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Bhlaraidh and Beinneun Wind Farm Grid Connection Works, Highland

Archaeological Mitigation Works

Report No. 3521

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1. INTRODUCTION

1.1 General

This report presents the results of archaeological mitigation works carried out by CFA Archaeology Ltd (CFA) on the grid connection works carried out in order to connect Bhlaraidh (NGR: NH 2245 1087) and Beinneun (NGR: NH 3686 2023) Wind Farms to the national grid at Fort Augustus (NGR: NH 3556 0842), Highland (Figs 1-2). The work was commissioned by Balfour Beatty Utility Services Ltd (BBUSL).

1.2 Background

Grid connection works were to be carried out in order to connect Bhlaraidh and Beinneun Wind Farms to the national grid at Fort Augustus. This included new underground cabling and refurbishment of parts of the FM overhead line.

Area	Location	Assessment source	Description of works
1	From Bhlaraidh Substation to Torgyle	Environmental Assessment carried out on	8km of underground cable to connect the Bhlaraidh Wind Farm substation
	Substation to rorgyte	behalf of SSE (2015)	to the Glenmoriston substation at Dundreggan Dam. Refurbishment of the FM overhead line (Towers FM1-19).
2	From Torgyle to Fort Augustus Substation at Auchteraw	Environmental Statement carried out as part of the Beauly-Denny line, information supplied by Balfour Beatty	Refurbishment of the FM overhead line (Towers FM136-163).
3	From Torgyle to Beinneun Substation	Cultural heritage assessment carried out by CFA (Hastie 2015)	Refurbishment of the FM overhead line (Towers FM101-135) between Beinneun substation and Torgyle. Temporary wood pole diversion between FM132-134 using FAE/FAW28. Replacement of Towers FM135 and FM104.

The works fell into three areas, which had been assessed separately:

Site numbering in this report follows the numbering in the CFA and SSE reports and the Beauly-Denny ES. A gazetteer is supplied as Appendix 5.

A Written Scheme of Investigation (WSI) was prepared by CFA for BBUSL (17 May 2016), and agreed by the Highland Council Historic Environment Team (HCHET). It set out the programme of archaeological works required to mitigate the effects of the grid connection works.

Work relating to the new substations at Bhlaraidh and Beinneun is not included in this scope of work as the platforms for the substations have been installed under a separate contract, and neither is the subsequent dismantling of the FAE/FAW overhead line which is to be undertaken following completion of the FM upgrade.

1.3 Objectives

Proposed site-specific mitigation measures were outlined in Table 1 of the WSI comprising the following requirements:

- Standard Photographic Record of Site 15
- Demarcation/avoidance of Sites 6, 9, 12, 57, 16/636, 120
- Historic Building Survey of Site 80
- Archaeological Watching brief at Site 80 and in targeted locations

2. METHODOLOGY

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 Standard Photographic Record

A Standard Photographic Record was undertaken by the client, to record Dundreggan Dam and associated areas which will be affected by the new cable installation around Glen Moriston Power Station. The photographic record was submitted to HCHET and is not reported on further here..

2.2 Demarcation/avoidance

Sites to be demarcated/avoided included Sites 6, 9, 12, 16, 57, 16/636. Sites were to be located by GPS and a photographic record made of the surviving remains. Sites were to be fenced off with a visible barrier to include a minimum 10m buffer zone around the site.

2.3 Historic Building Survey

If the Inverwick Estate wall (Site 80) required to be breached in order to facilitate access, then those affected sections were to be recorded in advance of demolition through a Level 1 Historic Building Survey.

An existing denuded section of the wall was utilised for access through the estate wall. This section was photographed prior to works and a watching brief was maintained during removal of the denuded section.

2.4 Watching Brief

A watching brief was required between points E-F as described in the SSE ES (Area 1), between Towers FM01 and FM19, during any ground breaking works across undisturbed and previously unafforested ground. A watching brief was not required in Section A-B of Area 1, as described in the SSE Environmental Appraisal, as this section of the route lies within Bhlaraidh Wind Farm, currently being constructed. Floating roads or roads made from temporary laid panels do not require a watching brief. Areas which have been afforested or ploughed for forestry do not require a

watching brief.

The watching brief was limited in scope for the duration of this project due to the nature of the specific construction activities being undertaken; no ground breaking was undertaken between points E-F.

A watching brief was undertaken during the removal of the denuded wall section at Site 80. Upstanding structures and deposits were removed by a mechanical excavator under constant archaeological supervision. All further excavation required to fulfill 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.

2.5 Walkover Survey

Additional work was undertaken, comprising walkover survey. The access route to tower FM102 comprised a portion of trackway along the route of a potential Old Military Road (Site 14). This portion of the route was inspected and a photographic record and notes were made of its current condition.

3. ARCHAEOLOGICAL RESULTS

Feature and deposit-specific numbers for this report are displayed in bold lettering and further details of these can be found in Appendix 1.

3.1 Demarcation/avoidance

Sites to be demarcated/avoided included Sites 6, 9, 12, 16, 57, 16/636. These sites were all avoided by construction activities and there were no direct impacts.

3.2 Watching Brief

The environment at Inverwick consisted of waterlogged estate forestry and pasture with up to 0.4m of topsoil (001) overlying dark blue-grey clay natural subsoil (002).

Site 80, a drystone wall (**003**) and adjacent trackway relating to the Inverwick estate, was partially removed for access track emplacement at Inverwick (see Fig. 1 and Figs 3-5). The wall section was located at NH 32573 13704 on the northern edge of the existing trackway. Although the wall was reduced, the associated trackway remained in situ with the improved access track floated over it.

Wall **003** was a denuded moss-covered drystone wall comprising unworked granite stones of varying size. A 10m section of this wall was removed for access track construction with approximately 60% of the wall section already in a semi-ruinous condition prior to the commencement of ground works.

The wall foundations comprised large (0.4m by 0.4m) boulders. The wall measured up to 1.2m in height by 0.75m wide, with 4 lower courses, a levelling course of flatter stones and an upper course of capping stones. No date is ascribed to the wall and

trackway in the Site Gazetteer but it seems that the wall is likely contemporary to the formation of Glen Moriston Estate.

The adjacent track was a rough compacted stony track measuring 4-5m in width with a central muddy/grassy bank and wheel ruts from repeated modern use.

3.3 Walkover Survey

The access route to FM102 (see Figs 2 and 6) comprised a portion of trackway along the potential route of an Old Military Road (Site 14).

The track runs through mixed forestry starting from 50m north east of the Ceannacroc Bridge and running north-west to the location of FM102. It continued beyond FM102 into rough pasture and moorland. The inspected section was from NH 22795 10805 to NH 22672 10902.

The track was slightly overgrown with a small central grassed bank and comprised small to medium rough compacted stones elsewhere. There were no signs of culverts or ditches along this track way section. The junction with the southern road was extremely muddy and waterlogged and as it left the forestry to the north west, the track became muddied again and difficult to decipher. It would seem that the best survival, along the stony section, may be have been formed relatively recently, perhaps to access the Hydro Station nearby. It is unlikely that the pre-existing military road would have survived this road-maintenance activity.

No further mitigation was required on this portion of the access route.

4. CONCLUSION

The watching brief on the Bhlaraidh and Beinneun Wind Farm grid connection works identified one portion of a semi-upstanding wall (Site 80) that was recorded in advance and monitored during demolition. A section of Military Road (Site 14) was inspected at NH 22795 10805 to NH 22672 10902 but no further mitigation was required.

A summary statement will be submitted for publication in *Discovery and Excavation in Scotland* (Appendix 4) and the project will be reported through OASIS Scotland.

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

5. **REFERENCES**

Hastie, M. 2015 Proposed Refurbishment of the Existing FM Route between Ceannacroc Substation (Tower 101) and Inverwick (Tower 135) – Cultural Heritage Assessment. Report 3369 by CFA Archaeology Ltd on behalf of Balfour Beatty.

APPENDIX 1: Context Register

Context	Area	Description				
001	1	Topsoil. Dark brown firm clay average depth of 0.40m.				
002	1	tural Subsoil. Dark blue-grey firm clay with small stone inclusions.				
		Encountered at 0.40m depth.				
003	1	Denuded moss-covered drystone wall. Old estate wall comprising granite				
		stones of varying size, unworked. Up to 60% of this removed section was				
		rubble. Already disturbed and ruinous, located by existing trackway. Wall				
		measured up to 1.20m in height by 0.75m wide.				

APPENDIX 2: Digital Photograph Register

Photo No.	Description	From
1-62	Report 3369 Walkover Survey	Various
63	Proposed section of Site 80 wall removal	NE
64	Proposed section of Site 80 wall removal	NE
65	NE side of Site 80, wall 003 (NE end)	SW
66	Existing SW section of Site 80 (wall 003)	SW
67	Existing NE section of Site 80 (wall 003)	NE
68	General Shot of 003 wall to be removed	SE
69	SW side of 003 wall to be removed	SE
70	Wall 003 forestry side (NE end)	NW
71	Wall 003 forestry side (NE end)	N
72	Wall 003 forestry side (NE end)	N
73	Wall 003 forestry side (NE end)	N
74	Old military road route - Shot through Gate	S
75	Shots along Old military road route north to south	N
76	Shots along Old military road route north to south	N
77	Shots along Old military road route north to south	N
78	Shots along Old military road route north to south	S
79	Shots along Old military road route north to south	N
80	Shots along Old military road route north to south	N
81	Shots along Old military road route north to south	N
82	Shots along Old military road route north to south	S
83	Shots along Old military road route north to south	S
84	Shots along Old military road route north to south	S
85	Shots along Old military road route north to south	S
86	Old hydro near Old military road	S
87	Old hydro near Old military road	S
88	Old bridge to the west	N
89	Old bridge to the west	N
90	Working shot of wall 003 removal -Inverwick	SW
91	Pre-ex of track way beside 003 wall	SW
92	Working shot of wall 003 removal -Inverwick	SW
93	Working shot of wall 003 removal -Inverwick	SW
94	SW facing section of 003 wall	SW
95	SW facing section of 003 wall	SW
96	NE facing section of 003 wall	NE
97	NE facing section of 003 wall	NE
98	SW facing section of 003 wall	SW
99	General post-ex shot of 003 wall	N

APPENDIX 3: Drawings Register

Drawing No.	Description	Section/Plan	Scale
1	SW-Facing section through wall 003 (Site 80)	S	1:20

APPENDIX 4: Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	Highland
PROJECT TITLE/SITE NAME:	Bhlaraidh Wind Farm to Beinneun Wind Farm Grid Connection
PROJECT CODE:	BHBE
PARISH:	Urquhart and Glenmoriston
NAME OF CONTRIBUTOR:	Katie Sluddden
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Watching Brief
RCAHMS Site No.	NH21SW 6
SITE/MONUMENT TYPE(S):	Military road, wall
SIGNIFICANT FINDS:	None
NGR (2 letters, 10 figures)	NH 32573 13704, and NH 22795 10805 to NH 22672 10902
START DATE (this season)	August 2016
END DATE (this season)	August 2016
PREVIOUS WORK (incl. <i>DES</i> ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	Grid connection works were carried out in order to connect Bhlaraidh and Beinneun Wind Farms to the national grid at Fort Augustus. The works included prior photographic recording and watching brief during demolition of a semi-upstanding estate wall at Inverwick. A section of the Fort Augustus to Bernera Military Road was surveyed but no further mitigation was required.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	N/A
SPONSOR OR FUNDING BODY:	Balfour Beatty Utility Services Limited
ADDRESS OF MAIN CONTRIBUTOR:	The Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ
EMAIL ADDRESS:	cfa@cfa-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Historic Environment Scotland (archive) Highland Council Historic Environment Record (report)

APPENDIX 4 - Gazetteer

ID	Name	Туре	HER no / Canmore ID no.	Description	Easting	Northing
SSE	sites			·		
15	Glen Moriston Power Station		MHG30014	Glenmorriston Power Station is the bottom station on the cascade development forming the northern part of the Great Glen scheme. The station is situated deep underground beneath the downstream face of Dundreggan Dam (see separate item). It was amongst the first underground stations to be commissioned by the board. The station has a capacity of 36MW, the turbines and turbine hall were fully refurbished in 1999. Glenmoriston Power Station is a good example of the early use of underground stations developed by NoSHEB from around 1956 onwards. The Great Glen scheme is characterised by the use of underground stations with other examples including Ceannacroc and Livishie. The design of subterranean stations was pioneering for this date with most developments using surface stations and steel penstocks for the pressure system.	235739	815617
57	Allt Phocaichain	Building (site of)		One un-roofed building and a garden are depicted on the 2 nd edition OS map. It is not depicted on the current 1:10000 OS map	23231	81355
80	Inverwick Estate	Wall and trackway		Trackway which leads from the A887 just south of Torgyle Bridge and heads in a roughly east-west direction to the south of the Rover Moriston. Sections of wall survive along parts of the northern side of this trackway. The wall survives from two courses to eight courses to a sting-line that was topped with a cope. Lengths of surviving wall varies from a few metres to over a hundred metres in places.	23221	81352
Beau	uly-Denny line sites					
636		Farmstead		Small settlement consisting of a large rectangular building measuring 6 m by 15 m with walls almost entirely tumbled. A possible entrance exists on NW side. Two smaller rectangular buildings also exist as well as the scant remains of an enclosure. The site is shown on the 1st edition OS map but is not depicted on the current 1:10000 edition. <i>This site is the same as CFA Site 16.</i>	23108	81309
119	Fort Augustus to Bernera	Military Road	MHG34921	Sections of the disused military road extend within the survey area. The E section consists of a rough cobbled surface 2 m wide. The ford marked in this area (NMRS NH31SW 10.1) has been removed and replaced by a modern plastic pipe. In other areas the track is more gravelly and is used by forestry vehicles and appears in worse condition. Much of the road appears to be covered in silts and gravels washed down by rain and it was unclear the condition of the original road surface. This road has been upgraded previously.	23300	81063

ID	Name	Туре	HER no / Canmore ID no.	Description	Easting	Northing
120	Fort Augustus to Bernera	Military bridge	MHG34923	Only the springings survive from this now destroyed military bridge over the Allt Phocaichain Burn. Visited by OS June 1964 and April 1979. Not located during field survey.		81100
121	Fort Augustus to Bernera	Military Road	MHG34922	This is a possible military ford. Visited by OS March 1979. Now replaced by modern culvert.	23415	81008
122	Fort Augustus to Bernera	Military Road	MHG34932	The military road continues Was a track. W Taylor 1976. NH 3393 0999 to NH 3383 0999 modern dirt track on line of Wades road. Visited by OS February 1979. This road has been upgraded previously.	23388	80998
CFA	sites					
6	Fort Augustus – Bernera Military Road, Old military road	Military road	MHG34941 / 143159	The HER entry records that the route of the former military road continued east as a track descending through Ceannacroc Forest to link with the general line now taken by the A887 at Achlian (between 22500 81147 to 22999 81129). The Canmore entry records that initially the military road is overlain by the modern A87 public road but for a short while (between 22461, 81148 and 22359, 81121) it is visible on aerial photographs as a disused turf and heather covered track, c. 5m wide. Field survey identified the military road running through the edge of an area of woodland just south of the modern A87 public road. Between 223965, 811296 and 224561, 811417 the road, ranging from 3-5m wide, is covered in dense heather and grass and generally difficult to define. A well-preserved section of the road is visible between c. 224553, 811418 to c. 224485, 811346: here the road is visible as a raised heather trackway running across a natural ridge with a ditch (1m wide and 0.5m deep) and turf bank (1m-1.5m wide and 0.5-1m high) on either side of the road.		811390
9		Military road bridge	MHG34949 / 143139	The HER entry records that this military bridge over the Allt an Eoin Burn measures 4.4m wide with a span of 6.9m. It forms part of the old military road. Field survey carried out in 2010 (Wood et al 2010) recorded that recent water erosion has badly affected the south west corner of the bridge. The bridge is depicted on the Ordnance Survey 1st and 2nd Edition maps (Inverness-shire (Mainland), 1874 & 1904, Sheet LXVII, 6 inches to 1 mile) and visible on modern aerial photographs (GoogleEarthTM). The bridge is a described above by Wood et al 2010. A stretch of trackway running across the bridge leads to a quarry (10a) to the east of the bridge.	224997	811445
12	Building	Shieling hut (possible)	MHG56580	The HER entry records that a possible shieling hut was noted during a watching brief (Wardell & Hastone 2006). The hut was located on a small plateau, along the western margins of the hill-track. Field survey identified the building which is located just east of a wind farm access	225370	811500

ID	Name	Туре	HER no / Canmore ID no.	Description	Easting	Northing
				track in an area of rough pasture. The building is rectangular in plan, measuring c. 6m long by 3m wide and aligned north-east to south-west. At least two courses are visible at the southwest end, with a drystone wall measuring 0.5m high. At the south-west end there appears to be the poorly preserved remains of a possible small enclosure, measuring c. 8m long by 4m wide and 0.2-0.3m high, aligned north-west to south-east (this maybe the remains of the possible byre previously recorded by Headland Archaeology but inaccurately recorded on the north side of the building).		
14	Fort Augustus to Bernera Military Road	Military road	MHG34941 / 143130	The HER entry records that the route of the former military road continued east as a track descending through Ceannacroc Forest to link with the general line now taken by the A887 at Achlian (between 22500 81147 to 22999 81129). The Canmore entry records that between: 228000 812260 to 228940 811820 the military road is visible as a heather-covered track running through commercial forestry, and 228940 811820 to 229990 811290 the military road is visible as a modern track on the line of the former road. The route of the former military road is visible as a trackway running through commercial forestry from the A887 (in the north) to Cnoch nam Fiadh (in the south). Between 228053, 812241 to 228925, 811912 the road is visible as a grass and moss covered track measuring 4-5m wide running between trees. Along this stretch of road there are two well-preserved military bridges and a section of the road is scheduled (SM no: 11483). Between 228925, 811912 and 229002, 811783 the road survives as a grass covered trackway measuring c. 4m wide and covered in dense heather and ferns. The road where it crosses under the existing overhead line (FM Route) is particularly over grown at this location and difficult to distinguish. Further south the road again swings through an area of commercial forestry and is visible running through the trees. This section of the road includes the well-preserved remains of a culvert (14) that run under the road.	-	-
16		Farmstead		A small farmstead comprising three roofed buildings and a rectangular enclosure, annotated 'Wester Inverwick' is depicted on the Ordnance Survey 1st and 2nd Edition maps (Inverness-shire (Mainland), 1874 & 1904, Sheet LXVII, 6 inches to 1 mile) just north of a road. Field survey carried out in 2003 (GUARD 2004/5) recorded the presence of a small farmstead consisting of the ruins of a large rectangular building, measuring 6m by 15m and with a possible entrance on the north-west side. Two smaller rectangular buildings depicted on the Ordnance Survey 1st Edition map (1874) also exist along with the scant remains of an enclosure.	231087	813097

ID	Name	Туре	HER no /	Description	Easting	Northing
			Canmore ID			
			no.			
				Today little still survives of the farmstead in what is now an area of scrubland		
				adjacent to a modern estate access track:		
				The poorly preserved remains of the footings of a rectangular building were		
				identified centred on 231077, 813090. The building measures c.16m long by 6m		
				wide and defined by a turf-covered stone wall measuring 1m wide and 0.3m-0.4m		
				high. Several birch trees and other bushes are growing within the building and no		
				internal features are visible.		
				Two piles of stone were also visible at 231075, 813070 and 231081, 813080 and this		
				may be the remnants of a second building shown in this location on the Ordnance		
				Survey 1st Edition map.		
				No upstanding remains of the third building or an associated enclosure depicted on		
				the Ordnance Survey 1st Edition were visible.		







Fig. 3 - Watching Brief: Pre-Excavation of Site 80 / Wall 003



Fig. 4 - Watching Brief: South-west-facing section through Site 80 / Wall 003

Project: Bhlaraidh and Beinneun Wind Farm Grid Connection Works, Highland: Archaeological Mitigation Works



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Fig. 5 - Watching Brief: Post-excavation shot of Site 80 / Wall 003 removal, looking south



Fig. 6 - Walkover Survey: Photo of Old Military Road at Glenmoriston, looking north-west (north end)

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