THE ENGINE HOUSE RUDDLE FARM ST AUSTELL CORNWALL

Results of Historic Building Recording & Archaeological Monitoring





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The Engine House Ruddle Farm, St Austell, Cornwall

Results of Historic Building Recording

For

Robert Rowett Architectural Services (the Agent)

On behalf of

Mr & Mrs Brokenshire (the Client)

Bу



SWARCH project reference: SAR13 OS Map copying Licence No: 100044808 National Grid Reference: SX 011 549 Project Director: Colin Humphreys Fieldwork Managers: Bryn Morris Project Officer: Deb Laing-Trengove Desk Based Assessment: Deb Laing-Trengove Building Survey: Deb Laing-Trengove Report: Deb Laing-Trengove Report Editing: Beth Whitlock; Dr Samuel Walls Research: Deb Laing-Trengove

October 2013 (updated March 2016)

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Summary

South West Archaeology Ltd. was to undertake a desk-based assessment and historic building recording of the Engine House at Ruddle Farm, St Austell Cornwall. The cartographic research and the survey of the building show that the engine house was built in the late 19th or early 20th century. The building appears to have formerly been larger than the surviving structure and the masonry bases of further structures survive to the east of the remaining building.

A programme of archaeological monitoring during groundworks was not undertaken, although the initial phase of works was inspected during the historic building recording exercise.

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Acknowledgements

Thanks for assistance are due to:

Robert Rowett of Robert Rowett Architectural Services Mr & Mrs Brokenshire The staff of the Cornwall Record Office Dan Ratcliff, Cornwall Historic Environment Officer

1.0 Introduction

Location: Ruddle Farm, Drummers Hill Parish: St Austell County: Cornwall

1.1 Project Background

South West Archaeology Ltd. (SWARCH) was commissioned by Robert Rowett of Robert Rowett Architectural Services (the Agent) on behalf of Mr & Mrs Brokenshire (the Clients) to undertake a desk-based assessment, historic building recording and archaeological monitoring and recording of an engine house at Ruddle farm, Drummers Hill, St Austell, prior to the conversion of the building.

This report documents the building survey, undertaken in September 2013. At the time it was understood that further groundworks would take place in the spring of 2014. However, despite frequent attempts by SWARCH to establish a date for these groundworks, SWARCH were finally informed in February 2016 that works had taken place "some time ago". As such, no archaeological monitoring and recording was undertaken.

Ruddle Farm, situated to the east of Ruddlemoor, is firmly located within the St Austell China-Clay Area. The farm lies just to the east of the clay mining heritage centre of Wheal Martyn located on the B3274 off the A391 to St Austell, and on the western edge of the china clay working site at Ruddle.

1.2 Topographical and Geological Background

The engine house sits to the north-east of the farmhouse, farm yard and agricultural buildings at Ruddle, elevated from the settlement on a platform and built into the south facing slope of the ground.

The underlying bedrock is the granite of the St Austell Intrusion.

1.3 Historic Background

The area around St Austell has a industrial background of medieval tin working; mining of the rich kaolin deposits in the area only began in the late 18th century, when William Cookworthy recognised their industrial worth. Since then, the industry continued to expand, and it remains important in modern Cornwall.

Ruddlemoor sits directly to the north of St Austell on the southern fringe of the mining district of Hensbarrow. The present farm developed in the post medieval period as a farming hamlet.

1.4 Methodology

The building assessment was undertaken by D. Laing-Trengove on 25th September 2013 in accordance with English Heritage and IfA guidelines on the recording of standing buildings and structures. The desk-based assessment utilised cartographic and documentary sources held by the Cornwall Record Office, as well as the Historic Environment Record maintained by Cornwall County Council. Relevant online sources were also consulted, and appropriate Internet databases investigated.



Figure 1: Site location (the site is indicated).

2.0 Results of the Desk-Based Assessment

2.1 The Cartographic Record

2.1.1 The St Austell Tithe Map of *c*.1840

The *c*.1840 tithe map and apportionment records the site of the engine house at Ruddle Farm as located in a small paddock, which contained a number of small buildings and a long building oriented east-west to the south-west (Figure 2). Unfortunately the colouring of the buildings does not differentiate between domestic and non-domestic structures. As the area covered by the number 3172 was not included within the detail for the holding at Ruddle, it is possible that this enclosure housed a separate farm with separate farm house and agricultural buildings. To the east (north on Figure 2) are the possible remnants of a former trackway leading towards *Barbelingy*, the holding to the east of the site.



Figure 2: Extract from the St Austell tithe map, the site of the engine house is indicated. (The map is oriented with east to the top).

At the time, the whole of the immediate area, including the land covered by the Union Clay Works and numbered 3183, was owned by Sir Joseph Sawle Graves Sawle of Penrice. The clayworks occupies a discrete, large, plot of former moorland included within the holding of Barbelingy, to the east of Ruddle.

2.1.2 The Ordnance Survey First Edition Map of 1881

By the time of the First Edition OS map the Union Clay Works had become the Ruddle China Clay Works and covered a less discrete area to the south, south-east and south-west of Ruddle

Farm. The clay pits were located to the south-east and the settling tanks and clay dries presumably to the south-west. There is no apparent mining activity in the immediate vicinity of the site, and the position of the engine house was at this date an empty paddock, empty except to the south where the long building marked on the tithe map is still extant. There is a group of buildings indicated in the location of the farm to the west. There may already have been a platform or levelled area to the immediate east of the site, there certainly appears to be a former trackway or lane against the slope to the south and another track leading up to the north from the east.



Figure 3: Extract from the First Edition OS Map of 1881; 1:25,000 scale (the site of the engine house is indicated).

2.1.3 The Ordnance Survey 2nd Edition Map of 1907

By 1907 the Ruddle Clay Works had expanded considerably to the north, and appears to surround Ruddle Farm on three sides (Figure 4). Extraction pits are recorded to the east of site, with apparent finger dumps to the north and the settling tanks of a new pan kiln to the south.

In the location of the present building, a pumping shaft is recorded to the north, with buildings on either side of a channel running directly between them from the shaft. The associated chimney is indicated against the north-west elevation of a large square building marked in the position of the present structure. The text to the side reads *Engine Houses* and *Chy*. There was clearly at least one engine house here at this time, and the text suggests there was in fact at least two. The plan of the building as depicted here suggests that if there were two they were alongside each other as the building depicted is far wider than the current structure. Two further structures are marked to the east and north-east of the channel.



Figure 4: Extract from the Second Edition Ordnance Survey map of 1907.

2.1.4 The 1933 Ordnance Survey Map

This map shows Ruddle Farm surrounded by a mining landscape of sky tips and finger dumps that appears to have altered little in the years between this and the 1907 map. The dumps of material appear to have increased in size. The buildings on the site do not appear to have altered considerably, the only discernible change to the engine house being the extending of the building to the north, between the channel from the shaft and the chimney. There is also now an adit marked to the south of the building.



Figure 5: Extract from the 1933 Ordnance Survey map (the site is indicated).

2.2 The Historic Environment Record

The clay works at Ruddle is listed on the Cornwall Historic Environment Record under record number 27038.30. This includes the contemporary boiler pond and shaft which were not investigated as part of this study. The full relevant Historic Environment Records (HER) are listed in Appendix 3.

3.0 Results of historic building recording

3.1 General Description

The engine house is situated upslope to the north-east of the earlier farmhouse and associated farm yard and buildings on a platform terraced into the south facing slope (Figure 5). The walls of the substantial granite built engine house survive, single storey except to the south where the lower portion of the two storey wall acts as a retaining wall against the slope to the north. The associated chimney to the west also survives and the foundations and base of further auxiliary structure/s to the south end of the east elevation are present. The building, roughly oriented north-south, formerly housed a horizontal steam engine, but now is only partially complete and has a square modern concrete block building to the north end, which was formerly attached to the north wall of the engine house. The site and building was found at the time of the survey to have been subject to recent clearance, repair and stabilisation, prior to recording.

The building is single storey, has no roof remaining and almost all fixtures, fittings and features have been removed. The floor of the building had been levelled and covered with blue plastic membrane prior to cementing; no evidence of former plinths or machine beds remains. To the interior much of the original fabric of the building remains, although most elevations have been repointed in modern cement and some walls appear to have been substantially repaired; for example, concrete blocks have been added to the interior walls above the openings.



Figure 6: The position of the engine house in relation to Ruddle Farm, viewed from the south (no scale).



Figure 7: View of the engine house from the yard to the south-west of the building; viewed from the south (no scale).

3.2 Detailed Description

The single storey north elevation of the engine house was formerly abutted by a modern single storey (agricultural?) building to the north, constructed of concrete block and cement with an asbestos sheet roof, now with the ends of the formerly abutting walls removed. This modern extension has a window opening in the east wall, now with a reused window and planks filling the opening, and a door opening to the west (Figure 6). The east and west walls have been truncated to the south where formerly they abutted the north wall of the engine house, and where the ground has been levelled between the two, a layer of burnt material and clinker is visible beneath the cement floor of the remaining modern building (Figure 7).



Figure 8: The modern building to the north of the engine house, the north end of the engine house and the base of the chimney, viewed from the north-west (2m scale).



Figure 9: Section revealed between the engine house and the modern building to the north; viewed from the south-east (2m scale).

The short single storey north elevation of the engine house has been almost completely rebuilt to the west, in granite rubble with modern cement bonding to the exterior and with modern concrete block to the interior. The exterior wall is of semi coursed granite rubble with large granite rubble block quoins to the east and west corners and with a central original window opening, now with the earlier pale creamy orange to browny orange bricks only to the interior of the reveals, and with a replaced timber lintel above the opening and modern brickwork to the exterior reveals. There is a further, modern opening at the base of the wall to the west of the window, with a cement lintel and protruding modern plastic pipework. At the west end of the exterior elevation is a slight projecting (c.15cm) plinth at the base. To the east the original build remains, with hard gravelly grey cement mortar bonding between the granite rubble.



Figure 10: The repaired interior north end of the engine house and northern jamb of the double door opening at the north end of the east elevation; viewed from the south (2m scale).

The masonry of the south end of the east elevation is no longer extant adjacent to the position of a former machine house, just to the east of the elevation (see Appendix 3). The remaining south end of the wall is ragged to the upper but tied into the south wall down below the level of the engine house floor at the south-east corner of the building where the ground level is much lower. The remnants of an opening formerly within this portion of the building remains in the east wall, with brick quoins to the northern edge of the extant opening marking the extent of the former opening at this end, but lost to the south (Figure 9). To the north of these brick quoins the section of wall, containing a central window opening, projects from the position of the wall to the south, with granite quoins to the return and with brick quoins to reveals of the window opening. The reveals are splayed to the interior, but the opening now has no sill and a new replaced lintel. The wall has been rebuilt above the opening with coursed granite rubble in smooth grey cement mortar. The walls to the north, south and below the opening are of random semi-coursed granite rubble with some brick to the north of the window opening. The original mortar is hard grey gravelly cement, as to the east end of the north wall.



Figure 11: The southern end of the east elevation of the engine house; viewed from the north-east (2m scale).

To the north of the projecting face, the east wall steps in, although there appears to be a cement plinth projecting at the base that aligns with the wall face to the south (see Figure 10). To the interior this northern portion of the east wall also steps in, perhaps suggesting that it has been rebuilt to the west of an earlier wall line that aligns with the portion of the wall to the south. In the centre of this northern portion of wall is a double width door opening, with a new replaced timber lintel. The wall above has been rebuilt using modern cement and mortar, with earlier bricks to the jambs and an interior rubble stone core (see Figure 8). The bricks must be reused, or were 'seconds' rejected for their original intended use, as a number are voussiors for an arch and many have what appear to be the marks from firing where they were laid in across each other. The brick fabric is a creamy pale yellow with quartz/mica inclusions. To the north of the opening, at the base of the wall, a small section has been rebuilt, possibly a former opening (?). Two metal pipes or rods protrude here from the ground through the aforementioned plinth (Figure 10).

The south wall is constructed of granite rubble as before, but with very large blocks to the corners and to the base of the wall for the lower c. 3m portion where the elevation is built up against the slope to the north (Figure 11). The wall has a large central arched window opening at first floor level with brick quoins to the reveals, with cement over the arch to the exterior. To the interior the reveals of the opening are splayed with no sill remaining, and the wall fabric contains some brick to east. The retaining wall to the east of the south-east corner of the building is set back from the exterior face of the south wall; is battered and slopes back to the north up to ground level. The stonework appears tied into the build of the east wall of the engine house, which suggests that the structure is contemporary with the building. To the east is a further structure, the face of which is aligned with the south wall of the engine house. This appears to abut the battered wall, suggesting it is a later addition, and creates a recessed space between it and the engine house. This abutting wall is also of granite rubble construction, with large blocky quoins and bonded in a slightly greyer and more gravelly mortar.



Figure 12: The north end of the east wall of the engine house; viewed from the south-east (2m scale).



Figure 13: The south elevation of the engine house and associated structures to the east; viewed from the south (2m scale).

The west wall of the engine house is a long elevation; it is two stories at the southern end, where the south wall returns to the west, but single storey upslope (Figure 11). Three (former) openings are evident along its length and a there is a granite plinth apparently tied into the elevation to the north below the northernmost opening. At the southern end is a door sized opening with brick reveals (and possibly some cement block) as before, rebuilt or extended upward with red modern brick, a granite lintel and no sill. The wall above, below and to the north of the opening has been rebuilt or completely repointed in modern cement to the exterior and to the interior the wall has been rebuilt above the opening in concrete block. To the north of the opening the ground surface rises up toward the north and appears to have been recently built up against the wall to the west with soil and granite rubble. To the interior the opening appears to have formerly contained a metal or timber framework, but no lintel or supports remain.



Figure 14: The west elevation of the engine house and the chimney; viewed from the north-west from downslope (no scale).

Towards the north end of the west elevation is a projecting narrow platform of large granite blocks apparently tied into the wall, with a central arched opening above, with straight brick reveals and blocked with concrete blocks and cement (Figure 12 & 13). To the interior the reveals of the opening have the voussiors bricks as to the opening to the east, the sill has been raised with concrete block, but there remains a line of bricks in the wall to either side of the opening that appear to mark a position just above the earlier sill height (Figure 14). Below this, to the north, the wall has been rendered in modern cement and to the south of this opening at the height of the horizontal line of bricks associated with the southern opening reveal, is a small rectangular recess in the wall with an internal cast iron frame and lintel and a large projecting bolt and nut.

Above the recess three large threaded bolts project from the wall face just to the north of the change in the face of the elevation. The wall face steps out slightly just south of the position of the plinth on the exterior face. The interior edge has brick quoins (the brick as before) but

appears to be contemporary with the rest of the wall, however, the masonry of the exterior wall appears slightly disturbed, although most of this elevation has been repointed and repaired, obscuring any breaks or differences in the masonry of the build. On the exterior face of the wall, to the south of the arched opening, two square-set metal rods project through squared cast iron plates set against the wall face (see Figure 13), which must be associated with the projecting bolts on the interior wall face.



Figure 15: The northern end of the engine house, showing the blocked opening in the west elevation of and truncated masonry at the base of the chimney; viewed from the south-west (2m scale).



Figure 16: The blocked arched opening in the west wall of the engine house; viewed from the east (2m scale).

To the north of the projecting plinth/platform on the exterior face of the west wall is a lesser projection set low on the elevation at the base of the wall, above, at the north end, the wall has been repaired/repointed in modern cement. The ground between the engine house and the chimney to the west has been dug away and cleared. The granite rubble chimney is of a similar construction to the engine house with similar mortar to the base. The upper is built in brick with two metal ties. On the south face of the structure at the base, the wall face is flat indicating the former presence of an integral structure, in the position of a former wall most likely associated with a former boiler house (see Figure 13). The masonry of this portion of the structure is truncated to the east, and the north end of the engine house may have been reconstructed where these walls formally joined.

3.2.1 Associated structures

The east end of the south elevation of the engine house has an abutting structure (see the south wall described above) that fills the south-east corner of the platform on which the engine house sits. The south wall of this structure has no openings but the elevation to the east has two built-in openings to the base, with granite quoins and lintels to the openings and with internal metal lintels and horizontal rods. These are possibly access points for spanners to tighten up the long vertical bolts which held down either the engine or its flywheels/axels onto the masonry block. This section of walling has a clear joint between it and the granite wall structure further to the north.



Figure 17: The structures to the south-east of the engine house; viewed from the south-east (2m scale).

4.0 Archaeological monitoring & recording

At the time of undertaking the building survey, SWARCH were informed that further groundworks at the site would commence in the Spring of 2014. However, despite frequent attempts by SWARCH to establish a date for this work in early 2014 (and subsquently), we were informed by the owners that the works had not yet happened. It was not until February 2016 that SWARCH were able to estalish that the work had been completed some time ago. Consequently, no archaeological monitoring or recording took place.

5.0 Conclusions

The cartographic research and building survey show that the engine house was built in the late 19th or early 20th century, when the China Clay Works at Ruddle expanded to the north and west of the earlier area. A new shaft was opened to the north-east of Ruddle Farm at this time. The mapping suggests that the building at this time was larger than the structure currently remaining on the site, and that there were other associated structures that are no longer extant.

The building survey recorded masonry bases for these structures to the east of the extant building, although there were few signs of the structures formerly situated to the immediate west of the building and adjoining the surviving chimney on the south side. The remaining granite rubble structure clearly dates to the later 19th – early 20th century and utilises reused or brick voussior 'seconds' in the reveals/jambs of most of the openings. The building has been subject to a significant amount of modern repair work, and any evidence of 20th century phasing has been obscured by modern repointing and repair.

No archaeological monitoring was undertaken.

6.0 Bibliography & References

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British Geological Survey 2012: Geology of Britain Viewer. <u>http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html</u>

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Appendix 1

Recommendations for Archaeological Work Dan Ratcliff CCHES

This building is recorded on the County Historic Environment Record which describes it as follows,

An engine house at Ruddle china-clay works first recorded on the 2nd Edition OS 1:2500 of 1907. Visited by CAU in 1990 as part of the china-clay survey and identified in the gazetteer as PRN 27211 (b1). The engine house contained a horizontal steam engine, now removed. Inside the masonry beds for the engine are intact. The engine house is now overgrown, but survives with a large arch window at the south end. There are some later block work additions. The boiler house was attached on the west but has been demolished, presumably when the boilers were removed, however the stack survives and is of granite with a brick cap and iron bands. A pumping shaft is located to the north of the house and still contains the cast-iron rising main and wooden pump rods. The system of flat-rods and two rocking bobs which transmitted power from the engine to the pump is all in-situ and represents a rare survival. To the east are the remains of another machinery house with masonry plinths and a boiler pond (h1).

More recently Ruddle China Clay works has been assessed as part of assessment works for the Carclaze / Baal EcoTown Project (CSHER ref ER1173). This concluded that the wider Ruddle site, which closed in the early 20th century and unlike many similar works was not consumed by later workings, represents a potentially regionally to nationally significant survival of a historic china clay industrial landscape.

The NPPF describes the conservation of the historic environment appropriate to its significance as one of 12 Core Principles of sustainable development. The conversion of rural buildings where appropriate is encouraged and HES welcomes applications which can achieve sustainable re-use alongside appropriate conservation of the significance of the building. NPPF P141 states that where applications lead to losses of significance that LPAs should require recording of those sites prior to those losses occurring.

Assessment and Recommendations

We would advise that this building is significant as an undesignated historic asset (NPPF P135). The site has archaeological significance through the evidence that it contains in its surviving fabric within pumps shaft, power transmission systems, engine beds and form of the technological application of steam pumping to the china clay industry. The building has historical significance in the degree to which it illustrates the history of the china clay industry in general and Ruddle works in particular. This illustrative significance has much to do with the building's architectural expression and the degree to which this contributes to the surrounding landscape and relates to the other components of Ruddle china clay works. The archaeological significance of the site is likely to be impacted from changes required to the building to convert it to domestic use. These works may remove evidence and it would be appropriate to ensure that this evidence is recorded by an archaeological survey before works take place. The architectural significance of the building and the degree to which it contributes to the historic significance of the Ruddle site would be risked by the use of inappropriate materials or landscaping details. For instance whilst the Design and Access statement suggests exterior joinery should be finished in a dark stain we would recommend a painted finish would be more historically appropriate. Details of exterior joinery, rainwater goods, roofing material and detail, mortar and stone finishes etc should be controlled by condition as should permitted development rights to undertake extensions or construct exterior details. My colleague Victoria Robinson would I expect be able to recommend model conditions for these details.

Appropriate wording for a programme of archaeological recording would be as follows.

No development to which this permission relates shall commence until an appropriate programme of historic building recording and analysis has been secured and implemented in accordance with a written scheme of investigation which has been submitted to and approved in writing by the local planning authority.

Appendix 2

WRITTEN SCHEME OF INVESTIGATION FOR BUILDING RECORDING AND ARCHAEOLOGICAL MONITORING AND RECORDING AT RUDDLE FARM ST. AUSTELL

Location: Ruddle Farm, Drummers Hill Parish: St Austell County: Cornwall NGR: SX 011 549 Planning Application no: PA12/08964 **Proposal:** Change of use from pump house to holiday let with extension to front HET ref: TBA SWARCH ref: SWARCH/SAR13 OASIS ref: TBA 19th September 2013 Date:

1.0 INTRODUCTION

- 1.1 This document forms a Written Scheme of Investigation (WSI) which has been produced by South West Archaeology (SWARCH) at the request of Robert Rowett of Robert Rowett Architectural Services (the Agent) on behalf Mr V Brokenshire of Ruddle Farm, St Austell (the Client). It sets out the methodology for building recording and archaeological monitoring and recording to be undertaken during the above development and for related off site analysis and reporting. The WSI and the schedule of work it proposes were drawn up in accordance to a letter issued by Cornwall County Historic Environment Team (CCHET) (Dan Ratcliffe, 25th February 2013).
- 1.2 In accordance with paragraph 141 of the *National Planning Policy Framework* (2012), and then Local Development Framework Policy on archaeology, consent has been granted, conditional upon a programme of archaeological work being undertaken. This condition (6) requires that:

'No development shall take place until the applicant (or their heir or successor in title) has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and agreed in writing by the Local Planning Authority. The development shall be carried out at all times in strict accordance with the agreed scheme, or such other details as may be subsequently agreed in writing by the Local Planning Authority.

1.3 Some of these proposed works have been carried out without the benefit of planning consent. The HET is informed that these works have now ceased and will not commence until suitable recording of the building and disturbed ground has been undertaken.

2.0 ARCHAEOLOGICAL BACKGROUND

2.1 An engine house at Ruddle china-clay works first recorded on the 2nd Edition OS 1:2500 of 1907. Visited by CAU in 1990 as part of the china-clay survey and identified in the gazetteer as PRN 27211 (b1). The engine house contained a horizontal steam engine, now removed. Inside the masonry beds for the engine are intact. The engine house is now overgrown, but survives with a large arch window at the south end. There are some later block work additions. The boiler house was attached on the west but has been demolished, presumably when the boilers were removed, however the stack survives and is of granite with a brick cap and iron bands. A pumping shaft is located to the north of the house and still contains the cast-iron rising main and wooden pump rods. The system of flat-rods and two rocking bobs which transmitted power from the engine to the pump is all in-situ and represents a rare survival. To the east are the remains of another machinery house with masonry plinths and a boiler pond (h1).

3.0 AIMS

3.1 To make a record of the historic elements of the buildings prior to the commencement of the development (see 1.3 above).

Subsequent recording may be required during the course of the proposed works where previously obscured historic fabric or architectural features are exposed by such works.

- 3.2 To monitor groundworks associated with the development to allow any exposed archaeological deposits to be investigated and recorded (see 1.3 above).
- 3.3 To analyse and report on the results of the project as appropriate.

4.0 METHOD

4.1 Desk-based appraisal:

The programme of work shall include an element of desk-based research to place the development site into its historic and archaeological context. This work will consist of map regression based on the Ordnance Survey maps and the Tithe Map(s) and Apportionments. An examination will also be made of records and aerial photographs held by the HER. In addition, it will involve the examination of other known relevant cartographic, documentary and photographic sources. The reporting requirements for the desk-based work will be confirmed in consultation with the HET.

4.2 Historic building recording:

A record shall be made of the historic fabric of the building affected by the development. This work shall conform to an appropriate level (likely to be Level 2 or 3) of recording as set in Understanding Historic Buildings: A guide to good recording practice - English Heritage 2006 (available on-line at the English Heritage website).

Previously prepared architect's plans may be used as the basis of any historic building fabric recording, but must be of adequate scale and accuracy. Otherwise the required scale elevations, plans and other drawings should be prepared by the archaeological contractor themselves.

4.3 Comprehensive archaeological monitoring and recording (present during all groundworks):

All groundworks will be undertaken by a 360° tracked or wheeled JCB-type mechanical excavator fitted with a toothless grading bucket where possible, **under the supervision and control of the site archaeologist**, to the depth of formation, the surface of *in situ* subsoil/weathered natural or archaeological deposits whichever is highest in the stratigraphic sequence. Should archaeological deposits be exposed machining will cease in that area to allow the site archaeologist to investigate the exposed deposits. The work shall be carried out in accordance with the IfA *Standard and guidance for an Archaeological Watching Brief* (1994), as amended (2008).

Should archaeological features and deposits be exposed, they will be excavated by the site archaeologist by hand:

- 4.2.1 The archaeological work will be carried out in accordance with the *Institute for Archaeologists Standard and Guidance for Archaeological Field Evaluation 1994 (revised 2001 & 2008)* and *Standard and Guidance for an Archaeological Watching Brief 1994 (revised 2001 & 2008).*
- 4.2.2 Spoil will be examined for the recovery of artefacts.
- 4.2.3 All excavation of exposed archaeological features shall be carried out by hand, stratigraphically, and fully recorded by context to IfA guidelines.
- 4.2.4 If archaeological features are exposed, then *as a minimum*:
 - i) small discrete features will be fully excavated;
 - ii) larger discrete features will be half-sectioned (50% excavated);

iii) long linear features will be sample excavated along their length - with investigative excavations distributed along the exposed length of any such feature and to investigate terminals, junctions and relationships with other features.

4.2.5 Should the above percentage excavation not yield sufficient information to allow the form and function of archaeological features/deposits to be determined, full excavation of such features/deposits will be required. Additional excavation may also be required for the taking of palaeoenvironmental samples and recovery of artefacts.

Any variation of the above or decisions regarding expansion will be considered in consultation with the Client and DCHET.

- 4.2.6 In exceptional circumstances where materials of a particularly compact nature are encountered, these may be removed with a toothed bucket, subject to agreement with archaeological staff on site.
- 4.2.7 Should archaeological or palaeoenvironmental remains be exposed, the site archaeologist will investigate, record and sample such deposits.
- 4.2.8 Human remains must be left *in-situ*, covered and protected. Removal will only take place under appropriate Ministry of Justice and environmental health regulations. Such removal will be in compliance with the relevant primary legislation.
- 4.2.9 Any finds identified as treasure or potential treasure, including precious metals, groups of coins or prehistoric metalwork, will be dealt with according to the Treasure Act 1996 Code of Practice (2nd Revision) (Dept for Culture Media and Sport). Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.
- 4.3 The Client will provide SWARCH with details of the location of existing services and of proposed groundworks within the site area, and of the proposed construction programme.
- 4.4 Health and Safety requirements will be observed at all times by any archaeological staff working on site, particularly when working with machinery. As a minimum: high-visibility jackets, safety helmets and protective footwear will be worn.
 - 4.4.1 Appropriate PPE will be employed at all times.
 - 4.4.2 The site archaeologist will undertake any site safety induction course provided by the Client.
 - 4.4.3 If the depth of trenching exceeds 1.2 metres the trench sides will need to be shored or stepped to enable the archaeologist to examine and if appropriate record the section of the trench. The provision of such measures will be the responsibility of the client.
- 4.5 If significant or complex archaeological remains are uncovered, SWARCH will liaise with the client and CCHET to determine the most satisfactory way to proceed.

5.0 ARCHAEOLOGICAL RECORDING

5.1 This will be based on IfA guidelines and those advised by CCHET and will consist of:

5.1.1 Standardised single context recording sheets, survey drawings in plan, section and profile at 1:10, 1:20, 1: 50 and 1:100 as appropriate and digital photography.

5.1.2 Survey and location of features.

5.1.3 Labelling and bagging of finds on site, post-1800 unstratified pottery may be discarded on site after a representative sample has been retained.

Any variation of the above shall be agreed in consultation with the CCHET.

- 5.2 A photographic record of the excavation will be prepared. This will include photographs illustrating the principal features and finds discovered, in detail and in context. The photographic record will also include working shots to illustrate more generally the nature of the archaeological operation mounted. All photographs of archaeological detail will feature an appropriately-sized scale. The photographic record for the excavations will be made using digital techniques only.
- 5.3 The drawn and written record will be held on an appropriately archivable medium in accordance with the current conditions of deposit of the Royal Cornwall Museum, Truro.
- 5.4 Should suitable deposits be exposed (e.g. palaeoenvironmental), then scientific assessment/ analysis/dating techniques will be applied to further understand their nature/date and to establish appropriate sampling procedures. The project will be organised so that specialist consultants who might be required to conserve or report on other aspects of the investigations can be called upon. Should deposits be exposed that contain palaeoenvironmental or datable elements appropriate sampling and post-excavation analysis strategies will be initiated. On-site sampling and post-excavation assessment and analysis will be undertaken in accordance with English Heritage's guidance in *Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation 2002* and if necessary with reference to and with advice from the English Heritage Regional Science Advisor.

6.0 REPORTING

- 6.1 If a report is produced it will include the following elements:
 - 6.1.1 A report number, date and the OASIS record number;
 - 6.1.2 A copy of the CCHES brief and this WSI;
 - 6.1.3 A summary of the project's background;
 - 6.1.4 A description and illustration of the site location;
 - 6.1.5 A methodology of the works undertaken, and an evaluation of that methodology;
 - 6.1.6 Plans and reports of all documentary and other research undertaken;
 - 6.1.7 A summary of the project's results;
 - 6.1.8 An interpretation of the results in the appropriate context;
 - 6.1.9 A summary of the contents of the project archive and its location (including summary catalogues of finds and samples);
 - 6.1.10 A location plan and overall site plan including the location of areas subject to archaeological recording;
 - 6.1.11 Detailed plans of areas of the site in which archaeological features are recognised along with adequate OD spot height information. These will be at an appropriate scale to allow the nature of the features exposed to be shown and understood. Plans will show the site and features/deposits in relation to north. Archaeologically sterile areas will 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;
 - 6.1.12 Section drawings of deposits and features, with OD heights, at scales appropriate to the stratigraphic detail to be shown and must show the orientation of the drawing in relation to north/south/east/west. Archaeologically sterile areas will not be illustrated unless they can provide information on the development of the site stratigraphy or show palaeoenvironmental deposits that have influenced the site stratigraphy;
 - 6.1.13 A description of any remains and deposits identified including an interpretation of their character and significance;
 - 6.1.14 Assessment and analysis, as appropriate, of significant artefacts, environmental and scientific samples;
 - 6.1.15 Discussion of the archaeological deposits encountered and their context;
 - 6.1.16 A consideration of the evidence within its wider context;
 - 6.1.17 Site matrices where appropriate;
 - 6.1.18 Photographs showing the general site layout and exposed significant features and deposits referred to in the text. All photographs will contain appropriate scales, the size of which will be noted in the illustration's caption;
 - 6.1.19 A summary table and descriptive text showing the features, classes and numbers of artefacts recovered and soil profiles with interpretation;
 - 6.1.20 Specialist assessment or analysis reports where undertaken.
- 6.2 CCHET will receive the report within three months of completion of fieldwork, dependant on the provision of specialist reports, radiocarbon dating results etc, the production of which may exceed this period. If a substantial delay is anticipated then an interim report will be produced and a revised submission date for the final report agreed with the HET.
- 6.3 Should the development proceed in a staged manner, with each stage requiring archaeological fieldwork, and where a period of more than three months between each stage is anticipated or occurs, then SWARCH will prepare an interim illustrated summary report at the end of each stage. The report will set out the results of that phase of archaeological works, including the results of any specialist assessment or analysis undertaken. The report will be produced within three months of completion of each phase of fieldwork. At the completion of the final stage of the fieldwork an overarching report setting out the results of all stages of work will be prepared. HET would normally expect to receive the report within three months of completion of fieldwork dependent upon the provision of specialist reports, radiocarbon dating results etc the production of which may exceed this period. If a substantial delay is anticipated then the HET will be informed of this, an interim report will be produced within three months of the final stage of fieldwork, and a revised date for the production of the full report agreed between the HET and SWARCH.
- 6.4 Where excavations reveal significant archaeological remains with the potential to yield important information about the site and its environment, then a formal Post-Excavation Report and revised Written Scheme of Investigation may be

required. This document may also fulfil the requirement for an interim report if a substantial publication delay is anticipated. This document will include the following elements:

- 6.4.1 A summary of the project and its background;
- 6.4.2 A plan showing the location of the site, and plans showing the location of archaeological features and artefactual or palaeoenvironmental deposits;
- 6.4.3 Research aims and objectives;
- 6.4.4 A method statement, outlining how these aims and objectives will be achieved;
- 6.4.5 Detail the tasks to be undertaken;
- 6.4.6 The results of specialist assessment reports;
- 6.4.7 The project team;
- 6.4.8 The overall timetable, including monitoring points with HET;
- 6.4.9 Detail of the journal in which the material will be published.
- HET will receive a draft of this report within three months of the completion of the fieldwork, specialist reports allowing.
- 6.5 Where the exposure of archaeological, artefactual or palaeoenvironmental remains is limited or of little significance reporting will follow on directly from the field work see 6.3 above. Should particularly significant archaeological or palaeoenvironmental remains, finds and/or deposits be encountered, then these, because of their importance, are likely to merit wider publication in line with government planning guidance in paragraph 141 of the *National Planning Policy Framework* (2012). If such remains are encountered, the publication requirements including any further analysis that may be necessary will be confirmed with the HET.
- 6.6 Post Excavation Assessment, Analysis and Project Designs for further work:

Where excavations reveal archaeological, artefactual or palaeoenvironmental deposits that have potential for yielding important information about the site or its environs, through specialist assessment and analysis, this assessment work will be undertaken and reported on in a separate formal Post-Excavation Assessment and Project Design. This document may also fulfil the role of an interim report if a substantial publication delay is expected.

This document will be produced within three months of completion of the fieldwork - specialist input allowing - and agreed with the HET.

6.7 A copy of the report detailing the results of these investigations will be submitted to the OASIS (*Online AccesS to the Index of archaeological investigations*) database under reference southwes1-151431 within 3 months of completion of fieldwork.

7.0 MONITORING

- 7.1.1 SWARCH shall agree monitoring arrangements with the HET and give two weeks' notice, unless a shorter period is agreed, of commencement of the fieldwork. Details will be agreed of any monitoring points where decisions on options within the programme are to be made.
- 7.1.2 Monitoring will continue until the deposition of the site archive and finds, and the satisfactory completion of an OASIS report see 8.0 below.
- 7.1.3 SWARCH will notify the HET upon completion of the fieldwork stage of these works.

8.0 ARCHIVE

8.1 On completion of the project an ordered and integrated site archive will be prepared in accordance with the Management of Research Projects in the Historic Environment (MoRPHE) (http://www.englishheritage.org.uk/publications/morphe-project-managers-guide/).

The digital element of the archive will be transferred to the Archaeology Data Service (ADS) for long-term curation. A reference number will be obtained from the Royal Cornwall Museum, Truro, with regard deposition of the material (finds) element of any archive created by these works.

- 8.2 The archive will consist of two elements, the digital archive and the material archive.
 - 8.2.1 The digital archive, including digital copies of all relevant written and drawn records and photographs, will be deposited with the Archaeology Data Service (ADS) and in compliance with their standards and requirements.
 - 8.2.2 The material archive, comprising the retained artefacts/samples and the hardcopy paper record (if requested) will be cleaned (or otherwise treated), ordered, recorded, packed and boxed in accordance with the deposition standards of the RCM, and in a timely fashion.
 - 8.2.3 If the RCM wishes to retain the hardcopy paper archive, it will be deposited with the rest of the material archive under the same accession number. Should the RCM decline the hardcopy paper archive, that archive will be offered to other appropriate museum bodies or the HET. If a suitable third party cannot be found, the hardcopy paper archive will be retained by SWARCH for 3 years and then destroyed.
- 8.3 SWARCH will, on behalf of the RCM, obtain a written agreement from the landowner to transfer title to all items in the material archive to the receiving museum.
- 8.4 If ownership of all or any of the finds is to remain with the landowner, provision and agreement must be made for the time-limited retention of the material and its full analysis and recording, by appropriate specialists.
- 8.5 SWARCH will notify the HET upon the completion of:

i) deposition of the digital archive with the ADS, and

ii) deposition of the material (finds) archive with the museum.

8.6 The condition placed upon this development will not be regarded as discharged until the report has been produced and submitted to the HET and the LPA, the site archive deposited and the OASIS form completed.

- 8.7 There will not be a requirement to prepare an archive for fieldwork projects that do not expose deposits of archaeological interest and yield little or no artefactual material. The results of these projects will be held by the HER in the form of the report submitted by SWARCH and the creation of an OASIS entry and uploading of the report. This process would be agreed with the HET and completed prior to the condition being discharged.
- 8.8 The archive will be completed within 3 months of the completion of the final report.

9.0 CONFLICT WITH OTHER CONDITIONS AND STATUTORY PROTECTED SPECIES

Even where groundworks are being undertaken under the direct control and supervision of SWARCH personnel, it remains the responsibility of the Client - in consultation with SWARCH, the applicant or agent - to ensure that the required archaeological works do not conflict with any other conditions that have been imposed upon the consent granted and should also consider any biodiversity issues as covered by the NERC Act 2006. In particular, such conflicts may arise where archaeological investigations/excavations have the potential to have an impact upon protected species and/or natural habitats e.g. SSSIs, National Nature Reserves, Special Protection Areas, Special Areas of Conservation, Ramsar sites, County Wildlife Sites etc.

10.0 PERSONNEL & MONITORING

10.1 The project will be managed by Colin Humphreys; the archaeological monitoring and building recording will be undertaken by SWARCH personnel with appropriate expertise and experience. Where necessary, appropriate specialist advice will be sought (see list of consultant specialists in Appendix 1 below).

Colin Humphreys

South West Archaeology

The Old Dairy, Hacche Lane Business Park, Pathfield Business Park, South Molton, Devon EX36 3LH Telephone: 01769 573555 email:mail@swarch.net

Appendix 1 – List of specialists

Building recording

Richard Parker	11 Toronto Road, St James, Exeter. EX4 6LE. Tel: 07763 248241	
Conservation		
Alison Hopper Bishop	the Royal Albert Memorial Museum Conservation service	<u>a.hopper</u>
Richard and Helena Ja	aeschke 2 Bydown Cottages, Swimbridge, Barnstaple EX32 0QD	<u>mrshjaes</u>
	Tel: 01271 830891	

a.hopperbishop@exeter.gov.uk mrshjaeschke@email.msn,com

Curatorial

Jane Marley Curator of Archaeology The Royal Museum of Cornwall, River St Truro, Cornwall TR1 2SJ Tel: 01872 272205 Bone Human Professor Chris Knusel University of Exeter Tel: 01392 722491 c.j.knusel@ex.ac.uk Animal Wendy Howard Department of Archaeology, Laver Building, University of Exeter, North Park Road, Exeter EX4 4QE w.i.howard@exeter.ac.uk Tel: 01392 269330 Lithics Martin Tingle Higher Brownston, Brownston, Modbury, Devon, PL21 OSQ martin@mtingle.freeserve.co.uk Palaeoenvironmental/Organic Tel: 01869 810150 Wood identification Dana Challinor dana.challinor@tiscali.co.uk Plant macro-fossils Julie Jones iuliediones@bluevonder.co.uk Pollen analysis Ralph Fyfe Room 211, 8 Kirkby Place, Drake Circus, Plymouth, Devon, PL4 8AA Potterv Prehistoric Henrietta Quinnell 39D Polsloe Road, Exeter EX1 2DN Tel: 01392 433214 Alex Croom, Keeper of Archaeology Tyne & Wear Archives & Museums, Arbeia Roman Fort and Museum, Baring Roman Street, South Shields, Tyne and Wear NE332BB Tel: (0191) 454 4093 alex.croom@twmuseums.org.uk Medieval John Allen, 22. Rivermead Road Exeter EX2 4RL Tel: 01392 256154 iohn.p.allan@btinternet.com Post Medieval Graham Langman Exeter, EX1 2UF Tel: 01392 215900 email: su1429@eclipse.co.uk

Appendix 3

Relevant Historic Environment Records

HER Number:	27038.30
Name:	RUDDLE - Modern shaft, Modern boiler pond, Modern engine house
Summary	
An engine house which con	tained a horizontal steam engine, now removed.
Grid Reference:	SX 0116 5502
Parish:	Treverbyn, Restormel, Cornwall
Map:	Show location on Streetmap
Protected Status: None rec	corded
Other Statuses/Codes: non	ne recorded
Monument Types	
	 Boiler Pond (, 20th Century - 1901 AD to 2000 AD)

- ENGINE HOUSE (, 20th Century 1901 AD to 2000 AD)
- <u>SHAFT</u> (, 20th Century 1901 AD to 2000 AD)

Full description

An engine house at Ruddle china-clay works first recorded on the 2nd Edition OS 1:2500 of 1907. Visited by CAU in 1990 as part of the china-clay survey and identified in the gazetteer as PRN 27211 (b1). The engine house contained a horizontal steam engine, now removed. Inside the masonry beds for the engine are intact. The engine house is now overgrown, but survives with a large arch window at the south end. There are some later block work additions. The boiler house was attached on the west but has been demolished, presumably when the boilers were removed, however the stack survives and is of granite with a brick cap and iron bands. A pumping shaft is located to the north of the house and still contains the cast-iron rising main and wooden pump rods. The system of flat-rods and two rocking bobs which transmitted power from the engine to the pump is all in-situ and represents a rare survival. To the east are the remains of another machinery house with masonry plinths and a boiler pond (h1).

1: 1990. JRS/CAU

<1> Herring, PC & Smith, JR, 1991, Archaeology of the St Austell China-Clay Area (Bibliographic reference)

Sources / Further Reading

[1] SCO3584 - Bibliographic reference: Herring, PC & Smith, JR. 1991. Archaeology of the St Austell China-Clay Area.

HER Num	iber:	20204
Name:		RUDDLE - Medieval settlement
Summary	/	
The settle	ement of Ruddle is fir	st recorded in 1296 when it is spelt "Rydel".
Grid Refe	erence:	SX 0110 5498
Parish:		Treverbyn, Restormel, Cornwall
Map:		
Protected	d Status: None record	ded
Other Sta	atuses/Codes: none r	ecorded
Monume	nt Types	
•	SETTLEMENT (First r	nentioned, Medieval - 1066 AD to 1539 AD)
Full desc	ription	
The settle	ement of Ruddle is fir	st recorded in 1296 when it is spelt "Rydel". The name is Cornish and contains the element rid
meaning	'ford' (b2). Ruddle is	still occupied.
<1> Gove	r, JEB, 1948, <i>Place-N</i>	ames of Cornwall (Bibliographic reference)
<2> Pade	I, OJ, 1985, Cornish P	lace-Name Elements (Bibliographic reference)
Sources /	Further Reading	
	SCO3402 - Bibliogra	phic reference: Gover, JEB. 1948. Place-Names of Cornwall. 387.
[2]	SCO4064 - Bibliogra	phic reference: Padel, OJ. 1985. Cornish Place-Name Elements. 197.
Associate	ed Finds: none record	led
Associate	ed Events: none reco	rded
Related r	ecords	

<u>20204.10</u>

Parent of: RUDDLE - Post Medieval farmstead (Monument)

HER Number:	20204.10	
Name:	RUDDLE - Post Medieval farmstead	
Summary		
Ruddle farmstead.		
Grid Reference:	SX 0113 5498	
Parish:	Treverbyn, Restormel, Cornwall	
Map:	Show location on Streetmap	
Protected Status: None reco	orded	
Other Statuses/Codes: none recorded		

Monument Types

FARMSTEAD (Post Medieval - 1540 AD to 1900 AD)

Full description

The farmstead is on level ground having been built into the side of a steep slope. The farmhouse at Ruddle is a two storey building under a slate roof (p1) with a buttressed chimney on the eastern gable (buttressed to about half way up the wall and then brick buttressed from then up), the western chimney is similar (p6). There is a half length single storey lean-to along the north wall. The windows have shallow brick arches and the door a granite lintel. There are two wood and corrugated iron roofed Dutch barns in the northern part and in the high NE part there is a two storey barn, concrete block and rendered and built in 1962 (farmer at Ruddle pers comm). To the NE of a large covered yard there is a single storey concrete block and iron roof lean-to. To the SE of this barn there is a cart shed, the NE wall of the cart shed is the granite wall to a previous building -a two storey cowshouse (p2), as the remaining structure is mainly modern concrete block. To the north of the cart shed there is a roofless granite single storey structure. There is a number of staddle stones scattered through the yard - it is not clear where these stones belonged. The older buildings appear to be in the lower SW part of the farmstead with a row of three small single storey calf or pig sheds with a single pitched slate roof (p3). On the SW side of the main yard which is concreted, is a two storey range of buildings (p4) and it is possible that this is a relatively early building confirmed by a very small window towards the south end of the NE side which is approx 0.3m square with a simple granite lintel over. The roof is corrugated asbestos. In the southern gable wall there is a double door for the cart shed (p5). A wall approx 2.5m high connects the building with the farmhouse. This wall would have formed the western boundary of a domestic yard or garden. On the western side of the lane there is a linhay with a gabled roof which is still used as a tractor shed (p7). A part of the linhay had been adapted for loose litter for calves. To the north of the linhay and under the same roof is a small single storey barn with 1½ size door, possibly a stable or cattle shed or an earlier stables. Access to the first floor must be gained from inside as there is no external flight of steps (b1, h1). For more detailed information see PCH notes. Site history:

1: 1990. PCH/CAU

<1> Herring, PC, 1990, St Austell CC Survey Field Notes (Unpub) (Unpublished document)

Sources / Further Reading

[1] SCO3587 - Unpublished document: Herring, PC. 1990. St Austell CC Survey Field Notes (Unpub). At CAU. P078 & 079.

HER Number:	27038.10	
Name:	RUDDLE No 1 - Post Medieval china clay dries	
Summary		
A china clay pan-kiln at Ruddle	e china clay works.	
Grid Reference:	SX 0115 5492	
Parish:	Treverbyn, Restormel, Cornwall	
Map:	Show location on Streetmap	
Protected Status: None recorded		
Other Statuses (Cadas: papa recorded		

Other Statuses/Codes: none recorded

Monument Types

<u>CHINA CLAY DRIES</u> (, 20th Century to Unknown - 1901 AD)

Full description

A china clay pan-kiln at Ruddle china clay works, first recorded on the 2nd Edition OS 1:2500 of 1907, was visited by CAU in 1990 (b2). The tanks at the rear of the kiln survive but are overgrown, and the linhay and chimney stack have been demolished (h1). Site history:

1: 1990. JRS / CAU

<1> Ordnance Survey, 1970s, 1:10,000 OS Map (Cartographic materials)

<2> Herring, PC & Smith, JR, 1991, Archaeology of the St Austell China-Clay Area (Bibliographic reference)

Sources / Further Reading

[1] SCO4045 - Cartographic materials: Ordnance Survey. 1970s. 1:10,000 OS Map.

[2] SCO3584 - Bibliographic reference: Herring, PC & Smith, JR. 1991. Archaeology of the St Austell China-Clay Area. GAZETTEER.



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