



ROSS & CROMARTY ARCHAEOLOGICAL SERVICES

# Lochluichart Wind Farm, Ross-shire Archaeological Watching Brief



## Final Report

National Grid Reference	<b>NH 32717 66928 (centred)</b>
HC Planning Reference	<b>RC-05-1052</b>
Site Code	<b>LWF11</b>
RoCAS Report	<b>2012-12/LWF11</b>
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Date	<b>09-08-2012</b>
OASIS No.	<b>rosscrom1-132028</b>

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## Acknowledgements

Fieldwork was carried out by Lynn Fraser. We wish to thank Natural Power for commissioning the work and Jones Bros. for their assistance on site. All mapping, unless otherwise stated, is reproduced by permission of Landmark Information Group under RoCAS licence LIG1044.

## Summary

*This report summarises the results of an archaeological watching brief, which was conducted between November 2011 and May 2012 on behalf of Natural Power during groundworks on the site of Lochluichart Wind Farm, Ross-shire. Two features of archaeological interest were uncovered: a metal chimney and upright stone.*

### 1.0 INTRODUCTION

#### 1.1 General information

This report presents the results of an archaeological watching brief undertaken by Ross and Cromarty Archaeological Services (RoCAS) between 17 November 2011 and 8 May 2012 at the site of the Lochluichart Wind Farm development. The work was commissioned by Natural Power.

A Written Scheme of Investigation was produced by RoCAS<sup>1</sup> based upon information supplied by the Highland Environment Team and Natural Power.

#### 1.2 Aims and objectives

The purpose of an archaeological watching brief is to identify and record any features or finds of archaeological interest within the site prior to its development in order to minimise any delays or disruptions to the project. The *Scottish Planning Policy 2010* describes how archaeology should be managed when considering planning decisions and determining conditions for developments that have an impact on the historic environment<sup>2</sup>.

The specific objectives are:

- To establish the presence or absence of archaeological remains within the proposed development area
- To remove by hand any overburden in order to expose the archaeological deposits
- To record and excavate all features prior to their destruction
- To sample deposits for post-excavation work, including environment analysis and dating

### 2.0 PLANNING BACKGROUND

2.1 An archaeological watching brief was proposed to take place across 10% of the groundworks during construction of the wind farm at Lochluichart Estate, Ross-shire. The watching brief requirement arose due to the situation of the development within an area of archaeological potential/sensitivity<sup>3</sup>.

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<sup>1</sup> Fraser, 2010

<sup>2</sup> The Scottish Government, 2010

<sup>3</sup> HCAU 2010a

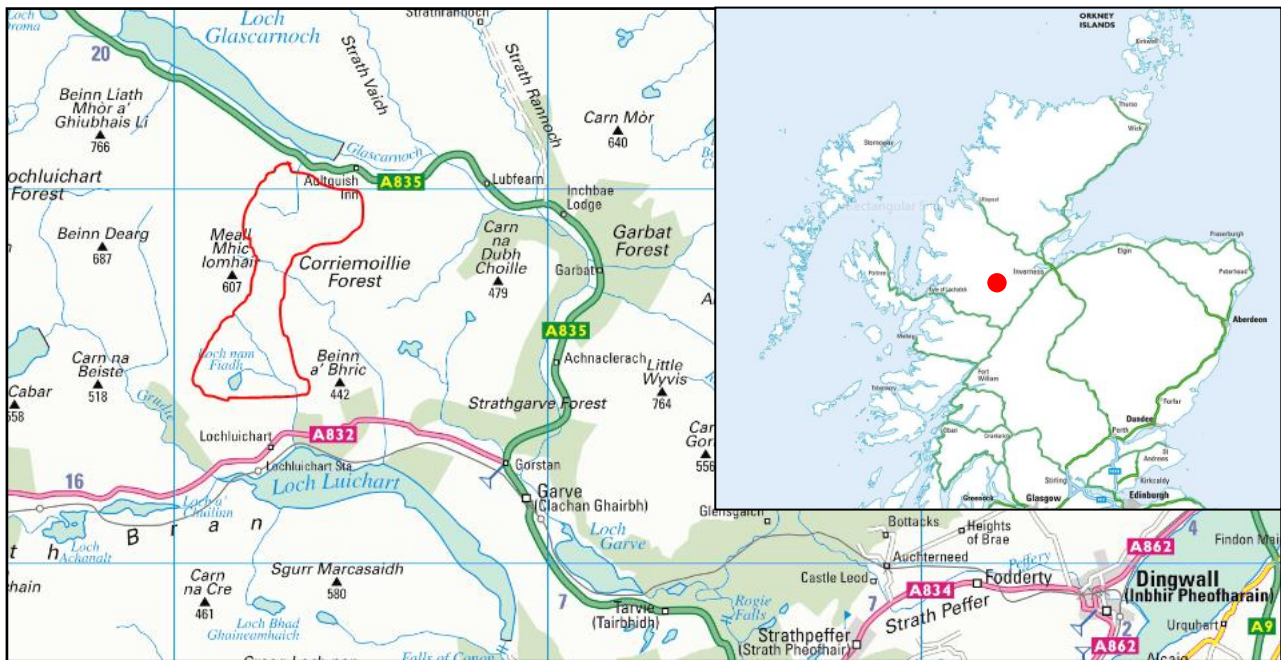


Figure 1: Site location shown in red.

### 3.0 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

- 3.1 The development site is located in Ross-shire to the north-west of Garve between Ordnance Survey National Grid Reference NH 33937 70632 and NH 32298 64442 with Loch Glascarnoch to the north and Loch Luichart to the south (Figure 1).
- 3.2 The land comprises heather and moss moorland with a smattering of conifer trees on the lower slopes. There are several small water courses in the development area, which contribute to the boggy nature of the ground. The development site is accessed at its northern end from the A835 and the land rises steadily from here in a south-westerly direction from about 260m OD to about 450m OD.
- 3.3 The bedrock in this area comprises psammite of the Morar group. This is overlain by a morainic till on the lowest reaches of the slope at the northern end of the development site, with peat elsewhere<sup>4</sup>.

### 4.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 4.1 The proposed development site is of archaeological interest due to the sensitivity of known archaeological features in the development area itself and its environs; in 2005, as part of an environmental impact assessment, an archaeological field survey recorded twelve features of archaeological interest, mostly associated with 19th century sporting activities, the 1952 Mossford Hydro-electric scheme or earlier seasonal grazing practices<sup>5,6</sup>.

<sup>4</sup> British Geological Society (BGS)

<sup>5</sup>HCAU 2010a

## 5.0 METHODOLOGY

### 5.1 Desk-based assessment

A full desk-based assessment was not conducted prior to commencement of the evaluation in order to assess the archaeological potential of the area based on previously recorded sites and any historical documentation. A walkover survey was conducted in 2005, which identified several features within the development area. The final location of the wind turbines was reviewed with regard to the features identified in the 2005 survey.

### 5.2 Watching brief

5.2.1 The WSI identified the following areas to be observed:

- The northern end of the access road starting at NH 33668 70688 up to and including the construction compound and associated borrow pit at NH 33309 70191. This area is situated on the lower slopes of the southern bank of Loch Glascarnoch and is in the vicinity of features 3, 6 and 7, which require to be marked off prior to construction commencing. This is an area of anthropogenic activity and there is a possibility that the current forestry planting masks further evidence of agricultural and sporting activities.
- Turbine 5 [re-numbered 24] (NH 32102 66625) due to its close proximity to the stalkers path.
- Turbine 10 [re-numbered 29] (NH 32385 66175) due to its close proximity to the stalkers path.
- The access road from turbine 10 westwards as it crosses the stalkers path.
- Turbine 12 [re-numbered 31] (NH 32486 65919) due to its close proximity to the stalkers path.
- Turbine 16 [re-numbered 37] (NH 32588 65655) due to its close proximity to the stalkers path and feature 8.
- The access road from turbine 16 [re-numbered 37] southwards to approximately NH32755 65023. This stretch of the access road is in the vicinity of features 8 and 9 and crosses the stalkers path. There are also fords and stepping stones in the vicinity, which are indicative of human activity in the area.

5.2.2 The watching brief commenced with the access road and continued into the construction compound. Due to the ground conditions and the area being devoid of archaeology thus far, the watching brief for the remainder of the construction compound and borrow pit area was changed, with the consent of Highland Council's Historic Environment Team, to an intermittent watching brief with the archaeologist making periodic site visits to monitor progress.

5.2.3 A watching brief of the peat stripping for Turbine 24 was carried out but was considered unnecessary for the remainder of the turbines identified in the WSI.

5.2.4 Site clearance of the full watching brief areas was conducted under archaeological supervision. The peat was removed to the surface of the subsoil or to the first archaeological horizon, whichever was encountered first.

5.2.5 The watching brief area and all archaeological features were plotted on ArcPad GIS software on a handheld Windows Mobile-based computer using GPS. The site was recorded using high

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<sup>6</sup> Dagg, 2005

resolution digital photography throughout the watching brief in order to record the overall evaluation as well as features of interest.

5.2.6 All fieldwork was conducted in accordance with *Institute for Archaeologists' (IfA) Code of Conduct*<sup>7</sup> and on-site recording was carried out according to standard IfA procedures<sup>8</sup>.

## 6.0 RESULTS

### 6.1 Desk-based Assessment

6.1.1 A basic desk-based assessment was carried out in order to review the location of the features identified in the 2005 survey in relation to the final layout of the development. It was found that this had not changed.

### 6.2 Archaeological Watching Brief

#### 6.2.1 Access road, compound and borrow pit

A watching brief was carried out during peat stripping for the access road and part of the compound area as set out in the WSI (Figure 2) from 17 November to 21 November 2011. The weather conditions during this time ranged from dry and overcast to drizzly. The ground conditions, however, were extremely wet, which presented a challenge in terms of accessing the watching brief location and safety within the excavated area.

Peat, to a depth of 0.5m in places, was removed exposing a layer of large sub-angular boulders sitting in and on mid-grey/brown sand, which was heavily gleyed in areas (Plates 1 and 2). Podsolisation was evident in places where boulders were pulled out of the ground. Trees were contained within the peat removed and their roots visible amongst the boulders; many of the trees were charred suggesting a fire from either natural causes or muir burn.



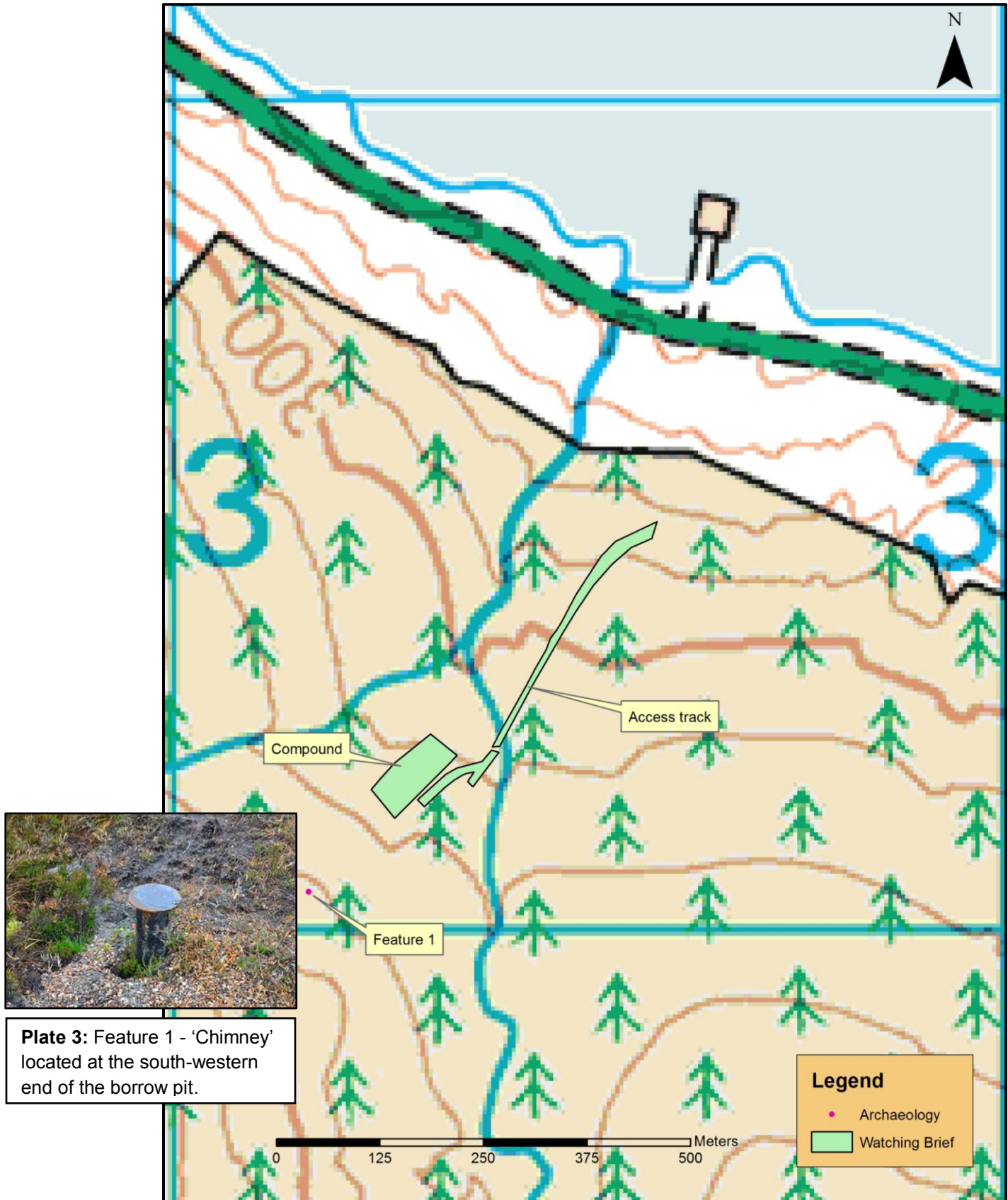
**Plates 1 and 2:** Stripping the access road.

During a walkover of the compound and borrow pit area prior to stripping, a metal 'chimney' was noted and recorded (Plate 3).

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<sup>7</sup> IfA (a), 2008

<sup>8</sup> IfA (c), 2008



**Plate 3:** Feature 1 - 'Chimney' located at the south-western end of the borrow pit.

**Figure 2:** Location of the watching brief for the access road and watching brief/inspection of the compound area.

The watching brief for the remainder of the compound and borrow pit was changed to an intermittent watching brief due to the access road and compound area being devoid of archaeology thus far and the difficult working conditions. A site visit was made on 23 November 2011 to assess progress. No further visits were made to this area until February 2012 due to deterioration in the weather; the site compound was then plotted in using the GPS. The ground conditions and work taking place in the borrow pit precluded an inspection and GPS survey.

### 6.2.2 Turbine footprints

The majority of the footprint for Turbine 29 and its crane pad were watched on 25 April 2012 (Figure 3; Plate 4). This was required due to its proximity to a stalkers' path. The weather was very wet, windy and cold, which again made the working conditions challenging. A slot trench dug from the nearby stalkers' path towards the turbine and crane pad area almost immediately filled with water (Plate 5).

Peat, up to a depth of 0.75m in places, was removed exposing a layer of large sub-angular boulders sitting in and on mid-grey/brown sand. Tree roots were contained within the peat. The area was devoid of archaeology.

As a result of the watching brief on Turbine 29's footprint, a rapid walkover survey was conducted on 8 May 2012 in the areas of Turbines 24, 31 and 37; the location of Turbine 26 was also surveyed due to its proximity to the stalkers' path (Plate 6). The purpose of the rapid walkover survey was to see whether there was any surface archaeology visible and assess the likelihood of archaeology being present beneath the peat. There was no surface archaeology visible apart from drainage ditches, which had been cut by Lochluichart Estate in the last ten



**Plates 4 – 6:** Clockwise from top left: Plate 4, turbine 29 being stripped; Plate 5, water-filled trench at turbine 29; Plate 6, area for turbine 26.





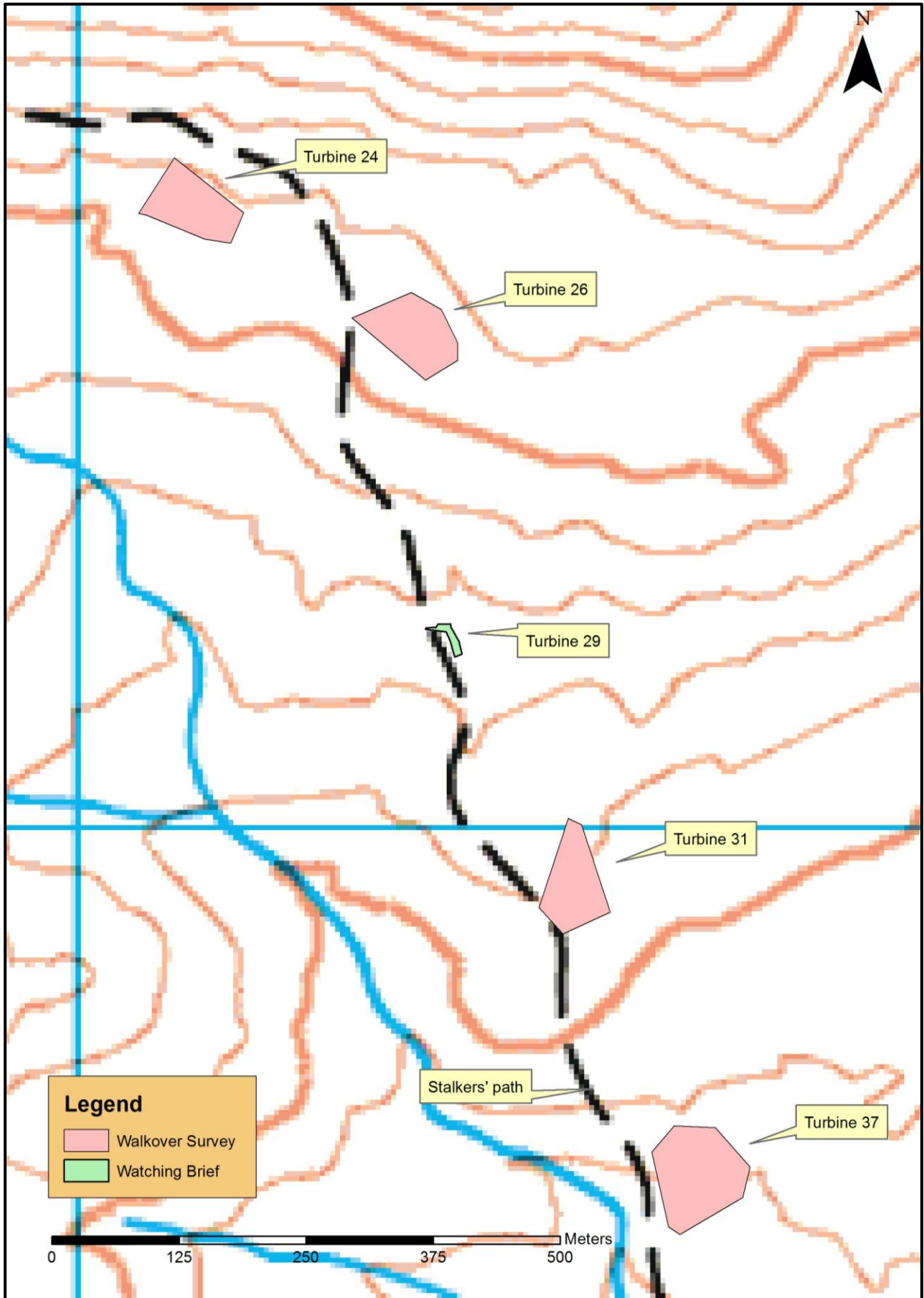
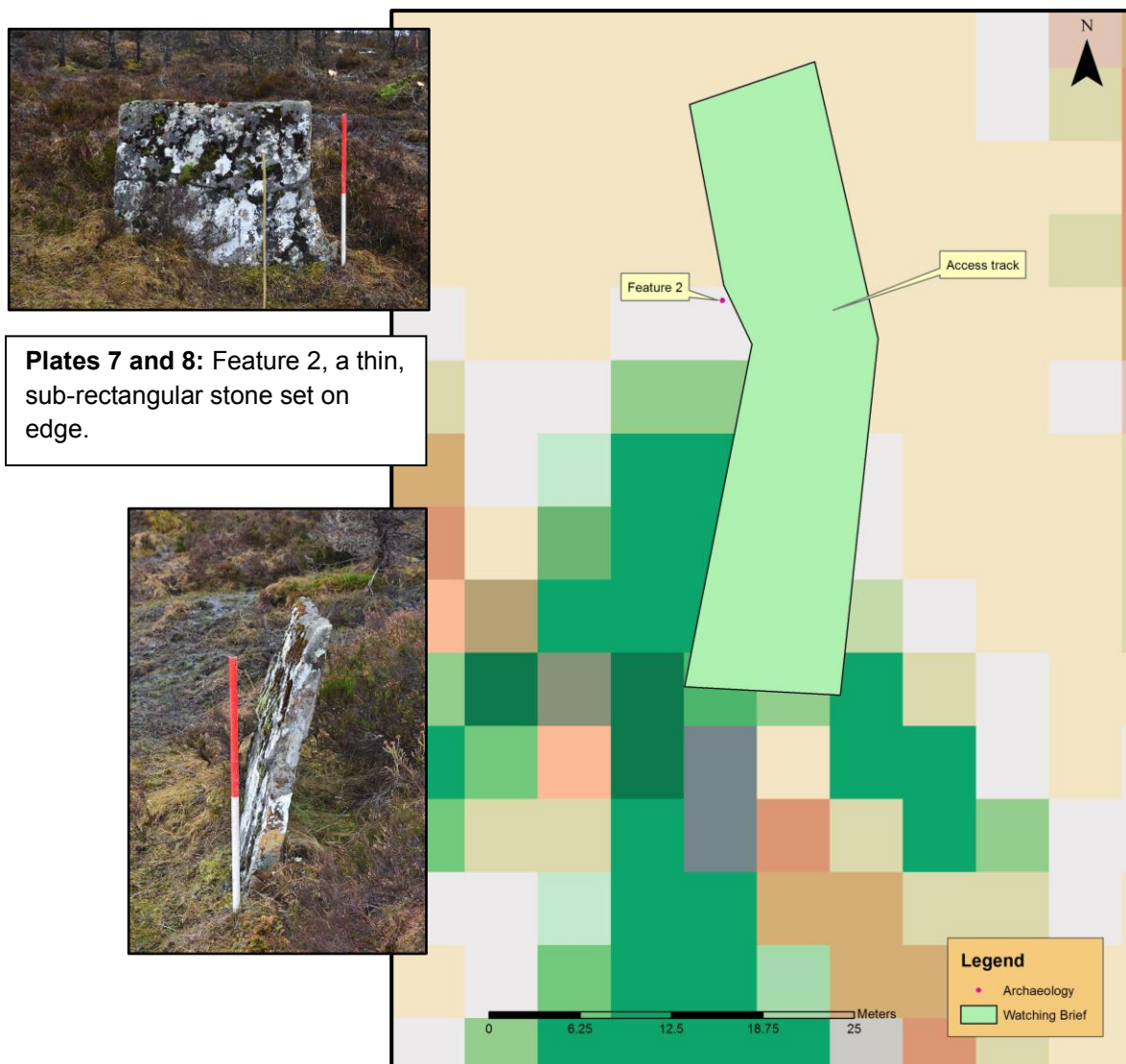


Figure 3: Location map of the watching brief for Turbine 29 and survey of Turbines 24, 26, 31 and 37.

years. Based on the survey, the extremely boggy nature of the ground and the turbines being located between 350m and 400m OD, the decision was taken to suspend the watching brief on the remainder of the turbine areas highlighted in the WSI. This decision was ratified by the Historic Environment Team on 17 May 2012.

### 6.3 Call-out

A site visit was made on 28 February at the request of the Principal Contractor as an unusual stone was located close to the access road route. This was a thin, flat stone standing on edge (Plate 7); inspection of the stone was unable to determine conclusively whether or not it was a product of anthropogenic activity. A watching brief on 29 February was conducted for approximately 25m either side of the stone as the route was stripped of peat (Figure 4). Nothing of significance was uncovered.



**Figure 4:** Location map showing the relationship between the stretch of access road watched during stripping and Feature 2.

## **7.0 DISCUSSION**

7.1 Two features of interest were recorded during the archaeological watching brief. Feature 1 was a small metal 'chimney', which may have been associated with the 1952 Mossford hydro-electric scheme. Feature 2 was a thin, sub-rectangular stone set on edge. It was not possible to conclusively state whether the stone was an anthropogenic setting; several pieces of stone were recovered during stripping that may have laminated off the stone during natural erosion processes and the stone was situated in an area full of boulders. No further features of archaeological significance were uncovered.

## **8.0 CONCLUSION**

8.1 There is no recommendation for further work to be carried out.

## **9.0 REPORTING**

9.1 This report will be lodged with the Highland Council Historic Environment Team for inclusion in their Historic Environment Record and uploaded to the OASIS website. An entry will be submitted to Archaeology Scotland's *Discovery and Excavation in Scotland*.

## 10.0 REFERENCES

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## Appendix 1

LWF11: Index of Features								
Feature	Type	Location	Dimensions (m)	Plans	Photos	Contexts	Finds	Comments
1	Metal chimney	233169 870039	-	-	23	-	-	Small metal chimney that may be associated with the 1952 Mossford hydro-electric scheme.
2	Stone	233112 869080	1.25 x 1.0m	-	36-40	-	-	Thin, sub-rectangular stone set on edge. No marks or carving to suggest anthropogenic activity. Situated in an area of natural boulders. Pieces found during stripping that may have laminated off the stone during natural erosion processes.

## Appendix 2

LWF11: Index of Photographs				
No.	Direction Facing	Description	Taken By	Date
1	W	General shot of stripping showing ground conditions	LF	17/11/2011
2	W	Close-up of the ground conditions	LF	17/11/2011
3	NE	Stripping access road	LF	17/11/2011
4	W	Stripping access road	LF	17/11/2011
5	N	Stripping access road	LF	18/11/2011
6	S	Looking towards the compound	LF	18/11/2011
7	W	E facing section of access road 'trench' with evidence of burning in the foreground	LF	18/11/2011
8	W	E facing section of access road 'trench' with evidence of burning in the foreground	LF	18/11/2011
9	W	Close-up of the E facing section	LF	18/11/2011
10	NNW	General shot of the access road	LF	18/11/2011
11	SSW	General shot of the access road	LF	18/11/2011
12	NNE	Access road to the stream	LF	19/11/2011
13	NNE	Access road to the stream	LF	19/11/2011
14	NNE	Looking towards the stream and access road	LF	19/11/2011
15	NNE	Looking down the access track	LF	19/11/2011
16	SW	Starting to strip after crossing the stream	LF	19/11/2011
17	SW	Looking up the access road towards the compound	LF	19/11/2011
18	SE	Showing the ground surface below the peat	LF	19/11/2011
19	SW	Showing the ground surface below the peat	LF	19/11/2011
20	W	General shot of the compound area	LF	21/11/2011

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No.	Direction Facing	Description	Taken By	Date
21	W	General shot of the compound area	LF	21/11/2011
22	S	Looking towards the borrow pit location	LF	21/11/2011
23	W	Metal 'chimney' behind the borrow pit	LF	21/11/2011
24	SE	Part of the borrow pit area	LF	21/11/2011
25	W	Debris from trial blasting in borrow pit area	LF	21/11/2011
26	SW	Debris from trial blasting in borrow pit area	LF	21/11/2011
27	NE	Tree mulcher working in the compound area	LF	21/11/2011
28	NW	Tree mulcher working in the compound area	LF	21/11/2011
29	WSW	Tree mulcher working in the compound area	LF	21/11/2011
30	SW	Stripping the compound area	LF	21/11/2011
31	SW	Stripping the compound area	LF	21/11/2011
32	SW	Stripping the compound area	LF	21/11/2011
33	S	Stripping the compound area	LF	21/11/2011
34	N	Compound area	LF	23/11/2011
35	NE	Compound area	LF	23/11/2011
36	SW	Possible anthropologically placed stone	LF	28/02/2012
37	NW	Possible anthropologically placed stone	LF	28/02/2012
38	SE	Access road passing the upright stone (on right next to rucksack)	LF	29/02/2012
39	SW	Upright stone	LF	29/02/2012
40	SW	Pieces of stone found whilst stripping that may have laminated off the upright stone	LF	29/02/2012
41	NNE	Access road	LF	29/02/2012
42	NNE	Access road	LF	29/02/2012
43	SE	Stripping turbine (29) pad next to stalkers' path	LF	25/04/2012
44	E	Stripping turbine (29) pad next to stalkers' path	LF	25/04/2012
45	ESE	Site of turbine 26	LF	08/05/2012
46	NW	Site of turbine 24	LF	08/05/2012
47	WNW	Stalkers' path	LF	08/05/2012
48	WNW	Stalkers' path	LF	08/05/2012
49	NW	Stalkers' path	LF	08/05/2012
50	ESE	Site of turbine 31	LF	08/05/2012
51	SE	Site of turbine 37	LF	08/05/2012
52	S	Site of turbine 37 with stalkers' path on right	LF	08/05/2012