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Geophysical Survey

Crystal Rig Wind Farm (Phase III), East Lothian

Programme of Archaeological Works

Report No. 3454

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**Crystal Rig Wind Farm (Phase III),
East Lothian**

Programme of Archaeological Works

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Fig. 2 North facing section of pit 005

Fig. 3 General view of sectioned pit 009

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 the implementation of Phase III of Crystal Rig Wind Farm, East Lothian (Fig. 1). The work was carried out between April 2016 and July 2016 and was commissioned by Jones Bros Ruthin (Civil Engineering) Co. Ltd.

1.2 Background

Crystal Rig Wind Farm Phase III lies to the north-west and north-east of the existing wind farm, on Bransly Hill and Dunbar Common, East Lothian (NT 674 697 and NT 649 699 centred), and is proposed as a 6-turbine extension to the existing Crystal Rig Wind Farm.

A Written Scheme of Investigation (WSI) was prepared for Natural Power Consultants Ltd by CFA Archaeology Ltd, dated 30 November 2015, and agreed by the East Lothian Council Archaeology Service (ELCAS) in relation to Planning Condition 33:

Prior to any groundworks commencing, the applicant shall, through the employment of an archaeologist or archaeological work (Evaluation and Watching Brief) on the development in accordance with a written scheme of investigation which the applicant will submit to and have approved in writing by the Planning Authority. Additionally: sites identified for avoidance should be clearly fenced or marked prior to ground works starting. This archaeological work must be undertaken and reported on in order to satisfy the condition.

The WSI contains reference numbers, which refer to gazetteer entries in the Cultural Heritage chapter in the Environmental Statement (ES). This WSI should be read in conjunction with that report.

A programme of archaeological evaluation at the site compound covering 5% of the area, based on aerial photograph rectification as specified in the mitigation section of the Cultural Heritage chapter, has been carried out in advance of construction under a separate WSI, dated 10 November 2015. The results of this evaluation are reported in CFA report no. 3384; no traces of rig-and-furrow cultivation remains were recorded within the evaluation trenches.

1.3 Objectives

The objectives of this phase of works were:

- **Fencing-off Sites.** Sites 24, 25, 26, 27a, 27b, & 29 were to be clearly identified and marked off with high visibility fencing.
- **Archaeological Watching Brief.** A watching brief was required during ground breaking works.

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 Site demarcation

Sites 24, 25, 26, 27a, 27b, & 29 were to be fenced off to protect them from accidental damage during construction and felling activities; this took place prior to any work commencing in that area.

A GPS location survey and photographic record were made of the surviving remains.

The demarcated area included a buffer zone extending 10m beyond all visible remains of the site. The details of the locations of the fenced off sites was supplied to the Infrastructure Contractor. The fencing remained in place for the duration of all construction works.

2.2 Watching Brief

A watching brief was required during all new ground breaking works, including, but not limited to, tracks, turbine bases, crane hardstandings, compounds and laydown areas.

The watching brief was not required where access tracks were built as floating roads or where cabling followed the route of the access tracks. The watching brief was not required on the previously evaluated construction compound (CFA Report no. 3384), and areas previously stripped and monitored during earlier phases of construction at Crystal Rig.

All groundbreaking works in these areas was carried out under constant archaeological supervision and mechanical excavators were fitted with smooth bladed ditching buckets. Any archaeological remains discovered were recorded via hand excavation, drawing, photography and GPS location.

3. ARCHAEOLOGICAL RESULTS

3.1 General

All of the work took place at or above 220m AOD. Most of the area was covered by blanket peat but areas of acidic grassland were also present. The upland environment consisted of overgrown grass-covered peat with blue-greyish green bedrock schists, often exposed as craggy outcrops.

3.2 Site Demarcation and Additional Description

Sites 24, 25, 26, 27a, 27b and 29 were to be demarcated by fencing off. Following changes to the site layout plan, site 29 was excluded from demarcation as it was no longer vulnerable to impact from the works. There was no impact on the remaining sites.

3.3 Watching Brief

The general site stratigraphy consisted of 0.2m to 0.4m of dark brownish black turf and peat deposits (**001**), directly overlying natural (**002**). Natural consisted of orange-grey to yellowish-grey clayey silts with occasional black mineral deposits spread throughout.

A fire-pit (**005**) and a C-shaped pit (**008**) were discovered cut into natural during topsoil stripping operations on the access track towards the location of Turbine WTG04-B.

Pit **005** was a sub-circular feature measuring 1.3m long by 0.8m in width. The profile of the feature was a wide concave bowl shape, with a maximum depth of 0.1m. The feature contained two deposits; **006** comprising pinkish grey heat-affected sand 50mm in depth, underlying **007** which comprised blackish-grey ashy charcoal 50mm deep. The lower deposit of the feature most likely represents a layer of heat affected natural from in situ burning rather than a distinct separate fill.

Pit **009** was a C-shaped pit, measuring 2.5m by 1.8m in plan. It had steep to vertical sides and a flat base, and measured 0.3m deep. The pit was filled with dark grey to black silt (**010**) which contained charcoal and frequent fire-cracked stones.

4. CONCLUSION

The required archaeological work at Crystal Rig Wind Farm (Phase III) is now complete.

Sites 24, 25, 26, 27a & 27b were surveyed, recorded and demarcated.

The watching brief identified two pits, each containing burnt material.

CFA recommends no further work on this phase of the Crystal Rig Wind Farm, although the final decision rests with ELCAS.

A summary statement will be submitted for publication in *Discovery and Excavation in Scotland* (Appendix 5).

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

5. REFERENCES

Glendinning, B 2015 *Proposed Construction Compound, Crystal Rig III Wind Farm, Bransly Hill, East Lothian Archaeological Works*. CFA Archaeology Ltd, Report No. 3384.

APPENDIX 1: Context Register

Context No.	Description
001	Peaty topsoil
002	Geological natural
003	N/A
004	N/A
005	Cut of fire pit
006	Basal fill of fire pit
007	Upper charcoal fill of fire pit
008	N/A
009	Cut of 'C' shaped pit
010	Fill of 'C' shaped pit

APPENDIX 2: Digital Photograph Register

Photo No.	Description	From
1	Road to Turbines 1 & 2, E facing section showing peat depth	W
2	Road to Turbines 1 & 2, E facing section showing natural in detail	S
3	Road to Turbines 1 & 2, natural in detail	S
4	Road to Turbines 1 & 2, turf stripping	S
5	Access road to BPA	W
6	Access road from BPA	E
7	BPA post-strip	SW
8	BPA post-strip	W
9	Turbine 1 base and crane pad	SE
10	Turbine 1 base and crane pad	SW
11	Turbine 2 crane pad	SW
12	Turbine base 3 and crane pad	NW
13	Turbine base 2	NW
14	N facing section of 005	NW
15	NW facing section of 009	W
16	SE facing section of 009	SE
17	NW & SE facing sections of 009	N
18	Plan view of 009	NE
19	General view of sectioned pit 009	N
20	SE facing section of 009	SE
21	SE facing section of 009	SE
22	Plan view of 009	NW
23	Turbine base 5 and crane pad	SW
24	Site 33 demarcated	SW
25	Spur 1, working shot	E
26	Spur 1, working shot	E
27	Turbine 4, working shot (crane pad)	N
28	Turbine 4, working shot (crane pad)	N
29	Turbine 4, working shot (crane pad)	S
30	Turbine 4, working shot (crane pad)	NW
31	Turbine 4 working shot (base)	N
32	Turbine 5 working shot (base)	NE
33	Turbine 5 working shot (base)	NE
34	Turbine 6, pre-ex	S
35	Turbine 6, working shot	SW
36	Turbine 6, working shot	N
37	Pre-ex cable route BTW Spur 3 & WTG 27	W
38	Working shot	W
39	SE facing sample section (CR)	SE

Photo No.	Description	From
40	Post ex towards Spur 3	E
41	Post ex towards Spur 3	E
42	Peat sample section	N
43	Post-ex CR	E
44	Post ex CR	E
45	Pre-ex cable track, south end	S
46	Working shot, cable track	S
47	Working shot, cable track	SE
48	Working shot, cable track	S
49	Working shot, cable track	S
50	Working shot, cable track	S
51	Working shot, cable track	S
52	Working shot, cable track	S
53	Working shot, cable track	S
54	Working shot, cable track	S
55	Pre-ex cable track, NW end	NW
56	General view of tin shed, near cable track	E
57	Working shot, cable track	S
58	Working shot, cable track	SE
59	Working shot, cable track	SE
60	Working shot, cable track	SE

APPENDIX 3: Drawings Register

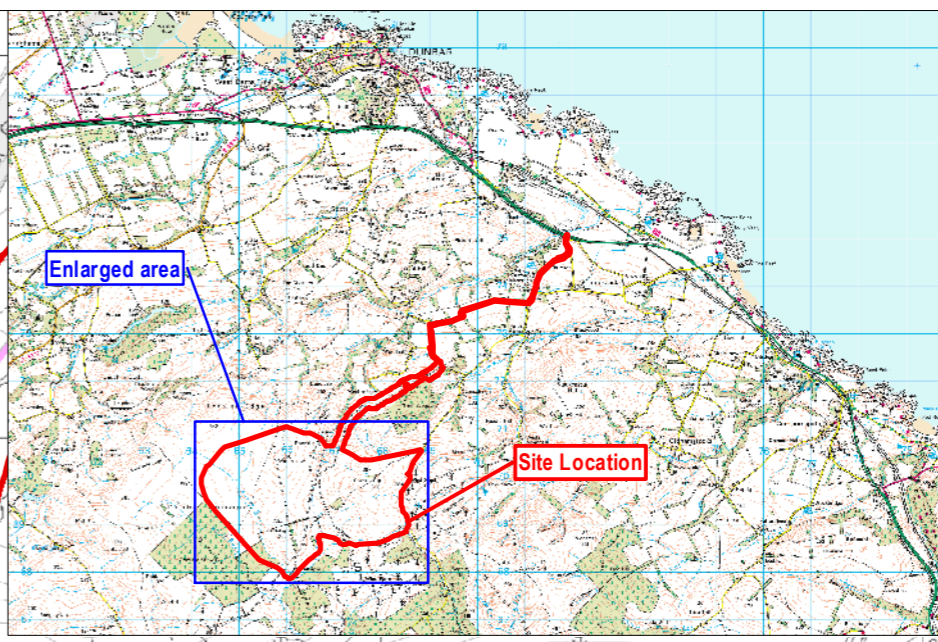
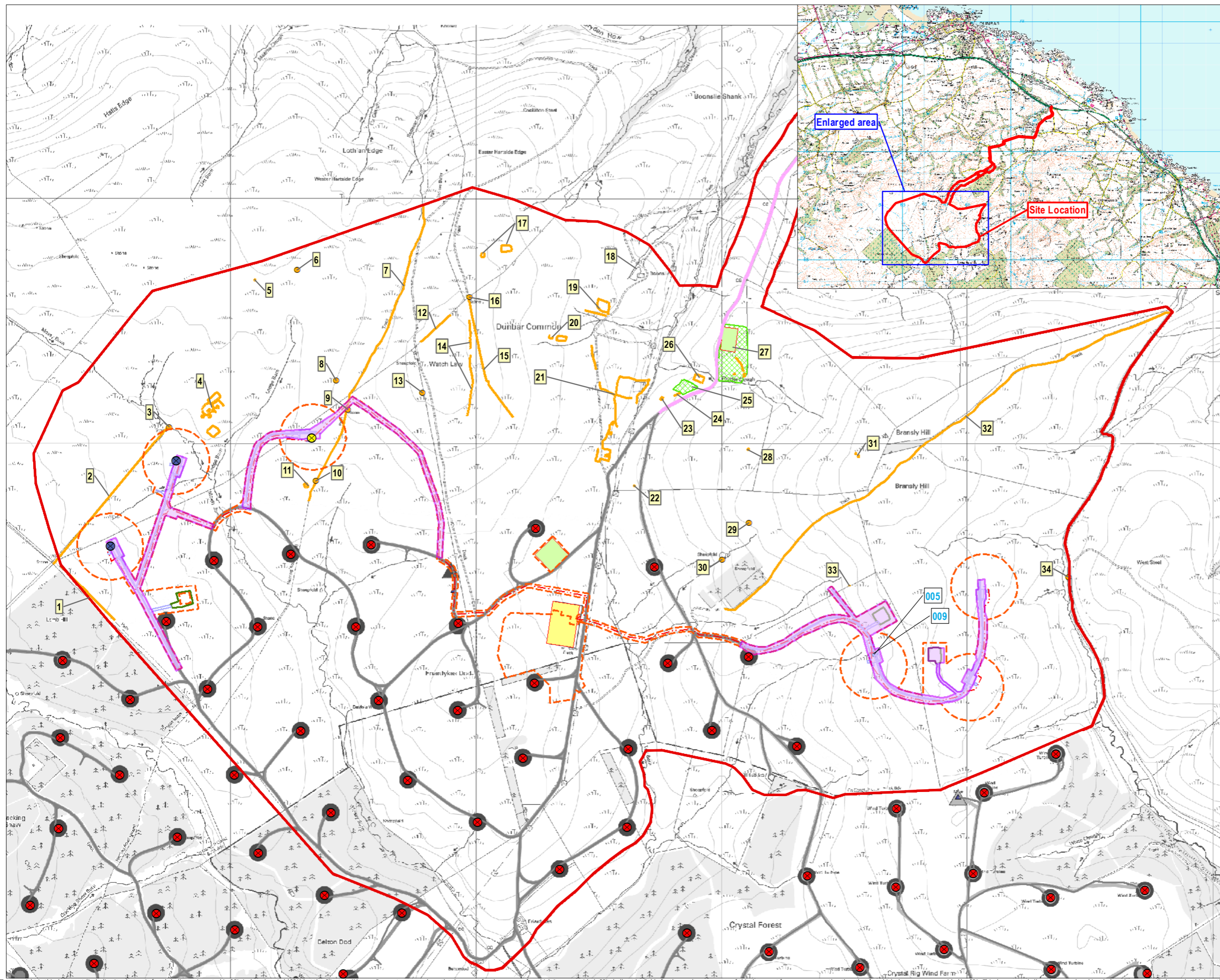
Drawing No.	Description	Section/Plan	Scale
1	North facing section of fire pit 005	Section	1:20
2	Plan of fire pit 005	Plan	1:20
3	NW facing section of pit 009	Section	1:20
4	SE facing section of pit 009	Section	1:20
5	NE facing section of pit 009	Section	1:20
6	Plan of pit 009	Pit	1:20

APPENDIX 4: Samples Register

Sample No.	Context No.	Fill of	Sample Type	Reason	Volume
1	007	005	Bulk	Routine	6l
2	010	009	Bulk	Routine	30l

APPENDIX 5: Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	East Lothian
PROJECT TITLE/SITE NAME:	Crystal Rig Windfarm (Phase III), East Lothian
PROJECT CODE:	MCCR
PARISH:	Spott
NAME OF CONTRIBUTOR:	Ewan MacNeilage
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)	NT 674 697 & NT 649 699, centred
START DATE (this season)	20/04/16
END DATE (this season)	26/07/16
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A programme of archaeological work at Crystal Rig Wind Farm (Phase III) included demarcation of sites and a watching brief. Two pits containing burnt material were identified.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Jones Bros Ruthin (Civil Engineering) Co. 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 HES, Reports lodged with SMR.



- Key:**
- Site
 - CDM Boundary (Crystal Rig 3)
 - Off Site Road
 - Existing Road to be Upgraded
 - Existing Wind Farm Access Track (Crystal Rig I and II)
 - Proposed Wind Farm Access Track
 - Construction
 - 400kV Substation Compound (Existing)
 - ⊗ Wind Turbine (Max 100m to Tip)
 - ⊙ Wind Turbine (Max 110m to Tip)
 - ⊗ Existing Wind
 - ▲ Met Mast
 - Watching Brief
 - Cultural Heritage Site
 - Cultural Heritage Site
 - Ridge &
 - Location of pits 005 and

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Title:
Location plan showing areas subject to watching briefs and the location of pits 005 and 009

Project:
Crystal Rig Wind Farm (Phase III), East Lothian

Client:
Jones Bros Ruthin (Civil Engineering) Co. Ltd

Scale at A3:
1:14,000

Drawn by: MP	Checked by: SW	Date: 13/09/2016
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Fig. 2 - N-facing section of pit 005



Fig. 3 - General view of sectioned pit 009

Project:
Crystal Rig Wind Farm (Phase III), East Lothian



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Drawn by: MP	Checked: SW	Date: 01/09/16
Report No: 3454		Fig. No: 2-3