

Site & Landscape Survey

Replacement Overhead Line (YX route) Ben Cruachan Hydro Power Station to **Dalmally Substation**

Walkover Survey

Report No: 3311







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1. **INTRODUCTION**

1.1 General

This report presents the results of archaeological mitigation work carried out by CFA Archaeology Ltd (CFA) along the route of an overhead line (the YX Route) running from Ben Cruachan Hydro Power Station (NGR: NN 0800 2773) to Dalmally Substation (NGR: NN 1422 2939) (Fig. 1) in advance of line replacement works.

The work was carried out between March 2015 and June 2015 and was commissioned by Balfour Beatty Utility Solutions Ltd.

A Written Scheme of Investigation, dated 05 May 2015, was prepared by CFA and agreed by the West of Scotland Archaeology Service (WoSAS), archaeological advisors to Argyll & Bute Council.

1.2 Background

A section of overhead power line is to be upgraded between Dalmally Substation and Ben Cruachan Hydro Power Station. A desk-based assessment (DBA) was carried out in March 2014 by CFA (Tweedie 2014) identifying several sites which lay on, or in very close proximity to, the line, and which proposed mitigation; this DBA did not include a walkover survey element. A walkover survey was subsequently undertaken by CFA in March 2015 at the start of the construction works.

The construction works comprised the provision of floating roads to enable access to the following towers: YX1, YX3, YX5, YX7, YX8, YX13, YX25. The work also included construction of Equipotential Zone (EPZ) areas at YX1, YX5 and YX13. Where floating roads were not required or feasible to be constructed, the tower sites were accessed via all terrain vehicles (ATV) across bare ground.

During the walkover survey, identified sites (both from the previous DBA and newly identified in the field) were demarcated with canes and bunting. The sites recorded during both the DBA and the walkover survey are presented on Fig. 1 and described in Appendix 1. Site specific mitigation was proposed, as described in Table 1 below.

This report should be read in conjunction with the DBA. All site numbers mentioned in this report pertain to site numbers listed in the gazetteer of sites (Appendix 1).

The sites recorded in the vicinity of the access routes and EPZs, found during both the DBA and the walkover survey, are presented on Fig. 1 and their mitigation is described in Table 1 below

1.3 Objectives

The objective of the works was to carry out a targeted walkover survey of the proposed EPZ areas as well as proposed access routes, in order to identify any archaeological sites which may be impacted upon or damaged.

Following on from the walkover survey, the objectives were to:

• Ensure the preservation of Sites 3, 5, 13-16 through their demarcation during all works to ATV tracks and EPZ sites.

Table 1. Tower access locations and EPZ sites and recommended mitigation

		r access locations and EPZ sites and	<u> </u>	
Tower	Site	Site name / type / description	Recommended mitigation	
No.	No.			
2	N/A	N/A	None recommended	
4	N/A	N/A	None recommended	
5	N/A	N/A	None recommended	
6	N/A	N/A	None recommended	
9	N/A	N/A	None recommended	
10	3	Rig and furrow: Area of well-preserved rig and furrow measuring c.22m by 17m.	Demarcated with canes and marker tape.	
11	N/A	N/A	None recommended	
12	5	Field system: Site 5a: Linear turf bank running north to south for c.60m. Survives to 1.5m wide and 0.3m high. Site 5b: Rig and furrow bounded by site 5a to the east. Measures c.20m by 15m Site5c: Ruin.		
13	N/A	N/A	None recommended	
14	N/A	N/A	None recommended	
15	N/A	N/A	None recommended	
16	N/A	N/A	None recommended	
17	N/A	N/A	None recommended	
18	16	Field wall and bank Dry-stone wall enclosure surviving to 1.5m high. The enclosure measures c.300m by 200m.	Demarcated with canes and marker tape.	
19	15	Rig and Furrow Area of probable broad rig cultivation covering an area c.35m by 30m.	Micro-site ATV route around site 15. Demarcated with canes and marker tape.	
20	N/A	N/A	None recommended	
21	N/A	N/A	None recommended	
22	N/A	N/A	None recommended	
23	10	Castles Farmstead	None recommended	
24	N/A	N/A	None recommended	
25	14	Possible cairn Possible small cairn c.3m in diameter and 0.8m high.	Demarcated with canes and marker tape.	

2. WORKING METHODS

2.1 General

CFA follows the Chartered Institute for Archaeologists' Code of Conduct, Standards and Guidelines as appropriate. Recording of all elements was carried out following established methods.

2.2 Walkover Survey

A walkover survey was carried along the route of the ATV tracks and EPZ areas that had been proposed by Balfour Beatty. This was in order to identify any archaeological sites which may be impacted upon by the movement of the ATVs or works relating to the construction of the EPZs. Any such sites found were first recorded, photographed, and surveyed with industry standard GPS equipment before further mitigation would take place. The walkover survey covered a 50m corridor centred on the proposed route of the ATV tracks.

2.3 Demarcation

The sites were located by GPS and a photographic record was made of the surviving remains. Sites that lay within the vicinity of proposed ATV tracks were demarcated with canes and tape, allowing for a ten-metre buffer to ensure preservation and visibility throughout the course of all works on the project.

3. ARCHAEOLOGICAL RESULTS

Sites 3 and 5 were previously known sites and were visited to establish the nature of their form and survival due to their close proximity to towers on the YX route. Both sites exist on areas of upland rough pasture, with ground cover consisting of rough grass, heather and bracken, which was prevalent in all areas surveyed.

Site 3 (NGR: NN 10313 26427) (Fig. 2) to the north of Tower YX10 was identified to be an area of roughly WNW to ESE aligned rig-and-furrow, covering an area of 22m by 17m. The furrows survive to a maximum height of 0.15, and have a roughly 4m wavelength. The site was demarcated with canes and high visibility tape.

Site 5a (NGR: NN 10838 26466) (Fig. 3) to the east of Tower YX12 comprises a field bank 60m in length and a maximum of 1.5m in width. The bank survives to a maximum height of 0.3m, and was aligned north to south. This is adjoined on the west by Site 5b (NGR: NN 10828 26528) (Fig. 4) consisting of north to south aligned rigand-furrow covering an area of 20m by 15m. The rigs survive to a maximum height of 0.1m and have a wavelength of roughly 4m, similar to Site 3. It is probable that Sites 5a and 5b form a field system with bank 5a once enclosing rig-and-furrow 5b.

Site 5c (NGR: NN 10971 26613) (Fig. 5) comprises an 11m by 5m rectangular structure immediately west of Tower YX12. The walls are upstanding and consist of roughly coursed stone up to a maximum height of 0.6m, with considerable levels of inward and outward tumble to a total width of 1.5m. It is likely that this structure is

related to the field system of Sites 5a and 5b to the east. Site 5 was demarcated in its entirety with canes and high visibility tape.

A possible clearance cairn, Site 14 (Fig. 6, NGR: NN 14180 29510). was identified as a grouping of stones c.3m in diameter and surviving to a height of 0.8m at maximum. Rocks up to 0.5m in diameter were seemingly intentionally piled, most likely in an attempt at field clearance.

Site 15 (NGR: NN 12946 28380) (Fig. 7) was identified to be an area of east to west aligned rig-and-furrow along the proposed ATV track between Towers YX18 and YX20. The rig-and-furrow covers an area of roughly 30m by 18m and rigs survive to a height of 0.3m with a wavelength of roughly 3m. The site exists on an area of unimproved pasture which gently slopes to the south-east.

Site 16 (NGR: NN 12832 28110) (Fig. 8) was identified to be a drystone rectangular enclosure again lying on the proposed ATV track between Towers YX18 and YX20. The walls of the enclosure consist of roughly coursed stone up to a maximum of 1m in height. The structure has a total length of c.300m and a width of 200m. The enclosure is situated on an area of ground which slopes gently to the south-east. At the bottom of this slope, next to the existing public road, the walls terminate and meet with a multi-compartmented sheepfank structure. The north-east corner of the structure has a turf and stone bank extending a further 21m to the north-east, possibly representing an earlier phase of the structure. Where the proposed ATV route bisected this structure, through an existing gap in the wall, the area was demarcated with canes and high visibility tape.

No other sites or archaeological features were discovered in the vicinity of Balfour Beatty's operations.

4. CONCLUSION

A walkover survey was carried out by CFA Archaeology Ltd along the route of an overhead power line from Ben Cruachan Hydro Power Station (NGR: NN 0800 2773) to Dalmally substation (NGR: NN 1422 2939) in advance of line replacement works.

Walkover survey around proposed Equipotential Zones and ATV access routes found an area of rig-and-furrow, as well as a large drystone enclosure. Survey also visited two previously known sites in the vicinity of proposed Balfour Beatty operations on site. Site 3, an area of rig-and-furrow near Tower YX10, and site 5 near Tower YX12 consisting of a field bank, rig-and-furrow and a possibly related tumbled rectangular stone-wall structure. Sites in close proximity to the works were demarcated. No further mitigation was required.

The project archive, comprising all CFA record sheets, maps and reports, will be deposited with the Royal Commission on Ancient and Historical Monuments in Scotland (RCAHMS) and copies of reports will be lodged with the Argyll and Bute Council Sites and Monuments Record.

On completion of the programme of archaeological works a summary statement will be submitted for publication in *Discovery and Excavation in Scotland* (Appendix 3) and will also be reported on through *OASIS Scotland*.

5. REFERENCES

Tweedie, H 2014 Replacement Overhead Line (YX route) Ben Cruachan Hydro Power Station to Dalmally Substation. Cultural Heritage Assessment. CFA Report No: 3105.

APPENDIX 1 - Gazetteer of Cultural Heritage Features within 100m of the YX overhead line

Site No.	Site name / type	HER no / RCAHMS no	Easting	Northing	Source(s)	Site Description
1	Cruachan, Hydro- electric Scheme, Turbine Hall; Electricity Generating Station	46105, 46109/ NN02NE 12 NN02NE12.4	208000	727750	HER; RCAHMS database	The HER and RCAHMS database hold a record at this location regarding the Ben Cruachan Hydro-Electric Scheme. They note that the precise location of the underground turbine hall cannot be accurately located from the available map evidence but the 1974 edition of the Ordnance Survey 1:10,000 map indicates a feature at NN 0800 2775 which is probably the top of a vertical shaft carrying power lines from the turbines. Access to the turbine hall is gained by a tunnel running from an entrance adjacent to the visitor centre The Ben Cruachan Hydro Electric Scheme, Cruachan Dam (Category B Listed Building No. 51687) is located to the north, and the Ben Cruachan Hydro Electric Scheme, Turbine Hall (Category A Listed Building No. 51688) to the south of this location.
2	Footbridge	N/A	208122	727483	Historic maps	A footbridge is shown at this location on the First Edition Ordnance Survey map (1874, Argyllshire, Sheet CI, 6" to 1 mile).
3	Rig and furrow cultivation remains (possible)	N/A	210273	726485	Aerial photography	Possible rig and furrow cultivation remains are visible at this location on modern aerial photography (Google TM, Bing TM). Field survey found an area of rig and furrow covering an area of roughly 22m by 17m. The rigs have a wavelength of 4m and survive to a maximum height of 0.15m.
4	Sheepfold	N/A	210383	726394	Historic maps; Aerial photography	A six compartment rectangular sheepfold, with a short length of wall extending to the west from it is shown at this location on the First Edition Ordnance Survey map (1874, Argyllshire, Sheet CI, 6" to 1 mile). A trackway appears to run through the centre of the sheepfold. Some modern farm buildings are visible at this location on modern aerial photography (Google Earth TM).
5	Field bank; Structure	N/A	210909	726582	Aerial photography	Two lengths of field bank and a rectangular structure, possibly a building or small sheepfold are visible at this location on modern aerial photography (Google TM, Bing TM). Field survey found a 60m length of field bank (5a) running north to south surviving to a height of 0.3m. This was immediately bounded on the west by an area of 4m wavelength rig and furrow (5b) covering an area of 20m by 15m. Around 100m further to the east-northeast are the remains of a

Site No.	Site name / type	HER no / RCAHMS no	Easting	Northing	Source(s)	Site Description
						rectangular roughly-coursed stone structure (5c) measuring 11m by 5m and surviving to a height of 0.6m
6	Narrachan; Cruck-framed Cottage	15307 / NN13NW 1.01	211050	726550	HER; RCAHMS database; Aerial photography	The HER and RCAHMS database record the location of Narrachan, a cruck framed cottage. There is no cottage visible at this location on modern aerial photography or modern Ordnance Survey mapping, and it seems that the HER and RCAHMS database may be placed in the wrong location.
7	Lochawe, St Conan's Tower	45607 / NN12NW52	211970	727250	HER; RCAHMS database	The HER and RCAHMS database record the location of St Conan's Tower, but do not record any further details about the property.
8	Enclosed field; Rig and furrow cultivation remains	N/A	212992	728259	Aerial photography	An enclosed field with rig and furrow cultivation remains within its interior is visible at this location on modern aerial photography (Google TM, Bing TM).
9	Pond	N/A	213667	729338	Historic maps; Aerial photography	A pond is shown at this location on the First Edition Ordnance Survey map (1874, Argyllshire, Sheet CI, 6" to 1 mile). A pond is visible at the same location on modern aerial photography (Google TM, Bing TM).
10	Castles Farmstead	1763 / NN12NW14	213750	729650	HER; RCAHMS database	Castles farmstead, and its surrounding enclosed fields are shown at this location on the First Edition Ordnance Survey map (1874, Argyllshire, Sheet CI, 6" to 1 mile). The HER and RCAHMS database record that a castle is said to have occupied the low, flat-topped mound which is approximately 60m to the north-north-west of Castles farmhouse. The remains at this location appear however to be of a dun (1771 / NN12NW 3), which has been designated as a Scheduled Monument (Index No. 3772). At NN 1374 2968, about 60m west-north-west of the homestead or 'dun' mentioned above (NN12NW 3) there are the robbed remains of a rectangular building, set into the hillside on the north-west and terraced up on the south-east; it measures overall about 17m north-west to south-east by about 5.5m transversely. Below it to the east-south-east, towards the homestead, there are the disturbed and grassed-over remains of a building or enclosure measuring about 9m square.
11	Dalmally To	21749 /			HER;	The military road is overlain by the B8077 and traverses the River Strae on an

Site	Site name / type	HER no /	Easting	Northing	Source(s)	Site Description
No.	Bonawe Military Road	RCAHMS no NN12NW34			RCAHMS database	old bridge (NN12NW 34.01) at NN 1458 2942, at a point where there had possibly been an earlier ford. It joins the route now followed by the A85 about a mile to the north of the Loch Awe Hotel. From this vicinity, as the road heads south and west, traces of the original road are visible to the north of the modern road. However, this has mainly been obscured by modern road works, hydro-electric activity and the railway. (Taylor 1976)
12	Field Bank	N/A	209186	726544	Field Survey	Field survey found a NW-SE running bank c.50m long with a slight curve to the north. The bank survives to a maximum height of 0.8m and a maximum width of 1.8m. As of June 2015 the bank has been bisected by an excavated access track to the nearby pylon tower, damaging a roughly 3m wide section of the bank.
13	Clearance Cairn	N/A	209470	726424	Field Survey	Field survey identified an overgrown oval setting of stones roughly 2m by 3m in area. The stones vary between upright and recumbent and survive to a maximum height of 0.5m There is possible evidence of the centre stones being robbed.
14	Clearance Cairn	N/A	214269	729440	Field Survey	Field survey identified a setting of stones c.3m in diameter and surviving to a height of 0.8m at maximum. Rocks up to 0.5m in diameter are seemingly intentionally piled, most likely an attempt at field clearance.
15	Rig and Furrow	N/A	212946	728380	Field Survey	Field survey identified an area of east to west aligned rig and furrow covering an area of roughly 30m by 18m. The rig and furrow has a wavelength of 3m and survives to a height of 0.3m
16	Enclosure	N/A	212832	728110	Field Survey	Field survey identified a large dry stone enclosure in a rectangular shape, measuring roughly 300m by 200m. The walls survive to a maximum height of 1.5m but are mostly around 1m in height. The enclosure slopes gently down a slope to the SE where it meets the road and also a more modern multicompartment sheep fank structure.

YXDB/3311/0 10 CFA

APPENDIX 2: Digital Photograph Registers

Walkover Survey

Photo No.	Description	Taken From
1	YX1 track	N
2	YX1 track	NE
3	YX1	
4	YX7 track	NE
5	Site 12 bank, YX7	W
6	Site 12 bank, YX7	NW
7	Site 12 bank, YX7	W
8	Site 12 bank, YX7. Section as cut by track	SE
9	Site 12 bank, YX7. Section as cut by track	SE
10	YX7 track	SW
11	YX8 proposed access	N
12	YX8 proposed access	Е
13	Site 13, ?robbed cairn, YX8	W
14	Site 13, ?robbed cairn, YX8	SW
15	YX08 general area	NE
16	YX09 general area	W
17	YX09 general area	Е
18	YX09 general area	S
19	YX09 general area	W
20	YX10 ATV access	S
21	Site 3 rig and furrow, YX10	NE
22	Site 3 rig and furrow, YX10	E
23	YX12 ATV access	S
24	Site 5a bank	N
25	Site 5a bank	S
26	Site 5b rig and furrow	SW
27	Site 5b rig and furrow	S
28	Site 5a bank	S
29	Site 5c ruin	N
30	Site 5c ruin	NE
31	YX24 track	NE
32	YX24 track	NW
33	YX24 general view	E
34	Site 14 - small cairn (probable drumlin)	SE
35	YX1 EPZ	NE
36	YX1 EPZ	N
37	YX1 EPZ	SW
38	YX2 general view	N
39	YX2 general view	NW
40	YX2 general view	NE
41	YX2 general view	NW
42	YX3 track	NW
43	YX3 track	SE
44	YX3general view	N
45	YX4 proposed access	E
46	YX4 general view	W
47	YX4 proposed EPZ	NW
48	YX5 access route	W
49	YX5 access route	E
50	YX5 general view	W
51	YX5 general view	E

Photo	Description	Taken From	
No.			
52	YX13 track	NE	
53	YX13 track	NE	
54	YX13 EPZ	S	
55	YX13 EPZ	S	
56	YX13-YX15 track	Е	
57	YX13-YX15 track	W	
58	YX13-YX15 track	Е	
59	YX13-YX15 track	W	
60	YX15 proposed EPZ	W	
61	YX15 general view	NE	
62	YX16 proposed access	S	
63	YX16 proposed access	S	
64	YX16 proposed access	N	
65	YX21 general view	W	
66	YX22 proposed ATV	NW	
67	YX22 proposed ATV	NW	
68	YX22 proposed ATV	SE	
69	YX20 proposed access	N	
70	YX20, Site 15	W	
71	YX20, Site 15	Е	
72	YX19, Site 16 drystone wall enclosure and bank	Е	
73	YX19, Site 16 drystone wall enclosure and bank	W	
74	YX19, Site 16 drystone wall enclosure and bank	Е	
75	View from YX18 to YX19 W		
76	YX20 proposed ATV route N		
77	YX6, proposed ATV route SW		
78	YX1-YX3 view from dam N		
79	YX1 view from dam N		
80	YX23	Е	

APPENDIX 3: Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	Argyll & Bute Council
PROJECT TITLE/SITE NAME:	Replacement Overhead Line (YX route), Ben Cruachan Hydro Power Station to Dalmally Substation
PROJECT CODE:	YXDB
PARISH:	Arcchattan and Muckairn
NAME OF CONTRIBUTOR:	Ewan MacNeilage
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Walkover Survey
NMRS NO(S):	N/A
SITE/MONUMENT TYPE(S):	Field Bank, Clearance Cairns, Rig and Furrow, Walled Enclosure
SIGNIFICANT FINDS:	N/A
NGR (2 letters, 6 figures)	NN 080 277
START DATE (this season)	March 2015
END DATE (this season)	June 2015
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A targeted walkover survey was carried out by CFA Archaeology Ltd along the route of an overhead power line from Ben Cruachan Hydro Power Station to Dalmally substation in advance of line replacement works. Walkover survey around proposed Equipotential Zones and ATV access routes found an extensive area of rig-and-furrow, as well as a large drystone enclosure. Survey also visited two previously known sites in the vicinity of proposed Balfour Beatty operations on site. Site 3, an area of rig-and-furrow near Tower YX10, and site 5 near Tower YX12 consisting of a field bank, rig-and-furrow and a possibly related tumbled rectangular stone-wall structure. Sites in close proximity to the works were demarcated. No further mitigation was required.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Balfour Beatty Utility Solutions 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 NMRS, Reports lodged with SMR and NMRS.

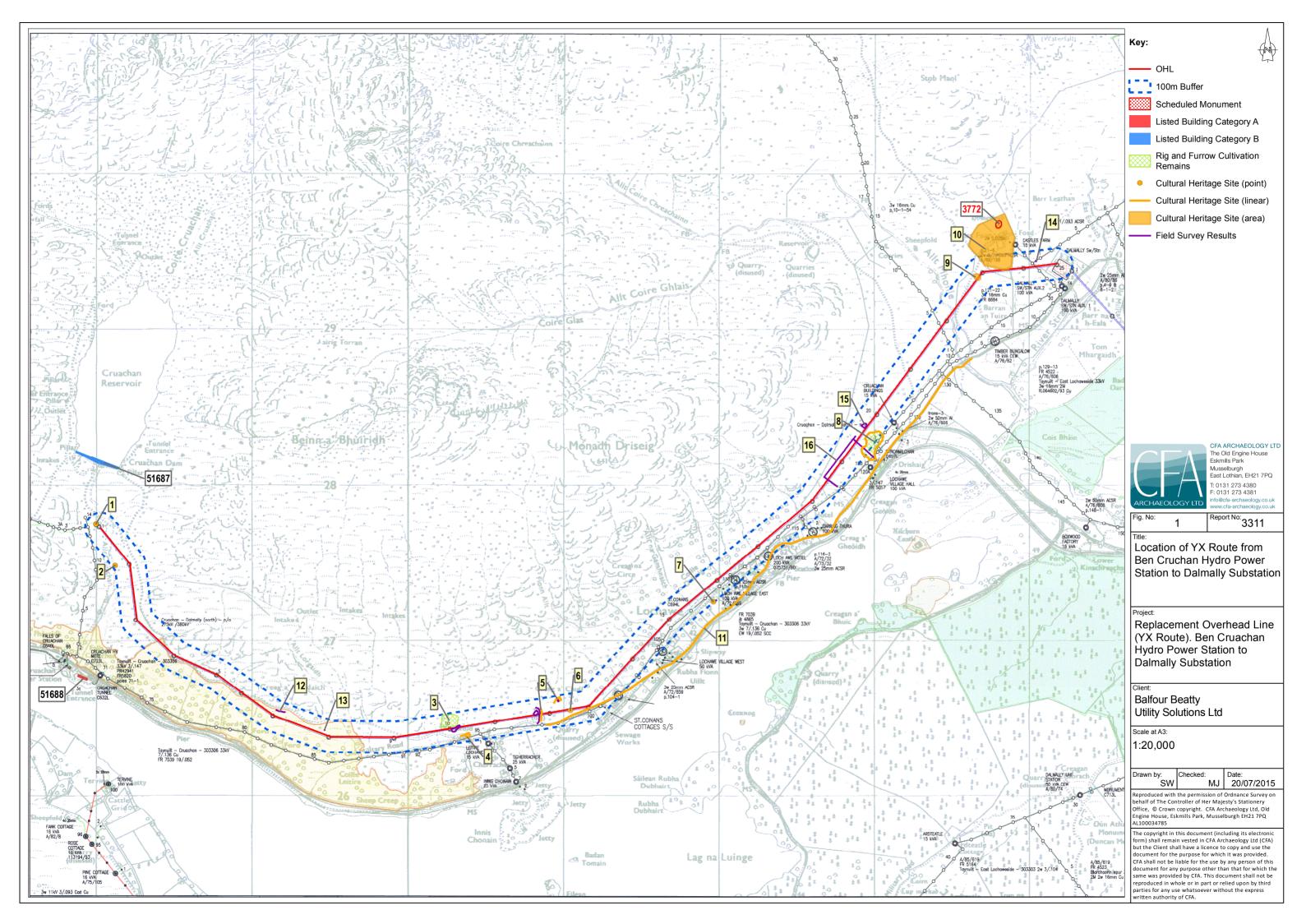








Fig. 3 - Site 5a: field bank to the east of Tower YX12







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Balfour Beatty Utility Solutions Ltd

Project

Replacement Overhead Line (YX Route). Ben Cruachan Hydro Power Station to Dalmally Substation







Fig. 7 - Site 15: rig-and-furrow between Towers YX18 and YX20



Fig. 8 - Site 16: large drystone enclosure between Towers YX18 and YX20



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0131 273 4380 0131 273 4381

Report: 3311 Drawn: SW CKD: MJ Date: 20/07/15 6 - 8 Client: Balfour Beatty Utility Solutions Ltd

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