

Site & Landscape Survey

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

Walkover Survey and Archaeological **Excavation**

Report No: 3303







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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 Iberdrola Engineering and Construction (IEC).

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. At the time of the walkover survey in March 2015, a number of the access routes had already been built; in these instances, each edge of the access road was surveyed to identify any sites which may have been impacted upon.

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 13 and 14 through their demarcation during all works.
- Undertake archaeological recording of a section to determine the character of Site 12.

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

Tower No.	Site No.	Site name / type / description	Recommended mitigation
YX1	N/A	N/A	None recommended
YX 3	N/A	N/A	None recommended
YX 5	N/A	N/A	None recommended
YX 7	12	Stone and turf bank: Linear field bank visible for an extent of c.50m. Survives to 2m wide and 0.8m high. The bank has been cut by the access road to the tower.	Recording of bank section at the point where it has been cut.
YX 8	13	Possible stone structure: Possible robbed stone structure measuring 3m by 2m and 0.5m high. Comprises two large boulders and a single orthostat forming three sides.	Micro-site access track around site. Demarcated with canes and marker tape.
YX 13	N/A	N/A	None recommended
YX 25	14	Possible cairn. Possible small cairn c.3m in diameter and 0.8m high.	Micro-site access track around cairn. 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 out along the edges of the access tracks that had been previously constructed by IEC as well as the routes of proposed floating track routes. This was in order to discover the extent of any damage to archaeological sites and features that had been truncated by, or may be affected by access track construction. 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 access routes.

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 access 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.

2.4 Archaeological Recording

A single trench was excavated to record a section through Site 12 in order to establish its construction method and likely date, at the point where the bank had been disturbed by the construction of the floating access road.

The trench was excavated by hand to remove topsoil and the wall and associated deposits were removed down to subsoil. All further excavation was carried out by hand following proper archaeological methods.

All excavation and on-site recording was carried out according to standard CFA procedures, principally by drawing, by photography and by completing standard CFA record forms. The location of the trench was recorded using industry standard surveying equipment.

3. ARCHAEOLOGICAL RESULTS

3.1 Walkover Survey and Demarcation of Sites

A walkover survey was carried out along the edges of the access tracks that were previously constructed to link the existing Dalmally to Ben Cruachan road to the towers on the YX route, as well as the proposed route of floating access tracks where deemed necessary by the client.

The new sites discovered were as follows:

Site 12 (NGR: NN 0916 2652) (Fig. 2) is a bank aligned roughly east to west. It traverses a steep hillside which is covered in grass, heather and bracken, just to the north-east of Tower YX07. The bank runs from the edge of a deep water-cut gorge to the east and merges with a timber post and wire fence c.50m to the west which runs parallel with the existing road. The previously constructed access track between the road and Tower YX07 was found to bisect the site, and had destroyed a roughly 3.5m long segment as it crossed the bank at an oblique angle (Fig. 3).

Site 13 (NGR: NN 0947 2642) (Fig. 4) is a possible cairn in the vicinity of Tower YX08. It is a sub-oval setting of stone 2m by 3m in area and surviving to a height of 0.5m The stones making up the possible cairn are a mixture of upright and recumbent, and heavily overgrown. The topography of the ground consists of relatively level rough pasture and bracken. It is likely this feature is related to field clearance in the area, as the surrounding area is fairly free of loose stones. The site was demarcated with canes and tape allowing for a ten metre buffer.

Site 14 (NGR: NN 1418 2951) (Fig. 5) is a possible small cairn around 100m northwest of Tower YX25 and Dalmally Substation. It was identified to be a sub-circular setting of stone around 3m in diameter and surviving to a height of 0.8m, in a level area of rough pasture and heather on the floodplain of the River Strae. This could be

evidence of field clearance as the surrounding area is fairly free of loose stones. The site was demarcated with canes and tape allowing for a ten metre buffer.

No other archaeological sites or features were found in the vicinity of works related to IEC operations.

3.2 Excavation of Site 12

Following the walkover survey, mitigation measures comprising hand excavation and recording of the damaged section of the bank at Site 12 were carried out.

A single trench measuring 3.6m by 1m was excavated across the bank at the point where the access road for Tower YX7 bisected the bank (Fig. 3 & 6), showing the bank's section down to natural (Fig. 7).

Throughout the area excavated, topsoil (001) was 0.2m to 0.25m deep and overlay subsoil (001), consisting of mid to dark brown clay up to 0.25m deep. Natural (000) was firm orangey brown clay with shattered inclusions of bedrock.

The section showed the bank to comprise loosely piled soil, turf and stones (003, 004). No structure using turves or coursed stone was evident. At this point it measured 2.2m wide and up to 0.4m high, although it survived up to 0.8m high at other points where it had not seen any impact from the development. The bank appeared to overly an old ground surface.

4. CONCLUSIONS

Two phases of archaeological mitigation work were carried out by CFA Archaeology Ltd on the proposed route of a replacement overhead power line from Ben Cruachan Hydro Power Station (NGR: NN 0800 2773) to Dalmally substation (NGR: NN 1422 2939).

Walkover survey along the edges of previously constructed access tracks discovered a bank, Site 12, which had been bisected and truncated by the access track to YX07. A section of the bank was excavated and recorded and deemed to be a post-medieval field boundary.

Also discovered during walkover survey were two possible cairns, Site 13 in the vicinity of Tower YX08, and Site 14 further down towards the valley floor and near the Dalmally Substation. Both were overgrown and fairly small at 3m maximum diameter, and both are suggestive of field clearance activity. Sites 13 and 14 were demarcated to ensure protection and visibility during forthcoming works on the YX line project.

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 5) 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.

 ${\bf APPENDIX~1-Gazetteer~of~Cultural~Heritage~Features~within~100m~of~the~YX~overhead~line.}$

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 rectangular

Site No.	Site name / type	HER no / RCAHMS no	Easting	Northing	Source(s)	Site Description
						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 southeast; 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 Bonawe Military	21749 / NN12NW34			HER; RCAHMS	The military road is overlain by the B8077 and traverses the River Strae on an old bridge (NN12NW 34.01) at NN 1458 2942, at a point where there had

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Site	Site name / type	HER no /	Easting	Northing	Source(s)	Site Description
No.		RCAHMS no				
	Road				database	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, hydroelectric 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	21418	72951	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.

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APPENDIX 2: Digital Photograph Registers

Walkover Survey

Photo No.	Description	Taken From
1	YX1 track	N
2	YX1 track	NE NE
3	YX1	1,2
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	Е
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	Е
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	Е
46	YX4 general view	W
47	YX4 proposed EPZ	NW
48	YX5 access route	W
49	YX5 access route	Е
50	YX5 general view	W
51	YX5 general view	Е

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

Site 12 Excavation

Photo No.	Description	Taken From
1	Site 12 pre-ex	SE
2	Detail of section	SE
3	Detail of section	SE
4	Full section of site 12	SE
5	Partially backfilled trench	Е

APPENDIX 3: Context Register

Context No.	Description
000	Orangey brown clay natural with inclusions of shattered bedrock
001	Mid-dark brown clay subsoil
002	Dark brown/black silty sand topsoil
003	Mixed turf banking material
004	Irregular-shaped stones in bank up to 0.25m in diameter

APPENDIX 4: Drawing Register

Drawing No.	Sheet No.	Description	Scale
1	1	SE-facing section of bank site 12	1:10

APPENDIX 5: Discovery and Excavation In Scotland Entry

LOCAL AUTHORITY:	Argyll & Bute Council
	Replacement Overhead Line (YX route), Ben Cruachan Hydro Power
PROJECT TITLE/SITE NAME:	Station to Dalmally Substation
PROJECT CODE:	YXDB
PARISH:	Ardchattan and Muckairn
NAME OF CONTRIBUTOR:	Ewan MacNeilage
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Walkover Survey & Excavation
NMRS NO(S):	N/A
SITE/MONUMENT TYPE(S):	Field Bank, Clearance Cairns
SIGNIFICANT FINDS:	N/A
NGR (2 letters, 6 figures)	NN 142 295
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)	Two phases of archaeological mitigation work were 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 along the edges of previously constructed access tracks discovered a bank, Site 12, which had been bisected and truncated by the access track to YX07. A section of the bank was excavated and recorded and deemed to be a post-medieval field boundary. Also discovered during walkover survey were two possible cairns, site 13 in the vicinity of Tower YX08, and site 14 further down towards the valley floor and near the Dalmally Substation. Both were overgrown and fairly small at 3m maximum diameter, and both are suggestive of field clearance activity. Sites 13 and 14 were demarcated to ensure protection and visibility during forthcoming works on the YX line project.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Iberdrola Engineering and Construction
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.

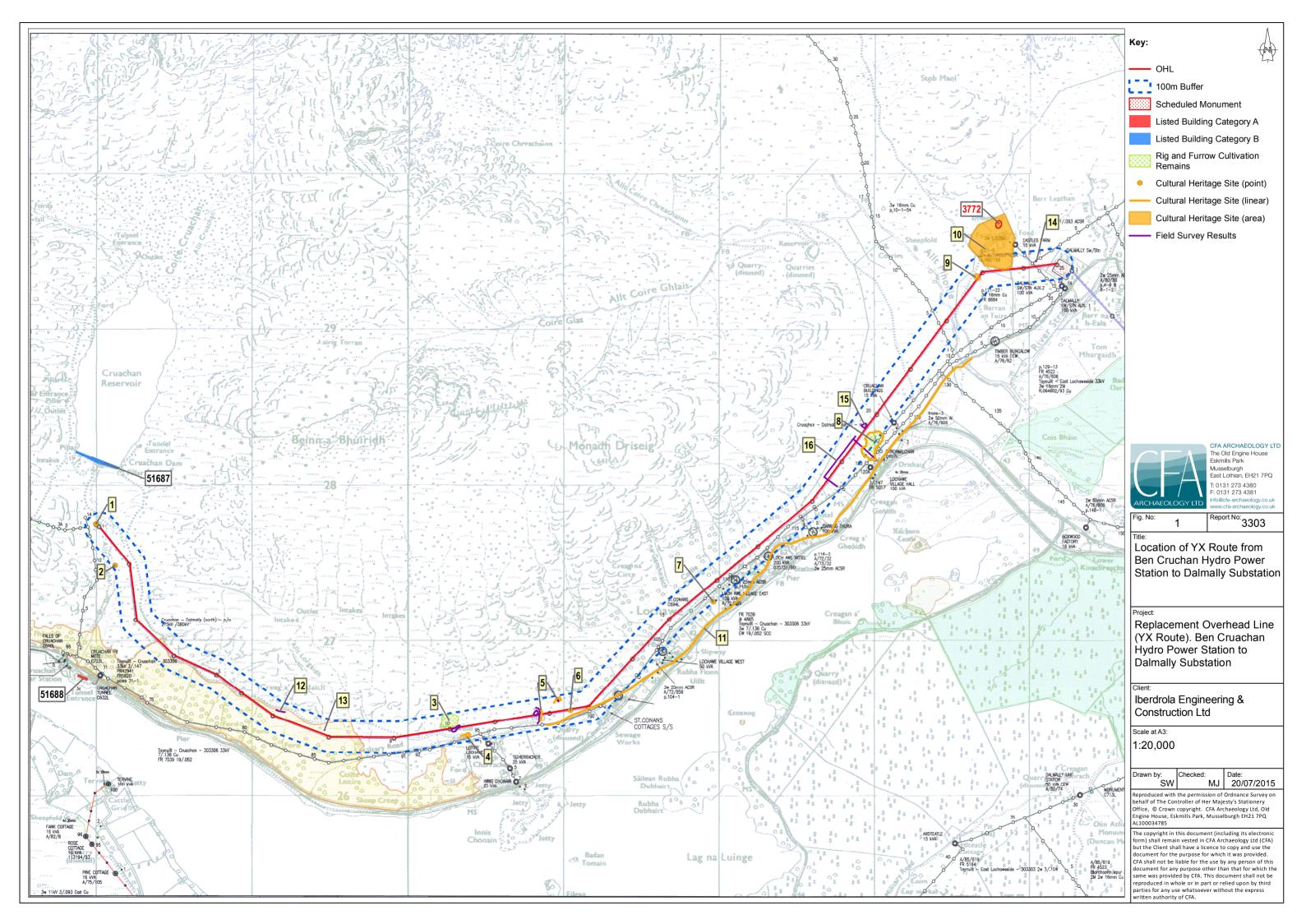




Fig. 2 - General view of Site 12 looking east



Fig. 3 - Site 12 showing truncation by Tower YX07 acces track and proposed location of excavation



Fig. 4 - Possible clearance cairn (Site 13)



Fig. 5 - Possible clearance cairn (Site 14)



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MJ Date: 20/07/15

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

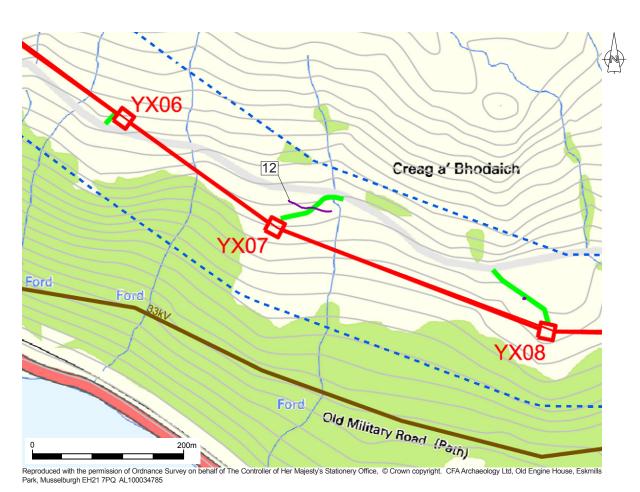


Fig. 6 - Location of Site 12 and access track



Fig. 7 - SE-Facing section of Site 12



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Client: Iberdrola Engineering & Construction Ltd

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