

Smithy at Cwm Elan Mine, Elan Valley, Photographs, Test Pits and Watching Brief



Report by: Trysor

For: Selwyn Jones

April 2017



Cwm Elan Mine Elan Valley Test Pits

By

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Trysor Project No. 2017/550

For: Selwyn Jones

April 2017

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Cover photograph: View of the smithy looking northeast

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DATE 27th April 2017

Paratowyd yr adroddiad hwn gan bartneriad Trysor. Mae wedi ei gael yn gywir ac yn derbyn ein sêl bendith.

This report was prepared by the Trysor partners. It has been checked and received our approval.

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Croesawn unrhyw sylwadau ar gynnwys neu strwythur yr adroddiad hwn.

We welcome any comments on the content or structure of this report.

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1. Summary

1.1 In February and March 2017, Trysor undertook a photographic survey, evaluation and watching brief at the former smithy at Cwm Elan Mine, Scheduled Monument RD153.

1.2 The photographic survey included views of all wall faces during restoration work.

1.3 The evaluation took the form of two test pits, one in each of the doorways into the two cells of the building. The purpose of the test pits was to establish at what depth of the uppermost archaeologically significant context occurs, in order to inform the removal of material and laying down of membrane and gravel.

1.4 The watching brief was to ensure that the clearing of the interior did not remove significant archaeological deposits.

1.5 Three layers were removed from Test pit 1, in the doorway of the eastern cell of the smithy (Room A in this report). They represented the period of disuse and current work to conserve the smithy. The first archaeologically significant layers were a large threshold stone (004), the possible remains of a flag floor (006) and a layer of shale gravel between them, its purpose unknown but possible a drain. These contexts were left in situ.

1.6 One layer was removed from Test pit 2, in the doorway of the western cell of the smithy (Room B in this report). This was a mixed layer representing mixing of material from the period of disuse and current work to conserve the smithy. The first archaeologically significant layers were a large threshold stone (008) and the probable remains of an earth and stone floor (009). These contexts were left in situ.

1.7 The levels within the two cells were reduced slightly by machine to just above archaeologically significant contexts. The possible flag floor (006) seen in the evaluation trench in Room A did not appear to be present across the whole of that cell. Around the base of the forge hearth was (010), a black, fine-grained, hard layer, thought to be the remains of scale from the forge. Terram and gravel was laid directly over the reduced level with no raking beforehand.

2. Copyright

2.1 Trysor holds the copyright of this report and of the paper and digital archive. Further copies may be made of this report without gaining permission to reproduce for non-commercial purposes but Trysor should be acknowledged as the originator and copyright holder.

3. Introduction

3.1 Selwyn Jones has commissioned Trysor heritage consultants to provide a Written Scheme of Investigation for archaeological works required as part of Scheduled Monument Consent for RD153, Cwm Elan Mine, see Figure 1.

3.2 This part of an ongoing project to consolidate and reroof the former smithy building at Cwm Elan Mine which stands within the Scheduled area of the mine – RD153.

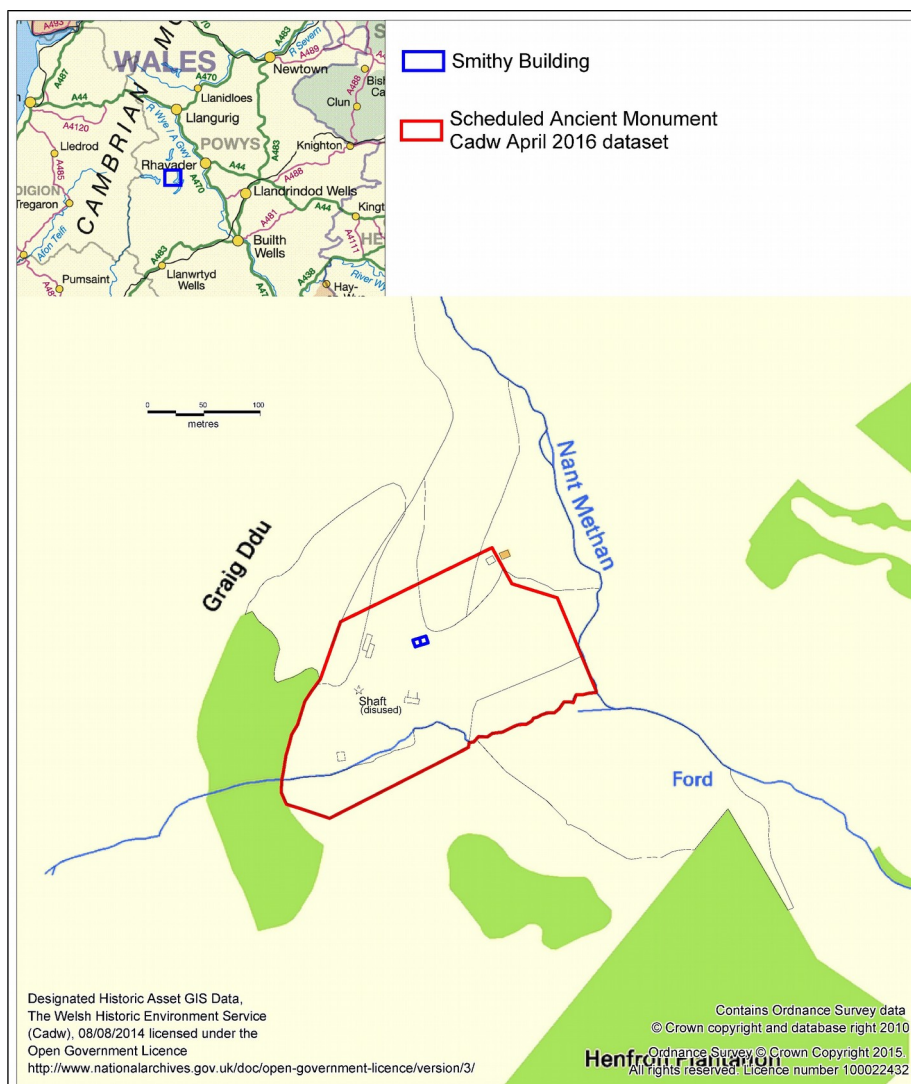


Figure 1: Location of the former smithy within the scheduled area of RD153.

4. Specification

4.1 Trysor prepared a specification for the watching brief, see Appendix A. The specification was approved by Will Davies, Regional Inspector of Ancient Monuments and Archaeology (North East Wales), Cadw.

5. Historical and Archaeological Overview

5.1 The remains of this relatively compact mid 19th century lead mine complex form one of the most complete examples of its type in Wales. Its unaltered layout and the level of preservation of its individual structures illustrate the entire extraction and processing sequence within a relatively small area of land.

5.2 Mining explorations were started here by the landowner, Thomas Grove of Cwm Elan, after lead ore was discovered in 1796 during the digging of a drainage ditch. There is evidence of these late 18th century and earlier 19th century workings in the form of earthworks, such as open cuts and building platforms.

5.3 The main phase of mining began in 1871 when the "Cwm Elan Mining Company" was formed, and this is the period to which most of the surviving structures belong (Jones et al, 2004). The "New Cwm Elan Mine" was formed in 1875 after a period of drought had caused the voluntary liquidation of the former company. This new phase came to an end in 1877, and the purchase of the land by the Birmingham Water at the end of the 19th century meant that no attempt was made to work the site again.

5.4 The Smithy is thought to date to the 1875 to 1877 period of working, and it is a single storey, stone-built building, cut into the slope on its north and west sides, and divided into two cells. It stands on the location of a cottage called *Pengwaidd* on the tithe map, which had a rectangular enclosure behind it, upslope to the north.

5.5 The Smithy building measures approximately 14 metres by 7 metres. The base of a smithing hearth stands against the centre of the northern wall of the eastern cell. The entrances to both cells are in the southern walls. A lean-to against the eastern end, thought to be a coal store, no longer stands.

6. Methodology

6.1 Photographs of elevation were taken between 3rd February and 3rd March 2017.

6.2 On Friday 17th February 2017, two test pits were hand excavated within the smithy.

6.3 Test Pit 1 was placed in the western side of the doorway into Room A, the eastern cell of the smithy. It measured 1.5 metres x 0.50 metres.

6.4 Test Pit 2 was placed in the western side of the doorway into Room B, the western cell of the smithy. It originally measured 1.5 metres x 0.50 metres, but was extended northwards by 0.10 metres in order to understand context (009).

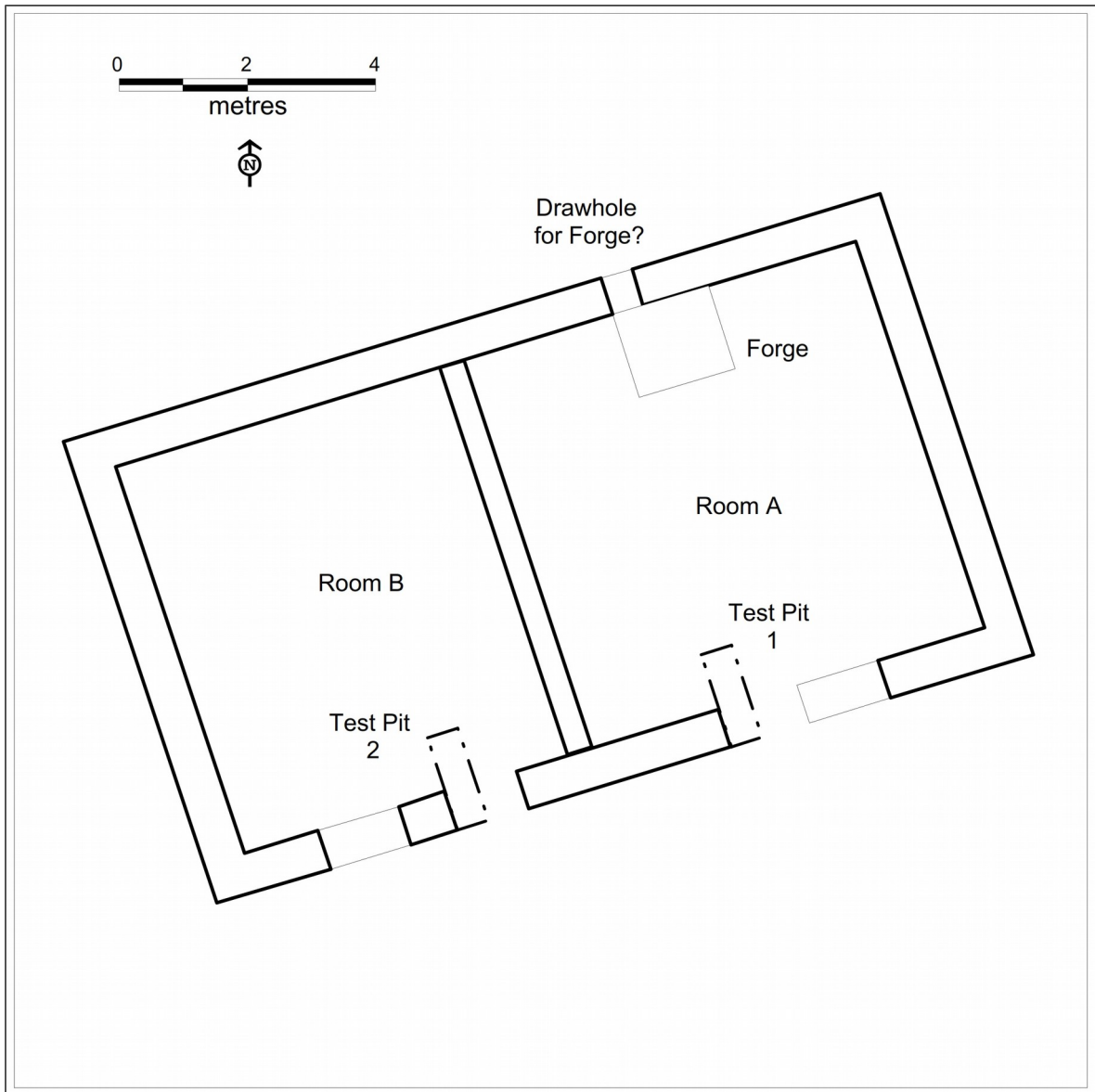


Fig 2: Layout of the smithy building and location of the two Test Pits.

7. Site Stratigraphy

7.1 The test pits were excavated and recorded in accordance with the Institute for Archaeologists' *Standard and Guidance for an Archaeological Field Evaluation* (Institute for Archaeologists, 2014 updated version). The hand excavation of the posthole was watched by Trysor and the stratigraphy of the site recorded.

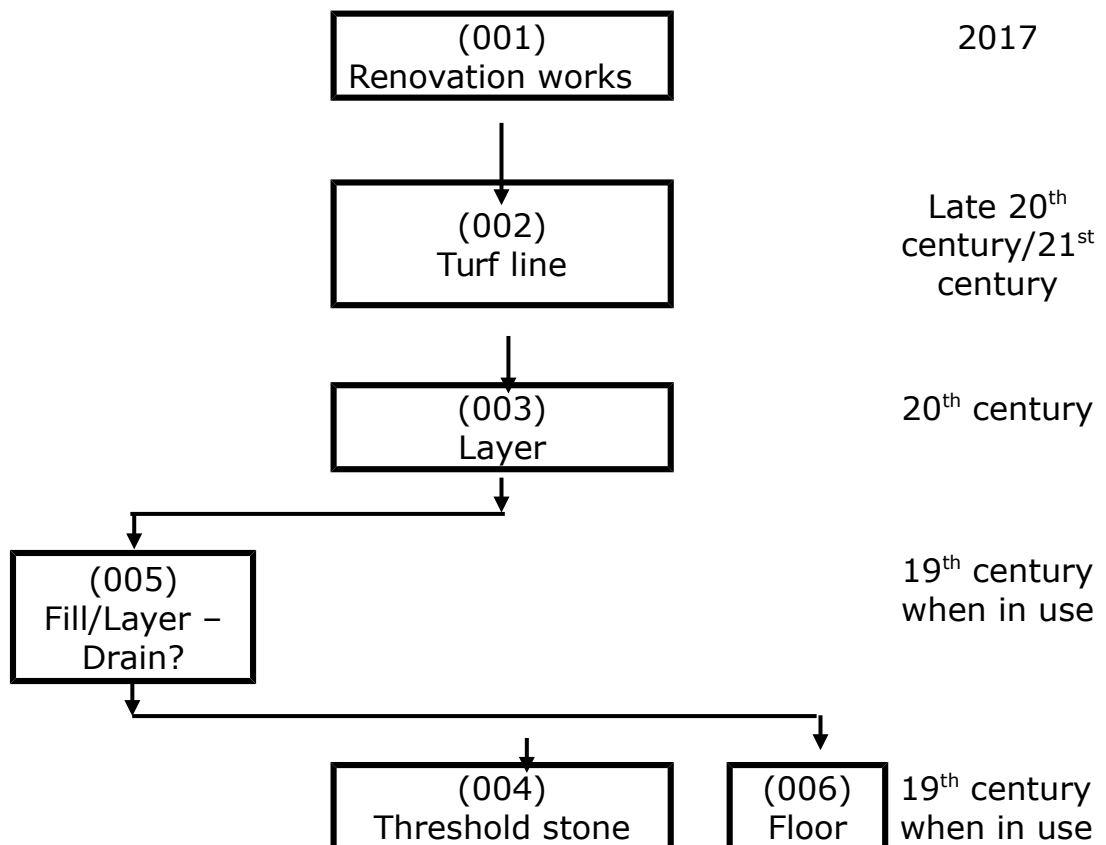
7.2 Context Catalogue

Context Number	Test pit	Depth	Description	Interpretation
001	Room A Test Pit 1	Up to 0.05 metres	Slate and shale fragments with mortar across most of Room A	Recent mortar during renovation works.
002	Room A Trench 1	0.04 to 0.05 metres	10YR 3/1 very dark grey loam with mortar fragments, 0.01 metres, brick <0.05% and < 1% and some slate, also mat of grass roots.	Turf line prior to renovation works
003	Room A Trench 1	0.10 metres	Mixed layer of stone, soil and mortar, with fragments of window glass	
004	Room A Trench 1	Not removed, full depth not ascertained	Large stone across the doorway – not removed	Threshold stone
005	Room A Trench 1	Not Excavated	10YR 4/4 dark yellowish brown, with slate gravel < 0.05 metres	Fill between the threshold stone (004) and the slate floor (006), possible filling a drain feature
006	Room A Trench 1	Not Excavated	Large flat stones	Floor within Room A
007	Room B Trench 2	Up to 0.12 metres	Very mixed layer including turf mortar	Equivalent of layers (001), (002) and (003) in Room A, but with more trampling so now mixed together.
008	Room B Trench 2	Not Removed	Large stone across the	Threshold stone with a groove to allow

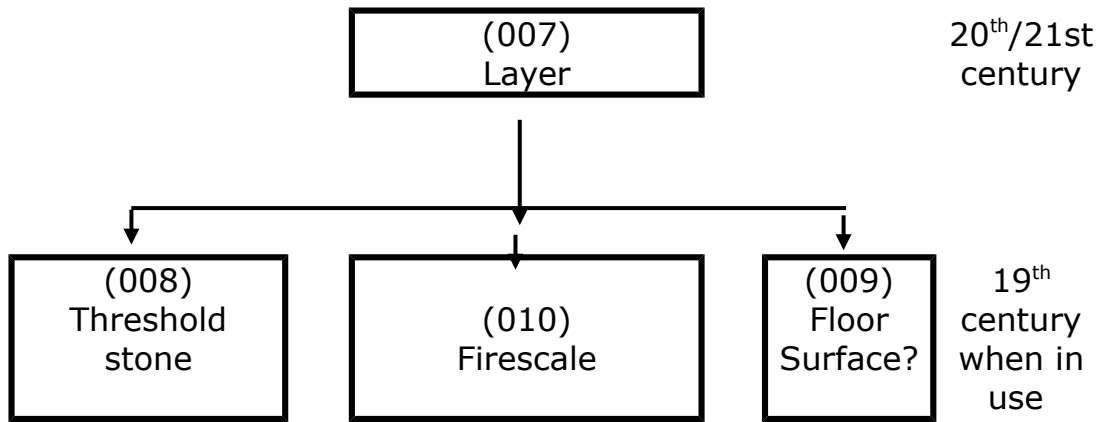
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			doorway – not removed, with a shallow groove cut across.	excess water to drain away – original feature, not modern
009	Room B Trench 2	Not excavated	10 YR 3/1 very dark grey layer of compacted stone and soil	Former floor surface?
010	Room A	Not excavated	Below (003) around base of forge, seen during the watching brief, a black, fine-grained hard material	Scale deposit from working at the forge

Room A Trench 1



Room B Trench 2



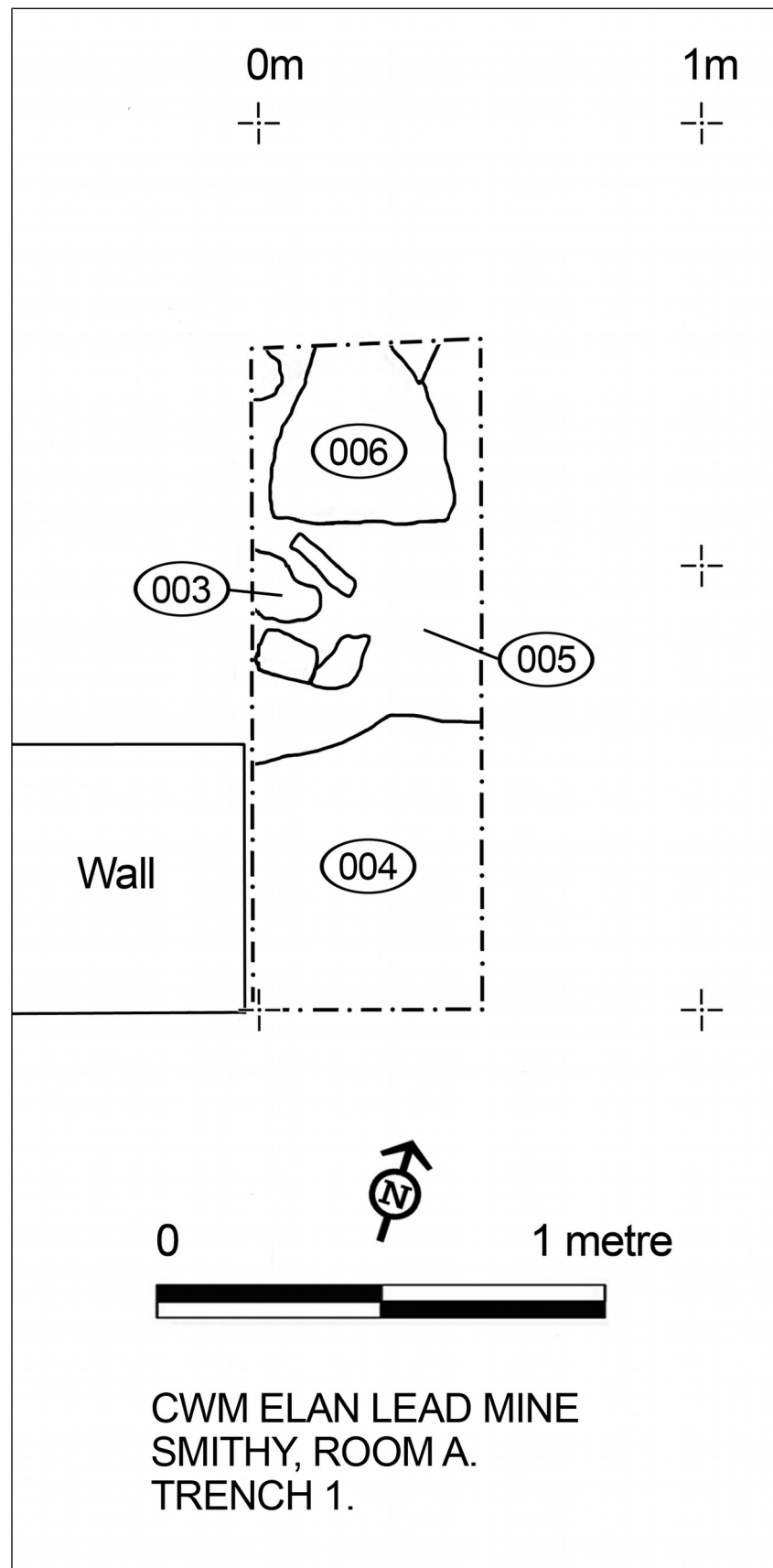


Figure 3: Plan of Trench 1 after removal of (001), (002) and most of (003)

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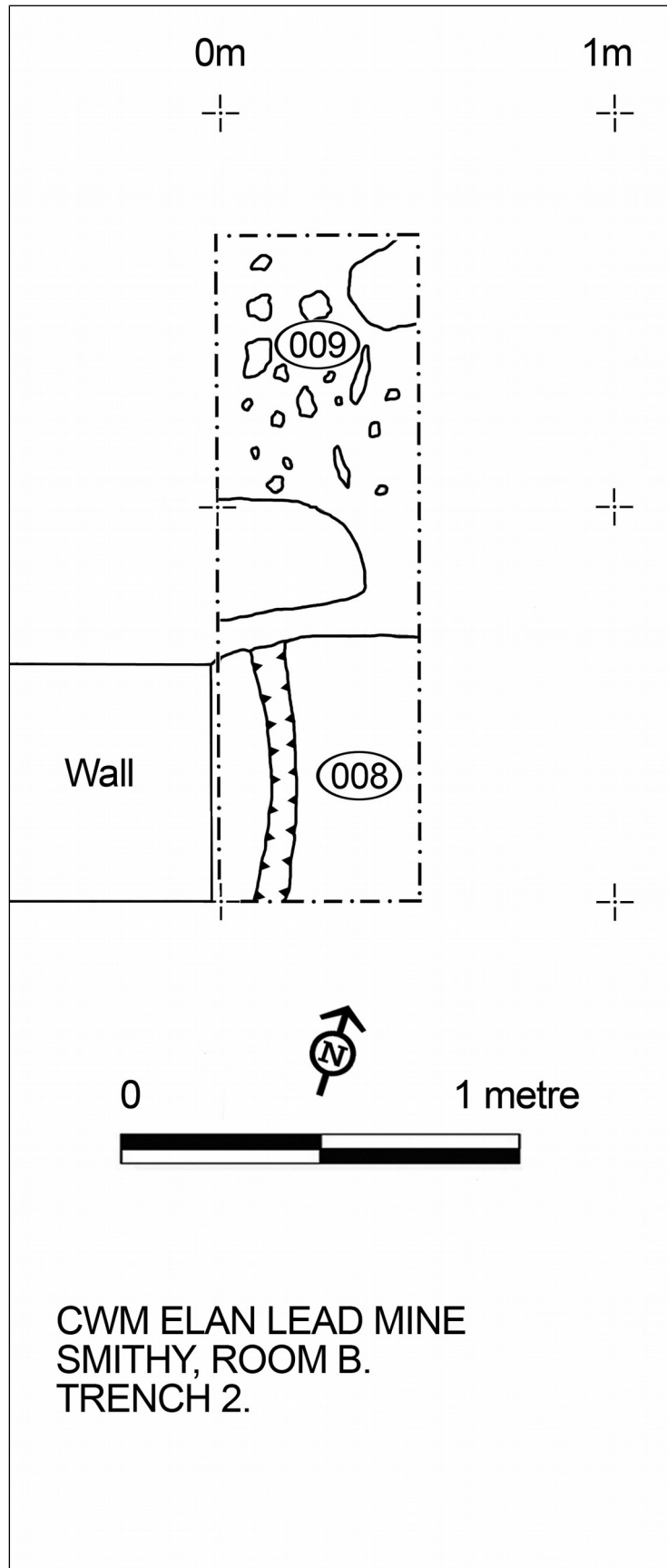


Figure 4: Plan of Trench 1 after removal of (001), (002) and most of (003)

8. Photographs

8.1 Colour digital photographs were taken of hand excavation of the posthole using a 16M pixel camera. The following table describes the content of each photograph included in the project archive and their locations are provided in the following map, see Figure 5 & 6. The photographs are included in Appendix B at the end of the report.

Photo Number	Description	Date Taken	Direction
CEM2017_101	A general view of the former mine smithy building. It stands on the same site as the earlier Pen y Gwaith cottage and may incorporate some fabric of the dwelling.	03/02/2017	Looking north-northeast
CEM2017_102	A view of the former mine smithy building undergoing re-roofing.	03/02/2017	Looking east-northeast.
CEM2017_103	A closer view of the former mine smithy building.	03/02/2017	Looking north-northeast.
CEM2017_104	A view of the former mine smithy building.	03/02/2017	Looking south-southeast.
CEM2017_105	A view of the former mine smithy building. The spoil tips of the main shaft can be seen in the background to the right.	03/02/2017	Looking south-southwest.
CEM2017_106	A view of the former mine smithy building.	03/02/2017	Looking east-northeast
CEM2017_107	A view of the southern side of the former mine smithy building. Room A (the forge) is to the right and Room B to the left.	17/02/2017	Looking north-northeast.
CEM2017_108	A view of the western gable wall of the former mine smithy.	03/03/2017	Looking east-northeast.
CEM2017_109	A view of the northern side of the former mine smithy.	03/03/2017	Looking south-southeast.
CEM2017_110	A view of the eastern gable wall of the former mine smithy.	03/03/2017	Looking west-southwest.

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CEM2017_111	The existing ground surface (001), which includes modern building rubble and cement, at the entrance of Room A, showing Test Pit 1 pegged out ready for excavation.	17/02/2017	Looking north-northwest.
CEM2017_112	The removal of the renovation material (001) in Trench A reveals the turf layer (002) above a jumble of stones derived from the ruination of the building after it fell out of use (003).	17/02/2017	Looking south-southeast.
CEM2017_113	A view of Test Pit 1 showing a flagstone of the smithy floor (006) in the foreground with a large threshold slab (004) at the top of the trench, separated by a layer shale gravel (005) which may represent an infilled gully or drain (this was not excavated).	17/02/2017	Looking south-southeast.
CEM2017_114	A view of Test Pit 1 showing a flagstone of the smithy floor (006) in the foreground with a large threshold slab (004) at the top of the trench, separated by a layer shale gravel (005) which may represent an infilled gully or drain (this was not excavated).	17/02/2017	Looking north-northwest.
CEM2017_115	A view of Test Pit 2 at the entrance into Room B after removing layer (007). The view shows threshold stones (008) at the doorway and evidence of a stone and clay floor (009) in the foreground.	17/02/2017	Looking south-southeast.
CEM2017_116	A view of Test Pit 2 at the	17/02/2017	Looking north-

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	entrance into Room B after removing layer (007). The view shows threshold stones (008) at the doorway and evidence of a stone and clay floor (009) in the foreground.		northwest.
CEM2017_117	A view of the inside of Room A, the forge, during re-roofing.	03/02/2017	Looking north-northwest.
CEM2017_118	A view of the inside of the eastern gable wall of Room A.	17/02/2017	Looking east-northeast.
CEM2017_119	A view of the inside of the western gable wall of Room A.	17/02/2017	Looking west-southwest.
CEM2017_120	A view of the inside of the northern lateral wall of Room A. The position of the forge is shown, with the opening for a small window and the chimney above.	17/02/2017	Looking north-northwest.
CEM2017_121	A view of the site of the forge.	17/02/2017	Looking northwest.
CEM2017_122	A view of the southern lateral wall of Room A, showing the position of the door and window. Test Pit 1 can be seen inside the doorway.	17/02/2017	Looking south-southeast.
CEM2017_123	A view of the southern lateral wall of Room B, showing the position of the door and window.	03/03/2017	Looking south-southeast.
CEM2017_124	A view of the northern lateral wall of Room B.	03/03/2017	Looking north-northwest.
CEM2017_125	A view of the western gable wall of Room B.	03/03/2017	Looking west-southwest.
CEM2017_126	A view of the western gable wall of Room B, showing the base of the wall.	03/03/2017	Looking west-southwest.
CEM2017_127	A view of the eastern gable wall of Room B.	03/03/2017	Looking east-northeast.

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CEM2017_128	A view of the eastern gable wall of Room B, showing the base of the wall.	03/03/2017	Looking east-northeast.
CEM2017_129	A view of the entrance into Room A, the forge, showing the threshold stone (004), after the removal of the layers (001) and (002) inside the room. This level was maintained and terram and gravel was to be laid across the interior without further material being removed	03/03/2017	Looking north-northwest.
CEM2017_130	A view of the forge inside Room A after partial removal of layers (001) and (002). Note the darker layer (010) exposed in front of the forge, which may be waste derived from the work at the smithy.	03/03/2017	Looking north-northwest.
CEM2017_131	A closer view of the forge and the darker layer (010) around its base.	03/03/2017	Looking north-northwest.
CEM2017_132	A closer view of the forge and the darker layer (010) around its base.	03/03/2017	Looking northeast.
CEM2017_133	A view of the floor of Room B, after the partial removal of the mixed layer (007). This level was maintained and terram and gravel was to be laid across the interior.	03/03/2017	Looking northwest.
CEM2017_134	A view of the floor of Room B, after the removal of the mixed layer (007). The surface was quickly covered with waterlogged mud, with ground water flowing from the north wall	03/03/2017	Looking north.

	<p>towards the south wall. This level was maintained and terram and gravel was to be laid across the interior.</p>		
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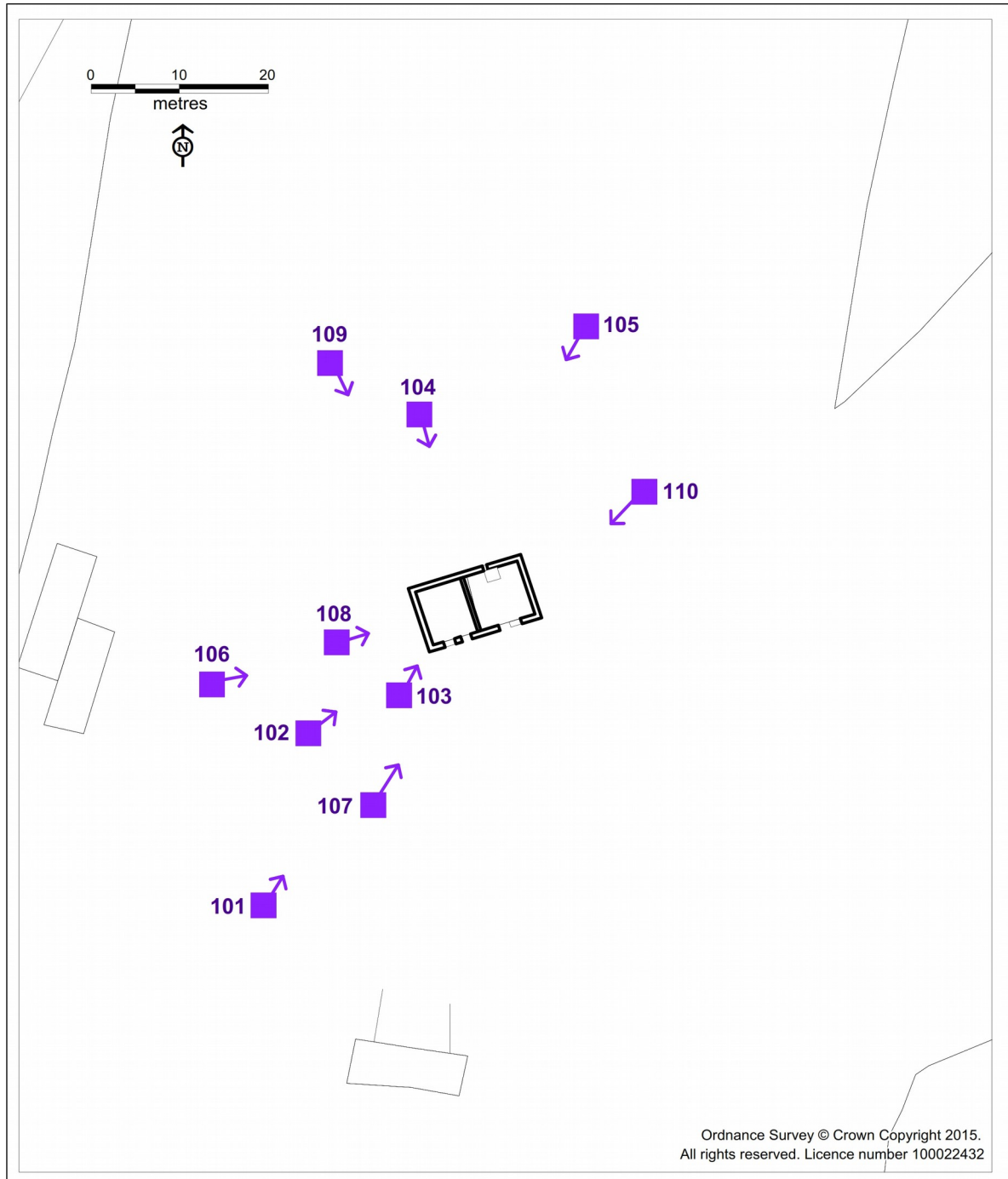


Figure 5: Location of external photographs

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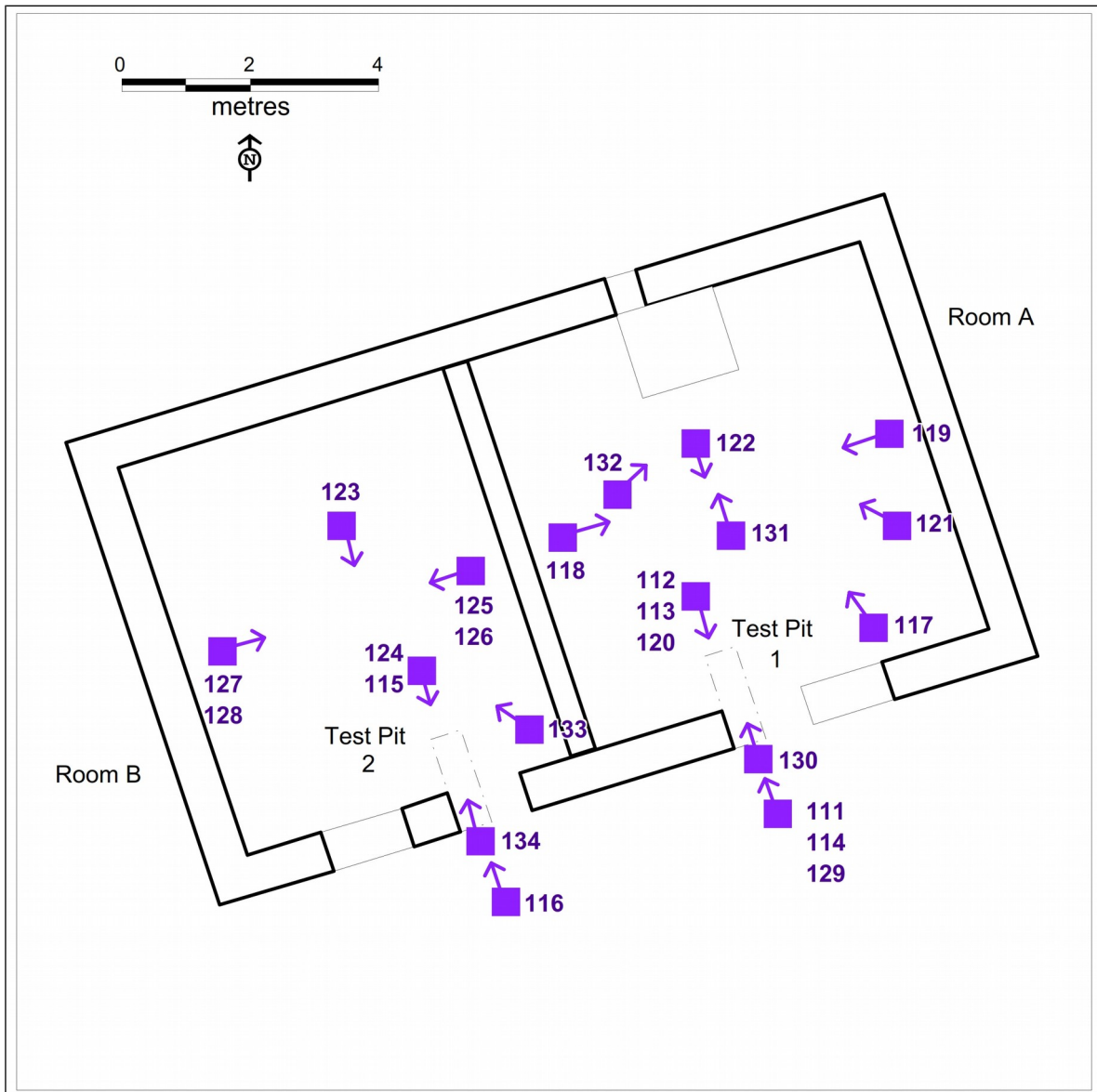


Figure 6: Location of internal photographs

9. Conclusion

9.1 The evaluation consisted of two small trenches, one in the doorway of the eastern cell (Room A) and one doorway of the western cell (Room B). Excavation was halted at the top of the first archaeologically significant layer.

9.2 Trench 1 in the eastern cell of the building (Room A) had recent mortar (001) from the renovation work, overlying a turf layer (002), overlying a mixed mortar soil with small fragments of stone/slate (003) a layer developed as the building began to decay. At its base were fragments of window glass.

9.3 Layer (003) overlaid the threshold slab (004) in the doorway of the eastern cell (Room A), and over a slate slab (006) thought to be a slate floor at the northern end of the trench. Between (004) and (006) was a band of fine slate gravel (005). The origin or purpose of (005) was not clear but was thought to possibly represent some form of drainage. Contexts (004), (005) and (006) were left in situ.

9.4 In Trench 2 in the western cell (Room B), the first three layers seen in the eastern cell (Room A) were present but due to the quantity of water running through this room, and footfall mixing things together, these were not well defined and were recorded as one context (007). They overlay a threshold stone (008) in the doorway, with a drainage channel cut into it. Within the room it overlaid a more compacted layer (009), with small stones and slate fragments with occasional small flat slabs within it but little or no mortar. This is thought to be a floor layer, or a layer above the floor but pre-decay of the building. Contexts (008) and (009) were left in situ.

9.5 During the watching brief the levels within the two cells were reduced slightly by machine to just above archaeologically significant contexts. The possible flag floor (006) seen in the evaluation trench in Room A did not appear to be present across the whole of that cell. Around the base of the forge hearth was (010), a black, fine-grained, hard layer, thought to be the remains of scale from the forge. Terram and gravel was laid directly over the reduced level with no raking beforehand. A similar process was undertaken in Room B, which was wetter due to groundwater flowing through the building from the northern wall which is revetted into the slope.

10. Archive

10.1 The archive and a paper copy of the report and photographs will be deposited with the National Monuments Record, Aberystwyth.

Photographs are in TIFF format, following the standard required by the RCAHMW.

10.2 Further copies of the report have also been supplied to the client, and the Historic Environment Record at Clwyd Powys Archaeological Trust, Welshpool.

**APPENDIX A –Written Scheme of Investigation produced by
Trysor and agreed by Will Davies, Cadw, February 2017**

**WRITTEN SCHEME OF INVESTIGATION FOR GROUNDWORKS ON THE
SMITHY AT CWM ELAN MINE, ELAN VALLEY, RHAYADER**

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1. Introduction

1.1 Selwyn Jones has commissioned Trysor heritage consultants to provide a Written Scheme of Investigation for archaeological works required as part of Scheduled Monument Consent for RD153, Cwm Elan Mine.

1.2 This part of an ongoing project to consolidate and reroof the former smithy building at Cwm Elan Mine, that stands within the Scheduled area of the mine – RD153.

2. The proposed development

2.1 The Elan Valley Trust, with funding from Cadw, are undertaking the second of a planned three-phased programme of conservation, visitor access improvements and on site interpretation at the Cwm Elan Lead Mine.

3. Location of Development

3.1 Cwm Elan Mine lies at around 300 metres above sea level on the southeast facing slopes on the southwestern side of the Nant Methan. The slopes are relatively steep and the discrete complex occupies under 5 hectares.

3.2 The site lies on interbedded mudstone of the Cwmere Formation laid down approximately 428 to 444 million years ago in the Silurian Period. The local environment at that time was deep seas and the rocks came from occasional slurries from shallow water sediments which were then re-deposited as graded beds.

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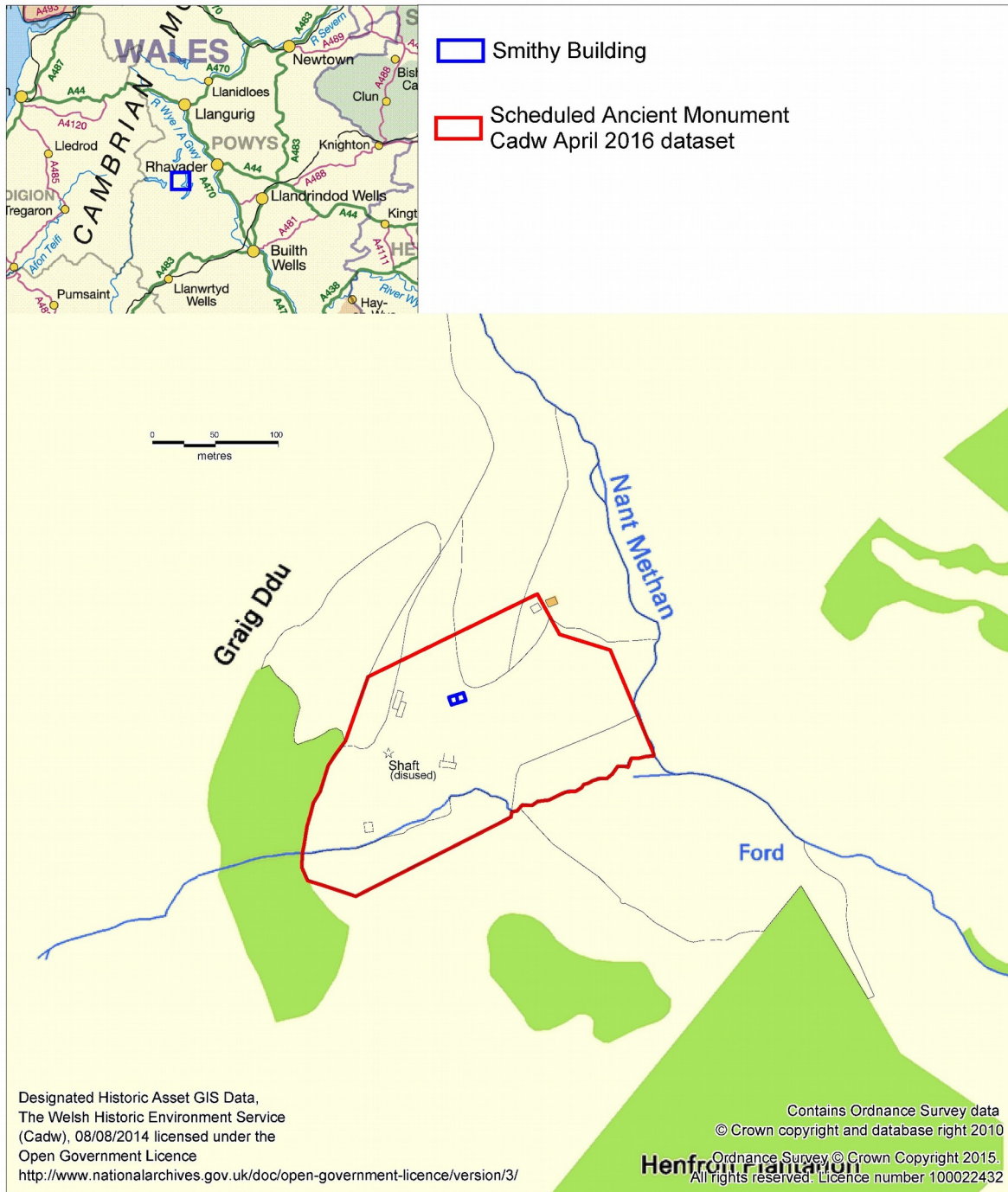


Figure 1: The location of the proposed development site.

4. Context of the Building Work

4.1 The deteriorating condition of the mine buildings, and the public safety issues these present have been a cause of concern both for the Elan Valley Trust and Cadw.

4.2 In 2014, following a series of meetings between Cadw and the Elan Valley Trust it was agreed that Cadw would match fund a programme of first time conservation works. These would make the site relatively safe for visitors and prevent the loss of further historic fabric. This would also prevent reduction of heritage values and significance of the monument.

4.3 In Phase I in 2015-6 saw the conservation of the stone-built mine Office which was both the most vulnerable structure and the most prominent. At the same time a series of Cintec anchors and pins were inserted into the Pumping Wheel Pit.

4.4 It was intended that the leaning gable walls of the Smithy would be treated in a similar way to the Pumping Wheel Pit but closer inspection resulted in the decision to partially rebuild these instead and re-instate the roof of the structure as a second phase of the project.

4.5 The 2016-7, Phase II, is concentrating on the consolidation and re-roofing of the two-celled Smithy. The building was essentially intact, apart from sections of the wall head below the former wall plates, and there was the survival of enough evidence to reconstruct the original arrangement. It was agreed that re-roofing would not only offer better long term protection to the whole structure but would prove some shelter and potential interpretative space for visitors.

4.6 The floors of the Smithy are presently covered in an uneven layer of rubble. This is covered by very wet mossy vegetation that has developed with the internal accumulation of water, presumably being caused by the blocking of natural drainage routes through the doors of the building. The Phase II works will see this rubble layer reduced and landscaped, in order to drain the interiors. A level gravel layer will be laid over the reduced surfaces. In order to avoid the disturbing potential buried deposits which may survive below the rubble and relate to the use of the building, this will not entail the complete clearance of either cell of the Smithy.

5. Objective of the Written Scheme of Investigation

5.1 The objective of this written scheme of investigation (WSI) is to specify the method to be used for the archaeological works.

5.2 The Chartered Institute for Archaeologists' Standard and Guidance for Archaeological Field Evaluation (CIfA, 014b) and Historic England's Understanding Buildings (Historic England, 2016) were used to write this Written Scheme of Investigation.

6. Nature of the Archaeological Resource

6.1 The remains of this relatively compact mid 19th century lead mine complex form one of the most complete examples of its type in Wales. Its unaltered layout and the level of preservation of its individual structures illustrate the entire extraction and processing sequence within a relatively small area of land.

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6.2 Mining explorations were started here by the landowner, Thomas Grove of Cwm Elan, after lead ore was discovered in 1796 during the digging of a drainage ditch. There is evidence of these late 18th century and earlier 19th century workings in the form of earthworks, such as open cuts and building platforms.

6.3 The main phase of mining began in 1871 when the “Cwm Elan Mining Company” was formed, and this is the period to which most of the surviving structures belong (Jones et al, 2004). The “New Cwm Elan Mine” was formed in 1875 after a period of drought had caused the voluntary liquidation of the former company. This new phase came to an end in 1877, and the purchase of the land by the Birmingham Water at the end of the 19th century meant that no attempt was made to work the site again.

6.4 The Smithy is thought to date to the 1875 to 1877 period of working, and it is a single storey, stone-built building, cut into the slope on its north and west sides, and divided into two cells. It stands on the location of a cottage called *Pengwaidd* on the tithe map, which had a rectangular enclosure behind it, upslope to the north.

6.5 The building measures 14 metres by 7 metres. The base of a smithing hearth stands against the centre of the northern wall of the eastern cell. The entrances to both cells are in the southern walls. A lean-to against the eastern end, thought to be a coal store, no longer stands.

7. Scope of Work

7.1 There are three elements to the work to be undertaken.

7.1.1 A photographic record of the elevations of the Smithy to Historic England Level 1/2 (Historic England, 2016). The record should comprise a series of head-on annotated photographs. These should show the extent of re-instatement undertaken during this phase of works and any diagnostic structural details such as putlog holes, joist holes or other timber seatings, corbels, changes in coursing or masonry style, metal fittings, voids and areas of render.

7.1.2 Hand excavate a small trial pit within the entrance to each of the two cells of the Smithy building. Evaluate the depth of rubble overlying the floors and presumed deposits associated with the use of the structure. This will inform the level to which each of the interiors should be cleared by the contractors prior to levelling off with gravel. Both pits should be excavated to the upper surface of the topmost significant archaeological deposit. The pits will also unblock the natural line of run-off from the interiors, reducing water inside the structure.

7.1.3 A watching brief on the clearance by the main contractor Selwyn Jones of the rubble within the interiors of the building to the agreed level. The contractors will retrieve stones with potential for re-use during conservation works; any significant dressed blocks, timber fragments or structural metal work are to be retained by the archaeologist as finds (storage can be agreed on Friday). There is a stop condition written into the grant award to ensure that adequate time is afforded to the archaeologists to record any significant archaeology revealed during clearance, and if necessary contact Cadw for advice.

8. Methodology

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Photographs, Test Pits and Watching Brief*

8.1 The photographic record to record the interior and exterior of the Smithy will be carried out in accordance with Historic England's *Understanding Historic Buildings: A guide to good recording practice*. They define a Level 2 record as;

“...as a **descriptive record**, made in similar circumstances to Level 1 but when more information is needed. It may be made of a building which is judged not to require a more detailed record, or it may serve to gather data for a wider project. Both the exterior and interior of the building will be seen, described and photographed. The examination of the building will produce an analysis of its development and use and the record will include the conclusions reached, but it will not discuss in detail the evidence on which this analysis is based. A plan and sometimes other drawings may be made but the drawn record will normally not be comprehensive and may be tailored to the scope of a wider project.”
(Historic England, 2016, p,26)

8.2 A test pit 0.5 metres wide and 1.50 metres long will be excavated within the western part of the entrance into each cell. Deposits will be removed by hand until the first archaeological context relating to the use of the smithy is exposed. Excavation will stop at this stage and contexts recorded. The test pits will be left open to allow inspection by Will Davies, Cadw and an appropriate level to which the interior of each cell should be reduced to agreed.

8.3 The excavation by the contractors of the interior of each cell will be watched by Trysor till the level agreed with Will Davies is reached. The contractors will retrieve and retain stones with potential for re-use during conservation works. Any significant dressed blocks, timber fragments or structural metal work are to be retained by the archaeologist as finds.

9. Recording – Excavation and Post Excavation

9.1 A written record of all activity will be kept as well as context records on pro-forma sheets for all archaeological contexts, based on the CEU recording manual. The notes and context sheets will form part of the project archive.

9.2 A plan of the location of the test pits and representative sections of the trenches will be drawn, at an appropriate scale. If any archaeological features are observed, they will be excavated and recorded, photographed, and planned at an appropriate scale. Plans will be drawn on permatrace to a scale of 1:10, 1:20 or 1:50, as appropriate.
All plans will be related to boundaries shown on 1:10000 Ordnance Survey mapping. Levels will be taken from a site datum which will be cross referenced to an Ordnance Survey datum.

9.3 Any artefacts will be dealt with in accordance with the guidance provided in the Chartered Institute for Archaeologists' *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2014b)*. All artefacts will be retained, cleaned and stored. They will be catalogued by context, including dimensions, weight, number, and description as relevant. Significant artefacts will be drawn at an appropriate scale.

9.4 Deposits of environmental or technological significance will be sampled according to *A guide to the theory and practice of methods, from sampling and recovery to post-excavation* published in 2002 as one of the Centre for Archaeology Guidelines by English Heritage.

9.5 In the event of human burials being discovered the Ministry of Justice will be informed. The remains will initially be left *in situ*, and if removal is required, a Ministry of Justice licence will be applied for under the Burial Act 1857.

9.6 Colour digital photographs will be taken, as appropriate, using a 18M pixel camera. A written record will be made on site of the photographs taken. Appropriate photographic scales will be used. The photographs will be archived with a full catalogue showing location of photographs and direction taken. Photographs will be archived in TIF format.

10. Contingency arrangements if archaeological features are discovered

10.1 In the event that archaeological remains are encountered where appropriate investigation falls outside the scope of this specification, a meeting between Trysor, the client and Cadw will be convened in order to agree a course of action. The client will be responsible for paying for any further work necessary such as curatorial monitoring, finds conservation, finds specialist, radio-carbon dating etc.

11. Reporting

11.1 Following the completion of the on-site work, a report on the archaeological work will be prepared according to the requirements of section 3.4 of the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Field Evaluation (CIfA, 2014a)*

11.2 The report will address the aims and purposes of the evaluation and be fully representative of the information gained including negative evidence. It will contain at a minimum:

- A non-technical summary of the archaeological works
- Introductory statement
- Aims and purposes of the archaeological works
- Methodology
- Results including documentary research, structural data and associated finds and/or environmental data recovered, details will be included in appendices as appropriate
- Interpretation
- Discussion/Conclusion
- Index to Archive and location of archive
- Illustrations, including a location plan
- Bibliography

11.3 Copies of the report will be provided to the client, to Cadw, to the National Monuments Record and the Powys Historic Environment Record.

12. Health & Safety

12.1 Trysor will undertake a risk assessment in advance of the fieldwork in accordance with their health and safety policy.

13. Dissemination

13.1 A summary of the work undertaken and its findings will be submitted to *Archaeology Wales*, if appropriate.

14. Archive

14.1 The paper and digital archive will be deposited with the National Monuments Record and Historic Environment Record, including a copy of the final report in accordance with the CIfA's *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives* (CIfA, 2014c). This archive will include all written, drawn and photographic records relating directly to the investigations undertaken. Digital archives will follow the standard required by the RCAHMW (RCAHMW, 2015).

14.2 After recording and reporting, any artefacts will be deposited in a suitable location, , after consultation with the landowner and Cadw.

15. Resources to be used

15.1 Jenny Hall, BSC, MCIfA and Paul Sambrook, BA, PGCE, MCIfA of Trysor will undertake the fieldwork outlined and reporting and archiving. During the fieldwork they will be equipped with standard field equipment, including digital cameras, GPS and first aid kit. Trysor have access to the computer hardware and software required to deliver the completed final report and archive to a professional standard.

16. Qualification of personnel

16.1 Trysor is a Registered Organisation with the Chartered Institute for Archaeologists and both partners are Members of the Chartered Institute for Archaeologists, www.archaeologists.net

16.2 Jenny Hall (BSc Joint Hons., Geology and Archaeology, MCIfA) had 12 years excavation experience, which included undertaking area and trench excavation, watching briefs and post excavation work. She worked on the extensive Stanwick Roman villa project in Northamptonshire for several seasons and undertook a year of postexcavation work with the project. In 1993 she became the Sites and Monuments Record Manager for a Dyfed Archaeological Trust for 10 years. She has been a partner in Trysor since 2004 undertaking a variety of work that includes upland field survey, desk-based appraisals and assessments, watching briefs and evaluations as well heritage interpretation and community-based projects.

16.3 Paul Sambrook (BA Joint Hons., Archaeology and Welsh, MCIfA, PGCE) has extensive experience as a fieldworker in Wales. He was involved with Cadw's pan-Wales Deserted Rural Settlements Project for 7 years. He also undertook Tir Gofal field survey work and watching briefs. He has been a partner in Trysor since 2004 undertaking a variety of work including upland field survey, desk-based appraisals/assessments, watching briefs and evaluations as well as community-based, non-intrusive projects and community heritage interpretation.

16.4 Dee Williams (BA Archaeology and Classical Studies) graduated from the University of Wales, Lampeter. After University she pursued a career in field archaeology. Her first supervisory post was with Wessex Archaeology (Manpower Service Commission 1984-5) as the Finds Officer on a large multi-period urban excavation in Dorchester. From 1986 to 1994 she was employed as the Finds Officer with the Dyfed Archaeological Trust. From 1994 to the present she has worked as an administrator in the Department of Archaeology at Lampeter but continues her research interests in finds with specialisms in ceramics and glass.

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Photographs, Test Pits and Watching Brief*

16.5 Martin Locock (BA, MCIfA) – Martin has undertaken many bone reports for Glamorgan Gwent Archaeological Trust and others. He has also undertaken studies of bricks and mortar.

16.6 Dr Ian Brooks (PhD, BA, MCIfA, FSA) - Flint assemblages of any size from a single artefact to many thousands of artefacts can be analysed. Recent projects have varied from a few artefacts recovered during the excavation of a late medieval house in North Wales to over 16,000 Mesolithic artefacts from Bath. In addition to standard typological studies Ian Brooks has developed specialist techniques to investigate the original source of the flint and the deliberate heat treatment of flint by the use of micropalaeontology.

16.7 Wendy Carruthers (BSc, MSc) has worked as a freelance archaeobotanist for over 30 years, mainly analysing plant macrofossils from sites in southern and central England and Wales. After graduating in Manchester she worked as a field botanist for a year, followed by a couple of years on archaeological excavations as a digger and planner. I then took the Masters course in Plant Taxonomy at Reading, and started working as a freelance archaeobotanist after I graduated. In the early 1990s she was the English Heritage Archaeobotanist at the Ancient Monuments Laboratory for four years. Over the years she has analysed charred, waterlogged, mineralised, silicified and desiccated plant remains. She is particularly interested in preservation by mineralisation.

17. Insurance & Professional indemnity

17.1 Trysor has Public Liability and Professional Indemnity Insurance.

18. Project identification

18.1 The project has been designated Trysor Project No. 2017/550. Identifying site code will be CEM2017.

19. Monitoring

19.1 Will Davies, Regional Inspector of Ancient Monuments and Archaeology (North East Wales), Cadw will be informed as to when work will start on site.

20. Sources

- Cadw. 2017, *RD153: Cwm Elan Lead Mine. Brief for archaeological works*
- Chartered Institute for Archaeologists, 2014a, *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*
- Chartered Institute for Archaeologists, 2014b, *Standard and Guidance for Archaeological Field Evaluation*
- Chartered Institute for Archaeologists, 2014c, *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*
- Historic England, 2017, *Understanding Historic Buildings: A Guide to Good Recording Practice*
- Jones, N, Walters, M and Frost, P, 2004, *Mountains and Orefields: Metal Mining Landscapes of Mid and North-east Wales*, CBA Research Report 142

Jenny Hall & Paul Sambrook

Trydor, February 2017

APPENDIX B: Photographs



Plate 1: CEM2017_101. A general view of the former mine smithy building. It stands on the same site as the earlier Pen y Gwaith cottage and may incorporate some fabric of the dwelling. Looking north-northeast.



Plate 2: CEM2017_102. A view of the former mine smithy building undergoing re-roofing. Looking east-northeast.

*Smithy at Cwm Elan Mine, Elan Valley,
Photographs, Test Pits and Watching Brief*



Plate 3: CEM2017_103. A closer view of the former mine smithy building. Looking north-northeast.



Plate 4: CEM2017_104. A view of the former mine smithy building. Looking south-southeast.

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Photographs, Test Pits and Watching Brief*



Plate 5: CEM2017_105. A view of the former mine smithy building. The spoil tips of the main shaft can be seen in the background to the right. Looking south-southwest.



Plate 6: CEM2017_106. A view of the former mine smithy building. Looking east-northeast.

*Smithy at Cwm Elan Mine, Elan Valley,
Photographs, Test Pits and Watching Brief*



Plate 7: CEM2017_107. A view of the southern side of the former mine smithy building. Room A (the forge) is to the right and Room B to the left. Looking north-northeast.



Plate 8: CEM2017_108. A view of the western gable wall of the former mine smithy. Looking east-northeast.

*Smithy at Cwm Elan Mine, Elan Valley,
Photographs, Test Pits and Watching Brief*



Plate 9: CEM2017_109. A view of the northern side of the former mine smithy. Looking south-southeast.



Plate 10: CEM2017_110. A view of the eastern gable wall of the former mine smithy. Looking west-southwest.



Plate 11: CEM2017_111. The existing ground surface (001), which includes modern building rubble and cement, at the entrance of Room A, showing Test Pit 1 pegged out ready for excavation. Looking north-northwest.



Plate 12: CEM2017_112. The removal of the renovation material (001) in Trench A reveals the turf layer (002) above a jumble of stones derived from the ruination of the building after it fell out of use (003). Looking south-southeast.



Plate 13: CEM2017_113. A view of Test Pit 1 showing the flagstone of the smithy floor (006) in the foreground with a large threshold slab (004) at the top of the trench, separated by a layer of shale gravel (005) which may represent an infilled gully or drain (this was not excavated). Looking south-southeast.



Plate 14: CEM2017_114. A view of Test Pit 1 showing the flagstone of the smithy floor (006) in the foreground with a large threshold slab (004) at the top of the trench, separated by a layer of shale gravel (005) which may represent an infilled gully or drain (this was not excavated). Looking north-northwest.



Plate 15: CEM2017_115. A view of Test Pit 2 at the entrance into Room B after removing layer (007). The view shows threshold stones (008) at the doorway and evidence of a stone and clay floor (009) in the foreground. Looking south-southeast.



Plate 16: CEM2017_116. A view of Test Pit 2 at the entrance into Room B after removing layer (007). The view shows threshold stones (008) at the doorway and evidence of a stone and clay floor (009) in the foreground. Looking north-northwest.



Plate 17: CEM2017_117. A view of the inside of Room A, the forge, during re-roofing. Looking north-northwest.



Plate 18: CEM2017_118. A view of the inside of the eastern gable wall of Room A. Looking east-northeast.



Plate 19: CEM2017_119. A view of the inside of the western gable wall of Room A. Looking west-southwest.

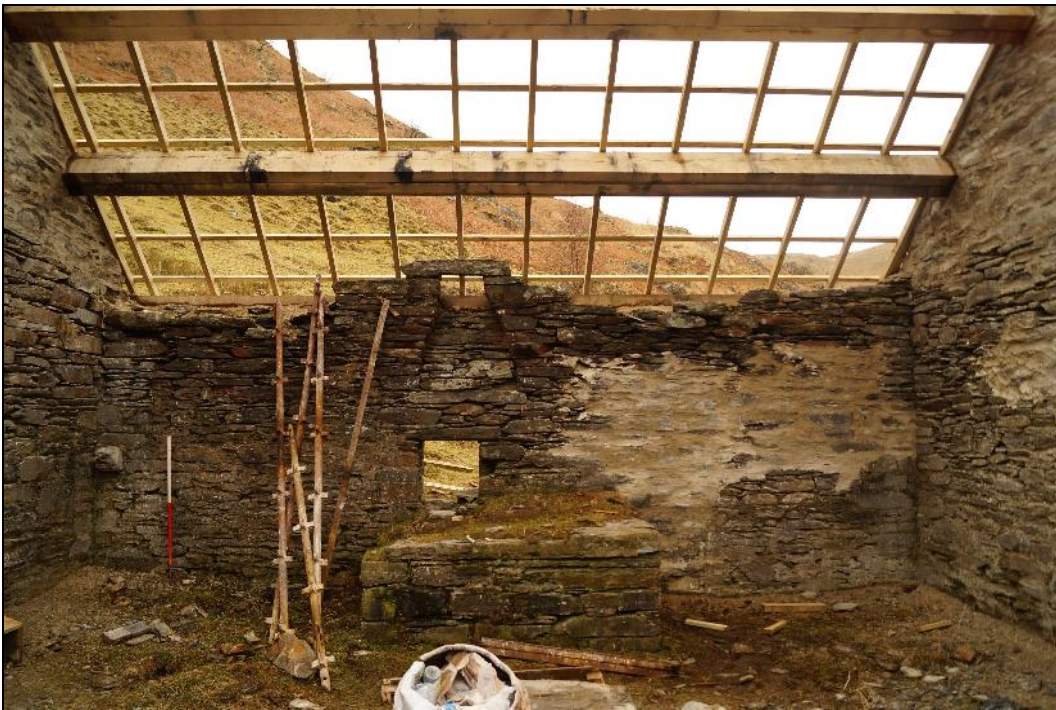


Plate 20: CEM2017_120. A view of the inside of the northern lateral wall of Room A. The position of the forge is shown, with the opening for a small window and the chimney above. Looking north-northwest.



Plate 21: CEM2017_121. A view of the site of the forge. Looking northwest.



Plate 22: CEM2017_122. A view of the southern lateral wall of Room A, showing the position of the door and window. Test Pit 1 can be seen inside the doorway. Looking south-southeast.



Plate 23: CEM2017_123. A view of the southern lateral wall of Room B, showing the position of the door and window. Looking south-southeast.



Plate 24: CEM2017_124. A view of the northern lateral wall of Room B. Looking north-northwest.



Plate 25: CEM2017_125. A view of the western gable wall of Room B. Looking west-southwest.



Plate 26: CEM2017_126. A view of the western gable wall of Room B, showing the base of the wall. Looking west-southwest.



Plate 27: CEM2017_127. A view of the eastern gable wall of Room B. Looking east-northeast.



Plate 28: CEM2017_128. A view of the eastern gable wall of Room B, showing the base of the wall. Looking east-northeast.

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Plate 29: CEM2017_129. A view of the entrance into Room A, the forge, showing the threshold stone (004), after the removal of the layers (001) and (002) inside the room. This level was maintained and terram and gravel was to be laid across the interior without further material being removed. Looking north-northwest.



Plate 30: CEM2017_130. A view of the forge inside Room A after partial removal of layers (001) and (002). Note the darker layer (010) exposed in front of the forge, which may be waste derived from the work at the smithy. Looking north-northwest.



Plate 31: CEM2017_131. A closer view of the forge and the darker layer (010) around its base. Looking north-northwest.



Plate 32: CEM2017_132. A closer view of the forge and the darker layer (010) around its base. Looking northeast.



Plate 33: CEM2017_133. A view of the floor of Room B, after the removal of the mixed layer (007). This level was maintained and terram and gravel was to be laid across the interior. Looking northwest.



Plate 34: CEM2017_134. A view of the floor of Room B, after the removal of the mixed layer (007). The surface was quickly covered with waterlogged mud, with ground water flowing from the north wall towards the south wall. This level was maintained and terram and gravel was to be laid across the interior. Looking north.