# Environmental Impact Assessment Report

## Appendix 13.1 – Data Structure Report

## August 2024

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# New Loch Buidhe Substation
# near Bonar Bridge, Sutherland

## Archaeological Watching Brief
## Data Structure Report

*AOC Project 70778*
*November 2023*

AOC Archaeology Group

ARCHAEOLOGY | HERITAGE | CONSERVATION

# New Loch Buidhe Substation, near Bonar Bridge, Sutherland:

# Archaeological Watching Brief

# Data Structure Report

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|---|---|
| **On Behalf of:** | **Environmental Resource Management LTD<br>6TH Floor<br>102 West Port<br>Edinburgh<br>EH3 9DN** |
| **National Grid Reference (NGR):** | **NH 65161 97424 (centred)** |
| **AOC Project No:** | **70778** |
| **OASIS No:** | **aocarcha1-520630** |
| **Prepared by:** | **Patrick Rowan and Fiona Jackson** |
| **Illustrations by:** | **Fiona Jackson** |
| **Date of Fieldwork:** | **11th October – 8th November 2023** |
| **Date of Report:** | **10th November 2023** |

**This document has been prepared in accordance with AOC standard operating procedures.**

| | |
|---|---|
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## Abstract

An archaeological watching brief was required by ERM Ltd on behalf of their clients Scottish and Southern Electricity Networks during ground investigation on a site proposed for development of a new 400kV substation and HVDC converter site, at Loch Buidhe, near Bonar Bridge, Sutherland (National Grid Reference (NGR): NH 65161 97424).

Archaeological monitoring work was carried out between October and November 2023. During this time a total of 21 trial pits and 18 borehole locations were monitored. In addition, two soakaway pits were excavated and monitored adjacent to the main trial pits to test percolation.

No archaeological deposits or features were encountered during the monitoring works.

# 1.0 Introduction

## 1.1 Project Background

1.1.1 An archaeological watching brief was required by ERM Ltd on behalf of their clients Scottish and Southern Electricity Networks in respect to ground investigations for the proposed development of a new 400kV substation and HVDC converter site, at Loch Buidhe, near Bonar Bridge, Sutherland. The proposed development site, hereinafter referred to as "the Site", is located approximately 500m south of Loch Buidhe and 7.8km to the northeast of Bonar Bridge. The site is centred on NGR NH 65161 97424. The works were caried out between the 11th of October and 8th of November 2023.

1.1.2 The archaeological monitoring was undertaken during a programme of Ground Investigation works across the proposed development site. This included the excavation of 21 trial pits, 18 boreholes and two soakaway pits.

1.1.3 The Site lies within the administrative area of the Highland Council, which is advised on archaeological matters by Kirsty Cameron, Archaeologist, Historic Environment Team, Highland Council. The archaeological watching brief was conducted in accordance with the principles set out in National Planning Framework 4 (NPF4) (2023), PAN 2/2011 Planning and Archaeology (2011) and adhered to the Chartered institute for Archaeologists (CIfA) *Standard and Guidance for Archaeological Watching Briefs* (2020) and *Code of Conduct* (2022), and the Highland Council *Standards for Archaeological Work* (2012).

1.1.4 The objective of the archaeological works was to determine the existence of any buried archaeological remains within the watching brief area and to help inform decisions on the requirement and scope for any further archaeological works during the lifetime of the proposed development.

1.1.5 The objectives for the fieldwork had previously been set out in a *Written Scheme of Investigation* (WSI) (Glew and Peteranna 2023).

## 1.2 Site Location

1.2.1 The Site is located to the southeast of the Strathcarnoch Road, due south of Loch Buidhe's western end (**Figure 1**). The current site lies immediately south of the existing Loch Buidhe Substation, in an area partially covered with forestry plantation located on Meall Mòr hill (NGR NH 65161 97424).

1.2.2 The Site lies at approximately 200m to 220m above ordnance datum (AOD) and is underlain by bedrock geology of Altnaharra Psammite Formation (psammite and micaceous psammite), which is a Metamorphic bedrock formed between 1000 and 541 million years ago between the Tonian and Ediacaran periods (BGS 2023). The superficial deposits consist of Till and Morainic Deposits at the lower levels of the site mainly to the west (Diamicton, sand and gravel, formed between 2.588 million and 11.8 thousand years ago during the Quaternary period) and extensive peats formed between 2.588 million years ago and the present during the Quaternary period.

## 1.3 Development Proposal

1.3.1 The development proposal is for construction of a new 400kV substation adjacent to the existing Loch Buidhe 132/275kV Substation site. The ground investigations involved machine excavation of 21 trial pits and 2 soakaway pits and hand excavation of 19 trial pits dug in advance of borehole drilling (**Figure 2**).

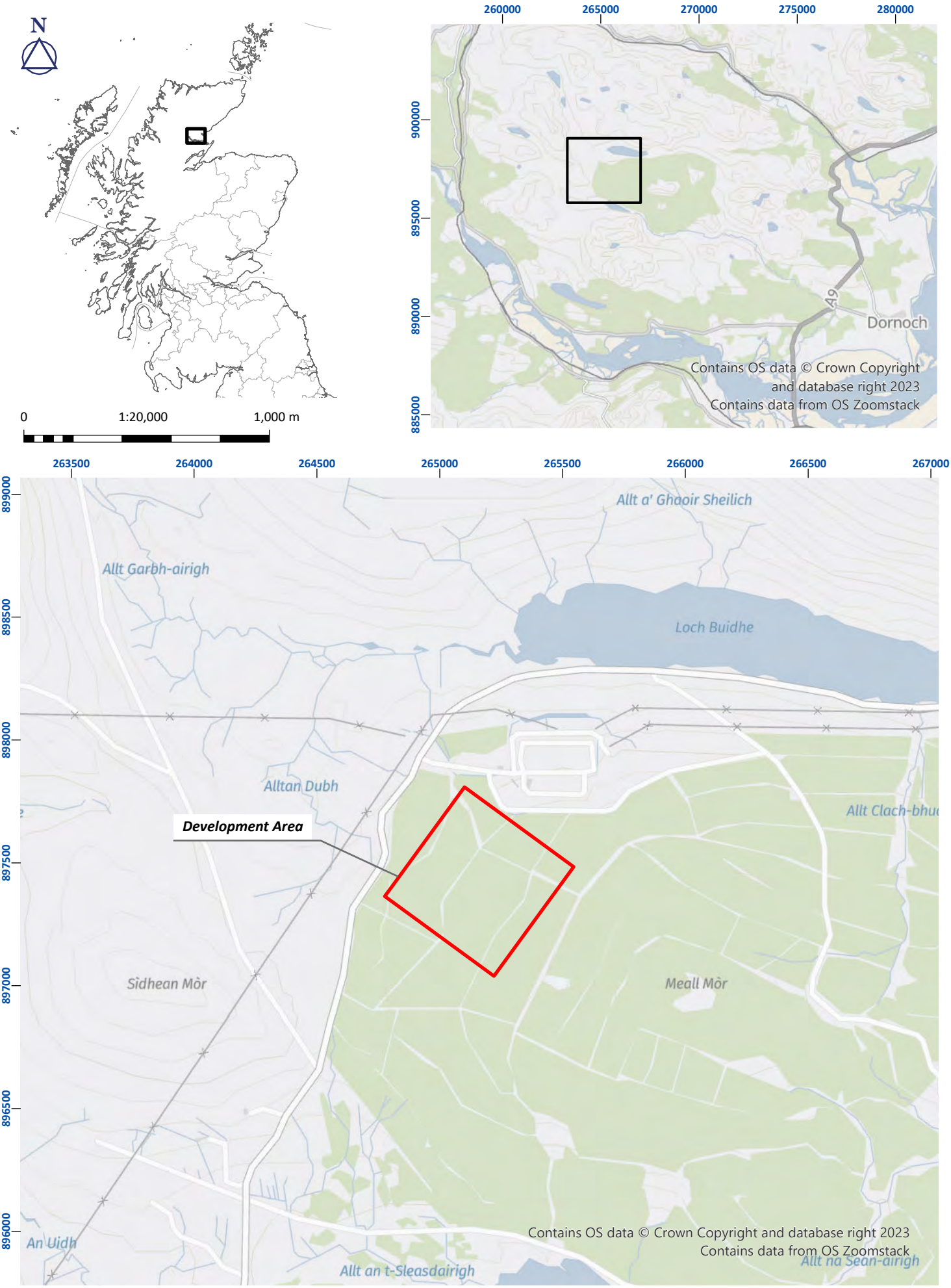


Figure 1: Site location plan

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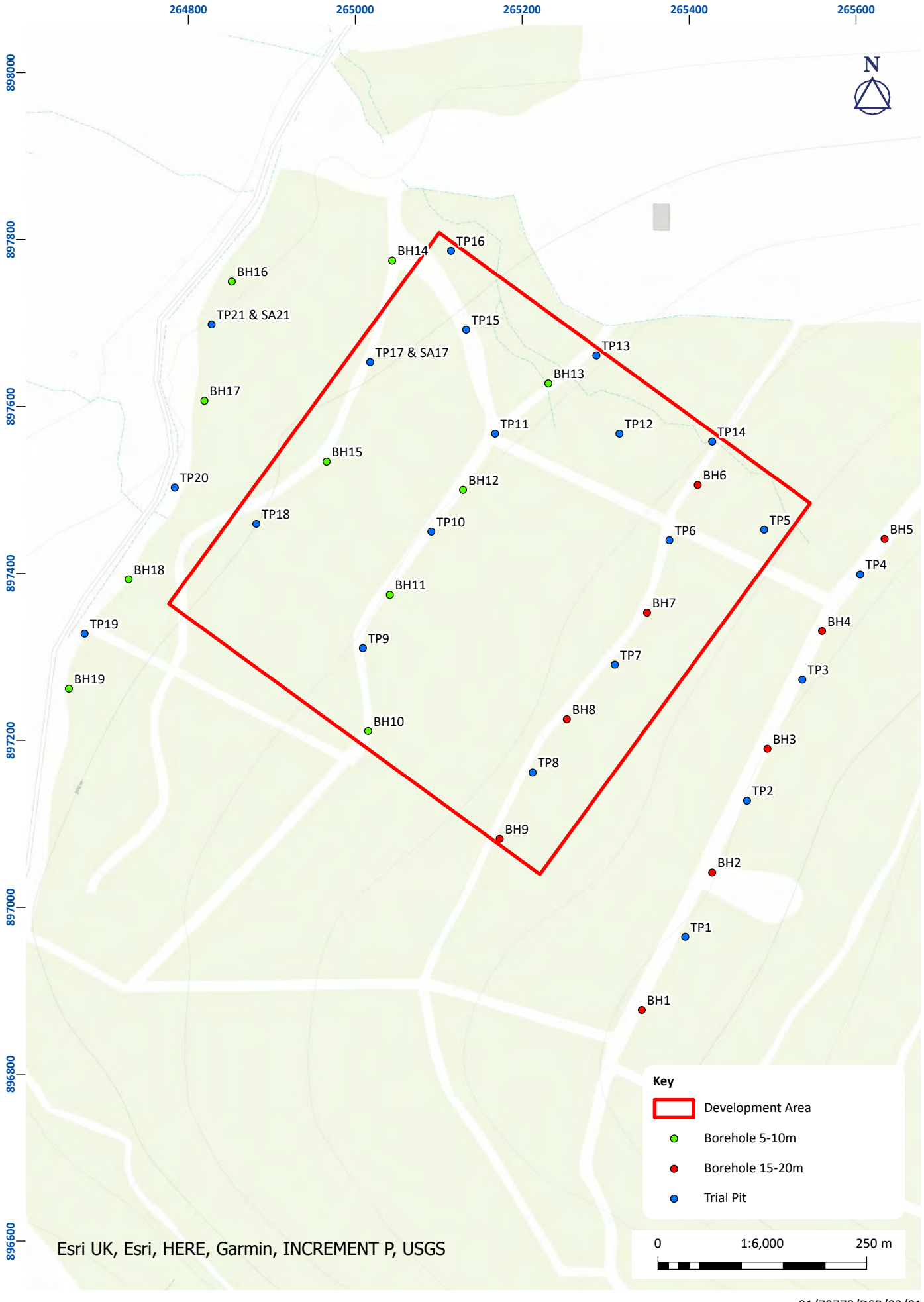
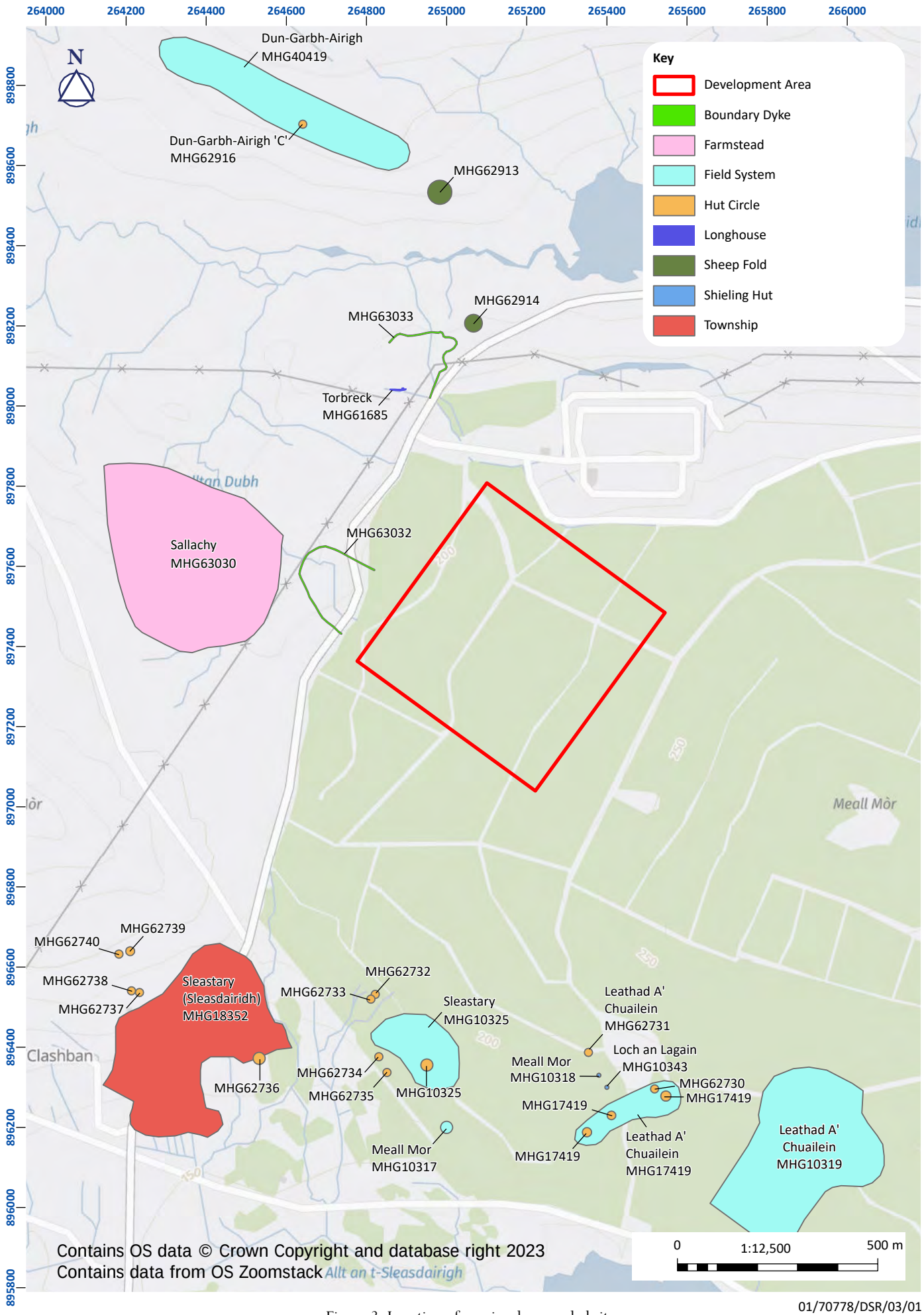



01/70778/DSR/02/01

Figure 2: Watching Brief area showing borehole and trial pit locations




01/70778/DSR/03/01

Figure 3: Location of previously recorded sites

## 2.0 Archaeological Background

2.1 No previous invasive archaeological investigations have been carried out across the currently proposed site. However, over the previous decades numerous archaeological surveys have been conducted across the surrounding landscape, including the current red line boundary.

2.2 A walkover survey (Highland HER (HHER) no. EHG4684) between May and July 1983 covered a large area prior to forestry planting south and east of Lochbuidhe Road and included the proposed development area. A number of significant archaeological sites, mostly prehistoric hut circles and associated field systems, were recorded to the south of the proposed development area on the south side of Meall Mor (**Figure 3)**.

2.3 Prior to the construction of the existing Loch Buidhe Substation a walkover survey was conducted between March 2011 and August 2012 over a limited area immediately southwest of Loch Buidhe and along a narrow corridor to the south (HHER no. EHG5398). This discovered no new sites and was principally concerned with re-appraisal of known sites in light of final construction designs.

2.4 To the north and northwest of the proposed development site, extensive walkover surveys have previously been conducted in advance of the Cambusmore Windfarm, November 2002-April 2003 (HHER no. EHG4350) and the Garvary Windfarm, August 2017 (HHER no. EHG5700). This identified a small but varied selection of archaeological sites spread along the upper Strath Carnaig. The nearest of these is a suite of prehistoric hut circles and associated field system on the southern aspect of Dun-garbh-airigh, which had been first identified in 1975.

2.5 On the western side of Lochbuidhe Road, immediately east of the current substation a post-medieval highland longhouse at Torbreck, by Loch Buidhe (HHER no. MHG61685) was excavated in 2013 ahead of development for overhead line upgrades between Beauly and Dounreay. This revealed a long-house complex consisting of drystone and turf construction with three distinct phases of development.

2.6 The First and Second Edition Ordnance Survey maps of the area (**Figures 4 & 5**) depict the development site as open moorland (NLS 2023). These maps also show that to the west and north of the existing substation the road followed the same alignment as today. Within the immediate landscape, the farmstead of *Salachaidh*/*Salachy* (HHER no. MHG63030) is depicted c.500m due west of the development area.

2.7 The density of archaeological sites intensifies to the southwest, particularly on the southwest side of the low ridge line that marks the northeastern limit of the Kyle of Sutherland and Achany Glen.

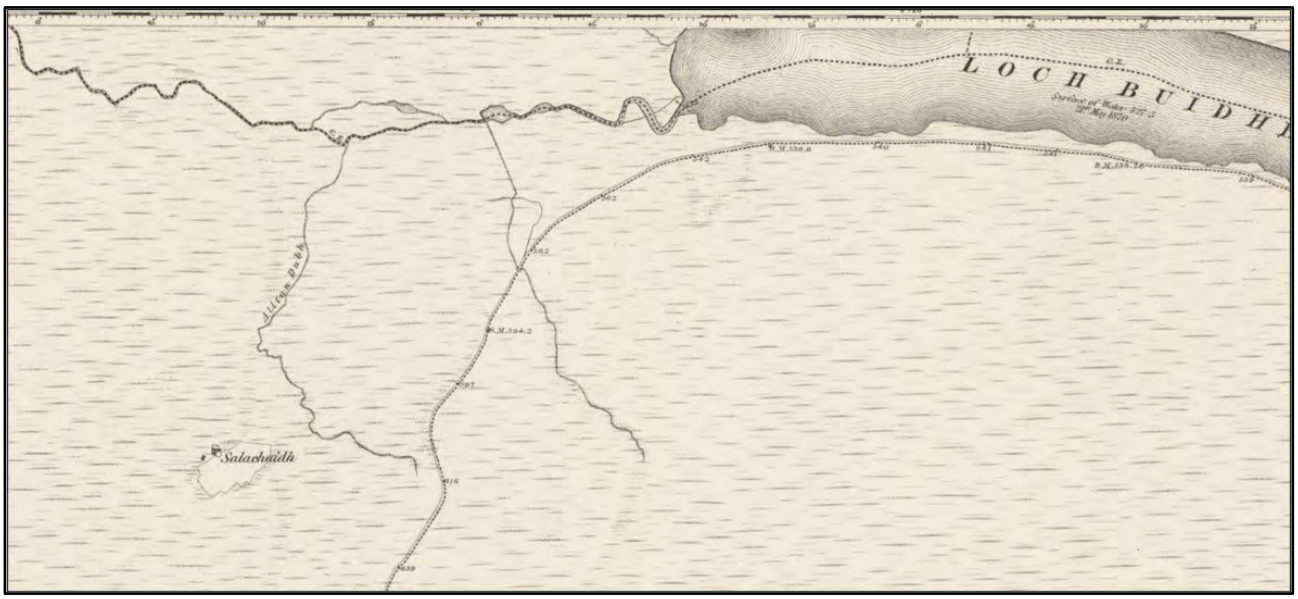



Figure 4: Extract from Ordnance Survey Map, 1879



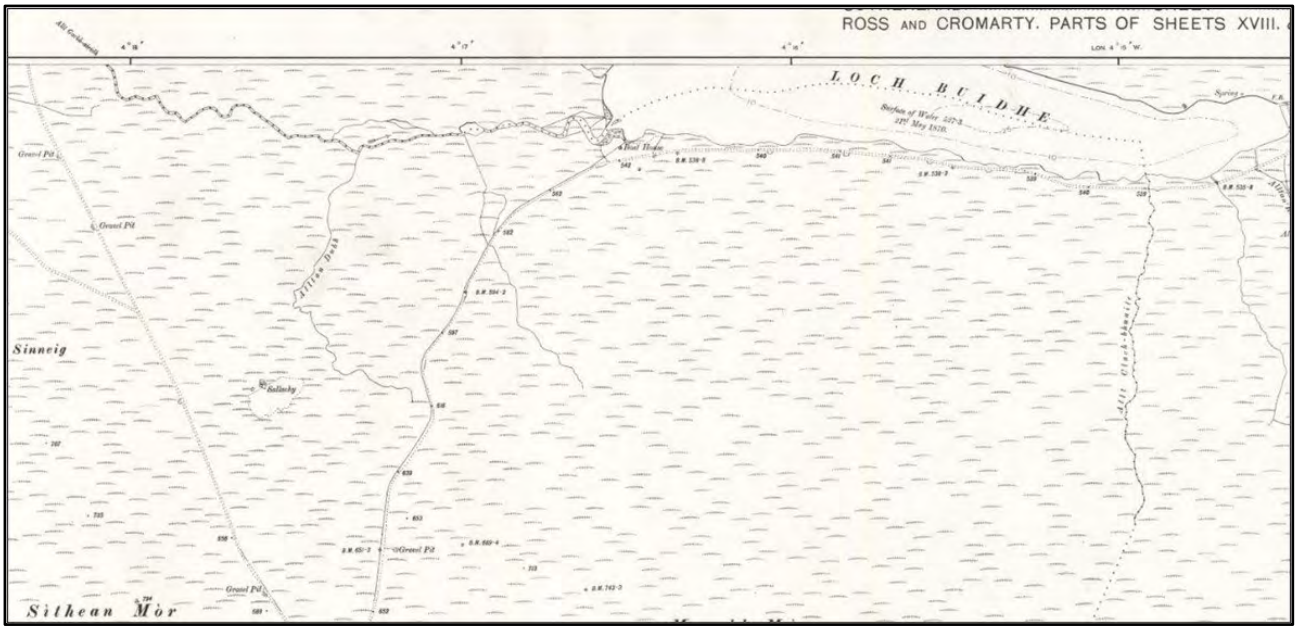



Figure 5: Extract from Ordnance Survey Map, 1907



## 3.0 Objectives

3.1 The Chartered Institute for Archaeologists (CIfA) defines an archaeological watching brief as *'a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, in an inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive' (2020).*

3.2 The aims of the archaeological works were:

i) To establish the presence or absence of archaeological remains within the proposed development area

ii) To remove by hand any overburden in order to expose the archaeological deposits

iii) To excavate, sample and record any features or to propose arrangements for their safeguarding, where possible

iv) To sample deposits for post-excavation work, including environmental analysis and dating

v) To make recommendations for further measures necessary to mitigate the impact of the development

vi) To make recommendations for post-excavation work that will require completion to fulfil the planning condition

## 4.0 Methodology

4.1 The archaeological watching brief was undertaken during excavation for boreholes (BH), test pits (TP) and soakaways (SA) (**Figure 2**). The proposed development site, which covered approximately 30.25 hectares, was located within a forestry plantation. The majority of the works were carried out within an area of dense coniferous trees located in the south and west of the development site, while the areas to the north and east of the development area had recently been felled (**Plates 1, 2**).

4.2 Excavation was monitored by the archaeological watching brief officer until the natural geological horizon or the impact depth of the groundworks was reached. Excavation for the trial pits was carried out using a mechanical excavator fitted with a 2m wide straight-edged bucket. The borehole locations were excavated by hand to a diameter of 0.3-0.4m to a depth of 1.2m, prior to the commencement of drilling. The location of all test pits and boreholes was plotted using a Trimble DGPS operated by the groundworks contractor, who provided all necessary location data.

4.3 The archaeological monitoring was recorded using high resolution digital photography. Written records were compiled utilising digital pro forma record sheets giving details of dimensions, soil compositions and any observations of note within the excavations.

## 5.0 Results

5.1 A total of 21 trial pits and 18 boreholes (**Figure 2**) (**Plates 3 – 47**) were monitored during topsoil removal to the surface of the subsoil, identified as natural geology. In addition to the trial pits, two soakaway pits were excavated adjacent to trial pits 17 and 21 to test percolation). Wet weather conditions and poor drainage within the site resulted in waterlogged conditions, causing repeated flooding of trial pit/borehole cuts. Due to the homogenous site conditions and collection of adequate information about the archaeological ground conditions, monitoring was ceased in advance of excavation of the final borehole (BH13).

5.2 The topsoil (001) comprised a soft dark brown-black, peat, containing frequent moss, roots, and wood fragments. The depth of peat varied due to the plantation ridges and furrows aligned ESE-WNW across the site, with tree planting occurring in the ridges. The peat depth was generally consistent across the site, ranging from 0.30m within furrows up to 2.7m in planting ridges. The root systems exposed during by the ground investigations had not impacted upon the natural subsoil and were predominantly evident in the upper 0.2-0.3m of the peat. Larger tree roots from the plantation were relatively shallow, spreading out across the ridges..

5.3 The natural subsoil (002) was consistent across the site with gradual sloping of ground level towards the northeast. Formed by natural geological conditions, it comprised a light grey, sandy gravel, with occasional dark grey mottling, containing frequent sub-angular stone inclusions.

5.4 No archaeological features or finds were identified during the watching brief.

# 6.0 Conclusion and Recommendations

6.1 The archaeological watching brief identified no archaeological features. However, the landscape is covered in a peat-rich soil that facilitates preservation of archaeological and paleoenvironmental information. In addition, there is a considerable amount of prehistoric settlement adjacent to the site boundaries. Although commercial plantation has the potential to have impacted upon buried remains, there was no evidence for this identified during the ground investigations and it was noted that the level of disturbance from planting was limited to the upper levels of the peat topsoil. The ESE-WNW aligned ridges and troughs formed during plantation works showed no visible disturbance of the natural subsoil with rooting from trees only affecting the upper levels of the ridges formed.

6.2 The lack of disturbance to the natural geological subsoil indicates there is potential for the preservation of buried archaeological remains across the site. An archaeological watching brief is recommended during groundworks for topsoil clearance. The final decision on the requirement for further mitigation work rests with the local planning authority.

# 7.0 References

## 7.1 Bibliographic References

British Geological Survey (BGS) 2023. BGS Geology Viewer. Available at: https://geologyviewer.bgs.ac.uk/

Chartered Institute for Archaeologists (CIfA) 2022. *Code of Conduct.*

Chartered Institute for Archaeologists (CIfA) 2020. *Standard and Guidance for Archaeological Watching Brief.*

Glew, P. and Peteranna, M. 2023. *New Loch Buidhe Substation, near Bonar Bridge, Sutherland: Archaeological Watching Brief Written Scheme of Investigation.* Unpublished AOC Archaeology report.

Highland Council 2012. *Standards for Archaeological Work.*

Highland Historic Environment Record (HHER) 2023. Accessed at https://her.highland.gov.uk

National Library of Scotland 2023. Online maps. Accessed at https://maps.nls.uk

National Record of the Historic Environment 2023. Accessed at https://canmore.org.uk/

Scottish Government 2023. *National Planning Framework 4 (NPF4).*

Scottish Government 2011. *PAN 2/2011 Planning and Archaeology.*

## 7.2 Cartographic References

Ordnance Survey 1879. *Sutherland, Sheet CVIII, 6-inch 1st Edition, Scotland, Surveyed: 1874, Published: 1879*.

Ordnance Survey 1907. *Sutherland, Sheet CVIII, 6-inch 2nd Edition, Scotland, Surveyed: 1903, Published: 1907*.

# Appendix 1: Borehole and Trial Pit Register

| Borehole/ Trial Pit No. | Width (m) | Length (m) | Comments | Topsoil Depth (m) | Orientation |
|---|---|---|---|---|---|
| BH01 | 0.3 | 0.35 | Peat 0.7m in depth over a light orangey-brown, gravelly sand natural subsoil | 0.7 | N-S |
| BH02 | 0.35 | 0.4 | Peat 0.5m in depth over a light grey, sandy gravel natural subsoil | 0.5 | N-S |
| BH03 | 0.35 | 0.3 | Peat 0.7m in depth over a light grey, sandy gravel natural subsoil | 0.7 | N-S |
| BH04 | 0.3 | 0.35 | Peat excavated down to inspection pit depth. Natural not reached. Immediately back filling with water, impossible to fully observe | 1.2 | N-S |
| BH05 | 0.27 | 0.3 | Peat excavated down to inspection pit depth, contained frequent roots and moss. Natural not reached | 1.24 | E-W |
| BH06 | 0.29 | 0.32 | Peat excavated down to inspection pit depth, contained frequent roots, larger towards the base. Natural not reached | 1.29 | E-W |
| BH07 | 0.3 | 0.33 | Peat 0.4m in depth over a mid grey-brown, sandy gravel natural subsoil. After 0.6m natural subsoil becomes a yellowish-grey sandy gravel. Excavated down through natural to 1.2m | 0.48 | E-W |
| BH08 | 0.3 | 0.33 | Peat excavated down to inspection pit depth. Natural not reached | 1.2 | E-W |
| BH09 | 0.35 | 0.35 | Peat excavated down to inspection pit depth. Natural not reached | 1.3 | N-S |
| BH10 | 0.33 | 0.35 | Peat excavated down to inspection pit depth, contained occasional wood fragments towards the base. Natural not reached | 1.2 | N-S |
| BH11 | 0.3 | 0.35 | Peat 0.7m in depth over a light grey, sandy gravel natural subsoil | 0.7 | N-S |
| BH12 | 0.33 | 0.4 | Peat to base of pit 1.2m where it changes to a grey sandy gravel natural subsoil | 1.2 | N-S |
| BH14 | 0.3 | 0.35 | Peat excavated down to inspection pit depth. Natural not reached | 1.2 | N-S |
| BH15 | 0.4 | 0.42 | Peat 0.45m in depth over a grey, sandy gravel natural subsoil | 0.45 | NE-SW |
| BH16 | 0.3 | 0.38 | Peat 0.3m in depth over a light grey, gravelly sand natural subsoil | 0.3 | N-S |
| BH17 | 0.3 | 0.33 | Peat excavated down to inspection pit depth. Natural not reached | 1.2 | NE-SW |
| BH18 | 0.3 | 0.35 | Peat excavated down to inspection pit depth. Natural not reached | 1.2 | N-S |
| BH19 | 0.35 | 0.4 | Peat excavated down to inspection pit depth. Natural not reached. Water ingress was quick | 1.2 | N-S |
| TP01 | 2 | 3.5 | Peat 1.32m in depth over a dark grey-brown, gravelly silty sand natural subsoil. Gradual interface between of c0.1m. After 1.7m natural subsoil becomes a light yellowish-grey sand. Excavated down through natural to 3.3m | 1.32 | E-W |
| TP02 | 2 | 4.1 | Peat 0.48m in depth over a dark grey-brown, gravelly silty sand natural subsoil. Gradual interface between of c0.1m. After 0.77m natural subsoil becomes a light yellowish-grey sand. Excavated down through natural to 2.5m | 0.48 | E-W |
| TP03 | 2 | 4.2 | Peat 1.85m in depth over a light yellowish-grey, gravelly sand natural subsoil. Stonier interface between. Excavated through natural down to 3.8m | 1.85 | E-W |
| TP04 | 2 | 4 | Peat 1.8m in depth over a light yellowish-grey, gravelly sand natural subsoil. Lower 0.3m of peat contains large fragments of wood | 1.8 | E-W |

| Borehole/ Trial Pit No. | Width (m) | Length (m) | Comments | Topsoil Depth (m) | Orientation |
|---|---|---|---|---|---|
| TP05 | 2 | 3 | Peat 2.6m in depth over a light grey, stoney sand natural subsoil. Excavated down through natural to 3.1m | 2.6 | NNW-SSE |
| TP06 | 2 | 4 | Peat 2m in depth over a light grey, sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.1 to 0.25m, 30%). Excavated through natural down to 2.9m | 2 | NE-SW |
| TP07 | 2 | 4.1 | Peat 0.55m in depth over a light grey, sandy natural subsoil, with dark grey mottling containing sub-angular stone inclusions (0.1 to 0.2m, 30%). Excavated through natural down to 2.1m. Water ingress beginning at final depth | 0.55 | NE-SW |
| TP08 | 2 | 3.5 | Peat 2.7m and continuing. Trial pit excavation halted due to unsafe conditions. Sides of trench starting to collapse. Peat was very saturated with water | 2.7 | NE-SW |
| TP09 | 2 | 3.5 | Peat 0.5m in depth over a light grey, sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.1 to 0.25m, 30%). Excavated through natural down to 2.2m | 0.5 | N-S |
| TP10 | 2 | 3.1 | Peat 1m in depth over a light pinkish-grey, sandy gravel natural subsoil, containing sub-angular stone inclusions (0.1 to 0.3m, 20%). Excavated through natural down to 2.2m | 1 | N-S |
| TP11 | 2 | 3.5 | Peat 1.2m in depth over a light grey, sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.07 to 0.17m, 30%). Peat contains larger fragments of wood towards base. Excavated through natural down to 2.9m | 1.2 | N-S |
| TP12 | 2 | 3.7 | Peat 0.5m in depth over a light yellowish-grey, sandy gravel natural subsoil. Excavated through natural down to 2.8m | 0.5 | N-S |
| TP13 | 2 | 3.9 | Peat 2m in depth over a light grey, sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.07 to 0.17m, 30%) | 2 | N-S |
| TP14 | 2 | 3.4 | Peat 1.6m in depth over a light yellow-grey, gravelly sand natural subsoil, containing large sub-angular stones (up to 0.35m 10%). Peat contains larger fragments of wood towards the base. Excavated down through natural to 3.10m | 1.6 | E-W |
| TP15 | 2 | 3.4 | Peat 0.6m in depth over a light grey, sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.07 to 0.17m, 30%). Excavated through natural down to 2.8m | 0.6 | NW-SE |
| TP16 | 2 | 3.5 | Peat 1.1m in depth over a light grey sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.07 to 0.17m, 30%). Excavated through natural down to 2.1m. Pit rapidly filling with water due to location at base of slope | 1.1 | NW-SE |
| TP17 | 2 | 3.5 | Peat 0.6m in depth over a medium grey, sandy gravel natural subsoil, containing sub-angular stone inclusions (0.1 to 0.5m, 30%). Excavated through natural down to 2.7m | 0.6 | NW-SE |
| TP17 SA | 2 | 3 | Peat 0.6m in depth over a medium grey, sandy gravel natural subsoil, containing sub-angular stone inclusions (0.1 to 0.5m, 30%). Excavated through natural with 0.3m wide ditching bucket down to 1.8m from surface for soak away test. Sides collapsing, test could not be carried out | 0.6 | NW-SE |
| TP18 | 2 | 3.7 | Peat 1.2m in depth with some water ingress. Natural subsoil is a light grey, sandy gravel, containing sub-angular stone inclusions (0.1 to 0.4m, 30%). Excavated through natural down to 3m. Stopping at this depth, water table reached and sides starting to collapse | 1.2 | E-W |
| TP19 | 2 | 3.7 | Peat 0.3m in depth over a light grey, sandy natural subsoil, with dark grey mottling, containing sub-angular stone inclusions (0.1 to 0.25m, 30%) | 0.3 | NE-SW |
| TP20 | 2 | 4.1 | Peat 0.5m in depth over a dark grey, sandy natural subsoil, containing sub-angular stone inclusions (0.1 to 0.4m, 20%). Excavated through natural down to 3m | 0.5 | NE-SW |
| TP21 | 2 | 4.3 | Peat 0.4m in depth over a light grey, sandy natural subsoil, with lenses of peat and orangey brown gravel, containing sub-angular stone inclusions (0.1 to 0.3m, 20%). Excavated through natural down to 1.9m. | 0.4 | NE-SW |

| Borehole/ Trial Pit No. | Width (m) | Length (m) | Comments | Topsoil Depth (m) | Orientation |
|---|---|---|---|---|---|
| TP21 SA | 2 | 3.5 | Peat 0.4m in depth over a light orangey-brown, sandy gravel natural subsoil. Excavated through natural with 0.3m wide ditching bucket down to 1.9m from surface for soak away test | 0.4 | NW-SE |

## Appendix 2: Photographic Register

| Photo No. Start | Photo No. End | Borehole/Trial Pit No. | Description | Direction Facing | Date |
|---|---|---|---|---|---|
| 1 | 2 | BH06 | Post-excavation shot of BH06 excavated down to depth of inspection pit. Natural not reached | N | 12/10/2023 |
| 3 | 4 | BH05 | Post-excavation shot of BH05 excavated down to depth of inspection pit. Natural not reached | N | 12/10/2023 |
| 5 | 5 | - | General view of NE area of site, looking towards BH06 drill rig | SE | 18/10/2023 |
| 6 | 6 | - | General view of existing access/haul road from site compound | NE | 18/10/2023 |
| 7 | 7 | - | General view showing a general example of machine made 'brush' track | E | 18/10/2023 |
| 8 | 8 | - | General view of site, looking towards BH06 rig with ground conditions | S | 18/10/2023 |
| 9 | 9 | - | General view showing a general example of old forestry furrows | SE | 18/10/2023 |
| 10 | 10 | BH06 | General view of BH06 drill rig setup and support vehicles | S | 18/10/2023 |
| 11 | 11 | - | General view of 360 Excavator working on brush track between BH05 and BH06 | SE | 18/10/2023 |
| 12 | 12 | - | General view of area N of site looking towards existing substation and site compound | N | 18/10/2023 |
| 13 | 14 | - | General condition shots of access track into existing forestry area. Image 13 slightly blurred | S | 18/10/2023 |
| 15 | 15 | TP06 | Ground condition example of Trial pit location before works. TP06 | NE | 18/10/2023 |
| 16 | 16 | - | General condition shots of access track towards BH06 rig | SE | 19/10/2023 |
| 17 | 17 | - | General condition shot of furrowed ground looking up hill | E | 19/10/2023 |
| 18 | 18 | - | Detail view of brush track, note irregular log/branch inclusions causing voids of peat/mud | S | 19/10/2023 |
| 19 | 19 | - | General view of old forestry access track between deforested ground | SE | 19/10/2023 |
| 20 | 21 | BH04 | Post-excavation shot of BH04. Stopped at 1m. Heavy water ingress | S | 23/10/2023 |
| 22 | 23 | BH07 | Post-excavation shot of BH07 excavated down to base of peat at 0.48m | s | 24/10/2023 |
| 24 | 24 | BH07 | Post-excavation shot of BH07 excavated down to 0.65m to sample natural gravel | S | 24/10/2023 |
| 25 | 25 | BH07 | Post-excavation shot of BH07 excavated down to depth of inspection pit | S | 24/10/2023 |
| 26 | 26 | BH07 | Post-excavation shot of BH07 excavated down to depth of inspection pit, internal detail | S | 24/10/2023 |
| 27 | 29 | TP05 | Post-excavation shot of TP05 excavated down to natural | SSE | 24/10/2023 |
| 30 | 31 | TP05 | WSW facing section of TP05 excavated down to natural | ENE | 24/10/2023 |
| 32 | 33 | TP12 | Post-excavation shot of TP12 excavated down to natural | S | 24/10/2023 |
| 34 | 35 | TP14 | Post-excavation shot of TP14 excavated down to natural | E | 24/10/2023 |
| 36 | 36 | TP14 | North facing section of TP14 excavated down to natural | S | 24/10/2023 |
| 37 | 38 | TP01 | Post-excavation shot of TP01 excavated down to natural | E | 25/10/2023 |
| 39 | 39 | BH08 | Post-excavation shot of BH08 excavated down to depth of inspection pit. Natural not reached | E | 25/10/2023 |
| 40 | 40 | BH08 | Post-excavation shot of BH08 excavated down to depth of inspection pit, internal detail. Natural not reached | E | 25/10/2023 |
| 41 | 42 | TP02 | Post-excavation shot of TP02 excavated down to natural | E | 25/10/2023 |
| 43 | 43 | TP02 | South facing section of TP02 excavated down to natural | N | 25/10/2023 |

| Photo No. Start | Photo No. End | Borehole/Trial Pit No. | Description | Direction Facing | Date |
|---|---|---|---|---|---|
| 44 | 45 | TP03 | Post-excavation shot of TP03 excavated down to natural | E | 25/10/2023 |
| 46 | 47 | TP04 | Post-excavation shot of TP04 excavated down to natural | E | 25/10/2023 |
| 48 | 48 | TP04 | North facing section of TP04 excavated down to natural | S | 25/10/2023 |
| 49 | 49 | BH09 | Post-excavation shot of BH09 excavated down to depth of inspection pit. Natural not reached | W | 25/10/2023 |
| 50 | 50 | BH09 | Post-excavation shot of BH09 excavated down to depth of inspection pit, internal detail. Natural not reached | W | 25/10/2023 |
| 51 | 54 | TP11 | Post-excavation shot of TP11 excavated down to natural. 1st two shots board not clear | S | 26/10/2023 |
| 55 | 56 | TP15 | Post-excavation shot of TP15 excavated down to natural | SE | 26/10/2023 |
| 57 | 58 | TP16 | Post-excavation shot of TP16 excavated down to natural. Flooding during photo | NW | 26/10/2023 |
| 59 | 60 | TP13 | Post-excavation shot of TP13 excavated down to natural | S | 26/10/2023 |
| 61 | 62 | BH10 | Post-excavation shot of BH10 excavated down to depth of inspection pit. Natural not reached | W | 26/10/2023 |
| 61 | 62 | BH10 | Post-excavation shot of BH10 excavated down to depth of inspection pit, internal detail. Natural not reached | W | 26/10/2023 |
| 63 | 64 | TP08 | Mid-excavation of TP08, peat continuing down, excavation halted due to sides collapsing | NE | 30/10/2023 |
| 65 | 66 | TP07 | Post-excavation shot of TP07 excavated down to natural | NE | 30/10/2023 |
| 67 | 69 | TP06 | Post-excavation shot of TP06 excavated down to natural | NE | 30/10/2023 |
| 70 | 70 | BH11 | Post-excavation shot of BH11 excavated down to depth of inspection pit. Natural not reached | NE | 30/10/2023 |
| 71 | 73 | TP09 | Post-excavation shot of TP09 excavated down to natural | W | 31/10/2023 |
| 74 | 75 | TP19 | Post-excavation shot of TP19 excavated down to natural | NE | 31/10/2023 |
| 76 | 77 | BH03 | Post-excavation shot of BH03 excavated down to depth of inspection pit. Natural reached at 0.7m | SW | 31/10/2023 |
| 78 | 79 | TP20 | Post-excavation shot of TP20 excavated down to natural | NE | 31/10/2023 |
| 80 | 82 | BH12 | Post-excavation shot of BH12 excavated down to depth of inspection pit. Natural reached at 1.2m. Poor light levels meant a fairly slow shutter speed and slight blurring | NE | 01/11/2023 |
| 83 | 84 | BH14 | Post-excavation shot of BH14 excavated down to depth of inspection pit. Natural not reached. Poor light level | SW | 01/11/2023 |
| 85 | 86 | BH15 | Post-excavation shot of BH15 excavated down to depth of inspection pit. Natural reached at 0.45m | SW | 02/11/2023 |
| 87 | 88 | BH02 | Post-excavation shot of BH02 excavated down to depth of inspection pit. Natural reached at 0.5m | SE | 03/11/2023 |
| 89 | 90 | BH17 | Post-excavation shot of BH17 excavated down to depth of inspection pit. Natural not reached | NW | 03/11/2023 |
| 91 | 92 | BH18 | Post-excavation shot of BH18 excavated down to depth of inspection pit. Natural not reached | N | 03/11/2023 |
| 93 | 94 | BH19 | Post-excavation shot of BH19 excavated down to depth of inspection pit. Natural not reached | N | 06/11/2023 |
| 95 | 97 | TP21 | Post-excavation shot of TP21 excavated down to natural | SW | 06/11/2023 |
| 98 | 99 | TP21 SA | Post-excavation shot of TP21 Soakaway excavated down to natural | SE | 06/11/2023 |
| 100 | 100 | TP21 SA | General shot of soak away test pit in progress | SE | 06/11/2023 |
| 101 | 102 | TP18 | Post-excavation shot of TP18 excavated down to natural | E | 07/11/2023 |

| Photo No. Start | Photo No. End | Borehole/Trial Pit No. | Description | Direction Facing | Date |
|---|---|---|---|---|---|
| 103 | 104 | TP17 | Post-excavation shot of TP17 excavated down to natural | NE | 07/11/2023 |
| 105 | 106 | TP17 SA | Post-excavation shot of TP17 Soakaway excavated down to natural | NE | 07/11/2023 |
| 107 | 108 | TP10 | Post-excavation shot of TP10 excavated down to natural. Peat lensing in base | N | 07/11/2023 |
| 109 | 110 | BH01 | Post-excavation shot of BH01 excavated down to natural | NE | 08/11/2023 |
| 111 | 112 | BH16 | Post-excavation shot of BH16 excavated down to natural | NE | 08/11/2023 |

## Appendix 3:OASIS Summary

# OASIS Summary for aocarcha1-520630

| | |
|---|---|
| OASIS ID (UID) | aocarcha1-520630 |
| Project Name | Watching Brief at New Loch Buidhe Substation, near Bonar Bridge, Sutherland |
| Sitename | New Loch Buidhe Substation, near Bonar Bridge, Sutherland |
| Sitecode | AOC70778 |
| Activity type | Watching Brief |
| Reason For Investigation | Planning requirement |
| Organisation Responsible for work | AOC Archaeology Group |
| Project Dates | 11-Oct-2023 - 08-Nov-2023 |
| Location | New Loch Buidhe Substation, near Bonar Bridge, Sutherland<br>NGR : NH 65161 97424<br>LL : 57.94565675376958, -4.279606827635312<br>12 Fig : 265161,897424 |
| Administrative Areas | Parish : Creich<br>Council : Highland<br>Country : Scotland |
| Project Methodology | An archaeological watching brief was undertaken in October and November 2023 during topsoil stripping for ground investigation works at the site of a proposed new 400kV substation and HVDC converter site, at Loch Buidhe, near Bonar Bridge.<br><br>A total of 21 trial pits, 18 boreholes and 2 soakaway pits were stripped of topsoil, exposing the natural subsoil. The ground conditions consisted of a deep peat-rich topsoil over a sandy gravel natural subsoil. Wet weather conditions and poor drainage within the site caused the site to become waterlogged, causing repeated flooding of trial pit/borehole cuts. |
| Project Results | There were no archaeological features or finds identified during the watching brief. |
| Keywords | |
| Funder | Electricity company Scottish and Southern Electricity Networks |
| Person Responsible for work | Mary Peteranna |
| Archives | |
| DES description | |
| NGR | NH 65161 97424 |
| Previous Work | No |
| Future Work | No |
| Caption(s) for illustrations | |

**Report generated on: 23 Nov 2023, 15:21**

Plate 1: General view of site, looking towards BH06 drill rig , looking south

Plate 2: Detail view of brush track showing ground conditions, looking south

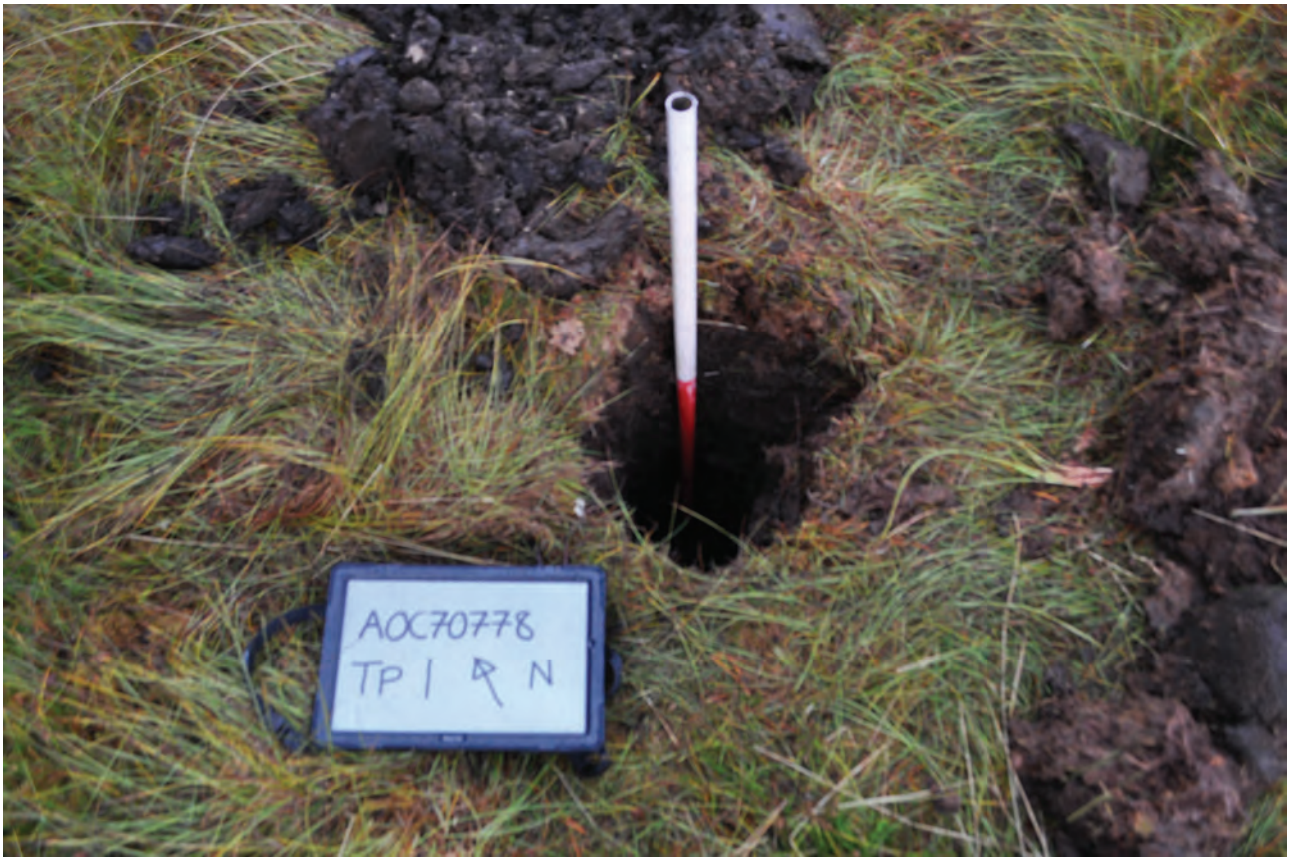



Plate 3: General view of BH01 post-excavation, looking northeast


Plate 4: General view of BH02 post-excavation, looking southeast

Plate 5: Detailed view of BH02 interior post-excavation, looking southeast


Plate 6: General view of BH03 post-excavation, looking southwest