PAL 9 Cardinham Moor West, Historic Environment Action Plan

View N to Colvannick Tor in the NW part of the PAL, showing the spread of hawthorn trees and bracken over the area of medieval strip fields in November 2007 (Pete Herring).

Location, geology and topography

Centred: SX 127715

Extent: 80ha (198 acres)

Geology

Granite, with two dykes of felsite, igneous bedrock formed between 298.9 and 252.2 million years ago during the Permian period, both worked in the 20th century for roadstone.

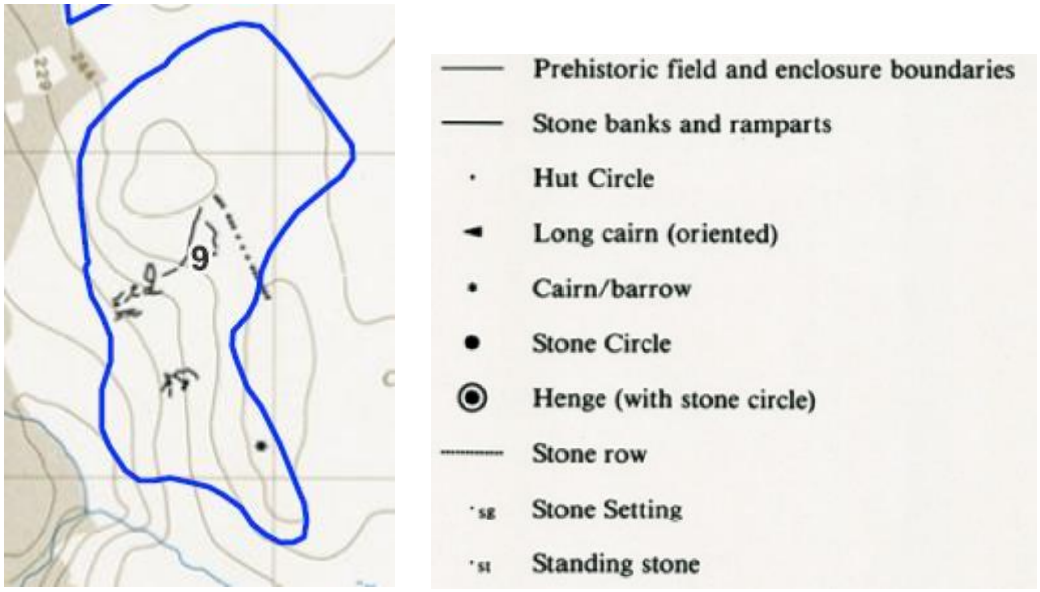
Topography

Moorland edge with steep western scarp reflecting the edge of the granite. Several individual substantial granite tors make up Colvannick Tor (262 metres, 860 feet) the northernmost one having the appearance of a tall stack that has tumbled over. Near the southern end of the PAL is St Bellarmin's Tor (268 metres, 880 feet). Both tors have considerable clitter spreads on their western slopes and there are alsomany moorstones on these western slopes. There are fewer on the land in the east of the

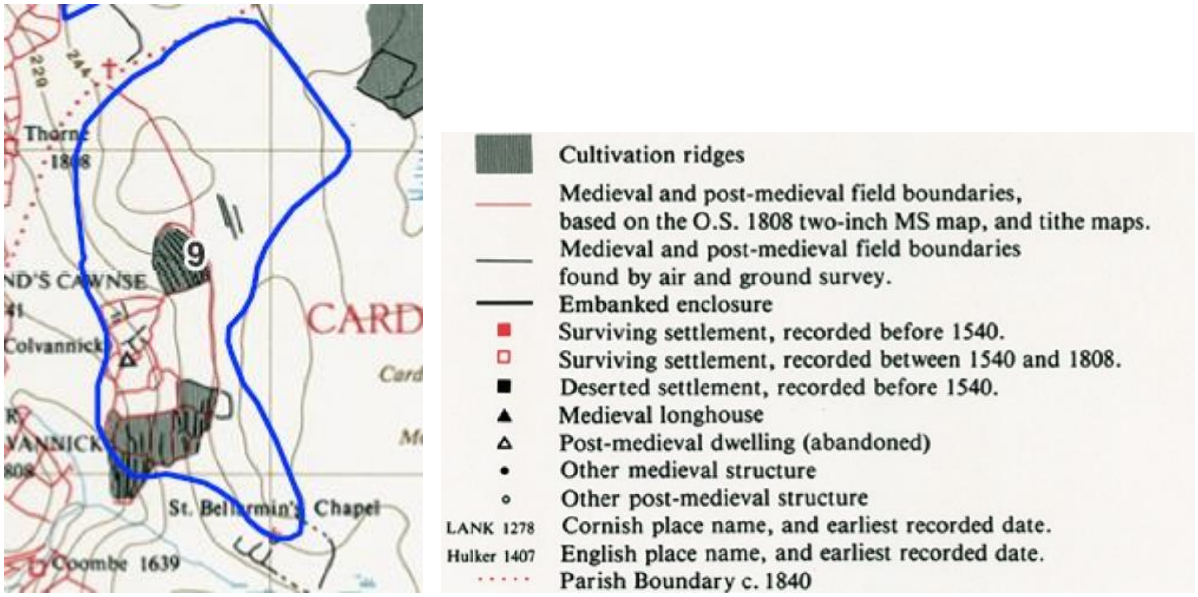
PAL which is unusually gently sloping by Bodmin Moor standards and is consequently quite peaty.

Current management and structures of ownership, commoners, etc:

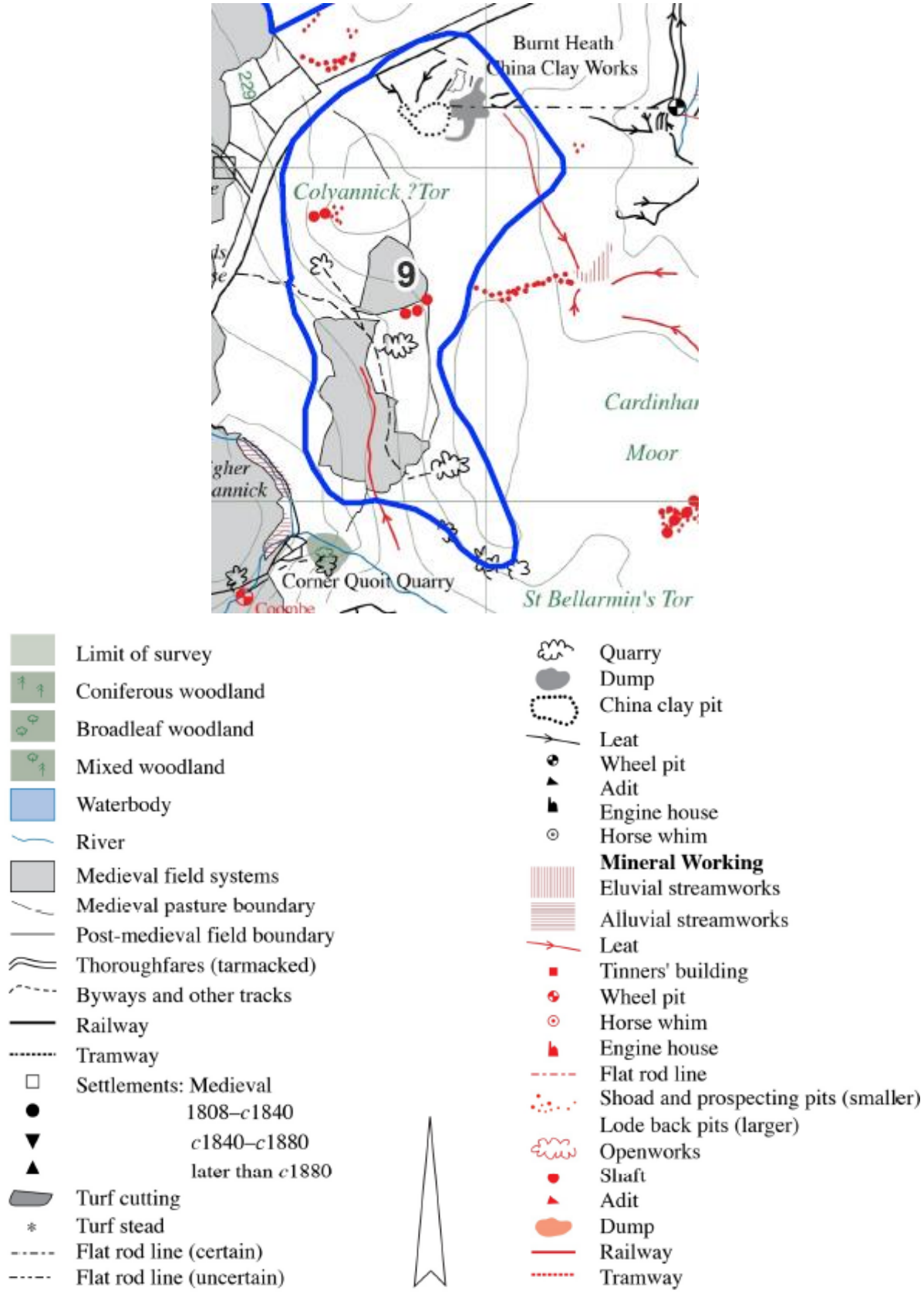
The whole area is common land, within CL137, Cardinham Moor and Fore Downs.



Extract from Prehistoric overview map (Johnson and Rose 1994, Map 1; reproduced with permission of Cornwall Council and Historic England).



Extract from Medieval and later landscape to c1808 overview map (Johnson and Rose 1994, Map 2; reproduced with permission of Cornwall Council and Historic England).



Extract from Post-medieval and industrial overview map (Herring et al 2008, Map 1; reproduced with permission of Cornwall Council and Historic England).

Land use history

Pre-1748

The PAL has two distinct parts with concave slopes on the western sides of the two hills having been used for farming settlements of the Middle Bronze Age, later medieval and post-medieval periods. This farming was mixed in each period, with lynchetted fields set among extensive pastures which continued into the gentle slopes of the open moorland in the eastern half.

Thomas Martyn's 1748 map.

Shows St Bellarmines Tor in profile. Rest of the PAL shown open.

c1810 OS drawing

No fields shown on the western slopes; instead all was rough ground, though a thin scatter of trees is indicated on the western slopes.

c1840 Tithe Map

Shown open and all under one plot, TA 10, 'The Moors', land use being 'Moors'. No owner is indicated.

c1880 OS map

The map shows the last of the field systems, but this is presumably pre-1748 being absent from all previous mappings. The OS map shows a building roofless set among a pattern of fields that appears to be derived from enclosures of an earlier strip field system – archaeological remains of the strips also survive. Two or three of the smaller fields were shown as improved grassland but the rest of the PAL is rough grassland with a scatter of clumps of furze.

The Burnt Heath china-clay works as shown in operation, though it did not grow very much after this date.

c1906 OS map

As above. The Burnt Heath clayworks was now disused.

Modern

Still used as rough grazing. Early 20th century roadstone quarries cut as narrow slots into the higher western slopes.

Historic Environment

Headlines

- Later Neolithic or Early Bronze Age **stone row**
- Exceptionally complete and **well-preserved china-clay works** at Burnt Heat at the northern end of the PAL.
- **Medieval chapel and associated enclosure** on St Bellarmin's Tor.
- **Palimpsest of field systems** on western slopes with Bronze Age irregular fields with roundhouses overlain by well-preserved medieval strip fields that were in turn overlain by a post-medieval pattern of more irregular fields.
- **Extensive shode works** uphill from eluvial streamworks.
- Well-preserved **granite dimension stone quarry** with fallen 19th century **derrick** on Corner Quoit Tor.

Summary of main heritage assets

Prehistoric ceremonial and ritual

A **Later Neolithic and Early Bronze Age stone row** (MCO18481), known as the Colvannick stone row, 380 metres long running NNW to SSE, has unusually large stones for a Bodmin Moor row, reaching 2.4 metres high at the southern terminal stone. The stones are also unusually widely spaced (7 to 14 metres apart) and just 11 survive, but their size is such that it remains an impressive monument – it is presumed that several stones have been removed, and one has been broken into parts. The two ends are not intervisible due to higher ground between them. Chris Tilley noticed a 'twisted' perspectival effect when walking along the Colvannick stone row that at the north means that the sea beyond the southern Cornish coast is visible and at the south end the sea beyond the northern coast is (Tilley 1995, 33).

An **Early Bronze Age platform cairn** (MCO4585) on the southern end of a low hill north of St Bellarmin's Tor; good views to Rough Tor and Brown Willy.

Prehistoric domestic and agricultural

A probably **Middle Bronze Age roundhouse settlement**, with four houses identified, is set within a fragmentary irregular **field system** (MCO20719) on the west-facing slopes between Colvannick Tor and St Bellarmin's Tor. It is overlain and disturbed by a medieval field system.

A second probably **Middle Bronze Age roundhouse settlement,** with two houses recorded, is set within a fragmentary irregular **field system** (MCO20720) on the west-facing slopes to the west of Colvannick Tor. It is overlain and disturbed by a medieval field system.

Medieval

There are traditions of a **Medieval chapel** on St Bellarmin's Tor, but few convincing signs of remains (MCO10182). A sub-rectangular enclosure may be associated with it, or with later quarrying (below). There is also reputed to be an associated **holy well** nearby (MCO7063), but again no convincing remains have been recorded.

Extensive medieval field system (MCO20866) in several parts including two sets of strips that run along the contour, quite unusually so in Cornwall where almost all strip fields ran across the contour.

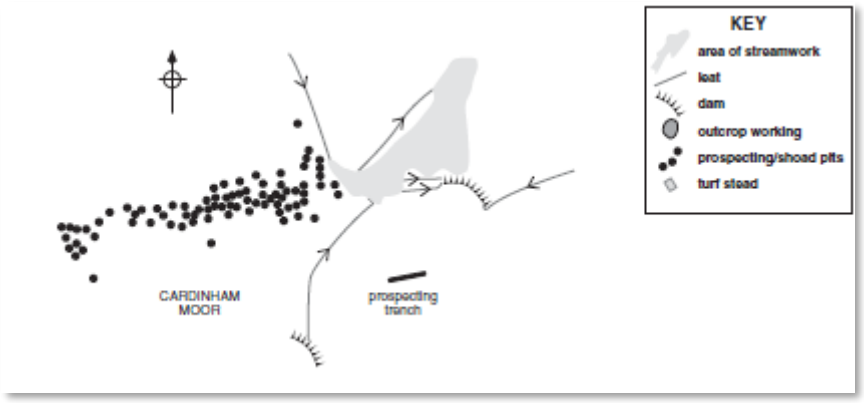
A large **subdivided medieval field** at its NE end (centred at SX1272 7166) contains contour-following strips that average 16m wide and are separated by lines of single stones 0.3m high and enclosed by a 0.7m high bank (h1). Two more groups of contour-following **strips** lie on especially steep ground further south.

Industrial

A very **well-preserved eluvial streamworks** on the very gently sloping eastward side of the PAL and extending beyond it (MCO24003). There is extensive shode working uphill to the west in ground that could not be easily served by leats and reservoirs. Three low dams for reservoirs, two to the south, one to the north west. Two drainage gullies within the streamworks, a leat running beside it to the north and dinners dumps of Gerrard eluvial types B, C and D. Uncertain date, most likely later medieval.

Shode working (MCO23974) is uphill to the west of the eluvial streamworks, in an area where no water could be collected to work shode deposits. A total of 151 pits up to 3m in diameter and 1.5m deep. Downhill crescentic heaps to 0.8m high are arranged in a band about four pits wide. A run of seven contiguous prospecting pits, sub -

rectangular in plan, to 0.9m deep, cuts across the band towards its W end, just E of Colvannick stone row. Uncertain date, most likely later medieval.



Simplified plan of the shode working and streamworks (Sharpe 2008, fig 21).

Small area of **shode working** (c 9 pits) and small-scale **lode-back working** at Colvannick Tor (MCO23958). Six lode-back pits plus some **prospecting pits**.

Burnt Heath China-Clay works (MCO23970) is one of the best survivals in Cornwall of an early china-clay works; elsewhere the continuation of the industry in the 20th century usually removed such remains. This is a precis of the description by John R Smith in Bodmin Moor Volume 2 (Smith 2008, 107-109).

First worked in the 1870s; leased by Frank Parkyn in 1893 (Brewster 1975); marked as disused on the 1907 OS 1:2500 map. Evident on the 1882 OS map are the pit, flat-topped burrows, and a process area comprising settling pits and tanks.

Power for pumping from the pit to surface was provided by a **waterwheel** in the valley below, to the east, driving the pump via **flat rods**. The area where the pump and shaft were shown on the 1880 OS 1:2500 survey is now flooded. Dumps are **flat-topped finger dumps**, probably formed by barrowing the waste sand rather than tramming.

'A notable feature of the site is the **remnant bank system** (a on Fig 90), partially overlain on the east by the later process area. These banks would appear to represent an **earlier air-drying process floor**; if so, they are the only example so far recorded on Bodmin Moor. Shallow rectangular pits and low platforms of this type are evident on the early OS 1:2500 maps of Hensbarrow, and the features at Burnt Heath may be a genuine survival of early process technology.'

'The remainder of the process area is conventional in form, though small in scale as might be expected. The clay stream from the pit was pumped up through a **shaft** located at (b); power for this pump was transmitted from a waterwheel in the valley below by flat rods. The stream then flowed through the deep, narrow channels at (c) (the **sand drags**) before entering the head of the **mica drags** at (d); these drags at present show no evidence of internal subdivision apart from a cross channel, but wooden boards were normally used to serve this function in early mica drags.'

'The relatively shallow (1m deep) rectangular pond (e) may have served as a **secondary mica separator**, but on the basis of present evidence its function is unclear. The **four circular settling pits** (f) are granite-lined and average 2m deep; they are small by comparison with most examples on Hensbarrow, ranging in diameter from 8–10m. Unusually, they are here sited at a slightly lower level than the kiln, and so their contents would have had to be pumped out to the next stage of the de-watering

process (rather than ‘landed’ by gravity, as was normal practice). Socketed granite stones adjacent to each pit are interpreted as mountings for simple plunger pumps, perhaps driven by flat rods from the waterwheel in the valley below.’

‘The **settling tanks** (g) at the rear of the kiln are again of granite with earth mortar. Another, larger tank (h) to one side of the kiln has no direct communication with the pan. This tank may perhaps be a **water reservoir** to provide a supply for washing the clay in the pit, rather than a settling tank associated with clay processing. The **kiln** itself is very small, with a narrow pan only 3m wide; the overall width of the kiln to the front wall of the **linhay** is only 8m. The **chimney** has been felled, but the base of the collapsed stack (j) is clearly visible.’

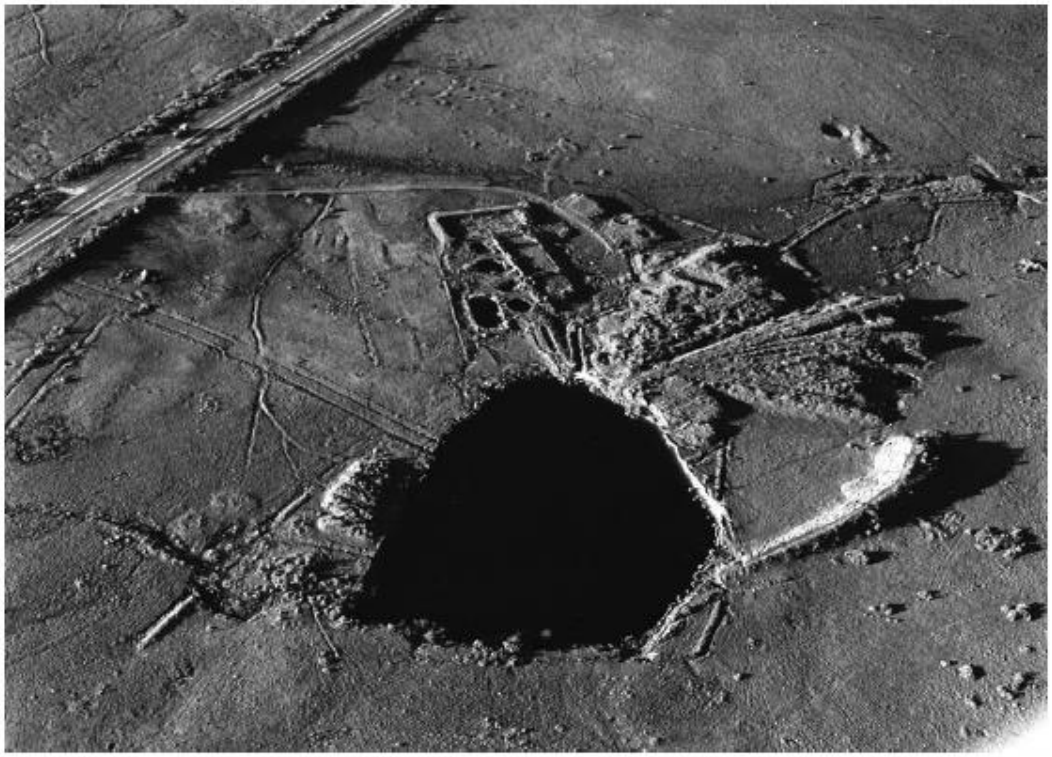


Fig 91 Burnt Heath (SX 128722) from the air, looking north-east in 1991. The pattern of finger dumps is clearly visible on the right-hand side of the pit; the single dump below is probably an overburden dump. (CCC HES, F33/262)

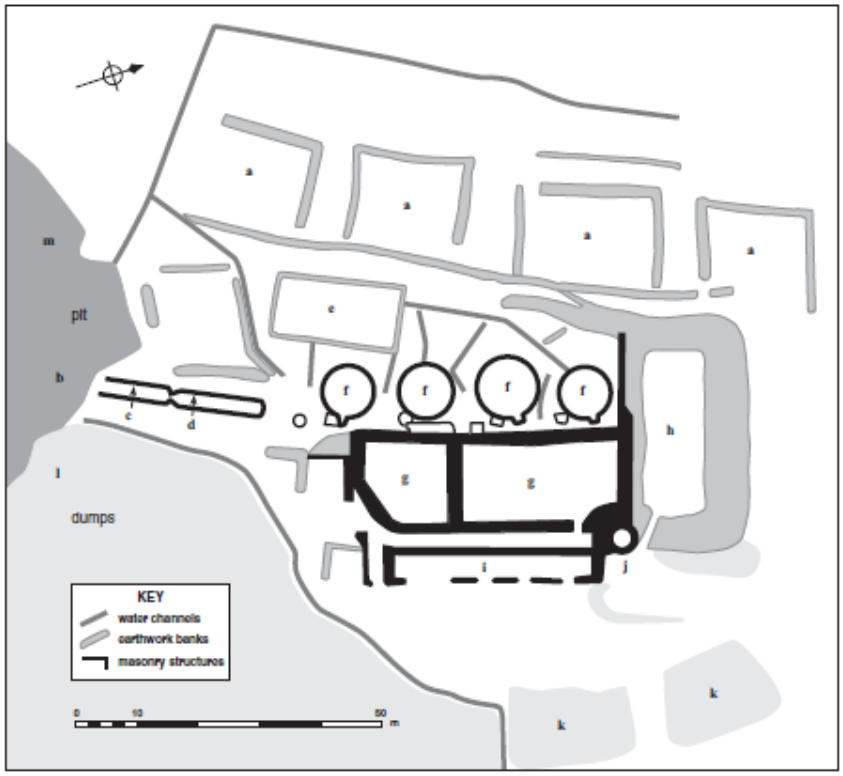


Fig 90 *Burnt Heath china-clay works (SX 128722). The shallow tanks (a) may be the remains of early air-drying lagoons; they certainly predate the other features on the site. The clay stream was pumped from the now flooded shaft at (b) through the sand and mica drags (c) and (d) to the settling pits (f), where clear water was drawn off as the clay thickened and settled. The slurry was then thickened again in the settling tanks (g) before being dried in the pan kiln (i). The stack (j) has been felled. The shallow pond (e) has no obvious function; the large reservoir (h) probably supplied wash water to the pit. Mica waste appears to have been dumped to the front of the site at (k). The flooded pit (m) is relatively small (and probably shallow, as the main dumps (l) are neither extensive nor high). (CCC HES, GRE 121)*

Granite quarries at St Bellarmin's Tor. There are three small-scale granite quarries, apparently for dimension stone working outcrops and bedrock at St Bellarmin's Tor. They are 19th and 20th century and have both charge-holes and tare and feather splitting marks; areas of chippings indicate stone dressing took place on site (MCO 23965, 23966, 23967).

Dimension stone quarry at Corner Quoit (MCO23963) in existence in 1881 but still just a small cutting in 1905 (OS). Extended in the early 20th century with large **finger dumps** of waster rocks and a **pit** with high cliffs. **Two building platforms**; a well-preserved **timber mast crane** made by the America Hoist and Derrick Co, St Paul, Indiana, USA, lies on the quarry floor.

Early 20th century quarries. There are two slot quarries on the steep western slopes N and S of Colvannick Tor that were not on 1906 OS map but were finished by 1946 (RAF aerial photo). The **southern quarry** (MCO23961) has a ruined building in its entrance, possibly a **crusher house**. A **finger dump** of waste boulders (c3m high) indicates use for dimension stone, for part of its history, but the dump's smallness suggests a main purpose as a roadstone quarry. Overlapping overburden finger dumps (to 4.5m high) along each side show the quarry was cut west to east into the hillslope. Charge holes in the cliff faces which reach circa 6m high. The **northern quarry** (MCO23960) has no wasters dumps, just overburden dumps, so was a roadstone or hedge-stone quarry.

Post-medieval and modern

A **probably post-medieval farmstead** (MCO14899) on the lower slopes of the ridge between Colvannick Tor and St Bellarmin's Tor has a ruined dwelling set into the hillslope along the contour and two outhouses and yards. A field system on the slopes above defined by ruinous Cornish hedges was already abandoned by 1840 as it was not shown on the Cardinham Tithe Map of that year. It was also absent from the c1808 OS 2-inch drawing.

Intangible cultural heritage

- Red flags for shooting at Millpool range.
- Burnt Heath clayworks pool a local landmark.

Significance of landscape visibility

The stone row; Chris Tilley.

Views north from the platform cairn towards Rough Tor.

Designations

Historic Environment

Scheduled Monuments

NHLE 1004442 **St Bellarmin's Chapel**

Heritage Assets assessed as being of National Importance

This part of Bodmin Moor was not covered by the Monuments Protection Programme (MPP).

The following sites were assessed as satisfying the criteria for National Importance using the criteria employed by the MPP and were therefore proposed as candidates for formal assessment for Scheduling during the Evaluation of Bodmin Moor (Rose and Herring 1990).

Following the guidance in the National Planning Policy Framework (NPPF) these non-designated heritage assets are demonstrably of equivalent significance to Scheduled Monuments. 'Substantial harm to or loss of [these] should be wholly exceptional' (NPPF, para 206).

Detail:

- **Later Neolithic and Early Bronze Age stone row** (MCO18481), known as the Colvannick stone row.
- **Early Bronze Age platform cairn** (MCO4585) north of St Bellarmin's Tor.
- **Middle Bronze Age roundhouse settlement**, and fragmentary irregular **field system** (MCO20719).
- **Middle Bronze Age roundhouse settlement,** and fragmentary irregular **field system** (MCO20720).
- **Extensive medieval field system** (MCO20866) in several parts including two sets of strips that run along the contour.
- **Well-preserved eluvial streamworks** (MCO24003).
- **Shode working** (MCO23974) uphill to the west of the eluvial streamworks.
- **Burnt Heath China-Clay works** (MCO23970), one of the best survivals in Cornwall of an early china-clay works.

- **Dimension stone quarry** at Corner Quoit (MCO23963) including a well-preserved **timber mast crane**.

Natural environment designations:

Sites of Special Scientific Interest

NA

Special Areas of Conservation

NA

County Wildlife Site

Whole PAL is in one: NC/CN7/S1

Cornwall Conservation Areas

NA

Other designations

Common Land

The whole area is common land, within CL137, Cardinham Moor and Fore Downs

CROW Access Land

Yes, whole PAL.

Registered rights of way.

Bridleway from Millpool to St Bellarmin's Tor.

Footpaths crisscross the land, entering from W of Colvannick Tor, the Temple layby, Temple, Millpool firing range and Great Care Hill.

Neighbourhood Development Plans

No.

Change between 2005 and 2022

(Overview derived from comparison of CCC 2005 aerial photography, available as a basemap on the Cornwall and Scilly Historic Environment Record, and the Airbus 2025 satellite imagery as viewed from Google Earth aerial photos.)

- Significant increase in furze cover throughout.
- Some of the furze on the W slope is merging to create a closed canopy, preventing livestock moving other than through narrow passages, causing erosion.
- The stone row is in danger of being lost to furze.
- Many areas appear to have dense low furze, which may become an extensive furze inundation in a few years' time.
- The growth of the low furze is concentrating animal tracking, leading to increased erosion.
- Burn Heath clayworks is becoming overgrown with furze

Issues

Spread of furze.

- Reducing the diversity of the ancient rough grasslands and their flora and fauna, including their invertebrates.

- Obscuring the more ephemeral archaeological remains, including the stone row.
- Will begin to cause erosion as vehicles and livestock are confined to ever narrower tracks.
- Encourage tick-borne diseases in livestock and wild fauna.

Opportunities

To better guide grazing levels on the common by closer understanding of the flora and fauna of the ancient semi-natural grasslands.

Recommendations

General approach

Retain open ancient semi-natural grassland with easy movement in all directions. Keep the important remains of the Lamlavery medieval hamlet and its fields clear of furze.

Specific recommendations

- Address the growth of furze on the stone row, the roundhouse settlements and the cairn. Also at the Burnt Heath clayworks
- Adjust grazing to push back the conversion to furze.
- Further archaeological recording.

Adjusting the extent of the PAL:

LIDAR has been examined. No change required to PAL extent.

Other initiatives or suggestions

Further archaeological recording.

- The water power system for Burnt Heath clayworks.

References

Herring, P, 2008 Quarrying in Herring et al 2008, *Bodmin Moor archaeological survey volume 2*, Swindon, English Heritage, 83-99

Johnson, N and Rose, P, 1994 *Bodmin Moor archaeological survey volume 2*, Swindon, English Heritage.

Sharpe, A, 2008 Mining in Herring et al 2008, *Bodmin Moor archaeological survey volume 2*, Swindon, English Heritage, 29-82

Smith, JR, 2008 China Clay, in Herring et al 2008, *Bodmin Moor archaeological survey volume 2*, Swindon, English Heritage, 100-116

Appendix 1 2007 PAL text

9 Cardinham Moor West

Historic Environment

A multi-period landscape highly visible from the A30, including settlement and ritual sites, field systems, a possible medieval religious complex and good examples of late 19th century china clay and granite quarrying.

One of the most notable prehistoric features, which needs to be seen in a wider landscape context, is the fine Colvannick stone row which is currently hard to follow due to the recent growth of tall gorse. On an undulating plateau and extending for 378m in a north west-south east orientation, it consists of two upright, two leaning, and eight recumbent stones, all unusually large compared with other Bodmin Moor stone rows. Other stones have probably been removed. At the southern end is a 2.4m long tapering standing stone.

The area also contains evidence of prehistoric settlement (houses and associated irregular field system) and medieval and post medieval settlement (a neat complex comprising of a ruined building and outhouses set in an associated field system). The later had its origins in the medieval period and there is a fine strip field system on the slopes above.

On St Bellarmin's Tor are the remains of a medieval chapel and holy well associated with remnants of a field system – although all features are hard to find amid dense bracken. The tor itself is a prominent landmark in this corner of the moor and is likely to have been a focal point for prehistoric activity.

Two well preserved road stone quarries in the western part of the PAL are linked by a trackway, whilst to the north are the very visible remains of a small china clay works (Burnt Heath, worked in the late 19th century). As this was not worked beyond the early 20th century, the works contain rare and well preserved examples of early features, including a dressing floor with tanks and flat-rod trenches bringing power from distant water wheels to pump the clay slurry to these floors from distant waterwheels.

Natural Environment

Fragmented Western Heath, Acid Grassland, Mires and Scrub

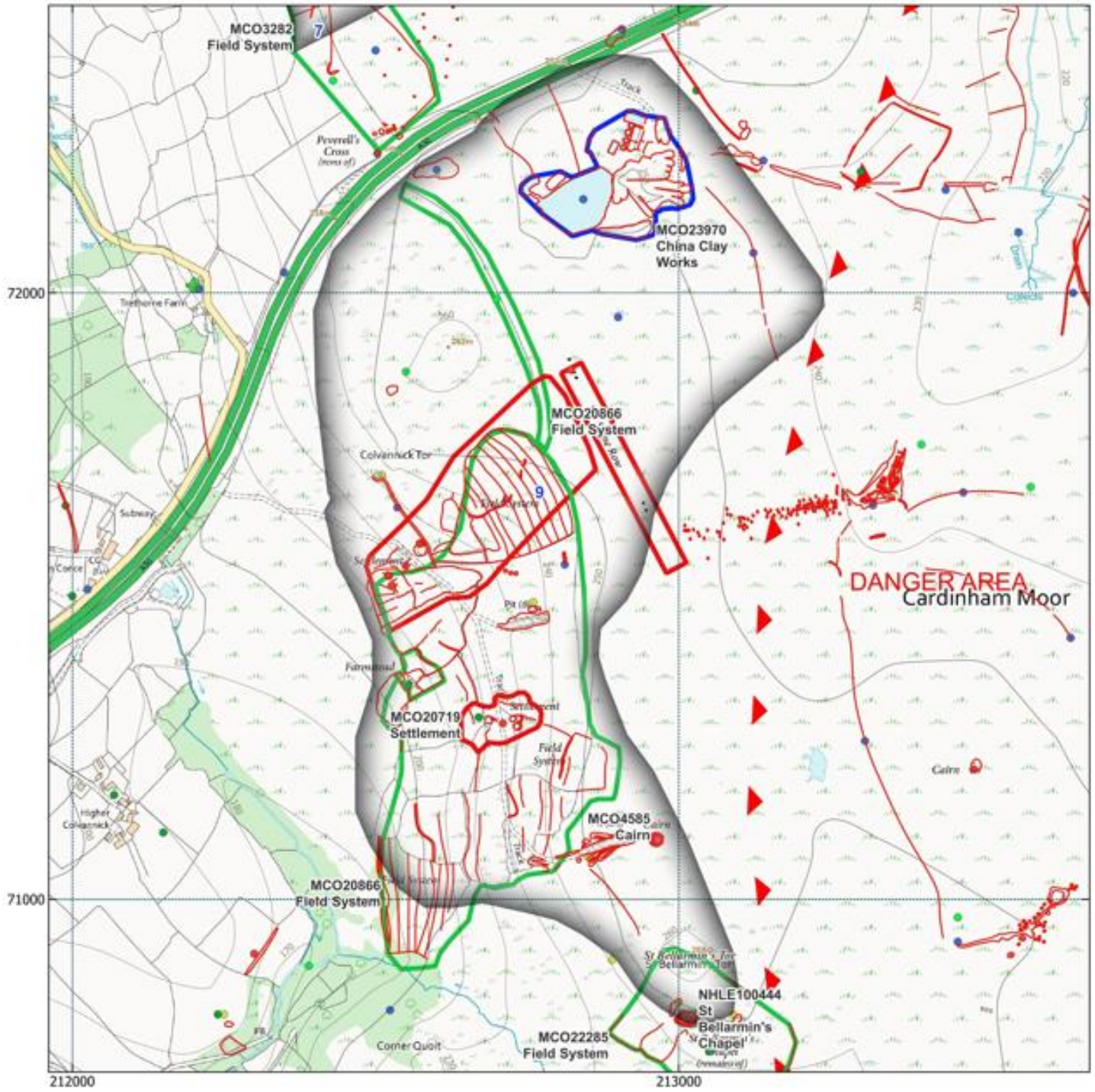
Specific notes:- Extant **Marsh Fritillary** (*Eurodryas aurinia*) colony on or adjacent (Pounds Conce, BC Sept 2007))

Designations

The site of St Bellarmin's chapel is the only Scheduled Monument within this PAL (No.453). The lack of other designation here cannot be taken to indicate a lack of significance, but rather the fact that the designation programme never reached this area.

No current NE designations.

Vision



PAL Areas

Scheduled Monuments

Scheduled Monuments @ Risk

Feature Groups

Prehistoric

Medieval

Post Medieval

Aerial Mapping Transcriptions

CSHER point data

Prehistoric

Early Medieval

Romano British

Medieval

Post Medieval

Modern

Dominant Habitat: Western Heath Mosaic

Habitat Change: Considerable

Notes: Furze cover has increased throughout, forming closed canopy on W slope. This prevents livestock movement, causing erosion. Stone row is at risk. Dense low furze may inundate areas soon. Burnt Heath clayworks is overgrown with furze.

PAL 9 Cardinham Moor West

www.statement-heritage.com

Cornwall Council

0 100 200 m