DARTMOOR NATIONAL PARK AUTHORITY

Community Excavation of Features at Hangingstone Hill, Dartmoor

CONTRACT

THIS CONTRACT is made this 28th day of JULY 2016

BETWEEN:

(1) **Dartmoor National Park Authority** of Parke, Bovey Tracey, Newton Abbot, Devon TQ13 9JQ ("DNPA"); **and**

(2) **Cornwall Archaeological Unit** of Cornwall Council, Fal Building, County Hall, Teyew Road, Truro TR1 3AY ("the Contractor")

WHEREAS:

A DNPA wishes to commission the Contractor to organise a community excavation of two cairns situated on Hangingstone Hill ("the Works") with the following objectives:

(i) To shed further light on the use of the White Horse Hill area specifically, and Dartmoor's high moorland more generally, during the Bronze Age

(ii) To enhance our understanding of Dartmoor's cairn monuments few of which, especially those of smaller size, have been excavated to modern standards.

(iii) To further our understanding of the environmental development of the landscape surrounding the White Horse Hill cist grave

B The description of the Works is set out in the Invitation to Tender published in June 2016 ("the Specification") appended at Appendix 1

C The Contractor has by written quotation dated 6 July 2016 appended at Appendix 2 undertaken to carry out the Works in accordance with the Specification.

D The Contractor has agreed to complete the fieldwork by 31 August 2016 and submit a final report with specialist analysis as appropriate on or before 28 February 2017 in order to complete the Works by 31 March 2017.

NOW IT IS HEREBY AGREED that:

1. The Contractor will upon and subject to: -
   - this contract
   - the Specification (Appendix 1)
   - the Contractor's written quotation (Appendix 2)

   carry out the Works and the Authority will pay to the Contractor the sums as shall become due in accordance with this contract.

2 Provision of the Services

The Contractor shall perform the Works in accordance with the Specification together with such written or oral instructions as may from time to time be given by or on behalf of DNPA. The Contractor warrants that the Works will be performed with all due skill, care and diligence, and in accordance with good industry practice and legal requirements.

3 Quality and Description

The Works shall conform as to the quantity, quality and description with the particulars stated in the Specification.

DNPA reserves the right to amend the Specification, including the substitution, deletion and/or addition of conditions and requirements, **PROVIDED ALWAYS** that no amendment shall be made without the Contractor first being afforded the right to make representations to the Lead Officer **AND** also given the opportunity to indicate whether there will be a supplemental charge in respect of any additional work consequent upon the proposed amendment which the Contractor believes was not in the contemplation of the parties at the date of signing the contract

4 Term

The contract shall be for a fixed period from 18 July 2016 until 31 March 2017. The contract shall be capable of extension or renewal on the same or varied terms provided that any such decision to extend or renew is made before the date upon which the contract would otherwise expire.

5 Discrepancies

In the event of any conflict, discrepancy or dispute between the contract, the Contractor's written quotation and the Specification, the provisions shall apply in the following order of precedence:

1 the Contract;
2 the Contractor's written quotation
3 the Specification

6 **Invoicing & Payment**

DNPA will pay to the Contractor the following sums in respect of performance of the Works:

Fieldwork	**£2,776.59**
Post excavation meeting review	**£200**
Archive	**£1,391.25**
Archive report	**£2,040**
	£6,407.84 plus VAT

Payment will be made quarterly in arrears. Progress and performance under the contract shall be deemed satisfactory unless DNPA has stated reasoned dissatisfaction within 15 days of the matter causing concern arising.

DNPA acknowledges that if important finds are made during the excavation fieldwork, there may be a need for specialist analysis, additional fieldwork, palaeoenvironmental opinion and academic publication.

DNPA notes that the following sums have been suggested by the Contractor as realistic contingency sums:

Contingency fieldwork	**£1,012.11**
Palaeoenvironmental	**£1,748**
Specialist analysis	**£4,000**
Publication	**£3,000**
	£9,760.11 plus VAT

The Contractor agrees that no costs, expenses, fees or other sums whatsoever shall be incurred, committed or spent by the Contractor (including in respect of any third party) in work under this contract in excess of the £6,407.84 + VAT stated above without the prior written agreement of DNPA.

7 **Assignment or Sub-Contracting**

The Contractor shall not assign, sub-rogate or transfer the Works or any part or parts of the contract to any other person, firm or company, except with the prior written consent of DNPA

8 **Health & Safety at Work**

The attention of the Contractor is directed particularly to the responsibilities of employers under the Health and Safety at Work Act 1974 (as amended) and Codes of Practice issued by the Health and Safety Executive. The Contractor shall at all times be responsible for ensuring safe systems of work, suitable and safe equipment and a safe working environment for the Works and all activities coming under the scope of the contract.

9 No contract of employment

The parties agree and declare that they enter into this contract as independent contracting parties and that there is no intention to create any contract of employment or mutuality of obligation as employer and employee.

10 Variation of Contract

The contract and its provisions shall only be capable of amendment by a written agreement signed by the parties

11 Bankruptcy/Liquidation etc.

In the event of the Contractor becoming bankrupt or making a composition or arrangement with creditors or having a proposal for a voluntary arrangement for a composition of debts, scheme, or arrangement approved in accordance with the Insolvency Act 1986, DNPA shall be at liberty to cancel the contract by notice in writing without compensation to the Contractor.

12 Corruption

DNPA shall be entitled to cancel the contract and to recover from the Contractor the amount of any loss resulting from such cancellation if the Contractor (whether personally or through any person acting on his/her behalf) shall have:

- offered or given or agreed to give any person any payment, gift or inducement in relation to the obtaining or execution of the contract
- offered or given or agreed to give any person any reward or consideration of any kind for doing or forbearing to do, or for having done or forborne to do any action in connection with the contract
- or for showing or forbearing to show favour or disfavour to any person in relation to the contract
- committed any offence under the Bribery Act 2010, Prevention of Corruption Acts 1889 & 1916 or shall have given any fee or reward the receipt of which is an offence under Section 117(2) Local Government Act 1972

13 Force Majeure

Neither party shall be liable to the other for any delay or failure by either party to perform its obligations under the contract if any such delay or failure arises from any cause or causes beyond the reasonable control of either party, including, but not limited to lightning, earthquakes, riots, acts of terrorism, regulations or orders of any Government, agency or subdivision thereof

14 Termination

DNPA reserves the right to terminate the contract forthwith if at any time it considers that the Contractor is in material or serious breach of obligations under the contract or that the Works or any terms and conditions of the contract are not being performed in a proper and business-like manner or to the true intent and meaning of the same.

The termination of the contract shall have no effect upon the accrued legal rights and obligations under the contract between the parties.

AS WITNESS the hands of the said parties:

For	Dartmoor National Park Authority		Cornwall Archaeological Unit
Signed	L. S. Bray	**Signed**	A Jones
Name	DR. LEE BRAY		Dr ANDY JONES
Position	ARCHAEOLOGIST		Principal Archaeologist

APPENDIX 1

Dartmoor National Park Authority

Community Excavation of Features at Hangingstone Hill, Dartmoor

INVITATION TO SUBMIT A QUOTATION

1. Background

1.1 In 2011excavation of a cist grave on White Horse Hill, Dartmoor (NGR SX 61727 85475), resulted in a discovery of international importance. The work not only revealed the intact cremation burial of a young woman, but also the accompanying grave goods, including artefacts of leather, basketry and hide which had survived in the anoxic peatland environment. Since then, survey work has been ongoing, both by private researchers and as part of the HLF funded *Moor Than Meets the Eye Landscape Partnership Scheme*, to explore the landscape around the Whitehorse Hill cist in order to enhance our knowledge of its archaeological context. This work has identified a number of previously unrecorded archaeological features.

1.2 As the next stage in the investigation of the area, two cairns (designated cairns 1 and 2) situated on Hangingstone Hill (Appendix 2, NGR: SX 61708 86123), identified during these surveys and possibly broadly contemporary with the White Horse Hill grave, have been selected for excavation with the following aims:

(i) To shed further light on the use of the White Horse Hill area specifically, and Dartmoor's high moorland more generally, during the Bronze Age

(ii) To enhance our understanding of Dartmoor's prehistoric cairns, few of which, especially those of smaller size, have been excavated to modern standards.

(iii) To further our understanding of the environmental development of the landscape surrounding the White Horse Hill cist grave.

1.3 This brief invites the submission of a quotation, including a fully costed methodological statement, to undertake this work in conjunction with the Dartmoor National Park Authority (DNPA) archaeology team.

2. Excavation Parameters

2.1 Appendix 1 contains the project design for the excavation of the two cairns.

2.2 You are invited to submit a fixed price quotation for undertaking the excavation in conjunction with the DNPA archaeological team.

2.3 The excavation is planned to commence on 15th August 2016 and continue until 23rd August, although this may vary depending on weather conditions and findings.

2.4 Hangingstone Hill is situated in a remote location on the north-western edge of Dartmoor. The only vehicular access is via *c.* 9 km of military tracks from the vicinity of Okehampton Camp (SX 5882 9303). The tracks vary considerably in condition and in places require a rugged four wheeled drive vehicle to traverse. A parking area is available at the closest terminus of the tracks at (SX 61638 86616) from which the excavation sites are a 500m walk upslope to the summit of Hangingstone Hill. This difficulty of access should be accounted for in quotations.

2.5 The appointed contractor will be responsible for overall on-site direction of the excavation in liaison with the DNPA Archaeologist who will be available on-site for the majority of the work.

2.6 It is anticipated that the excavation will be undertaken using a team consisting of personnel from the appointed contractor, at least one DNPA Archaeologist and a approximately 4-6 volunteers of varying archaeological ability and experience.

2.7 In undertaking the project, Dartmoor National Park Authority will be responsible for the following:

a) Recruitment of suitable volunteers and organisation of and liaison with them. On-site training of volunteers will be undertaken by the DNPA Archaeologist in association with the DNPA Archaeologist.

b) Organisation and supply of excavation equipment for use by volunteers.

c) The transport of volunteers to and from site, although the contractor may also be asked to assist, depending on the vehicles available.

d) Any necessary liaison with the military, who use northern Dartmoor for training purposes.

e) Obtaining relevant permissions from land owners and local Commoners.

f) Obtaining consents from the relevant bodies to undertake excavation within the Dartmoor Site of Special Scientific Interest (SSSI) and SAC (Special Area of Conservation).

2.8 In undertaking the project, the appointed contractor will be responsible for the following:

a) Arranging their own transport to and from site. NB the nature of the tracks to the site will necessitate the use of a suitably rugged four-wheeled drive vehicle.

b) Possibly assist with the transportation of some of the volunteer team on some days, as requested.

c) On-site direction of excavations in liaison with the DNPA Archaeologist.

d) Production of a suitably detailed and illustrated project report.

e) In consultation with DNPA, commissioning and managing specialist post-excavation analysis and investigation, as required.

f) Acquisition of an OASIS number and uploading of the final report to the OASIS database.

g) Acquisition of relevant museum accession numbers for the project.

2.9 Quotations should include a costed and reasoned description of the preferred methodology for achieving the project objectives.

2.10 Quotations should also include a breakdown of resource and budget allocation and details of the anticipated timescale for the work. This should take into account potential delays in the schedule and, as far as possible, post excavation work and reporting.

2.11 The DNPA Archaeologist will be available for advice before, during and following completion of fieldwork.

2.12 Conditions on northern Dartmoor can be unpredictable and extreme. Accordingly contractors are expected to be appropriately equipped and have access to a mobile telephone with reasonable coverage. It will also be advantageous for personnel to be experienced in working under upland conditions.

2.13 The Contractor must be able to guarantee continuity of staff during both the excavation and throughout the project.

2.14 Before the appointed contractor commences work on site a full risk assessment must be prepared and submitted to the DNPA Archaeologist for approval. Given the location of the site within a military firing range, this should include procedures and protocols for dealing with unexploded ordnance.

2.15 Work must be carried out at all times strictly in accordance with the approved risk assessment. No variation may be made without the prior written approval of the DNPA Archaeologist.

2.16 The contractor will be required to provide evidence of Public Liability insurance for not less than £5 million and may be required to provide evidence of Employers Liability Insurance. Additionally, the contractor must acknowledge compliance with DNPA's Safe Code of Practice for Contractors (Appendix 2).

4. Timings and delivery

Task	Date
Submit quotation	8th July, 2016
Successful contractor notified	15th July, 2016
Fieldwork commences	15th August, 2016
Anticipated fieldwork completion	23rd August, 2016
Draft report submitted	31st January 2017
Final report submitted	Within 15 working days of receipt of DNPA comments on draft report

4.1 Quotations must be submitted together with supporting information to: lbray@dartmoor.gov.uk to arrive no later than **12 noon on 8th July 2016**

4.2 It is anticipated that DNPA will be in a position to make an appointment of preferred contractor by 15th July.

4.3 The preferred contractor will be invited to enter into a written contract, to be completed before commencing work on site.

4.4 The contractor will be required to submit a draft report following completion of post-excavation work. Our initial view is that the draft report should be ready for submission by 31st January 2017, however we fully understand the need for some flexibility, particularly if results are awaited from external specialists.

4.5 The report must be appropriately detailed and illustrated and include an executive summary of the results in addition to a description of the methodology and a full discussion of the results.

4.6 The DNPA Archaeologist will comment on the draft report within 15 working days of receipt and set out any revisions requested.

4.7 The contractor will make any necessary revisions and submit the final report in MS Word and pdf formats within 15 working days of receipt of the DNPA comments on the draft report.

4.8 The surveyor will complete an online OASIS form describing the survey, including a digital copy of the report before completion of this contract. The report will also contain the appropriate OASIS number.

4.9 Payment will not be made until a final report has been submitted and the online OASIS form has been completed.

5. Quotations

5.1 Your quotation should provide a single fixed price for all work under the contract, including but not limited to preparation, fieldwork, transport, post excavation work and report writing.

5.2 Your quotation should include:

- Proposed methodology
- Timeline
- A full breakdown of the costs associated with each stage of the contract (eg preparation, fieldwork, transport, report writing, OASIS & museum)
- An hourly rate or day rate for a post excavation review meeting at DNPA headquarters, Parke, Bovey Tracey should this prove necessary.

5.3 You should also include:

- Brief CVs of the personnel who would be involved in the project.
- A list of specialists who it is proposed to approach, as required, for expert analysis, investigation, opinion and assistance during post-excavation work.
- A proposed contingency plan for delays due to poor weather.

6. Submission of Quotations

6.1 Quotations must be submitted together with supporting information to: lbray@dartmoor.gov.uk to arrive no later than **12 noon on 8th July 2016**

6.2 Please note we are unable to receive emails that exceed 6MB in size. If this cannot be achieved, responses should be split into separate emails (entitled 'part 1' and 'part 2' etc.).

6.3 Quotations received after the deadline, sent to any other email address or otherwise not complying with the instructions in this Invitation to Quote are likely to be disqualified.

7. Selection of Contractor

7.1 The contract will be awarded on the basis of confidence in the Contractor's ability to undertake a community archaeological excavation in an upland environment to an appropriate standard in a timely fashion and providing good value for money.

7.2 Selection criteria will include:

- methodology – approach to task; data/output analysis and reporting
- evidence of successful delivery of similar projects
- ability to provide all of the required expertise
- resilience – ability to deliver in the event of unplanned unavailability of key staff
- value for money.

7.3 Criteria will be scored in line with the following:

Criteria	Score	Weighting	Max Score
Methodology	1-5	x2	10
Evidence of successful delivery of comparable work	1-5	x4	20
Resilience – ability to deliver in the event of unplanned unavailability of key staff etc	1-5	x1	5
Value for money	1-5	x3	15
TOTAL			**50**

8. Contract Award

Please note the following:

- any costs incurred in preparing your quotation are entirely at your own risk
- DNPA reserves the right not to make any appointment and not to accept the lowest quotation
- DNPA reserves the right to contract some or all of the elements quoted for
- The details and timings of payments will be discussed with the selected contractor and specified in the contract
- The selected contractor will be invited to enter into a formal contract in the terms of this invitation to quote, the submitted quotation and the Authority's standard conditions of contract (Appendix 3)

9. Intellectual Property Rights

It is DNPA's intention that all raw elevation and derived data, text, illustrations, information, correspondence and all documents acquired, created or otherwise obtained in any work under the contract shall be the sole property of DNPA and that DNPA shall be free to use such material or any part thereof as it sees fit.

10. Freedom of Information

You are advised that information relating to any contract or procurement exercise to which DNPA is party, including information about price and performance, is covered by the Freedom of Information Act 2000 (the Act). DNPA is under a legal obligation to disclose such information if requested unless an exemption under the Act applies.

Any person submitting a quotation or entering into a contract with DNPA should, as part of the contract process, inform DNPA of any information which it regards as being eligible for a claim for exemption from disclosure by DNPA under the Act. The final decision as to what information can be disclosed rests with DNPA .

11. Clarification and Queries

If clarification is required on any issue within this Invitation to Quote, questions should be directed to the authorised persons for the purpose of this contract:

1. Lee Bray, Archaeology

lbray@dartmoor.gov.uk (01626) 831035

2. Christopher Walledge, Head of Legal & Democratic Services
cwalledge@dartmoor.gov.uk (01626) 831068

12. Appendices

Appendix 1 Project design

Appendix 2 Map showing locations of cairns on Hangingstone Hill

Appendix 3 Standard conditions of contract

Appendix 1
Hangingstone Cairns Project Design

1.0: Summary

Following the excavations of the White Horse Hill cist in 2011, subsequent survey work in the area has been ongoing in order contextualising the discovery. This work has identified several previously unrecorded features including two possible Bronze Age cairns on Hangingstone Hill. This document details a project to undertake community excavation of these two feature in August 2016.

2.0: Archaeological Background

In 2011 the excavation of a cist grave on White Horse Hill, Dartmoor (NGR SX 61727 85475) (Figure 1), resulted in a discovery of international importance. The work not only revealed the intact cremation burial of a young woman dating to the Early Bronze Age, but also the accompanying grave goods, including artefacts of leather, basketry and hide which had survived in the anoxic peatland environment.

Since then further archaeological work has been undertaken in the area for various reasons. This has included walkover survey by Alan Endacott, a local amateur researcher, recording of eroded profiles of the large Late Neolithic/Early Bronze Age cairn on the summit of Hangingstone Hill by DNPA.

A more focussed programme of investigation is now underway by volunteers led by the DNPA archaeology team under the aegis of the *Unveiling the Bronze Age of the High Moorsamd Forests Project* which is part of the HLF-funded *Moor Than Meets the Eye Landscape Partnership Scheme (MTME)*. The purpose of this work has been to contextualise the White Horse Hill cist grave by enhancing understanding of the Bronze Age archaeology in the landscape surrounding it. To date, a peat depth survey of the Sittaford stone circle (SX 63013 82818) and a walkover survey of the summit of the White Horse Hill ridge, running from Hangingstone Hill to the north, to Quintin's Man in the south (Figure 1), have been completed. The latter have identified a number of previously unknown and possible archaeological features. Geophysical survey employing earth resistance and gradiometer survey has also been undertaken as part of this programme by Bournemouth Archaeology in April 2016 (Appendix 1).

This project design details the next stage in this programme of work; the excavation of two cairns, identified during walkover survey, on Hangingstone Hill which will take place in the second half of August 2016.

3: Project Aims

The *Hangingstone Cairns Project* is a community excavation forming part of the MTME *Unveiling the Bronze Age of the High Moors Project* and has the following aims:

1: To shed further light on the use of the White Horse Hill area specifically, and Dartmoor's high moorland more generally, during the Early Bronze Age.

2: To enhance our understanding of Dartmoor's cairns few of which, especially those of smaller size, have been excavated to modern standards.

3: To further our understanding of the environmental development of the landscape surrounding the White Horse Hill cist grave.

In terms of the South West Archaeological Research Framework (SWARF) (Webster, 2008), the *Hangingstone Cairns Project* will contribute to Research Aims: 4, 18, 54 and 57.

4: Site Description

In order to achieve these aims, the project will undertake excavation of two relatively small cairns near the summit of Hangingstone Hill. These features are designated Cairn 1 (SX 61662 86055) (Figure 2) and Cairn 2 (SX 61928 86137) (Figures 3 and 4) and were both identified during walkover survey by the *Unveiling the Bronze Age Project* and Alan Endacott respectively.

Cairn 1

This feature is situated on the western side of the summit of Hangingstone Hill with panoramic views to the west and consists of a roughly circular stony mound with a diameter of approximately 3 m and a height of up to 0.25m. There is some evidence for the presence of a curb consisting of edge-set stones of up to 0.4m size while a scattering of small upright stones surrounding the mound may suggest associated structures or disturbance. Currently, this feature is interpreted as a possibly disturbed prehistoric cairn, although a more recent origin is possible given its proximity to the military observation post on the summit of Hangingstone Hill.

Cairn 2

This feature, occupying a prominent position overlooking the head of Watern Combe, consists of an ovoid mound measuring 8m by 6m with a height of approximately 0.5m. The fabric of the mound is stony with large boulders, up to 0.8m in size protruding from the turf covering it. There is some evidence suggesting it may be located on a slight platform in the hillslope for which there is some support in the results of earth resistance survey undertaken on the site. This shows a curving linear trend of elevated resistance to the south and east of the cairn which may be the result of material dumped downslope from the excavation of a platform (See Appendix 1, Figure ???). Currently, Cairn 2 is interpreted as a potentially undisturbed prehistoric cairn.

5: Project Objectives

The objectives of the project are as follows:

1: To obtain dating evidence for the construction and use of Cairns 1 and 2 (Aims: 1 and 2).
2: To understand the composition, structure and purpose of Cairns 1 and 2 (Aim 2).
3: To sample, analyse and date any buried soil horizons which may be present beneath Cairns 1 and 2 (Aim 3).

6: Method Statement

The project objectives will be achieved through the archaeological excavation and recording of Cairns 1 and 2. The extent of excavation of each cairn will depend on findings as work progresses and available resources, but at a minimum will entail cutting at least one section through each feature and the excavation of any deposits within and/or beneath them. In the case of Cairn 1, excavations will be sufficiently large to encompass some of the upright stones surrounding it in order to ascertain whether these are anthropogenic features. For Cairn 2 excavation will also be undertaken to investigate whether the feature is located on a prepared platform in the hillslope.

The summit of the White Horse Hill ridge between White Horse Hill and Hangingstone Hills is covered by blanket bog. The insertion of the White Horse Hill cist into peat indicates this was already well-developed in the Early Bronze Age. In addition, the identification of a layer of peat beneath the large cairn on the summit of Hangingstone Hill, which is currently *c.* 150m outside the northern edge of the bog, suggests the extent of peat coverage may once have been greater than it is today. The development of the blanket bog is thus of considerable

importance in untangling the landscape history of this area. Accordingly, any relict land surfaces, palaeosols or peat deposits sealed by the cairns will also be identified and sampled for analysis during the post excavation phase of the project.

All excavations will be undertaken by hand and according to the guidelines laid out by *Cifa* in the *Standard and Guidance for Archaeological Excavation 2014*.

Trenches will be tied to the British National Grid to an accuracy of +/- 3m.

At the end of fieldwork, both cairns will be reinstated to a morphology as close to their pre-excavation state as is possible.

Both cairns are located within the North Dartmoor SSSI. Accordingly, during excavation turf and topsoil will be kept separately and reinstated at the end of the excavation.

7.0: Project Team

The Hangingstone Cairns Project is a community excavation and, as such, will be undertaken by local volunteers of varying levels of ability. Site direction will be the responsibility of a suitable archaeological contractor commissioned by the DNPA Archaeologist who will also be on-site in order to aid all aspects of the project.

8.0: Archiving

The project archive and any finds will be offered to Plymouth City Museum under an accession number obtained by the appointed contractor.

9.0: Health and Safety

Excavation will be undertaken according to the appropriate *Cifa* guidelines and DNPA's *Safe Code of Conduct for Contractors.*

Volunteers and DNPA will operate under the relevant DNPA insurance while contractors should have Employer's Liability Insurance and Public Liability Insurance with a minimum of £5,000,000 cover.

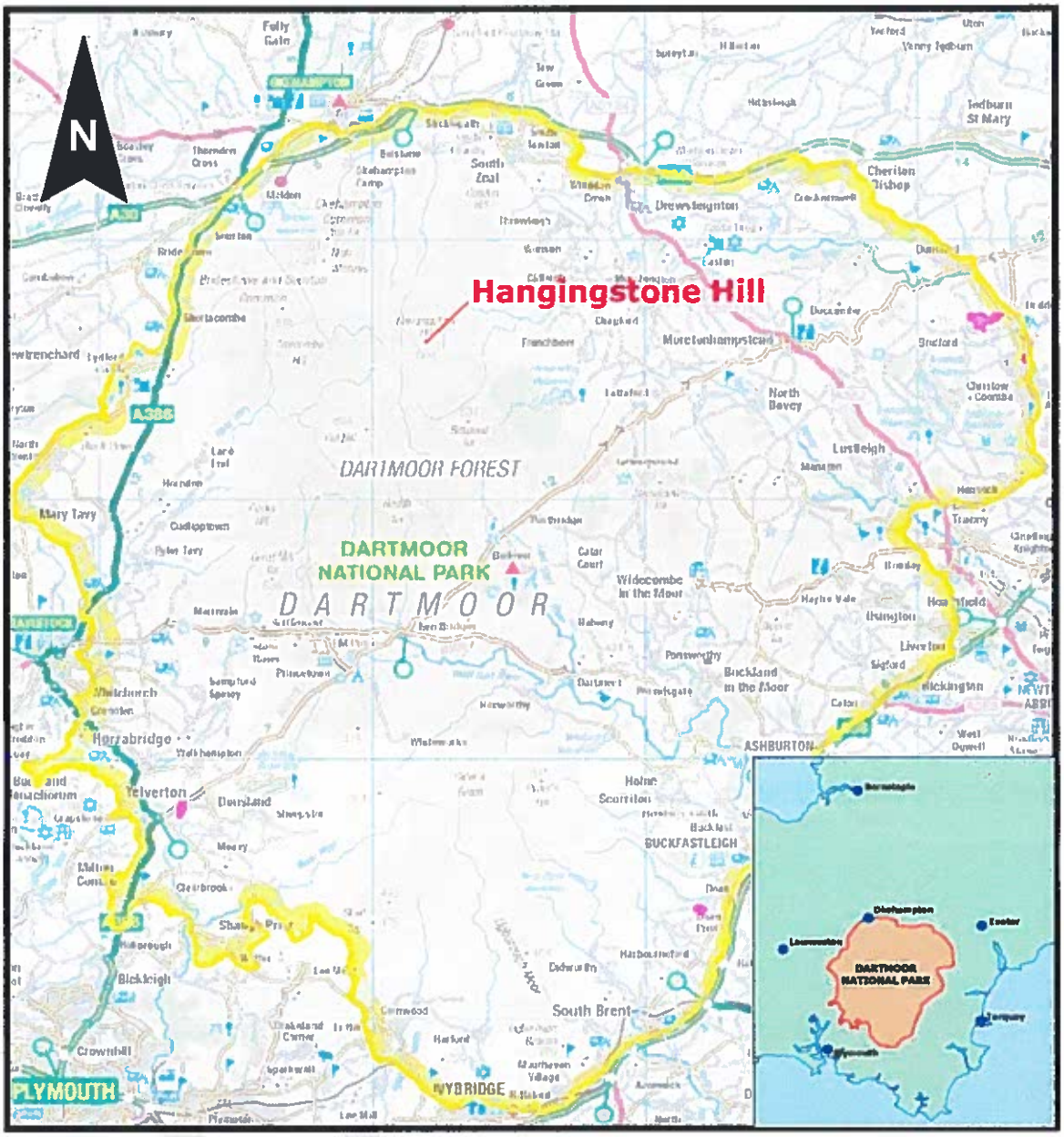

Figure 1: Map showing the location of Dartmoor National Park and Hangingstone Hill. (Crown Copyright and Database Rights 2015 Ordnance Survey 1000024842.

Figure 2: Cairn 1 from the south-east.

Figure 3: Cairn 2 from the west.

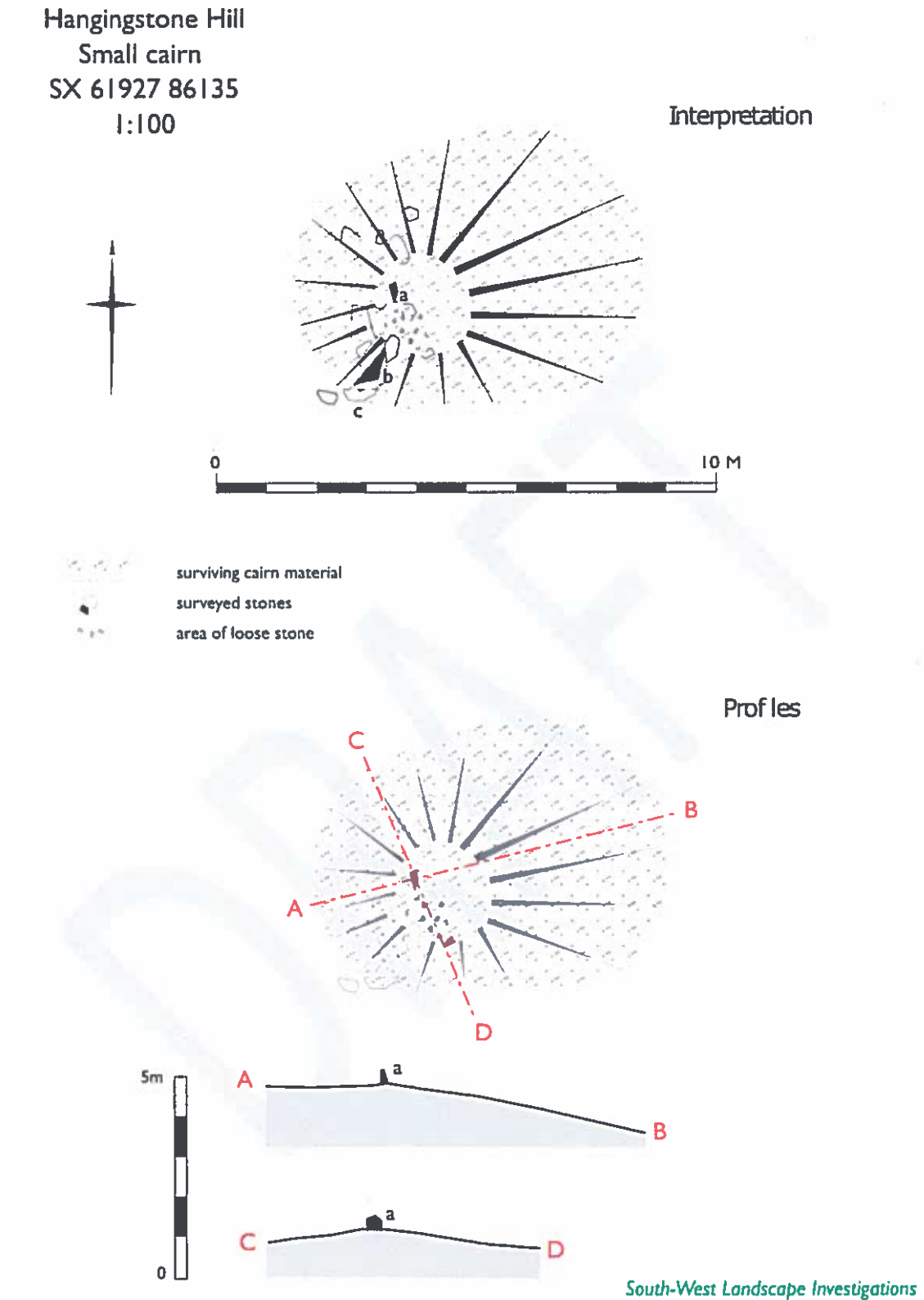

Figure 4: Analytical earthwork survey of cairn 2 (©South-West Landscape Investigations).

Project Design Appendix 1: Geophyiscal Survey Results

Geophysical Survey of land at Hangingstone Hill, Dartmoor

Project Code: 0168

May 2016

Geophysical Survey of land at Hangingstone Hill, Dartmoor

Prepared on behalf of:

Dartmoor National Park Authority
Parke
Bovey Tracey
Newtown Abbot
TQ13 9JQ

Bournemouth Archaeology Project Code 0168

Report Reference 0168-02

OASIS ID - bournemo1-254373

May 2016

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Issue	01

Bournemouth University
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CONTENTS

FIGURES

Executive Summary

Project Name	Geophysical Survey of Land at Hangingstone Hill, Dartmoor
Location	Hangingstone Hill, Dartmoor
NGR	(NGR SX 61658 86059)/(NGR SX 61929 866139) (centre)
Type	Geophysical Survey
Date	May 2016
Job Code	0168

Summary

BUARC, Bournemouth University's archaeological consultancy, was commissioned by Dartmoor National Park Authority to undertake a geophysical survey as part of a programme of archaeological work ahead of proposed investigation and excavation of two possible cairns on Hangingstone Hill, Dartmoor.

A Written Scheme of Investigation for Geophysical Survey was prepared and approved prior to the fieldwork that proposed a complementary survey of gradiometry and earth resistance over two areas (Area 1 and Area 2) measuring 40m x 40m centred on (NGR SX 61658 86059) and (NGR SX 61929 866139) respectively. Each survey area was established due to the presence of concentrations of stones visible on the surface.

The gradiometer survey was undertaken using Bartington Grad 601-2 fluxgate gradiometers, with data collected at 0.125m intervals along traverses spaced 1m apart. Earth resistance data were collected using a Geoscan Research RM15 in parallel twin configuration at 1m x 1m intervals. Twenty metre grids were established along a common baseline and georeferenced using Leica survey-grade GNSS to Ordnance Survey British National Grid coordinates. The total survey area comprised c.3200 m^2 across the two survey areas.

The gradiometer data demonstrated the presence of few areas of magnetic enhancement in each survey area, while the earth resistance survey identified a number of high resistance anomalies potentially representing features of archaeological origin. In Area 1 a central area of high resistance has been identified in the location of a group of slightly raised area of stones evident on the surface of the survey area. These stones had been identified as potentially representing the location of a burial cairn prior to the survey, and the survey results show an area of high resistance, orientated NE/SW, measuring c. 16m x 8m in this location.

In Area 2 a central area of high resistance has been identified measuring c. 4.5m x 8m. Similar areas of high resistance have also been identified towards the south west and east, along with a liner trend orientated SW/NE.

The effectiveness of the two complementary techniques can be seen clearly. While the gradiometer survey has detected weak magnetic anomalies in each survey area, it is probable that these would be overlooked if not backed up by the earth resistance results.

1 INTRODUCTION

1.1 Project Background

1.1.1 BUARC, Bournemouth University's Archaeology Consultancy, has been appointed by Dartmoor National Park Authority (DNPA) to carry out a geophysical survey as part of a programme of archaeological work on the possible locations of two cairns on the summit of Hangingstone Hill, Dartmoor, hereafter the 'survey areas'.

1.1.2 Archaeological excavation is planned on Hangingstone Hill for summer 2016, as part of the Moor Than Meets the Eye Landscape Partnership Scheme, a conservation initiative focused on eastern Dartmoor and funded by the Heritage Lottery Fund. The Scheme will focus on features of possible Bronze Age date identified in earlier field survey.

1.1.3 The aim of the geophysical survey is to maximise the available information with the survey results being used to characterise the geophysical signature of the target features.

1.1.4 This geophysical survey was carried out in accordance with current guidance (English Heritage, 2008) and was carried out by BUARC staff between 19th and 21st April 2016.

1.2 Objectives

1.2.1 The primary objectives of the geophysical surveys were to carry out gradiometer and resistivity surveys to locate geophysical anomalies that may be archaeological in origin.

1.2.2 The interpretation of any identified anomalies will improve the understanding of the nature and extent of archaeological remains and inform and guide the excavation.

1.3 Site Description

1.3.1 The survey areas were located on the summit of Hangingstone Hill on the north eastern edge of Dartmoor, accessed via c. 9km of military track from Okehampton Camp (SX 5882 9303). The Sites were centred on the location of possible cairns;

Area 1 (NGR SX 61658 86059) measured c.970m²

Area 2 (NGR SX 61929 866139) measured c. 1040m².

1.3.2 Each survey area has been centred on an area of stones identified on the surface as potentially representing the location of cairns. Each of these areas was slightly raised with heavier vegetation growth than the surrounding vicinity.

1.3.3 For ease of data collection each survey area was increased in area to 1600m² each to allow a 40m x 40m grid to be used for each area.

1.4 Survey Conditions

1.4.1 The conditions for survey were generally good. The vegetation cover was predominantly mixed coarse grasses. The weather was dry but with strong winds throughout the survey.

2 METHODOLOGY

2.1 Field Survey

2.1.1 The survey area was divided into square grids measuring 20m x 20m, centred on a central point identified by Dartmoor National Park's Archaeologist on the first day of the data collection.

2.1.2 The gradiometer survey was undertaken using the dual-sensor Bartington Grad 601-2 vertical fluxgate gradiometer to complete a full gradiometer survey of the area. Data were collected at 0.125m intervals along traversed spaced 1m apart. This equates to 3200 sampling points in each full 20m x 20m grid.

Each grid was surveyed in a zigzag fashion. This sampling interval is effective at locating a wide range of archaeological features and is the recommended methodology for archaeological prospection (English Heritage, 2008).

2.1.3 Gradiometer survey measures extremely small changes in the Earth's background magnetic field and is sensitive to anomalies produced by alterations in the magnetic enhancement of the soil. Archaeological features resulting from human activity, such as episodes of burning, soil disturbance or depositions, can produce measurable changes in the magnetic properties of the soil, and the magnitude and distribution of these changes allow the diagnostic interpretation of these anomalies. The Grad-601 is sufficiently sensitive to detect archaeological anomalies at depths of up to 1m, although strongly magnetised anomalies may be detected at greater depths in certain conditions.

2.1.4 The electrical resistance survey was undertaken using the RM15-D Resistance Meter in parallel twin probe configuration. The grids were surveyed in a zigzag pattern taking readings at 1.0m intervals along traverses set 1.0m apart, with readings stored on an internal data logger.

2.1.5 Resistivity survey operates by passing an electrical current through the ground at regular points on a site-specific survey grid. Electrical resistance in the soil varies, and is affected by the presence of archaeological, and other, features. Soil resistance survey relies on the ability of the soil to conduct an electrical current passed through it. This is affected by a number of factors, such as the underlying geology, soil moisture and porosity and the presence of sub-surface features, with the current following the path of least resistance.

2.1.6 A low resistivity response will be recorded if the current passes through a low conducting feature, such moisture retaining feature, like a back-filled ditch. Conversely a higher resistivity response will be recorded above a more insulating feature, such as a stone wall, where the current will find an easier path by flowing around it. The patterns of resistance in the soil are recorded, plotted and interpreted.

2.1.7 All fieldwork was carried out in accordance with the existing national guidelines (EH 2008).

2.2 Data processing

2.2.1 The data gathered during the survey were downloaded, processed and analysed using specialist processing software. The software allows greyscale and XY trace plots to be produced for presentation and display and allowed the data to be processed and presented in an appropriate format for this report. Survey grids are assembled to form an overall composite of data creating a dataset of each complete survey area.

2.2.2 In line with current guidelines (EH 2008), only minimal data processing was carried out, in order to enhance the results of the survey for display; further filtering is noted below and presented separately in the figures. Raw and minimally processed data are always analysed as processing can modify anomalies. The following schedule sets out the basic data and image processing used in this survey;

- Zero mean traverse (gradiometer only) to normalise differences between sensors
- Destagger (gradiometer only) to correct for the effects of topography and ground cover
- Deslope (gradiometer only) to correct for the effect of strong magnetic disturbance
- Edge-matching (resistance only) to maintain continuous background between grids
- Despiking (resistance only) to remove effects of ground cover and contact resistance
- High-pass filtering (resistance only) to enhance local variability & supress background

2.2.3 **Figures 2 to 5** display the minimally processed data as greyscale and XY trace, and interpretation of the survey data respectively.

3 RESULTS

3.1 Overview

3.1.1 Geophysical anomalies can be categorised as linear, curvilinear and discrete responses of archaeological potential, anomalies and regions of uncertain origin, and responses consistent with natural or geological origins. Anomalies clearly anthropogenic in origin but considered to be modern in provenance, such as dipoles associated with ferrous debris and pipelines, have been identified but are not referred to further unless relevant to the archaeological interpretation.

3.1.2 The archaeological interpretation refers to anomalies identified with alphanumeric characters where relevant. Anomalies identified as being 'Archaeology', 'Probable Archaeology' and 'Possible Archaeology' are considered to be areas of archaeological potential. Given the target features within this investigation were cairns the earth resistance data interpretation refers only to high resistance and linear trend anomalies, while the gradiometer data interpretation refers to ferrous anomalies and linear trends.

3.1.3 The dimensions of magnetic anomalies may not reflect the physical dimensions of the underlying features, and are presented here to inform the archaeological interpretation only.

3.2 Gradiometer Survey Results

3.2.1 Within the gradiometer data for each area (**Figures 2 & 3**) few anomalies were recorded. Isolated ferrous anomalies can be seen in each survey area. Central to Area 1 an area of magnetic enhancement was recorded, possibly relating to a feature of archaeological origin, while further magnetically enhanced areas to the south and east may also be archaeological in origin. A concentration of weak magnetic anomalies was recorded towards the north western quadrant of Area 2 and may also be archaeological in origin.

3.2.2 Weak linear trends were recorded in both areas and are considered to be a result of topography as opposed to being of archaeological origin. Other weak trends and isolated ferrous anomalies were also recorded, although their character is not considered consistent with archaeological features and as such these have been interpreted as relating to ferrous debris and near-surface changes.

3.3 Earth Resistance Survey Results: Standard Density

3.3.1 Within the resistance data for each area (**Figures 4 & 5**) areas and bands of high resistance anomalies were recorded.

3.3.2 In Area 1 a centrally located area of high resistance was recorded. This is relatively well defined and is considered to be of possible archaeological origin; the background resistance response further northwest is more textured and the high resistance anomalies across the rest of the survey area are less distinct. Other high resistance anomalies were recorded to the north and east extending beyond the limit of the survey area.

3.3.3 In Area 2 a series of high resistance areas were recorded. The most central of these is relatively well defined and is considered to be of possible archaeological origin. A relatively well-defined strong linear trend from south west to north east in close proximity to another well-defined area of high resistance may also be of archaeological origin.

4 DISCUSSION

4.1 Summary

4.1.1 The geophysical surveys have demonstrated the presence of previously unknown anomalies of archaeological potential, possibly representing cairns.

4.1.2 In Area 1 a central area of high resistance has been identified in the location of a group of slightly raised area of stones evident on the surface of the survey area. These stones had been identified as potentially representing the location of a burial cairn prior to the survey, and the survey results show an area of high resistance, orientated NE/SW, measuring *c.* 16m x 8m in this location.

4.1.3 In Area 2 a central area of high resistance has been identified measuring *c.* 4.5m x 8m. Similar areas of high resistance have also been identified towards the south west and east, along with a liner trend orientated SW/NE.

4.1.4 The effectiveness of the two complementary techniques can be seen clearly; whilst gradiometer survey is typically considered to detect a wider range of archaeological features, earth resistance survey is considerably more suited to the identification of buried solid features. While the gradiometer survey has detected weak magnetic anomalies in each survey area, it is probable that these would be overlooked if not backed up by the earth resistance results.

5 STATEMENT OF INDEMNITY

5.1.1 Geophysical survey is the collection of data that relate to subtle variations in the form and nature of soil. Surveys may not always detect sub-surface archaeological features due to a range of factors, although attempts will be made to identify areas where this may be the case. Agricultural activity, such as ploughing and drainage, deeper areas of topsoil from artificial build-up and varying soil conditions may affect the detection of features. This may also be true when dealing with earlier periods of human activity, for example those periods that are not characterised by sedentary social activity.

5.1.2 This report contains at least one image of minimally processed data to represent the results of the survey. Any additional processing necessary to enhance the interpretation of the data is noted in this report, for instance where a large number of strong, dipolar responses are recorded that can mask more subtle responses.

6 COPYRIGHT

7 ACKNOWLEDGEMENTS

7.1.1 BUARC would like to thank DNPA for commissioning the project and DNPA Archaeologist Lee Bray for liaison prior to the data collection and meeting the survey team on site on the first day of the survey.

7.1.2 The geophysical survey was undertaken by Jon Milward and Alan Whitaker. The geophysical data were processed, interpreted and reported upon by Jonathan Monteith, which was then edited and issued by Jonathan Monteith. The project was managed for Bournemouth University by Jonathan Monteith.

8 REFERENCES

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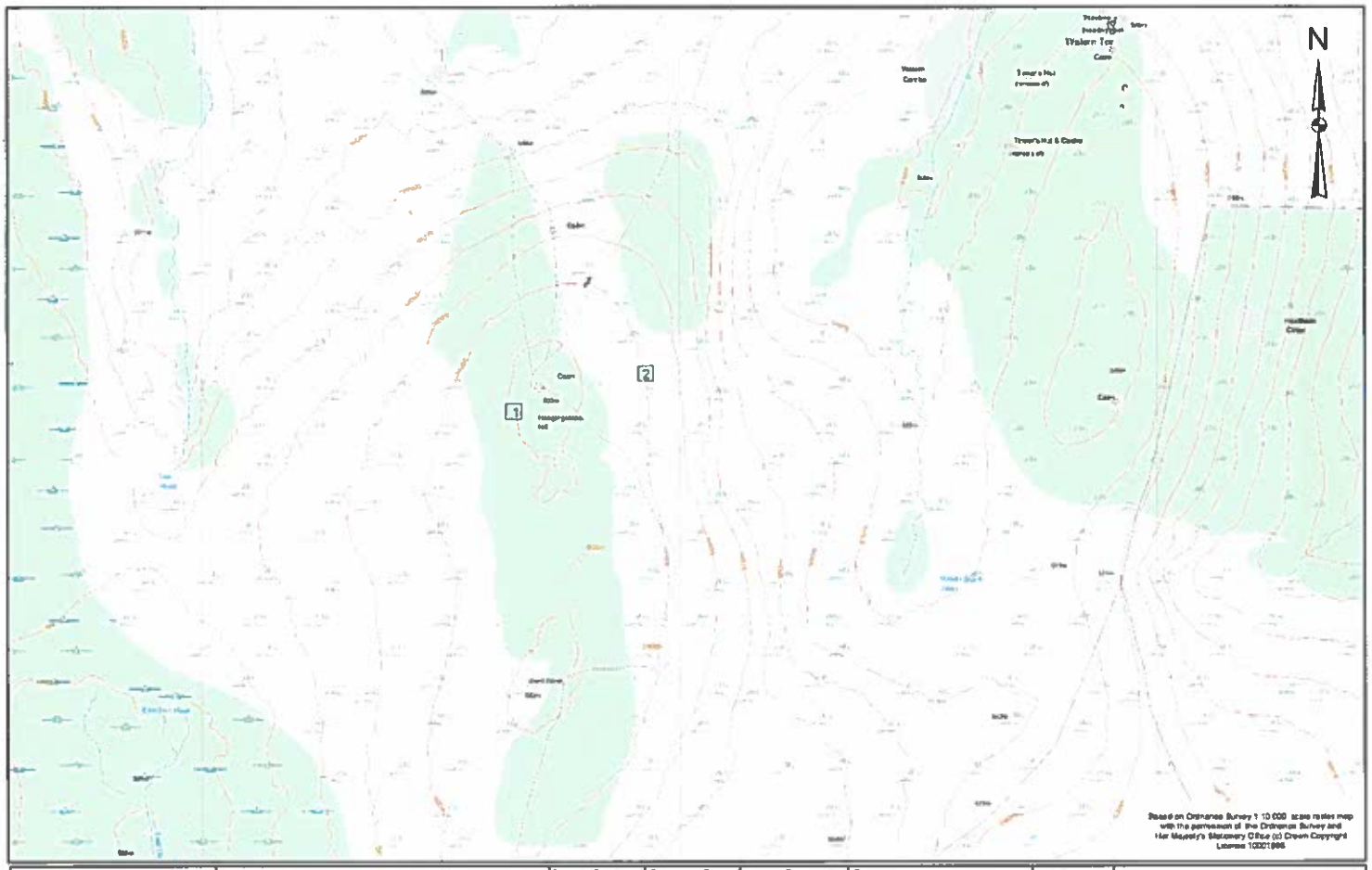
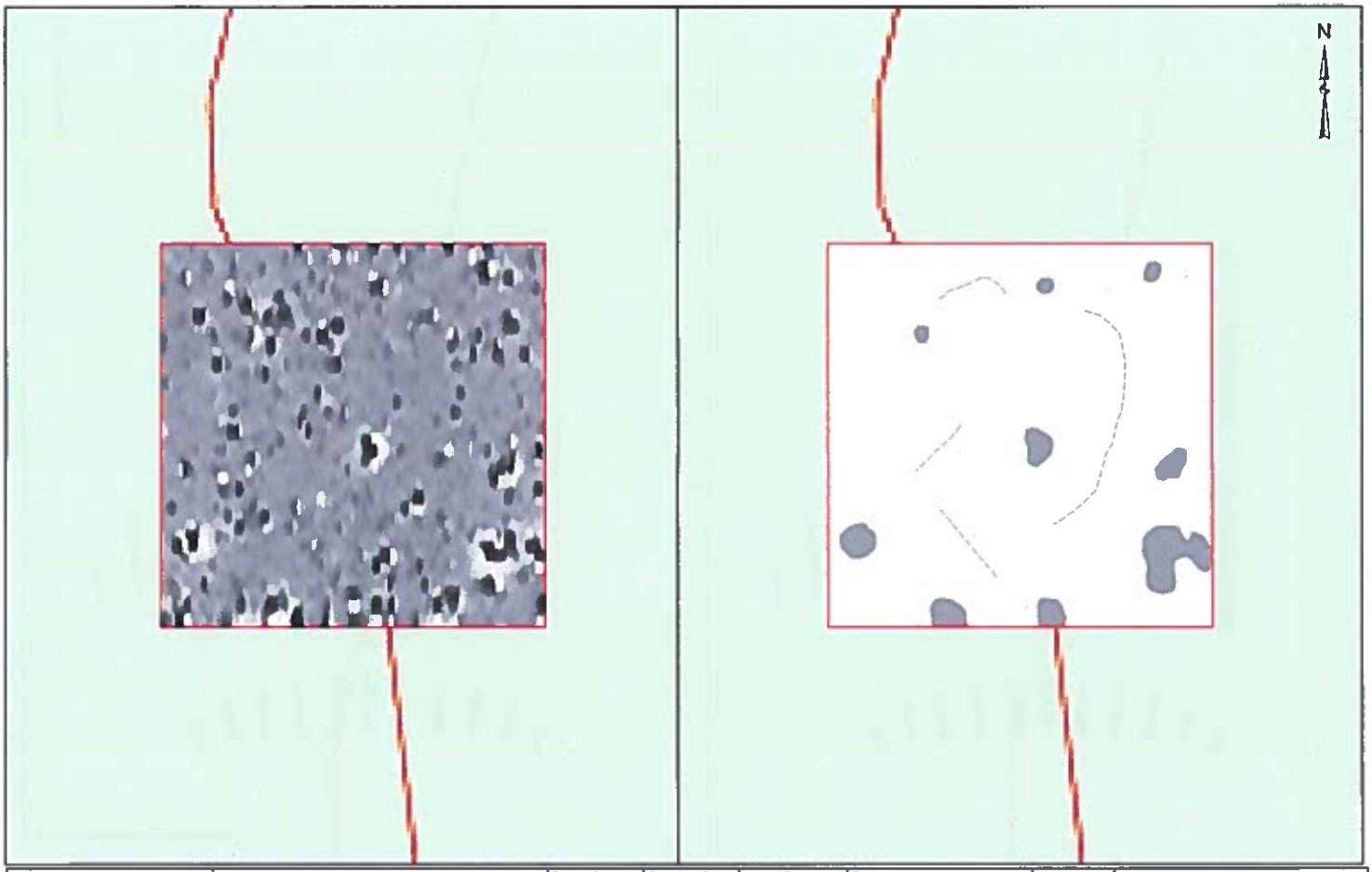
Professional Service Guideline No.1. 2nd ed. Swindon: English Heritage.

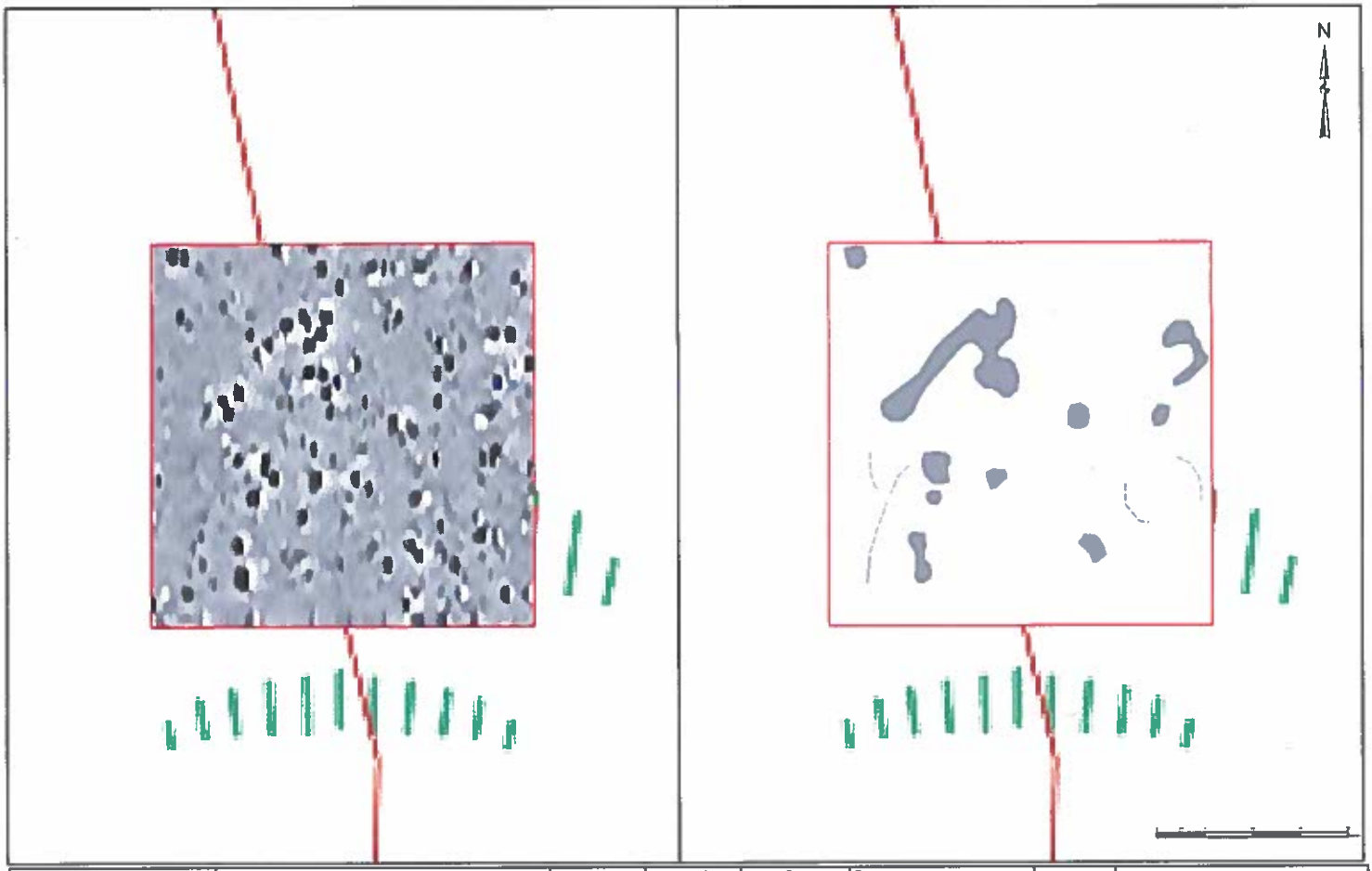
Schmidt, A., 2013. *Guide to Good Practice: Geophysical Data in Archaeology*. 2nd ed. York: Archaeology Data Service.



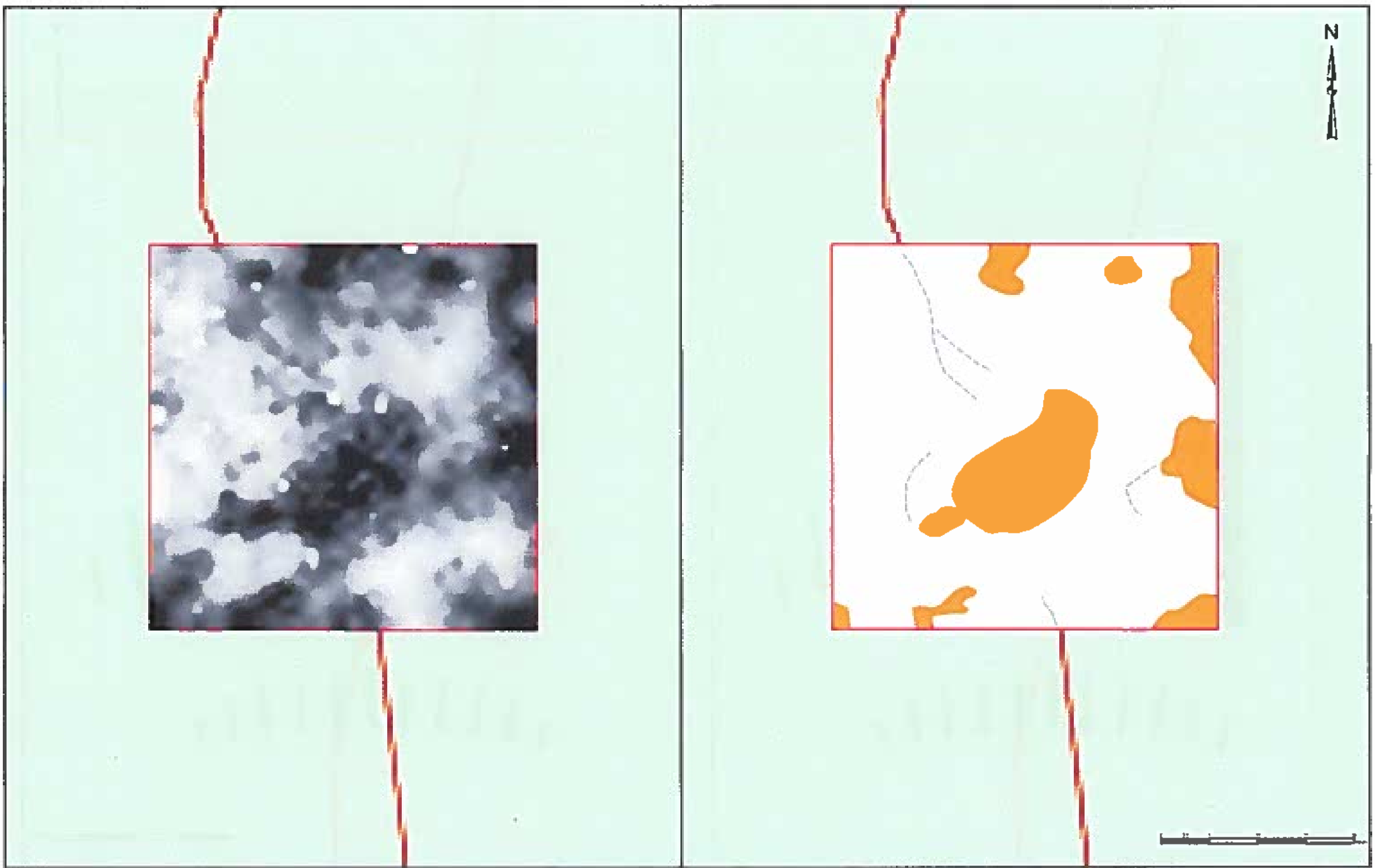
Title Figure 1 Survey area locations	Legend Geophysics Survey Areas	Project Code 0168	Compiled By JM	Issued By JM	Site Hangingstone Hill, Dartmoor		BUARC C216 Christchurch House Fort Bumpa Poole Dorset BH12 5BB Tel +44 (0) 1202 965255 Mob +44 (0) 7984 539449 Email heritage@bournemouth.ac.uk BUARC *Protecting the past supporting the future*
		Date 12/05/2016	Scale 1:10,000	Drawing No. Figure 1	Project Geophysical Survey		



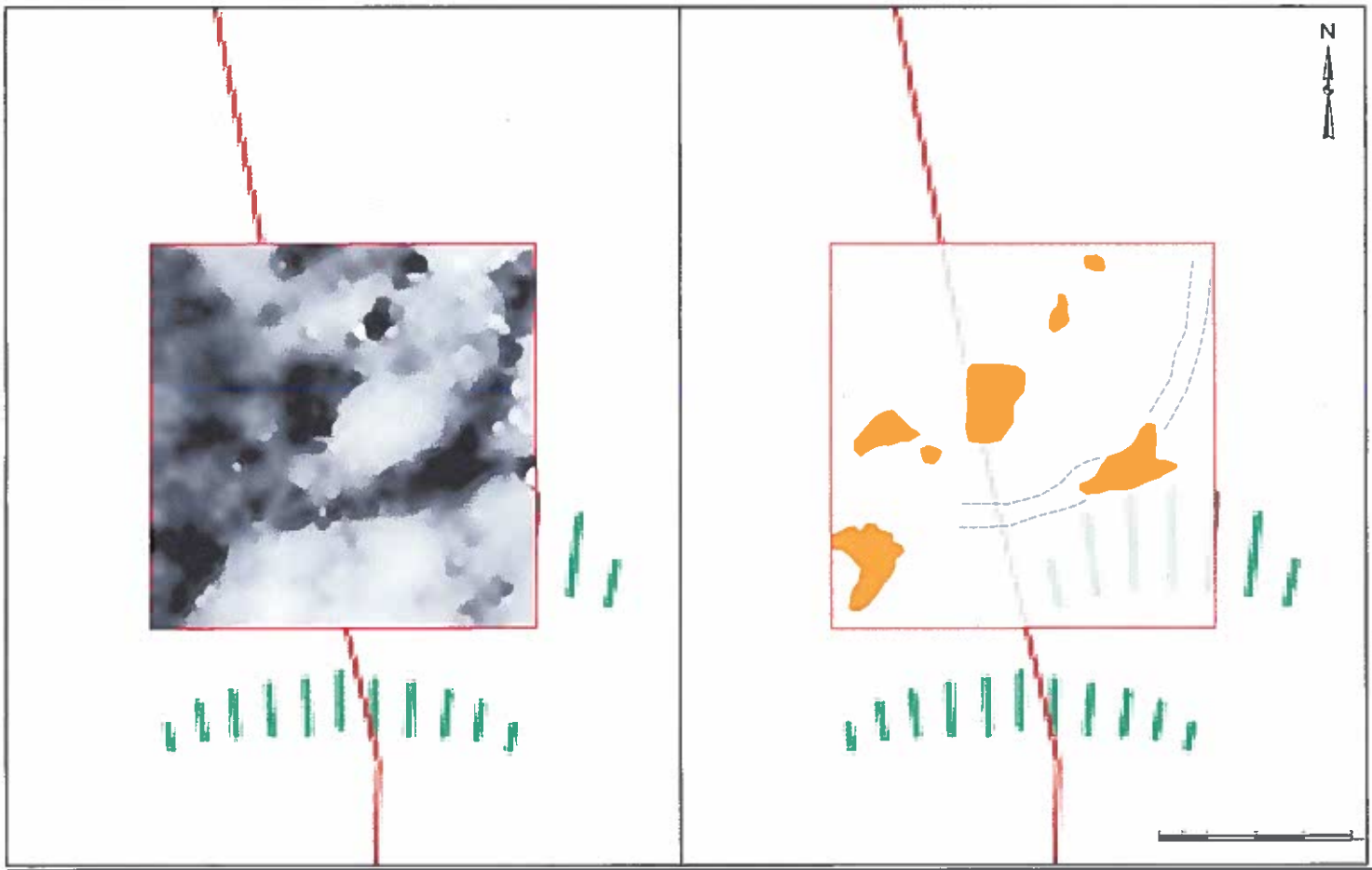
Title Gradiometer Survey: Greyscales and Interpretation - Area 1	Legend Survey Area 1 boundary Area 1 Ferrous Anomaly Area 1 Trend	Project Code 0158	Compiled By JM	Issued By JM	Site Hangingstone Hill, Dartmoor	BUARC C216 Christchurch House Fern Barrow Poole Dorset BH12 5BB Tel +44 (0) 1202 965795 Mob +44 (0) 7984 580448 Email heritage@bournemouth.ac.uk BUARC *Protecting the past, supporting the future*
		Date 12/05/2016	Scale 1:500	Drawing No. Figure 2	Project Geophysical Survey	



Title Gradiometer Survey: Greyscales and Interpretation - Area 2	Legend Survey Area 2 boundary Area 2 Trend Ferrous Anomaly	Project Code 0168	Compiled By JM	Issued By JM	Site Hangingstone Hill, Dartmoor	BUARC C216 Christchurch House Fern Barrow Poole Dorset BH12 5BB Tel: +44 (0) 1202 965290 Mob: +44 (0) 7984 559449 Email: heritage@bournemouth.ac.uk BUARC *Protecting the past, supporting the future*
		Date 12/05/2016	Scale 1:500	Drawing No. Figure 3	Project Geophysical Survey	



Title	Legend	Project Code	Compiled By	Issued By	Site		
Earth Resistance Survey: Greyscale (minimally processed & filtered data) & Interpretation: Area 1	Survey Area 1 boundary; High Resistance; Resistance Trend	0168	JM	JM	Hangingstone Hill, Dartmoor		BUARC C219 Christchurch House Fern Barrow Poole Dorset BH12 5BB; Tel +44 (0) 1202 965295 Mob +44 (0) 7984 559443 Email: heritage@bournemouth.ac.uk
		Date	Scale	Drawing No.	Project		BUARC
		12/05/2016	1:500	Figure 4	Geophysical Survey		Protecting the past, supporting the future



Title Earth Resistance Survey: Greyscale (minimally processed & filtered data) & Interpretation: Area 2	Legend Survey Area 2 boundary High Resistance Resistance Trend	Project Code 0168	Compiled By JM	Issued By JM	Site Hangingstone Hill, Dartmoor	BUARC C216 Christchurch House Fern Barrow Poole Dorset BH12 5BB Tel: +44 (0) 1202 965795 Mob: +44 (0) 7984 508448 Email: heritage@bournemouth.ac.uk BUARC Protecting the past, supporting the future
		Date 12/05/2016	Scale 1:500	Drawing No. Figure 5	Project Geophysical Survey	

Appendix 2

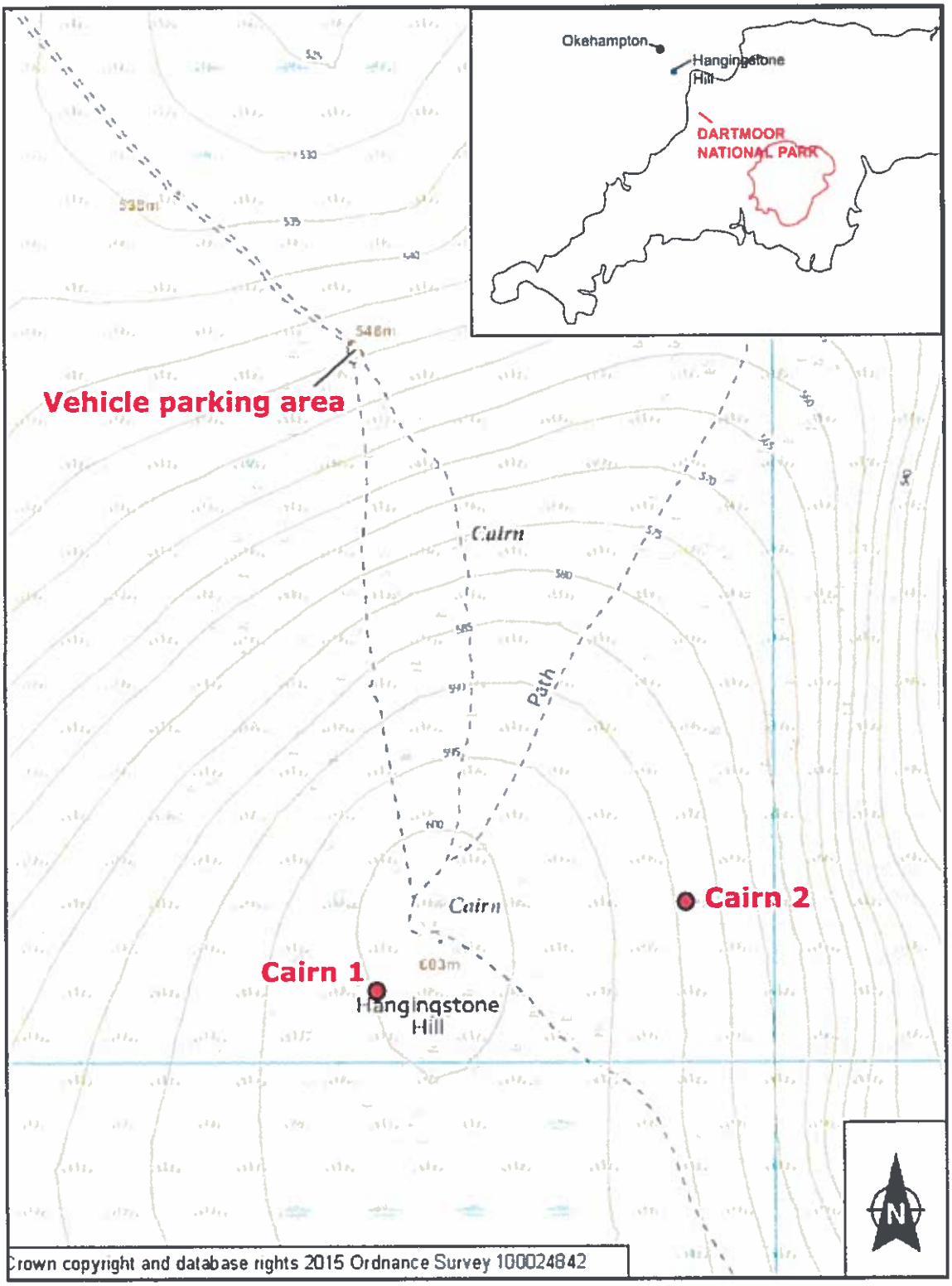


Figure 1: Map showing the locations pof cairns 1 and 2 and the vehicle parking area at Hangingstone Hill (approximate scale 1:5000).

Appendix 3

1 Definitions

In these General Conditions of Contract the following terms shall have the following meanings:

"Authority" Dartmoor National Park Authority

"Contractor" .....

"Contract" The contract for the provision by the Contractor of .....

"Specification" The Invitation to Quote issued by the Authority dated .....

2 Provision of the Services

The Contractor shall perform work under the contract in accordance with the Specification together with such written or oral instructions as may from time to time be given by or on behalf of the Authority.

The Contractor warrants that the Contract will be performed with all due skill, care and diligence, and in accordance with good industry practice and legal requirements.

Any failure to provide correctly formatted, accessible copies of reports, text, drawings, illustrations, plans and other documents in a Microsoft Office compatible electronic format capable of further editing (not read only) shall be taken to be a failure to deliver proper performance under this contract.

Where any conflict arises between these General Conditions of contract, the provisions of the contract, the Specification, or the Contractor's quotation, the provisions shall apply in the order of precedence specified in the contract

3 Quality and Description

The Contractor's work shall conform as to the quantity, quality and description with the particulars stated in the Specification. The Authority reserves the right to amend the Specification, including the substitution, deletion and/or addition of conditions and requirements, **PROVIDED ALWAYS** that no amendment shall be made without the Contractor first being afforded the right to make representations to the Responsible Officer **AND** also given the opportunity to indicate whether there will be a supplemental charge in respect of any additional work consequent upon the proposed amendment which the Contractor believes was not in the contemplation of the parties at the date of signing this contract

4 Invoicing & Payment

Unless otherwise agreed in writing, the amount to be paid and dates of payment shall be as specified in the contract, within 30 days of receipt of a written invoice, however, it shall remain open for the parties to agree other arrangements for invoicing and payment, for example: to provide for an inception payment, stage payments and/or retentions.

5 Confidentiality

The Contractor shall not disclose to any person, firm or company any information of a confidential nature obtained in any work under this Contract and for the avoidance of doubt this obligation of confidentiality shall continue beyond the termination of this contract, without limit of time.

6 **Assignment or Sub-Contracting**
The Contractor shall not assign, sub-rogate or transfer the Contract or any part or parts thereof to any other person, firm or company, except with the prior written consent of the Authority

7 **Intellectual Property Rights**
For the avoidance of any doubt it is hereby agreed and declared that all data, text, illustrations, information, correspondence and all documents acquired, created or otherwise obtained in any work under this contract ('the work') shall be the sole property of the Authority, who shall be free to use the work as it sees fit;

The Contractor agrees and undertakes that he/she will not use the Authority's organisational name, logo or other identifying mark without prior written approval from the Responsible Officer.

8 **Freedom of Information**
This Contract shall be subject to the provisions of the Freedom of Information Act 2000 and the parties acknowledge that the Authority shall comply in all respects with the provisions of the Act and in particular shall communicate to any persons making a request under the Act all and any information contained in or relating to this Contract where required by and in accordance with the provisions of the Act

9 **Health & Safety at Work**
The attention of the Contractor is directed particularly to the responsibilities of employers under the Health and Safety at Work Act 1974 (as amended) and Codes of Practice issued by the Health and Safety Executive. The Contractor shall at all times be responsible for ensuring safe systems of work, suitable and safe equipment and a safe working environment for all activities coming under the scope of this contract.

10 **Bankruptcy/Liquidation etc.**
In the event of the Contractor becoming bankrupt or making a composition or arrangement with creditors or having a proposal for a voluntary arrangement for a composition of debts, scheme, or arrangement approved in accordance with the Insolvency Act 1986, the Authority shall be at liberty to cancel the Contract by notice in writing without compensation to the Contractor.

11 **Corruption**
The Authority shall be entitled to cancel the Contract and to recover from the Contractor the amount of any loss resulting from such cancellation if the Contractor (whether personally or through any person acting on his/her behalf) shall have:

- offered or given or agreed to give any person any payment, gift or inducement in relation to the obtaining or execution of the Contract

- offered or given or agreed to give any person any reward or consideration of any kind for doing or forbearing to do, or for having done or forborne to do any action in connection with the Contract
- or for showing or forbearing to show favour or disfavour to any person in relation to the Contract
- committed any offence under the Bribery Act 2010, Prevention of Corruption Acts 1889 & 1916 or shall have given any fee or reward the receipt of which is an offence under Section 117(2) Local Government Act 1972

12 Force Majeure

Neither the Authority or the Contractor shall be liable to the other for any delay or failure by either party to perform its obligations under the Contract if any such delay or failure arises from any cause or causes beyond the reasonable control of either party, including, but not limited to lightning, earthquakes, riots, acts of terrorism, regulations or orders of any Government, agency or subdivision thereof

13 Variation of Contract

The contract and its provisions shall only be capable of amendment by a written agreement signed by the parties.

14 Termination

This Contract may be terminated at any time, without cause, by the Authority serving 30 days notice in writing on the Contractor.

The Authority reserves the right to terminate the Contract forthwith if at any time it considers that the Contractor is in material or serious breach of obligations under the Contract or that any terms and conditions of the Contract are not being performed in a proper and businesslike manner or to the true intent and meaning of the same.

The termination of the Contract shall have no effect upon the accrued legal rights and obligations under this Contract between the parties.

APPENDIX 2

CORNWALL COUNCIL

Project Tender:

Hangingstone Hill, Dartmoor

For Dartmoor National Park Authority

Cornwall Archaeological Unit

Cornwall Archaeological Unit

Project Tender:

Hangingstone Hill, Dartmoor

For Dartmoor National Park Authority

Authors	**Andy Jones**
Derivation	**Brief supplied by Lee Bray**
Origination date	**6/07/2016**
Revisers	
Date of last revision	
Version	**Rev 00**
Status	**Final**
Summary of changes	
Circulation	
Required action	
File location	**G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites Devon\Hangingstone Hill excavation**
Approval	

Cover photograph: Hangingstone Hill Barrow (Andy Jones)

Introduction

Cornwall Archaeological Unit (CAU) is pleased to have been invited by Lea Bray on behalf of Dartmoor National Park Authority to submit a tender for a community excavation of two small cairns which are sited on Hangingstone Hill, Dartmoor (SX 61727 85475), which is located in the northern part of Dartmoor within the Okehampton Firing Range. The excavations are being undertaken as part of the *Unveiling the Bronze Age of the High Moors and Forests Project* which is part of the HLF-funded *Moor Than Meets the Eye Landscape Partnership Scheme (MTME)*.

Having undertaken the excavation of the Whitehorse Hill cist and other upland sites we are confident that we can draw on our expertise and knowledge to undertake a successful project which will satisfy the terms of the brief.

Background

Excavation by CAU in 2011 of the cist on Whitehorse Hill on the ridge to the south of Hangingstone revealed an internationally important burial of Early Bronze Age date, with an unparalleled assemblage of organic artefacts. Despite this there has been little modern investigation of cairns and barrows in the surrounding area.

The cairns which are to be investigated as part of the current project are situated on Hangingstone Hill. Cairn 1 is close to the summit and Cairn 2 is on the eastern slope of the hill. The summit of the hill is occupied by a prominent unexcavated turf and stone mound barrow known as the Hangingstone Barrow. Cairn 2 lies to the north of the large barrow and Cairn 2 on the eastern slope of the hill.

Cairn 1 is a roughly circular stony mound, measuring approximately 3m in diameter and is up to 0.25m high. There is some evidence for the presence of a kerb of edge-set stones. Currently, this feature is interpreted as a possibly disturbed prehistoric cairn, although a more recent origin is possible given its proximity to the military observation post on the summit of Hangingstone Hill (Lee Bray, Project Brief).

Cairn 2 is an ovoid stony mound, measuring approximately 8m by 6m with a height of approximately 0.5m. There is some evidence suggesting it may be located on a slight platform in the hillslope. Currently, Cairn 2 is interpreted as a potentially undisturbed prehistoric cairn (Lee Bray, Project Brief).

Both sites are located within the Okehampton firing range and excavations would have to take place during August when the range is closed.

Scope and aims of the archaeological recording

The purpose of the archaeological project will be:

General aims

- To record archaeological features, layers and finds associated with the cairns.
- To establish the extent, condition, significance and character of the archaeological resource.
- To establish the presence/absence of archaeological remains.
- To identify any artefacts relating to the use of the cairns.
- The dissemination and publication of the results.
- The long-term conservation of the project archive in appropriate conditions.

Specific objectives

In particular the key objectives of all elements of the project will be:

- To obtain dating evidence for the construction and use of Cairns 1 and 2
- (Aims: 1 and 2).
- To understand the composition, structure and purpose of Cairns 1 and 2 (Aim 2).

- To sample, analyse and date any buried soil horizons which may be present beneath Cairns 1 and 2 (Aim 3).

Method statement

All recording work will be undertaken according to the appropriate Chartered Institute for Archaeologists *Standards and Guidance*. Staff will follow the CIfA *Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology*. The Chartered Institute for Archaeologists is the professional body for archaeologists working in the UK.

Fieldwork

Final sizes of trenches will be agreed with the Dartmoor National Park Authority Archaeologist.

Cairn 1

The archaeological trenching will be designed to confirm the site is a cairn and to recover artefacts and environmental remains. Identified features will be targeted to ascertain their character.

One hand dug trench up to 5m long by 2m wide will be excavated across the site. It is proposed the southern half of the cairn is excavated and that a south facing long section is established for recording and environmental sampling. It is proposed that the kerb stone, etc are left *in situ* unless there is good reason to remove them (for example, to determine key stratigraphical relationships). The trench will extend either side of the cairn to establish whether any buried soils lie beyond it and to identify any secondary features or deposits, etc.

The southern side of barrows and cairns in southern Britain are frequently associated with deposits so this would be a good place to locate potential remains associated with cairn-related activity.

Cairn 2

The archaeological trenching will be designed to recover artefacts and environmental remains and to establish whether it sits on an artificial platform. Identified features will be targeted to ascertain their character.

One hand dug 10m long by 2m wide trench will be excavated. The trench will be oriented WSW-ESE and located on the southern side of the site and will extend beyond the cairn to investigate the level 'platform' area.

Archaeological Recording Methodology

During the archaeological recording the CAU archaeologist will undertake the following tasks:

All archaeological features will be investigated and as a minimum:

i) Discrete features will be fully excavated.

ii) Structural features such as *in situ* kerbs, or cist stones will be excavated to a minimum to enable information to be collected about construction techniques. Any major structural stones that have been excavated will be put back in position at the end of the excavation.

iii) The long faces of the upstanding sections will be cleaned by hand to allow the site stratigraphy to be understood, for the identification of archaeological features, and palaeoenvironmental sampling as appropriate.

Where the above percentage excavation does not yield sufficient information to allow the form and function of archaeological features/deposits to be determined excavation areas may be extended with approval from the Dartmoor Park Archaeologist. Additional excavation may also be required for the taking of palaeoenvironmental samples and recovery of artefacts.

Any variation of the above will be undertaken in agreement with the Dartmoor National Park Authority Archaeologist.

Recording - general

- The position of the standing sections through the cairns will be marked onto a scaled base map (linked to the National Grid). Prior to the start of the archaeological recording survey points will be established so that the position of the standing sections can be accurately plotted.
- All features shall be hand-dug and recorded in plan and section at scales of 1:10, 1:20 or 1:50. All scale drawings shall be undertaken at a scale appropriate to the complexity of the deposit/feature and to allow accurate depiction and interpretation. Site drawings (plans, sections, locations of finds) will be made by pencil (4H) on drafting film; all plans will be linked to the Ordnance Survey Landline (electronic) map; all drawings will include standard information: site details, personnel, date, scale, north-point.
- All features and finds will be accurately located at an appropriate scale. Sections will normally be drawn at 1:10 and plans at 1:20.
- All archaeological contexts will be described to a standard format linked to a continuous numbering sequence.
- Photography: colour digital images will be taken with black and white photographs being taken for archive purposes. This will include both general and site specific photographs. Photographs should have a scale and detailed ones should include a north arrow. Photographs will be taken to illustrate the principal features and finds discovered, in detail and in context. The photographic record will also include colour digital working shots to illustrate more generally the nature of the archaeological operation mounted. All photographs of archaeological detail will feature an appropriately-sized scale.
- Drawings and photographs will be recorded in a register giving details of feature number and location.
- Sealed/undisturbed archaeological contexts in the form of buried soils, layers or deposits within significant archaeological features (ditches and pits, etc) will be sampled for environmental evidence and dating material. Advice may be needed from Vanessa Straker Historic England (Regional Advisor for Archaeological Science).
- All spoil from the excavations will be adequately inspected for finds.
- If human remains are discovered on the site they will be treated with respect. Human remains must initially be left *in situ*, covered and protected. The Dartmoor National Park Authority Archaeologist and the Ministry of Justice will be informed. All recording will conform to best practice and legal requirements.
- Where any artefacts identified as treasure or potential treasure, including precious metals, groups of coins or prehistoric metalwork, be exposed, these will be removed to a safe place and reported to the local coroner according to the procedures relating to the *Treasure Act 1996 Code of Practice (2nd Revision)*. Where removal cannot be effected on the same working day as the discovery suitable security measures will be taken to protect the finds from theft.

Treatment of finds

The archaeological fieldwork may produce artefactual material.

- All finds in significant stratified contexts predating 1800 AD (eg, settlement features) should be collected by context and described. Post-medieval or modern finds may be disposed of at the cataloguing stage. This process will be reviewed ahead of its implementation.
- All finds will be collected in sealable plastic bags which will be labelled immediately

with the context number or other identifier.

Palaeoenvironmental sampling

(Prof Ralph Fyfe and Dr Katie Head)

Methods

Excavations in August 2016 at Hangingstone Hill are expected to open trenches across two cairns. In the event of buried soils under these cairns, representative sample columns will be taken for pollen assessment. Columns will be taken from sealed contexts underlying structural material, and from surrounding peat where there is a clear stratigraphic link and justification for sampling (e.g., deeper peat sequences in association with cultural material. Columns will be sampled in monolith tins of an appropriate dimension (~20x8x7 cm for soils; 50x10x5cm for peat sequences where necessary).

Sub-samples of $2cm^3$ will be taken from soil horizons, positioned to reflect any stratigraphic changes within the columns (e.g. different soil horizons). Sub-samples around 1 cm^3 in size will be taken from peat samples through key parts of sequences where judged appropriate in relation to the archaeological material. Sub-samples will be prepared for pollen analysis using standard procedures (Moore *et al.* 1991). Pollen will be isolated in the samples by disaggregation using potassium hydroxide, passing through sieves to retain the 10-180 micron fraction, heating in hydrofluoric acid to remove inorganic material, subject to an acetolysis wash to remove non-pollen organic material, and stored in silicon oil. An exotic marker type will be added to facilitate calculation of pollen concentrations.

Assessment of each sample will comprise identification of 100 pollen grains to family/genus/species level where possible using standard European pollen nomenclature (Bennett 1991). The condition of each pollen grain will be recorded as into broken/corroded/folded. Each pollen count will be subject to a series of statistical tests designed to assess the value of archaeological pollen assemblages, as described in Bunting and Tipping (2000). These include the proportion of 'robust' grains, the concentration of pollen in the samples, the diversity of assemblages, and the proportion of damaged grains.

Archiving

Following review with the CAU Project Manager the results from the fieldwork will be collated as an archive. This will involve washing and cataloguing of finds, the indexing and cross-referencing of photographs, drawings and context records.

All finds, etc will be stored in a proper manner (being clearly labelled and marked and stored according to CAU guidelines).

- All records (context sheets, photographs, etc) will be ordered, catalogued and stored in an appropriate manner (according to CAU guidelines).

- The site archive and finds will initially be stored at CAU premises and transferred to Plymouth City Museum & Art Gallery, where professional standards for archives will be followed. Plymouth City Museum & Art Gallery will be notified of the commencement of the project, an accession number will be obtained, and the museum will be included in discussions for sampling and disposal as appropriate. All digital records will be filed on the Cornwall Council network.

Archive report

The results from the elements of the project (survey, environmental and excavation) will be drawn together and presented in a concise report.

A draft report will be submitted to Dartmoor National Park Authority Archaeologist for comment prior to its formal submission.

Hard copies of the report shall be supplied to the Client, and to Dartmoor National Park Authority Archaeologist. In addition to the hard copies of the report, one copy shall be sent to the National Record of the Historic Environment (NRHE).

This will involve:

- producing a descriptive text;
- producing maps and line drawings;
- selecting photographs;
- report design;
- report editing;
- dissemination of the finished report
- Deposition of archive and finds in the Plymouth City Museum & Art Gallery.

The report will have the following contents:

- Summary - Concise non-technical summary.
- Introduction - Background, objectives, aims and project methodology.
- Results - Factual description of the results of the various aspects of the project with separate sections as necessary for discussion and interpretation.
- Discussion - Discussion of the interpretation of the results, highlighting information gained on a chronological or thematic basis.

  A consideration of evidence within its wider context.

  Recommendations for further analysis and publication.
- Summary table - A summary table and showing the features, classes and numbers of artefacts recovered and soil profiles with interpretation.
- Archive - A summary and index to the project archive.
- Appendices
  - List of contexts
  - List of graphic records
  - List of photographs

  List of finds and soil samples

  Specialist analyses.
- Illustrations
  - General location plan.
  - Detailed location plans to link fieldwork results to OS map.
  - Selected plans and section drawings of the long sections, in which archaeological features are recognised along with adequate OD spot height information. Plans must show the orientation of standing section in relation to north. Section drawing locations will be shown on the site plan. Archaeologically sterile areas need not be illustrated unless this can provide information on the development of the site stratigraphy or show palaeoenvironmental deposits that have influenced the site stratigraphy.

  Finds drawings (if appropriate).

Photographs showing the general site layout and exposed significant features and deposits that are referred to in the text. All photographs should contain appropriate scales, the size of which will be noted in the illustration's caption.

An online OASIS (Online AccesS to the Index of archaeological investigationS) form shall be completed in respect of the archaeological work. This will include a digital version of the report. The report will also include the OASIS ID number.

A draft digital copy, in MS Word format, of an appropriately illustrated report of the work will be provided to the client by 31st January 2017.

Following any necessary revisions, a copy of the final report will be delivered to the client within 15 days of comments being received. The hard copies will include a CD of the photo archive.

CAU will complete an online OASIS form describing the survey, including a digital copy of the report before the completion of this contract. The report will also contain the appropriate OASIS number.

Analysis

The structural and stratigraphic data and artefactual material will be reviewed with Dartmoor National Park Authority Archaeologist to establish whether further analyses and reporting is appropriate and what its scope should be. The outline of final report, and the work required to produce it will be determined.

In the event of significant remains being recovered (eg, prehistoric artefacts) it may be appropriate to:

- Liaise with specialists (eg, artefacts) to arrange for analyses of the potential for further analysis and reporting.
- Consult with the Dartmoor National Park Authority Archaeologist over the requirements for analysis and reporting.

Updated project design and final publication

In the event that significant remains being recorded, the scope and final form of the report will be reviewed and agreed with the Dartmoor National Park Authority; for example in addition to an archive report the results should be published in an academic journal (for example, *Proceedings of the Devon Archaeological Society*).

Monitoring

- This project design will need to be approved by the Dartmoor National Park Authority Archaeologist.
- The recording exercise will be monitored. Details will be agreed of any monitoring points where decisions on options within the programme are to be made.
- Monitoring will continue until the deposition of the site archive and artefacts, and the satisfactory completion of an OASIS report.
- CAU will notify Dartmoor National Park Authority Archaeologist upon completion of the fieldwork stage of these works.
- CAU will liaise with Dartmoor National Park Authority Archaeologist to advise on the programme and progress of work, and agree site meetings as required.
- If required a post excavation meeting will be held at The Dartmoor National Park Authority offices to discuss further stages of analysis and publication
- In the event that significant remains are encountered an updated project design will be agreed with Dartmoor National Park Authority Archaeologist.

Health and safety

CAU follows Cornwall Council's *Statement of Safety Policy*. Safety at Work, Etc., Act 1974, and any other Acts, Regulations or Orders pertaining to the health and safety of

employees. All personnel will conduct themselves in an appropriate manner in accordance with relevant CIfA guidelines (http://www.archaeologists.net/codes/ifa).

A full risk assessment will be produced in advance of any fieldwork.

CAU will develop a protocol for dealing with unexploded ordnance in advance of the project.

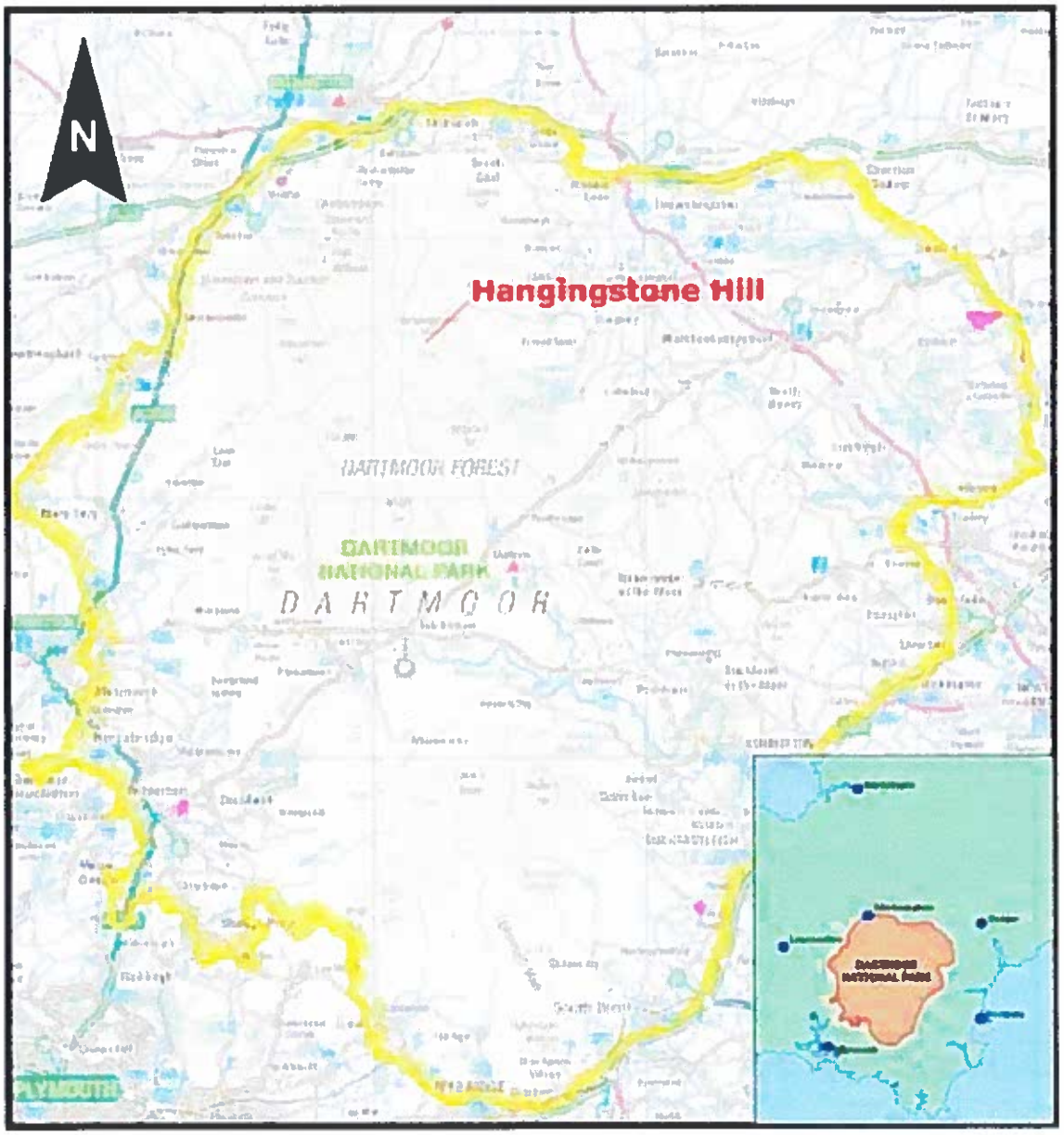


Figure 1: Location Map.

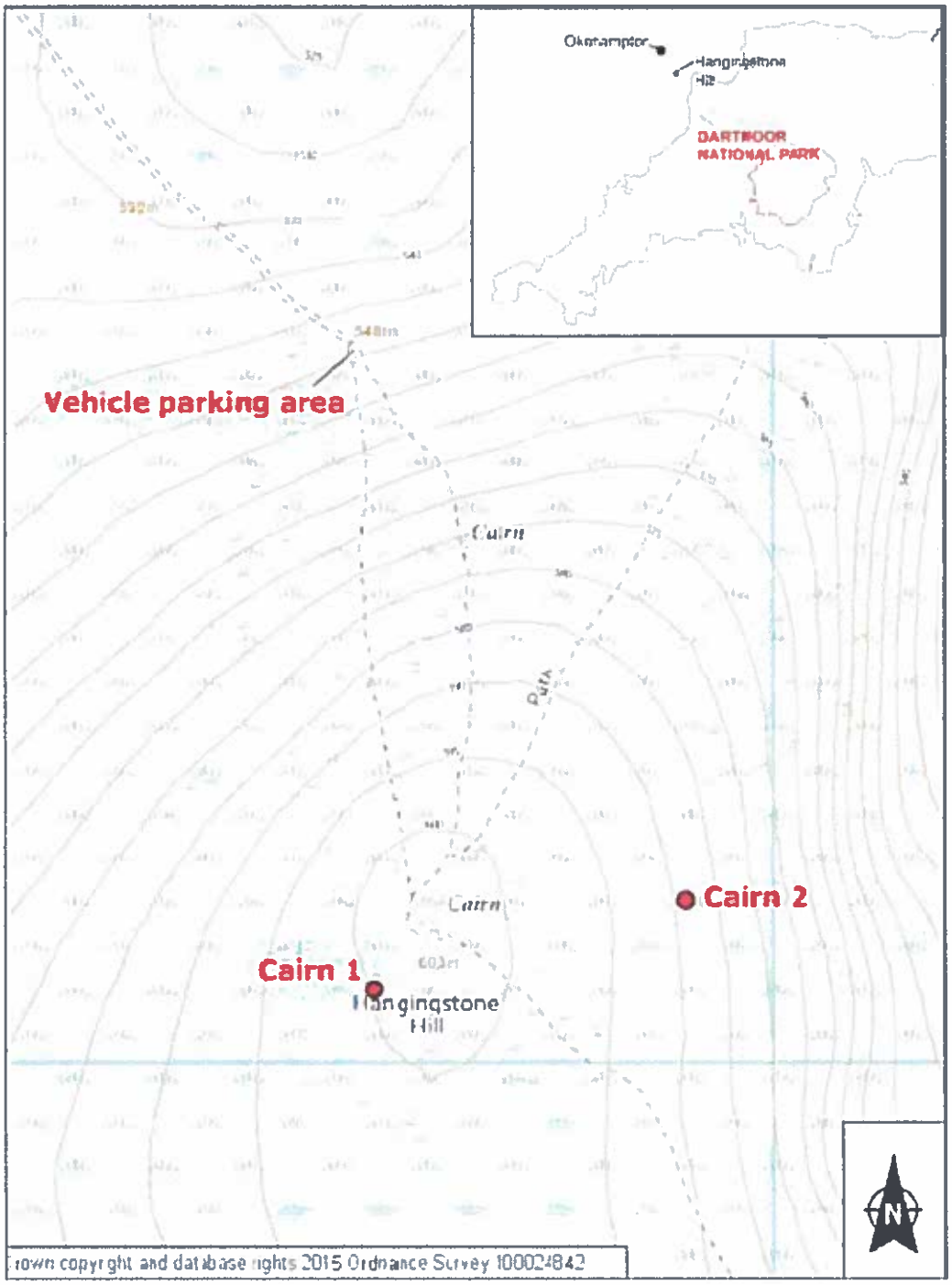


Figure 2: Detailed Location Map showing Cairn 1 and Cairn 2.

Cornwall Archaeological Unit

Cornwall Archaeological Unit is part of Cornwall Council. CAU employs 20 project staff with a broad range of expertise, undertaking around 120 projects each year.

CAU is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly by providing clients with a number of services including:

- Excavations and watching briefs
- Assessments and evaluations
- Post-excavation analysis and publication
- Community Excavations and fieldwork projects
- Conservation works to sites and monuments
- Conservation surveys and management plans
- Historic landscape characterisation
- Town surveys for conservation and regeneration
- Historic building surveys and analysis
- Maritime and coastal zone assessments
- Air photo mapping
- Outreach: exhibitions, publication, presentations

Standards

CAU is a Registered Organisation with the Chartered Institute for Archaeologists and follows their Standards and Code of Conduct.

http://www.archaeologists.net/codes/ifa

Terms and conditions

Contract

CAU is part of Cornwall Council. If accepted, the contract for this work will be between the client and Cornwall Council.

The views and recommendations expressed will be those of CAU and will be presented in good faith on the basis of professional judgement and on information currently available.

Report distribution

Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

A digital copy of the report, illustrations and any other files will be supplied to the client on CD or other suitable media.

Copyright

Copyright of all material gathered as a result of the project will be reserved to Dartmoor National Park Authority. Existing copyrights of external sources will be acknowledged where required.

Use of the material will be granted to the client.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.

CAU will ensure that all information arising from the project shall be held in strict confidence to the extent permitted under the Act. However, the Act permits information to be released under a public right of access (a "Request"). If such a Request is received CAU may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

Insurance

CAU is covered by Cornwall Council's Public and Employers Liability Insurance, with a policy value of £50m. The Council also has Professional Negligence insurance with a policy value of £10m.

Project staff

Work will be carried out by CAU field staff, in conjunction with the Dartmoor National Park Authority team archaeologist(s), local volunteers, qualified specialists and sub-contractors where appropriate.

The project will be managed by Andy Jones, a member of staff who is a Member of the Chartered Institute of Field Archaeologists (CIfA), he will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the client and the field officer, including arrangements for health and safety.
- Liaise with the client regarding the budget and related issues.
- Monitor progress and results for each stage and edit the project report.

The fieldwork project will be undertaken by Sean Taylor. Both members of the team are experienced field archaeologists, who have undertaken comparable fieldwork on Dartmoor and elsewhere.

CAU Staff CVs

Dr Andy Jones, BA, PhD, FSA, MCIfA

Principal Archaeologist responsible for the origin, management, and publication of a wide range of projects, in particular development-related assessments, evaluations and excavations. He directed the excavation and has overseen the publication of the Whitehorse Hill cist and has excavated and published other upland sites, including the Stannon Down cairn group on Bodmin Moor. He has also directed Cornwall Archaeological Society volunteer excavations. Major projects in recent years include excavation and publication of sites at Tregarrick Farm and Tremough, as well as the major lithic scatter at Clodgy Moor in Penwith. Principal research interests lie in the 4th to 2nd millennium cal BC (Neolithic and Bronze Age) and the interpretation and publication of sites dating to this period. He is interested in prehistoric upland landscapes and has carried out and managed projects on Bodmin Moor, Penwith, Dartmoor and Exmoor and is in the process of publishing the excavations on the Whitehorse Hill cist. Andy has been involved with the SWARF Neolithic and Bronze Age Group.

Andy's task will be:

- To manage the project and liaise with the client and project specialists.
- To edit the archive level report.
- To review the findings from the project and organize and agree an appropriate level of analysis and publication.
- To contribute to the final publication.

Sean Taylor BA, MCIfA

Sean is an Archaeological Project Officer with CAU, with a range of experience in undertaking archaeological excavations, assessments, evaluations, and watching briefs, and also landscape surveys. He was involved the excavation of the Whitehorse Hill cist and has excavated other upland sites, including the Stannon Down cairn group on Bodmin Moor. He is involved in the community group project to locate Tywardreath Priory. Past projects include managing and supervising excavations at the Truro Eastern District Centre, supervising the Mitchell to Newlyn East SWW watching brief, and the Scarcewater, Tregony, Camelford and Avon excavations. Landscape surveys include six assessments on the Lizard as part of the HEATH project, a number of landscape surveys for the National Trust, and he has undertaken surveys for the Exmoor National Park Authority as part of the Mire Restoration Project. He was also the Project Officer responsible for characterisation and creation of GIS for the Bristol Channel Historic Seascapes project. An experienced user of AutoCAD, GIS, GPS, and EDM survey equipment.

Sean's task will be:

- To direct and undertake the archaeological fieldwork.
- To supervise volunteers.
- To undertake the archiving and produce the archive level report.
- To contribute to the final publication.

Non CAU Staff CVs

Professor Ralph Fyfe

Ralph is an environmental archaeologist and palynologist with 19 years' experience of undertaking palaeo-ecological analyses within southwest Britain. He has worked extensively with archaeologists in the public and commercial sector, including the Cornwall Archaeological Unit e.g. on the EH-funded Lyonesse and Whitehorse Hill Projects.

Dr Katie Head

Katie is an environmental archaeologist and palynologist with over 15 years experience of working within the commercial and academic archaeological sectors. Between 2003-2007 she was the Environmental Archaeologist (palynology) for the Worcester Archaeological Unit before joining Plymouth University as a specialist laboratory technician.

Specialists to be contacted during post excavation stage (as appropriate)

Henrietta Quinnell, Freelance finds specialist: Prehistoric ceramics and worked stone.

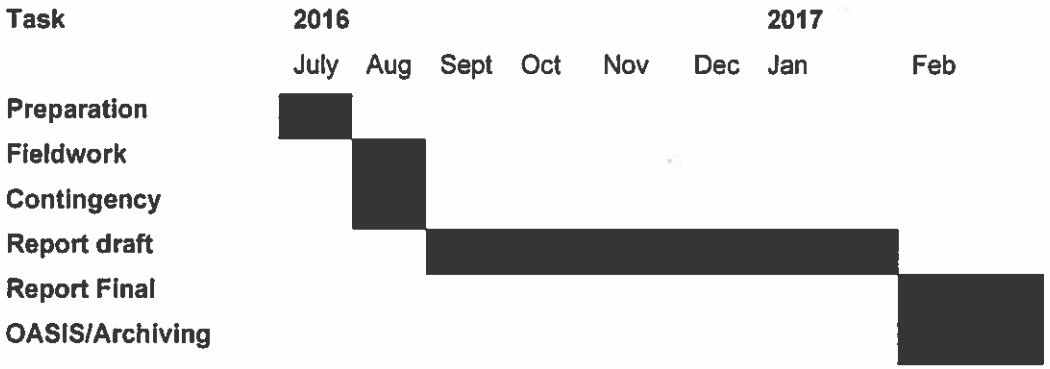
Dr Roger Taylor, Freelance petrologist: Prehistoric ceramics and worked stone.

Julie Jones, Freelance Environmental archaeologist: Analysis of charred plant macrofossils.

Dana Challinor, Freelance charcoal specialist: Analysis of prehistoric wood charcoal.

Estimated time line for delivery

Task	Month
Preparation liaison	July 2016
Fieldwork	August 15th -23rd
Daft report	January 31st 2017
Final Report and archive	Within 15 days of



Estimate for the Archaeological Excavation at Hangingstone Hill Dartmoor

Important

This estimate has been costed to include a contingency* element, which will only be used in the event that complex/extensive archaeological remains are recovered and only with agreement from the Dartmoor National Park Authority.

Cost for diesel assumes that accommodation can be provided.

Note: estimates for analyses and publication stages may need to be reviewed in the light of the results.

Fieldwork

Preparation	1
Fieldwork CAU archaeologist	5
Project Management/initiation	1

1 day @£265=**£1590**
1 day @£270=**£270**

£1860

Material costs

Site visit by Prof Ralph Fyfe or Dr Katie Head	£40
Van hire – Four Wheel drive @ £92.37 x 7 days	£646.59
Diesel for van	£150
Site recording materials	£50
Photography	£30

£916.59

Fieldwork Total £2776.59

Contingency Fieldwork

Fieldwork CAU archaeologist	2
Project Management/initiation	0.5

2 days@£265=**£530**
0.5 day @£270=**£135**

£665

Contingency Material costs

Van hire – Four Wheel drive @ £92.37 x 3 days	£277.11
Diesel for van	£50
Site recording materials	£20

£347.11

Contingency Fieldwork Total **£1012.11**

Post Excavation

Post Excavation Review Meeting

Project meeting attendance	0.5	
	0.5 day @£270=**£135**	
		£135

Travel

Truro-Bovey Tracey	**£65**

Post excavation meeting review Total **£200**

Archive

Catalogues (photos, drawings, etc)	2
Finds processing	1
Wet Sieving	1
OASIS Record	0.25
Project management	0.5
	4.25 day @£265=**£1126.25**
	0.5 day @£270=**£135**
	£1261.25

Materials

Sieving charge	**£100**
Materials (bags boxes, etc)	**£30**
	£130

Archive Total **£1391.25**

Archive report

Report text	4	
Illustrations	2	
Editing	1	
Project management	1	
	7 days @£265=**£1855** 1 day @£270=**£135** **£1990**	

Materials

Materials/reprographic	**£50**

Archive Report Total £2040

POST EXCAVATION CONTINGENCY SECTION (outline only)

Palaeoenvironmental analysis

RF=Ralph Fyfe, Day rate + Plymouth University overhead = £580
KH=Katie Head Day, rate + Plymouth University overhead = £315

Item	Number of days/samples	Day-rate cost + overheads (£)	Total (£) Incl. 25% overhead
Sample preparation (September 2016)	1	315	315
KH	20 samples		40
Lab consumables (£2 per sample)			
Pollen counting (September 2016)	3	315	945
KH			
Data analysis/report preparation			
(September 2016)	0.5	315	158
KH	0.5	580	290
RF			
		Total	**£1748**

Palaeoenvironmental Total **£1748**

Other Specialist analyses of important artefacts and environmental material

Contingency* for specialist analysis -

Ceramics and Worked stone = **£1000**

Charcoal = **£500**

Plant Macros = **£1000**

Radiocarbon dates X4 **£1500**

Publication

Guideline Contingency* cost for academic publication of results **£3000**

Specialist Contingency and Contingency Total **£7000**

Summary

Fieldwork	**£2776.59**
Contingency fieldwork	**£1012.11**
Post excavation meeting review	**£200**
Archive	**£1391.25**
Archive report	**£2040**

Post Excavation Contingency costs:

Palaeoenvironmental	**£1748**
Analyses and outline publication cost	**£7000**

Total **£16,167.95** (Not including VAT)
(Includes £9760.11 contingency)

Notes

- All costs are based upon April 2016 to March 2017 rates.
- Additional CAU days are charged at £265, plus cost of travel, materials, etc.
- Includes £9760.11 Contingency. This is an outline figure which will not be used without agreement from the Dartmoor National Park Authority.
- VAT is not included.

Dr Andy Jones 6/7/16
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