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**Burnhead Wind Farm,
Falkirk**

Archaeological Watching Brief

Report No. 3298

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1. INTRODUCTION

1.1 General

This report presents the results of an archaeological watching brief undertaken by CFA Archaeology Ltd (CFA) from February to April 2015 within the application boundary for Burnhead Wind Farm, Falkirk. The wind farm lies in open countryside and in forestry plantations and is located to the east of the village of Slamannan and north of Blackridge (NGR: NS 888 694 centred, Fig. 1). The work was commissioned by EDF Energy Renewables Ltd.

The proposed wind farm development comprises the erection of 13 wind turbines and associated access tracks, switchgear building and high wind monitoring mast.

A Written Scheme of Investigation (WSI) dated 20 March 2013 was produced by CFA and was designed to meet the requirements of the Keeper of Archaeology & Local History (KA&LH) on behalf of Falkirk Council.

1.2 Background

Burnhead Wind Farm has received the consent of Scottish Ministers under Section 36 of the Electricity Act 1989 (Planning document reference no. IEC 3/37).

An Environmental Statement (ES) has already been produced, and this report refers to site reference numbers contained in the gazetteer of the Archaeological Assessment chapter of the ES, and should be read in conjunction with that ES chapter, together with the WSI.

1.3 Objectives

The objectives of the watching brief were

- To conduct an appropriate programme of archaeological investigation to monitor all groundbreaking works at the turbine bases to ensure works are cleared of topsoil and other modern overburden to identify either undisturbed natural subsoil or archaeological features (whichever comes first).
- To mitigate the effects of construction on any archaeological deposits or features identified through excavation and recording and produce a report on them.

No archaeological monitoring was required where the ground had been previously disturbed by 20th century quarry works.

2. WORKING METHODS

2.1 General

CFA Archaeology Ltd follows the Chartered Institute for Archaeologists' Code of Conduct, and Standards and Guidance for Archaeological Watching Briefs.

2.2 Watching Brief

A mechanical excavator equipped with a toothless ditching bucket was used to remove topsoil for the construction of the turbine bases. All excavation proceeded under direct archaeological supervision and in controlled spits. Machine excavation terminated when natural geological deposits or when the first archaeological feature was encountered, whichever came first.

The stratification of all excavated areas was recorded, whether or not significant archaeological deposits were identified. All identified features or possible features were investigated by hand and recorded.

Any sites identified were surveyed using a DGPS with sub-metre accuracy, and were recorded according to standard CFA methods, principally by photography and by completing standard CFA monument recording forms.

3. ARCHAEOLOGICAL RESULTS

3.1 General

Turbine bases 3, 5, 7, 8, 10 and 11 were subject to archaeological monitoring. Turbine bases 1, 2, 4, 6, 9, 12 and 13 were located either in forestry or in areas previously disturbed by quarry works and, following agreement with the KA&LH, they were not monitored. All the bases were circular and measured 30m in diameter.

3.2 Turbine Bases

Context descriptions are provided in Appendix 1.

Turbine 3

This location was in previously afforested land. Wet peat was up to 0.8m deep over orange sandy clay natural (**000**). Extensive tree root penetration and bioturbation was observed.

Turbine 5

Topsoil (**001**) was 0.3m thick and surfaced with grass. Rig-and-furrow was visible on the surface of the field but was not observed following soil stripping. Natural (**000**) was orange sandy clay. Occasional ploughmarks were visible.

Turbine 7

Topsoil (001) was 0.4m deep. Natural (000) was pale orange sandy clay with occasional stones.

A rectangular feature measuring 7m long by 1.4m wide was identified. It was aligned NW-SE and was defined by a 0.2m high bank (002) around its perimeter, and was open to the SE. Excavation revealed the bank to be formed by re-deposited topsoil and clay. A section was excavated through the feature which revealed a 1.7m deep cut (003). The cut was filled with loosely compacted clay, soil and turf (004).

Remnants of cultivation furrows (005) were identified aligned north to south. The furrows were 0.8m to 1m wide and up to 0.1m deep with a shallow concave profile. The fill was indistinguishable from the topsoil.

Turbine 8

Topsoil (001) was 0.3m to 0.4m deep and was surfaced with grass. Natural (000) was orange-grey sandy clay.

A rectangular feature, identical in character to 002, was identified during the excavation of Turbine 7, was identified. It measured 7m long by 1.5m wide and was aligned NW-SE. It was defined by a 0.2m high bank (006) around its perimeter, and was open to the SE. Excavation revealed the bank to be formed by re-deposited topsoil, clay and turf. A section was excavated through the feature which revealed a 1.5m deep cut (007) which was filled with loosely compacted clay, soil and turf (008).

Cultivation furrows (009) were identified aligned north to south. Furrows were also visible on the surface of the field. No other archaeological remains were identified.

Turbines 10, 11 & 12

Topsoil was 0.3m to 0.4m deep and surfaced with grass. Natural (000) was orange-grey sandy clay. No archaeology was identified within any of these turbine bases.

4. CONCLUSION

An archaeological watching brief was undertaken during the excavation of turbine bases at Burnhead Wind Farm, Falkirk.

Six turbine bases out of a total of thirteen were monitored; the others having been discounted as the ground they were located in had already been subject to heavy disturbance by forestry or quarrying.

The remains of cultivation furrows were identified and the remains of two rectangular features were found at Turbine 7 and 8. These rectangular features may be the remains of lint pools; the historical Ordnance Survey mapping for the area (1865 and 1899) shows lint pools in the north of the wind farm area (recorded as Sites 7, 8 and 10 in the Cultural Heritage chapter of the Environmental Statement (ES) and shown on Fig. 1). No trace of these lint pools was found during walkover survey undertaken in 2010 for the ES.

Once harvested flax has to be soaked (retted) and then dried before being processed into linen. Lint pools or flax retting pools were used for steeping the flax plants in stagnant water to separate the plant fibres. The Statistical Accounts of 1791-99 record that the soils in the Slamannan area were good for flax growth and for a long period, particularly during the Continental War (1793-1815), the area was famous for its culture of flax. However, flax production diminished during the 19th century when cotton production became much cheaper rendering the cultivation of flax unprofitable.

No other archaeological remains were identified.

An online OASIS entry and Discovery & Excavation in Scotland entry will be submitted (Appendix 3). The project archive, comprising all CFA record sheets, maps and reports, will be deposited with RCAHMS on completion of the project.

APPENDIX 1

Context Register

| Context No. | Description |
|-------------|---|
| 000 | Natural: orange sandy clay |
| 001 | Topsoil |
| 002 | ?Lint pool turf banks, T7 |
| 003 | ?Lint pool cut, T7 |
| 004 | ?Lint pool fill: clay and recent turf. T7 |
| 005 | Rig and furrow, T7 |
| 006 | ?Lint pool turf banks, T8 |
| 007 | ?Lint pool cut, T8 |
| 008 | ?Lint pool fill: clay and recent turf. T8 |
| 009 | Rig and furrow, T8 |
| 010 | Rig and furrow, T5 |

APPENDIX 2

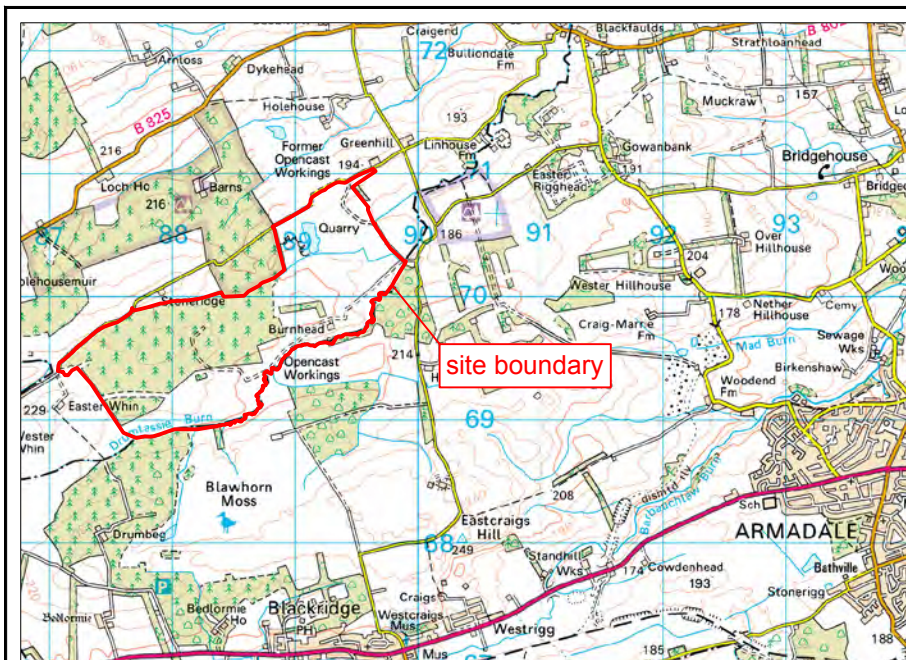
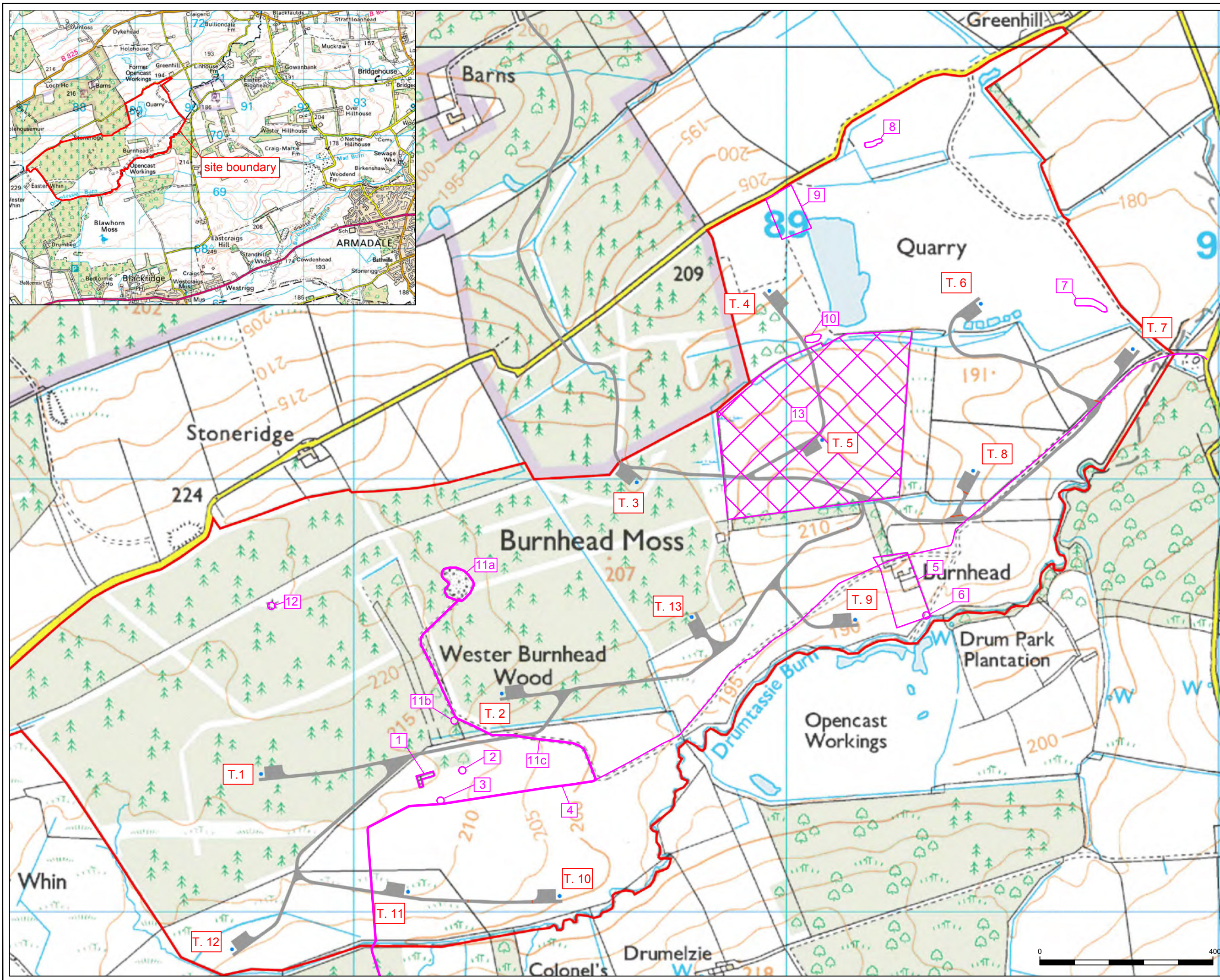
Photo Register

| Photo No. | Description | From |
|-----------|---------------------------|------|
| 1 | T7 pre-ex | N |
| 2 | T7 ?lint pool pre-ex | S |
| 3 | T7 working shot | S |
| 4 | T7 ?lint pool section | S |
| 5 | T7 rig-and-furrow section | N |
| 6 | T7 fully stripped | N |
| 7 | T8 pre-ex | SW |
| 8 | T8 ?lint pool | S |
| 9 | T8 ?lint pool section | S |
| 10 | T8 working shot | S |
| 11 | T8 fully stripped | W |
| 12 | T5 rig-and-furrow section | W |
| 13 | T5 fully stripped | W |
| 14 | T10 working shot | N |
| 15 | T11 working shot | E |
| 16 | T12 working shot | E |
| 17 | T12 working shot | W |
| 18 | T3 conditions shot | SW |
| 19 | T3 conditions shot | SE |

APPENDIX 3

Discovery & Excavation In Scotland Entry

| | |
|---|--|
| LOCAL AUTHORITY: | Falkirk |
| PROJECT TITLE/SITE NAME: | Burnhead Wind Farm |
| PROJECT CODE: | BURN2 |
| PARISH: | Slamannan |
| NAME OF CONTRIBUTOR: | Stuart Mitchell |
| NAME OF ORGANISATION: | CFA Archaeology Ltd |
| TYPE(S) OF PROJECT: | Watching Brief |
| NMRS NO(S): | None |
| SITE/MONUMENT TYPE(S): | None |
| SIGNIFICANT FINDS: | None |
| NGR (2 letters, 6 figures) | NS 8880 6940 (centred) |
| START DATE (this season) | February 2015 |
| END DATE (this season) | May 2015 |
| PREVIOUS WORK (incl. DES ref.) | None |
| MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields) | An archaeological watching brief took place during construction at Burnhead Wind Farm. Six turbine bases out of a total of thirteen were monitored; the others having been discounted as the ground they were located in had already been subject to heavy disturbance by forestry or quarrying. The remains of cultivation furrows were identified and the remains of probable lint pools were discovered. No other archaeological remains were identified. |
| PROPOSED FUTURE WORK: | None |
| CAPTION(S) FOR ILLUSTRS: | None |
| SPONSOR OR FUNDING BODY: | EDF Energy Renewables Ltd |
| ADDRESS OF MAIN CONTRIBUTOR: | CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ. |
| EMAIL ADDRESS: | edinburgh@cfa-archaeology.co.uk |
| ARCHIVE LOCATION (intended/deposited) | Archive to be deposited in NMRS, Reports lodged with SMR and NMRS. |



- Key:**
- Development Area
 - New haulroads
 - Wind Turbine
 - Cultural Heritage Site
 - Area of Rig and Furrow



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Fig. No: 1 Report No: 3298

Title:
 Location map

Project:
 Burnhead Wind Farm, Falkirk

Client:
 EDF Energy Renewables

Scale at A3:
 1:8 000

Drawn by: GC Checked: SW Date: 19/01/2016

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Fig. 2 Turbine 8



Fig. 3 Turbine 5



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| Title: | Fig. 2 - 3 | Report: 3298 | Drawn: GC | CKD: SW | Date: 20/01/16 |
| Client: | EDF Energy Renewables | | | | |
| Project: | Burnhead Wind Farm, Falkirk | | | | |



Fig. 4 Turbine 3



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| Title: | Fig. 4 | Report: 3298 | Drawn: GC | CKD: SW | Date: 20/01/16 |
| | Client: EDF Energy Renewables | | | | |
| Project: Burnhead Wind Farm, Falkirk | | | | | |