

**South Crofty Mine,
Pool, Redruth,
Cornwall**

Archaeological Watching Brief

SW 6645 4095



ISCA Archaeology Limited
39D New Bridge Street
Exeter
Devon
EX4 3AH
07943204239
contactus@iscaarch.co.uk

For: **Henry Boot Developments Ltd**
ISCA Project: **P02-00001**
ISCA Report: **R02-00001-1**
December 2021

CONTENTS

PROJECT INFORMATION	4
SUMMARY.....	4
1. INTRODUCTION.....	6
2. ARCHAEOLOGICAL BACKGROUND.....	8
3. AIMS AND OBJECTIVES	10
4. METHODOLOGY - ARCHAEOLOGICAL WATCHING BRIEF	10
5. RESULTS	12
6. ARTEFACTUAL EVIDENCE	15
7. ENVIRONMENTAL EVIDENCE	16
8. DISCUSSION.....	16
9. ISCA PROJECT TEAM	17
10. REFERENCES.....	17
APPENDIX 1: CONTEXT DISCRPTIONS (BY TRENCH).....	32
APPENDIX 2: OASIS FORM.....	34
APPENDIX 3: WRITTEN SCHEME OF INVESTIGATION	36

LIST OF ILLUSTRATIONS

Figure 1:	Site Location Plan
Figure 2:	Site Plan - East
Figure 3:	Site Plan – West
Figure 4:	General view of site prior to commencement of works. View to the north-east
Figure 5:	Trench 1, southern extent showing nature of deposits 101 and 102 to the south. View to the north
Figure 6:	Trench 2 (centre), with Trench 1 to right. Showing nature of buried deposits 201. Scale at 1m.
Figure 7:	Trench 2, near to site entrance to the north, showing nature of buried deposits 201. Scale at 1m. View to the north
Figure 8:	Trench 2, southern extent, showing modern electric cables and nature of buried deposits. Scale at 1m. View to the south
Figure 9:	Trench 2, concrete slab 202. Scale at 1m. View to the north-west
Figure 10:	Trench 3, compacted stone railway footing 302. Scale at 1m. View to the north
Figure 11:	Trench 3, general view with brick structure 301 to left. Scale at 1m. View to the south-west
Figure 12:	Trench 3, Section AA and photograph. Scale at 1m. View to the north-east
Figure 13:	General view of western end of Trench 4. Scale at 1m. View to the south-west
Figure 14:	General view of eastern end of Trench 4. View to the west
Figure 15:	Trench 4, Section BB and photograph. Scale at 1m. View to the south
Figure 16:	Trench 4. Section CC and photograph. Scale at 1m. View to the north

- Figure 17:** Trench 5 - Removal of modern made ground to the south-east corner of car park. View to East
- Figure 18:** Trench 5 - car park and access road. View to north-west
- Figure 19:** Access Road leading from site entrance to raised car park. View to south-east
- Figure 20:** Plan of Trench 3 and location of suspected mine shafts
- Figure 21:** Illogan Tithe Map 1840
- Figure 22:** 2nd Edition Ordnance Survey Map 1908
- Figure 23:** 1:10,560 Ordnance Survey Map 1963

PROJECT INFORMATION

Project Name:	South Crofty Mine
Location:	Pool, Redruth, Cornwall
Type:	Watching Brief
National grid reference (NGR):	SW 6645 4095
Planning authority:	Cornwall Council
Planning reference	PA20/01939
Date of fieldwork:	23 June – 28 October 2021
Site Code:	SCMR21
Location of Archive:	Royal Cornwall Museum
Report number:	R02-00001-1
Report written by:	Simon Sworn, ACIfA
Produced by ISCA for:	Henry Boot Developments Ltd
OASIS number:	iscaarch2-503425

SUMMARY

An archaeological watching brief was undertaken by ISCA Archaeology between June and October 2021 at South Crofty Mine, Pool, Redruth, Cornwall during groundworks associated with the development of land for a builder's merchants, including storage, distribution, trade counter, offices, and ancillary retail sales.

The development zone was in an area of open, partial scrub land which did not contain any upstanding structures. The watching brief observed all belowground works, including ground reduction and service trenching. No previous structures or former mine shafts were noted. Most of the observed areas had been heavily disturbed and contained waste mining up-cast material or other modern disturbances.

Several potential mine shafts were recorded as being within the footprint of the new development site, but none were observed. This is potentially due to the deep depths of the overlying overburden and the shallow nature of the ground reduction in some areas. It is possible that some shafts may remain below the made ground.

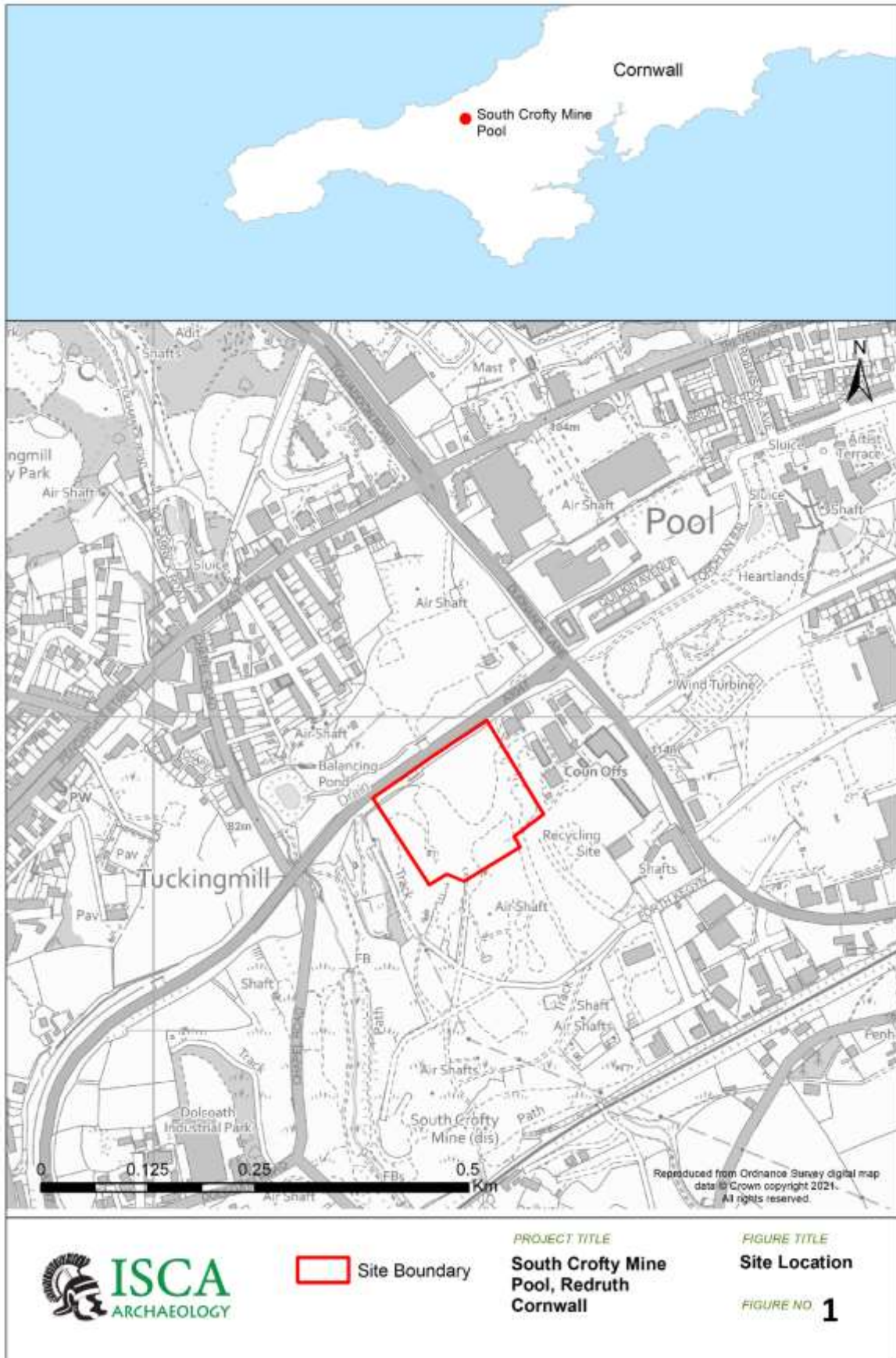


Figure 1: Site Location



1. INTRODUCTION

1.1 This document sets out a report of an archaeological watching brief carried out by ISCA Archaeology between 23 June – 28 October 2021 at South Crofty Mine, Pool, Redruth, Cornwall, centred at NGR SW 6645 4095 (Fig. 1). The watching brief was commissioned by Henry Boot Developments Ltd and was undertaken to fulfil Condition 8 attached to planning consent for the development of land for a builder's merchants, including storage, distribution, trade counter, offices, and ancillary retail sales (Planning ref: PA20/01939).

1.2 Condition 8 of the Conditional Planning Permission stated that:

A) No development shall take place until a programme of archaeological recording 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:

1. The programme and methodology of site investigation and recording
2. The programme for post investigation assessment
3. Provision to be made for analysis of the site investigation and recording
4. Provision to be made for publication and dissemination of the analysis and records of the site investigation
5. Provision to be made for archive deposition of the analysis and records of the site investigation
6. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation

B) No development shall take place other than in accordance with the Written Scheme of Investigation approved under condition (A).

C) The development shall not be 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 condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured.

D) The archaeological recording condition will normally only be discharged when all elements of the WSI including on site works, analysis, report, publication (where applicable) and archive work has been completed.

1.3 In addition to the above, Historic Environment Planning – Archaeology (HEP (Arch)) also provided information to guide and target the watching brief (dated 3rd November 2020) which focused on mine shafts and the potential for early workings to be revealed by ground disturbance and by further mining survey, as indicated by a geotechnical investigation report conducted by Terrafirma in 2019 (see 2.11 below).

1.4 The objective of the watching brief was to record all archaeological remains exposed during the development, and this report sets out the background, methodology and the results of the archaeological programme of works.

1.5 The watching brief was carried out in accordance with a detailed Written Scheme of Investigation (WSI) produced by ISCA Archaeology (2021) and drawn up in consultation with (HEP (Arch)) and approved by Peter Dudley, Senior Development Officer, Historic Environment Archaeologist, Cornwall Council. The WSI is attached to this final report (Appendix 3). The fieldwork was also carried out in line with the *Standard and Guidance for Archaeological Watching Brief* (ClfA 2020), and guided by the *Management of Research Projects in the Historic Environment PPN 3: Archaeological Excavation* (Historic England 2015) and *Management of Research Projects in the Historic Environment: Project Manager's Guide* (Historic England 2015) and in accordance with paragraph 199 of the *National Planning Policy Framework* (2019), and the *Cornwall Local Plan Policy 24*, which states:

‘Development proposals will be permitted where they would sustain the cultural distinctiveness and significance of Cornwall’s historic...environment by protecting, conserving and where appropriate enhancing the significance of designated and non-designated assets and their settings.’ (Cornwall Council 2016).

The Site

- 1.6 The proposed application site (henceforth referred to as ‘the Site’) is located within the boundaries of the former South Crofty Mine, in an area totalling approximately 1.2 hectares, which was, prior to works, open, partially scrubby ground (Fig. 1). Although the application area did not contain any upstanding remains, buildings and other structures associated with the mine lie to the east and south. The Site is bounded by Kerrier Way (A3047) to the north, open ground sloping downwards towards the Red River to the west, buildings of South Crofty Mine to the east, including the late 20th century headframe, and open higher ground to the south which were once former mining areas. Parts of the Cornwall and West Devon Mining Landscape World Heritage Site (WHS) lie to the north and south, as do several listed buildings and Tuckingmill Conservation Area, to the north.
- 1.7 The bedrock geology of the Site is mapped as Mylor Slate Formation - Hornfelsesd Slate and Hornfelsesd Siltstone, which formed approximately 359 to 383 million years ago in the Devonian Period, with no overlying superficial deposits. (BGS 2021).

2. ARCHAEOLOGICAL BACKGROUND

- 2.1 The Site has been the subject of a Heritage Desk Based Assessment (BSA Heritage Limited 2020), and the following section utilises information contained in that document.
- 2.2 Only a small number of Historic Environment Records (HER) in the locality of the Site are of pre-medieval date. Those closest to the Site, chance finds of early material and suggested sites given place-name evidence, are typical of most of these early records more widely. Approximately 300m north-west of the Site, HER 1794 records the findspot of a Neolithic stone adze, indicating activity in the area from this period.
- 2.3 Such early remains are likely to have been harmed by more recent mining-related development across the area. This is likely to have also had an adverse effect on Iron Age or Romano-British rounds or enclosed settlement sites that lie under 100m and under 200m south and east of the site, respectively. Other rounds have been postulated more widely and a Bronze Age round barrow is thought to have lain to the north-east.
- 2.4 Although more widely the HER records several settlements of medieval or earlier origins, none lie close to the site. Other records are all post-medieval and often of 19th century date,

mostly related to the mining industry. Within the Site itself, a tramway ran through the area and is noted to have dated from at least the 1830s and run until after the Second World War (Figs. 21 – 23). The HER entry notes that the route can still be seen as a trackway elsewhere.

- 2.5 A further tramway is located to the north-east of the Site, and to the north was a 19th century engine house which powered the tramway and is marked on historic maps.
- 2.6 To the north of, and just within the Site, 20th century structures are noted on post-war aerial photographs. These were part of 'South Crofty Mine' and are noted to have been built after the early 20th century OS Map was published and have since been demolished. These buildings were recorded ahead of demolition (Thomas et al 2015) and are detailed in the Desk Based Assessment. No major buildings relating to the mine appear in any of the earlier maps (see sections 2.8 and 2.9 below), though there may be some unrecorded building remains present below ground.
- 2.7. Other potential heritage constraints to development include the Cornwall and West Devon Mining Landscape World Heritage Site (WHS): Camborne and Redruth District. Parts of this extensive area lie approximately 100m north of the Site and 150m to the south. The latest management plan for the WHS identifies the 'Grade II* listed mining buildings retained within the Heartlands redevelopment, circa South Crofty Mine, Pool, Redruth, Cornwall: Written Scheme of Investigation for an Archaeological Watching Brief' 8 400m east of the Site, as a key element of this part of the WHS, but nothing closer to the Site (Dancer & Cocks 2017).
- 2.8 A search of the Historic England Archive for aerial photographs it holds of the Site and its environs produced many oblique and vertical images. These images confirmed that, in the immediate post-World War II period, the Site remained as shown on Ordnance Survey maps, with a mainly open aspect and the route of the tramway still evident, running across the Site. The chimney also appears to have survived in the north-east of the Site. Oblique images suggest the site area had been levelled by this time, with the higher ground to the south evident.
- 2.9 By the 1960s, land to the north of the Site had been covered by several structures, which seem to have been large metal panel buildings in the main. A conveyor appears to have run east of these and partly within the Site on a similar alignment as the tramway. Many oblique

images dating to the 1980s and 1990s confirm that by then the Site held a three-silo feature, likely the primary ore bins, which had a covered, elevated conveyor running eastwards to it from the South Crofty headframe. This latter is not definitely in place before the 1980s. Other structures lay to the north of this and were all contiguous, with parts of the southernmost likely to have lain within the Site itself. By the 1990s, the structures appear to be derelict with holes in roof panels and walls apparent. Detail of this building, and its ancillary structures can be seen on an aerial photograph dating to 2001 on Google Earth.

- 2.10 A map of the historic landscape character supplied with the latest Cornwall HER data shows the area covered by the current application to all be classified as 'Industrial: disused'. Information supplied by the HER confirms that no Portable Antiquity Scheme finds have been made close to the Site.

Geophysical survey (Fig. 20)

- 2.11 A geotechnical survey (Terrafirma 2019) has noted the presence of three potential shafts. Due to the longevity of mining activity on the Site, the shafts could include early features, perhaps dating to the use of Copper Tankard, an 18th century copper mine (MCO39019) located to the south-west of the proposed development area, or other early mines in the local area, preceding the development of South Crofty; Cornwall's last working tin mine (MCO45907). These features are potentially significant for the evidential value they could provide for understanding the early history of mining in the area.

3. AIMS AND OBJECTIVES

- 3.1 The aims and objectives of the watching brief were to determine the presence or absence of archaeological deposits and/or remains, and if present, to record the character, date, location and preservation of any archaeological remains on Site; and to record the nature and extent of any previous damage to archaeological deposits or remains on Site.

4. METHODOLOGY - ARCHAEOLOGICAL WATCHING BRIEF

- 4.1 The definition of an archaeological watching brief is:

"a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land or underwater, where there is a possibility that archaeological deposits may be

disturbed or destroyed. The programme will result in the preparation of a report and ordered archive." (ClfA, 2020)

4.2 The purpose of an archaeological watching brief is to:

a). allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works

b). provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard. (ClfA 2020)

4.3 The fieldwork watching brief followed the methodology laid out within the WSI (ISCA 2021). An archaeologist was present during all intrusive works, comprising the observation of all belowground works, including ground reduction and service trenching (see Figs. 2 and 3 for location and extent). Groundworks undertaken outside of the development area defined within the WSI were also observed with a view to recording and understanding the nature of the buried deposits within the vicinity of the Site to allow for the further information to be entered onto the Historic Environment Record.

4.4 Where archaeological remains were present, each feature and context were recorded by written and measured descriptions and surveyed using a Leica GPS. All works were carried out in accordance with the *Code of Approved Practice* as set out by *the Chartered Institute for Archaeologists* (ClfA) and recorded according to ClfA guidelines and best practice.

4.5 Following machining, any archaeological features revealed were excavated by hand, planned, and recorded. Archaeological features were recorded on a pro-forma context sheet by written and measured description. All excavation of exposed archaeological features was carried out stratigraphically by hand and in accordance with the Code of Approved Practice as set out by the Chartered Institute for Archaeologists (ClfA) and recorded according to ClfA guidelines and best practice. All features/deposits were recorded by drawn plans (scale 1:10 and 1:50) and drawn sections (scale 1:10) and located using a site grid, which in turn was

surveyed using a Leica GPS with aOD levels. Deposits were also assessed for their paleoenvironmental potential (see section 7 below).

- 4.6 An adequate digital photographic record of all the archaeological works was compiled in both section and plan. All excavated trenches, areas, features, and deposits were photographed. A selection of representative feature group/area shots were also taken along with general working shots to illustrate the overall nature of the works. A photographic scale and north arrow were included in detailed photographs.
- 4.7 The archive from the watching brief is currently held by ISCA at their Exeter office. ISCA will make arrangements with the Royal Cornwall Museum for the deposition of the Site archive. A digital archive (comprising digital photographs and other relevant digital data) will be submitted to the Archaeological Data Service (ADS).
- 4.8 A summary of information from this project, as set out in Appendix 2, will be entered onto the OASIS online database of archaeological projects in Britain.

5. RESULTS

- 5.1 This section provides an overview of the watching brief results. Detailed summaries of the recorded contexts can be found in Appendix 1. No artefactual materials or paleoenvironmental deposits were recovered from the Site.
- 5.2 The natural geology consisted of a mid-yellow-brown compacted sandy silt with occasional sub-angular stones. It was exposed in Trenches 1 - 4 at varying depths of between 0.5m – 1.05m below the present ground surface. Trench 5 was not excavated to any significant depth, and the underlying natural substrate was not exposed.

Trench 1 – service trench (Figs. 2, 5 and 6)

- 5.3 This trench was located to the south-west of the main development area and consisted of a single trench, 0.5m wide and 0.95m deep and extended for 82m. The trench was excavated for the insertion of a temporary electric cable from the former sub-station, located within the Site, to the temporary construction compound near the site entrance. The southern extent of the trench consisted mainly of 0.1m of topsoil overlaying made ground of mining waste, 0.7m thick (Fig. 5). These deposits overlay the underlying natural substrate,

comprising a yellow-brown sandy silt. The underlying substrate was visible only to the southern extent of the trench. The remainder of this trench was solely cut through mining waste (Fig. 6). These deposits consisted of mixed large angular stones, gravels, and fine sands.

5.4 **Trench 2 – service trench (Figs. 2, 6, 7, 8 and 9)**

Trench 2 was located on the outer extent of the main development area and was excavated as to re-route the high-voltage electric cables that supplied South Croft Mine (Fig. 8), to the north-east. The trench was generally 0.55m wide and 1.5m deep, although it reached maximum dimensions of 2m wide and 2m deep to the north-west, near to the site entrance (Fig. 7). The central extent of this trench (Fig. 6) was solely cut through waste up-cast material (201), similar to (103) noted within Trench 1. To the north-east, where the trench ran parallel with Kerrier Way, the only material visible was associated with the recent construction of this road, including deposits mixed with concrete, tarmac, metal, and plastic rubbish (200). To the north of the trench, where it extended into the existing South Crofty Mine property, more modern material was noted. To the southern extent of this north-east branch of the trench, a concrete slab (202) was noted (Fig. 9). This slab was only partially visible in the trench, and it was unclear as to whether it represented either a building footing, or the capping for a former shaft.

Trench 3 – main ground reduction area (Figs. 2, 10, 11, 12 and 20)

5.5 This trench represented the main area of excavation, which required the reduction of the ground level down to a height of 104.1m aOD (impact level), which in turn was to be infilled with compacted materials back up to a height of 108.2m aOD, onto which the new retail structure was to be built. This reduction involved the removal of the underlying deposits by over 3m to the eastern side, but only by 0.2m to the western side. The area of ground reduction measured roughly 65m by 33m (2145m²). The eastern half of the excavated area was reduced to a level which exposed the underlying natural substrate. The underlying natural (303) was exposed at a level of 105.6m aOD at the eastern end (Figs. 2 and 11), and dipped down to the west, and as such was only seen in the eastern half. Sealing the natural substrate was a 0.1m thick layer of a compacted silty clay buried soil horizon (306), which represented the original ground level. Above the buried soil horizon was a 0.4m thick layer of firm silty sand material (305) with frequent charcoal, slag, metal and wood fragments which is likely to have derived from waste industrial deposits associated with the processing of the mined material. Due to the nature of the deposits/topography sloping downhill to the

west, the natural substrate and deposits (305) and (306) were only visible to the eastern half of the excavated area (Section AA: Fig. 12).

- 5.6 To the south and centre of the main excavation area was an area of heavily compacted soil, stone, and crushed mortar (302). This deposit measured roughly 2m wide by 0.2m deep and extended roughly 15m into the area, on a north/south alignment (Figs. 2, 10 and 20). This deposit extended beyond the southern limit of excavation but was truncated to the north.
- 5.7 Sealing both the compacted stone deposit (302) and the industrial waste layer (305) and extending across the entire extent of the area was a layer of made ground (300) which consisted of loose sandy silt and contained frequent modern material such as bricks, metals, and concrete (Section AA: Fig. 12). This deposit was only 0.2m thick to the eastern end but was at least 1.2m to the west. The full depth of this deposit was not observed to the west as it extended below the impact level and remained in-situ here.
- 5.8 To the south of the main area was the very partially exposed remains of a reinforced concrete and brick structure footing (301, Fig. 11) which is likely to have been a footing for the southern extent of the large metal panelled structure associated with the post-war ore processing plant (see Section 2.9).
- 5.9 The eastern extent of this area was covered by a compacted layer of modern rubble deposit (304) roughly 0.55m thick.

Trench 4 – service trench (Figs. 2, 3 and 13 – 16)

- 5.10 Trench 4 was excavated to facilitate the laying of a drainage pipe linking the development site with the existing drainage located downslope, close to the Red River stream to the west. The trench was roughly 0.55m wide, with wider extensions for the insertion of manholes, and a maximum of 2.2m deep. The lower, southern extent of the trench was located within scrubland to the north of Kerrier Way, and most of the trench was cut through modern made ground. To the very lower, western extent of the trench, the underlying natural substrate (406) was noted at a height of 87.1m aOD and was sealed by a 0.4m thick layer of subsoil (405).

- 5.11 To the very south-west of this trench was a 0.6m deep and at least 3m wide concave feature [403] was observed running on a north/south alignment (Section BB: Fig. 15). This possible ditch feature was aligned roughly north-west/south-east and clearly cut the underlying subsoil. The fill (402) of the ditch consisted of a clayey silt with occasional sub-angular stones. Although no artefactual material was recovered from the ditch; it is likely to have been of a relatively modern date as it clearly cut into the underlying firm clayey silt subsoil (405) below. Sealing this ditch was a deposit consisting of mixed sand, gravels, and crushed tarmac (401) that provided bedding for either the existing tarmac path (400) or an earlier sealed pathway.
- 5.12 To the northern extent of this trench, close to the existing site entrance, further mining deposits (410) and (411) were noted. These deposits extended below the base of the trench, at a depth of over 2.5m below the present ground level (Section CC: Fig. 16).

Trench 5 – car park and access road (Figs. 2 and 17 - 19)

- 5.13 The area to the southern extend of the development consisted of scrubland and a series of spoil heaps from former mining deposits to the south. To the south-east was an area of modern hardcore (500), 0.4m deep (Fig. 17). To construct the car park area the spoil heaps were levelled, and the underlying mining waste material (501) was graded. In the south-east corner of this area, the overlying hardcore was removed and the waste material was reduced by a maximum of 1.1m. Across the rest of this area the ground reduction was rarely more than 0.5m deep. The limited extent of the ground reduction here meant that only later deposits likely to have derived from landscaping for the construction of the post-war ore processing plant were removed. Any earlier structures, railway lines and/or suspected mine shafts would have potentially been buried deeper and were not exposed/disturbed during the construction of the car park.
- 5.14 The access road for the new car park leads from the Site entrance to the south-west corner of the new car park area and was built-up using material from the existing spoil heaps (Fig. 19). These areas were monitored, but not in detail once it was clear that there was no depth to the ground works here.

6. ARTEFACTUAL EVIDENCE

- 6.1 No artefactual material was recovered during the programme of the archaeological watching brief.

7. ENVIRONMENTAL EVIDENCE

- 7.1 All archaeological deposits were assessed for their paleoenvironmental potential, and no deposits were noted to have any potential.

8. DISCUSSION

- 8.1 No evidence of earlier mining or tin streaming activity was noted. However, the generally shallow nature of the works undertaken, combined with the often-deep overburden of later mining waste could have sealed deeper remains, and the presence of deeper, earlier activity may remain.
- 8.2 None of the known and potential shafts (Fig. 20) were observed. One suspected mine shaft was located within the excavation footprint of Trench 3, as recorded by the geotechnical survey undertaken in 2019 (TerraFirma 2019). No evidence of this, or any other former mine shafts were observed during the watching brief; however, the overlying made ground (300) to the western half of Trench 3 was not reduced to a depth where the underlying geological substrate was exposed, and the potential for un-recorded shafts remain.
- 8.3 The areas where other shafts/potential shafts had been recorded, were predominantly outside of the main reduction area (Trench 3) and service trenching areas (Trenches 1, 2 and 4). The locations of these shafts were to the south-east of the main area (Trench 3), where the ground was levelled for the new car park (Trench 5), but no significant belowground works were undertaken, and no mine shafts were observed. However due to the limited ground works here, the shafts may still be present.
- 8.4 Within the main excavation area (Trench 3), the heavily compacted soil, stone, and crushed mortar deposit (302) was located partially on the alignment of the former tramway associated with the North Crofty Branch Line (Figs. 21 - 23). This deposit may represent the very lowest compacted base for the former tramway line, the rest of which had been removed/truncated during the late 20th century.
- 8.5 The undated probable ditch [403] to the southern extent of Trench 4 was located within an area marked on the early 1908 Ordnance Survey Map (Fig. 22) as 'Stream Works'. The fill (402) consisted of a clayey silt with occasional small sub-angular stones as opposed to fine, well-sorted 'tailings' material which could have been associated with earlier tin extraction activity.

9. ISCA PROJECT TEAM

9.1 Fieldwork was undertaken by Simon Sworn and Tim Brown. This report was written by Simon Sworn and edited by C Playford Edits. The Illustrations were compiled by Tim Brown. The project was managed for ISCA Archaeology by Simon Sworn and Parris Stubbings.

10. REFERENCES

British Geological Survey 2021 *Geology of Britain Viewer* http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html (accessed 13 February 2021)

BSA Heritage Limited, 2020. South Crofty Redevelopment, Heritage Statement. BSA report ref: BSA 1972_1b

CIfA, 2020. *Standard and Guidance for Archaeological Watching Brief* Chartered Institute for Archaeologists

Dancer B. & Cocks A. 2017 Cornwall and West Devon Mining Landscape World Heritage Site Supplementary Planning Document Truro

Department of Communities and Local Government 2012 *National Planning Policy Framework*

ISCA Archaeology 2021. *South Crofty Mine, Pool, Redruth, Cornwall: Witten Scheme of Investigation for an Archaeological Evaluation. P02-00001*

Ministry of Housing Communities and Local Government 2019 *National Planning Policy Framework*

Terraforma, 2019. Geotechnical and Geo-environmental Site Investigation Report: Proposed Retail Development, South Crofty, Pool, Cornwall. 15072/1

Thomas N., Sharpe A. & Berry E. 2015 CPR Highway Scheme: South Crofty Mine, Pool, Cornwall – Historic Building Recording Truro (Cornwall Archaeology Unit report)

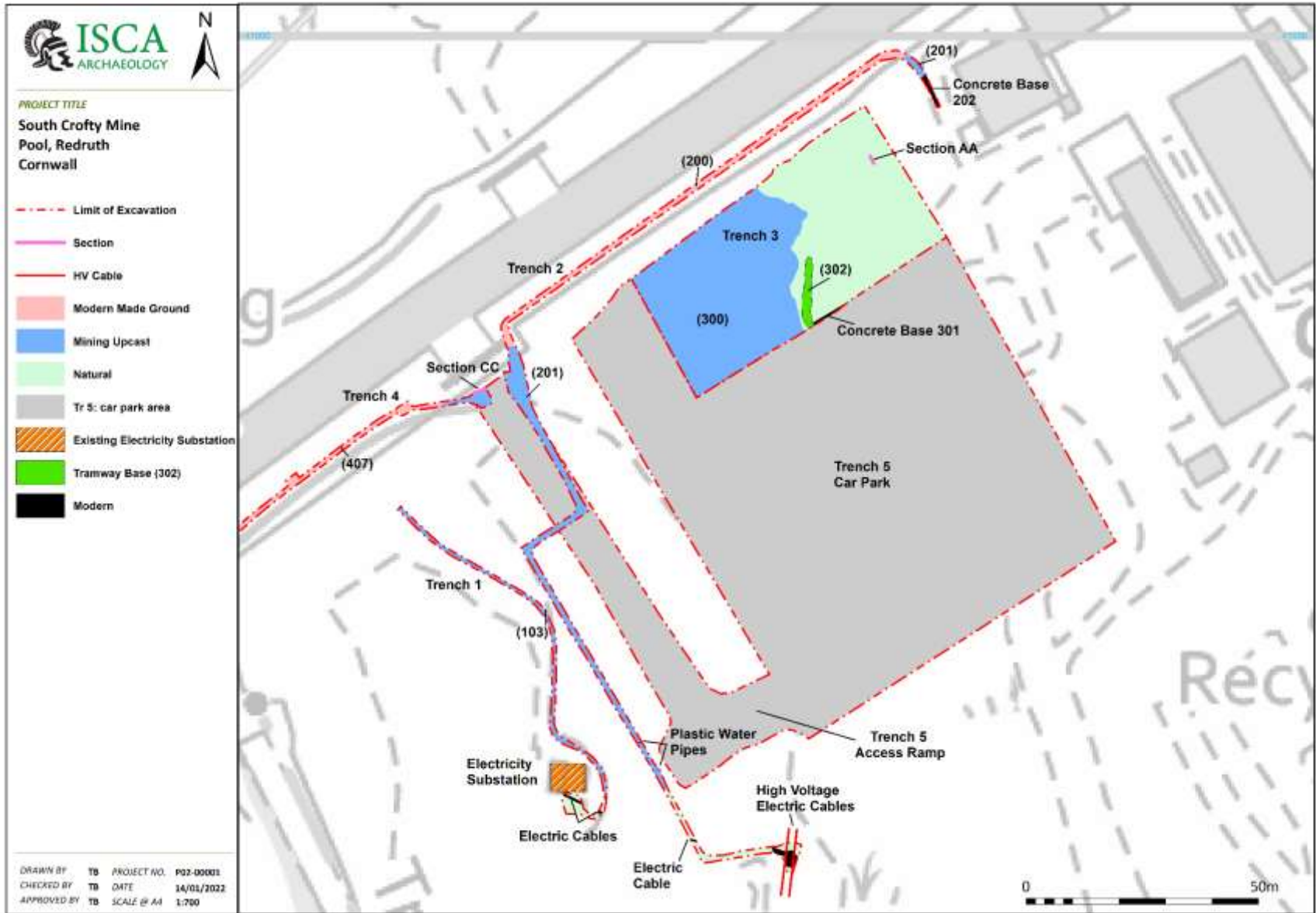


Figure 2: Site Plan - East



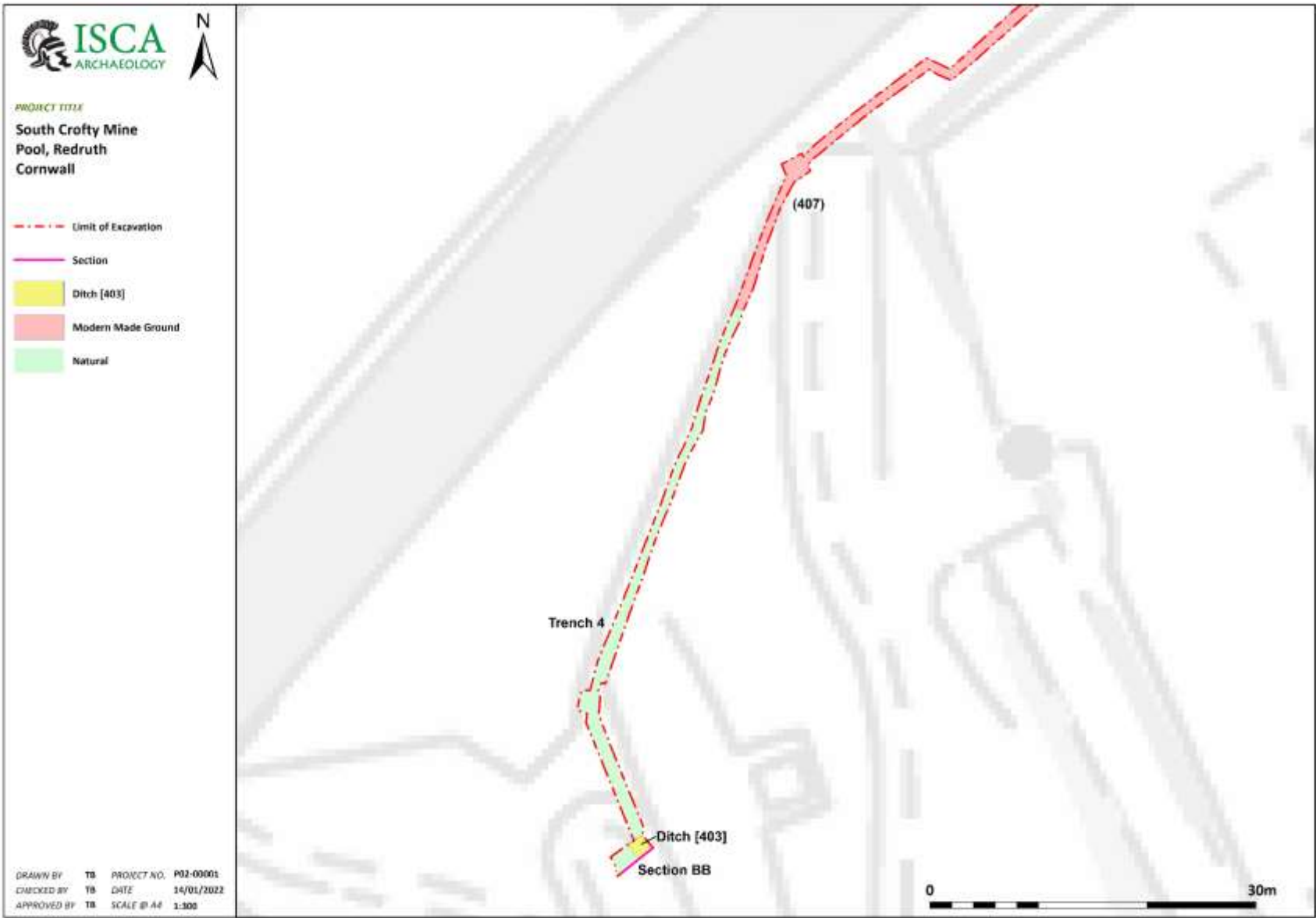


Figure 3: Site Plan - West





Figure 4: General view of site prior to commencement of works. View to the north-east



Figure 5: Trench 1, southern extent showing nature of deposits 101 and 102 to the south. View to the north



Figure 6: Trench 2 (centre), with Trench 1 to right. Showing nature of buried deposits 201. Scale at 1m. View to the south-east






Figure 7: Trench 2, near to site entrance to the north, showing nature of buried deposits 201. Scale at 1m. View to the north 




Figure 8: Trench 2, southern extent, showing modern electric cables and nature of buried deposits. Scale at 1m. View to the south 



Figure 9: Trench 2, concrete slab 202. Scale at 1m. View to the north-west 



Figure 10: Trench 3, compacted stone railway footing 302. Scale at 1m. View to the north



Figure 11: Trench 3, general view with brick structure 301 to left. Scale at 1m. View to the south-west



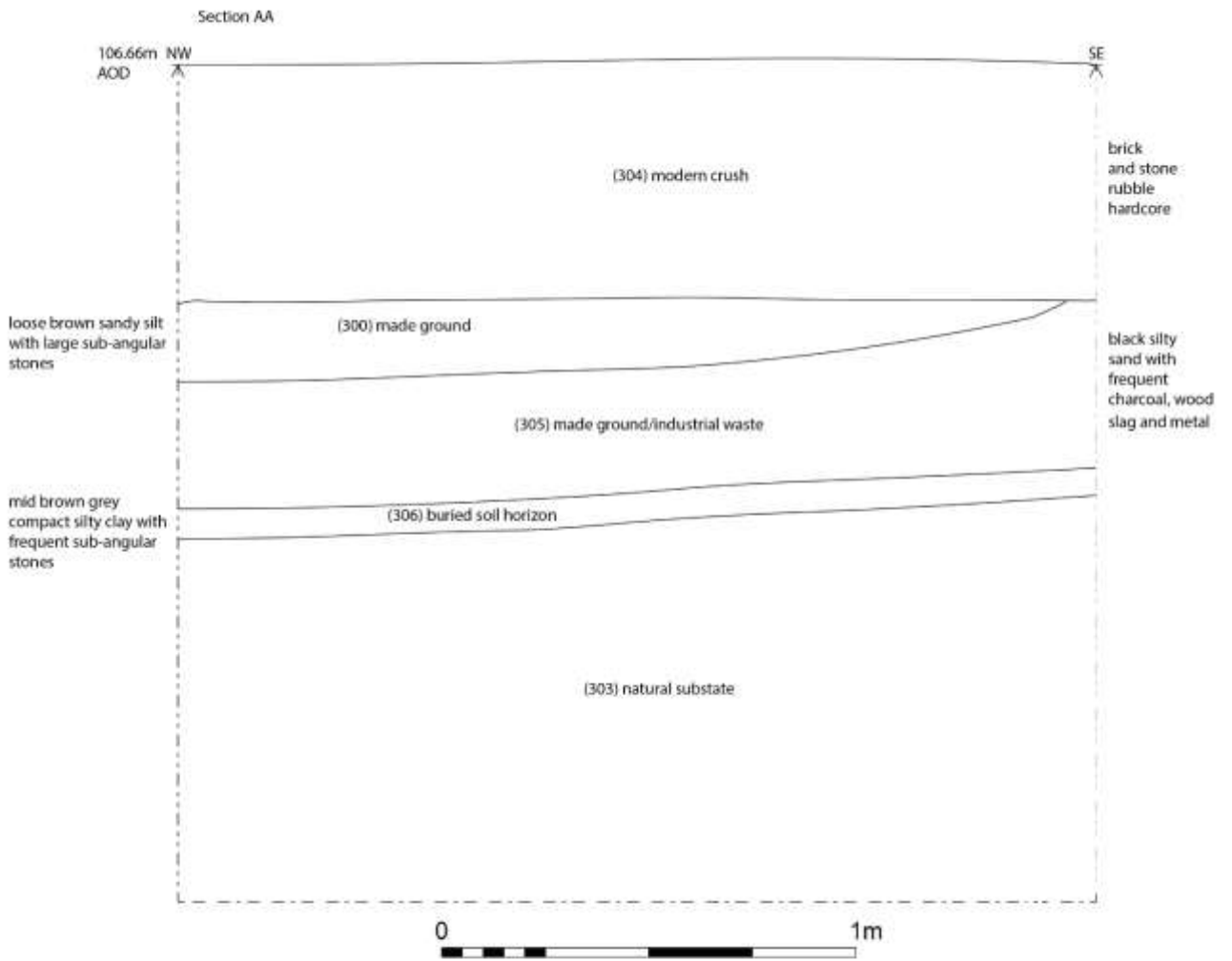


Figure 12: Trench 3, Section AA and photograph. Scale at 1m. View to the north-east





Figure 13: General view of western end of Trench 4. Scale at 1m. View to the south-west



Figure 14: General view of eastern end of Trench 4. View to the west



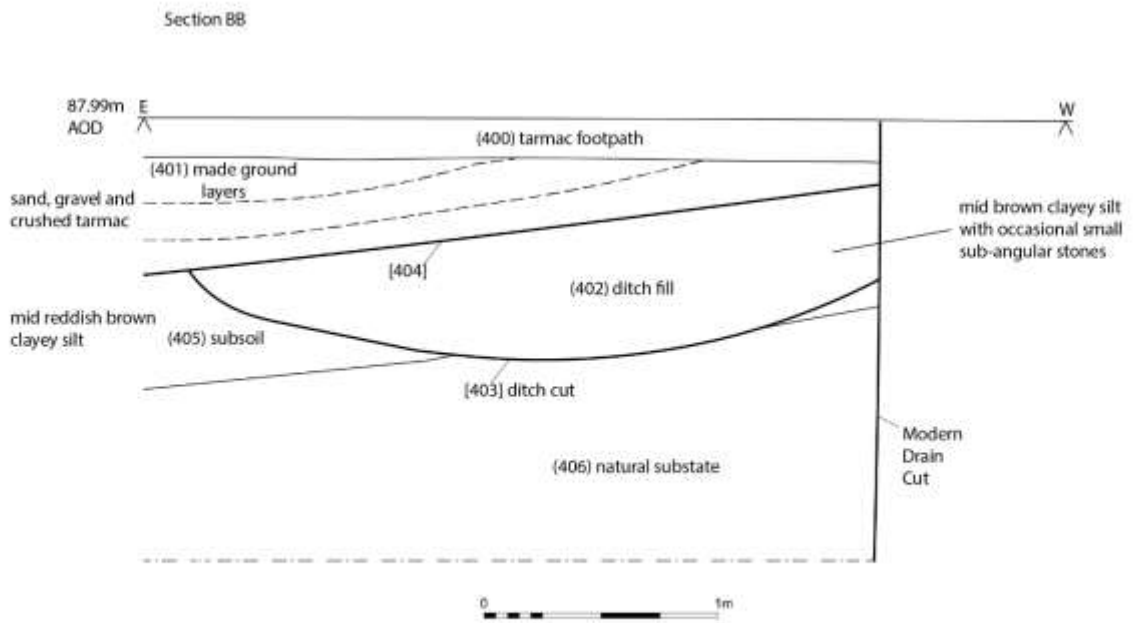


Figure 15: Trench 4, Section BB and photograph. Scale at 1m. View to the south



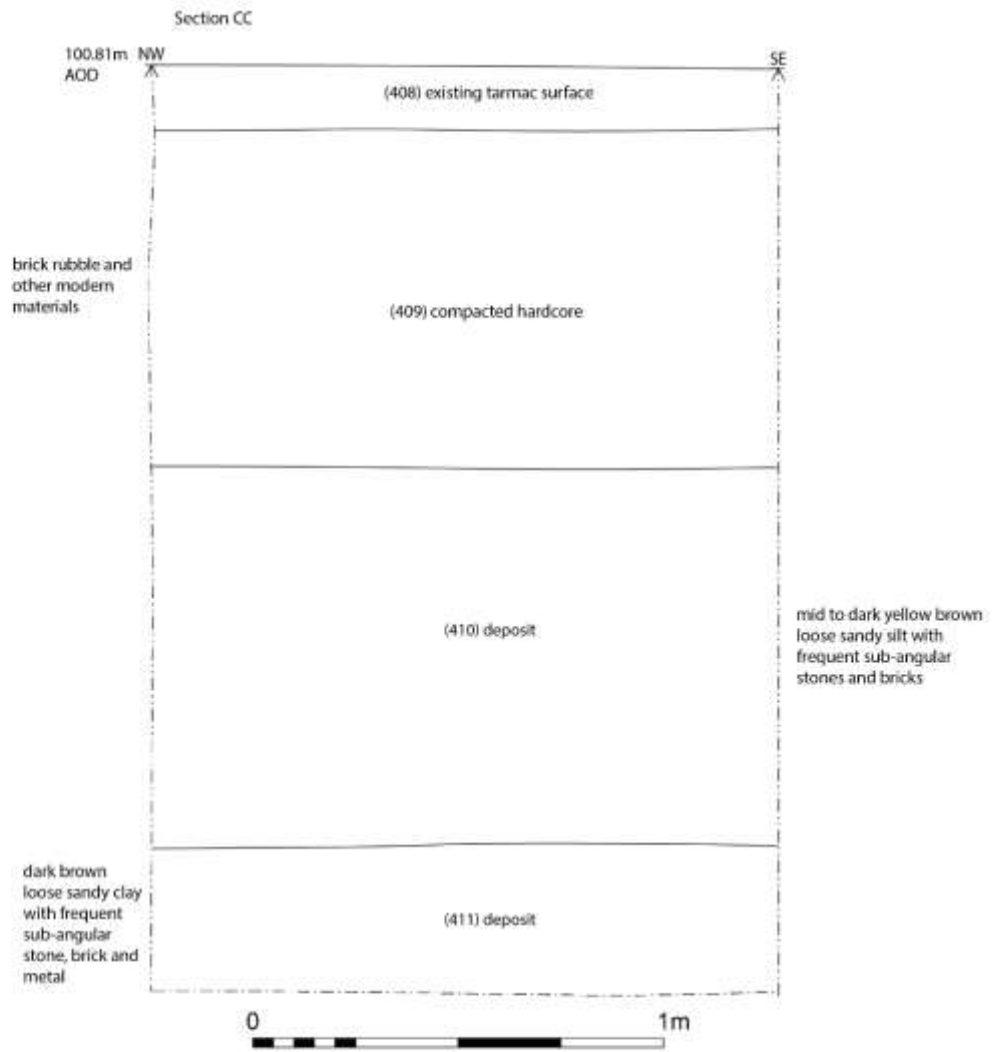


Figure 16: Trench 4. Section CC and photograph. Scale at 1m. View to the north





Figure 17: Trench 5 - Removal of modern made ground to the south-east corner of car park. View to East



Figure 18: Trench 5 - car park and access road. View to north-west



Figure 19: Trench 5 - Access Road leading from site entrance to raised car park. View to south-east



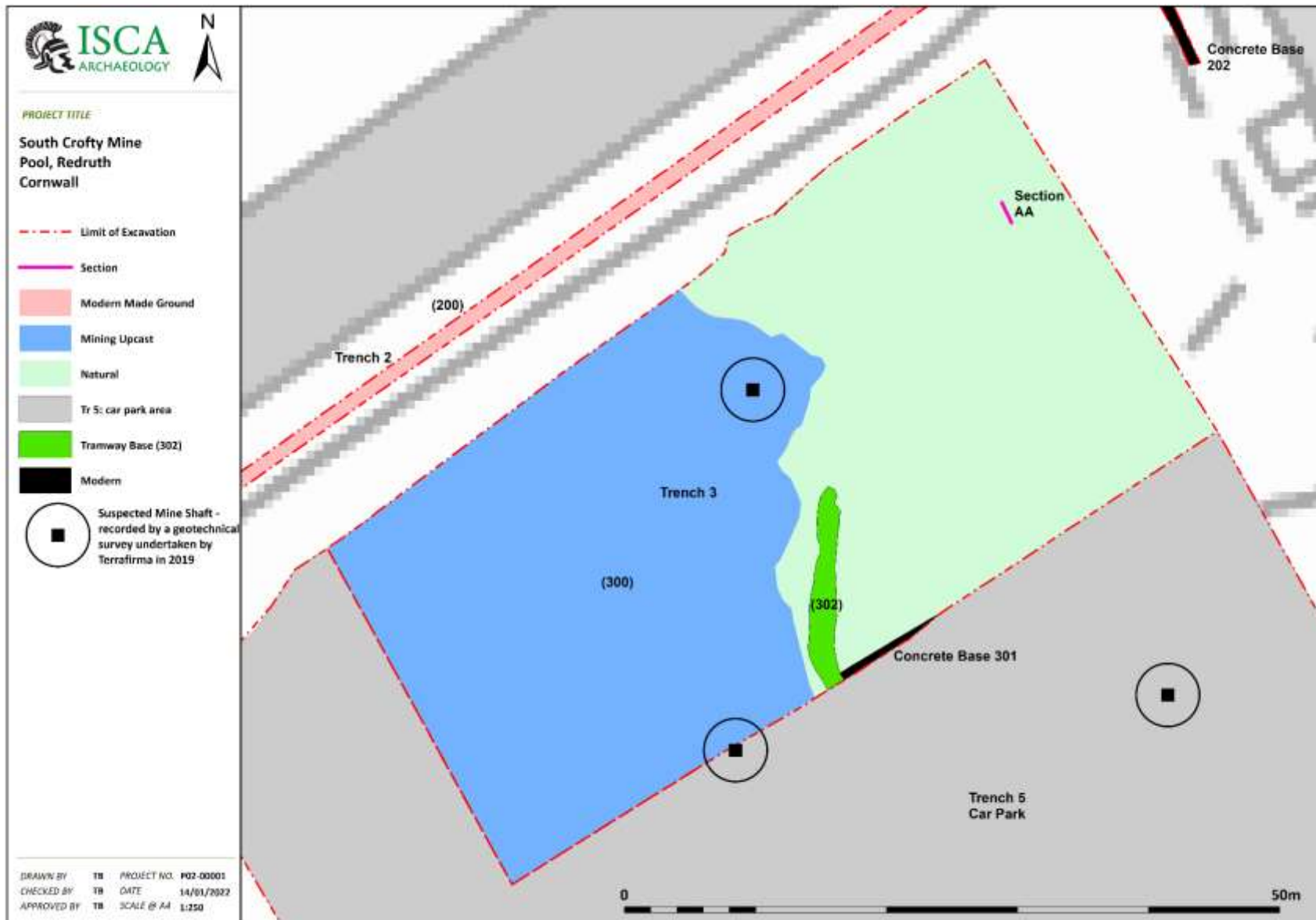


Figure 20: Plan of Trench 3 and location of suspected mine shafts



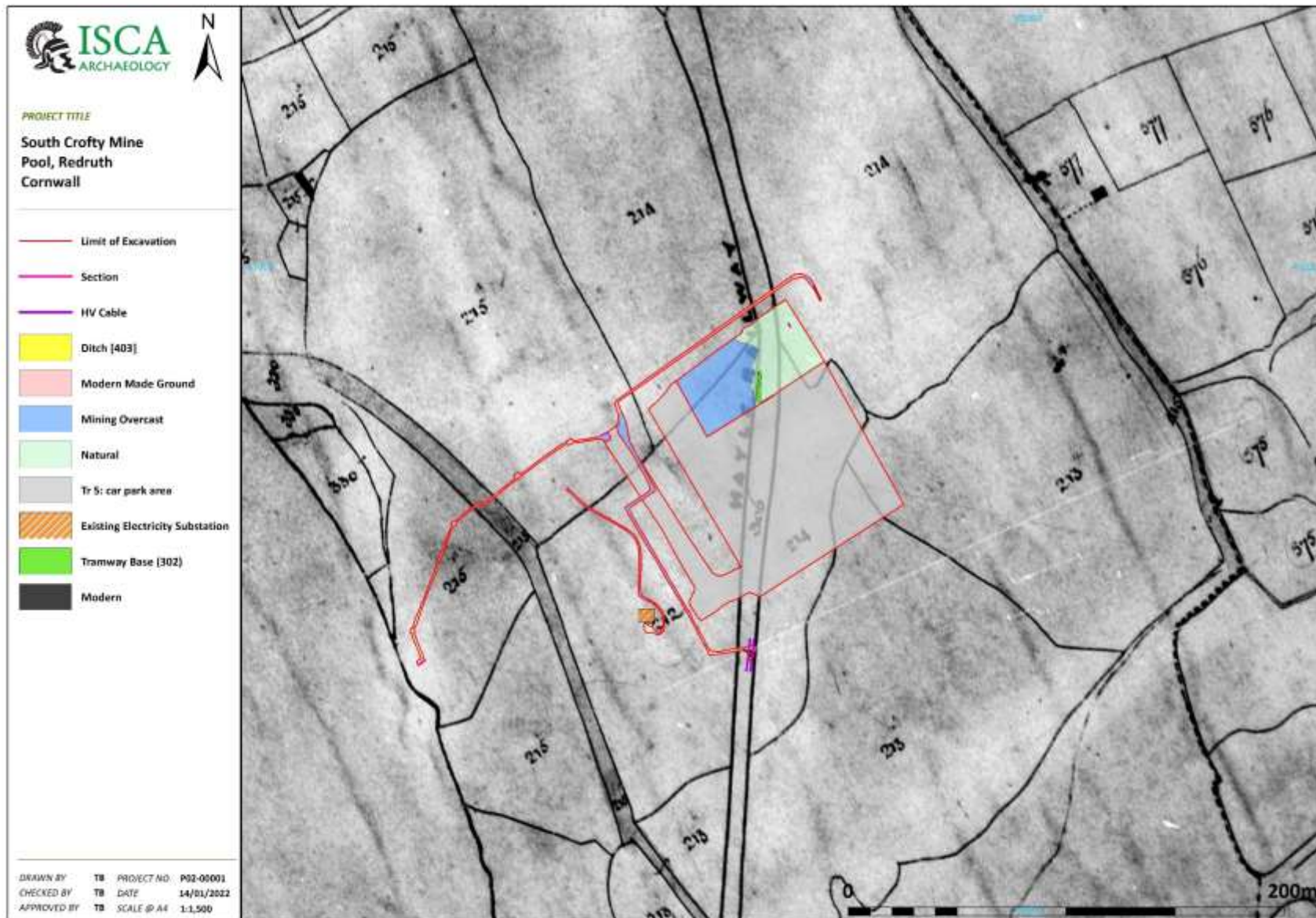


Figure 21: Illogan Tithe Map 1840



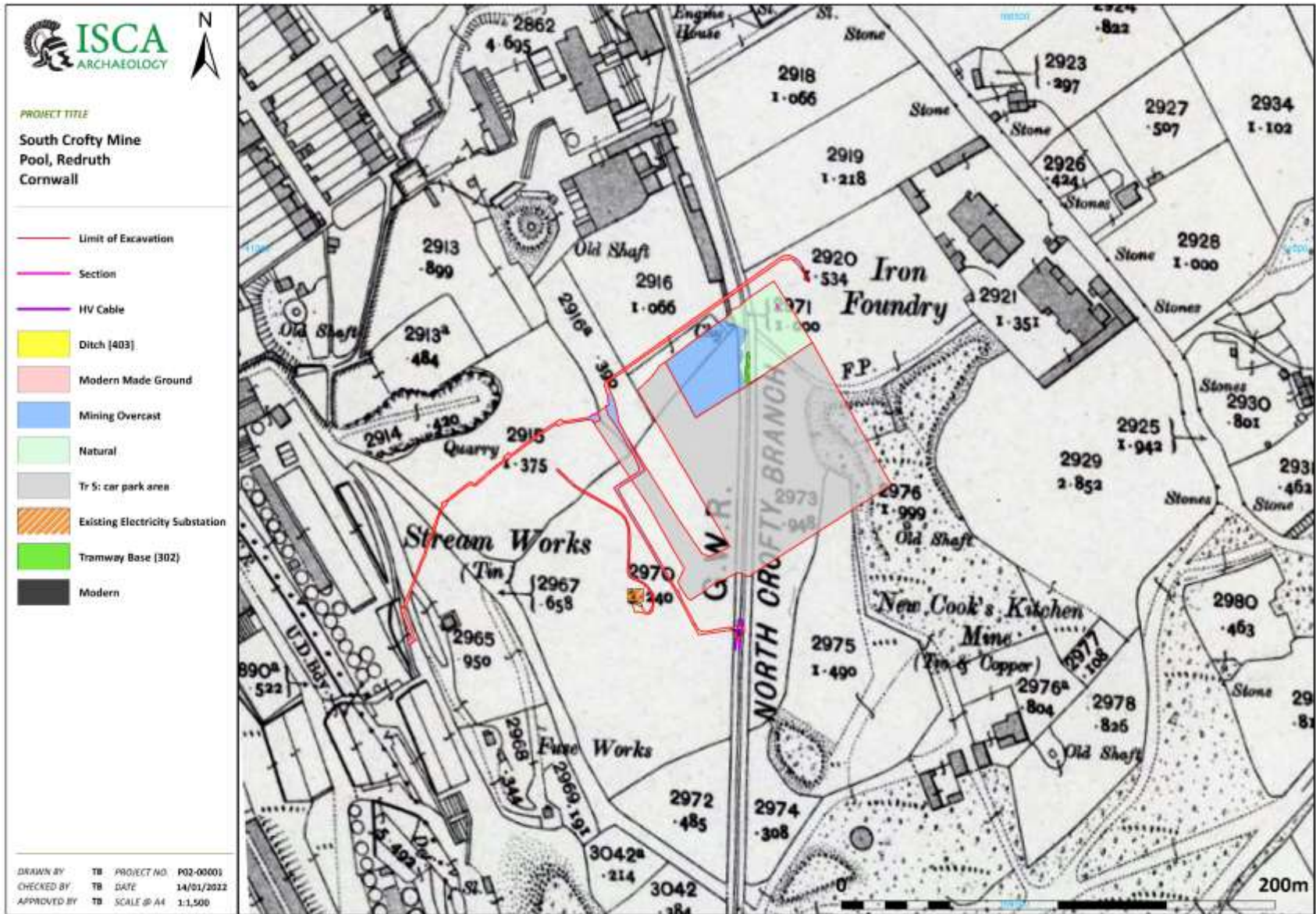


Figure 22: 2nd Edition Ordnance Survey Map 1908



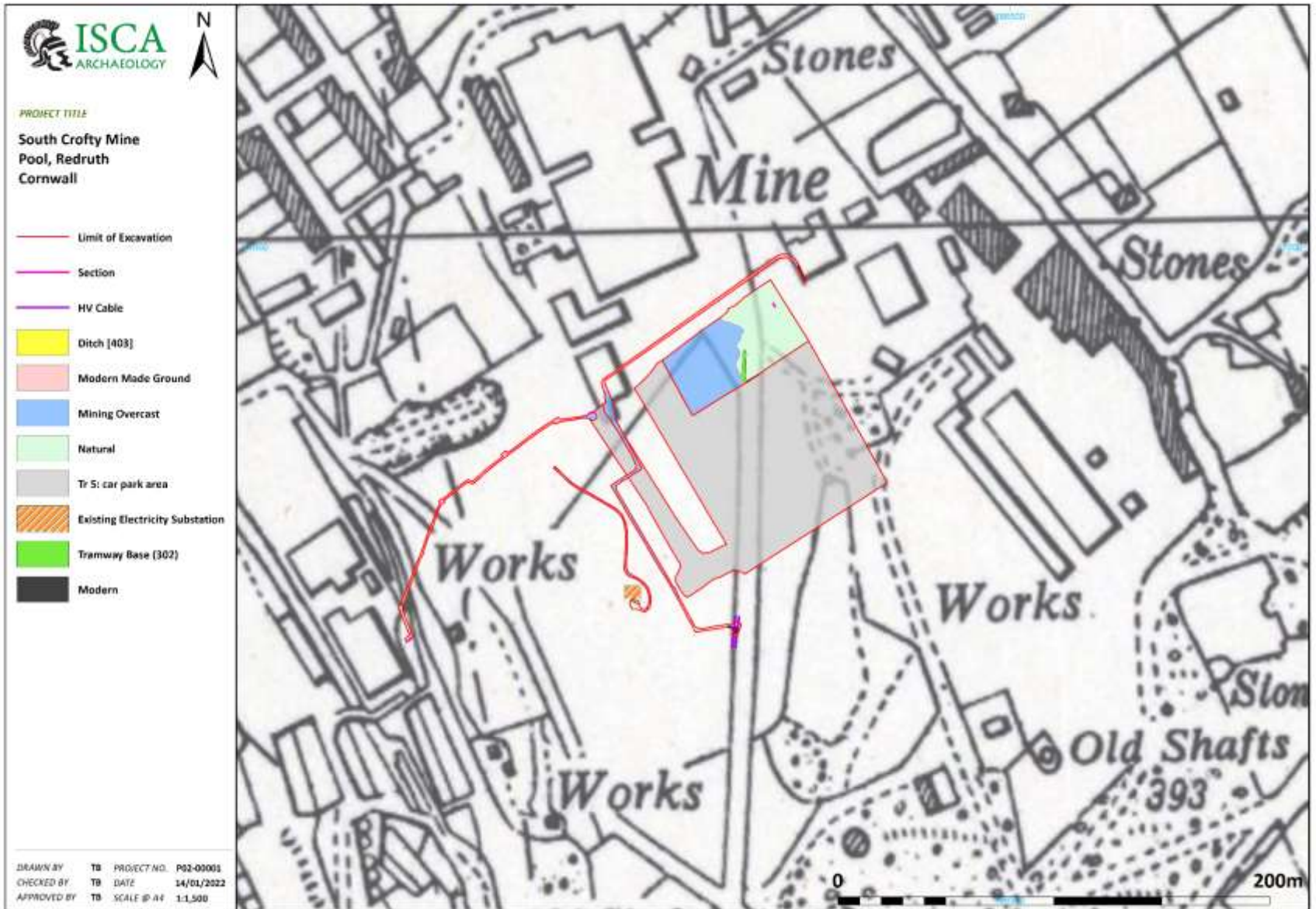


Figure 23: 1:10,560 Ordnance Survey Map 1963



APPENDIX 1: CONTEXT DISCRIPTIONS (BY TRENCH)

Trench 1				Length – 82m	Width – 0.5m	Depth – 0.95m	Orientation – NW/SE	
Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
100	Layer		Concrete	Modern concrete slab to south of electricity substation	5.1	2.1	0.08	
101	Layer		Topsoil	Dark brown loose sandy silt, with occasional small sub-angular stones	>9	>0.5	0.1	
102	Layer		Natural	Mid yellow-brown compact sandy silt, with occasional sub-angular stones	>10	>5.5	-	
103	Layer		Made ground/ mining up-cast	Mid yellow-brown firm sandy silt, with occasional small sub-angular stones	>82	>0.5	>0.95	

Trench 2				Length – 266m	Width – 2m (max) - top	Depth – 2m	Orientation – Various	
Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
200	Layer		Made ground	Mixed topsoil and modern construction waste material	>100	>2	0.3	21st C
201	Layer		Made ground/ mining up-cast	Mid yellow-brown firm sandy silt, with occasional small sub-angular stones	>100	>2	>2	
202	Layer		Concrete	Concrete slab to east. Only exposed in plan	7.4	>1	-	
203	Layer		Natural	Mid yellow-brown compact sandy silt, with occasional sub-angular stones	>48	>1.5	-	

Trench 3				Length – 65m	Width – 33m	Depth – 3.1m (max)	Orientation – NE/SW	
Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
300	Layer		Made ground	Mid brown loose sandy silt with frequent large sub-angular stones and modern material (concrete, metal etc). Same as 501	>64	>34	>1.05	
301	Layer		Concrete	Poured concrete and 're-bar' footing. Only partially exposed to southern extent of trench	>8.1	>0.45	>1.1	
302	Layer		Made ground	Heavily compacted crushed mortar deposit, aligned north/south	15	2	0.2	
303	Layer		Natural	Mid yellow-brown compact sandy silt, with occasional sub-angular stones	>64	>34	-	
304	Layer		Made ground	Modern brick rubble hardcore	>64	>34	0.84	
305	Layer		Made ground/ industrial waste	Black firm silty sand with frequent charcoal, wood, slag, and metal	>34	35	0.4	
306	Layer		Soil horizon	Mid brown-grey compact silty clay, with frequent medium sub-angular stones	>34	35	0.1	

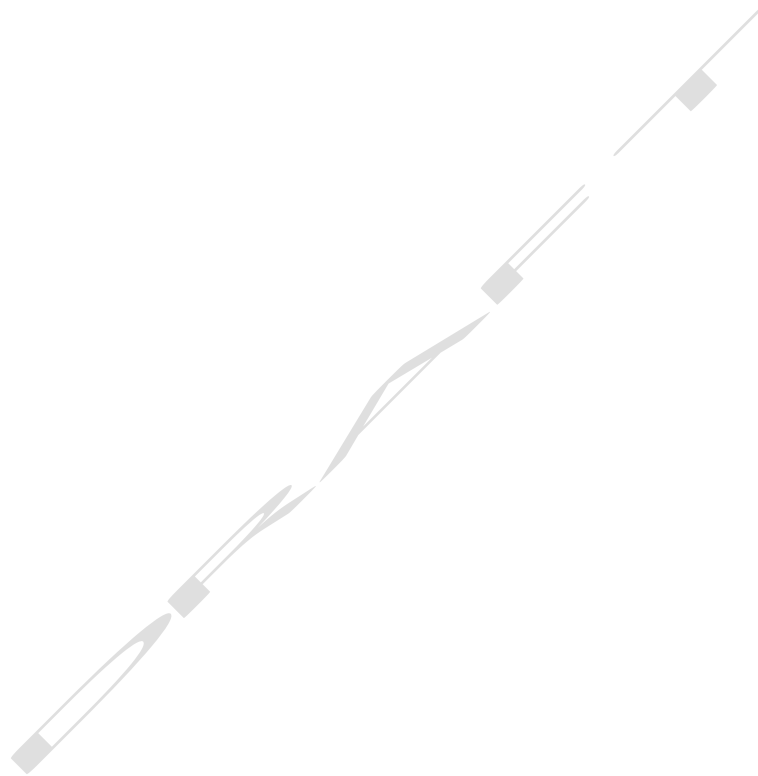
Trench 4 Length – 140m Width – 1.7m (max) Depth – 2.02m (max) Orientation – Various								
Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
400	Layer		Tarmac	Existing footpath	>1.7	>3.2	0.18	
401	Layer		Made ground	Mixed sand, gravel and crushed tarmac bedding for 400	>1.7	>3.2	0.5	
402	Fill	403	Ditch/gully	Mid brown clayey silt with occasional small sub-angular stones	>1.7	>3	0.74	
403	Cut		Ditch/gully	Shallow, wide cut for either a ditch/gully or earlier pathway	>1.7	>3	0.74	
404	Cut		Terrace	Shallow truncation for existing pathway 400	>1.7	>3.2	0.5	
405	Layer		Subsoil	Mid reddish brown firm clayey silt	>54	>3.2	>3.2	
406	Layer		Natural	Mid yellow-brown compact sandy silt, with occasional sub-angular stones	>54	>3.2	-	
407	Layer		Made ground	Mixed topsoil and modern construction waste material	>75	>0.6	>1.8	
408	Layer		Tarmac	Modern tarmac and gravel bedding for existing site entrance	>2.5	>2.2	0.15	
409	Layer		Made ground	Compacted hardcore with brick rubble and other modern materials.	>4.5	>2.2	0.8	
410	Layer		Made ground/ mining up-cast	Mid-dark yellowish brown loose sandy silt with frequent sub-angular stones and bricks. Similar to 201	>4.5	>2.2	0.93	
411	Layer		Made ground/ mining up-cast	Dark brown loose sandy clay with frequent sub-angular stones, bricks, and metal waste	>4.5	>2.2	>0.32	

Trench 5 Length – 100m Width – 75m (max) Depth – 1.4m (max) Orientation – NW-SE								
Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
500	Layer		Made ground	Compacted hardcore with brick rubble and other modern materials.	>100	>75	0.4	
501	Layer		Made ground	Mid brown loose sandy silt with frequent large sub-angular stones and modern material (concrete, metal etc). Same as 300	>100	>75	>1.1	

APPENDIX 2: OASIS FORM

OASIS ID (UID)	iscaarch2-503425
Project Name	South Crofty Mine, Pool, Redruth, Cornwall. Archaeological Watching Brief
Activity type	Watching Brief
Project Identifier(s)	P02-00001
Planning Id	PA20/01939
Reason For Investigation	Planning requirement
Organisation Responsible for work	ISCA Archaeology
Project Dates	22-Jun-2021 - 28-Oct-2021
Location	South Crofty Mine, Pool, Redruth, Cornwall NGR : SW 66450 40950 LL : 50.2223355618135, -5.27551649933782 12 Fig : 166450,40950
Administrative Areas	Country : England County : Cornwall District : Cornwall Parish : Carn Brea
Project Methodology	The fieldwork watching brief followed the methodology laid out within the WSI (ISCA 2021). An archaeologist was present during all intrusive works, comprising the observation of all below ground works, including ground reduction and service trenching
Project Results	<p>An archaeological watching brief was undertaken by ISCA Archaeology between June and October 2021 at South Crofty Mine, Pool, Redruth, Cornwall during groundworks associated with the development of land for a builder's merchants, including storage, distribution, trade counter, offices, and ancillary retail sales.</p> <p>The development area was in an area of open, partial scrub land which did not contain any upstanding structures. The watching brief observed all below ground works, including ground reduction and service trenching. No previous structures or former mine shafts were noted. Most of the observed areas had been heavily disturbed and contained waste mining up-cast material or other modern disturbances.</p> <p>Several potential mine shafts were recorded as being within the footprint of the new development site, but none were observed. This is potentially due to the deep depths of the overlying overburden and the</p>

	shallow nature of the ground reduction in some areas. The possibility is some shafts may remain below the made ground.
Keywords	
HER	Cornwall and Scilly HER - unRev - STANDARD
HER Identifiers	
Archives	Physical Archive, Digital Archive - to be deposited with Royal Cornwall Museum





**South Crofty Mine
Pool, Redruth
Cornwall**

(NGR SW 6645 4095)

Written Scheme of Investigation for an Archaeological
Watching Brief

ISCA Project: P02-00001

Site code: SCMR21

March 2021

ISCA Archaeology Limited
39D New Bridge Street
Exeter
Devon
EX4 3AH
07943204239
contactus@iscaarch.co.uk
www.iscaarch.co.uk

©ISCA Archaeology

Written By: Simon Sworn, ACIfA

Checked by: Sarah Stubbings

Produced by ISCA for: Henry Boot Developments Ltd

SUMMARY

This Written Scheme of Investigation has been prepared by ISCA Archaeology Limited, on behalf of Henry Boot Developments Limited, for archaeological works to be undertaken ahead of the proposed works at South Crofty Mine, Pool, Redruth, Cornwall, for the development of land for a builder's merchants, including storage, distribution, trade counter, offices and ancillary retail sales. The proposed application site is located within the boundaries of the former South Crofty Mine, in an area totalling approximately 1.2 hectares, which is open, partially scrubby ground. The application area does not contain any upstanding remains; buildings and other structures associated with the mine lie to the east and south. Parts of the Cornwall and West Devon Mining Landscape World Heritage Site lie to the north and south, as do several listed buildings and Tuckingmill Conservation Area, to the north.

A Heritage Desk Based Assessment for the site was carried out by BSA Heritage Limited 2020 and concluded that, although there are scattered prehistoric and Romano-British remains within the vicinity, these are likely to have been harmed by more recent mining related development across the area. A geotechnical investigation has highlighted the presence of three known shafts and four suspected shafts. Any archaeological impacts on the site are likely to be minor but will require a watching brief to assess and record the below ground works and any un-recorded structural remains associated with earlier mining activity, especially in the areas around these mine shafts.

CONTENTS

1. INTRODUCTION.....	<u>404</u>
2. ARCHAEOLOGICAL BACKGROUND	<u>426</u>
3. AIMS AND OBJECTIVES	<u>459</u>
4. METHODOLOGY - ARCHAEOLOGICAL WATCHING BRIEF	<u>459</u>
5. STAFF AND TIMETABLE	<u>5014</u>
6. POST-EXCAVATION, ARCHIVING AND REPORTING	<u>5014</u>
7. HEALTH AND SAFETY	<u>5216</u>
8. INSURANCES AND QUALITY CONTROL	<u>5317</u>
9. MONITORING	<u>5317</u>
10. QUALITY ASSURANCE.....	<u>5418</u>
11. REFERENCES	<u>5418</u>

Figure 1: Updated Heritage Information

Figure 2: Site and HER Records

Figure 3: Historic map excerpts

Figure 4: 1908 Map

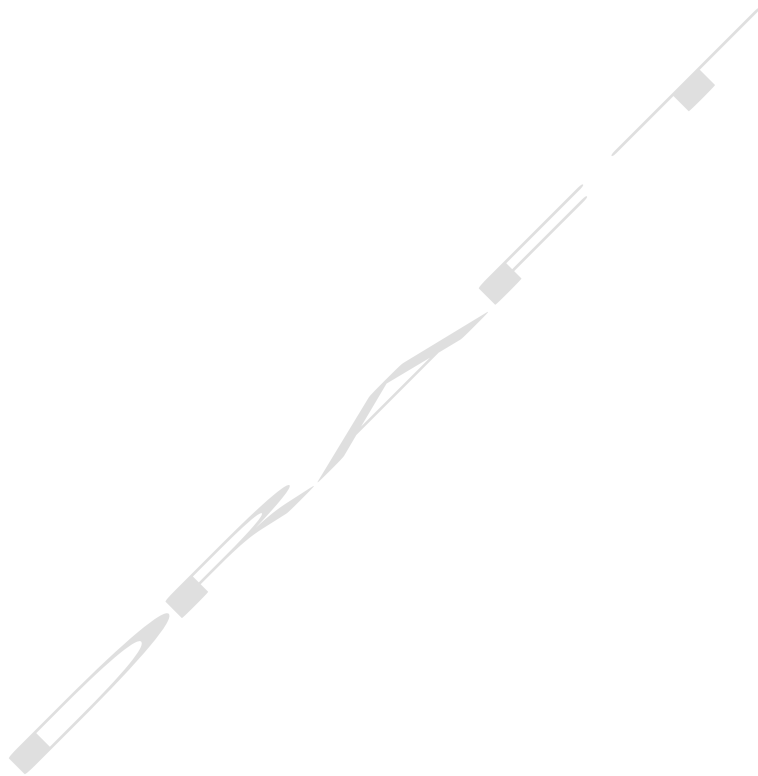
Figure 5: Ordnance Survey Map 1938

Figure 6: Ordnance Survey Map 1979

Figure 7: Proposed building layout plan

Figure 8: Location of known shafts

Figure 9: Location of known and suspected mine shafts in relation to the proposed new buildings



1. INTRODUCTION

1.1 This document sets out details of a *Written Scheme of Investigation* (WSI) by ISCA Archaeology (ISCA) for an archaeological watching brief at South Crofty Mine, Pool, Redruth, Cornwall, centred at NGR SW 6645 4095. The watching brief has been commissioned by Henry Boot Developments Limited. The WSI sets out the methodology for the archaeological works to be undertaken ahead of the proposed works, and for related off-site analyses and reporting. The WSI and the schedule of work it proposes were drawn up in consultation with Historic Environment Planning - Archaeology (HEP (Arch)).

1.2 Works on this site are being undertaken as part of planning application PA20/01939 for the development of land for a builder's merchants, including storage, distribution, trade counter, offices and ancillary retail sales.

1.3 Condition 8 of the Conditional Planning Permission states that:

A) No development shall take place until a programme of archaeological recording 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:

1. The programme and methodology of site investigation and recording
2. The programme for post investigation assessment
3. Provision to be made for analysis of the site investigation and recording
4. Provision to be made for publication and dissemination of the analysis and records of the site investigation
5. Provision to be made for archive deposition of the analysis and records of the site investigation
6. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation

B) No development shall take place other than in accordance with the Written Scheme of Investigation approved under condition (A).

C) The development shall not be 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 condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured.

D) The archaeological recording condition will normally only be discharged when all elements of the WSI including on site works, analysis, report, publication (where applicable) and archive work has been completed.

1.4 In addition to the above, HEP (Arch) has also provided information to guide and target the watching brief (dated 3rd November 2020) which focuses on mine shafts and the potential for early workings to be revealed by ground disturbance and by further mining survey, as indicated by a geotechnical investigation report conducted by Terrafirma in 2019 (see 2.10 and 4.10 below).

1.5 The HEP (Arch) consider it prudent that an archaeological watching brief should be carried out during the early stages of groundworks (including the further investigations of the mine shafts and shallow workings), undertaken by a suitably qualified organisation or individual. HEP (Arch) advised, for the above reasons, that any consent issued should carry the condition, as worded above, of sections A-D inclusive, as well as section D1 below, as recommended by the Association of Local Government Archaeological Officers (ALGAO), as follows:

D1) The archaeological recording condition will normally only be discharged when all elements of the WSI, including on site works, analysis, report, publication (where applicable) and archive work has been completed.

1.6 A pre-commencement condition is necessary in this instance due to the need to ensure that a programme and methodology of site investigation and recording of archaeological features is undertaken before physical works commence on site. This is in accordance with the provisions of NPPF (2019) Chapter 16, paragraph 199 and Cornwall Local Plan policy 24.

- 1.7 This WSI has been guided in its composition by *Standard and Guidance for Archaeological Watching Briefs* (ClfA 2020), *Management of Research Projects in the Historic Environment PPN 3: Archaeological Excavation* (Historic England 2015) and *Management of Research Projects in the Historic Environment: Project Manager's Guide* (Historic England 2015) and in accordance with paragraph 199 of the *National Planning Policy Framework* (2019), and the *Cornwall Local Plan Policy 24*, which states:

'Development proposals will be permitted where they would sustain the cultural distinctiveness and significance of Cornwall's historic...environment by protecting, conserving and where appropriate enhancing the significance of designated and non-designated assets and their settings.' (Cornwall Council 2016).

The site

- 1.8 The proposed application site (henceforth referred to as 'the Site') is located within the boundaries of the former South Crofty Mine, in an area totalling approximately 1.2 hectares, which is open, partially scrubby ground (Fig 1). Although the application area does not contain any upstanding remains, buildings and other structures associated with the mine lie to the east and south. The Site is bounded by Kerrier Way (A3047) to the north, open ground sloping downwards towards the Red River to the west, buildings of South Crofty Mine to the east, including the late 20th century headframe, and open, higher ground to the south. Parts of the Cornwall and West Devon Mining Landscape World Heritage Site (WHS) lie to the north and south, as do several listed buildings and Tuckingmill Conservation Area, to the north.
- 1.9 The bedrock geology of the Site is mapped as Mylor Slate Formation - Hornfelsed Slate and Hornfelsed Siltstone, which formed approximately 359 to 383 million years ago in the Devonian Period, with no overlying superficial deposits. (BGS 2021).

2. ARCHAEOLOGICAL BACKGROUND

- 2.1 The Site has been the subject of a Heritage Desk Based Assessment (BSA Heritage Limited 2020) and the following section utilises information contained in that document.

- 2.2. Only a small number of Historic Environment Records (HER) in the locality of the site are of pre-medieval date. Those closest to the site, chance finds of early material and suggested sites given place-name evidence, are typical of most of these early records more widely. Approximately 300 metres north-west of the site, HER 1794 records the findspot of a Neolithic stone adze, indicating activity in the area from this period.
- 2.3 Such early remains are likely to have been harmed by more recent mining-related development across the area. This is likely to have also had an adverse effect on Iron Age or Romano-British rounds or enclosed settlement sites that lie under 100 meters and under 200 metres south and east of the site, respectively. Other rounds have been postulated more widely and a Bronze Age round barrow is thought to have lain to the north east.
- 2.4 Although more widely the HER records several settlements of medieval or earlier origins, none lie close to the site. Other records are all post-medieval and often of 19th century date and most are related to the mining industry. Within the Site itself, a tramway would have crossed through and is noted to have dated from at least the 1830s and run until after the Second World War. The HER entry notes that the route can still be picked up as trackway in places.
- 2.5 A further tramway is located to the north-east of the site, and to the north of the site was a 19th century engine house marked on historic maps, which powered the tramway.
- 2.6 To the north of, and just within the Site, 20th century structures are noted on post-war aerial photographs. These were part of 'South Crofty Mine' and are noted to have been built after the early 20th century OS Map and to have since been demolished. These buildings were recorded ahead of demolition (Thomas et al 2015) and are detailed in the DBA. No major buildings relating to the mine appear in any of the earlier maps (see 3.8 and 3.9 below), though there may be some unrecorded building remains present below ground.
- 2.7. Other potential heritage constraints to development include the Cornwall and West Devon Mining Landscape World Heritage Site (WHS): Camborne and Redruth District (Fig 1). Parts of this extensive area lie approximately 100 metres north of the Site and 150 metres to the south. The latest management plan for the WHS identifies the Grade II* listed mining buildings retained within the Heartlands redevelopment, circa

400 metres east of the Site, as a key element of this part of the WHS, but nothing closer to the Site (Dancer & Cocks 2017).

- 2.8 A search of the Historic England Archive for aerial photographs it holds of the Site and its environs produced many oblique and vertical images. These images confirmed that, in the immediate post-World War II period, the Site remained as shown on Ordnance Survey maps, with a mainly open aspect and the route of the tramway still evident running across the Site. The chimney also appears to have survived in the north-east of the Site. Oblique images suggest the site area had been levelled by this time, with the higher ground to the south evident.
- 2.9 By the 1960s, land to the north of the Site is covered by several structures, which seem to be large metal panel buildings in the main. A conveyor appears to run east of these and partly within the Site on a similar alignment as the tramway had. Many oblique images dating to the 1980s and 1990s confirm that the Site by then held a three-silo feature, likely the primary ore bins, which had a covered, elevated conveyor running eastwards to it from the South Crofty headframe. This latter is not definitely in place before the 1980s. Other structures all lay north of this and were all contiguous, with parts of the southernmost likely to have lain within the Site itself. By the 1990s, the structures appear to be derelict with holes in roof panels and walls apparent.
- 2.10 A geotechnical survey (TerraFirma 2019) has noted the presence of three shafts and four further potential shafts (Fig 8). Due to the longevity of mining activity on the Site, the shafts could include early features, perhaps dating to the use of Copper Tankard, an 18th century copper mine (MCO39019). This is located to the south-west of the proposed development area, or other early mines in the area, preceding the development of South Crofty; Cornwall's last working tin mine (MCO45907). These features are potentially significant for the evidential value they could provide for understanding the early history of mining in the area.
- 2.11 A map of the historic landscape character supplied with the latest Cornwall HER data shows the area covered by the current application to all be classified as 'Industrial: disused'. Information supplied by the HER confirms that no Portable Antiquity Scheme finds have been made close to the Site.

3. AIMS AND OBJECTIVES

- 3.1 The aims and objectives of the watching brief are to determine the presence or absence of archaeological deposits and/or remains, and if present, to record the character, date location and preservation of any archaeological remains on Site and to record the nature and extent of any previous damage to archaeological deposits or remains on Site. This information will enable Cornwall Council to identify and assess the particular significance of any archaeological heritage assets noted at the Site, and to consider the impact of the proposed development upon that significance and, if appropriate, develop strategies to avoid or minimise conflict between heritage asset conservation and the development proposal, in line with the National Planning Policy Framework (DCLG 2012).

4. METHODOLOGY - ARCHAEOLOGICAL WATCHING BRIEF

- 4.1 The definition of an archaeological watching brief is:

"a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive." (CIfA, 2020)

- 4.2 The purpose of an archaeological watching brief is to:

a). allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works

b). provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard. (CIfA 2020)

- 4.3 The watching brief will record any archaeological remains in a safe way as work progresses on a development. Work may be stopped for short periods while recording

is completed, or when access is restricted, recording may be completed from a safe position and artefacts/ecofacts retrieved from spoil generated during groundworks.

- 4.4 The archaeological contractor will be afforded sufficient time, space and resources to investigate any potential archaeological deposits or features to their satisfaction in order to meet the aims and objectives of this specification.
- 4.5 Where possible, all groundworks will be undertaken by a mechanical excavator equipped with a toothless grading bucket. All machining will be conducted under constant archaeological supervision and will cease when the first archaeological horizon is revealed.
- 4.6 Where archaeological features are exposed, then as a minimum, features and deposits will be investigated using hand tools to the following sample levels; the full excavation of small discrete features (pits, postholes etc, but a sample only of features present in high numbers, e.g. stakeholes), half-sectioning (50%) of larger discrete features and, long linear features will be sampled along their length – and to investigate terminals, junctions and relationships with other features. Should the above percentage proportions not yield sufficient information to allow the form and function of archaeological features/deposits to be determined, then full excavation of such features/deposits may be required. Each context will be recorded on a pro-forma context sheet by written and measured description. Additional excavation may also be needed for the taking of palaeo-environmental samples and recovery of artefacts. Features that are clearly of modern or later post medieval date may not be excavated. Should in-situ structural remains be encountered, then sufficient excavation will be undertaken to confirm the function, sequence, chronology and method of construction.
- 4.7 If either complex or extensive archaeological features and stratigraphy, or deposits that are worthy of preservation in-situ are exposed, then excavation will cease so as not to compromise the integrity of the archaeological record. The client and the Local Planning Authority (LPA) archaeologist will be informed and no further works on these features will be undertaken until a suitable mitigation strategy has been agreed by all parties.
- 4.8 An adequate digital photographic record of the archaeological works will be compiled in both section and plan. All excavated features and deposits will be photographed. A selection of representative feature group/area shots will also be taken along with

general working shots to illustrate the general nature of the works. A photographic scale and north arrow will be included in detailed photographs.

- 4.9 All excavation of exposed archaeological features shall be carried out stratigraphically by hand and recorded according to ClfA guidelines and best practice. All features/deposits will be recorded by drawn plans (scale 1:20 or 1:50, or electronically using Leica GPS as appropriate) and drawn sections (scale 1:10 or 1:20 as appropriate). All scale drawings shall be undertaken at a scale appropriate to the size and/or significance/complexity of the archaeological features to allow accurate depiction and interpretation.
- 4.10 The geotechnical investigation report (Terrafirma 2019) confirmed three mine shafts and four suspected shafts within the application Site (Fig 8). The report makes clear that shafts 2 and 3 (Fig 9) will need consolidation works and further investigation as part of development (Terrafirma, Executive Summary 2019). The summary also makes clear that the mining investigation has identified the potential for shallow workings and/or un-recorded shafts in some areas, which will require further investigation. Made ground was found across the entire site, generally deepening towards the west and south-west, with the underlying bedrock identified at a depth of between 1.2m and 55m below current ground level. It also recommends that the made ground is fully excavated below and 5m out from the footprint of all the proposed buildings, due to the potential for un-recorded mine workings (proposed building locations shown in green, Fig 9).
- 4.11 It is proposed that an archaeological watching brief be undertaken at all times of ground-breaking and ground-reduction during the proposed development, especially within the area of the known/suspected shafts, and in conjunction with any further mining survey and ground disturbance associated with the works. The monitoring of the watching brief will consist of a continuous presence, however if the results are of a limited nature, then this may be reduced to an intermittent watching brief, but only upon agreement with the HEP (Arch).

Artefacts

- 4.12 Any artefacts will be recovered and retained for processing and analysis in consultation with relevant specialists. Artefacts from topsoil, subsoil and unstratified contexts will normally be noted and may be discarded unless they are of intrinsic interest or their further examination is considered necessary for the interpretation of a

site. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. Such material may be noted and discarded or, if appropriate, a representative sample may be retained. Spoil will be examined for the recovery of artefacts; a metal detector may be used to enhance the recovery of metal finds.

- 4.13 All metal finds, and other typologically distinct or closely dateable artefacts will be recorded three-dimensionally.

Environmental remains

- 4.14 Due care will be taken to identify deposits which may have environmental potential and, where appropriate, a programme of environmental sampling will be initiated in preparation for scientific assessment/analysis/dating in accordance with English Heritage guidelines (English Heritage 2011). The sample strategy will either consist of bulk soil samples (sampling 100% or 40 litres, in labelled 10 litre plastic sample tubs) or vertical sediment columns – ‘monolith tins’ and will be examined for diatoms, insect, plant macrofossils and molluscs. The sampling strategy will be adapted for the specific circumstances of this site but will follow the general selection parameters set out in the following paragraphs.
- 4.15 All samples will be fully recorded and labelled with a register of samples made and sampling pro-forma record sheets completed for all samples taken which will include the following information: sample type, reason for sampling, sample size, context, sample number, spatial location, date, context description, method and the percentage of the context sampled. The samples will be recorded on the relevant site section drawing and photographs of the sample locations taken.
- 4.16 Bulk samples will be stored in sealed containers until off-site. Bulk samples will be processed using the standard flotation methods with the following mesh sizes: 5.6mm, 4mm and 500 micron Bulk samples will be sub-sampled as appropriate.
- 4.17 Monolith tin samples, up to 500mm in length, will be overlapped in the standard way to allow for a continuous sample of an entire sequence.
- 4.18 Secure, phased deposits, especially those relating to settlement activity and/or carbonised or waterlogged organic deposits will be considered for sampling for the recovery of charcoal, charred plant and mineralised remains. Any cremation-related

deposits will be sampled appropriately for the recovery of cremated human bone and charred remains. If any evidence of potential in-situ metal working is found, suitable samples for the recovery of slag and hammerscale will also be taken.

- 4.19 If sealed waterlogged deposits are encountered, a sampling strategy will be considered for the recovery of waterlogged remains. The taking of sequences of samples for the recovery of molluscs and/or waterlogged remains will be considered through any suitable deposits. Monolith samples may also be taken from suitable deposits as appropriate. All samples will be recovered and recorded using current guidelines (English Heritage 2011: *Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation*).
- 4.20 The project will be organised so that specialist consultants (such as OSL, archaeomagnetic dating and dendrochronology) and the regional Historic England science advisor, can be called upon to advise the works if/when necessary.
- 4.21 Sample processing and reporting will be undertaken by relevant specialists.

Treasure

- 4.22 Upon discovery of treasure, these will be removed to a safe place and reported to the local coroner within 14 days in accordance with the Treasure Act 1996 and the Code of Practice referred to therein. Suitable security measures will be taken to protect the finds from theft. The definition of 'Treasure' is provided within the Code of Practice of the above act and primarily refers to items of gold and/or silver.

Human remains

- 4.23 If the presence of potential human remains is encountered, then small slots will be hand-excavated across any suspected burial features (inhumations or cremated bone deposits) in order to confirm the presence and condition of any human bone. Where disturbance is unavoidable, or where full exhumation of the remains is deemed necessary, then their excavation and removal will only be undertaken on receipt of the appropriate licence from the Ministry of Justice. All excavation of human remains and associated post-excavation processes will be in accordance with the standards set out in ClfA Technical Paper No 7: *Guidelines to the Standards for recording Human Remains* (ClfA 2004).

4.24 All works will be carried out in accordance with the Code of Approved Practice as set out by the Chartered Institute for Archaeologists. Accordingly, the project team will abide by the ClfA's code of approved practice.

4.25 Any variation of the above will be undertaken in consultation with the LPA.

5. STAFF AND TIMETABLE

5.1 This project will be under the management of Simon Sworn, ACIfA, Senior Project Officer - Fieldwork Manager. Simon Sworn has 26 years of experience of commercial archaeology, including the leadership of the extensive archaeological works undertaken at Hemerdon Mine, Devon (2013 - 2014), which included below and above ground recordings of a vast array of mining activities, ranging from the early medieval period through to the mid-20th century. He has also worked across Cornwall, including further mining works at Treloyhan Manor, St. Ives (2017). Other members of the team will all have relevant knowledge and experience of both the archaeological works and the heritage landscape, including the mining landscape in Cornwall (details available upon request).

5.2 The staffing structure will be organised thus: the project manager will direct the overall conduct of the fieldwalking as required during the period of fieldwork. Day to day responsibility, however, will rest with the Project Leader who will be on-site throughout the project: this may be one and the same. The watching brief will be carried out by permanent staff members of ISCA Archaeology, all with suitable experience of this type of investigation and constantly adhering to the ClfA's Code of Conduct.

5.3 It is envisaged that the project will require approximately **XX days**' fieldwork. Analysis of the results and subsequent reporting will take up to a further four weeks, longer if dictated by specialist reporting, etc.

5.4 Depending upon the nature of the deposits and artefacts encountered it may be necessary to consult a number of local and/or national specialists who will be invited to advise and report on specific aspects of the project.

6. POST-EXCAVATION, ARCHIVING AND REPORTING

6.1 Prior to work commencing, a site code for the project will be obtained from Royal Cornwall Museum (RCM), which at the present time is currently closed due to the

Covid pandemic. Following the completion of the watching brief fieldwork, any artefacts and environmental samples will be processed, assessed, conserved and packaged in accordance with all relevant guidelines.

- 6.2 The level of reporting will be confirmed with the LPA on completion of the watching brief. If little or no archaeological deposits are exposed, this is likely to restrict its publication value and it would be anticipated that a short publication note only will be produced (with the WSI also included as a final appendix to the report), suitable for inclusion within an appropriate local archaeological journal.
- 6.3 Once the report has been approved by HEP (Arch) and a copy formally submitted and accepted by the LPA, a summary of information will be entered onto the OASIS online database of archaeological projects in Britain, which will include the OASIS reference number, and the report uploaded before the planning condition will be discharged.
- 6.4 If an illustrated report is required, then this will be compiled on the fieldwork results. The extent and nature of this report will be confirmed with the LPA upon completion of the watching brief. Copies of the report (pdf format) will be distributed to the client for submission with HEP (Arch). The report may vary upon the nature and extent of any archaeological deposits present, but at a minimum will consist of:
- A report number, date and the OASIS reference number
 - A non-technical summary
 - a description and analysis of the methodology
 - a summary of the historical background of the area and the site
 - a description of the results
 - an assessment of any artefact/palaeo-environmental analysis undertaken
 - a plan showing location of the site
 - plans and sections of any archaeology present and a selection of appropriate photographs.
 - relevant historic maps - if appropriate
 - an index of contexts as an appendix.
- 6.5 The watching brief archive will be held by ISCA at its office in Exeter until such time as all archaeological works at the site have been confirmed as completed. ISCA will then notify the LPA and make arrangements with the RCM for the deposition of the

site archive and, subject to agreement with the legal landowner(s), the artefact collection. At present, the RCM is closed due to the Covid pandemic and until such time as it reopens, the archive and all associated material will be stored at the ISCA office in Exeter. A digital archive (comprising digital photographs and other relevant born-digital data) will be submitted to the Archaeological Data Service (ADS).

6.6 The archive will be concluded within 6 months of the completion of the final report.

7. HEALTH AND SAFETY

7.1 All archaeological staff will operate under ISCA's Health and Safety Policy and any other additional requirements set out by main site contractor. All works will be carried out in accordance with (but not limited to) the Health and Safety at Work Act 1974 and all subsequent Health and Safety legislation. A site-specific Project Health and Safety Plan will be formulated prior to commencement of fieldwork setting out the site-specific health and safety policies that will be enforced in order to reduce to an absolute minimum any risks to health and safety.

7.2 In accordance with ISCA Health and Safety Policy, the archaeological site representative will be responsible for ensuring that all operations under his/her control will be carried out in accordance with all details laid out in 7.1.

7.3 All archaeological staff will not work, or be asked to work, in unsafe or unhealthy conditions, even where not to do so may result in the possible under-recording of the archaeological resource.

7.4 All site staff carry Construction Skills Certification Scheme (CSCS) cards and senior members will have up-to-date first aid qualifications.

7.5 On-site archaeologists will undertake any site safety induction course provided by the Client. The Client will also provide any details of all known buried services or other below- and above-ground hazards and provide specific guidance on how works should be undertaken around those hazards. Health and safety requirements will be always observed by all archaeological staff working on site, particularly when working with machinery, deep excavations, standing buildings and any other hazards.

- 7.6. Appropriate PPE will be always employed. As a minimum: high-visibility jackets, safety helmets and protective footwear will be worn. Additional PPE (such as gloves, glasses, ear-defenders etc) will be worn as and when required.
- 7.7 If the depth of any excavations or trenching exceeds either 1.2 metres or is excavated through un-stable ground, a dynamic risk assessment will be undertaken to determine the stability of the excavation. If necessary, excavated sides will be shored or stepped to enable the archaeologists to examine and if appropriate record any features. A vigorous risk assessment methodology (shoring, stepping etc.) for work in any deeper trenches will be developed with the Client and the groundcrew to ensure only the safest possible working conditions for ISCA and all on-site personnel. The presence of known and potential mine shafts will be fully assessed prior to any work taking place.

8. INSURANCES AND QUALITY CONTROL

- 8.1 ISCA carries Public Liability Insurance to a limit of £5,000,000 and Professional Indemnity Insurance to a limit of £250,000.
- 8.2 ISCA is constantly committed to the highest standard of professional ethics and technical standards and adheres to the ClfA and Historic England guidelines.
- 8.3 The products and work undertaken will be carried out by professional archaeologists overseen by supervisors of at least ACIfA-level competence.

9. MONITORING

- 9.1 Notification will be made to HEP (Arch) at least one week prior of the start of site works so that there will be opportunities to visit the site and check on the quality and progress of the work if required. Due to the present Covid restrictions, it is envisaged that on-site meetings will only take place if there are significant issues that need addressing. ISCA will keep HEP (Arch) informed of the works as they progress, and once on-site works are complete, there will be post-fieldwork monitoring meeting (email/phone call) to discuss the next stages regarding the fieldwork results. Access will also be facilitated for visits by any specialists if only deemed necessary and within the present government guideline. The project is currently anticipated to commence in June 2021.

10. QUALITY ASSURANCE

10.1 ISCA endorses the *Code of Conduct* (ClfA 2014) and the *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* (ClfA 2014). All ISCA Project Managers and Project Officers will uphold these to their fullest.

11. REFERENCES

British Geological Survey 2021 *Geology of Britain Viewer* http://maps.bgs.ac.uk/geology_viewer_google/googleviewer.html Accessed 13 February 2021

BSA Heritage Limited, 2020. *South Crofty Redevelopment, Heritage Statement*. BSA report ref: **BSA 1972_1b**

ClfA, 2014. *Standard and guidance for archaeological field evaluation*. Chartered Institute for Archaeologists

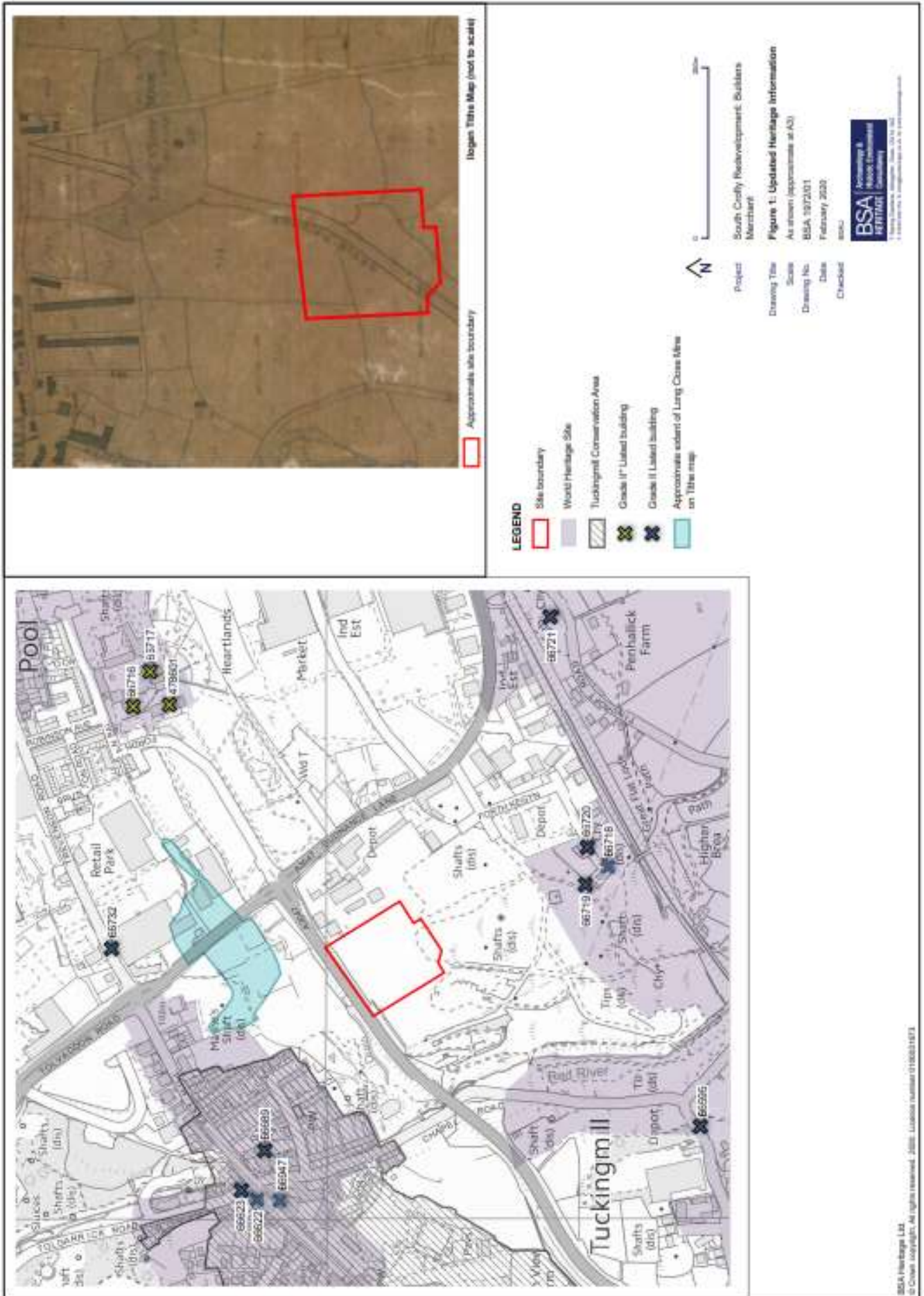
Dancer B. & Cocks A. 2017 *Cornwall and West Devon Mining Landscape World Heritage Site Supplementary Planning Document Truro*.

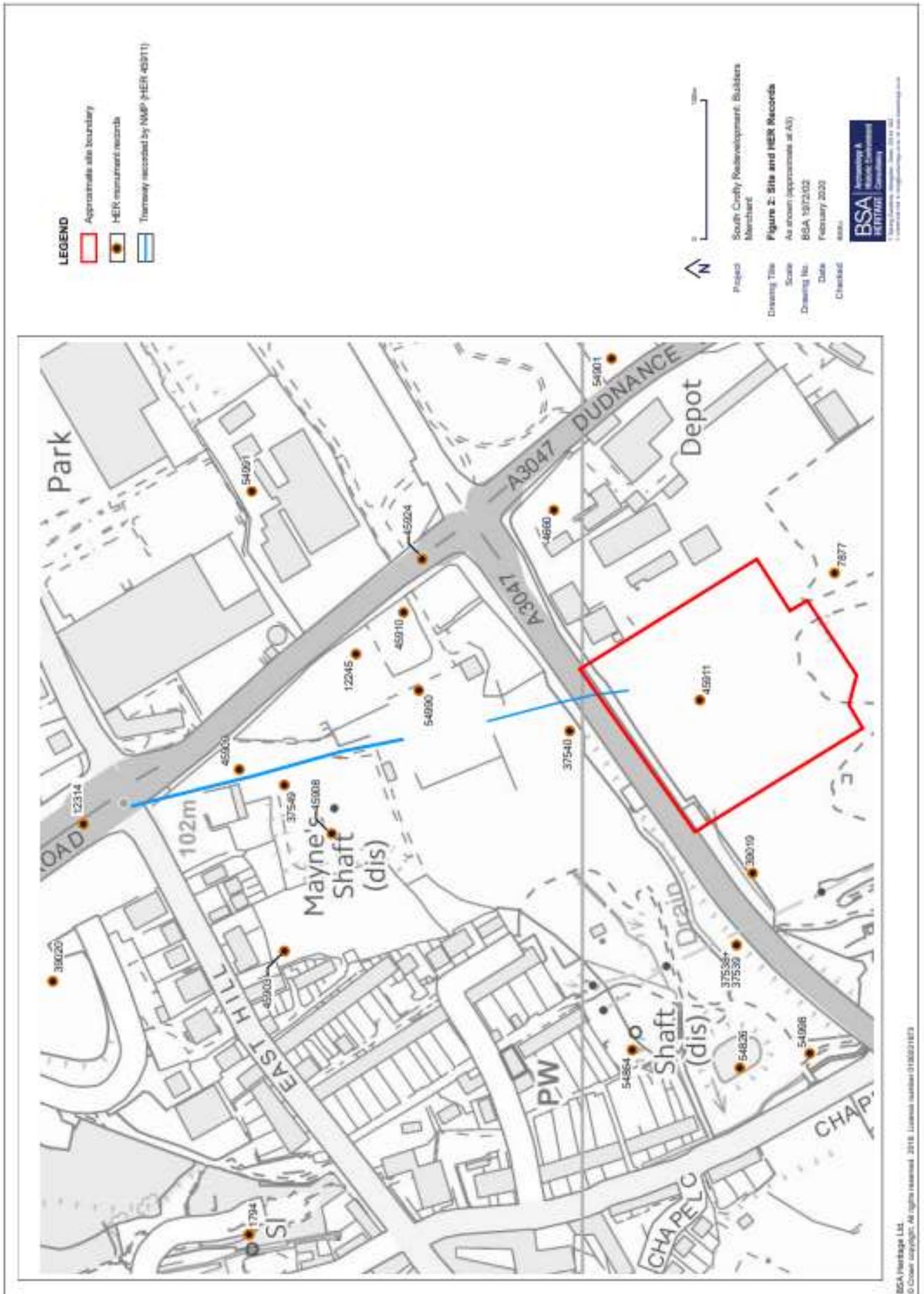
Department of Communities and Local Government 2012 *National Planning Policy Framework*

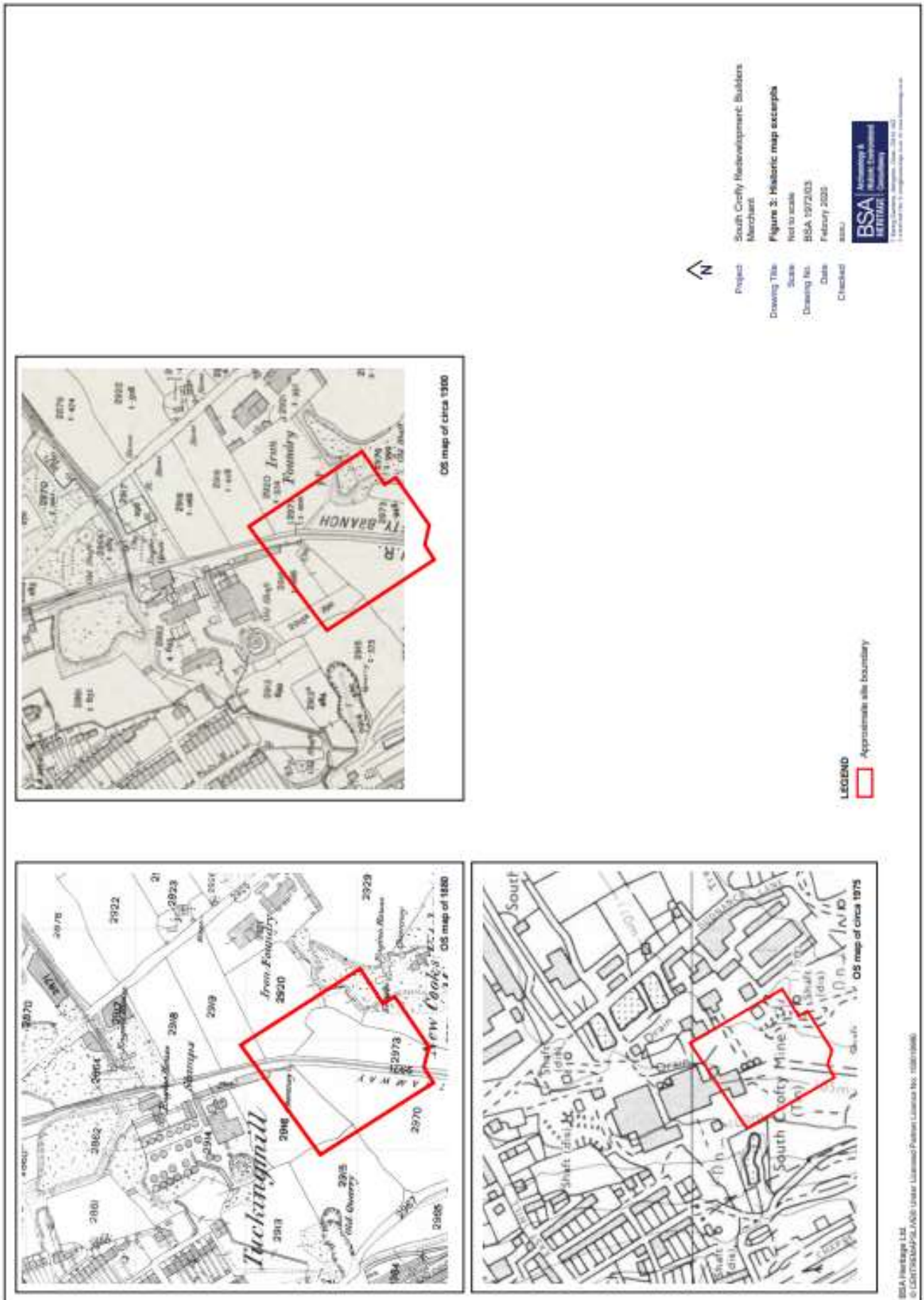
Ministry of Housing Communities and Local Government 2019 *National Planning Policy Framework*

Terrafirma, 2019. *Geotechnical and Geo-environmental Site Investigation Report: Proposed Retail Development, South Crofty, Pool, Cornwall. 15072/1*

Thomas N., Sharpe A. & Berry E. 2015 *CPR Highway Scheme: South Crofty Mine, Pool, Cornwall – Historic Building Recording Truro* (Cornwall Archaeology Unit report)







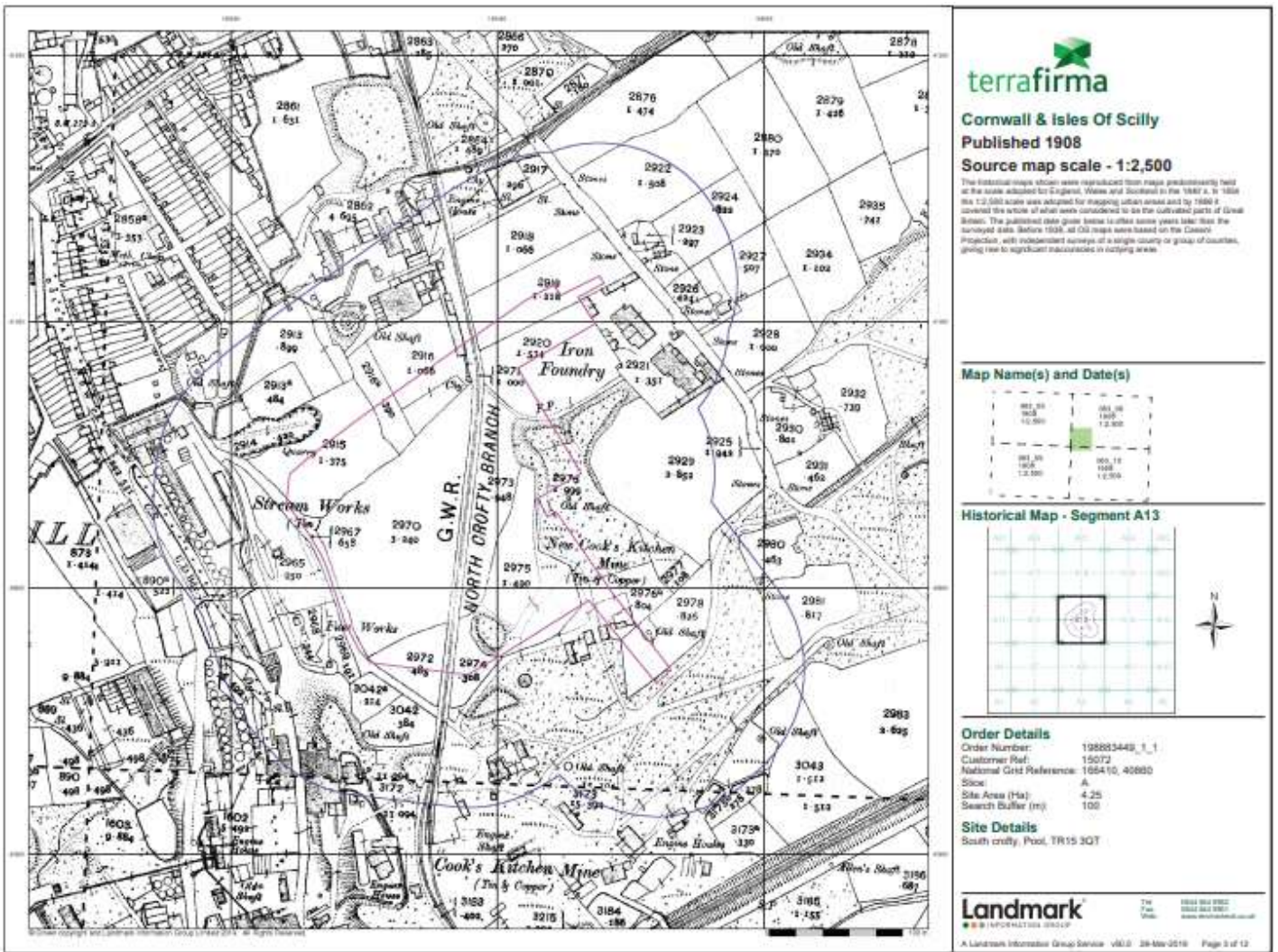


Fig 4. 1908 Map

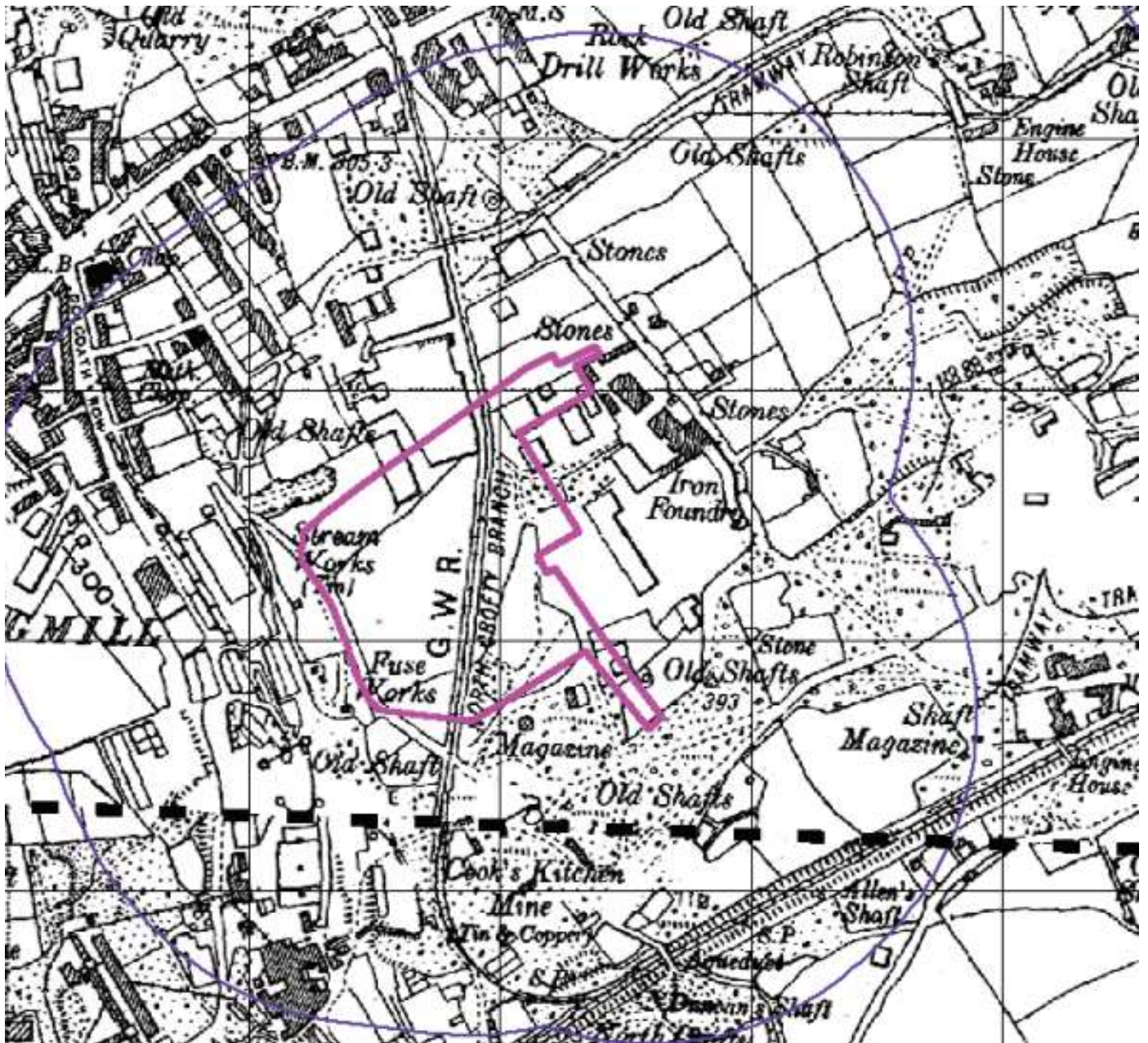


Fig 5. Ordnance Survey Map 1938



Fig 6. Ordnance Survey Map 1979

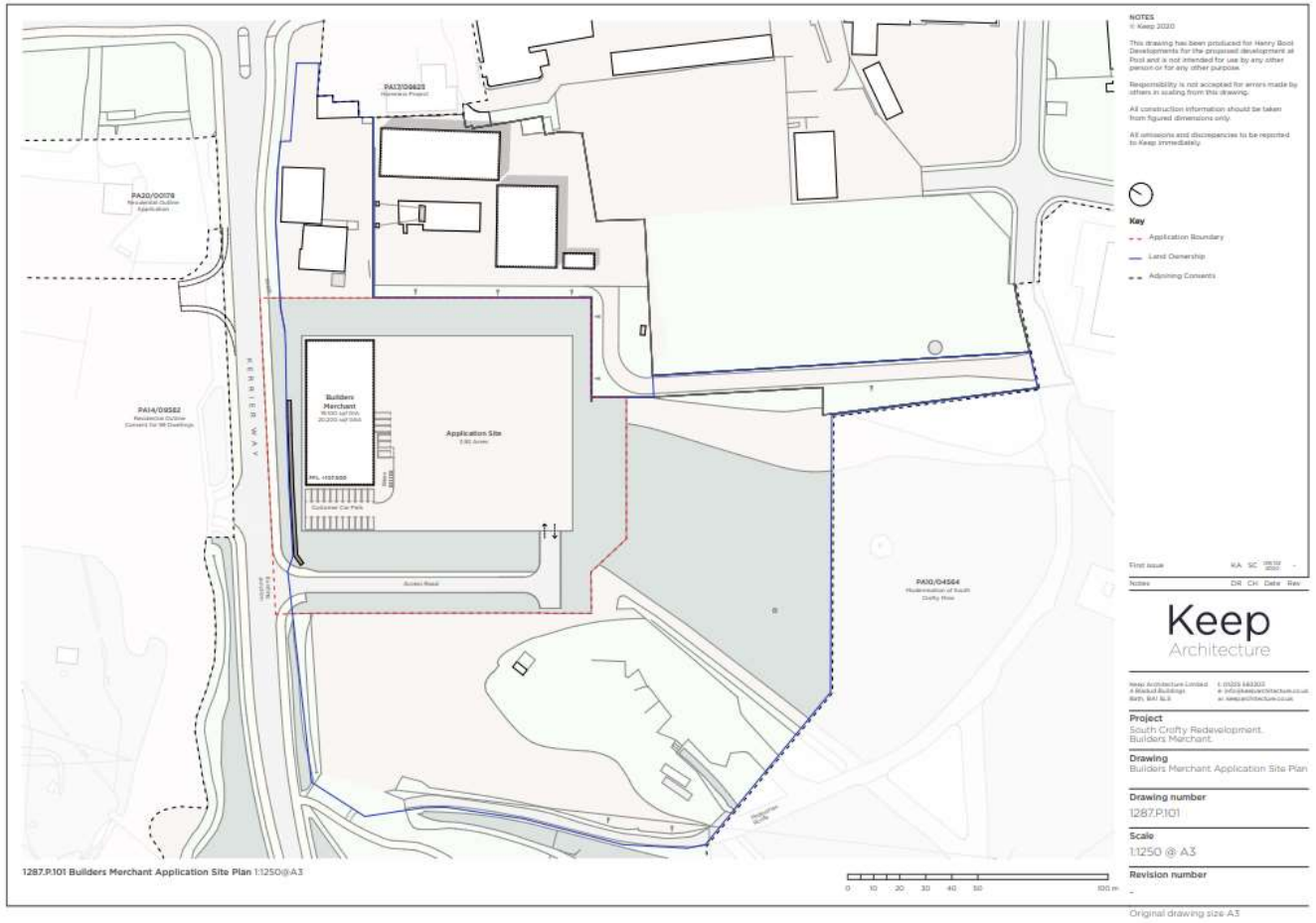


Fig 7. Proposed building layout plan

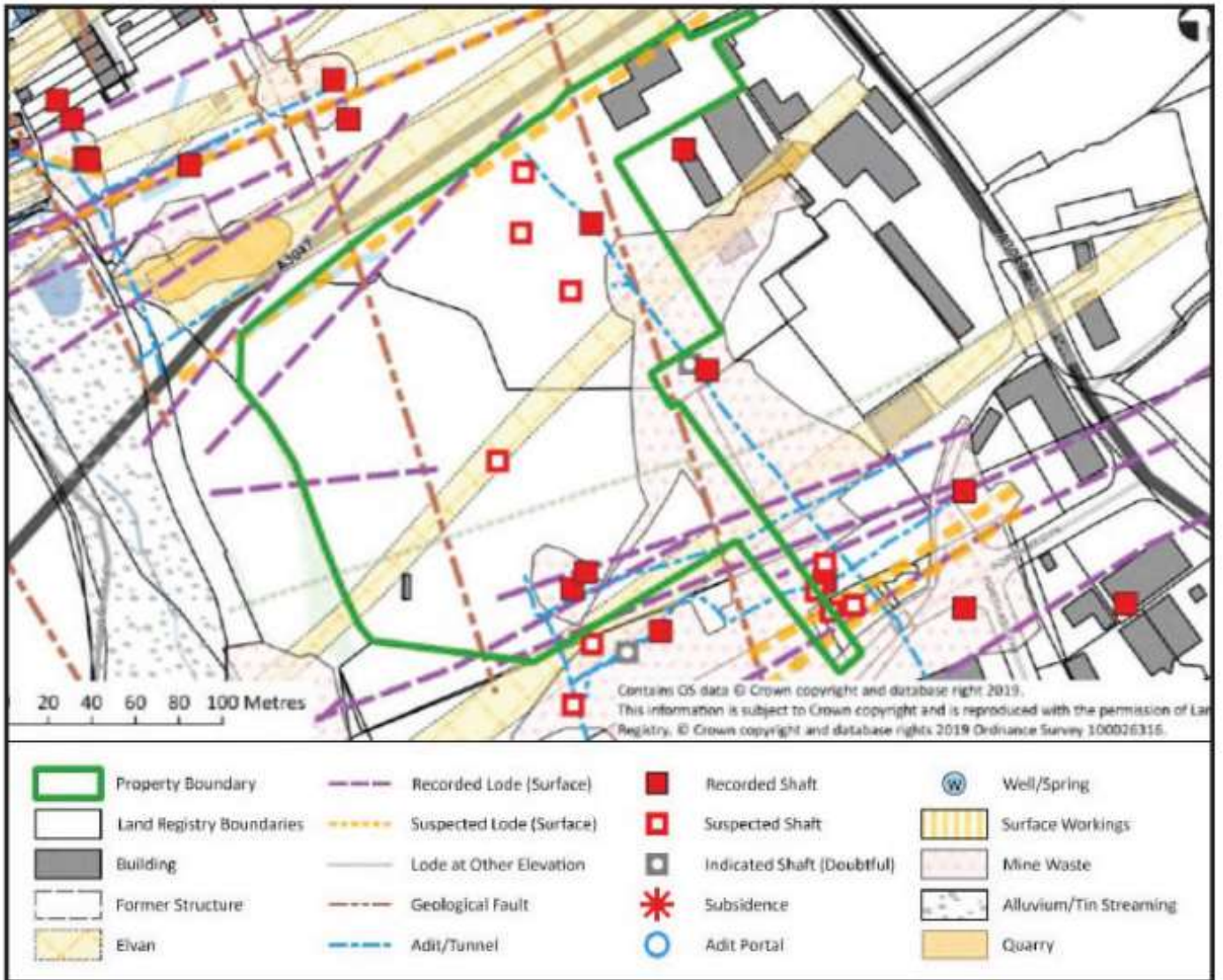


Fig 8. Location of known shafts (in-fill red squares) and suspected shafts (un-filled red squares) within the proposed development area

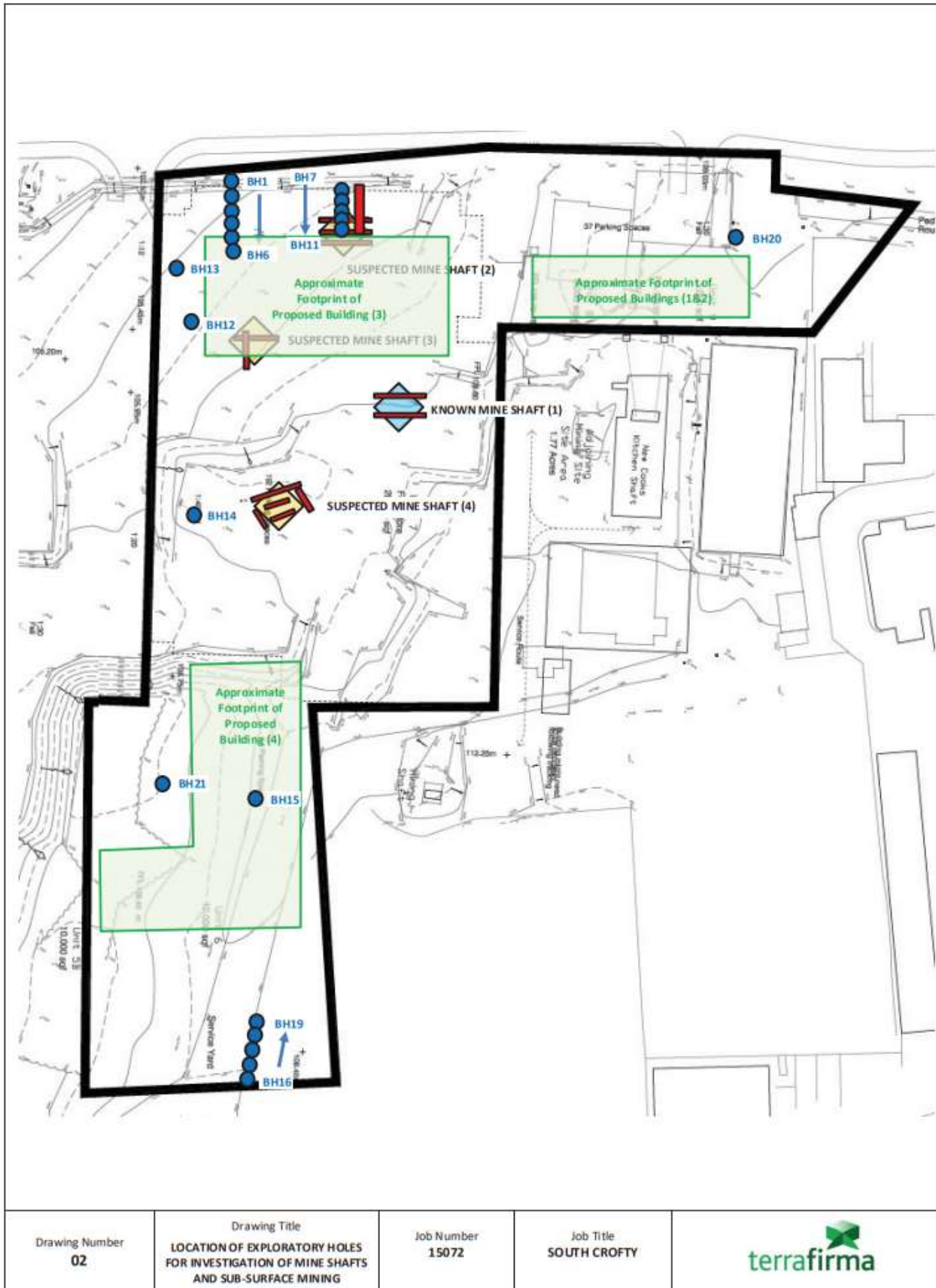


Fig 9. Location of known and suspected mine shafts in relation to the proposed new buildings which will be subjected to the archaeological watching brief.