



Buller Hill Riding Stables, Redruth, Cornwall

Archaeological Watching brief



Historic Environment Projects

Buller Hill Riding Stables, Redruth, Cornwall

Archaeological Watching Brief

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Acknowledgements

This study was commissioned by Mr John Briggs of Property Care developers Ltd and carried out by Historic Environment Projects, Cornwall Council.

The Project Manager was Adam Sharpe

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

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.



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Cover illustration

Commencement of topsoil stripping

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Abbreviations

CRO	Cornwall County Record Office
EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
HE	Historic Environment, Cornwall Council
NGR	National Grid Reference
OS	Ordnance Survey
PRN	Primary Record Number in Cornwall HER
RIC	Royal Institution of Cornwall
HLC	Historic Landscape Character

1 Summary

HE Projects was commissioned by Mr John Briggs, of Property Care Developers Ltd to undertake a programme of archaeological recording ahead of the construction of a new dwelling adjacent to the Wheal Buller Riding Stables (SW 69718 39909), to the south of Redruth.

The site lies within the mine sett of Wheal Buller, one of the most productive copper mines in Cornwall operating between 1819 and 1875.

The fieldwork located a previously unknown shaft and possible openwork or flatrod trench. The shaft may have functioned as a footway or ventilation shaft. The dating for both is uncertain, but they certainly predate the 1880 OS map as neither is depicted on this.

No other features of archaeological interest were seen over the area of the site and it was observed that the development had very little or no impact on any significant buried remains apart from those noted above.

2 Introduction

2.1 Project background

HE Projects was commissioned by Mr John Briggs, of Property Care Developers Ltd to undertake a programme of archaeological recording ahead of the construction of a new dwelling adjacent to the Wheal Buller Riding Stables (SW 69718 39909), to the south of Redruth (Fig 1). The development was set within an area of approximately 0.025HA (Fig 4).

The development was the subject of a planning condition (PA08/01371/F), which required that archaeological recording took place ahead of construction (see Appendix 1).

Previous archaeological work on the site included capping of mine shafts by Kerrier District Council as part of KDC Contract 11 in 1998 (Buck 2000). Three shafts were uncovered and treated at the time.

The treatment of Whitford's Shaft (KDC Shaft A) at SW 69650 39878 revealed a feature which was identified as an angle-bob pit (transferring horizontal to vertical movement) for the flat rod from Davey's Shaft (KDC Shaft B), enabling water in the workings accessed by this shaft to be pumped out. This shaft lay 90m to the south west of the development site.

The treatment of Davey's Shaft (KDC Shaft B) also revealed a previously unknown small footway shaft (KDC Shaft C) close to the main shaft. Remnants of the engine house bob wall were also recorded. These shafts lay 53m to the northeast of the development site.

Phil Markham (Historic Environment Planning Advice Officer, Cornwall Council) produced a brief (29/03/2011) for archaeological recording (Appendix 1) and was consulted over the requirements for the archaeological recording. A written scheme of investigation, outlining the methodology for archaeological recording was produced (17/06/2011) by Adam Sharpe (Senior Archaeologist, HE Projects) in response to the brief (Appendix 2).

2.2 Aims

The aims of the project were to gain a better understanding of the extent and nature of below ground survival of features associated with the operation of Wheal Buller Mine and its predecessors. To achieve this it was aimed:

- To record archaeological features, layers and finds affected by the works.
- 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 occupation of the site.
- The dissemination and publication of the results.
- The long-term conservation of the project archive in appropriate conditions.

2.3 Methods

2.3.1 Desk-based assessment

A brief desk-based assessment of historical databases and archives was carried out prior to the commencement of fieldwork in order to inform the fieldwork stage. The main sources consulted were as follows:

- Cornwall HER
- Published sources
- Historic maps, including
 - Joel Gascoyne's map of Cornwall (1699)
 - Thomas Martyn's map of Cornwall (1748),
 - OS 1 inch survey (c1810)
 - Redruth Tithe map (c1840),
 - 1st and 2nd Editions of the OS 25 inch maps (c1880 and c1907)
- Modern maps

2.3.2 Fieldwork

The archaeological work was undertaken as an 'archaeological watching brief', with the soil strip being carried out under archaeological supervision using a machine fitted with a toothless bucket. The soil was stripped cleanly to a level at which archaeological features or layers were revealed (i.e., the top of the first archaeologically significant horizon or the natural, whichever was highest). Machines did not run over the stripped area until the archaeological works were completed.

The area uncovered was then inspected by an archaeologist and any archaeological features or layers exposed were investigated, carefully excavated by hand, and recorded by written description, plan, section and photographic record as appropriate.

Features were plotted onto a site plan at a scale of 1:500 based on an Ordnance Survey map of the same scale, being measured in from fixed locatable points on the ground marked on the map. Sections of features identified were recorded at a scale of 1:20. Sample sections (nature of soil depth, layers present, etc.) were also noted across the area (Fig 4).

3 Location and setting

The site consists of a large field adjacent to the east side of Wheal Buller Riding School (Fig 4). This is situated on the northern flanks of Buller Downs to the southwest of Redruth within the parish of Redruth (Fig 1). The field slopes steeply from 210m OD to 207m OD towards the northwest. At the time of excavation, the field was in use as a rough paddock for horses.

The soils are well-drained humose loams lying over granite. The underlying geology consists of granite of the Carmenellis intrusion belonging to the Permian Period. Copper and tin rich mineral lodes (including the Great Flat Lode) trend northeast to southwest across the area.

The development area is situated within an area that falls into a Historic Landscape Character (HLC) zone that has been classified as "Post-medieval Enclosed Land" (Cornwall County Council 1996). This is land enclosed in the 17th, 18th and 19th centuries, usually from land that was previously Upland Rough Ground and often medieval commons. This HLC Type is generally sited in relatively high, exposed or poorly-drained parts of the county.

4 Designations

4.1 National

The site forms part of the Camborne and Redruth Mining District within the Cornish Mining World Heritage Site.

4.2 Regional/county

The site is within an Area of Great Historical Value, Carn Brea/Great Flat Lode Ref: B534

5 Site history

The mine sett of Wheal Buller lay to the south of Redruth beside the Redruth to Helston Road, between the Basset Mines to the west and the Gwennap mines to the east and north-east. Wheal Buller, lying at the eastern end of the landscape underlain by the Great Flat Lode, was one of the most productive copper mines in Cornwall, ranking fourth in terms of production behind Dolcoath, Tresavean and North Roskear and producing 141,707 tons of copper ore and 1,373 tons of black tin between 1819 and 1875. Peak production occurred in 1825, when the mine produced 6,230 tons of copper ore.

The mine is thought to have begun work as Trewirgie Downs mine at the end of the 18th century, and, following amalgamation with parts of neighbouring Wheal Beauchamp after a closure in 1836, was renamed after the landowner and mineral lord James Wentworth Buller when a new lease was arranged in 1849. This reworking was initially exceptionally successful, though by 1853 mineral production had begun to fall and the sett was subdivided, Copper Hill mine being created as a result. Wheal Buller struggled on until 1875, when it closed and its equipment was disposed of. The mine was served by a branch of the Redruth and Chasewater Railway. Ambitious but short-lived reworkings of the mine in 1928 and 1930 were unsuccessful.

6 Archaeological results

The area stripped for the development was roughly trapezoidal in shape measuring 20m x 15m x 20m x 10m and reached a maximum depth of 1.0m. The total area of ground examined was approximately 0.25 hectares (Fig 4).

Three sections were recorded across the site and are presented here to illustrate the nature of the ground encountered (Fig 4).

Section 1

Depth	Thickness	Description	Interpretation	Context
0m -0.05m	0.05m	Grass, roots and topsoil	Topsoil	(1)
0.05m – 0.15m	0.10m	Black, Grey-brown clay loam	Plough soil	(2)
0.15m – 0.30m	0.15m	Red-brown, black clay with red-brown streaks. Contains stone block, some quite large in size.	Subsoil mixed with mine waste.	(3)
0.30m – 0.50m	0.20m	Pale yellow-red brown clay	Decayed natural bedrock	(4)
0.50m – 1.0m	0.50m	Rotten granite bedrock	Bedrock	(5)

Section 2

Depth	Thickness	Description	Interpretation	Context
0m – 0.05m	0.05m	Grass, roots and topsoil	Topsoil	(1)
0.05m – 0.10m	0.05m	Black, grey-brown clay loam	Plough soil	(2)
0.10m – 0.15m	0.05m	Red-brown, black clay with red-brown streaks. Contains stone block, some quite large in size.	Subsoil mixed with mine waste.	(3)
0.15m – 0.30m	0.15m	Pale yellow-red brown clay	Decayed natural bedrock	(4)
Below 0.3m	At base of trench	Rotten granite bedrock	Bedrock	(5)

Section 3

Depth	Thickness	Description	Interpretation	Context
0m – 0.05m	0.05m	Grass, roots and topsoil	Topsoil	(1)
0.05m – 0.07m	0.02m	Black, Grey-brown clay loam	Plough soil	(2)
0.07m – 0.12m	0.05m	Red-brown, black clay with red-brown streaks. Contains stone block, some quite large in size.	Subsoil mixed with mine waste.	(3)
0.12m – 0.17m	0.05m	Pale yellow-red brown clay	Decayed natural bedrock	(4)
Below 0.17m	At base of trench	Rotten granite bedrock	Bedrock	(5)

This profile was observed across the whole length of the area trenched. The only changes observed were variations in the soil depth with 0.30m depth being observed at the top of slope (southeastern) and 0.12m being seen down slope at the northwestern end.

At SW 69731 39909 a small shaft was uncovered (Figs 4, 6, 9, and 11). The presence of this shaft was not known prior to the start of ground works. At a depth of approximately 0.25m below the current ground level a sub-rectangular cut, context [8] infilled with black-brown clay loam with numerous stone fragments and mixed with red-brown mine waste, context (6), was encountered. The cut measured approximately 2.0m x 1.8m and had rounded corners. The long axis was orientated northeast to

southwest. To confirm the nature of this feature, the fill was removed to a depth of 2.0m. It was found that the cut was nearly vertical sided, the first 0.30m having been cut into pale yellow-red brown clay (decayed natural) the remainder being cut into the solid granite bedrock. The upper fill of the cut, context (6), was approximately 0.08m thick, this then changed into a loose red, grey-brown clay loam with numerous stone blocks, mixed with mine waste, context (7). This fill was not bottomed. No evidence for any shaft lining was observed.

No dating evidence was recovered for this shaft and it is uncertain what it represents. It may be a ventilation shaft, as it does have similar dimensions to KDC Shaft C (see above) found nearby which was identified as a possible footway shaft (Buck 2000). Equally, it might have been a small and relatively early development shaft sunk on or near to the outcrop of the lode.

Running along the northwestern edge of the area that was examined, a cut for a large trench was observed, Context [9]. This trench was approximately 3m wide, and ran in a northeast to southwest direction. A terminal to the trench was observed at SW 69724 39914 at its southwest end. This trench could be followed for a length of 15m in a northeasterly direction before it disappeared into the unexcavated area of the site. A slot was cut through this trench to determine the nature of its fills, and its depth (Figs 5 and 12). It was found that it had a vertically sided, flat bottomed U shaped profile that reached a maximum depth of approximately 2.30m. The trench had been cut into the granite bedrock. The depth of the trench and the unstable nature of the fills made full investigation of this feature impractical, however at least three episodes of backfilling were observed marked by tip lines and differences in the nature of the fills.

The lowest fill, context (10) consisted of a loose dark grey-brown clay loam with stony rubble, including a few large stone blocks and some mine waste. A couple of fragments of red brick were also noted. This layer was up to 0.70m thick. No dating evidence was recovered. This was overlain by a layer of loose black-brown clay loam, context (11) up to 0.80m thick that once more contained few stone blocks. Again there was no dating evidence. The uppermost fill, context (12) consisted of very loose black, grey-brown clay loam with numerous large blocks of stone. The presence of some paint tins and bailer twine within this fill suggest this material is of modern origin.

It is uncertain as to what this trench may be. No evidence for mineralisation or the presence of a lode was observed, however its northeast to southwest trend is the same as that generally followed by known lodes in the area, so it is possible that this may be an old openwork (Figs 4, 5, 11, and 12). An alternative is that it represents part of the above-ground section of a trench within which flat rods driven by the pumping engine to the north-east were sited. The shaft served by these possible flat rods is unknown, though there are several possible candidates to the south-west. The late 19th century Ordnance Survey 25" to the mile mapping shows a pair of parallel walls in approximately this location which may represent now-demolished elements of this feature.

7 Conclusions/discussion

Both the shaft and possible openwork or flatrod trench are new discoveries and their dating is unknown. They appear to pre-date the 1880 OS map as neither appear on that (Fig 2). The two parallel walls marked on the 1880 OS map follow its alignment, and in roughly the location of the trenched feature, but these walls were not encountered in the course of the topsoil strip. It is possible that rather than walls, these lines portray the edge of the trench encountered, the parallel features portrayed being at roughly the same spacing as the trench edges. It is also possible that the line shown may be walls preventing access to the trench that were subsequently removed when the trench was backfilled. The line that these walls followed was described as the line of a possible flat rod trench (Buck 2000) leading away from Davey's Shaft (KDC Shaft B).

No other features of archaeological interest were seen over the area of the site and it was observed that the development had very little or no impact on any significant buried remains apart from those noted above.

8 References

8.1 Primary sources

Ordnance Survey, c1880. *25 Inch Map* First Edition (licensed digital copy at HE)

Ordnance Survey, c1907. *25 Inch Map* Second Edition (licensed digital copy at HE)

Ordnance Survey, 2007. *Mastermap Digital Mapping*

Tithe Map and Apportionment, c1840. *Parish of Redruth* (microfiche copy at HE)

8.2 Publications

Buck, C, 2000. Shaft Capping Contract 11. Mitigation recording during Land Reclamation funded works. A Report for Kerrier District Council. CAU Archive Report 2000R040.

9 Project archive

The HE project number is **2011097**

The project's documentary, photographic and drawn archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project and information file containing site records and notes, project correspondence and administration (file no 2011097).
2. Field plans and copies of historic maps stored in an A2-size plastic envelope (GRE 765/1-2).
3. Digital photographs stored in the directory: R:\Historic Environment (Images)\SITES.U-Z\Wheal Buller Stables WB 2011097
4. English Heritage/ADS OASIS online reference: cornwall2- 114385
5. This report text is held in digital form as: G:\Historic Environment (Documents)\HE Projects\Sites\Sites W\Wheal Buller Stables watching brief 2011097\Archive report

No artefacts were recovered during this project.

10 Appendix 1. Brief For Archaeological Recording

Date: 2nd March 2011

Address: Wheal Buller Riding School, Buller Hill, Buller Downs, Redruth TR16 6SS

Application: PA08/01371/F

HBSMR Ref: CCO1827

Applicant: Mrs Janet Dallimore, HA Cornish Riding Holidays Ltd, 29A Sundance House, Loscombe Road, Four Lanes, Redruth TR16 6QA

Agent: Mr John Briggs, 8 Cambridge Place, Falmouth TR11 4QR johnvbriggs@aol.co.uk

Historic Environment Planning Advice Officer: Mr Phil Markham, Cornwall Council, Historic Environment Service, Kennall Building, Old County Hall, Truro TR1 3AY. 01872 322546 pmarkham@cornwall.gov.uk

Local Planning Authority Officer: Mr Nick Hampton, Cornwall Council, Planning & Regeneration, Dolcoath Avenue, Camborne TR14 8SX 01209 614450 planning.west2@cornwall.gov.uk

This brief is only valid for six months. After this period the Historic Environment Planning Advice Officer (HEPAO) should be contacted. Any written scheme of investigation (WSI) resulting from this brief shall only be considered for the same period. The contractor is strongly advised to visit the site before completing their WSI as there may be implications for accurately costing the project.

Contractors Written Scheme of Investigation (WSI)

No ground works are to be undertaken until the HEPAO and the Local Planning Authority (LPA) have approved the archaeological contractor's WSI.

1 Introduction

This brief has been written by the HEPAO and sets out the minimum requirements for archaeological recording at the above site to discharge the archaeological recording condition attached to the planning consent.

2 Site Location and Description

The site is located approximately 1.5km south of Redruth at Ordnance survey Grid Reference SW 69723 39907. The site is at an approximate height of 210m Ordnance Datum on a north-west facing slope. The soil is recorded as being Moorgate (Loam over Granite) overlying a border area of geology of Mylor Slate Formation and Carnmenellis Intrusion (Granite).

3 Planning Background

Planning application PA08/01371/F was submitted on the 23rd July 2008 and was for the erection of a dwelling. This application is currently pending a decision; however it is expected to be granted consent subject to a number of conditions. An archaeological recording condition is expected to be attached to the consent and is likely to be worded along the following lines:

No development shall take place within the site until the applicant has secured and implemented a programme of archaeological work in accordance with a written scheme of investigation to be submitted by the applicant and approved in writing by the Local Planning Authority in consultation with the County Archaeologist.

The applicant, their agents and any subcontractors should note that where there are other conditions requiring satisfaction in advance of the commencement of

works on site; it is the responsibility of the applicant to liaise with the planning officer concerned to ensure that the timetabling of these works is managed.

4 Archaeological Background

The Cornwall and Scilly Historic Environment Record (HER) records that the proposed development lies within the historic copper and tin mining site of Wheal Buller. The record for this site includes: An eighteenth century mine known as Trewirgie Downs is marked on Thomas' map of 1819. This working, together with those of Wheal Beauchamp, became Wheal Buller, giving the mine a strikewise extent of one mile of some of the richest copper lodes in Cornwall. Much of what was formerly present on the site in the way of buildings has been lost. What was not sold off at the time of closure has either been robbed or re-used. However, it is likely that much remains below ground in the form of foundation courses in reasonably good condition.

5 Requirement for Work

Ground works associated with the development may disturb buried archaeological remains. It is therefore important that a suitably qualified archaeologist(s) is/are present during these works in order to identify and record any features of interest.

The site specific aims are to:

- Establish the presence/absence of archaeological remains
- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered
- To establish the nature of the activity on the site
- To identify any artefacts relating to the occupation or use of the site
- To provide further information on the archaeology of the site from any archaeological remains encountered

6 General Methodology

- 6.1 All stages of the investigation shall be supported by a written scheme of investigation (WSI).
- 6.2 The archaeological contractor is expected to follow the code of the Institute for Archaeologists (IfA).
- 6.3 Details including the name, qualifications and experience of the site director and all other personnel (including specialist staff) shall be included within the WSI.
- 6.4 All of the latest Health and Safety guidelines shall be followed on site.
- 6.5 The IfA's Standards and Guidance should be used for additional guidance in the production of the WSI, the content of the report and the general execution of the project.
- 6.6 Terminology will be consistent with the English Heritage Thesaurus.

7 Archaeological Recording Methodology

- 7.1 Prior to the commencement of on site works the archaeological contractor should familiarise themselves with the site by examining the information held by the Cornwall and Scilly Historic Environment record (HER), the Cornwall Records Office at Truro and the Cornwall Centre at Redruth, where appropriate.
- 7.2 An archaeologist shall be present during all ground works associated with the development, unless circumstances dictate a different approach. A toothless ditching bucket can be used for the removal of any overburden until the first archaeological horizon is exposed. This will then be hand cleaned as appropriate.

- 7.3 Any surviving remains which will be disturbed or destroyed by the development shall be archaeologically excavated and recorded.
- 7.4 Details of how all archaeological contexts and artefacts will be excavated, surveyed, recovered and recorded shall be provided. The site will be tied into the national grid.
- 7.5 Details of the site planning policy shall be given in the WSI. The normal preferred policy for the scale of archaeological site plans is 1:20 and sections 1:10, unless circumstances indicate that other scales would be more appropriate.
- 7.6 The photographic record shall consist of prints in both black and white and colour together with the negatives. Digital photography may be used for report illustration. For both general and specific photographs, a photographic scale shall be included. In the case of detailed photographs it may be appropriate to include a north arrow. The photographic record shall be accompanied by a photographic register detailing as a minimum, feature number, location and direction of shot.
- 7.7 If significant archaeological deposits are exposed, all works must cease and a meeting convened with the client and the HEPAO to discuss the most appropriate way forwards.

8 Finds

- 8.1 All finds, where appropriate, will be retained from each archaeological context excavated.
- 8.2 All finds, where appropriate, shall be washed.
- 8.3 All pottery, and other finds, where appropriate, shall be marked with the site code and context number.
- 8.4 The WSI shall include an agreed list of specialist consultants, who may be required to conserve and/or report on finds, and advise or report on other aspects of the work including environmental sampling.
- 8.5 The requirements for conservation and storage shall be agreed with the Royal Cornwall Museum prior to the start of work, and confirmed in writing to the HEPAO.
- 8.6 Finds work should be to accepted professional standards and adhere to the Institute for Archaeologists *Guidelines for Finds Work*.
- 8.7 Environmental sampling should be guided by *Environmental Archaeology* (English Heritage Centre for Archaeological Guidelines. 2001/02).
- 8.8 Further English Heritage guidance that may be helpful includes *Geoarchaeology* (2004) and *Archaeometallurgy* (2001).
- 8.9 The English Heritage Advisor for Archaeological Science will be able to provide archaeological science advice if required (Vanessa Straker 0117 975 0689).

9 Human Remains

- 9.1 Any human remains which are encountered must initially be left in situ and reported to the HEPAO and the appropriate authorities (the Coroner), where appropriate. If removal is necessary this must comply with the relevant Government regulations. If burials are encountered their legal status must be ascertained and recording and/or removal must comply with the legal guidelines.

- 9.2 If human remains are not to be removed their physical security must be ensured, preferably by back filling as soon as possible after recording.
- 9.3 If human remains are to be removed this must be done with due reverence and in accordance to current best practice and legal requirements. The site must be adequately screened from public view. Once excavated, human remains must not be exposed to public view.

10 Results

- 10.1 The full report including all specialist assessments of artefact assemblages shall be submitted within a length of time (but not exceeding six months) to be agreed between the applicant and the archaeological contractor, Cornwall County Council Historic Environment Service and the Royal Cornwall Museum. A further digital copy shall be supplied on CD-ROM preferably in 'Adobe Acrobat' PDF format.
- 10.2 The archaeological contractor will undertake the English Heritage/ADS online access to the index of archaeological investigations (OASIS).
- 10.3 This report will be held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation.
- 10.4 The report must contain:
- A concise non-technical summary of the project results.
 - The aims and methods adopted in the course of the investigation.
 - A discussion of the archaeological findings in terms of both the site specific aims and the desk based research.
 - A location map, a drawing showing those areas examined as part of the archaeological recording, and copies of any archaeological plans and sections. All plans shall be tied to the national grid.
 - All specialist reports and assessments.
 - A summary of the archive contents and date of deposition.
 - A context register with brief descriptions shall be included as an appendix.
 - A copy of the brief and the approved WSI will be included as an appendix.
- 10.5 A contingency shall be made within the costs for full publication in an appropriate journal. The HEPAO will notify the contractor of such a need within four weeks of receipt of the report.

11 Archive Deposition

- 11.1 An ordered and integrated site archive will be prepared in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006* upon completion of the project. The requirements for archive storage shall be agreed with the Royal Cornwall Museum.
- 11.2 If the finds are to remain with the landowner a full copy of the documentary archive shall be housed with the Cornwall County Record Office.
- 11.3 The archive including a copy of the written report shall be deposited with the Royal Cornwall Museum within two months of the completion of the full report and confirmed in writing with the HEPAO.
- 11.4 Where there is only a documentary archive this will be deposited with the Cornwall Record Office.
- 11.5 A copy of the report will be supplied to the National Monuments Record (NMR) in Swindon.
- 11.6 A summary of the contents of the archive shall be supplied to the HEPAO.

11.7 Only on completion of 11.1 to 11.5 (inclusive) will there be a recommendation for the discharge of any archaeological recording condition.

12 Monitoring

12.1 The HEPAO will monitor the work and should be kept regularly informed of progress.

12.2 Notification of the start of work shall be given preferably in writing to the HEPAO at least one week in advance of its commencement.

12.3 Any variations to the WSI shall be agreed with the HEPAO, preferably in writing, prior to them being carried out.

11 Appendix 2. Wheal Buller Riding Stables, Redruth: Written Scheme Of Investigation For Archaeological Watching Brief During Groundworks Associated With Construction Activities

Client: Mrs. Janet Dallimore
Client contact: Mr. John Briggs (agent for the applicant)
Client tel: 01326 312075
Client email: johnvbriggs@aol.co.uk

Site history

The application site is adjacent to the Wheal Buller Riding Stables to the south of Redruth, and is centred at SW 69718 39909 at a height of 207m on a north-westerly facing slope.

The mine sett of Wheal Buller lay to the south of Redruth beside the Redruth to Helston Road. Between the Basset Mines to the west and the Gwennap mines to the east and north-east. Wheal Buller. Lying at the eastern end of the landscape underlain by the Great Flat Lode, was one of the most productive copper mines in Cornwall, ranking fourth in terms of production behind Dolcoath, Tresavean and North Roskear and producing 141,707 tons of copper ore and 1,373 tons of black tin between 1819 and 1875. Peak production occurred in 1825, when the mine produced 6,230 tons of copper ore.

The mine is thought to have begun work as Trewirgie Downs mine at the end of the 18th century, and, following amalgamation with parts of neighbouring Wheal Beauchamp following a closure in 1836, was renamed after the landowner and mineral lord James Wentworth Buller when a new lease was arranged in 1849. This reworking was initially exceptionally successful, though by 1853 mineral production had begun to fall and the sett was subdivided, Copper Hill mine being created as a result. Wheal Buller struggled on until 1875, when it closed and its equipment was disposed of. The mine was served by a branch of the Redruth and Chasewater Railway. Ambitious but short-lived reworkings of the mine in 1928 and 1930 were unsuccessful.

Project background

Planning application PA08/01371/F was submitted on the 23rd July 2008 for the erection of a dwelling on the eastern side of the existing riding stables. This application is currently pending a decision, but is expected to be granted consent subject to a number of conditions. An archaeological recording condition is expected to be attached to the consent, and is likely to read:

"No development shall take place within the site until the applicant has secured and implemented a programme of archaeological work in accordance with a written scheme of investigation to be submitted by the applicant and approved in writing by the Local Planning Authority in consultation with the County Archaeologist."

A brief issued on 2 March 2011 by Phil Markham, Historic Environment Planning Advice Officer (west), Cornwall Council, states that despite the levelling of much of the site on its abandonment, there is a requirement for an archaeological watching brief since:

"Ground works associated with the development may disturb buried archaeological remains. It is therefore important that a suitably qualified archaeologist(s) is/are present during these works in order to identify and record any features of interest."

Project extent

The project is limited to the area to be affected by groundworks and allied activities associated with the construction of a dwelling adjacent to Wheal Buller riding stables, as indicated on drawing numbers JD/WBRS/4 (location plan) and JD/WBRS/3 (site plan) as supplied by the HEPAO on request.

Aims and objectives

The principal aim of the study is to gain a better understanding of the extent and nature of below ground survival of features associated with the operation of Wheal Buller Mine and its predecessors. The objectives are to create an archaeological record of any significant sub-surface features associated with mining or other activity on this site during groundworks activities.

Working methods

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

Desk-based assessment

A desk-based assessment will be carried out to inform the fieldwork stage. This will comprise:

- Published sources...
- Historic maps, including
 - Joel Gascoyne's map of Cornwall (1699)
 - Thomas Martyn's map of Cornwall (1748),
 - OS 1 inch survey (c1810)
 - Redruth Tithe map (c1840),
 - 1st and 2nd Editions of the OS 25 inch maps (c1880 and c1907)
- Modern maps

Fieldwork: archaeological watching brief

The soil strip should be carried out under archaeological supervision using a machine fitted with a toothless bucket. The soil will be stripped cleanly to a level at which archaeological features or layers can be expected to be revealed (i.e. top of the "natural"). Machines will not run over the stripped area until the archaeological works are complete. The area will then be inspected by an archaeologist and any archaeological features or layers exposed in the stripped area will be carefully excavated by hand and archaeologically recorded by written description, plan and section and photographic record as appropriate by an HE Projects archaeologist.

During the archaeological recording the archaeologist will:

Identify and record any archaeological features that are revealed in the stripped area; the level of recording will be appropriate to the character/importance of the archaeological remains.

If complex and/or significant archaeological deposits are encountered then the archaeological requirements should be reviewed by the client, the Historic Environment Planning Advice Officer and HE Projects. In the event that remains cannot be preserved *in situ* then full-scale excavation may be required. A contingency should be allowed to record any significant archaeological remains which are uncovered during the stripping.

The significance of the remains should be agreed between the client, the Historic Environment Planning Advice Officer and HE Projects.

Where necessary the detailed archaeological recording may include:

- Excavation of archaeological features exposed in the stripped area and plotting them onto a base map.
- Production of plans and section drawings of the excavated features and recording of features using a continuous numbering system.
- Retrieval of artefacts.

Recording - general

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: scaled monochrome photography will be used as the main record medium, with colour digital images used more selectively and for illustrative purposes. This will include both general and site specific photographs. Photographs should have a scale and detailed ones should include a north arrow.

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. In the event that significant organic remains are encountered, advice may be needed from Vanessa Straker (Regional Advisor for Archaeological Science).

If human remains are discovered on the site the Historic Environment Planning Advice Officer and the Ministry of Justice will be informed. All recording will conform to best practice and legal requirements.

If human remains are uncovered, which require excavation, they will be will be excavated with due reverence. The site will be adequately screened from public view. Once excavated, human remains must not be exposed to public view.

If human remains are not to be removed their physical security will be ensured, by back filling as soon as possible after recording.

Treatment of finds

The archaeological fieldwork may produce artefactual material.

All finds in significant stratified contexts predating 1800 AD (e.g., 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.

Creation of site archive

To include:

- Archiving of black and white photographs to HER standards. All monochrome photographs will be archived using the HE photo database
- Digital colour photographs (stored according to HER guidelines and copies of images made available to the client)
- Preparation of finished drawings
- Completion of the English Heritage/ADS OASIS online archive index

Archive report

A written report will include:

- Summary
- Project background
- Aims and objectives
- Methodologies
- Location and setting
- Designations
- Site history
- Archaeological results
- Chronology/dating evidence
- Significance
- Conclusions
- References
- Project archive index
- Supporting illustrations: location map, historic maps, plans, elevations/sections, photographs

A paper copy and a digital (PDF) copy of the report, illustrations and any other files will be held in the Cornwall HER. Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

Archive deposition

An index to the site archive will be created and the archive contents prepared for long term storage, in accordance with HE standards.

The archiving will comprise the following:

1. All correspondence relating to the project, the WSI, a single paper copy of the report together with an electronic copy on CD, stored in an archive standard (acid-free) documentation box
2. A2 drawn archive storage (plastic wallets for the annotated record drawings)
3. Archive standard negative holders and archive print holders, to be stored in the HES system until transferred to the Royal Cornwall Museum.
4. All black and white photographs will be archived using captioned labels, appropriate record forms and location plans. Other photo records will be supplied with written captions and subject to appropriate batch archiving to be held in safe archival storage.
5. The project documentary archive will be deposited initially at ReStore PLC, Liskeard and in due course (when space permits) at either the Royal Cornwall Museum (if accompanied by artefacts) or at the Cornwall Record Office.

6. The results of the watching brief will be reviewed on completion with the HEPAO and the Client to establish whether these warrant a programme of further analysis and publication.

Timetable

The study is anticipated to be commenced during 2011. HE will require at least three weeks notice before commencement of work, in order to allow the allocation field staff time and arrange other logistics.

The archive report will be completed within 3 months of the end of the fieldwork. The deposition of the archive will be completed within 3 months of the completion of the archive report.

Monitoring and Signing Off Condition

Monitoring of the project will be carried out by Phil Markham, Historic Environment Planning Advice Officer. Where the Historic Environment Planning Advice Officer is satisfied with the archive report and the deposition of the archive written discharge of the planning condition will be expected from the local planning authority (LPA).

Monitoring points during the study will include:

- Approval of the WSI
- Completion of fieldwork
- Completion of archive report
- Deposition of the archive

Historic Environment Projects

Historic Environment Projects is the contracting arm of Historic Environment, Cornwall Council (HE). HE employs some 20 project staff with a broad range of expertise, undertaking around 100 projects each year.

HE 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:

- 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
- Excavations and watching briefs
- Assessments and evaluations
- Post-excavation analysis and publication
- Outreach: exhibitions, publication, presentations

Standards



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

As part of Cornwall Council, HE has certification in BS9001 (Quality Management), BS14001 (Environmental Management), OHSAS18001 (Health, Safety and Welfare), Investors in People and Charter Mark.

Terms and conditions

Contract

The HE projects team is part of Historic Environment, 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 the HE projects team and will be presented in good faith on the basis of professional judgement and on information currently available.

Project staff

The project will be managed by a nominated Senior Archaeologist (Adam Sharpe BA MIfA) who will:

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

Work will be carried out by HE field staff, with assistance from qualified specialists and sub-contractors where appropriate.

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 held in the Cornwall HER and also 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 the Historic Environment, Cornwall Council. 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.

HE 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 HE may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

Health and safety statement

HE follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines HE uses the manual *Health and Safety in Field Archaeology* (2002) endorsed by the Standing Conference of Archaeological Unit Managers.

Prior to carrying out on-site work HE will carry out a Risk Assessment.

Insurance

As part of Cornwall Council, HE is covered by Public and Employers Liability Insurance.

Adam Sharpe BA MIfA

Senior Archaeologist

17 June 2011

Historic Environment Projects

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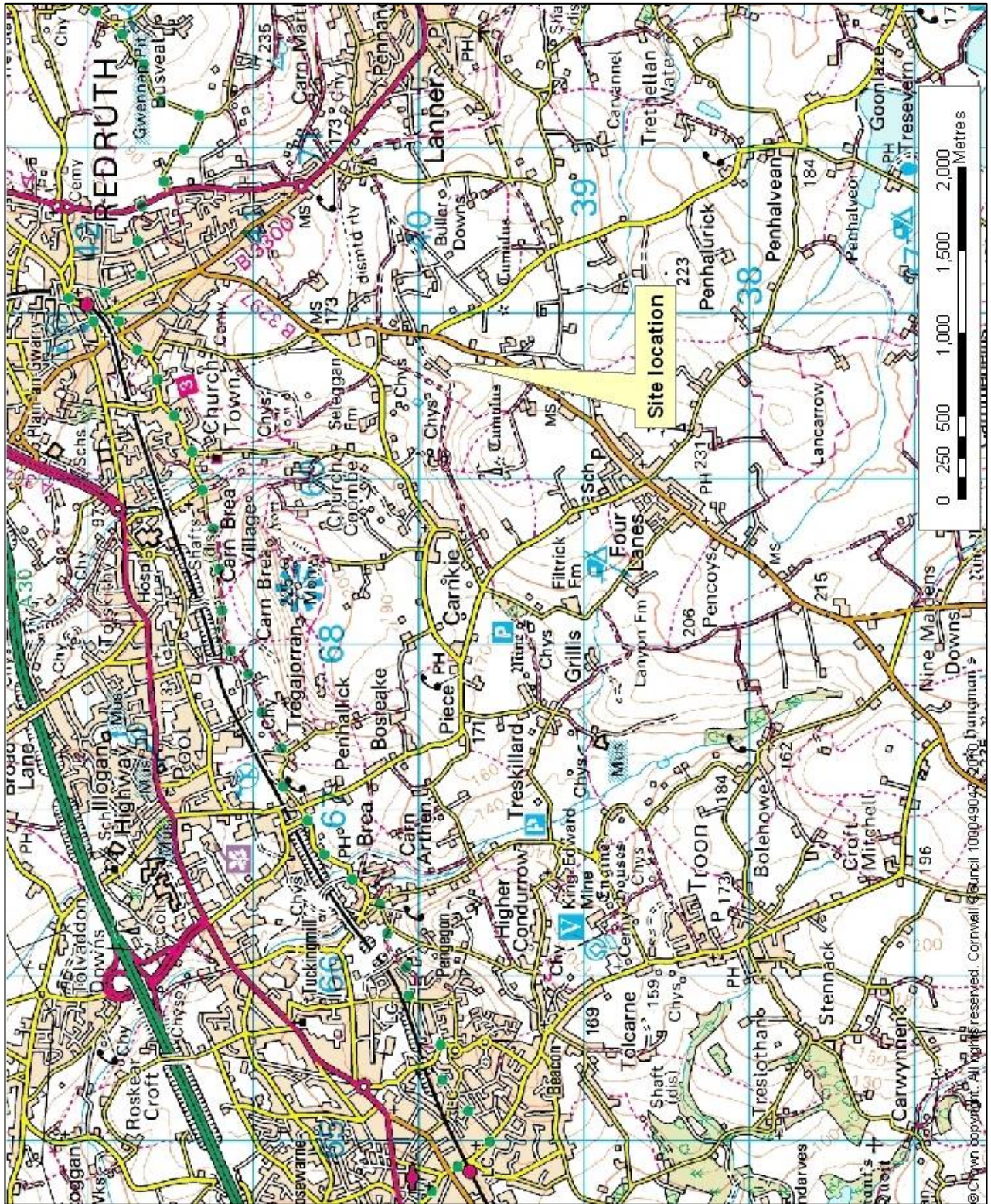


Fig 1 Location map

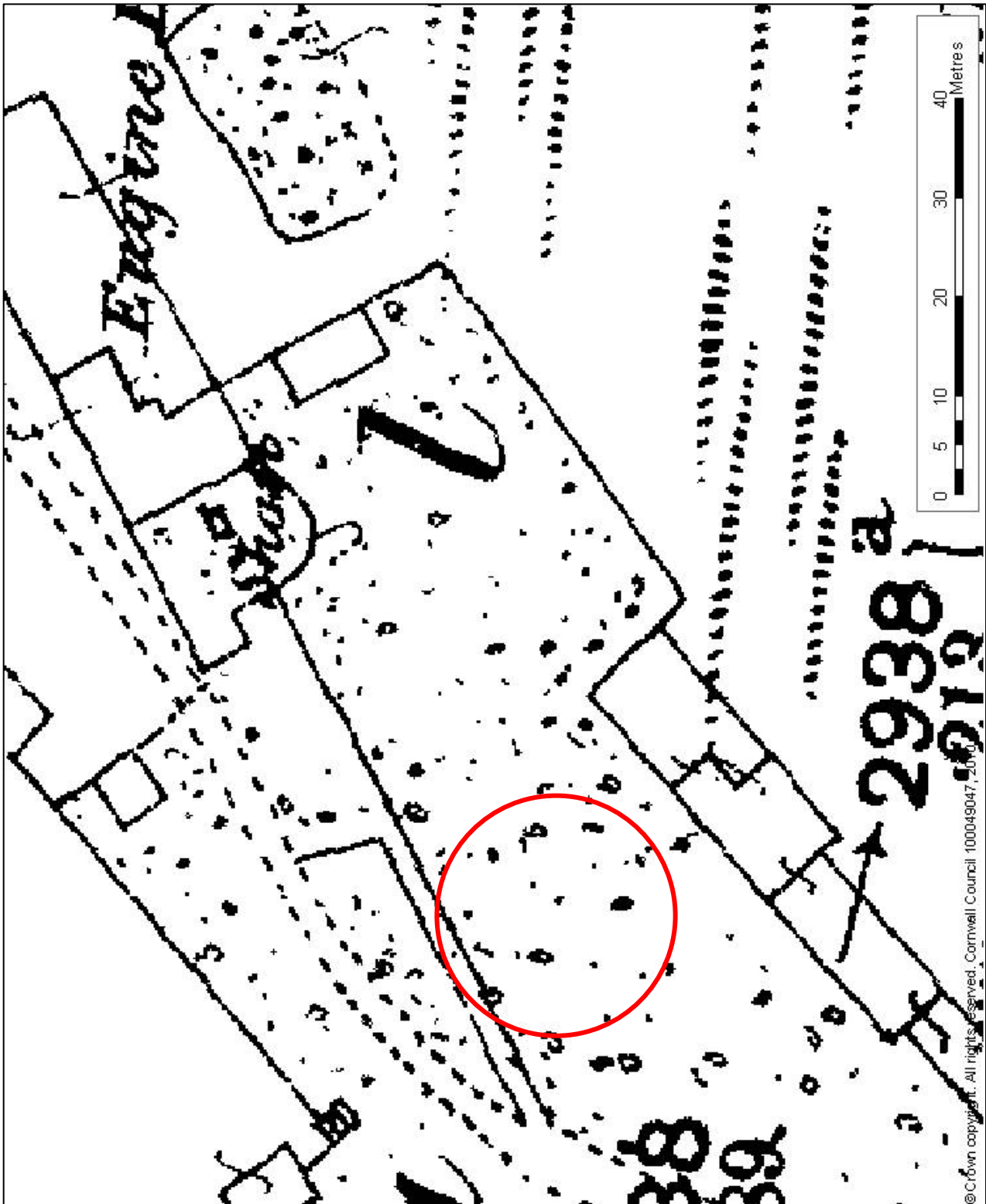


Fig 2 First Edition of the Ordnance Survey 25 Inch Map, c1880. Circle marks approximate study area.

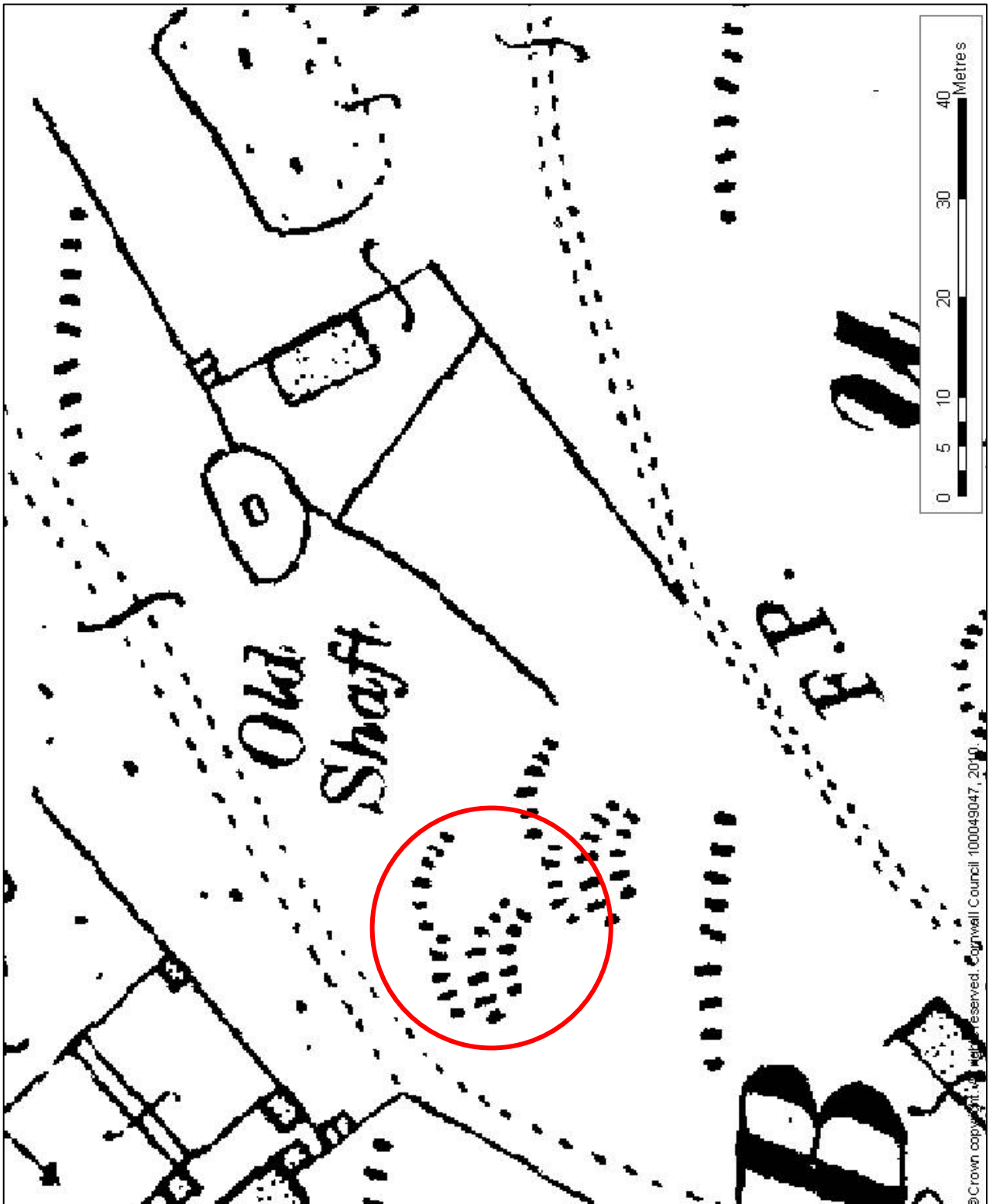


Fig 3 Second Edition of the Ordnance Survey 25 Inch Map, c1907. Circle marks approximate study area.

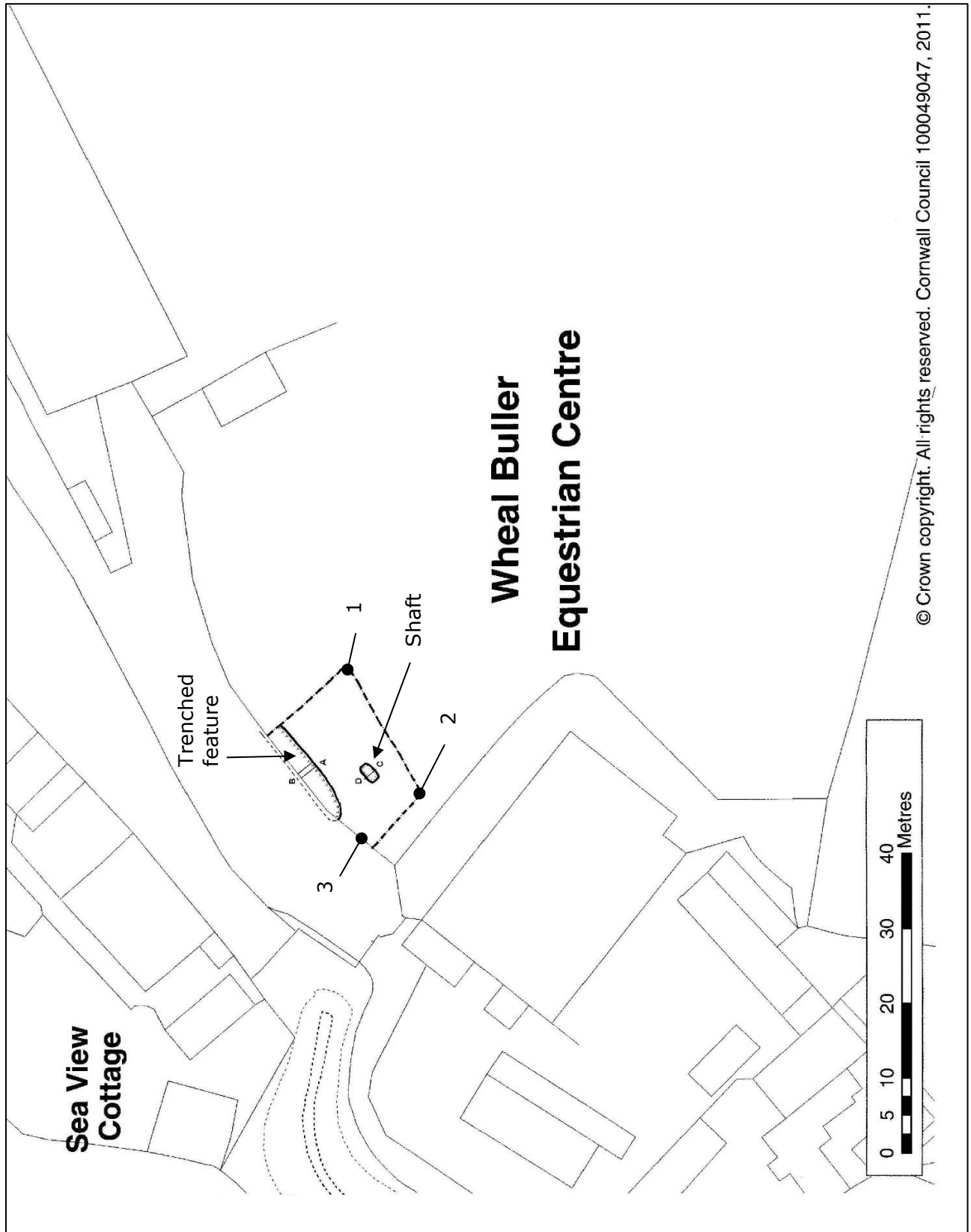


Fig 4 Ordnance Survey digital mapping showing Area investigated and features located

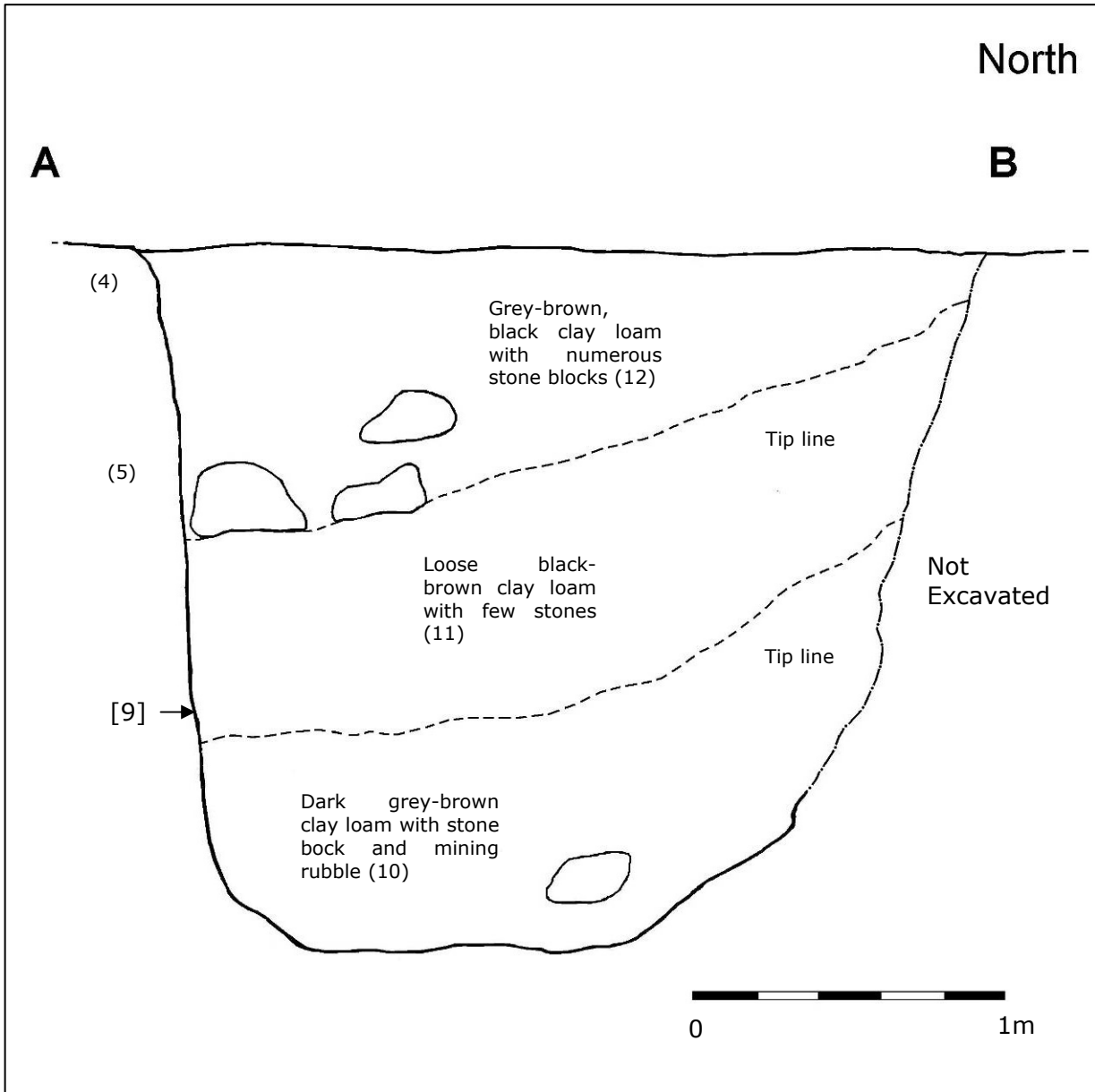


Fig 5 Section through trenched feature, context [9].

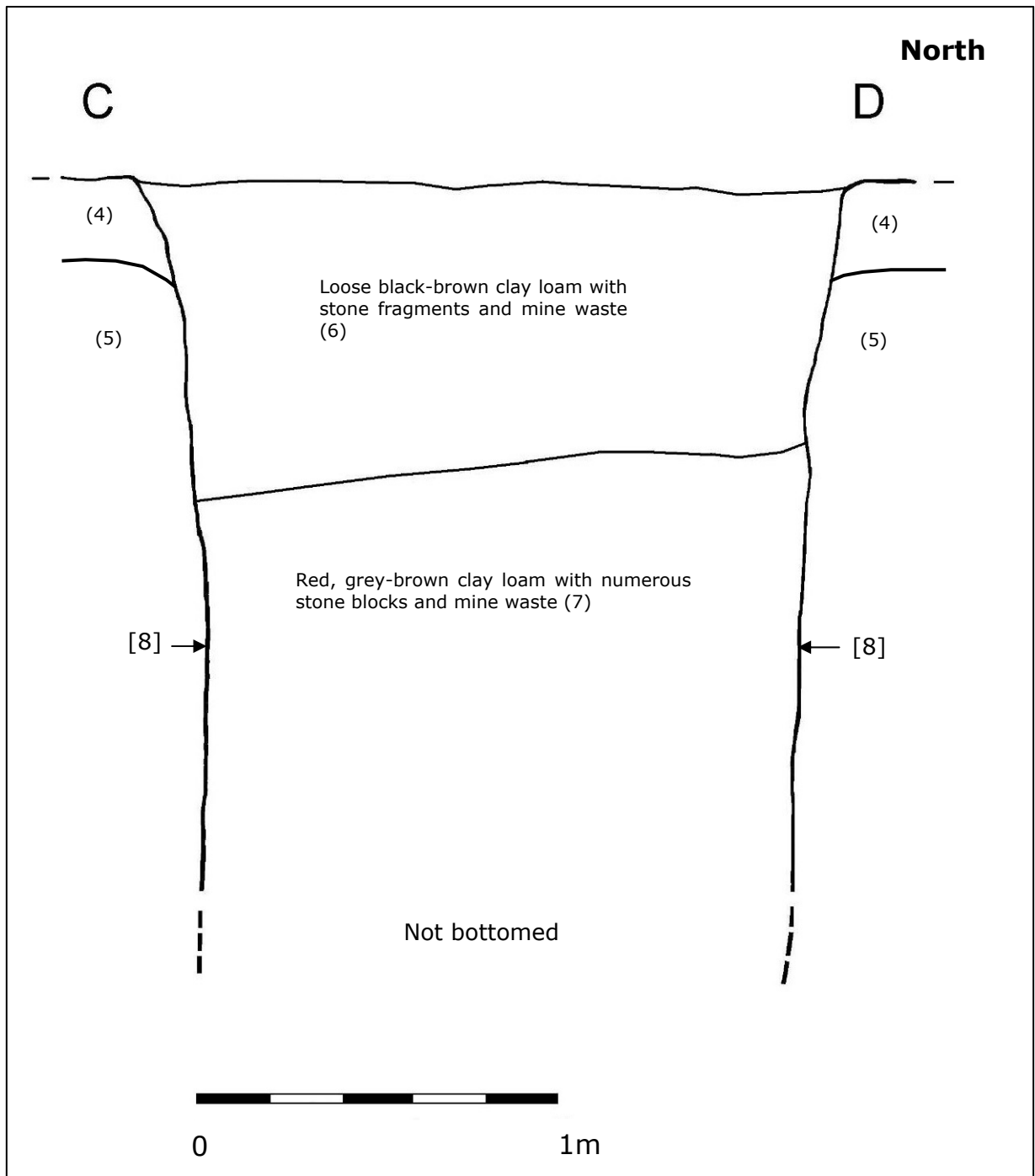


Fig 6 Section recorded through shaft [8]



Fig 7 General view of site prior to commencement of work looking northwest.



Fig 8 General view of site at end of topsoil stripping showing nature of the ground encountered, looking to the northeast.



Fig 9 Shaft [8] as first exposed. 2m scale.



Fig 10 Shaft [8] after partial excavation.



Fig 11 Line of trenched feature [9] as first exposed. View looking northeast.



Fig 12 Section through trenched feature [9]. View looking northwest.