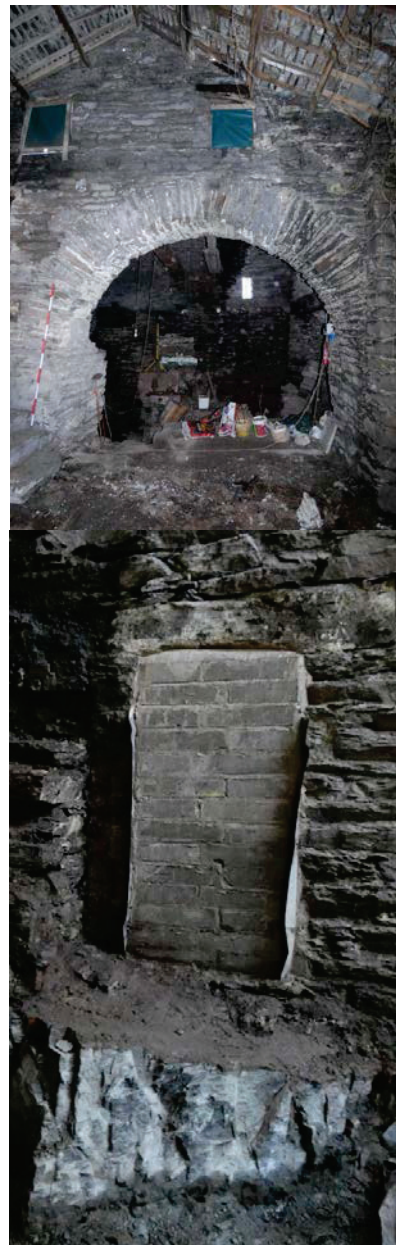


# FURNACE COTTAGE BARN, NEWLAND, ULVERSTON, CUMBRIA

## Additional Archaeological Building Recording and Watching Brief



Client:  
Ms S Brown and Mr I White

NGR: 330000 479700

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September 2021



<b>The Site</b>	
Site Name	Furnace Cottage Barn, Newland, Ulverston
County	Cumbria
NGR	330000 479700

<b>Client</b>	
Client Name	Ms S Brown and Mr I White
Client's architect/agent	John Coward Architects

<b>Planning</b>	
Planning Application refs.	SL/2017/0910 and SL/2017/0911
SMC No.	S00178266
Works forming condition of SMC	Recording of exposed part of south elevation of furnace, watching brief on groundworks (foundations for installation of dividing wall, reduction of ground level inside building, and creation of new external staircase)

<b>Archiving</b>	
Relevant Record Office(s)/Archive Centre(s)	Barrow-in-Furness
Relevant HER	Cumbria
Relevant museum	The Dock Museum, Barrow-in-Furness or Newland Furnace Trust

<b>Staffing</b>	
Building Recording	Dan Elsworth
Watching brief	Dan Elsworth
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Illustrations	Tom Mace
Date(s) site work carried out	26/02/2019, 04/05/2020, 03/11/2020, 06/11/2020, 13/11/2020, 19/11/2020, 23/11/2020 and 08/07/2021

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## Contents

Illustrations.....	1
Non-Technical Summary.....	3
Acknowledgements.....	3
1. Introduction.....	4
2. Methodology.....	6
3. Site History.....	8
4. Results.....	14
5. Discussion and Conclusion.....	30
6. Bibliography.....	32
Appendix 1: Project Design.....	34
Appendix 2: Census Details.....	41
Appendix 3: Summary Context List.....	42
Appendix 4: Summary Finds List.....	43

## Illustrations

### List of Figures

Figure 1: Site location.....	5
Figure 2: North internal elevation of the barn.....	15
Figure 3: Area 1 after initial excavation.....	23
Figure 4: Area 1 following the removal of 104 and Area 2.....	24
Figure 5: Area 3.....	25
Figure 6: South-facing section of Area 3.....	26

### List of Plates

Plate 1: Extract from the estate plan of c1804 showing the location of the barn.....	8
Plate 2: Extract from the Ulverston commons enclosure map of 1812 showing the location of the barn.....	9
Plate 3: Extract from the Egton with Newland enclosure map of 1823, showing the location of the barn.....	9
Plate 4: Extract from an undated estate map, probably mid-19 <sup>th</sup> century, showing various elements associated with the furnace, showing the location of the barn.....	9
Plate 5 (left): Extract from 1851 Ordnance Survey, showing the location of the barn.....	10
Plate 6 (right): Extract from 1890 Ordnance Survey, showing the location of the barn.....	10
Plate 7 (left): Extract from 1904 indenture plan, showing the location of the barn.....	10
Plate 8 (right): Extract from 1913 Ordnance Survey, showing the location of the barn.....	10
Plate 9: Ground floor plan of the blast furnace (Goodall 2001, figure 4), showing the location of the barn (labelled 'warehouse').....	11
Plate 10: Newland Furnace c1897 shortly after its closure (Anon 1897).....	13
Plate 11: Rectified image of the north internal elevation of the barn.....	14
Plate 12 (left): Haematite staining against the west wall of the barn, viewed from the south-east.....	17

Plate 13 (right): Example of Baltic timber mark on the central truss, viewed from the north.....	17
Plate 14 (left): Example of Baltic marks on the south truss, viewed from the north .....	17
Plate 15 (right): Carpenter's marks on the north truss, viewed from the south .....	17
Plate 16 (left): Area 1 prior to excavation, viewed from the north .....	18
Plate 17 (right): Area 1 showing timber 104 exposed next to wall 102, viewed from the north .....	18
Plate 18 (left): Detail of wall 102 showing the iron bolt <i>in situ</i> , viewed from the east.....	19
Plate 19 (right): Timber 104 fully exposed, viewed from the east .....	19
Plate 20 (left): Walls 102 and 103 and timber 104, viewed from the west .....	19
Plate 21 (right): The opening in the east wall into which timber 104 continued, viewed from the west .....	19
Plate 22 (left): Slate packing below timber 104, viewed from the north .....	20
Plate 23 (right): Limestone block beneath the slate packing, viewed from the north-west .....	20
Plate 24 (left): The buttress exposed following the removal of the stairs, viewed from the south-east .....	21
Plate 25 (right): The remains of the buttress showing its relationship with the furnace wall and the channel cut into the bedrock, viewed from the south.....	21
Plate 26 (left): Deposits 107-109 in section, viewed from the south .....	21
Plate 27 (right): Deposit 107 on top of the bedrock, viewed from the south .....	21
Plate 28 (left): Excavation through bedrock, viewed from the south-east .....	22
Plate 29 (left): South-facing section of Area 3, viewed from the south .....	22
Plate 30 (right): North-facing section of Area 3, viewed from the north.....	22
Plate 31 (left): Brown earthenware plate from context 107 .....	27
Plate 32 (right): Brown earthenware vessels from context 107.....	27
Plate 33 (left): Creamware from context 107.....	28
Plate 34 (right): Pearlware from context 107 .....	28
Plate 35: Blue transfer printed pearlware vessel base from context 107 .....	28



## Non-Technical Summary

Following the submission of a planning application for the conversion of a barn at Furnace Cottage, Newland, Ulverston, Cumbria, into a dwelling and following an initial phase of archaeological building recording and a submission for Scheduled Monument Consent, a condition was placed on the SMC requiring a further phase of building recording and archaeological watching brief. Greenlane Archaeology was appointed to carry out this work, with the ground works monitored by the watching brief taking place sporadically between February 2019 and July 2021.

The furnace was built in 1746-7 by Richard Ford and his associates, who became known as the Newland Company, following the acquisition of an existing mill in Newland, which brought with it control over the leat necessary to provide water power to the furnace. The map evidence shows that a roofed structure was extant on the current footprint of the barn from at least c1804. The earlier building recording revealed that the building had essentially been constructed by the infilling of a space between the furnace, to the north, the cottage, to the south, and the casting house to the east. However, it is likely that the lower part of the west wall is the earliest element. This may be contemporary with the furnace but was probably constructed in part to retain the mill leat beyond by revetting the slope. The structure was probably subsequently raised in height, perhaps in 1854 when the doorway in the north-east corner was created, although it is considered that this is more likely because an earlier, wider, opening was partially blocked rather than because this new one was inserted, as has previously been suggested. After the furnace went out of use it is recorded that it was used as a joiner's workshop and then garage and it is likely that some of the most recent alterations to the doorways as well as changes to the internal access relate to this period.

The additional building recording comprised photographing the internal north wall of the barn, which had originally been part of the external south wall of the furnace, following the removal of covering material. The watching brief then monitored excavation in three areas: for the footings for a new dividing wall within an opening in the north elevation of the barn, the during the removal of a raised area of bedrock in the north-west corner of the barn, and for the creation of a new staircase against the exterior of west wall of the barn. A range of features and finds were encountered within these three areas, including a structural timber and two sections of wall dating from after the furnace had gone out of use and dumped deposits of material relating to the same period but also, more significantly, a series of layers of material dating from the early phase of the furnace's operation. These included a considerable number of finds, which have the potential to provide more information about the people who worked at the furnace.

## Acknowledgements

Greenlane Archaeology would like to thank the client, Mr White and Ms Brown, for commissioning the project and for their assistance on site. Further thanks are due to the builder, John Curtis, and his colleagues for their assistance during the ground works.

The rectified image of the north internal elevation of the barn was produced by Adam Stanford at Aerial-Cam.

## 1. Introduction

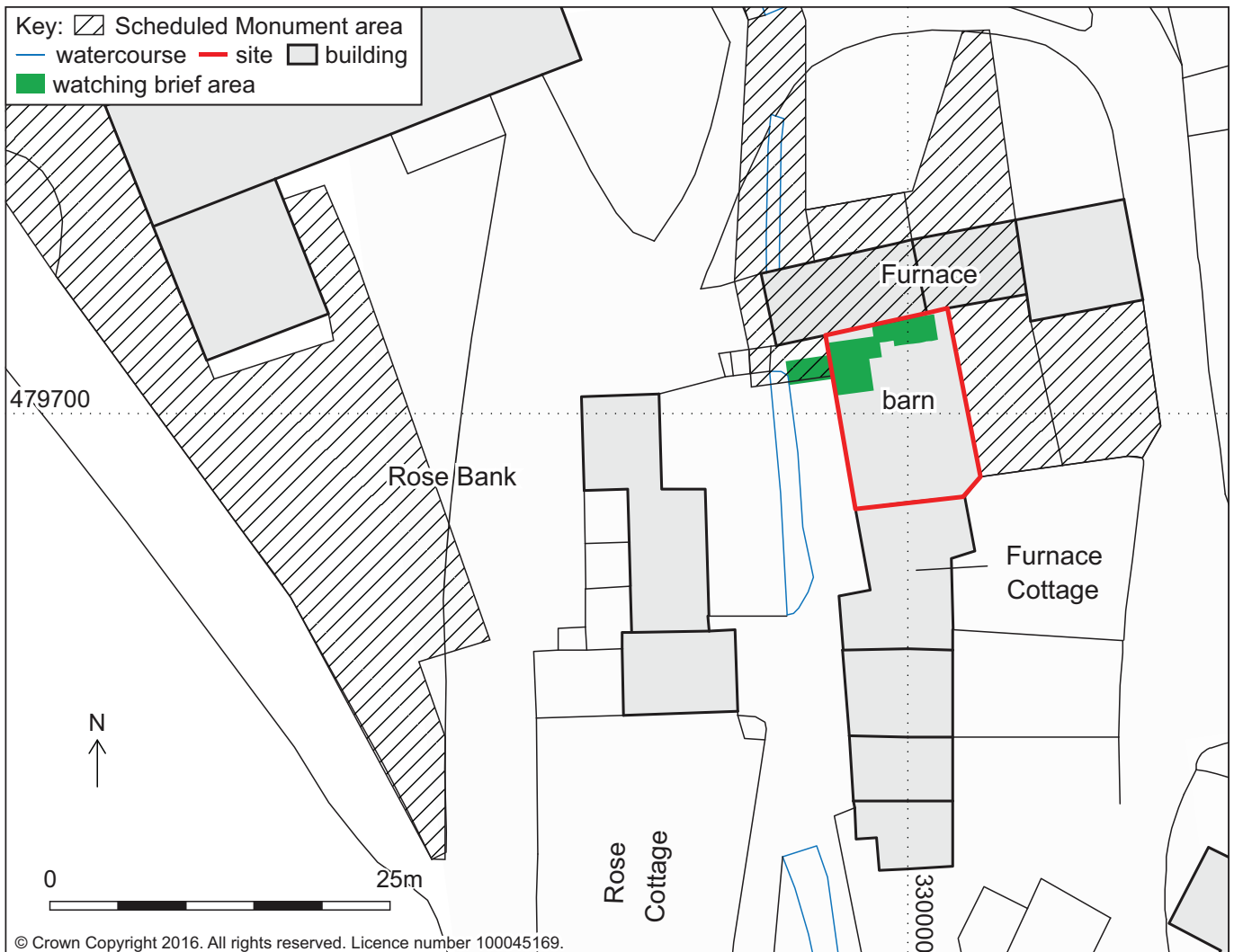
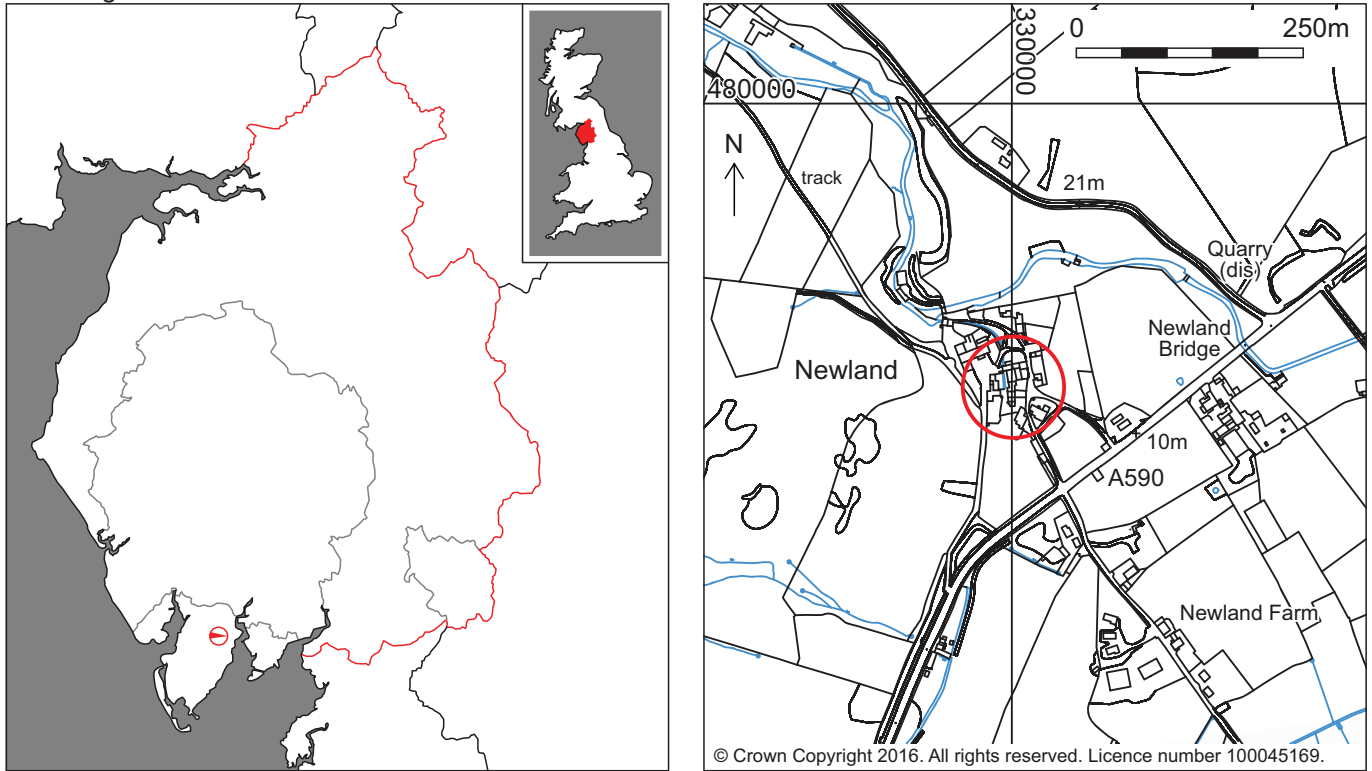
### 1.1 Circumstances of the Project

1.1.1 The circumstances of the project are set out on the inside cover of this report.

### 1.2 Location, Geology, and Topography

1.2.1 The village of Newland is approximately 1.5km north-east of the centre of Ulverston, and situated at the end of the Newland Beck valley (Figure 1). Furnace Cottage barn is immediately west of the blast furnace and attached to and part of the Scheduled Monument for the blast furnace and associated structures at Newland. It is also attached to a Grade II Listed row of cottages to the south, including Furnace Cottage.

1.2.2 The site lies near the base of a steep slope rising up to an area of high ground, formerly part of the common land of Ulverson, and is at approximately 15m above sea level (Ordnance Survey 2005). The main road into the area, the A590, is approximately 170m to the south-east. Newland is within the West Cumbria coastal plain, a landscape generally made up of pastoral land in an '*undulating or rolling topography*' (Countryside Commission 1998, 27). The solid geology is typically made up of Bannisdale slate and Carboniferous limestone (Moseley 1978, plate 1), and this is overlain by a drift geology made up of glacially-derived tills comprising boulder clay, sands and gravels (Countryside Commission 1998, 27).



Client: Ms S Brown and Mr I White

Figure 1: Site location

## 2. Methodology

### 2.1 Desk-Based Assessment

2.1.1 A desk-based assessment was carried out as part of the original building recording (Greenlane Archaeology 2017) in accordance with the guidelines of the Chartered Institute for Archaeologists (CIfA 2014a). This principally comprised an examination of early maps of the site and published secondary sources. A number of sources of information were used during the compilation of the desk-based assessment:

- **Record Office/Archive Centre:** the majority of original and secondary sources relating to the site are deposited in the relevant Record Office(s) or Archive Centre(s), as specified in the cover sheet of this report. Of principal importance are early maps of the site. These were examined in order to establish the development of the site, date of any structures present within it, and details of land use, in order to set the site in its historical, archaeological, and regional context. In addition, any details of the site's owners and occupiers were acquired where available;
- **Online Resources:** where available, mapping such as Ordnance Survey maps and other historical sources were consulted online;
- **Greenlane Archaeology:** Greenlane Archaeology's office library includes maps, local histories, and unpublished primary and secondary sources. These were consulted where relevant, in order to provide information about the history and archaeology of the site and the general area.

### 2.2 Building Recording

2.2.1 The additional building recording, of the north wall of the barn following the removal of obstructions, was carried out to Historic England Level 2/3 type standards (Historic England 2016) and according to the standards and guidance of the CIfA (2014b), which provides a relatively detailed record of the building. The recording comprised the following elements:

- **Written record:** descriptive records of all parts of the building were made using Greenlane Archaeology *pro forma* record sheets;
- **Photographs:** photographs in colour digital format (as both 12meg jpegs and RAW files) were taken of the main features of the building, its general surroundings, and any features of architectural or archaeological interest. A selection of the colour digital photographs is included in this report, and the remaining photographs are in the project archive. These photographs were also used to produce a rectified image of the whole elevation through the use of Agisoft software by Adam Stanford at Aerial-Cam;
- **Drawings:** a drawing of the north internal elevation of the barn, which had originally formed part of the south elevation of the blast furnace, was produced from the rectified photograph and utilising a measured sketch made on site at a scale of 1:50.

### 2.2 Watching Brief

2.2.1 All aspects of the archaeological recording were carried out according to the standards and guidance of the Chartered Institute for Archaeologists (CIfA 2014c) and Greenlane Archaeology's own excavation manual (2007). The excavation work was carried out by mechanical excavator observed by staff from Greenlane Archaeology and all deposits and features exposed were recorded in the following manner:

- **Written record:** descriptive records were made using Greenlane Archaeology *pro forma* record sheets;
- **Photographs:** photographs in both 35mm colour print and colour digital format were taken of all archaeological features uncovered during the watching brief, as well as general views of the site, the surrounding landscape, and working shots. A selection of the colour digital photographs is

included in this report. A written record of all of the photographs was also made using Greenlane Archaeology *pro forma* record sheets;

- **Drawings:** drawings were produced on site as follows:
  - i. the location plan of the watching brief areas was marked on plans of the site at a scale of 1:20 and 1:50
  - ii. a section of one of the areas of excavation was produced at a scale of 1:20.

## 2.3 Environmental Samples

2.2.1 No environmental samples were taken as no appropriate deposits were encountered.

## 2.4 Finds

2.4.1 **Processing:** all of the artefacts recovered from the watching brief were washed, with the exception of metal objects, which were dry-brushed. They were then naturally air-dried and packaged appropriately in self-seal bags with white write-on panels.

2.4.2 **Assessment and recording:** the finds were assessed and identified in the first instance by Jo Dawson (pottery and other post-medieval finds), Tom Mace (animal bone and clay tobacco pipe), and Dan Elsworth (metal and industrial). The finds were recorded directly into the catalogue produced as part of this report (*Appendix 2*) with a summary presented in *Section 4.3*.

## 2.5 Archive

2.5.1 A comprehensive archive of the project has been produced in accordance with the project design and current ClfA and English Heritage guidelines (ClfA 2014d). The paper and digital archive and a copy of this report will be deposited in the Cumbria Archive Centre in Barrow-in-Furness (CAC(B)) on completion of the project. A paper copy or digital copy of this report will be provided for Historic England and the Historic Environment Service at Cumbria County Council for placement in the Historic Environment Record. In addition, a paper copy will be provided to the client if requested and one will be retained by Greenlane Archaeology. A digital record of the project will also be made on the *Online Access to the Index of Archaeological Investigations* (OASIS) scheme.

### 3. Site History

#### 3.1 Map and Image Regression

3.1.1 **Introduction:** although there are early, typically county-wide, maps that include the area, they are generally very small scale and so the first useful maps of the area do not appear until the early 19<sup>th</sup> century. As a result, it is primarily maps from that date onwards that are discussed below.

3.1.2 **Estate plan of c1804:** this early and relatively detailed plan (CAC(B) BD/BUC/49/Bundle 1/16 c1804) shows that the iron furnace complex had taken on much of its current form by this date and the area in which the barn is located is clearly filled with a structure by this time. The plan is undated but has a watermark of 1804 so cannot be earlier than this date.

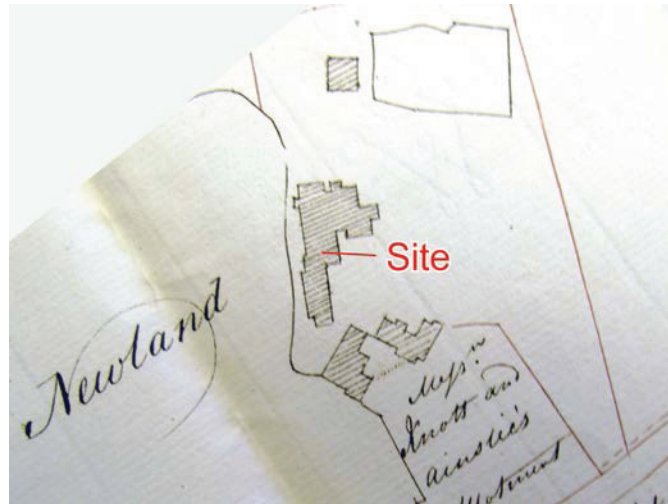


Plate 1: Extract from the estate plan of c1804 showing the location of the barn

3.1.3 **Ulverston Commons Enclosure map of 1812:** this plan (Plate 2; Ulverston Local Board 1891), which was primarily intended to show the extent of the Ulverston commons enclosure, shows some elements of Newland. The terrace to the south of the furnace is not shown but as it is the map is incomplete and seems to only show those structures that fall wholly or partially on the Ulverston side of the parish boundary and in a very simplified way.

3.1.4 **Egton with Newland Commons Enclosure 1823:** this plan (LRO AE/4/5 1823; Plate 3) is generally remarkably similar to that of c1804 (CAC(B) BD/BUC/49/Bundle 1/16 c1804) and it seems likely that one is based on the other (as the estate plan of c1804 is undated it is perhaps likely that it is copied from the enclosure map, especially as it seems more likely that the enclosure map would be based on an original survey, but this would mean that the paper used for the estate plan was almost 20 years old).



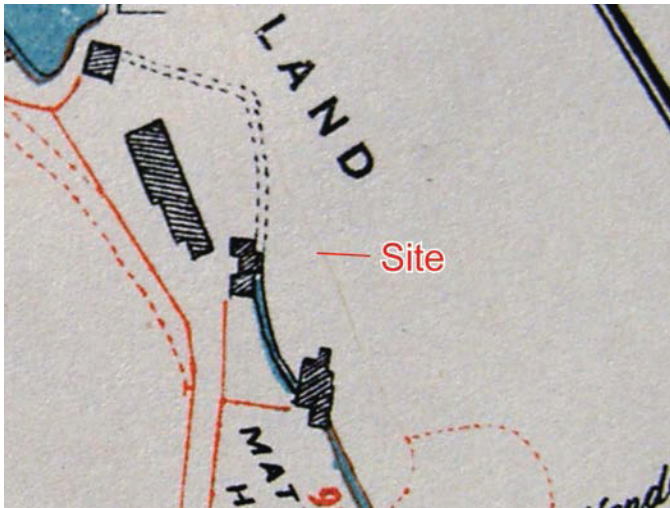


Plate 2: Extract from the Ulverston commons enclosure map of 1812 showing the location of the barn



Plate 3: Extract from the Egton with Newland enclosure map of 1823, showing the location of the barn

3.1.5 **Undated estate plan (probably mid-19<sup>th</sup> century)**: this is a detailed plan of the site (Plate 4; CAC(B) BD/BUC/Box 40/Bundle 2/58 nd) and, although undated, is considered likely to be mid-19<sup>th</sup> century (see Goodall 2001, figure 2). It is particularly useful because it names various elements of the site. A division is shown between the furnace to the north and houses to the south, which corresponds to the division between the barn and cottage.



Plate 4: Extract from an undated estate map, probably mid-19<sup>th</sup> century, showing various elements associated with the furnace, showing the location of the barn

3.1.6 **Ordnance Survey 1851**: this plan is broadly similar to the probably mid-19<sup>th</sup> century estate plan but no internal divisions are shown (Plate 5; cf. Plate 4).

3.1.7 **Ordnance Survey 1890**: this more detailed map shows the internal divisions within the furnace and terrace to the south (Plate 6).





Plate 5 (left): Extract from 1851 Ordnance Survey, showing the location of the barn



Plate 6 (right): Extract from 1890 Ordnance Survey, showing the location of the barn

3.1.8 **Plan 1904:** this plan (CAC(B) BDHJ/184/7/1 1904; Plate 7) has probably been hand drawn from the 1890 Ordnance Survey map (cf. Plate 6).

3.1.9 **Ordnance Survey 1913:** the layout of the buildings is apparently unchanged (Plate 8).

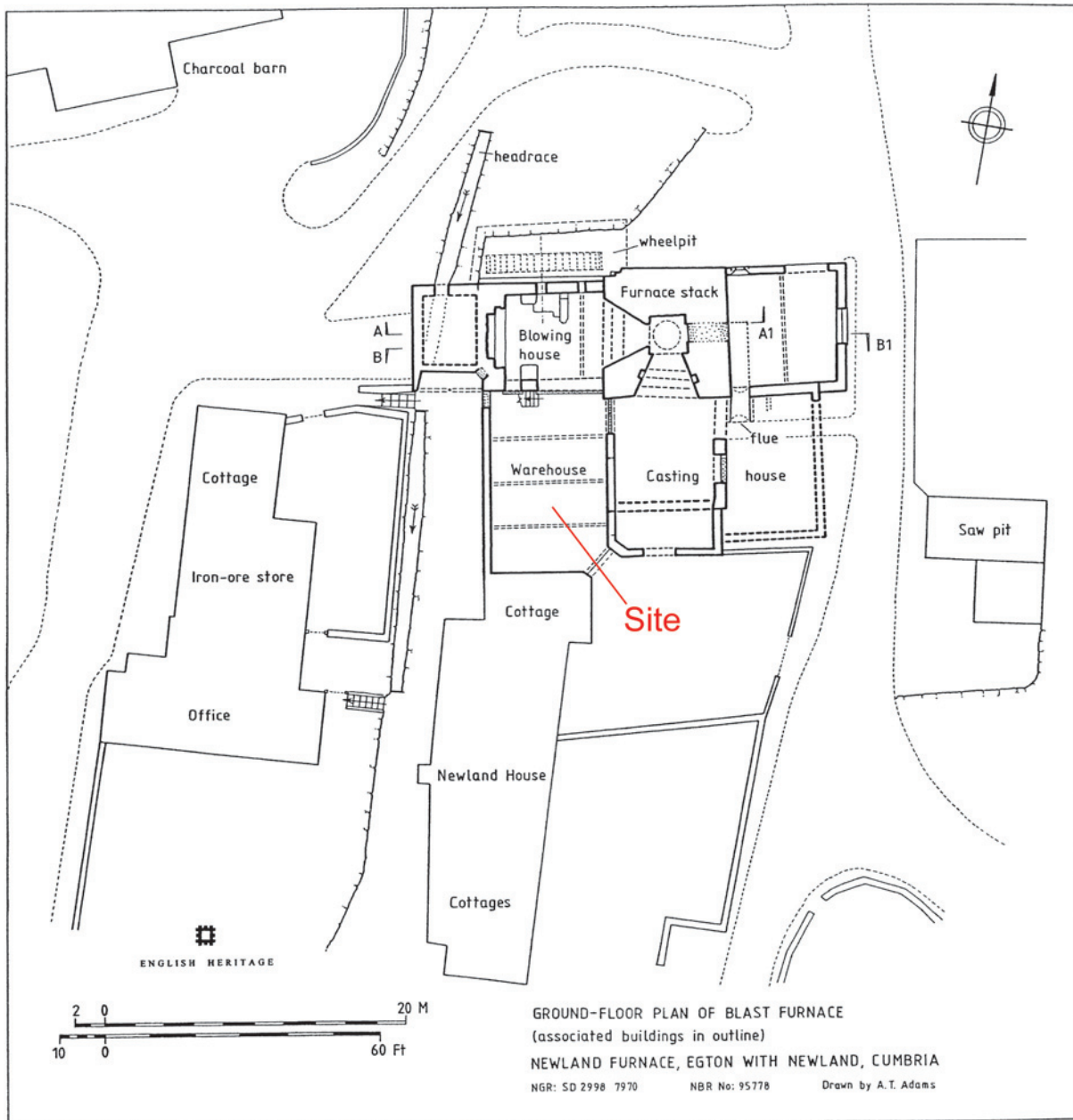


Plate 7 (left): Extract from 1904 indenture plan, showing the location of the barn



Plate 8 (right): Extract from 1913 Ordnance Survey, showing the location of the barn

3.1.10 **Survey report, 2001:** drawings of the buildings at the furnace complex were produced as part of an English Heritage survey of the site, which was visited in 1997 (Goodall 2001, figure 4; Plate 9). The barn, south of the blowing house and north of the cottage, is labelled 'Warehouse'.



**Plate 9: Ground floor plan of the blast furnace (Goodall 2001, figure 4), showing the location of the barn (labelled 'warehouse')**

3.1.11 **Summary:** the barn clearly formed part of the south side of the furnace complex, probably at least as early 1823 as it appears to be shown on the Egton with Newland Commons Enclosure map of that date. It is possible that it formed part of an earlier structure, since a blast furnace is recorded at Newland from the first half of the 18<sup>th</sup> century (see Section 3.4.5 below), but this is uncertain from the mapping evidence. The division between the cottage and the barn is first shown on an undated estate plan of probably mid-19<sup>th</sup> century date and the division between it and the blowing house is shown on maps dating from 1890 onwards. It is described as a warehouse on the plan of the blast furnace produced by English Heritage in 2001 (Goodall 2001, figure 4).

## 3.2 Site History

3.2.1 The background history to the site helps our understanding of the development and use of the site, where known, making use of the map evidence presented above (see Section 3.3) where relevant.



The background to the site is intended to place the results of the project in its local context, so a brief discussion of the earlier history of its wider environs is necessary.

**3.2.2 Early History:** while there is evidence for prehistoric activity from the area around Ulverston in the form of casual finds such as stone axes and axe hammers dating from the Neolithic and Bronze Age (CCC and EH 2002, map D), the extent of any associated settlement is, as yet, uncertain. More recently a large enclosure has been identified on Hoad Hill, immediately to the west of Newland, which is considered likely to be of Late Bronze Age or Iron Age origin (Elsworth 2005; Elsworth 2014).

**3.2.3** Although there have been occasional finds of Roman coins, no evidence has yet been confirmed of settlement from that period in the immediate area. Some of these stray finds, such as a coin (Shotter 1989, 42), have been found in relatively close proximity to the site, however, and fragments of possible Romano-British pottery have been found during evaluations in Ulverston (OA North 2004; Greenlane Archaeology 2006). Recent work reappraising the evidence for Roman activity in the general area has suggested that a road may have passed close to or through Ulverston and that this could have had an associated settlement (Elsworth 2007).

**3.2.4 Medieval:** the hamlet of Newland is recorded as early as c1196 in the Coucher Books of Furness Abbey (Atkinson 1887, 385); the place-name might be taken to indicate land that had been relatively recently taken into cultivation. A mill is recorded at Newland from as early as 1331 (Farrer and Brownbill 1914, 359n) and by at least 1347 it is part of property held by William de Coucy and Robert de Coucy of Gynes (Farrer 1915, 154). Later, in 1535, it is recorded as having paid rent to Furness Abbey (Farrer and Brownbill 1914, 359n) The tenant at the time was a John Corker (Brownbill 1919, 614), and it was subsequently taken into the ownership of the crown before being sold in 1662 (Davies-Shiel 1978, 111).

**3.2.5 Newland Furnace:** the most significant historical development in Newland is the establishment of a blast furnace in the first half of the 18<sup>th</sup> century. In 1746 Newland Mill was acquired from John Benson of Mansrigg Hall by Agnes Bordley acting on behalf of Richard Ford, her brother, and his business partners (Michael Knott, James Backhouse, and William Ford), in order to control the valuable water system that existed in the valley (Fell 1908, 217; OA North 2003, 12). Using Agnes Bordley to acquire the estate allowed them to establish a new enterprise without breaking an agreement made in 1735 with Thomas Rigg in regard to the Nibthwaite Furnace, in which Ford was a partner, by which neither party could establish a furnace within 10 miles (Fell 1908, 212). By 1784 the increased involvement of Henry Ainslie, through his marriage to Richard Ford's daughter Agnes, led to the company becoming known as Knott, Ainslie and Co, and after George Knott's death in 1812, Harrison, Ainslie and Co (OA North 2003, 13).

**3.2.6** The furnace was enlarged in the later 18<sup>th</sup> century with the addition of a forge in 1783 and a rolling mill in 1799; the latter subsequently became a blacking mill in the 19<sup>th</sup> century (Fell 1908, 218), while there is some evidence that the forge was contained within the old corn mill to the south of the furnace (Greenlane Archaeology 2009a). By 1818 Harrison, Ainslie and Co. seem to have been trading as the Newland Company (Goodall 2001, 4), and they continued to operate the furnace at Newland intermittently until 1891 (*op cit*, 7). According to Mannex's Directory of 1882 '*...from its commencement until 1874...considerable alterations and improvements were made, and coke and coal substituted for charcoal*' (Mannex and Co 1882, 249). These improvements are likely to have included the installation of a hot blast system whereby hot waste gases could be reused in the smelting process (Goodall 2001, 7). The brick chimney and raised throat evident in the only early photograph of the site (Plate 10) is likely to relate to this, as is the presence of the brick flue in the 'garage' (*ibid*).

**3.2.7** These alterations were not enough to save the struggling enterprise. By 1890 the price of pig iron had fallen and holding a stockpile of over 1,000 tons by January 1891 contributed to the furnace's eventual closure (Marshall *et al* 1996, 213). The Newland Company cancelled the lease of the property in 1903, which was taken up by James Athersmith, a joiner and wheelwright, who sublet part of the site to Thomas Thompson (Goodall 2001, 8). The property included the corn mill, Newland House and garden, five cottages with gardens, the joiner's shop, and the iron furnace, which was by that time in ruins (CAC(B) BD/BUC/43/8/22 1904).



**Plate 10: Newland Furnace c1897 shortly after its closure (Anon 1897)**

3.2.8 In 1918 the dam that controlled the water to the furnace buildings burst during a heavy storm and much of Newland was flooded (Helme 2002, 68). This damage and the cost of repair and maintenance of the mill and other buildings forced the landowner, the Duke of Buccleuch, to put all the land and property at Newland up for sale in 1921 (*ibid*; CAC(B) BD/BUC/42/Bundle 6/50 1918-1919). It was finally bought by Thomas Thompson in the same year after a bidding war with James Athersmith, his former landlord (CAC(B) BD/BUC/17/42 1921-25). Elements of the furnace complex appear to have carried on in use as a joiner's workshop after the closure of the furnace (as is evident in Plate 10) and remained in reasonably good condition long after the furnace stack had become ruinous. Parts of the site were also used as a commercial garage after the Second World War (Helme 1994, 13).

3.2.9 **Occupiers:** generally speaking, the most reliable source of information for ascertaining the occupiers from 1841 to 1911 is the census returns. Unfortunately, census entries for Newland are rarely specific as to the name of the property. The first mention of 'Furnace Cottage' by name is in the 1911 census at which point it is occupied by Richard Allan Athersmith, a farmer, and his wife, Irene. The Athersmith family are listed as resident at 'Newland Mill/House' on the 1901 census, distinct from Newland House and various other entries for Newland, which may or may not be the name by which the cottage was known at that point. Details from the census are presented in *Appendix 2*.

3.2.10 **The Building:** with the exception of the map evidence there is little available early information specifically about the history of the building. However, it was recorded as part of the previous English Heritage survey of the furnace, in which it is described as a warehouse or store (Goodall 2001; see Plate 9). The description from that survey is worth reproducing in full as it provides some useful information about how the building was interpreted at that time:

*'It is a tall single-storey building with stone rubble walls and a slate roof gabled to the north and south. Its east wall utilises the west wall of the existing casting house, and its south wall the north wall of an earlier cottage. The canted south-east corner may be original, but the garage door is likely to have been widened, causing some alterations at the junction of the store and the casting house extension. The roof has three king-post trusses carrying three sets of trenched purlins per side. The king posts are through-bolted to the tie beams and have struts up to the principals. A doorway was inserted between this building and the casting house in 1854' (op cit, 12-13).*



## 4. Results

### 4.1 Building Recording

4.1.1 The north internal elevation of the barn, originally part of the south external elevation of the blast furnace, was recorded photographically following the removal of corrugated sheets that were covering the openings and parts of the wall. The photographs were used to produce a rectified image of the elevation (Plate 11), from which a figure was produced (Figure 2). Some additional observations relating to the fabric of the building were also made during this work. Firstly, that the doorway at the top of stairs in the west elevation was inserted as the jambs were clearly rebuilt. Secondly haematite had been piled against the west elevation, presumably before this area was roofed over (Plate 12). Thirdly, the newly inserted upper floor made it possible to examine the roof trusses and revealed a range of Baltic timber marks (Plate 13 and Plate 14) and chiselled carpenter's marks I-III from south to north (Plate 15).



**Plate 11: Rectified image of the north internal elevation of the barn**

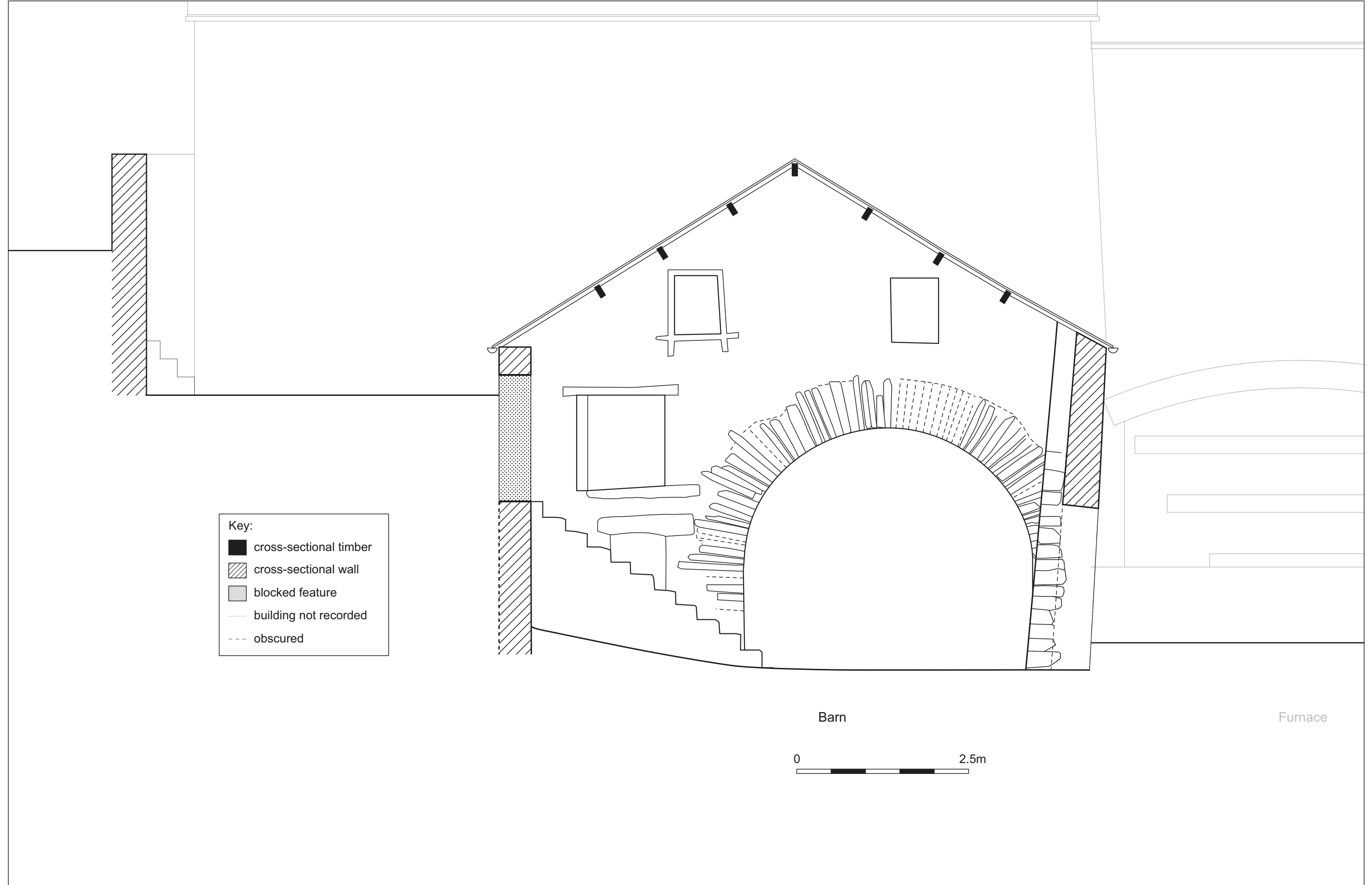


Figure 2: North internal elevation of the barn

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Plate 12 (left): Haematite staining against the west wall of the barn, viewed from the south-east

Plate 13 (right): Example of Baltic timber mark on the central truss, viewed from the north



Plate 14 (left): Example of Baltic marks on the south truss, viewed from the north

Plate 15 (right): Carpenter's marks on the north truss, viewed from the south

## 4.2 Watching Brief

4.2.1 **Introduction:** the groundworks comprised the excavation of three areas (Figure 3 to Figure 6):

- Area 1 - within the archway in the north elevation to create the footings for a new wall;
- Area 2 - in the north-west corner of the barn where a section of raised ground was removed;
- Area 3 – against the north end of the west wall for the creation of a new staircase.

4.2.2 Some additional observations relating to the fabric of the building were also made during this work.

4.2.3 **Area 1:** this comprised the excavation of a trench orientated east/west within the large arched opening in the north elevation of the barn (Plate 16). This varied from 1m to 1.5m in width and was just over 4m long. The initial layer comprised a loose and dry dark grey gravelly clay 0.1m-0.15m thick with lots of fragments of timber (**100**). Below this was a more compacted but still gravelly dark greyish-brown clay 0.3m thick and with lots of angular cobbles (**101**). On the south side of the trench were two sections of wall below **101**, each extending beyond the trench. The western of these (**102**) was very crudely constructed from a mixture of reused furnace brick and red brick and there was an iron bolt apparently fixed to the top. It was at least 0.5m-0.6m tall (five to six courses) (Plate 17 and Plate 18). The eastern wall (**103**) was similar and also built partly of reused fire brick but also some stone and with a decent corner and up to 0.7m tall. Against the north side of these walls, which essentially butted up against it, was a timber beam that was laid east/west across the opening and filled essentially the whole length of the trench (**104**) (Plate 19 and Plate 20). It was essentially square in section, although very degraded on the upper surface, and 0.25m wide. The east end continued into a hole in the wall 0.5m deep and 0.4m wide, which appears to have been inserted as there is evident rebuild in brick around the opening (Plate 21) and there are edge-set pieces of slate on the north and east sides. Timber **104** partly lay on a thin layer of slate packing (Plate 22) and a block of dressed limestone (Plate 23). At the base of the trench, below timber (**104**) the bedrock and natural geology, comprising a dark orange gritty clay, was exposed (**105**).

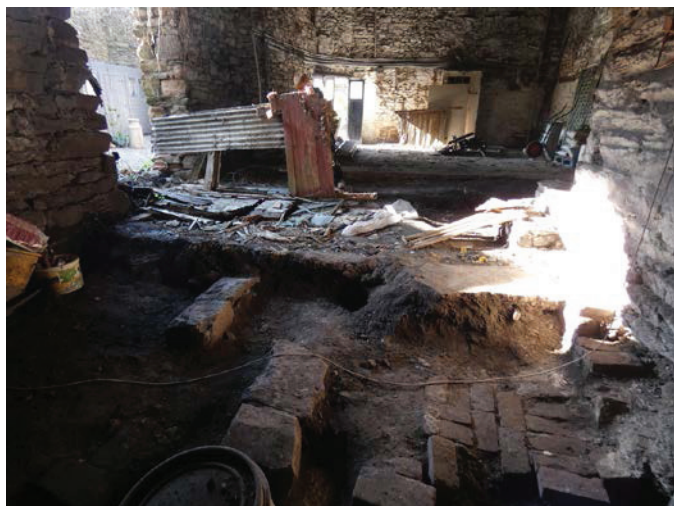


Plate 16 (left): Area 1 prior to excavation, viewed from the north

Plate 17 (right): Area 1 showing timber **104** exposed next to wall **102**, viewed from the north





**Plate 18 (left): Detail of wall 102 showing the iron bolt *in situ*, viewed from the east**

**Plate 19 (right): Timber 104 fully exposed, viewed from the east**



**Plate 20 (left): Walls 102 and 103 and timber 104, viewed from the west**

**Plate 21 (right): The opening in the east wall into which timber 104 continued, viewed from the west**





**Plate 22 (left): Slate packing below timber 104, viewed from the north**

**Plate 23 (right): Limestone block beneath the slate packing, viewed from the north-west**

4.2.4 **Area 2:** this initially involved the removal of the staircase that originally ran against the west side of the north internal elevation of the building. This revealed that it was built on an existing buttress that formed part of the west, retaining, wall and apparently predated the wall of the furnace (Plate 24), which was built against it. It sat on the bedrock, into which a shallow channel had been carved (Plate 25). The excavated area, including the staircase, was approximately 3.5m long (north/south) by 2.25m wide (east/west). The upper deposit, removed from the raised ground to the south of the stairs, comprised a trampled dark brownish-grey silty clay with 30% sub angular cobbles and lenses of orangey ash and the damaged remains of a stoneware drain, 0.1m-0.2m thick (**106**). Below this was a sandier dark brown clay 0.2m-0.3m thick (**107**). Along the south edge of the excavation area **106** was on top of a layer of clean fine orange sand (**108**) less than 0.1m thick, which in turn sat on a layer of firm pale brown clay 0.2m thick (**109**) (Plate 26). A further deposit of loose gravel made up of ash, charcoal, glassy slag, and roof slate 0.2m thick (**110**) was below **108**, and these three deposits extend approximately 1.5m from the west wall before meeting **107**. The bedrock was eventually exposed along the west side of the excavation area and extending to the north and it became apparent that **107** was on top of **108/109** on the south-west side and the bedrock elsewhere and that these deposits formed a series of tip lines onto top of the bedrock (Plate 27 and Plate 28). Below **107** and possibly also **110** was a further deposit of gritty orange clay with angular inclusions (**111**), which represents the natural drift geology.





**Plate 24 (left): The buttress exposed following the removal of the stairs, viewed from the south-east**

**Plate 25 (right): The remains of the buttress showing its relationship with the furnace wall and the channel cut into the bedrock, viewed from the south**



**Plate 26 (left): Deposits 107-109 in section, viewed from the south**

**Plate 27 (right): Deposit 107 on top of the bedrock, viewed from the south**





**Plate 28 (left): Excavation through bedrock, viewed from the south-east**

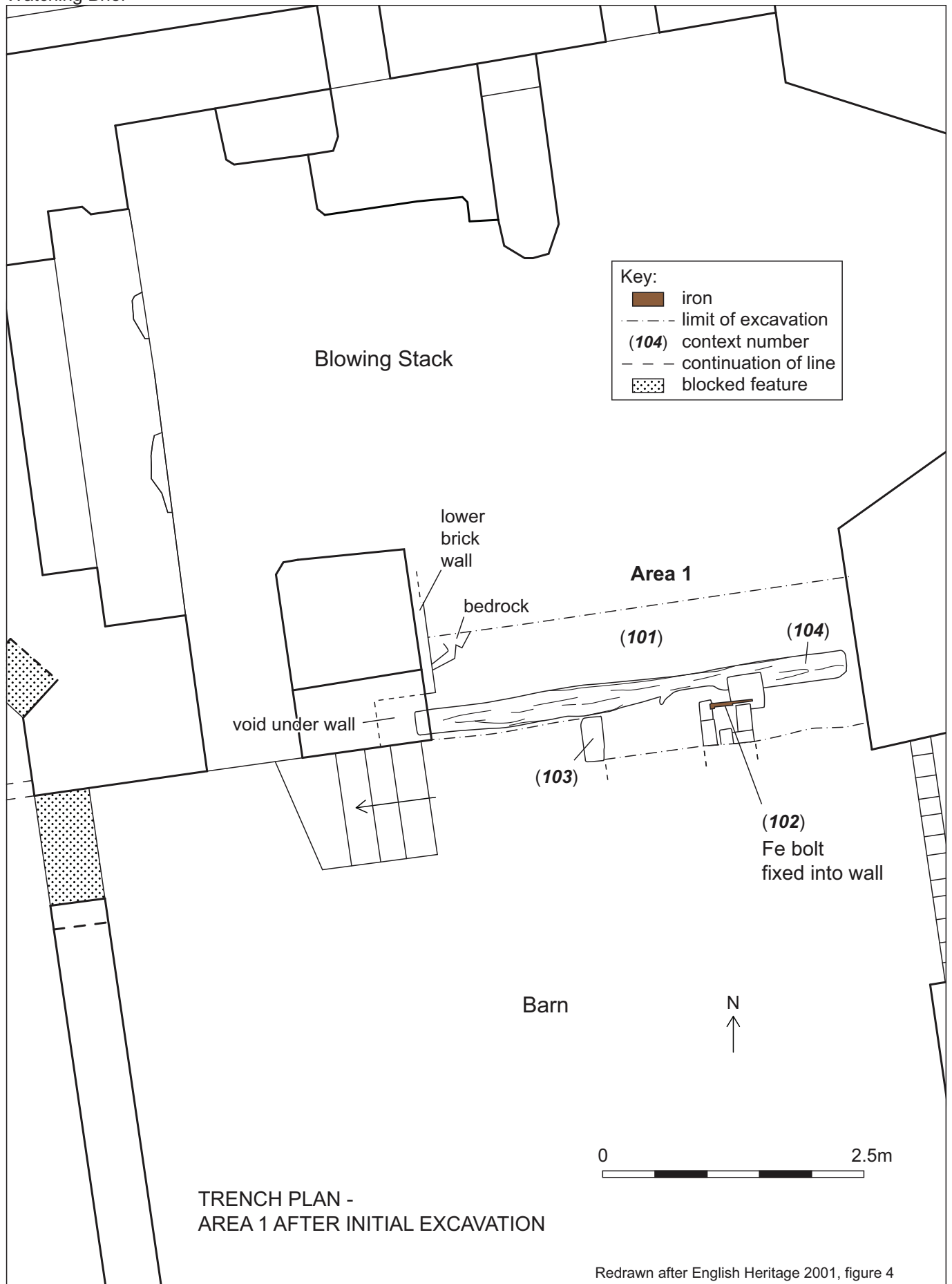
4.2.5 **Area 3:** this comprised an area 3m long (east/west) by 1.25m wide (north/south) extending from the north end of the external face of the west wall. The uppermost deposit comprised a loose dark brown gravel 0.1m thick laid on a sheet of Terram (**112**). Below this was a mixed deposit, primarily a loose dark greyish brown silt with some plastic and other modern material, up to 0.3m thick (**113**). Below this was a deposit of dumped material in a dark reddish brown gritty silty clay matrix with lots of roof slate, haematite, lime mortar, red brick and yellow fire brick, between 0.35m and 0.4m thick (**114**). This was eventually revealed to be within a shallow cut with a 45° slope on the west side and against the wall of the barn to the east [**117**]. This cut into an underlying deposit comprising a soft dark reddish-brown silt with 5% angular cobbles and some boulders and lenses of haematite up to 0.8m thick on the east side (**115**). This evidently follows the original natural slope down from west to east as a firm mid yellowish-orange sandy clay with 10% rounded cobbles was observed at the base of the trench (**116**).



**Plate 29 (left): South-facing section of Area 3, viewed from the south**



**Plate 30 (right): North-facing section of Area 3, viewed from the north**



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Figure 3: Area 1 after initial excavation



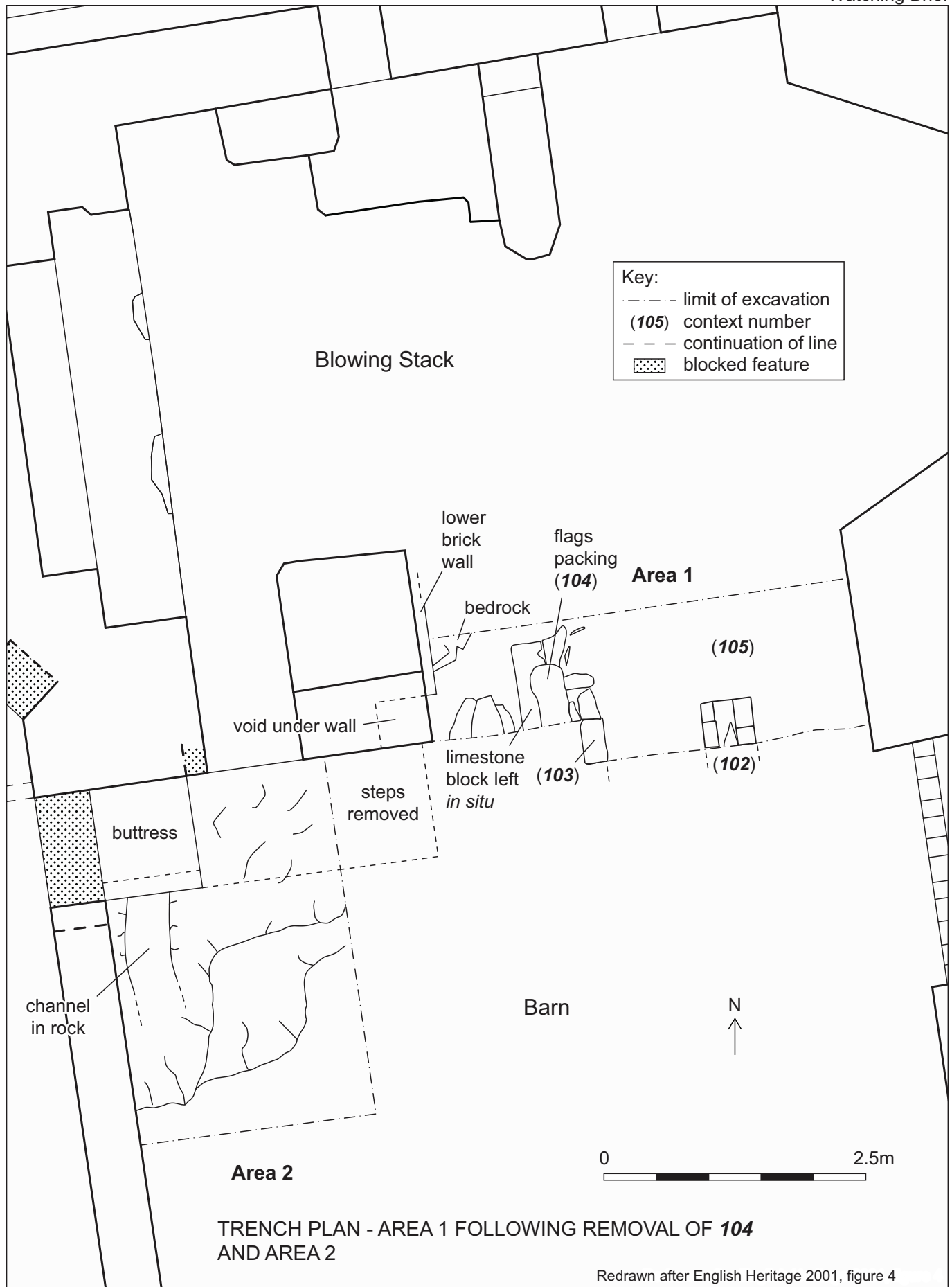
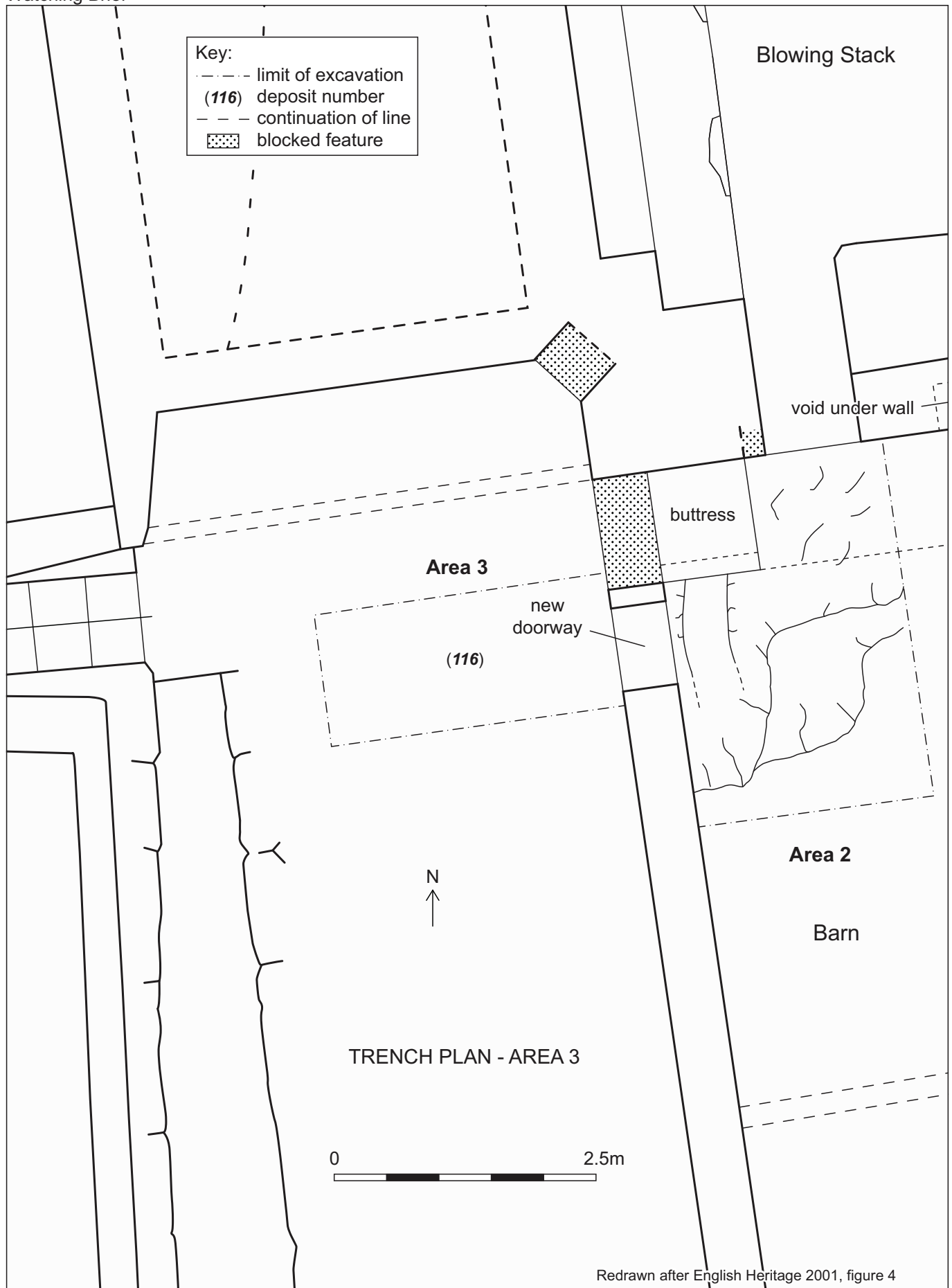


Figure 4: Area 1 following removal of 104 and Area 2



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Figure 5: Area 3

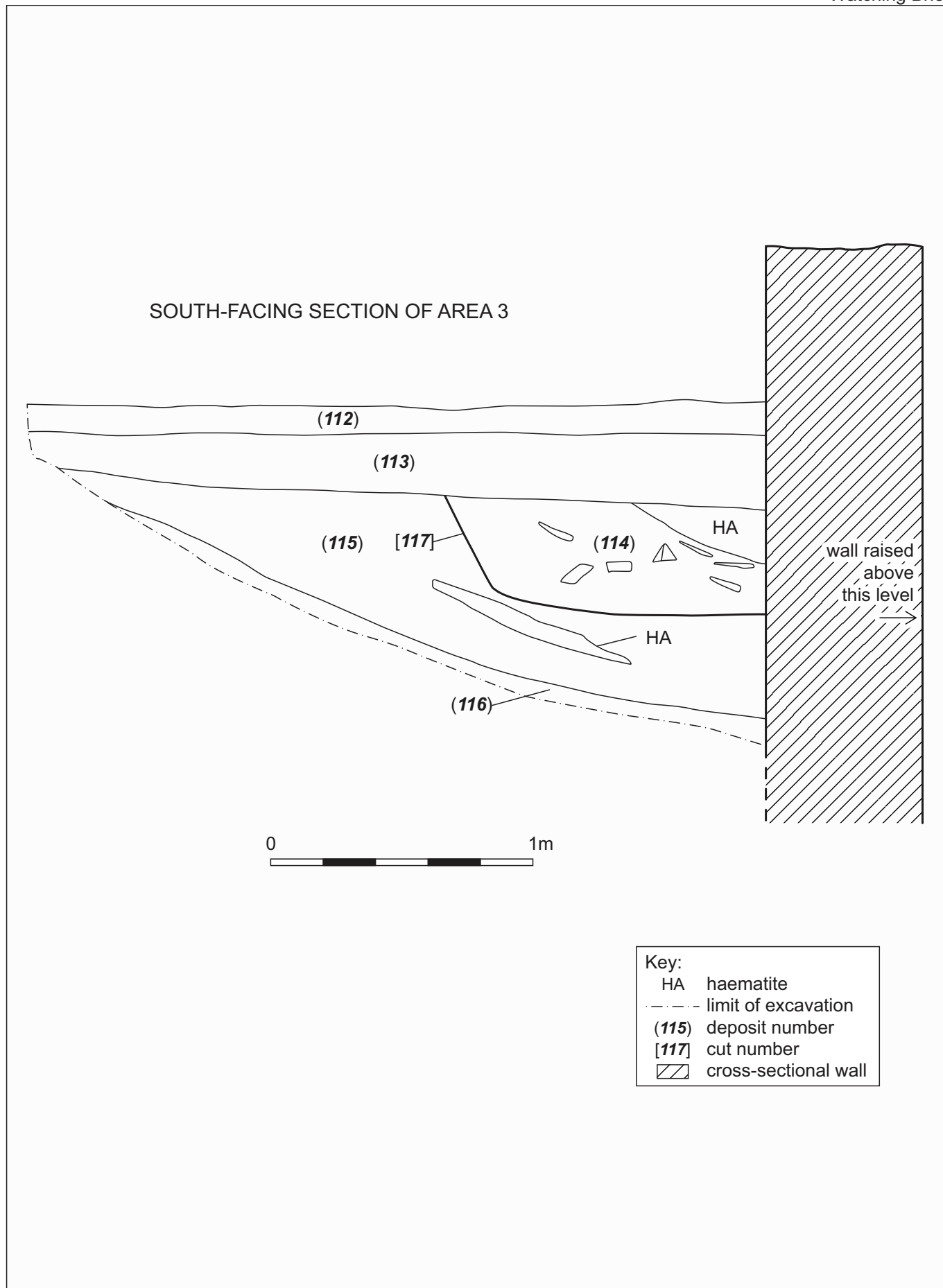


Figure 6: South-facing section of Area 3

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## 4.3 Finds

4.3.1 **Introduction:** a total of 143 finds were recovered during the watching brief, all of which were post-medieval in date or not closely dateable. These are discussed by type below and a complete list of all the finds is provided in *Appendix 3*.

4.3.2 **Pottery:** this formed the predominant find type, making up 114 of the total number of finds and from five contexts. All of the pottery recovered undoubtedly represents domestic waste, and represents a fairly typical range of fabrics and types found in the 18<sup>th</sup> to early 20<sup>th</sup> centuries, probably derived from quite close proximity to the site. However, there are some distinct differences between the three areas of excavation. In Area 1 the pottery was all very late in date, probably late 19<sup>th</sup> to early 20<sup>th</sup> century and so represents the period after the furnace had gone out of use – it appears from excavation within the furnace itself that it became a place in which rubbish was dumped once it had fallen out of use and been left in a partially collapsed state (Greenlane Archaeology 2017b). That recovered from Area 3 is of a similar date and again therefore likely to represent material deposited on the site after the furnace went out of use, in this case in a convenient ditch alongside the barn [117]. By contrast, while pottery of similar date was recovered from Area 2, there was a distinct group of late 18<sup>th</sup> to early 19<sup>th</sup> century material, all of which came from context 107, that generally represented only a handful of vessels in a range of typical fabrics of the period (including brown earthenware with slip decoration: Plate 31 and Plate 32), creamware (Plate 33), and pearlware with a range of types of decoration (Plate 34 and Plate 35)). This material is contemporary with the early life of the furnace, probably derives from people working there, and has the potential to provide additional information about them, their relative wealth, and the sort of material goods they had access to.



Plate 31 (left): Brown earthenware plate from context 107



Plate 32 (right): Brown earthenware vessels from context 107



Plate 33 (left): Creamware from context 107

Plate 34 (right): Pearlware from context 107



Plate 35: Blue transfer printed pearlware vessel base from context 107

4.3.3 **Metal (and composite):** a total of seven metal finds, two of which comprise composite objects including metal elements, were recovered from four contexts. These mostly comprised bolts, but also car parts and an iron strap, and all are likely to be very late post-medieval in date. These all undoubtedly represent rubbish deposited on the site after the furnace had gone out of use and when it was used as a garage.

4.3.4 **Glass:** 12 fragments of glass were recovered from six contexts. These all derive from vessels, typically bottles, and largely of 19<sup>th</sup> century or later date, although some 18<sup>th</sup> century types were recovered from context 107. Like the pottery, these undoubtedly represent domestic rubbish, the later examples of which were deposited after the furnace had gone out of use.

4.3.5 **CBM/other ceramic:** a single fragment of yellow firebrick was recovered from context 100, which no doubt derived from the furnace structure. In addition, a single highly vitrified fragment of what appeared to be a thick ceramic vessel was recovered from context 107. This has clearly been exposed to extreme heat and perhaps represents part of a crucible or, more likely, part of a tuyere – these were ceramic tubes used to protect the iron end of the bellows from the heat of the furnace.

4.3.6 **Animal bone:** only four fragments of animal bone were recovered, from three contexts. Animal bone was identified using Schmid's *Atlas of Animal Bones* (1972). Fragments were assigned to taxa wherever possible, although lower-order categories were also used (e.g. sheep/goat, cattle-size), and condition, erosion and fragment size was noted (*Appendix 3*). None of the bone had been burnt. The animal bone was retrieved by hand and this may have affected the type of material which was

recovered: only four fragments of sheep/goat and cattle-size long bone fragments were recovered during the watching brief, two of which refitted from **114**. The refitting fragments were from a sheep (or goat) and an unfused long bone shaft fragment (from **100**) may also be from a juvenile sheep. It is possible that this may have come from a male sheep, exploited for its meat, as male sheep have less secondary production value; however, no butchery marks were noted on any of the bone fragments.

4.3.7 **Clay tobacco pipe**: three plain stem fragments were recovered from **107** and one from **114**. The assemblage is small, so it is difficult to make chronological judgments with any degree of confidence in terms of stem-bore analysis, yet overall, the group is coherent in its contents. All of the fragments had a 5/64" diameter borehole, which potentially indicates a late 18<sup>th</sup> to 19<sup>th</sup> century date for the material (after Davey 2013).



## 5. Discussion and Conclusion

### 5.1 Discussion

5.1.1 The additional work at Furnace Cottage Barn has provided an opportunity for more detailed recording of the exposed section of what was originally the external wall of the furnace, as well as the roof trusses within the barn. More importantly, it has revealed a range of features and finds from within and around the site that add to the understanding of its development including an assemblage of finds relating to the early use of the furnace. Five phases of activity were identified across the three areas of excavation.

5.1.2 **Phase 1 - natural:** the natural ground was encountered in all three areas. In Area 1 it comprised some bedrock but primarily a dark orange gritty clay (**105**). In Area 2 it comprised a substantial block of bedrock covered in part by a similar gritty orange clay (**111**). In Area 3 it was represented by a yellowish orange sandy clay (**116**), evidently sloping down from the west.

5.1.3 **Phase 2 – early 18<sup>th</sup> century?:** the buttress that the staircase against the north elevation of the barn was built on top of evidently predated the furnace. It presumably therefore formed part of what was originally a substantial retaining wall, which became the west wall of the barn. Although earlier than the furnace this wall was most likely built as part of the construction of the furnace in 1746-7, and so is therefore probably of early 18<sup>th</sup> century date, presumably in order to keep the mill leat in place.

5.1.3 **Phase 3 – late 18<sup>th</sup>-early 19<sup>th</sup> century:** no deposits, finds or features relating to the early working life of the furnace were revealed in Area 1. In Area 2 a number of deposits from this phase (**108-110**) were encountered, all stratigraphically below **107**, which contained a considerable amount of pottery of late 18<sup>th</sup> to early 19<sup>th</sup> century date. These deposits were evidently dumped on top of a projecting lump of bedrock that would originally have been outside the furnace and appear to represent material derived from the working of the furnace such as clean clay, which could have been used to seal openings, clean sand from the casting floor, and waste slag and other material. The artefacts from **107** probably represent rubbish deposited by the workers at the furnace, with the exception of the highly vitrified ceramic piece, which is perhaps a tuyere from the furnace itself, and as such represent an important collection of material. In Area 3 this phase is most probably represented by deposit **115**, which was the original ground surface during the early phase of the furnace, and included haematite that no doubt derived from nearby ore dumps.

5.1.5 **Phase 4 – late 19<sup>th</sup>-early 20<sup>th</sup> century:** there is remarkably little evidence for activity relating to the later use of the furnace, all of the remaining features and deposits are evidently very late and result from the period after its closure and abandonment. In Area 2 this is represented by the uppermost deposit of dumped material (**106**), including rubbish deposited once the furnace had gone out of use. In Area 3 a shallow trench or large pit dug alongside the building perhaps for drainage (**117**) was filled with more dumped rubbish and building rubble (**114**). In Area 1 the timber beam **104** cannot be closely dated but its good survival and the fact that an original wall of the part of the furnace was modified in order to allow it to be inserted into it suggests it is quite late. The two sections of wall (**102** and **103**) are also probably from this phase. Finds from the deposit immediately overlying these structures (**101**) are all of late 19<sup>th</sup> to early 20<sup>th</sup> century date; it seems likely therefore that they represent alterations made to the building in order to facilitate its use as a joiner's workshop and then garage. Within the furnace a range of *ad hoc* structures were discovered that seem to have had similar functions and probably operated as means to prevent vehicles moving and create a level floor for the workshop/garage (Greenlane Archaeology 2017b).

5.1.6 **Phase 5 – later 20<sup>th</sup> century:** in Area 1 a thin upper layer of material evidently represents the most recent surface of the building (**100**). In Area 3 a layer of gravel on Terram had been added to create a tidy external surface (**112**) over a slightly earlier deposit, probably an earlier garden (**113**).



## 5.2 Conclusion

5.2.1 Despite being fairly limited in scale the results of the watching brief add some important additional information to the understanding of the development of Newland Furnace, which has been subject to a number of small investigations in recent years. Significantly this includes evidence that the retaining wall along the west side of the barn was built before the furnace, although it was identified as the earliest part of the barn in the earlier building recording (Greenlane Archaeology 2017a), and included a buttress that was later used as a base for a staircase. An important and substantial collection of artefacts dating from the initial period of use of the furnace was also recovered, something that has not been found during previous work and has the potential to provide more information about the lives of those working at the furnace. The results also add to an increasing body of work at Newland that is gradually enhancing the understanding of the development of the furnace and its related structures.

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## Appendix 1: Project Design

### Archaeological Building Recording and Watching Brief Cover Sheet and Project Design

The Site	
Site Name	Furnace Cottage Barn, Newland, Ulverston
County	Cumbria
Listing Status, Level, and number	Listed Grade II, number 1096784 (Terrace of houses comprising 1 Newland House, Newland House, and Furnace Cottage)
Scheduled Monument name and number	Newland Blast Furnace, Blacking Mill, Associated Buildings and Water Management Systems, SM 34986, HA 1020667
Brief description of building/buildings to be recorded	SMC: north elevation of the barn (south elevation of the charging house) – rectified photographs and total station will also be used in addition to techniques described in project design, where appropriate

Client	
Client Name	Mr White and Miss Brown
Client's architect	John Coward Architects
'As existing' drawings available?	Yes

Planning	
Pre-planning?	No
Plans (e.g. conversion, extension, demolition)	Conversion of barn to dwelling
Planning Application No.	SL/2017/0910
Condition number	6
Listed Building Consent Application No.	SL/2017/0911
Condition number	6
Local Planning Authority	South Lakeland District Council
Planning Archaeologist	Jeremy Parsons, Cumbria County Council Historic Environment Service
Scheduled Monument Consent Application No.	S00178266
Condition number	(ii) and (iii)
Level of Building Recording required	N/A
Groundworks anticipated to be subject to watching brief	Insertion of new staircase

Archiving	
Relevant Record Office(s)/Archive Centre(s)	Cumbria Archive Centre (Barrow-in-Furness)
Relevant HER	Cumbria
Relevant museum	Dock Museum, Barrow-in-Furness or Newland Furnace Trust



## 1. Introduction

### 1.1 Project Cover Sheet

1.1.1 All the details specific to this project are set out on the cover sheet of this project design. The project design itself covers all elements that are involved in archaeological building recording to English Heritage Levels 2 and 3 and archaeological watching brief.

### 1.2 Greenlane Archaeology

1.2.1 Greenlane Archaeology is a private limited company based in Ulverston, Cumbria, and was established in 2005 (Company No. 05580819). Its directors, Jo Dawson and Daniel Elsworth, have worked continuously in commercial archaeology since 2000 and 1999 respectively, principally in the north of England and Scotland. Greenlane Archaeology is committed to a high standard of work, and abides by the Chartered Institute for Archaeologists' (CIfA) Code of Conduct. The building recording and watching brief will be carried out according to the Standards and Guidance of the CIfA (CIfA 2014a and 2014b).

### 1.3 Staff

1.3.1 **Dan Elsworth (MA (Hons), ACIfA)** graduated from the University of Edinburgh in 1998 with an honours degree in Archaeology, and began working for the Lancaster University Archaeological Unit, which became Oxford Archaeology North (OA North) in 2001. Daniel ultimately became a project officer, and for over six and a half years worked on excavations and surveys, building investigations, desk-based assessments, and conservation and management plans. These have principally taken place in the North West, and Daniel has a particular interest in the archaeology of the area. He has managed many recent projects in Cumbria and Lancashire including several archaeological building recordings and watching briefs. He is very experienced at building recording, having carried out numerous such projects, mainly in Cumbria and Lancashire.

1.3.2 **Tom Mace (BA (Hons), MA, MIFA)** has extensive experience of working on a variety of archaeological projects, especially watching briefs, but also excavations, evaluations, and building recordings, as well as report writing and illustration production. He joined Greenlane Archaeology in 2008 having worked for several previous companies including Archaeological Solutions and Oxford Archaeology North. He currently works on a broad range of projects and is also responsible for the production of all illustrations for reports and publications as well as some post-excavation assessments. He is a Member of the Chartered Institute for Archaeologists.

1.3.3 **Jo Dawson (MA (Hons), ACIfA)** graduated from University of Glasgow in 2000 with a joint honours degree in Archaeology and Mathematics, and since then has worked continuously in commercial archaeology. Her professional career started at Glasgow University Archaeological Research Division (GUARD), following which she worked for Headland Archaeology, in Edinburgh, and then Oxford Archaeology North, in Lancaster. During this time she has been involved in a range of different archaeological projects. She has extensive experience of both planning and pre-planning projects, and has undertaken assessments of all sizes. Since establishing Greenlane Archaeology in 2005 she has managed numerous projects in south Cumbria, including desk-based assessments and evaluations. She currently mainly carries out quality control of reports and post-excavation assessments. She is an Associate member of the Chartered Institute for Archaeologists.

1.3.4 **Specialists:** Greenlane Archaeology have a range of outside specialists who are regularly engaged for finds and environmental work. Engagement is dependent upon availability, but specialists typically engaged are as follows:

Specialism	Specialist
Animal bone	Naomi Sewpaul
Ceramic building material, medieval and Roman	Phil Mills
Conservation	York Archaeological Trust
Clay tobacco pipe	Peter Davey (or Tom Mace in house for smaller assemblages)
Flots	Headland Archaeology, Edinburgh
Human bone	Malin Holst
Industrial residue	Gerry McDonnell
Medieval pottery	Chris Cumberpatch for assemblages from the North East of England
Miscellaneous find types, for example Roman glass and medieval and earlier metalwork	Chris Howard-Davis
Prehistoric pottery	Blaise Vyner
Radiocarbon dates	Scottish Universities Environmental Research Centre
Roman pottery	Ruth Leary
Samian	Gwladys Monteil

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X-ray of metal finds	York Archaeological Trust
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## 2. Objectives

### 2.1 Desk-Based Assessment

2.1.1 Where an archaeological desk-based assessment has not already been carried out in a previous phase of work, the objective will be to examine early maps of the site and any other relevant primary and secondary sources in order to better understand its dating and development, and set it in its historic context.

### 2.2 Building Recording

2.2.1 To undertake a programme of archaeological building recording of the building to the level stated on the cover sheet of this project design (Historic England 2016).

### 2.3 Watching Brief

2.3.1 To carry out an archaeological watching brief on the relevant areas of groundworks, in order to identify any and record surviving any archaeological remains that are revealed.

### 2.4 Report

2.4.1 To produce a report detailing the results of the building recording and watching brief.

### 2.5 Archive

2.5.1 Produce a full archive of the results of the project.

## 3. Methodology

### 3.1 Desk-Based Assessment

3.1.1 Where an archaeological desk-based assessment has not already been carried out in a previous phase of work, an examination of various sources, particularly early maps and plans relating to the site, will be carried out, including other relevant primary and secondary sources. The sources that will be used as part of the desk-based assessment will include:

- **Record Office/Archive Centre:** the majority of original and secondary sources relating to the site are deposited in the relevant Record Office(s) or Archive Centre(s), as specified in the cover sheet of this project design. Of principal importance are early maps of the site. These will be examined in order to establish the development of the site, date of any structures present within it, and details of land use, in order to set the site in its historical, archaeological, and regional context. In addition, any details of the site's owners and occupiers will be acquired where available;
- **Online Resources:** where available, mapping such as Ordnance Survey maps and tithe maps will be consulted online;
- **Greenlane Archaeology:** Greenlane Archaeology's office library includes maps, local histories, and unpublished primary and secondary sources. These will be consulted where relevant, in order to provide information about the history and archaeology of the site and the general area.

### 3.2 Archaeological Building Recording

3.2.1 A programme of archaeological building recording to English Heritage standards is required (Historic England 2016). It will comprise three types of recording:

- **Drawn Record:** plans of all of the principal floors will be produced, indicating alterations to the building and the location of each photographed feature of architectural or historic interest. These are compiled through hand measured survey techniques utilising 'as existing' plans and survey drawings. Where 'as existing' drawings are not available, plans will be produced through a mixture instrument survey and/or hand measurement, as appropriate. These plans are then drawn up to produce the final illustrations. In addition,



a plan showing the location of the building in relation to other nearby buildings, structures and landscape features will also be produced;

- Where 'as existing' elevation drawings are available, drawings of all of the elevations will be produced showing, as a minimum, all of the detail relevant for understanding the development of the building. In addition at least one cross-section will be produced, which will show the detail of the roof structure and will be useful in explaining the relationship between different elements of the building or showing features of architectural or historic interest. These drawings will be produced through hand-annotating 'as existing' drawings on site to produce finished drawings, which will be drawn up for inclusion as figures in the report;
- **Written Record:** descriptive records of all elements of the building will be made on Greenlane Archaeology standard *pro forma* record sheets. These records will describe the building's plan, form, function, age, and construction materials. They will then be used to provide an account of the development of the building. In addition, the landscape and historic setting of the building will be described, in particular its relationship with other nearby buildings, streets, settlements and other structures;
- **Photographic Record:** photographs in colour digital format (both RAW files and JPEG format at at least 12meg resolution) will be taken. These will cover both general and detailed shots of the external elevations, individual rooms and circulation areas, but also scaled photographs of specific features of architectural or archaeological interest. In addition, a record of the associated landscape and nearby buildings will also be made where practical to do so. A selection of these photographs will also be used for illustrative purposes within the report, and a written record will be kept of all of the photographs that are taken.

### 3.3 Watching Brief

3.3.1 The relevant area of groundworks will be monitored, with one archaeologist on site. If there are several areas being excavated concurrently it may be considered necessary to have more than one archaeologist on site.

3.3.2 The watching brief methodology will be as follows:

- All excavation will be carried out under supervision by staff from Greenlane Archaeology;
- All deposits of archaeological significance will be examined by hand if possible in a stratigraphic manner, using shovels, mattocks, or trowels as appropriate for the scale;
- The position of any features, such as ditches, pits, or walls, will be recorded and where necessary these will be investigated in order to establish their full extent, date, and relationship to any other features. If possible, negative features such as ditches or pits will be examined by sample excavation, typically half of a pit or similar feature and approximately 10% of a linear feature;
- All recording of features will include detailed plans and sections at a scale of 1:20 or 1:10 where practicable or sketches where it is not and photographs in both colour print and colour digital format. In addition, photographs will also be taken of the site before work begins and after completion;
- All deposits, drawings and photographs will be recorded on Greenlane Archaeology *pro forma* record sheets;
- All finds will be recovered during the watching brief for further assessment as far as is practically and safely possible. Should significant amounts of finds be encountered an appropriate sampling strategy will be devised;
- All faunal remains will also be recovered by hand during the watching brief as far as is practically and safely possible, but where it is considered likely that there is potential for the bones of fish or small mammals to be present appropriate volumes of samples will be taken for sieving;
- Deposits that are considered likely to have, for example, preserved environmental remains, industrial residues, and/or material suitable for scientific dating will be sampled. Bulk samples of between 20 and 60 litres in volume (or 100% of smaller features) where possible, depending on the size and potential of the deposit, will be collected from stratified undisturbed deposits and will particularly target negative features (e.g. gullies, pits and ditches) and occupation deposits such as hearths and floors. An assessment of the environmental potential of the site will be undertaken through the examination of samples of suitable deposits by specialist sub-contractors, who will examine the potential for further analysis. All samples will be processed using methods appropriate to the preservation conditions and the remains present;

- Any articulated human remains discovered during the watching brief will be left *in situ*, and, if possible, covered. The client will be immediately informed as will the local coroner. Should it be considered necessary to remove the remains this will require a Home Office licence, under Section 25 of the Burial Act of 1857, which will be applied for should the need arise;
- Any objects defined as 'treasure' by the Treasure Act of 1996 (HMSO 1996) will be immediately reported to the local coroner and securely stored off-site, or covered and protected on site if immediate removal is not possible;
- Should any significant archaeological deposits be encountered during the watching brief these will immediately be brought to the attention of the Planning Archaeologist so that the need for further work can be confirmed. Any additional work will be carried out following discussion with the Planning Archaeologist and subject to a new project design, and the ensuing costs will be agreed with the client.

### 3.4 Report

3.4.1 The results of the building investigation and watching brief will be compiled into a report, which will provide a summary and details of any sources consulted. It will include the following sections:

- A front cover including the appropriate national grid reference (NGR);
- A concise non-technical summary of results, including the date the project was undertaken and by whom;
- Acknowledgements;
- Project Background;
- Methodology, including a description of the work undertaken;
- Results of the building recording;
- Results of the watching brief, including finds and samples;;
- Discussion of the results including phasing information;
- Bibliography;
- Illustrations at appropriate scales including:
  - a site location plan related to the national grid;
  - a plan showing the location of the building in relation to nearby structures and the local landscape, and showing the area subject to archaeological watching brief;
  - plans of all of the principal floors of the building showing the location of each photographed feature of architectural or archaeological interest, and a phase plan if appropriate;
  - elevations of the building (where 'as existing' elevations are already available);
  - a cross-section or cross-sections showing relevant details such as the roof structure;
  - plans and sections of any features discovered during the watching brief;
  - photographs of any features encountered during the watching brief;
  - photographs of the building, features of architectural/historic interest and its landscape, accompanied by appropriate descriptions;
  - copies of selected historic maps and plans of the building relevant to understanding its development.

### 3.5 Archive

3.5.1 The archive, comprising the drawn, written, and photographic record of the building and any deposits of archaeological interest and/or working shots identified during the watching brief, formed during the project, will be stored by Greenlane Archaeology until it is completed. Upon completion it will be deposited with the relevant Record

Office or Archive Centre, as detailed on the cover sheet of this project design, together with a copy of the report. The archive will be compiled according to the standards and guidelines of the ClfA (ClfA 2014c). In addition details will be submitted to the Online Access to the Index of archaeological investigations (OASIS) scheme. This is an internet-based project intended to improve the flow of information between contractors, local authority heritage managers and the general public.

3.5.2 A copy of the report will be provided to the client and a copy will be provided for the relevant Historic Environment Record, as detailed on the cover sheet of this project design.

## 4. Work timetable

4.1 Greenlane Archaeology will be available to commence the project on the date specified on the Order Form, or at another date convenient to the client. It is envisaged that the elements of the project will be carried out in the following order:

- **Task 1:** rapid desk-based assessment (where this has not already been carried out as a previous phase of archaeological work);
- **Task 2:** on-site building recording;
- **Task 3:** archaeological watching brief;
- **Task 4:** production of draft report including illustrations;
- **Task 5:** feedback on draft report, editing and production of final report;
- **Task 6:** finalisation and deposition of archive.

## 5. Other matters

### 5.1 Access and clearance

5.1.1 Access to the site will be organised through co-ordination with the client and/or their agent(s). In addition, the building will be cleared by the client in order to allow internal photographs to be taken without obstructions. Greenlane Archaeology reserves the right to increase the price if the building has not been cleared at the time of recording, if this results in additional time on site to photograph the building's interior once it has been cleared. This also applies if the exterior is not accessible or obstructed to the extent that it prevents the building recording taking place as required.

### 5.2 Health and Safety

5.2.1 Greenlane Archaeology carries out risk assessments for all of its projects and abides by its internal health and safety policy and relevant legislation. Health and safety is always the foremost consideration in any decision-making process.

### 5.3 Insurance

5.3.1 Greenlane Archaeology has professional indemnity insurance to the value of **£1,000,000**. Details of this can be supplied if requested.

### 5.4 Environmental and Ethical Policy

5.4.1 Greenlane Archaeology has a strong commitment to environmentally and ethically sound working practices. Its office is supplied with 100% renewable energy by Good Energy, and uses ethical telephone and internet services supplied by the Phone Co-op. In addition, the company uses the services of The Co-operative Bank for ethical banking, Naturesave for environmentally-conscious insurance, and utilises public transport wherever possible. Greenlane Archaeology is also committed to using local businesses for services and materials, thus benefiting the local economy, reducing unnecessary transportation, and improving the sustainability of small and rural businesses.

## 6. Bibliography

Chartered Institute for Archaeologists (ClfA), 2014a *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures*, Reading

ClfA, 2014b *Standard and Guidance for an Archaeological Watching Brief*, Reading

ClfA, 2014c *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives*, Reading

Historic England, 2016 *Understanding Historic Buildings: a Guide to Good Recording Practice*, Swindon (<https://content.historicengland.org.uk/images-books/publications/understanding-historic-buildings/heag099-understanding-historic-buildings.pdf/>)

## Appendix 2: Census Details

1901 Census (RG 13/Piece 4002/Folio 81/Page 15)				
Name	Age	Occupation	Address	Place of Birth
James Athersmith	53	Farmer and general carter	Newland Mill House	Ulverston, Lancashire
Martha Athersmith	51			Colton, Lancashire
Lizzie Athersmith	25	Dressmaker		Ulverston, Lancashire
Agnes Athersmith	27			Ulverston, Lancashire
Thomas Athersmith	22	Farmer's son		Ulverston, Lancashire
John Athersmith	20	Farmer's son		Ulverston, Lancashire
William Athersmith	20	Engine fitter's apprentice		Ulverston, Lancashire
Albert Athersmith	17	Pupil teacher		Egton-cum-Newland, Lancashire
Allan Athersmith	14	Farmer's son		Egton-cum-Newland, Lancashire

1911 Census (Piece 25622)				
Name	Age	Occupation	Address	Place of Birth
Richard Allan Athersmith	24	Farmer's son working on farm	Furnace Cottage, Ulverston nr Ulverston	Egton-cum-Newland, Lancashire
Irene Athersmith	23	–		Ulverston, Lancashire

### Appendix 3: Summary Context List

Context	Type	Description	Interpretation
<b>100</b>	Deposit	Loose dry dark grey gravelly clay 0.1m-0.15m thick, frequent timber fragments	Current ground surface, trampled layer
<b>101</b>	Deposit	More compacted dark greyish brown gravelly clay, at least 0.3m, angular cobbles	Dumped deposit
<b>102</b>	Structure	Mix of red brick and reused refractory furnace brick at least 0.5m-0.6m, 5-6 courses, tall and with iron bolt apparently fixed horizontally onto the top	Rough wall
<b>103</b>	Structure	Mix of reused refractory furnace bricks and bricks but with good corner at west end, 0.7m tall, 5-6 courses	Rough wall
<b>104</b>	Structure	0.25m square timber beam orientated east/west, very degraded upper surface, some thin slate below acting as packing/levelling	Pad for wall?
<b>105</b>	Deposit	Firm dark orange gritty clay over slate bedrock	Natural
<b>106</b>	Deposit	Trampled but fairly soft dark brownish grey silty clay, 30% sub-angular cobbles, parts of an intact stoneware drain and lenses of orangey ashy material	Dumped deposit
<b>107</b>	Deposit	Firm dark brown sandy clay, 0.2m-0.3m thick	Dumped deposit
<b>108</b>	Deposit	Soft clean orange sand less than 0.1m thick	Dumped deposit, ingot casting sand?
<b>109</b>	Deposit	Firm pale brown clay, 0.2m thick	Dumped deposit, clay used to seal furnace mouth
<b>110</b>	Deposit	Loose gravelly material comprising ash, charcoal and glassy slag and some roofing(?) slate, 0.2m thick	Dumped deposit
<b>111</b>	Deposit	Firm gritty orange clay with angular inclusions over slate bedrock	Natural
<b>112</b>	Deposit	Loose dark brown gravel on Terram	Gravel surface
<b>113</b>	Deposit	Mixed deposit, mainly loose dark greyish brown silt, some plastic and other modern material 0.3m thick	Dumped deposit
<b>114</b>	Deposit	Loose dark reddish brown gritty silty clay, lots of broken up roof slate, haematite and lime mortar, 0.35m-0.4m thick	Dumped deposit in filling <b>117</b>
<b>115</b>	Deposit	Soft dark reddish-brown silt, 5% angular cobbles and boulders and very haematite rich, up to 0.5m thick	Buried topsoil
<b>116</b>	Deposit	Mid-yellowish orange firm sandy clay with 10% rounded cobbles	Natural
<b>117</b>	Cut	Wide shallow ditch or long pit, 45° slope on west side and against building on east, 1.2m east/west and up to 0.5m deep	Cut of shallow trench or large pit against side of building, possibly for drainage



## Appendix 4: Summary Finds List

Context	Type	Qty	Description	Date range
100	Pottery	1	Glazed buff-bodied stoneware ribbed jam/marmalade jar base with part of impressed maker's mark ...'[TRADE]MARK / ...[NEWCASTLE-UPON-TY]NE' (?)	Late 19 <sup>th</sup> – early 20 <sup>th</sup> century
100	Glass	1	Very light turquoise bottle/vessel body fragment, very thick	19 <sup>th</sup> – early 20 <sup>th</sup> century
100	Glass	1	Colourless bottle mouth with screw top closure and mould seam up to lip	20 <sup>th</sup> century
100	Ceramic building material	1	Yellow firebrick surface fragment, with impressed mark '... [?] N...'	19 <sup>th</sup> – early 20 <sup>th</sup> century
100	Composite (Bakelite/brass)	2	Refitting fragments from Autolite (?) 6-cylinder distributor cap, with embossed lettering on outside '[M]ADE IN [U.S.A.]' and embossed lettering on inside 'IGC-1107', compatible with Chrystler 6, etc, and older American motors, jeep, farm, industrial, and marine Brockway trucks	1920s to 1930s (?)
100	Fe	1	Very corroded hexagonal-headed threaded large bolt	20 <sup>th</sup> century?
100	Animal bone	1	Unfused (juvenile?) long bone shaft fragment, missing articular ends (possibly sheep)	Uncertain
101	Glass	1	Brown bottle base	19 <sup>th</sup> century
101	Animal bone	1	Bleached and surface-degraded fragment of unidentified cattle-size long bone	Uncertain
102	Fe	2	Very corroded square-headed large unthreaded bolt in cylinder	19 <sup>th</sup> – 20 <sup>th</sup> century?
106	Pottery	2	Creamware metal-shape press-moulded plate rim and creamware plate fragment	Mid-late 18 <sup>th</sup> century
106	Pottery	1	Pearlware Willow transfer-printed vessel base	Early 19 <sup>th</sup> century
106	Pottery	1	Glazed buff-bodied stoneware bottle body fragment	19 <sup>th</sup> – early 20 <sup>th</sup> century
106	Pottery	1	Bone china cup body fragment with enamelled line worn off	19 <sup>th</sup> – early 20 <sup>th</sup> century
106	Pottery	1	Glazed buff-bodied earthenware object fragment	19 <sup>th</sup> – early 20 <sup>th</sup> century
106	Glass	1	Dark green bottle base fragment	19 <sup>th</sup> – early 20 <sup>th</sup> century
107	Pottery	35	Brown-glazed red earthenware, comprising 19 refitting from rim-to-base of slip-banded flatware dish, seven partially refitting from slip-decorated cup (?), five from tall hollow-ware slip-decorated vessel of which three refitting, one from slip-decorated vessel, two from dish rim with white slip on unglazed rim, and one everted rim from small hollow-ware vessel	Late 17 <sup>th</sup> – early 20 <sup>th</sup> century
107	Pottery	14	Black-glazed red earthenware from at least five different vessels including at least two bottles	Late 17 <sup>th</sup> – early 20 <sup>th</sup> century
107	Pottery	1	Brown-glazed red earthenware body fragment with white slip-coated interior	19 <sup>th</sup> – early 20 <sup>th</sup> century
107	Pottery	1	Factory-produced glazed buff-bodied earthenware carinated bowl body with red (fired brown) slip stripe	Late 18 <sup>th</sup> – 19 <sup>th</sup> century
107	Pottery	1	White salt-glazed stoneware very small vessel base	Late 17 <sup>th</sup> – early 18 <sup>th</sup> century

Context	Type	Qty	Description	Date range
107	Pottery	14	Creamware, comprising nine partially refitting from small plate, two refitting rims from metal-shape press-moulded plate, and two refitting body fragments from earth colours painted hollow-ware vessel	Mid – late 18 <sup>th</sup> century
107	Pottery	21	Pearlware, including 16 partially refitting from sponge-printed blue flower bowl, two rims from same earth colours painted bowl, and base from chinoiserie transfer-printed tea bowl	Late 18 <sup>th</sup> – early 19 <sup>th</sup> century
107	Ceramic	1	Highly vitrified object – possibly pottery vessel body fragment subjected to intense heat post-firing or part of a crucible or tuyere	Post-medieval
107	Clay tobacco pipe	3	Plain stem fragments: 1x 57mm long, 6mm diameter cross-section with central 5/64" diameter borehole; 1x 31mm long, slightly oval-shaped cross section, 5-5.5mm wide, with central 5/64" diameter borehole; 1x 43.5mm long, with brown encrustation, 6mm diameter cross-section, with central 5/64" diameter borehole	Late 18 <sup>th</sup> – 19 <sup>th</sup> century
107	Glass	4	Dark green bottle fragments, comprising one mouth and neck and one body (18 <sup>th</sup> century), one body (late 18 <sup>th</sup> to 19 <sup>th</sup> century), and one base with high kick (early 19 <sup>th</sup> century)	18 <sup>th</sup> – 19 <sup>th</sup> century
107	Glass	1	Light green bottle body fragment	18 <sup>th</sup> century
113	Pottery	1	Glazed buff-bodied stoneware ribbed jar rim	19 <sup>th</sup> – early 20 <sup>th</sup> century
113	Glass	1	Colourless bottle body, decorated	20 <sup>th</sup> century
113	Glass	1	Dark brown bottle mouth with crown closure	20 <sup>th</sup> century
113	Fe	1	Highly corroded wire/long thin bolt with wing nut on end	20 <sup>th</sup> century
114	Pottery	1	Brown-glazed red earthenware coarseware vessel base	Late 17 <sup>th</sup> – early 20 <sup>th</sup> century
114	Pottery	14	White earthenware comprising nine Cornishware jug and bowl fragments from at least three different vessels, three partially refitting body fragments from blue painted hollow-ware vessel, blue transfer-printed Asiatic Pheasants plate rim, and blue transfer-printed Broseley cup rim	19 <sup>th</sup> – 20 <sup>th</sup> century
114	Pottery	3	Bone china saucer rim fragments including two refitting from pink band and three stripe hotelware	19 <sup>th</sup> – 20 <sup>th</sup> century
114	Pottery	1	Glazed dark buff-bodied stoneware ribbed jar body fragment	19 <sup>th</sup> – early 20 <sup>th</sup> century
114	Clay tobacco pipe	1	Plain stem fragment, 45mm long, 7mm diameter cross-section, with central 5/64" diameter borehole	Late 18 <sup>th</sup> – 19 <sup>th</sup> century
114	Glass	1	Light greyish green bottle/vessel fragment	Post-medieval?
114	Fe	1	Corroded strap	Post-medieval
114	Animal bone	2	Refitting fragments of an almost complete <i>ovis</i> (sheep/goat) left tibia (long bone); distal end present, proximal end missing	Uncertain