11 January 2008

Any queries throughout the tender period may be addressed in the first instance to Dr Patrick Ottaway (*PJO Archaeology*) at:

Tower House
Fishergate
York
YO10 4UA

Tel: 01904 567372 email: patrick@pjoarchaeology.co.uk

20. Supplementary documents

Accompanying this document on disc are:

Oxford Archaeology North, 2006. *Proposed Wind Farm at Carsington, Derbyshire, Archaeological Desk-based Assessment and Rapid Visual Inspection*

Rieuwerts, J.H., 2006. *The History of Lead Mining on a Part of Carsington Pastures, Exploitation of Pocket Sand Deposits and the Overall Geological Setting* (Appendix 9.1 of the Environmental Statement)

Wirksworth Mines Research Group, 2006. *Draft Survey of Lead Mining Activity on Carsington Pastures* (Appendix 9.2 of the Environmental Statement)

Appendix 1

Notes for contributors to the *Derbyshire Archaeological Journal* of interim and short reports on developer funded archaeology:

The aim is to publish annual compilations of short reports on developer funded archaeology in the county on a regular basis in the *Derbyshire Archaeological Journal*, in order to better inform the public of the results of the work being undertaken.

It is envisaged that the reports will take one of two forms;

- 1 Interim reports – short interim descriptions of an excavation or survey that will eventually be subjected to fuller publication.
- 2 Definitive reports – summaries of archaeological work which will not be pursued further. Note that even if the results were negative, if valid questions were posed then a brief explanation will be worthwhile.

MODEL – see ‘Some Fieldwork in Derbyshire by the Trent & Peak Archaeological Unit in 1998-9’ edited by Graeme Guilbert and Daryl Garton, *DAJ* vol. 121 (2001): 223-5. Number 18 is an example of an Interim report and numbers 19 to 20 are examples of definitive reports.

DETAILED NOTES

Set individual reports out in alphabetical order of site names.

NGR should follow site name, followed by names of those responsible for the report and/ or fieldwork.

Give due acknowledgement to sponsors of project within text.

Definitive reports should include whereabouts of the related written, drawn and photographic archive, as well as any artefacts.

Illustrations – include line drawings and/or photographs if appropriate.

References – include where appropriate at the end of each report.

FUNDING

The Derbyshire Archaeological Society will require an offer of grant-aid towards the printing costs of short reports submitted in order to guarantee publication. Costs will be determined from the printer's estimate. A contribution towards these costs of around 60% will be sought from the relevant contracting archaeological organisation. For further information contact Pauline Beswick (Hon. Editor), 4 Chapel Row, Froggatt, Calver, Hope Valley, S32 3ZA or tel. 01433 631256.

DEADLINE

Reports received by the end of July will be considered for inclusion in *DAJ* in the year following. If too late they will be saved for consideration for the succeeding year.

Reports to be submitted in hard copy and on disc to:

Andy Myers at Environmental Services Department, Derbyshire County Council, Shand House, Dale Road South, Matlock, Derbyshire DE4 3RY.