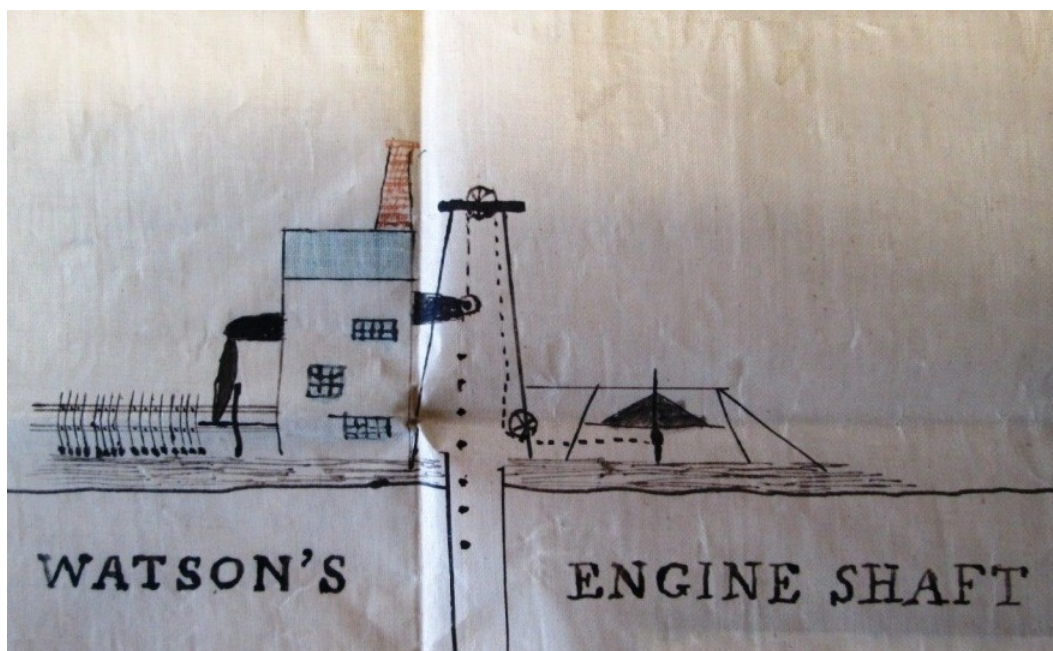




# **Relistian Lane, Reawla, Cornwall**

## **Archaeological Desk-based Assessment**



**Cornwall Archaeological Unit**



# **Relistian Lane, Reawla, Cornwall**

## **Archaeological Desk-based Assessment**

<b>Client</b>	<b>Kier Living Ltd</b>
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This study was commissioned by Penmellyn Developments Ltd and carried out by the Cornwall Archaeological Unit, Cornwall Council.

The Project Manager was Colin Buck who also provided the Historical background.

The views and recommendations expressed in this report are those of Cornwall Archaeological Unit and are presented in good faith on the basis of professional judgement and on information currently available.

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## **Cover illustration**

Drawing of Watsons Engine Shaft and pumping engine house, 1876, part of New Rosewarne Mine (New Rosewarne Mine (plans & sections) CRO 1969A)

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## Abbreviations

CAU	Cornwall Archaeological Unit
CRO	Cornwall County Record Office
HER	Cornwall and the Isles of Scilly Historic Environment Record
MCO	Monument number in Cornwall HER
OD	Ordnance Datum – height above mean sea level at Newlyn
OS	Ordnance Survey

# **1 Summary**

Cornwall Archaeological Unit was commissioned to provide an archaeological desk-based assessment for land at Relistian Lane, Reawla. The archaeological desk-based assessment was undertaken as part of a planning condition (PA13/09565) for a new housing development. This report assesses the likely archaeological implications of the development.

The development area currently comprises pasture; however, it is located within a historically important early tin mining area dating from the 16<sup>th</sup> century, with parts being worked as a large openwork, and continuing to be exploited into the 19<sup>th</sup> century as Relistien Consols Mine. This assessment has shown that the development in the north and east parts of the site will impact on structures including the former site of an engine house, ore processing plants, a possible arsenic calciner and a possible shaft related to the later Relistien Consols Mine.

There is also the potential that early (infilled and unrecorded) mining works running along the line of the main lode may also be affected at the west end of the development area.

Throughout the entire field there is also the possibility of prehistoric/Romano-British period remains being present below the surface and these may be impacted by the proposed development.

Further archaeological work, including, a geophysical survey, evaluation trenching and an archaeological watching brief may be required inform or mitigate these impacts.



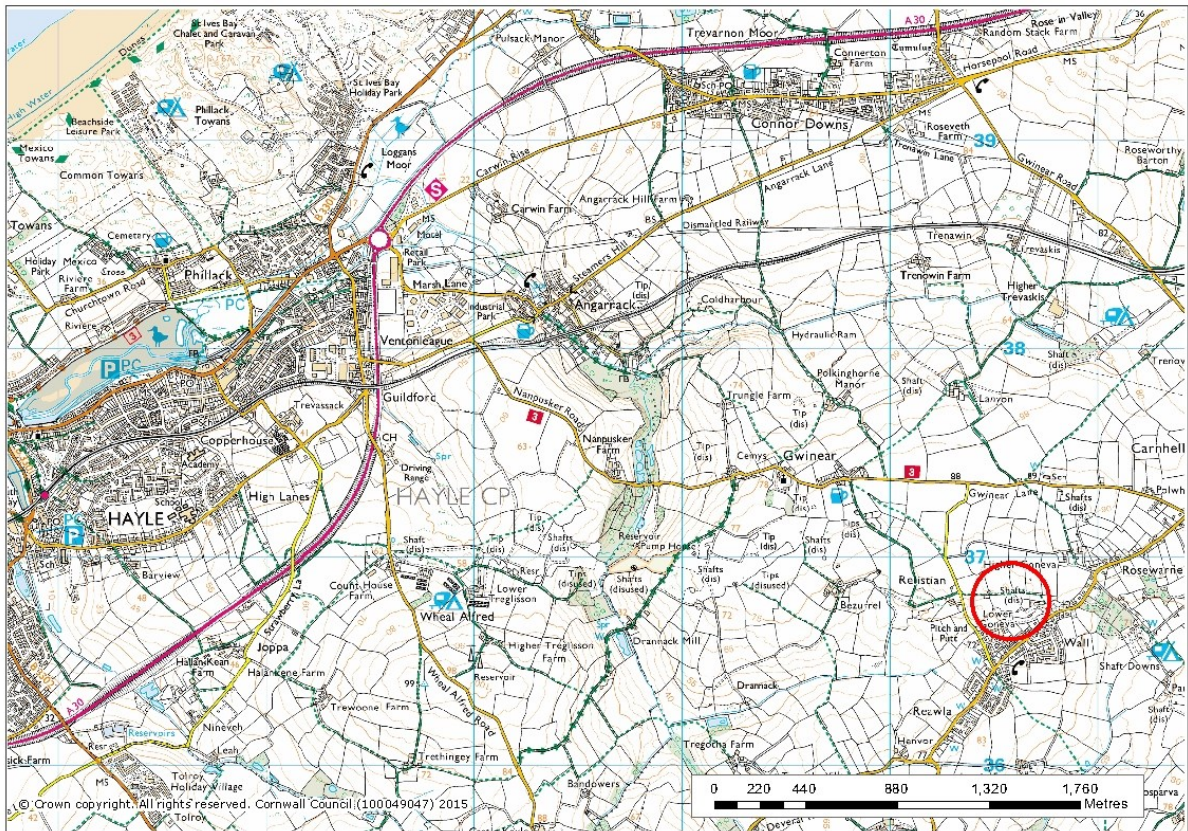


Figure 1: Location of the development area.

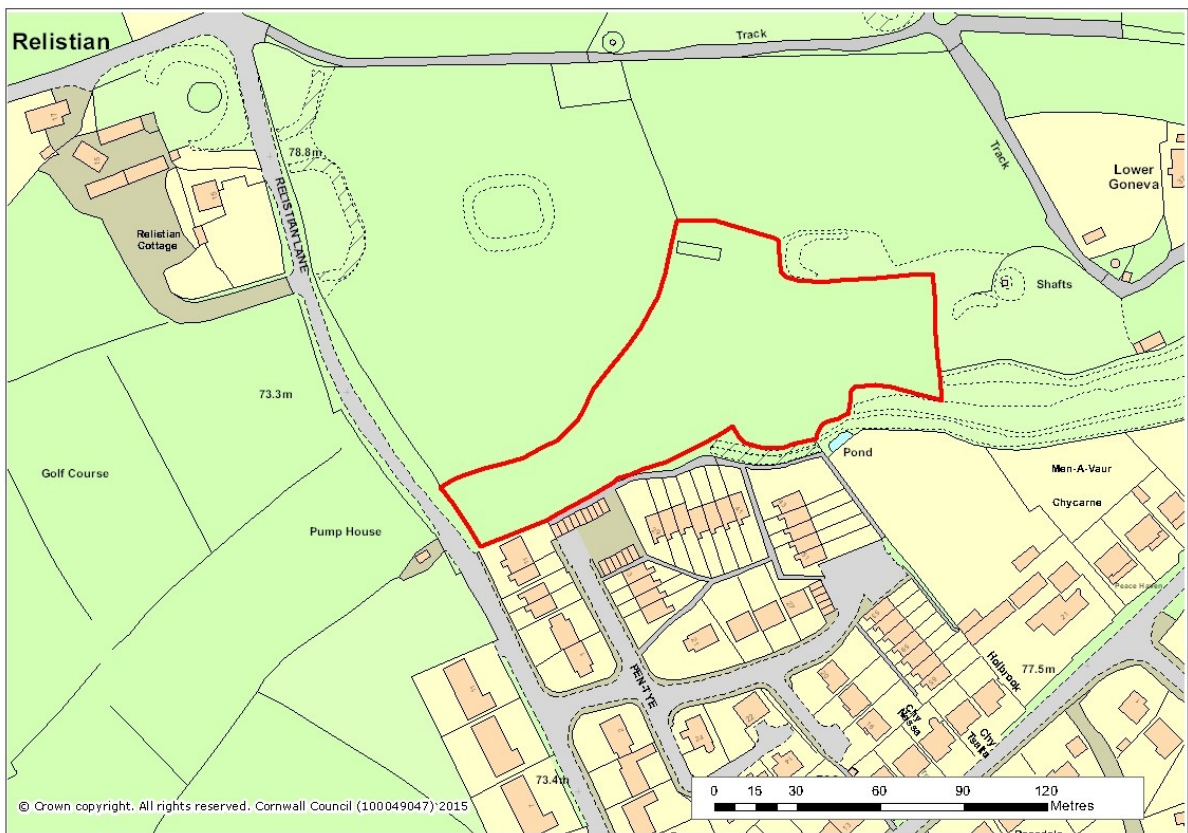


Figure 2: The location of the development area, highlighted by the red outline.



## **2 Introduction**

### **2.1 Project background**

Cornwall Archaeological Unit (CAU) was commissioned by Penmellyn Developments Ltd to provide an archaeological desk-based assessment for land at Relistian Lane, Reawla (Figs 1 and 2). The archaeological desk-based assessment was undertaken as part of a planning condition (PA13/09565) submitted in 2013, which relates to the construction of a housing estate of 32 dwellings and a Community facility. The requirements for the archaeological assessment were detailed in an archaeological brief provided by Dan Ratcliffe (6/6/14), the Historic Environment Planning Advice Officer (Appendix 1).

A written scheme of investigation (WSI), outlining the methodology for archaeological recording was produced (29/01/2015) by Colin Buck (Senior Archaeologist, CAU) in response to Dan Ratcliffe's brief (Appendix 2).

This report assesses the likely archaeological implications of the development.

### **2.2 Aims**

The aim of the project was to gain a better understanding of the history of the site.

The site specific aims were:

- To research historic maps, records and other reports pertaining to the site.
- To extract site specific information from historic maps, records and reports to create a written history of the site.
- "Widen our understanding of the extraction, processing and transportation of minerals" (SWARF Research Aim 38)
- Identify and study particularly early examples of mining technology.
- Identify, record and further understanding of any evidence of copper smelting on this site.
- Record and place in social context evidence for the development of mining and related landscapes.
- Where possible determine the extent, condition, nature, character, date and significance of any archaeological and historic assets studied.
- To highlight archaeological and historic assets likely to be affected by the scheme.
- To disseminate the results appropriately.

The key objective of the archaeological desk-based assessment was to provide an opportunity to better understand the character and potential of this area by highlighting archaeological and historic assets potentially affected by the development.. Given the topographical setting of the development area, it has the potential to contain important buried archaeological sites.

### **2.3 Methods**

All recording work was undertaken according to the Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording*. Staff followed the CIfA *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.

#### **2.3.1 Desk-based assessment**

Historical databases and archives were consulted in order to obtain information about the history of the site and its surroundings, and the structures and features recorded within the site boundaries. The main sources consulted were as follows:

- Published sources available in the Cornwall and Scilly HER.

- Historic maps including:
  - Lanhydrock Atlas, The Manor of Drannack (1695)
  - Joel Gascoyne's map of Cornwall (1699)
  - Thomas Martyn's map of Cornwall (1748)
  - OS 1 inch survey (*circa* 1803)
  - Gwinear Tithe Map (*circa* 1839)
  - 1st and 2nd Editions of the OS 25 inch maps (*circa* 1880 and *circa* 1909).
  - County Record Office Mining records and abandoned mining plans (see bibliography).
- Modern maps.
- National Mapping Programme transcripts from aerial photographs.
- Other aerial photographs in the Cornwall and Scilly HER.
- Historic Landscape Characterisation mapping.
- Cornwall and Scilly Historic Buildings, Sites and Monuments Record (HBSMR).
- Information held as GIS themes as part of the Cornwall and Scilly HER.

The historical and landscape context of the site was also considered during this stage of the assessment in order to establish the nature of the heritage assets which are located within the area surrounding the proposed development.

### **2.3.2 Creation of site archive and report**

To include:

- A detailed site description (from desk based resources).
- Completion of the English Heritage/ADS OASIS online archive index.
- Collation of paperwork pertaining to the project.
- An archive report outlining the project results (this report).

## **3 Location and setting**

The development area (measuring roughly 0.85 Hectares) is a large elongated irregular shaped field centred at OS SW 60518 36708. Topographically the ground slopes gently to the southwest from roughly 76m to 72m OD (Figs 1, 2 and 5).

Located with the parish of Gwinear, it lies adjacent to the north western edge of the settlement of Wall, and roughly 400m to the north east of Reawla. The site is down to pasture. Historic Landscape Characterisation designates the site as Farmland: Medieval which forms part of Cornwall's agricultural heartland with farming recorded before the 17<sup>th</sup> century and with field patterns distinct from the straight-sided fields of later enclosure. This character type has prehistoric or medieval origins with the potential to contain prehistoric monuments and other archaeological remains. The site is situated roughly midway between two known settlement sites both probably Romano-British in date. Goneva Round (MCO7978) is approximately 310m to the north and Reawla Round (MCO8410) roughly 400m to the south. The field boundaries do not appear to have changed since at least the 1840s.

The underlying geology consists of the Devonian Mylor Series of fine grained slates, and siltstones. Running roughly west to east across the centre of the site is an igneous felsite (elvan) dyke. The length of the site is traversed by a complex series of mineral lodes, trending roughly west- south-west to east-north-east. These lodes have been extensively worked for tin and copper since the 16<sup>th</sup> century comprising the focal point for the Relistian Consuls Sett (BGS Sheet 351/358 Penzance 1970).

## 4 Designations

### 4.1 National

There are no nationally designated heritage assets within the development site.

### 4.2 Regional/county

There are no regionally designated heritage assets within the development site.

### 4.3 Local

There are no heritage assets of local importance recorded by the HER within the development site.

## 5 Previous archaeological work

There have been no previous archaeological assessments within the study area. A site investigation trenching exercise by the Wheal Jane Consultancy in July 2012 (Ref. SI18749), during an attempt to locate the site of a possible shaft – appears to have removed some shallow sub-surface remnants of a rotary engine house and chimney (as shown on the 1880 OS map, Fig 9).

## 6 Historical background

Mining on Relistian Downs stretch back to antiquity; a huge open works named '*Le Gracyas*' on Relystyan Down was listed as an ancient tin site in 1502 (Hamilton Jenkins 1963, Vol V, 30). Brookes (Parochial Mines Index: Gwinear), notes that tin from Relystyn was mentioned in about 1583 and tin ingots stamped with the letter 'R' by Stannary Statute in 1588, and that the 'great tinwork' was put out of action in 1681 by a fall of rock underground which killed 24 men - although it was very productive later on towards the end of the century. '*Relistian Tynn Work*' was shown as a noteworthy feature on plans of the Lanhydrock estate of 1696 (Holden *et al* 2010, 122, Site No. 58), although it should be noted that this part of the mine was sited immediately north-west and does not include the study area site.

Similar to Wheal Busy (Chasewater), the Relistian lodes contained copper and tin, which attracted the attentions of the Bristol/South Wales copper smelter buyers from 1713 (*op cit* Brookes), and six years later it is documented as selling 26.5 tons of copper ore at £6 per ton, and in 1720 a further 14 tons for £5 per ton (Hamilton Jenkins 1963, Vol V, 32). According to Pryce, the mine was in operation in 1715 (Pryce, 1778). In December 1724, Henrik Kahlmeter recorded that the mine had been one of the richest in the county (approximately seven years earlier had produced 200,000 lbs of tin metal. The lode was forty feet wide in places, had been worked to a great length and to a depth of 75 fathoms. Water had been drawn with an engine similar to the one at Chacewater Mine (rag and chain pump), but the lode was found to be bad and decreasing. John Coster (III) of Truro had a contract to purchase the copper ore (Brookes Parochial Mines Index: Gwinear). In the 1740s mineral dues were 1/6, which went to John Buller of Morval, the mineral landowner.

In 1760 Borlase (Hamilton Jenkins 1963, Vol 5, 30), described the works, also known as '*Restilian Great Work*', as the largest he had ever seen and which extended east and west for more than a furlong. The debris that had been thrown out along its course had formed a wall which probably gave rise to the place name of Gwall or 'Wall' that the workings traversed. In the east the huge trench split into two very deep channels with a sharp ridge between them (immediately north of 'Wall' as shown on Fig 6, the 1839 Tithe map). '*At the western end (as shown on the Tithe map, immediately below the study area: Site 1552) it is but one trench, but as it advances east, it splits into two very deep channels which branch off from one another forkwise, leaving a sharp ridge*

*between the both. The south trench is now planted on the sides and bottom with shrubs and fruit trees, and may be 50 ft. wide at the top, nearly as many deep, and about 20 ft. wide at the bottom. The north trench not quite so wide and deep as the other'* (Hamilton Jenkins 1963, Vol 5, 30, quoting Borlase).

The mine appears to have been idle for a number of years until just after the turn of the of the eighteenth century, there being a shortage of men to work it according to Hamilton Jenkin (*ibid*), but was in operation again in 1802 thereafter being known at various times as Relistien Mine, Relistien Consols or Vyvyan Consols, and described as having the widest lode in Cornwall (36' for a length of 20 fms.). A cost-book company was formed by William Carne and others (incl. John Williams of Scorrier). The sett extended eastwards to the lands of the Duke of Leeds and Sir Carew Vyvyan (the eastern boundary of the study area). This company operated until 1811. The lessee undertook to erect a fire-engine of at least 48" cylinder by 6<sup>th</sup> may 1805, to draw water from at least the 40 fm. level. This occurred but small amounts of ore were found (ranging from 57 tons in 1806 to over 421 tons of copper ore in 1809), the machine simply un-watered older workings down to the 90 fm. Level. In September 1811, the 45" Boulton & Watt engine with associated effects was sold (Brookes Parochial Mines Index: Gwinear).

The mine was idle for nearly twenty years when another company was formed, which included the erection of a 60" pumping engine and two winding and stamping engines of 22" cylinder diameter. Sales of copper ore in the year ended July 1833 raised £4,760 and in the following year £12,021. Due to lack of finance this company ended, and a new one was started (Relistian Mining Company) in 1833. In the ensuing period, from 1836 to 1839, most of the productive copper came from the western part of the sett (6,615 tons of copper ore for £47,431, and 250 persons employed in 1838). By 1840 the mine was reported to be looking poor and 18 months later the materials - 2 water wheels and the 3 steam engines - were put up for sale. By the end of 1841 the mine was closed and its machinery sold (Hamilton Jenkins 1963, Vol 5, 38).

It appears attention was focused more on the western and south western parts of the Relistian sett (closer to Wall), as later mines after this period appear to have concentrated on areas away from the former core of the mine (Fig 9). East Relistian Mine produced 100 tons of copper ore in 1847 and as Relistian Consols produced 5 tons of black tin in 1852 (Collins 1912, 566), but both were obviously small concerns. Gwinear Consols (PRN 163486), another small concern close to this site between 1847-8, sold 511 tons of copper ore for £1,346 (Collins 1912, 503). Vyvyan Consols (PRN 163641) was worked with Gwinear Consols and had been incorporated into the later sett of West Rosewarne by 1864 (PRN 163644). Figure 7 (Symons 1853 mine plan: CRO RH 809) shows the study area (worked as Vyvyan Consols), an adjacent lode and shafts. Figure 8, a similar map but a decade later (Symons 1864 mine plan: CRO MRO AM21a) shows the study area (worked as West Rosewarne and Gwinear Setts). The working lode's relationship between the study area mining and the earlier Relistian 'Old Mines' can be seen.

New West Rosewarne worked a lode lying about 100 yards south of Relistien North Lode, coursing E. 5° N. and underlying steeply south, probably the westward extension of Rosewarne South Lode (Dines and and Phemister 1956, 155). The shafts are Watsons and Leeds or Duke's Shafts. All the underground workings appear to be east of Watson's Shaft (SX 60619 36734), and sited immediately north of the old deep open workings shown on the earlier Tithe map. The land was held by the Duke of Leeds and Sir R Vyvyan, who leased the land for 21 years at dues of 1/20<sup>th</sup>. New West Rosewarne Tin and Copper Mine started in 1871 and discovered an 8' wide lode. By the end of the following year a 30" steam engine had been set working, and 16 heads of stamps were being erected. But the mine soon closed in 1875 (Brookes, Parochial Mines Index: Gwinear). This mine (and East Relistien) produced 100 tons of 7% copper ore, 10 tons of black tin, 16 tons of mispickel, 14 tons of pyrite and some lead ore (Dines and Phemister 1956, 156). A sketch of the pumping engine house at Watson's Shaft (see

front cover) date from this mining company; the plans (and those of Fig 13 – a section of the mine), all date to 1876. This mine closed in 1877 (Burt *et al* 410), but originally included the Relistian Consols Sett as well.

The 1st edition (1880s) OS 25 inch map, made presumably whilst still working, shows Relistian Consols Mine (Tin & Copper) as working with engine houses at SW 60611 36735, SW 60524 36744 and a chimney at SW 60506 36755 (the latter two sites within the study area). Watson's engine house and shaft is outside the study area, but a set of round buddles to dress the small amounts of tin, settling tanks, and other buildings and yards are all sited in the east side of the study area – with a rotary steam engine in the north corner, its related boiler house, stamps and possibly an arsenic calciner all using a detached chimney (Fig 9).

By the start of the 20<sup>th</sup> century the mine was depicted as abandoned (see Fig 10), its landscape covered with spreads of mine waste and accompanied by remnants of ruined engine houses and dressing floor perimeter walls. By 2005 (CCC aerial photographic evidence – Fig 11), western areas of the mine site (within the eastern half of the study area) had been reclaimed to agriculture, whilst the western part of the study area was still used for grazing.

## **7 Results of desk-based assessment**

The desk-based assessment has indicated that the proposed development site does indeed have the prospect of impacting on known archaeological sites especially relating to the intensive mining activities within the area. This is especially so in the eastern and northern parts of the site where new houses are proposed to be built over the former site of Relistian Consols Mine. Apart from the houses and other structures, the roads, services, etc may also affect archaeology so all of this work will also require monitoring.

Working from east to west (see Fig 12) houses 26 to 32 appear to be situated above a row of circular features depicted on the 1880 OS map (Fig 9) that are of roughly 4m diameter, that from run north to south and are spaced about 3m apart. These are probably buddles, a device for concentrating tin ore. Buddles were usually circular-shaped pits with rotating brushes. The tin from the stamps was fed into the center or side of the pit and graded by gravity, concentrating the heavy ore near the inlet point. These were often mechanically worked. This line of buddles is enclosed with a wall to their west and north forming a yard.

The 1909 the OS map (Fig 10) shows that these features (apart from the yard wall) had disappeared having been either demolished, or buried. The depiction of rough ground and heath shown on the 1909 OS mapping suggest that features had become buried beneath spread tips of mine waste. Should this be the case there is the potential for remnants of these features and the yard wall to be encountered during site works. The 1880 OS map (Fig 9) also depicts buildings and other structures which may survive below-ground at the centre of the site.

In the area of houses 23 and 24 are three co-joined rectangular structures measuring roughly 16m x 11m and orientated roughly east-north-east by west-south-west. These resemble settling tanks for processing tin, a suggestion perhaps strengthened by their proximity to the bank of buddles (and the recorded outputs of the mine). These structures had completely gone by the compilation of the 1909 OS map (Fig 10), and again they may have been buried beneath mine waste. As above, should this be the case there is the potential for remnants of these features to be uncovered during the site construction works.

A range of buildings, one with a possible square shaped chimney, are located beneath the site of houses 15 and 16. The function of these buildings is uncertain but most mines had ancillary workshops, drying rooms, smiths, etc. Gone by 1909, these buildings were probably demolished, and buried. There remains the potential for foundation elements of these buildings to survive, and to be revealed during site works.

At the northern end of the site in the area of houses 11 to 14 the 1880 OS map (Fig 9) depicts an engine house, with a rotary steam engine, its related boiler house, stamps and possibly an arsenic calciner and flue all using a detached chimney (SW 60505 36753). This entire range of buildings had disappeared by the time of the 1909 OS map. The 1864 mining map by Symons (Fig 8) also suggests the presence of a mine shaft (SX 60504 36747).

This area was subjected to a site investigation trenching exercise by the Wheal Jane Consultancy in July 2012 (Wheal Jane Services 2012; 2013), during an attempt to locate the site of a possible shaft. A series of six trenches crossed the area, these appear to have damaged the shallow sub-surface remnants of the rotary engine house and chimney shown on the 1880 OS map. The trenches were, however, widely spaced so there is still the potential for remnants of the building to survive. If the flue leading to the chimney is suggestive of an arsenic calciner, there is also the potential for soil contamination within this part of the site. The investigation did not locate the possible shaft so there is the potential for this to be somewhere within the footprint of the development.

There are no archaeological features (apart from a field and access track to Relistian Consols Mine) depicted on the 1880 and 1909 OS maps (Figs 9 and 10) within western and southwestern parts of the site (the areas covered by the Parish Office and meeting room, and houses 1 to 10 – Fig 12). However, other archaeological features may be present in this area. The geological map (BGS Sheet 351/358 Penzance 1970) shows the lode that had been worked as an open work to the northwest of Wall since the 16<sup>th</sup> century (and portrayed as old workings on the 1839 Tithe map) continued in a south westerly direction into this area. There is also the potential for other archaeological features of earlier periods, which have not been disturbed by mining to survive in this area.

### *Comments*

It should be noted that there is little documentary evidence from mine histories or maps as to the nature and extent of workings within this project's study area, and that of Relistian's main mine outcrop workings to its north and west, and the adjacent open works of 'Wall'. The 1840 Tithe Map of Gwinear and 19<sup>th</sup> century OS maps (Figs 6 and 9) demonstrate the lode patterns and locations of many mine shafts. Given the underlie of the lode, the mine shafts running slightly north of the project area suggest that earlier investigative works may have been undertaken within the study area (with the possibility of another (air) shaft (SX 60504 36747).

Figure 6 records the study area as Field No. 1552 (named Forty Acres), although the site immediately to the east is described as 'banks and trenches of old mines' (Field Nos. 1545, 1549 and 1550). This map shows in detail the site of the open works (possibly of medieval date) in good detail at this south eastern part of the Relistian sett; the study area seemingly not affected at this date (although that is not to say a former section of open works within the study area had not already been backfilled by this date, as the lode is likely to have been opened from west to east). The shape of the study area leads one to the conclusion that it was formerly an open work site

It is also worth noting that a recent archaeological watching brief at another early mining site at Hallenbeagle, near Scorrier (Sharpe and Thorpe 2014), demonstrated that major lodes were located at surface by prospecting pits and then worked by numerous outcrop shafts and open work excavations. These were then backfilled and the land returned to agricultural use prior to the compilation of the 1880 OS map, which just showed an open field on the site.

The current development site retains the potential for similar early mining features to be preserved across and along the line of the lode into the apparently 'empty' south western area.



In addition, there remains the potential for as yet unknown and unrecorded subsurface archaeology, particularly prehistoric evidence across the site given the development area is situated roughly midway between two known settlement sites both probably Romano-British in date. Goneva Round (MCO7978) is approximately 310m to the north and Reawla Round (MCO8410) roughly 400m to the south. Should sub-surface archaeology exist within the development area the impacts are likely to be direct, physical and irreversible and could be considered at least moderately negative depending on the extent, survival and importance of any artefacts and features.

## **8 Recommendations**

It can be clearly seen that the development will be very likely to impact on archaeology, especially in the northern and eastern parts of the site that formed part of Relistien Consols Mine.

Given the unknown sub-surface archaeological potential of the proposed development it is recommended that a geophysical survey is undertaken prior to any development taking place. This may help elucidate the nature of or presence of any early mining features, or possible buried features of an earlier date. This survey would inform or allow the mitigation of the impacts of the proposed development.

It is uncertain as to the extent/nature and level of preservation of the of rotary engine house sub-surface remains (and or an adjacent possible shaft) in the northern area of the site (SW 60516 36745), or the level of soil contamination if the identification of the possible flue structure as being part of an arsenic calciner (arsenic mispickel produced) is correct. The function, and level of preservation of the buildings west of the square settling tanks (centred at SW 60529 36717) is also unknown. It is recommended that a (roughly 60m long) evaluation trench is excavated from the north starting at (*circa* SW 60516 36745) and running in a roughly south east direction to investigate these features (or perhaps during foundation excavations) in advance of the site works. .

A further site investigation trench (roughly 25m long) could possibly be excavated (SW 60532 36694 to SW 60462 36682) across the narrow neck of the field to determine the nature of the ground, to investigate the possibility of any early mining features (such as prospecting pits, or outcrop lode works) and to determine if the line of the open work was continued into this area.

The results of the evaluative trenching will help determine the nature and extent of any further archaeological recording during any soil stripping or excavations across the site.

It is recommended that any large scale topsoil stripping of the site be accompanied by an archaeological watching brief, this is especially important in the western and south western parts of the site where this may allow for the recognition, and recording of early mining features. Other archaeological works such as an evaluation, a watching brief or excavation are possible, particularly in response to the results of the site investigation trench and/or geophysical survey.

The scope of the archaeological recording will need to be agreed with the Senior Development Officer (Historic Environment), Cornwall Council.

## 9 References

### 9.1 Primary sources

*Cornwall Record Office:*

Documents:

Brookes (1986) Parochial Mines Index: Gwinear Parish (DDX 745) entries for Relistian, etc (DDX 745)

Maps/Plans:

CRO 1969A New Rosewarne Mine (plans & sections); CRO R318A Relistian Consols (plans & sections); CRO MRO RH 809 Symons Survey 1853; CRO MRO AM21 Symons Survey 1864

Joel Gascoyne's 1699 Map of Cornwall

Martyn's 1748 Map of Cornwall

Ordnance Survey, 1809, 1 inch mapping First Edition (licensed digital copy at HE)

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

Ordnance Survey, c1909. 25 Inch Map Second Edition (licensed digital copy at HE)

Ordnance Survey, c1930. 25 Inch Map Third Edition (licensed digital copy at HE)

Ordnance Survey, 2007. Mastermap Digital Mapping

Tithe Map c1840 and Apportionment, c1839. Parish of Gwinear (digital copy available from CRO)

British Geological Survey, 1970. 1:50000 Map. Penzance Sheets 351/358

### 9.2 Publications

Burt, R, Waite, P, and Burnley, R., 1984. *Cornish Mines, University of Exeter*.

Collins, JH, 1912. *Observations on the West of England Mining Region, 1988*.

Dines, HG, and Phemister, J, 1956 (reprinted, Beer, K.E., 1988). *The Metalliferous Mining Region of South-West England*, HMSO.

Holden, P, Herring, P, Padel, OJ, 2010. Lanhydrock Atlas, Fowey

Jenkin, AKH, 1963. *Mines and Miners of Cornwall Vol. V (Hayle, Gwinear and Gwithian)*

Pryce, A, 1768. *Mineralogia Cornubiensis*, London

Sharpe, A, and Thorpe, C, 2014. *Hallenbeagle Phases 1 and 2, Scorrier, Cornwall: Archaeological Watching Brief*. CAU Archive report 2014R084

Wheal Jane Services Limited, 2012. *Site Investigation by Trenching at Reawla Hayle Cornwall*. Wheal Jane Consultancy Report No. SI18749

Wheal Jane Services Limited, 2013. *Land adjacent to Relistian Lane, Reawla. Phase 1 Desk Study and Preliminary Risk Assessment*. Wheal Jane Consultancy Report No. E18917/ENV/001

### **9.3 Websites**

<http://www.cornish-mining.org.uk> Cornish World Heritage Site

<http://www.heritagegateway.org.uk/gateway/> English Heritage's online database of Sites and Monuments Records and Listed Buildings.

## **10 Project archive**

The CAU project number is 146465

The project's documentary, photographic and drawn archive will be deposited initially at ReStore PLC, Liskeard and in due course (when space permits) at Cornwall Record Office. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration (146465).
2. English Heritage/ADS OASIS online reference: cornwall2-205345
- 3 This report text is held in digital form as: G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites R\Reawla Relistian Lane DBA 146465\Assessment report

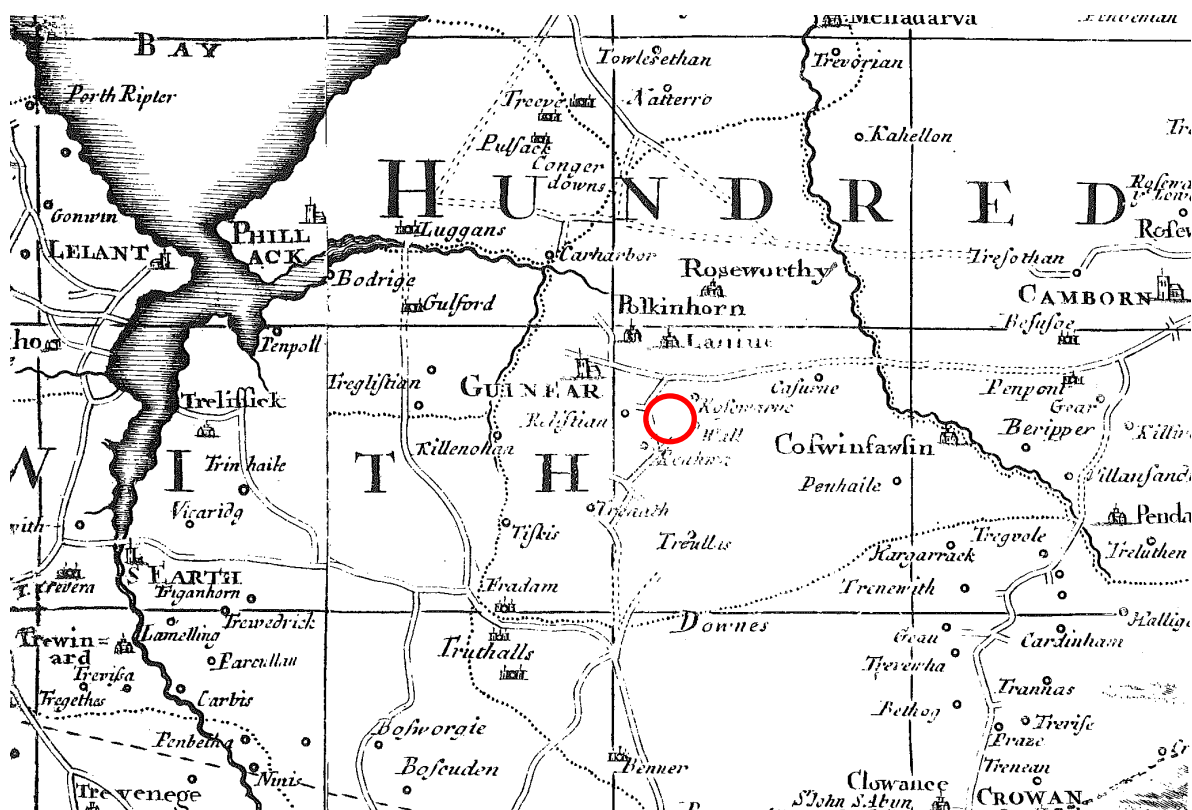


Figure 3: Gascoyne's 1699 Map of Cornwall showing Wall and Reawla. Development area marked in red.

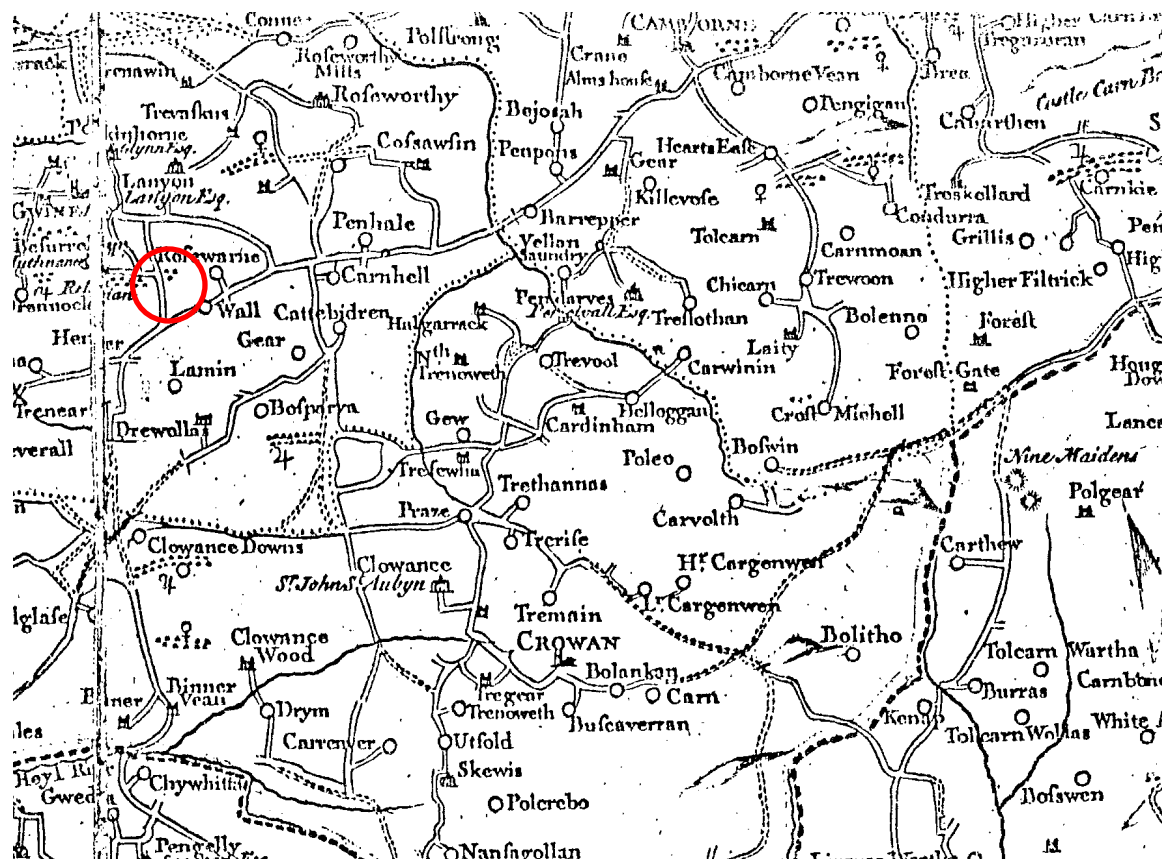


Figure 4: Martyn's 1748 map showing the settlements of Wall, Roswarne and Relistian with symbols depicting tin mines at Relistian. Note the symbols east of the road that possibly lie within the development area (highlighted in red).



Figure 5: The c1803 OS map showing the mine workings around Relistian. Development area highlighted in red.

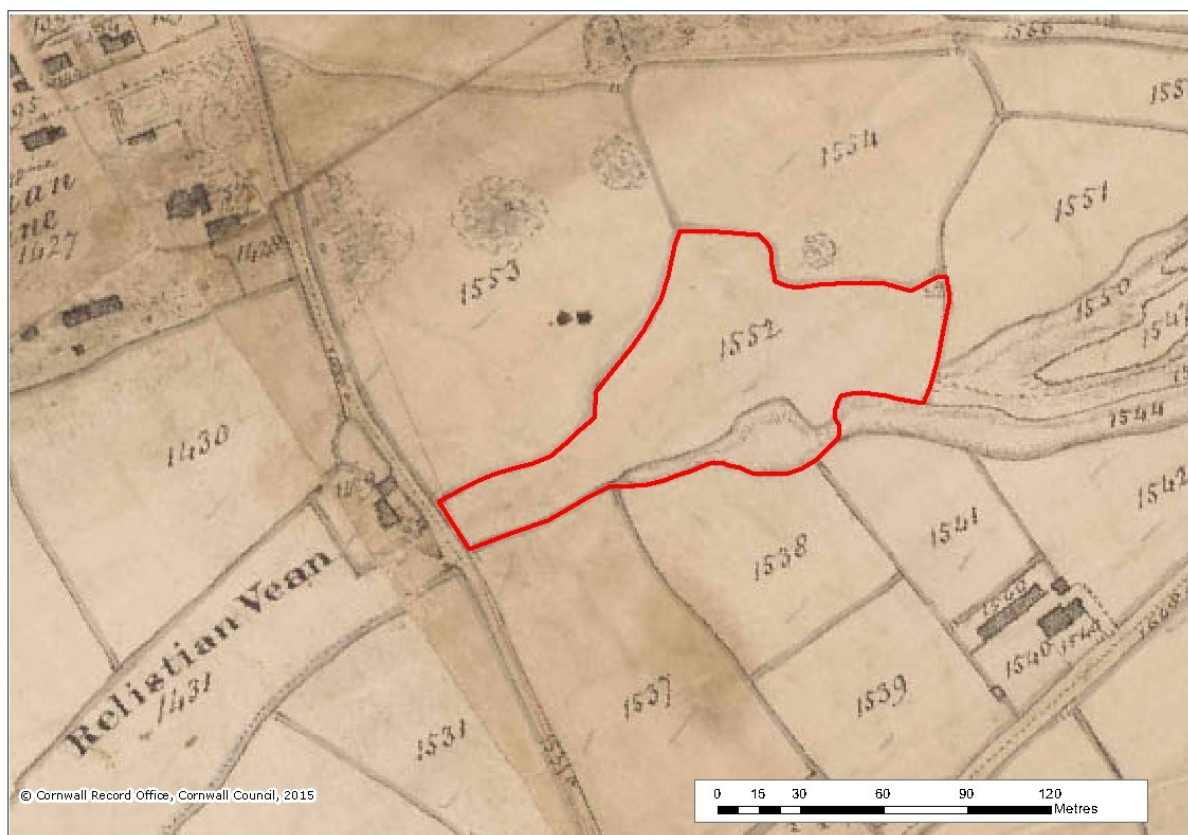


Figure 6: The 1839 Tithe Map for Gwinnear parish showing earthworks (1544) of the openwork mining entering the development area (Marked in red) from the east.





Figure 7: Symons mining map 1853 (CRO RH 809). Development area highlighted in red.



Figure 8: Symons mining map 1864 CRO MRO AM21a). Development area highlighted in red.



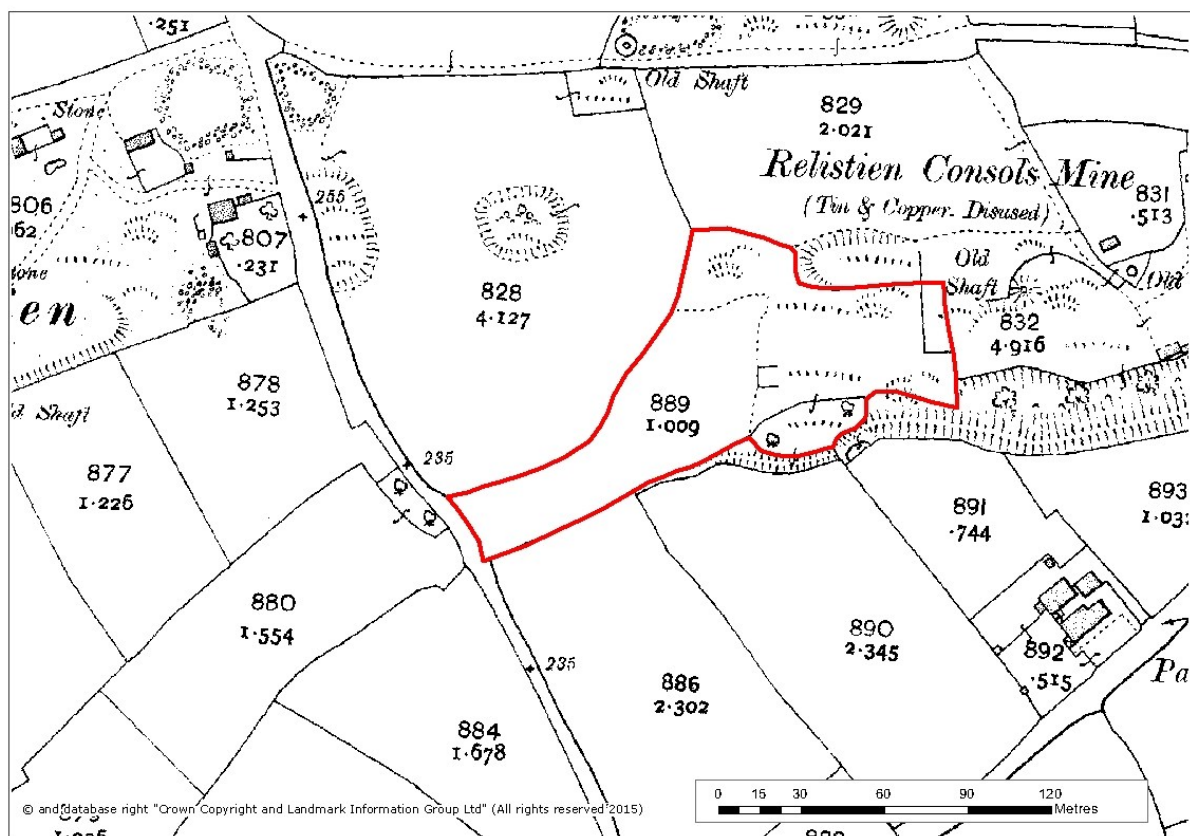
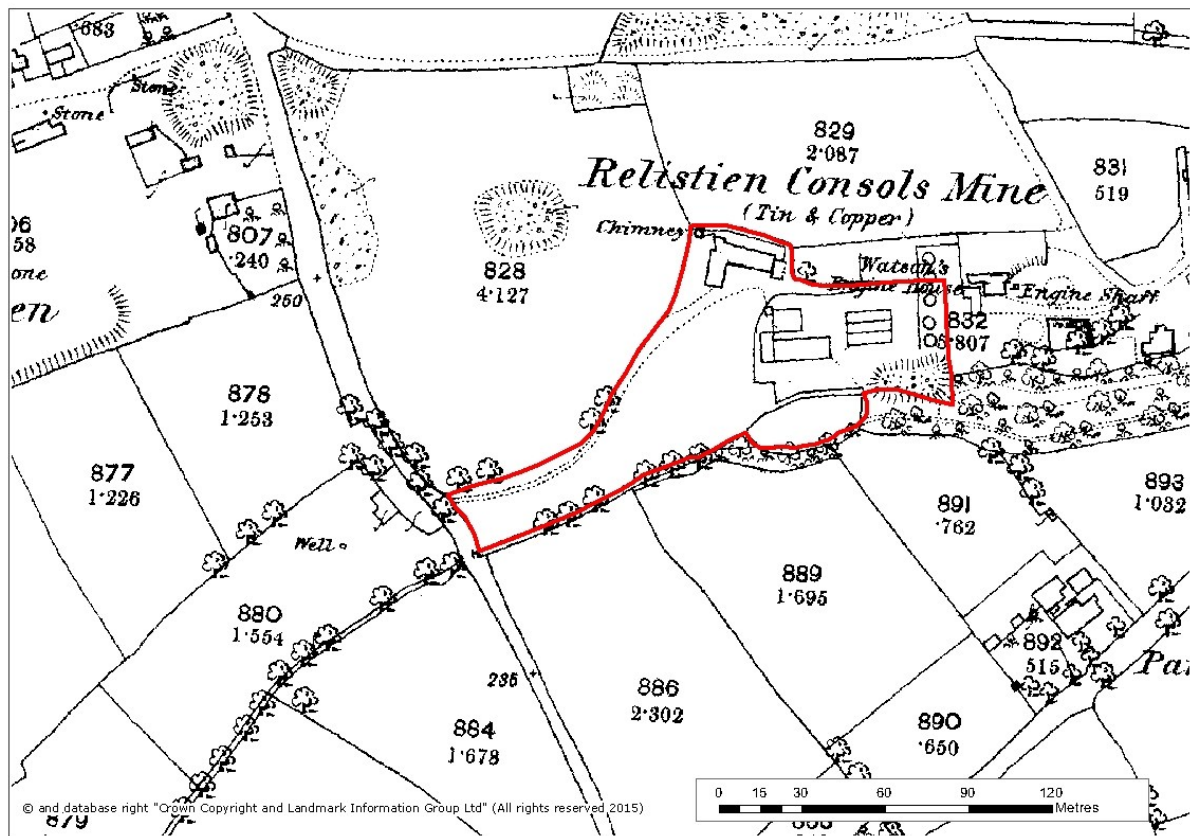




Figure 11: The development area (outlined in red) in 2005 showing the nature of the site and its current use as pasture.



Figure 12: The development area showing the distribution of new buildings.



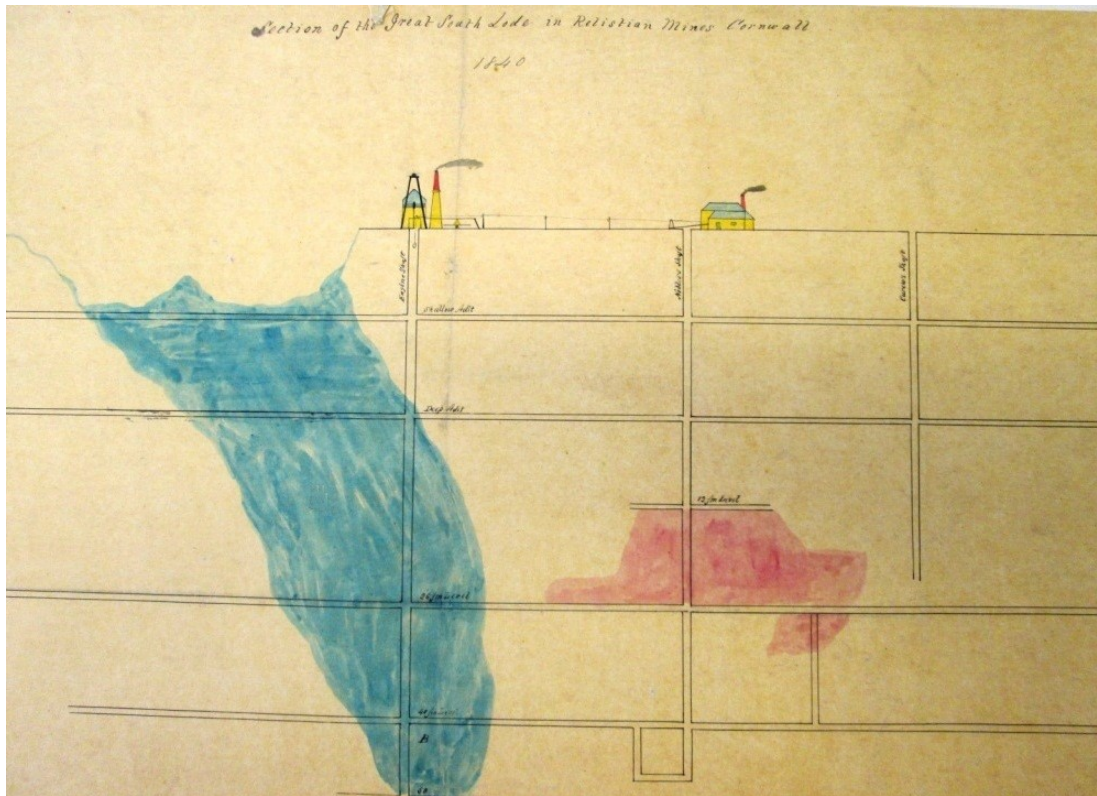


Figure 13: Section of the Great South Lode in Relistian Mines, Cornwall 1840 that demonstrates the scale and nature of the lodes and open works in this area (CRO R318A Relistian Consols, plans & sections).

# **11 Appendix 1. Brief for a Programme of Archaeological Works at Land East Of Relistian Lane Reawla Cornwall.**

**Date:** 05/06/2014

**Site:** Construction of 32 dwellings and community facility comprising a parish office and meeting room

**Address:** Land East Of Relistian Lane Reawla Cornwall

**Application Number:** PA13/09565

**HBSMR Ref:** CCO5808

**Applicant:**

**Agent:** The Design and Planning Studio

**Historic Environment Planning Advice Officer:** Dan Ratcliffe MA MIfA

**Planning Case Officer:** Jeremy Content

This brief is only valid for six months. After this period the Historic Environment Planning Advice Officer (HEPAO) should be contacted. The contractor is strongly advised to visit the site 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**

1.1.1 This brief has been written by the HEPAO and sets out the minimum requirements for an archaeological programme of works consisting of assessment, controlled soil stripping, analytical reporting and archiving.

In the first instance an archaeological assessment will be required to provide information on the significance and potential of archaeological remains on the site and to identify the likely impact of the proposals on that significance in order to ensure that the recording of those remains is proportionate and appropriate. Some guidance is provided to ensure that recording levels are appropriate to IfA and EH approved standards.

### **2 Site Location and Description**

2.1 The site lies to the east of Restilian Lane to the immediate north of Wall at SW 6051 3670. The land is currently an agricultural field. Geologically the site lies within the Manod unit characterised by Upper Devonian mudstone, siltstone and sandstones supporting occasionally shallow well drained fine loam and silty soils (BGS data)

### **3 Planning Background**

3.1 Planning application PA13/09565 is awaiting final confirmation and issue pending finalisation of a s106 agreement. If issued it is anticipated that a condition will be attached worded as follows,

6                   1. No development shall take place/commence until a programme of archaeological work including a Written Scheme of Investigation has been submitted to and approved by the local planning authority in writing. The scheme shall include an assessment of significance and research questions; and:

- a. The programme and methodology of site investigation and recording
- b. The programme for post investigation assessment
- c. Provision to be made for analysis of the site investigation and recording
- d. Provision to be made for publication and dissemination of the analysis and records of the site investigation
- e. Provision to be made for archive deposition of the analysis and records of the site investigation
- f. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation.

2. No development shall take place other than in accordance with the Written Scheme of Investigation approved under Part (1) of this condition.

3. The development shall not be utilised/ occupied until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under Part (1) of this condition and the provision made for analysis, publication and dissemination of results and archive deposition has been secured; or by agreement with the Local Planning Authority in consultation with Historic Environment Advice.

*Reason: To accord with the aims at paragraph 141 of the National Planning Policy Framework.*

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.

In order to develop the WSI a rapid Archaeological Desk Based Assessment will need to be undertaken the aims of which will be to,

- Draw together the historical and archaeological information about the site.
- Review and analyse historic map evidence for the site.
- Whether historic/architectural features should be retained.
- Inform whether archaeological recording of any extant remains is required.
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains is required.
- Inform whether palaeo-environmental sampling would be required.
- Produce 'statements of significance' for all designated historic assets, that are identified as potentially impacted on by the current proposals. Where currently undesignated assets are identified their likely significance should be indicated i.e. 'national', 'regional' or 'local'.
- Identify the construction, use and 'end of life' impacts of the current proposals on the 'national importance' of Scheduled Monuments, the 'Outstanding Universal Value of the World Heritage Site' and on undesignated historic assets as described in the NPPF.

The results of the DBA should be presented separately to the main report of the programme of works and follow the requirements for recording and deposit set out below.

#### **4 Archaeological Background**

*From HER ref MCO12469*

*Mining on Relistian Downs stretch back to antiquity; a huge open works named 'Le Gracyas' on Relystyan Down listed as an ancient tin site in 1502. 'Relistian Tynn Work' was shown as a noteworthy feature on plans of the Lanhydrock estate of 1696. According to Pryce, the mine was in operation in 1715 (b1). In 1760 Borlase described the works, also known as Restilian Great Work, as the largest he had ever seen and which extended east and west for more than a furlong. The debris that had been thrown out along its course had formed a wall which probably gave rise to the place name Wall or Gwall that the workings traversed. In the east the huge trench split into two very deep channels with a sharp ridge between them. At the western end of the Restilian sett these coffin or open-cast workings were subsequently excavated still deeper into the elvan and as late as 1843 a chasm 39 fathoms in depth, 11 fathoms wide and nearly perpendicular remained as a reminder of its former productiveness (b13).*

*By the early eighteenth century copper was also being produced from Relistian and sales of copper ore begin to make regular appearances in Cornish estate books until 1719 when the mine closed down.*

*It remained idle until the end of the eighteenth century, there being a shortage of men to work it according to Hamilton Jenkin, but was in operation again in 1802 being known at various times thereafter as Relistien mine, Relistien Consols or Vyvyan Consols (it being marked by the latter name by Symons (b4, 13). Dines says it also included New West Rosewarne mine (b10). In 1803 a new shaft was being sunk and by 1804 was 25 fathoms under adit (26). A 48" engine was purchased from Herland mine and by 1806 Relistain was working to and below the level of the old mine and just about paying its running costs. The lodes were 'bunchy' however, making the financial future of the mine uncertain and by 1808 old Relistien Mine had been suspended leaving just the eastern part working. This too, closed in 1811 and the steam engine and materials were put up for sale.*

*Relistien lay idle for close on 20 years after this when in 1830 an enterprise named Relistien Mines was set up. A 60" engine was erected and two 22" winding and stamping engines, but this company were financially overstretched and a new one set up in 1835. Over 6,500 tons of copper ore were sold between 1836-1839 and in 1838 the mine was employing 250 persons and working down to the 115 fathoms level (b9). By 1840 the mine was reported to be looking poor and 18 months later the materials - 2 water wheels and the 3 steam engines - were put up for sale. It recommenced operations as Relistian Consols and produced 5 tons of black tin in 1852, while Burt records copper and tin production in the 1870s under the Relistien Consols Co..*

*The tithe award records the site as "banks and trenches of old mines" (b3). OS. maps show an openwork (b11). The 1st edition OS 25 inch map, made presumably after the working had finally closed, shows engine houses at SW 60611 36735SW 60524 36744 and a chinmey at SW 60506 36755 (b7). William Holman recorded that c.1900 schoolboys explored the east section of the workings (marked by the OS as a large circular pit, possibly a partly collapsed shaft or lode back pit) but found nothing (b14). The best preserved section of the openwork is in the grounds of Parc Tye. It is locally*



known as "TheTye" (b12,b14). Overall, the trench is 1/4 mile long and 100 ft wide (h1). The trench and a series of shafts are visible on air photographs (p1&2) and were plotted as part of the NMP.

B1	Mineralogia Cornubiensis		Pryce, W	1778
B2	UNKNOWN TITLE	PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY	UNKNOWN	1807
B3	Gwinear		Tithe Award	1840s
B4	MAP		SYMONS	1853
B6	Kelly's Directory of Cornwall		Kelly	1873
B6	UNKNOWN TITLE	JRIC	BORLASE, WC	1864
B7	1st Edition 1:2500 Map		Ordnance Survey	1880s
B8	The Geology of the Land's End District		Reid, C & Flett, JS	1907
B9	Observations on the West of England Mining Region		Collins, JH	1912
P2	BKS/9611/244	ACP	CCC	1996
B10	The Metalliferous Mining Region of South-West England		Dines, HG	1956
B11	1:10,000 OS Map		Ordnance Survey	1970s
B12	Gwinear Checklist	CA No 5	Thomas, AC	1966
B13	Mines and Miners of Cornwall		Jenkin, AKH	1961
B14	Pers com		Holman, W	1979
P1	3G/TUD/209/5285	ACP	RAF	1946

## 5 Requirement for Work

Ground works associated with the development may disturb buried archaeologically significant deposits. 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 undertake palaeo-environmental investigation as appropriate

- 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.

## **9 Finds**

9.1 All finds, where appropriate, will be retained from each archaeological context excavated.

9.2 All finds, where appropriate, shall be washed.

9.3 All pottery, and other finds, where appropriate, shall be marked with the site code and context number.

9.4 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.

9.5 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.

9.6 Finds work should be to accepted professional standards and adhere to the Institute for Archaeologists *Guidelines for Finds Work*.

9.7 Environmental sampling should be guided by *Environmental Archaeology* (English Heritage Centre for Archaeological Guidelines. 2001/02).

9.8 Further English Heritage guidance that may be helpful includes *Geoarchaeology* (2004) and *Archaeometallurgy* (2001).

9.9 The English Heritage Advisor for Archaeological Science will be able to provide archaeological science advice if required (Vanessa Straker 0117 975 0689).

## **10 Human Remains**

10.1 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.

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

10.3 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.

## **11 Results**

11.1 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.

11.2 The archaeological contractor will undertake the English Heritage/ADS online access to the index of archaeological investigations (OASIS).

11.3 This report will be held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation.

11.4 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.

11.5 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.

## **12 Archive Deposition**

12.1 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. Please check the accessioning and deposition information on the Royal Cornwall Museum website and fill in the 'Notification of Fieldwork' form. Once this has been accepted an accession number will be provided by the museum.

<http://www.royalcornwallmuseum.org.uk/policies/>

12.2 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 and with the Courtney Library of the Royal Institution of Cornwall.

12.3 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.

12.4 Where there is only a documentary archive this will be deposited with the Cornwall Record Office as well as the Courtney Library of the Royal Institution of Cornwall.

12.5 A copy of the report will be supplied to the National Monuments Record (NMR) in Swindon.

12.6 A summary of the contents of the archive shall be supplied to the HEPAO.

12.7 The archaeological contractor will undertake the English Heritage/ads online access to the index of archaeological investigations form and ensure that a pdf copy of the report is uploaded (OASIS).

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

### **13 Monitoring**

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

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

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

## 12 Appendix 2. Relistian Lane, Reawla, Hayle; Project Design for an archaeological desk based assessment to inform an archaeological watching brief

Client: Penmellyn Developments Ltd  
Client contact: Steve Edwards/Tim Lewis (Kier Living)  
Client tel: 01736 710760  
Client email: [steve.edwards@thedesignandplanningstudio.co.uk](mailto:steve.edwards@thedesignandplanningstudio.co.uk)

### Site location

The site is located on the north western boundary of Reawla (see Fig 1), a small village approximately  $\frac{3}{4}$  of a mile south east of Gwinear, approximately six kilometres the east of Hayle, and adjacent to Wall, a small previously small settlement (named from a wall of ground demarking the side of two deep parallel open works. The project area (see Fig 2) consists of the entire section of Field No. ?? and is centred at SW 60523 36716. The development site (0.84 Ha) was the northern part of a succession of openwork tin mines dating from at least the 16<sup>th</sup> century up to the early 18<sup>th</sup> century when copper mining was started, working on at least two copper lodes crossing the site approximately from east to west, up to the late 19<sup>th</sup> century.

### • Site history

Mining on Relistian Downs stretch back to antiquity; a huge open works named '*Le Gracyas*' on Relystyan Down was listed as an ancient tin site in 1502. '*Relistian Tynn Work*' was shown as a noteworthy feature on plans of the Lanhydrock estate of 1696. According to Pryce, the mine was in operation in 1715 (1778). In 1760 Borlase (1864), described the works, also known as '*Restilian Great Work*', as the largest he had ever seen and which extended east and west for more than a furlong. The debris that had been thrown out along its course had formed a wall which probably gave rise to the place name 'Wall' that the workings traversed. In the east the huge trench split into two very deep channels with a sharp ridge between them. At the western end of the Restilian sett these coffin or open-cast workings were subsequently excavated still deeper into the elvan and as late as 1843 a chasm 39 fathoms in depth, 11 fathoms wide and nearly perpendicular remained as a reminder of its former productiveness (Hamilton Jenkin 1961, Vol V, 29-33). By the early eighteenth century copper was also being produced from Relistian and sales of copper ore begin to make regular appearances in Cornish estate books until 1719 when the mine closed down.

It remained idle until the end of the eighteenth century, there being a shortage of men to work it according to Hamilton Jenkin (*ibid*), but was in operation again in 1802 being known at various times thereafter as Relistien mine, Relistien Consols or Vyvyan Consols (it being marked by the latter name by Symons (1853 mine map). Dines and Phemister (1956, 154), says it also included New West Rosewarne mine. In 1803 a new shaft was being sunk and a year later was 25 fathoms under adit (26 fms below surface). A 48" engine was purchased from Herland mine and by 1806 Relistain was working to and below the level of the old mine and just about paying its running costs. The lodes were 'bunchy' however, making the financial future of the mine uncertain and by 1808 old Relistien Mine had been suspended leaving just the eastern part working. This too, closed in 1811 and the steam engine and materials were put up for sale.

Relistien lay idle for close on 20 years after this when in 1830 an enterprise named Relistien Mines was set up. A 60" engine was erected and two 22" winding and stamping engines, but this company were financially overstretched and a new one set up in 1835. Over 6,500 tons of copper ore were sold between 1836 and 1839 and in 1838 the mine was employing 250 persons and working down to the 115 fathoms level (Collins 1912, 566). By 1840 the mine was reported to be looking poor and 18 months



later the materials - 2 water wheels and the 3 steam engines - were put up for sale. It recommenced operations as Relistian Consols and produced 5 tons of black tin in 1852, while Burt records copper and tin production in the 1870s under the Relistien Consols Co.

The Gwinear tithe award (1841) records the site as Field No. 1552, although the site immediately to the east is described as 'banks and trenches of old mines' (Field Nos. 1545, 1549 and 1550). The 1st edition (1880s) OS 25 inch map, made presumably whilst still working, shows engine houses at SW 60611 36735, SW 60524 36744 and a chimney at SW 60506 36755 (the latter two sites within the study area). William Holman (*pers comm*) recorded that c.1900 schoolboys explored the east section of the workings (outside and east of the study area - marked by the OS as a large circular pit, possibly a partly collapsed shaft or lode back pit) but found nothing. The best preserved section of the openwork is in the grounds of Parc Tye. It is locally known as "The Tye". Overall, the trench is 1/4 mile long and 100 ft wide. The trench and a series of shafts are visible on air photographs (1946 and 1996), and were plotted as part of the NMP. The third edition (1970s) OS map still show an open work immediately east of the site. The mine worked two main lodes: North and South Lode, about 60 yards apart, each coursing about E. 20° N and underlying 30° to 40° N.

By the start of the 20<sup>th</sup> century the mine was depicted as abandoned (see 1907 OS map), its landscape covered with spreads of mine waste and accompanied by remnants of ruined engine houses and dressing floor perimeter walls. By 2005 (CCC aerial photographic evidence) western areas of the mine site (within the eastern half of the study area) had been reclaimed to agriculture, whilst the western part of the study area was still used for pasturage purposes.

The mine is centred at SW 60623 36722, close to the eastern boundary of the development site, at an average height of 75m OD. The underlying geology consists of Upper Devonian mudstone, siltstone and sandstones supporting occasionally shallow well drained fine loam and silty soils (BGS data).

#### • **Project Background**

Planning application PA13/09565 (submitted in 2013, see Fig 2), relates to the construction of a housing estate of 32 dwellings defined within existing hedge boundaries at Relistian Lane, Reawla. Dan Ratcliffe, the Historic Environment Planning Advice Officer (pending finalisation of a S106 planning agreement), has anticipated that a condition will be attached and worded as follows Brief dated 5/6/2014):

This application has been approved subject to an archaeological planning condition. Condition 6 states:

*6: 1. No development shall take place/commence until a programme of archaeological work including a **Written Scheme of Investigation (WSI)** has been submitted to and approved by the local planning authority in writing. The scheme shall include an assessment of significance and research questions; and:*

- a. The programme and methodology of site investigation and recording*
- b. The programme for post investigation assessment*
- c. Provision to be made for analysis of the site investigation and recording*
- d. Provision to be made for publication and dissemination of the analysis and records of the site investigation*
- e. Provision to be made for archive deposition of the analysis and records of the site investigation*
- f. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation.*

*2. No development shall take place other than in accordance with the Written Scheme of Investigation approved under Part (1) of this condition.*

*3. The development shall not be utilised/ occupied until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under Part (1) of this condition*

*and the provision made for analysis, publication and dissemination of results and archive deposition has been secured; or by agreement with the Local Planning Authority in consultation with Historic Environment Advice.*

*Reason: To accord with the aims at paragraph 141 of the National Planning Policy Framework.*

In order to develop the WSI a rapid Archaeological Desk Based Assessment (DBA) will need to be undertaken, the aims of which will be to:

- Draw together the historical and archaeological information about the site.
- Review and analyse historic map evidence for the site.
- Whether historic/architectural features should be retained.
- Inform whether archaeological recording of any extant remains is required.
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains is required.
- Inform whether palaeo-environmental sampling would be required.
- Produce 'statements of significance' for all designated historic assets, that are identified as potentially impacted on by the current proposals. Where currently undesignated assets are identified their likely significance should be indicated i.e. 'national', 'regional' or 'local'.
- Identify the construction, use and 'end of life' impacts of the current proposals on the 'national importance' of Scheduled Monuments, the 'Outstanding Universal Value of the World Heritage Site' and on undesignated historic assets as described in the NPPF.

The results of the DBA should be presented separately to any subsequent archaeological recording report of a programme of works, and follow the requirements for recording and deposit set out below. At an interim stage (following production of the DBA), the Historic Environment Planning Advice Officer (HEPAO) will review the information and contents to be informed and to advise the nature and extent of further archaeological watching brief recording during the site excavation stage of this housing development.

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

The generic site specific aims of any subsequent watching brief 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 mining activities on the site
- To identify any artefacts relating to the occupation or use of the site

Aims specific to this site include:

- **"Widen our understanding of the extraction, processing and transportation of minerals"** (SWARF Research Aim 38)
- Identify and study particularly early 17<sup>th</sup> century examples of mining technology.
- Identify, record and further understanding of any evidence of any early copper smelting on this site.
- Record and place in social context evidence for the development of mining and related landscapes.
- **Research questions**

Identify and study particularly early examples of mining technology.

- **Project extent**

The project area (see Fig 2) is centred at SW 60523 36716, and includes a large field whose boundaries have not changed since at least the 1840s.

- **Previous archaeological work**

There have been no previous archaeological assessments within the study area. Unfortunately a site investigation trenching exercise by the Wheal Jane Consultancy in July 2012 (Ref. SI18749), during an attempt to locate the site of a possible shaft – appears to have destroyed the shallow sub-surface remnants of a rotary engine house and chimney (as shown on the 1880 OS map).

- **Working methods**

*Desk based assessment*

A review of available information will be carried out to inform the desk based assessment (and any subsequent watching brief). This will comprise the following material:

- Published industrial archaeological and historical sources
- Historic maps:
  - Joel Gascoyne's 'Lanhydrock Atlas' map of parts of Cornwall (1696)
  - Thomas Martyn's map of Cornwall (1748),
  - OS 1 inch survey (c1810)
  - Gwinear Tithe map (1841),
  - Relevant mid-19<sup>th</sup> century mine plans/sections (Cornwall Record Office)
  - 1<sup>st</sup> and 2<sup>nd</sup> Editions of the OS 25 inch maps (c1880 and c1907)
- Modern maps
- Databases recording geology, soil types, Historic Landscape Character, Designations, Rights of Way

The DBA report will follow the site specific aims as produced by the HEPAO (Dan Ratcliffe 2014, 2) The following report heading titles will be used to detail the aims and objectives of the DBA.

*Assessment report*

This will contain:

- A concise non-technical summary of the report results.
- Introduction/background/terms of reference
- The aims and methods of the assessment
- A review and analysis of historic map regression evidence for the former site, and any other relevant archaeological information.
- A short statement of archaeological site significance, in terms of importance, rarity, local character, educational and academic value.
- Identify the construction, use and 'end of life' impacts of the current proposals on the undesignated historic assets as described in the NPPF.
- Inform whether an archaeological evaluation (site investigation trenching) or further archaeological recording (watching brief) of any potential buried remains is required.
- A statement of any requirements for any further work.

- A location map, copies of historic maps and plans consulted and any archaeological plans and/or sections. All plans shall be tied to the national grid.
- A summary of the archive contents and date of deposition.
- A full and properly referenced bibliography.
- Project archive
- A copy of the brief and the approved WSI will be included as an appendix.

If, following review of the historical desk based assessment by the HEPAO (Phil Copleston), it is thought appropriate for an archaeological recording to be undertaken during site excavation works – the nature and extent will be advised by the HEPAO.

#### *Fieldwork – watching brief*

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.

Archaeological recording of sub-surface features will be undertaken as a watching brief during a range of groundworks activities including road construction, treatment of areas infested with any invasive weed species, the treatment of known mining features and ground level reduction in advance of site development. Whilst some areas of the site may be specifically targeted on the basis of information gathered during the pre-works archaeological desk based assessment, specifically the sites of documented mine shafts and mine buildings, all areas of ground opened up will be inspected for evidence of archaeological features following the removal of superficial deposits or modern topsoil, as appropriate.

The contractor will be asked to undertake this phase of initial top soil removal of material utilising a (toothless) grading bucket. The exposed stripped surface will be checked for indications of sub-surface archaeology, which will be recorded using direct measurement, notes and/or photography as appropriate. Features will be located with reference to the site plan and by the use of a hand-held GPS unit. Where areas of particular interest or significance are revealed during the initial soil strip, a request will be made to the principal contractor for an allowance of time to undertake appropriate excavation of the feature followed by recording by written description, plan and section and photographic record as appropriate. The level of recording undertaken will be appropriate to the character/importance of the archaeological remains. Surviving remains which will be disturbed or destroyed by the development shall be archaeologically recorded, in proportion to the aims stated above.

If complex and/or significant archaeological deposits are encountered then the archaeological requirements of the project should be reviewed by the client, the Historic Environment Planning Advice Officer and HE Projects. The significance of the remains and the nature of any further recording 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.

In the case of mine shafts or near surface mining features where it would be hazardous to enter any open excavation, recording will be by means of high resolution digital photography and notes taken from an agreed safe vantage point.

### **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.
- 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). Any necessary environmental sampling will be guided by *Environmental Archaeology* (English Heritage Centre for Archaeological Guidelines. 2001/02).

- **Treatment of finds**

The archaeological fieldwork may produce artefactual material.

- All finds will be collected in sealable plastic bags which will be labelled immediately with the context number or other identifier.
- All finds, where appropriate, will be retained from each archaeological context excavated.
- All finds, where appropriate, shall be washed.
- All pottery, and other finds, where appropriate, shall be marked with the site code and context number.
- The brief requires that this 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. In this instance the finds advisor will be Carl Thorpe of HE Projects.
- All finds work will be to accepted professional standards and will adhere to the Institute for Archaeologists *Guidelines for Finds Work*.
- The requirements for conservation and storage will be agreed with the Royal Cornwall Museum as soon as possible following the start of work, and will be confirmed in writing to the HEPAO.
- Environmental sampling, should this be required, will be guided by *Environmental Archaeology* (English Heritage Centre for Archaeological Guidelines. 2001/02).
- The English Heritage Advisor for Archaeological Science will be requested for archaeological science advice if required (Vanessa Straker 0117 975 0689).

### **Human remains**

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

- **Fieldwork: photographic recording**

The photographic record shall consist of prints in both black and white and colour together with the related negatives. Digital photography will 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.

The photo record will comprise:

- general views
- examples of significant detail

Methodology for the archive standard photography is set out as follows:

- Photographs of details will be taken with lenses of appropriate focal length
- A tripod will be used to take advantage of natural light and slower exposures
- Difficulties of back-lighting will be dealt with where necessary by balancing the lighting by the use of flash
- A metric scale will be included in all views, except where health and safety considerations make this impractical.

#### *Post-fieldwork tasks*

- **Archiving**

Following review with the CAU Project Manager the results from the fieldwork will be collated as an archive in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006* upon completion of the project.

This will involve washing and cataloguing of finds, the indexing and cross-referencing of photographs, drawings and context records.

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

The site archive and finds will initially be stored at HE premises. 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. The RCM will be notified of the commencement of the project and included in discussions for sampling and disposal as appropriate.

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 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. This report will be held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation. A copy of the report will be supplied to the National Monuments Record (NMR) in Swindon, to the Courtney Library of the Royal Cornwall Museum and to the Cornish Studies Library.

In the event that there are no finds or they are retained by the owner, the documentary archive in due course shall be deposited with the Cornwall Record Office,

but in the medium term will be stored at ReStore. All digital records will be filed on the Cornwall Council network.

A summary of the contents of the archive shall be supplied to the HEPAO.

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. The project archive will be deposited initially at ReStore, and in due course (when space permits) at Cornwall Record Office.

#### *Watching brief report*

This will contain:

- A concise non-technical summary of the project results.
- Introduction/background/terms of reference
- The aims and methods adopted in the course of the investigation.
- A discussion of the archaeological findings in relation to the site specific aims.
- A short statement of archaeological significance, in terms of importance, rarity, local character, educational and academic value.
- A statement of any requirements for further work.
- A location map, a drawing showing those areas examined as part of the archaeological recording, copies of historic maps and plans consulted and any archaeological plans and/or sections. All plans shall be tied to the national grid.
- A summary of the archive contents and date of deposition.
- A full and properly referenced bibliography.
- Project archive
- A copy of the brief and the approved WSI will be included as an appendix.

#### • **Product**

The study will result in the following outputs:

1. Annotated plan of the site.
2. Watching brief field notes and descriptions
3. Digital photographs (archived according to the Historic Environment's guidelines) supplied to the client on CD.
4. An entry in the English Heritage/ads online access to the index of archaeological investigations (OASIS).
5. A written report (as above).
6. A WSI for the proposed watching brief.

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

Copies of the report will also be distributed to local archives and national archaeological record centres, and will be made available for public consultation.

A contingency shall be made for full publication of the results of the watching brief in an appropriate journal in the event of significant findings being revealed, and for presentation of results to the public, for instance in the form of talks to interested



groups or press releases, web content etc. The HEPAO will notify the client and contractor of such a need within four weeks of receipt of the report or following the discovery of significant findings.

- **Copyright**

Copyright of all material gathered as a result of the project will be reserved to 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.

- **Timetable**

The study is anticipated to be undertaken between February and June 2015. CAU will require adequate notice before commencement of work, in order to allow the allocation of field staff time and to arrange other logistics.

## **Monitoring**

Monitoring of the project will be carried out by Phil Copleston, Historic Environment Planning Advice Officer. The HEPAO will be regularly kept informed of progress. Notification of the start of work shall be given in writing to the HEPAO at least one week in advance of its commencement. Any variations to the WSI shall be agreed with the HEPAO, preferably in writing, prior to them being carried out.

Monitoring points during the study will include:

- Approval of the WSI (for both the DBA and any subsequent WB)
- Completion of DBA
- Completion of WB fieldwork
- Completion of archive report
- Deposition of both report archives

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).

- **Cornwall Archaeological Unit, Cornwall Council**

Cornwall Archaeological Unit (CAU) is the archaeological contracting arm of Cornwall Council (CC). CAU employs some 20 project staff with a broad range of expertise, undertaking around 120 projects each year.

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

- 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

- **Project staff**

The project will be carried out by CAU field staff (Carl Thorpe and Colin Buck) and will be managed by a nominated Senior Archaeologist (Colin Buck MIFA) who will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the field staff, including arrangements for health and safety.
- Monitor progress and results for each stage.
- Edit the project report.

- **Colin Buck, Dip Cert, Senior Archaeologist. MIFA**

- Specialist in conservation works to Cornish mining landscapes, archaeological assessments and watching brief recording since 1993. Involved in numerous projects including conservation works to many engine houses and other structural conservation works, shaft safety works and mine site access improvements, particularly in the east of Cornwall and West Devon. Other projects include archaeological Impact Assessments, Conservation Management Plans and Historic Building Consultancies for the Mineral Tramways Project, East Cornwall Regeneration Project, Tamar Valley Mining Heritage Project and Caradon Hill Area Heritage Project. Within the last few years involved in the preparation of assessments and historic building consultancies for Natural England. Involved in the preparation of policies for the Cornish Mining World Heritage Site Bid's Management Plan. Produced over 130 archaeological assessments and watching brief reports over the last twenty one years for Cornwall Archaeological Unit. [cbuck@cornwall.gov.uk](mailto:cbuck@cornwall.gov.uk)

- **Contract**

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

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

- **Standards**

CAU follows the Chartered Institute for Archaeologists' Standards and Code of Conduct.

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

- **Health and safety statement**

CAU follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines CAU 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 CAU will carry out a Risk Assessment.

- **Insurance**

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

*Colin Buck MIfA*

*Senior Archaeologist*

*29/01/2015*

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