

CFA Archaeology Ltd

archaeological consultants

Advice on Archaeology & Planning

Environmental Impact Assessment

Interpretation, Design & Display

Finds/ Environmental Analysis

Field Evaluation & Excavation

Historic Building Recording

Site & Landscape Survey

Geophysical Survey

Drumduff Wind Farm, West Lothian

Archaeological Mitigation Works

Report No. 3543

CFA ARCHAEOLOGY LTD

The Old Engine House
Eskmills Business Park
Musselburgh
EH21 7PQ

Tel: 0131 273 4380
Fax: 0131 273 4381
email: info@cfa-archaeology.co.uk
web: www.cfa-archaeology.co.uk

Author	Katie Sludden MA BFA
Illustrator	Marta Perlinska BA MA
Editor	Melanie Johnson MA PhD FSA Scot MCIfA
Commissioned by	Green Breeze Energy Ltd
Date issued	April 2017
OASIS No.	Cfaarcha1-283746
Version	2
Grid Reference	NS 8946 6944 centred

This document has been prepared in accordance with CFA Archaeology Ltd standard operating procedures.

**Drumduff Wind Farm,
West Lothian**

Archaeological Mitigation Works

Report No. 3543

CONTENTS

1.	Introduction	3
2.	Working Methods	4
3.	Archaeological Results	5
4.	Conclusion	6

Appendices

1.	Context Register	7
2.	Photograph Register	7
3.	Drawings Register	8
4.	Discovery & Excavation Entry	8

Figures (bound at rear)

Fig. 1 Location of Archaeological Mitigation Works and relevant archaeological features

Fig. 2 General Post ex of Turbine 2 crane pad looking NE

Fig. 3 NW facing section of Field bank 004

Fig. 4 General Post ex of Turbine 2 lay-down area looking SW

Fig. 5 Demarcation - Site 1b, looking towards Site 1a

1. INTRODUCTION

1.1 General

This report presents the results of a programme of archaeological mitigation works carried out by CFA Archaeology Ltd (CFA) during construction of Drumduff Wind Farm, West Lothian (Fig. 1). The work was carried out between November 2016 and April 2017 and was commissioned by Green Breeze Energy Ltd.

1.2 Background

Permission was granted for the construction of three wind turbines and associated infrastructure on land near Heights, to the north-west of Armadale (NGR: NS 8946 6944 centred). A Written Scheme of Investigation (WSI) was produced by CFA Archaeology Ltd on behalf of Green Breeze Energy Ltd in August 2016. It was based upon the requirement for archaeological mitigation works and agreed by the West of Scotland Archaeology Service (WoSAS) who advise West Lothian Council.

A disused, former 20th century opencast mine works occupies the western half of the proposed development site and there is no potential for any archaeological remains to survive in that area; consequently, no mitigation works were proposed for that area. The eastern half of the proposed development site appears to have remained relatively unchanged since the 19th century, with the ruins of a farmstead (Site 1), the site of which was occupied from at least the 17th century, and associated field boundaries. Areas of rig-and-furrow cultivation are also present within the development site.

There is an area of existing hardstanding and a surfaced road within the eastern part of the site which were both associated with the opencast mine works. There are also two large diameter high pressure gas pipelines crossing the site on broadly east-west alignments, as well as two large diameter water pipelines which are aligned in a north-south position across the eastern part of the site. Trenching works associated with these pipelines will have disturbed the ground within the pipeline footprints.

This report contains reference numbers, which refer to gazetteer entries in the Cultural Heritage Assessment for the wind farm¹. This report should be read in conjunction with that report.

1.3 Objectives

The archaeological works required were:

1. **Fencing-off Sites.** Sites 1a and 1b (Drumduff Farmstead) were to be clearly identified and marked off with a visible barrier to avoid any accidental damage to them.
2. **Archaeological Watching Brief.** Groundbreaking was to be carried out under constant archaeological supervision, excluding the areas of former opencast and other areas of previously disturbed ground.

¹ CFA Archaeology Ltd (2013) Proposed Wind Farm at Drumduff, West Lothian: Cultural Heritage Assessment

2. WORKING METHODS

CFA follows the Chartered Institute for Archaeologists' Code of Conduct, Standards and Guidance for archaeological watching briefs. Recording of all elements followed established CFA methods.

2.1 Fenced Off Sites

Sites 1a and 1b (Drumduff Farmstead, see Fig. 1 and 5) were demarcated with visible barrier fencing for the duration of groundbreaking works.

2.2 Watching Brief

A watching brief was undertaken during ground breaking works associated with the location of Turbines 2 and 3, including turbine bases, crane hardstandings, compounds and laydown areas.

Topsoil was removed by a mechanical excavator equipped with a smooth-bladed bucket, under constant archaeological supervision. All further excavation required to fulfil the objectives of the WSI was carried out by hand.

The stratification of all excavated areas was recorded, whether or not significant archaeological deposits were identified.

3. ARCHAEOLOGICAL RESULTS

Context numbers appear in bold and full descriptions can be found in Appendix 1.

3.1 General

The environment consisted of mixed peaty dispersed woodland and overgrown pasture with 0.2m to 0.4m of dark brown clayey silt topsoil (**001**) overlying mottled light brown and orange grey clay (**002**) and boulder clay natural substrate (**003**).

3.2 Demarcation

The remains of Sites 1a and 1b were demarcated with orange netlon fencing on wooden posts, and the features remained undamaged by construction activities (Fig. 5).

3.3 Watching Brief

The watching brief areas included the Turbine 2 hardstanding, turbine base and laydown area to the centre of the site, and a compound area and the Turbine 3 hardstanding and turbine base to the east of the site. No other ground breaking works took place within undisturbed land.

The lay-down area for Turbine 2 was excavated within dispersed woodland to the north of the haul road at Turbine 2 (Fig. 4). The ground here was heavily disturbed by at least six tree boles measuring up to 2m in diameter by 0.50m in depth. These contained upturned tree-stumps, likely felled and redeposited in the 20th century, relating to the open-cast mine nearby. Natural subsoil consisted of mottled light brown and orange/grey clay below 0.1-0.4m of peaty topsoil.

One field bank was recorded during topsoil stripping at the Turbine 2 crane pad (Fig. 2-3). The ground here was waterlogged. The field bank (**004**) ran to the east of the crane pad, orientated NW-SE, measuring at least 10m long by 4m wide (at base) by 0.5m high and comprised mixed loose stony clayey silt. Trees were growing along the top of the field banks around this location. The field bank is likely to relate to Site 2, forming part of an enclosed field system. This may also align to the field boundary depicted within Drum Park Plantation to the north, now masked by afforestation. A section of field bank running along the edge of the haul road was preserved in situ.

The compound area and Turbine 3 were located within wet ground and light, dispersed woodland, with peaty topsoil up to 0.8m deep. Natural subsoil consisted of mottled light brown clay. No archaeological features or deposits were identified.

No artefacts were recovered during these works.

4. CONCLUSION

The watching brief at Drumduff Wind Farm identified one field bank of agricultural origin. No other features or artefacts of significance were discovered.

A summary statement will be submitted for publication in *Discovery and Excavation in Scotland* (Appendix 4).

The project archive, comprising all CFA record sheets, digital photographs, maps and reports, will be deposited with the National Record of the Historic Environment (NRHE) and copies of reports will be lodged with the West Lothian Council Sites and Monuments Record (SMR).

APPENDIX 1: Context Register

Context	Fill of	Description
001		Topsoil. Dark brown clayey silt 0.10m to 0.80m in depth.
002		Natural subsoil consisting of mottled light brown and orange grey clay. Encountered at 0.20-0.40m in depth.
003		Boulder clay. Encountered at 0.20-0.40m in depth.
004		NW-SE aligned mixed loose stony clayey silt. Field bank material with occasional roots. 10m section removed. 4m wide by 0.50m deep.

APPENDIX 2: Digital Photograph Register

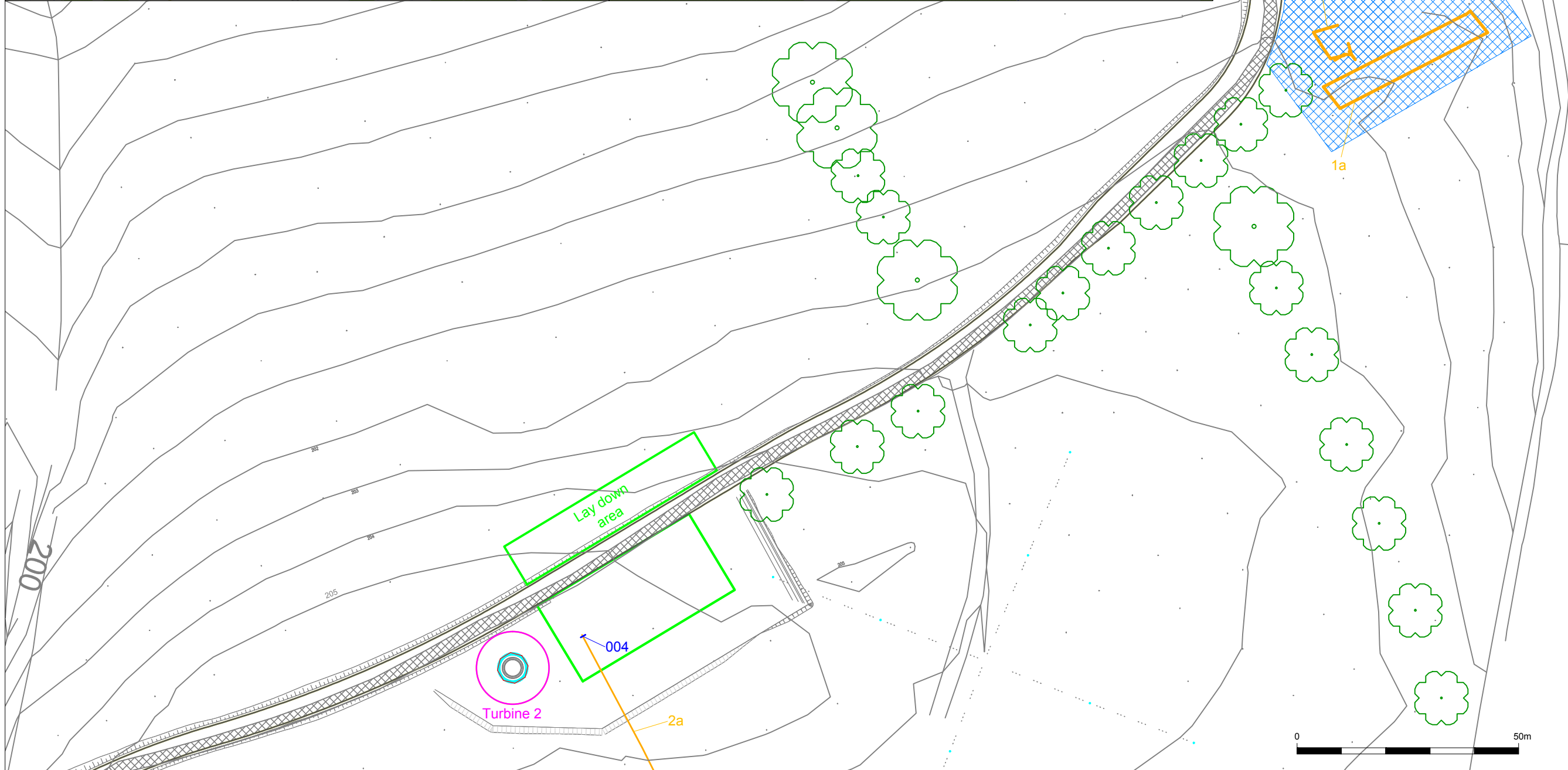
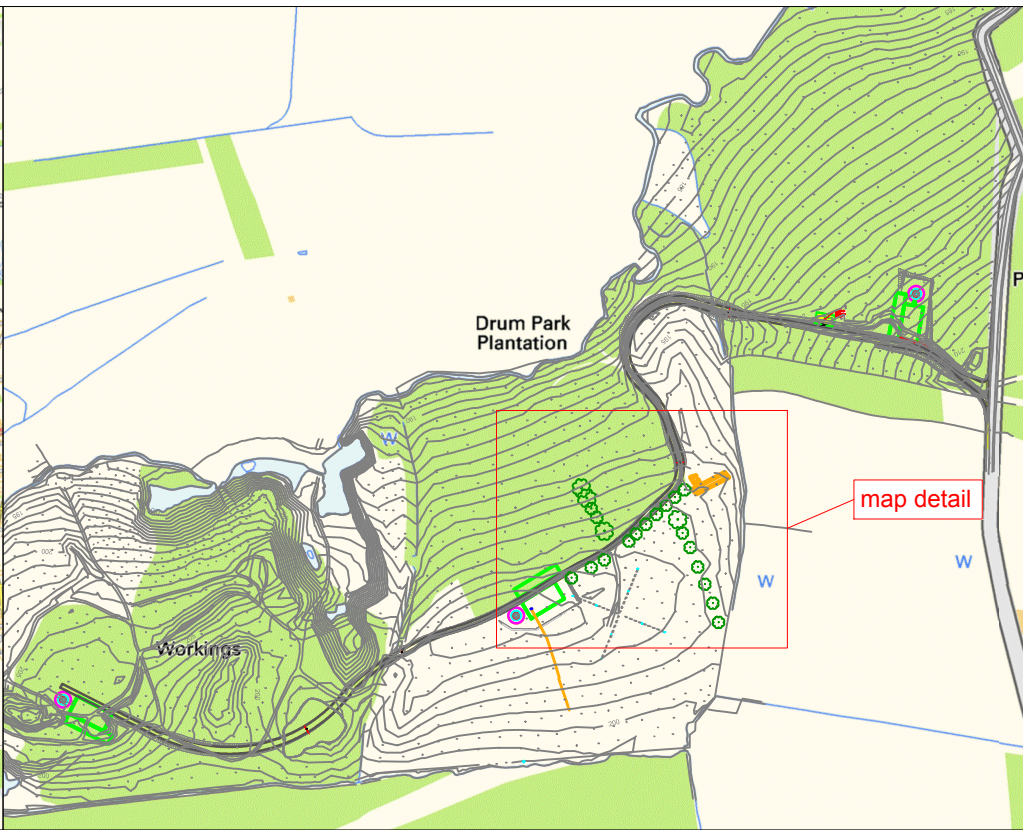
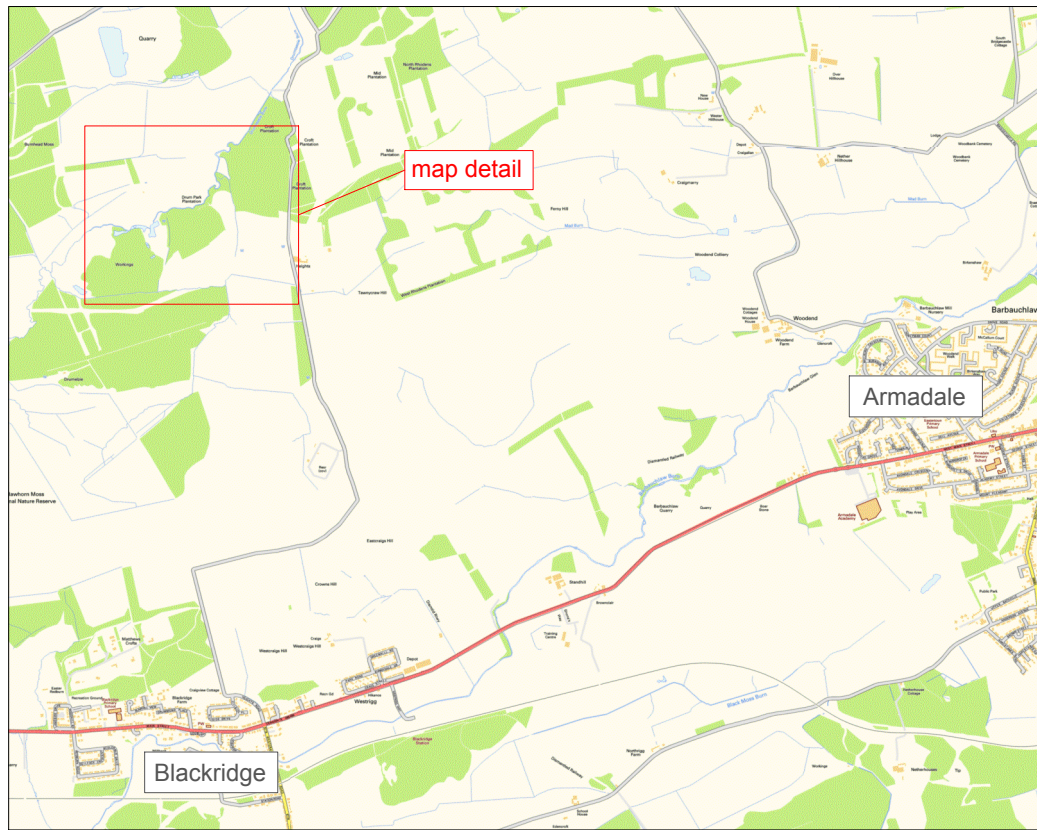
Photo No.	Description	From
1	Structure 1a	NE
2	Structure 1a	SE
3	Structure 1a	NW
4	Oblique shot at structure 1a	W
5	Remains of structure 1b	NE
6	General shot showing 1b and fencing	SW
7	General shot taken from haul road showing 1a and 1b	W
8	Stripped off ground at area designated for compound	SE
9	Stripped off ground at area designated for compound	NE
10	Pre-ex shot of turbine base 3	W
11	Pre-ex shot of turbine base 3	SW
12	T2, post-ex, post-felling	W
13	T2, post-ex, post-felling	NW
14	Access track to T2 from T1, showing felled trees/field bank	SW
15	NNW-SSE aligned field bank to E of T2 - tracked over prior to groundworks	NNW
16	Drainage ditch being excavated parallel to field bank alongside access track	W
17	Field bank	
18	Field bank - not cut but may be at a later stage	NNW
19	T2 area after excavation of drainage ditches, prior to topsoil stripping	W
20	T2 crane pad area prior to topsoil stripping	NE
21	T3 crane pad area post-excavation	W
22	T3 crane pad, topsoil stripped	W
23	Field bank aligned N-S	NNW
24	T2 post-ex	SW
25	Pre-ex shot of turbine 2 lay-down area	NE
26	Pre-ex shot of turbine 2 lay-down area	SW
27	Working shots SW end	SE
28	Working shots SW end (tree bole)	SE
29	Working shots SW end (tree stump)	SE
30	Sample section (virgin ground side)	SE
31	General post-ex shot SW end	NE
32	General post-ex shot	E
33	General post-ex shot NE end	NE
34	Section along haul road	NW

APPENDIX 3: Drawings Register

Drawing No.	Description	Section/Plan	Scale
1	NW facing section of 004 field bank	S	1:10
2	Mid-ex plan (009) fire pit	P	1:20
3	Post-ex plan (009) fire pit	P	1:20
4	W facing section of (011) and (012) stones	S	1:25
5	Mid-ex plan (011) and (012) stones	P	1:50

APPENDIX 4: Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	West Lothian
PROJECT TITLE/SITE NAME:	Drumduff Wind Farm
PROJECT CODE:	DUFF2
PARISH:	Torphichen
NAME OF CONTRIBUTOR:	Katie Sludden
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Archaeological Mitigation Works
NMRS NO(S):	None
SITE/MONUMENT TYPE(S):	None
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	NS 8946 6944
START DATE (this season)	06/11/2016
END DATE (this season)	03/04/2017
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A targeted watching brief was undertaken during the construction of Drumduff Wind Farm, near Armadale. The watching brief identified one field bank of agricultural origin.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Green Breeze Energy. Ltd
ADDRESS OF MAIN CONTRIBUTOR:	CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ.
EMAIL ADDRESS:	cfa@cfa-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NRHE, Report lodged with SMR.



Key:

- Cultural Heritage Site
- Fenced off area
- Section through Linear 2a



Reproduced with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office, © Crown copyright. CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh EH21 7PQ AL100034785



CFA
ARCHAEOLOGY LTD

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Title:
Location of Archaeological Mitigation Works and relevant archaeological features

Project:
Drumduff Wind Farm, West Lothian, Archaeological Mitigation Works

Client:
Green Breeze Energy Ltd

Scale at A3:
1:1000

Drawn by: GC	Checked: SW	Date: 25/04/2017
-----------------	----------------	---------------------

Report No: 3543	Fig. No: 1
--------------------	---------------



Fig. 2 General Post ex of Turbine 2 crane pad looking NE



Fig. 3 NW facing section of Field bank 004

Project:
Drundruff Wind Farm, West Lothian, Archaeological Mitigation Works



CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
Green Breeze Energy Ltd

Drawn by: GC	Checked: SW	Date: 27/04/17
Report No: 3543		Fig. No: 2 - 3



Fig. 4 General Post ex of Turbine 2 lay-down area looking SW



Fig. 5 Demarcation - Site 1b, looking towards Site 1a

Project:
Drundruff Wind Farm, West Lothian, Archaeological Mitigation Works



CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
Green Breeze Energy Ltd

Drawn by: GC	Checked: SW	Date: 27/04/17
Report No: 3543		Fig. No: 4 - 5