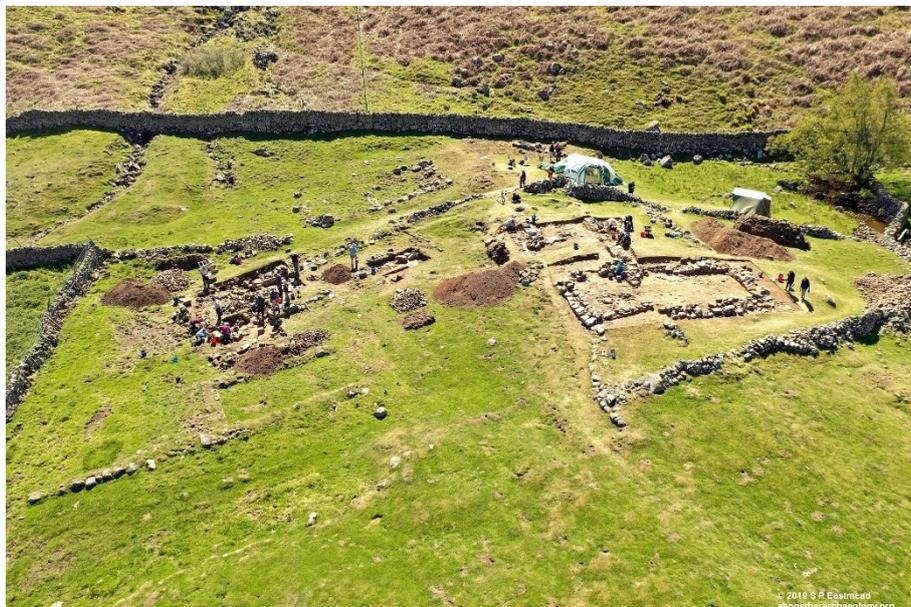


# WELL HEAD DESERTED SETTLEMENT Holwick, Teesdale

*Interim Report: 2019 (3rd season) Excavation*



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Photogrammetry and drone images are by Stephen Eastmead, <https://eastmead.com/>

Photographs are by members of AA unless otherwise credited. The wall survey (Appendix 13) was by Sheila and Andrew Newton.

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**Site location:** NY90812671. The features described in this report are on private farm-land with no public access.

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**Cover image:** The Well Head site, looking south, just before completion of the 2019 excavations. Trenches 3NE/SE and 3NW are on the left. Trench 6/9 is in the right-centre on top of the hillock. Trench 7 is in the upper centre between the tent and the field wall. The spring is beside the tree at the right edge of the image. (*drone photograph by Stephen Eastmead*)

This report is available on the Reports page of the Altogether Archaeology website:

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## 1 OVERVIEW

This is the interim report on the May 2019 excavations by Altogether Archaeology (AA) at Well Head, the third season of excavation on the site. Radiocarbon dates for samples taken in the 2018 excavation are also reported in an appendix, as they were not available to be included in previous reports. Other documents (see below) describe preliminary surveys of the site and the September 2017 (first season) and May 2018 (second season) excavations. Once analysis of finds and samples is complete, a final report will be produced, summarising the findings of all three seasons. Each season has been an excavation lasting 14 to 16 days carried out by members of AA, a community archaeology group in the North Pennines, with professional archaeological supervision by Paul Frodsham.

First season, Sept 2017, two trenches were excavated:

- **Trench 1** examined a dwarf-walled longhouse (F8), with entrances on both long sides and a cobbled lower (livestock) end to the building.
- **Trench 2** examined the platforms (F15, F16) between the centre of the settlement and the spring.

Second season, May 2018, three trenches were excavated:

- **Trench 3** examined a longhouse (F9) with entrances on the long sides, a paved floor, animal pens at the lower (east) end and a drain through the east wall, a stone cross-wall with door threshold, padstones for a cruck (timber) frame, and later higher paved floors in the western cell and cross-passage. An incised stone, possibly apotropaic, was found beside the south entrance.
- **Trench 4** examined a curving bank located 150m west of the settlement core, on the opposite side of the beck. This was found to be the probable robbed-out remains of a Bronze Age funerary monument: a ring-cairn.
- **Trench 5** examined a two-celled scooped structure (F12), on the preliminary survey differing from the nearby "longhouse" type buildings (F8, F9). F12 was found to be two adjoining unequal-sized rectangular structures of crude single course stone walls. Neither had clear floor levels. A hearth area was found with evidence of metal working debris. The buildings were probably re-used to hold livestock and/or for storage.

Third season, May 2019, seven trenches were excavated:

- **Trench 3NW**, a re-opening of the north-west corner of 2018's Trench 3, to examine the area around the hearth found on the line of missing section of the north wall of longhouse F9. Part of the north wall was also removed to examine underlying deposits. Two post-holes were found outside the wall line and sampling was undertaken of the laminated deposits near the hearth, suggestive of metalworking. Sample analysis is underway.
- **Trench 3NE**, a re-opening of the north-east corner of 2018's Trench 3. One padstone and the east end of the north wall of F9 were removed, exposing a thin deposit containing potsherds different to the medieval sherds found elsewhere in F9, and probably earlier. Dating awaits radiocarbon dating of the deposit. A double line of rounded stones ran below the wall, suggesting an earlier structure on a different alignment, but no post-holes were found.
- **Trench 3SE**, a re-opening of the south-east corner of 2018's Trench 3. One padstone and the east end of the south wall of F9 were removed. The flagstone floor of F9 extended under the wall, to its mid-line. The floor and wall lay on a rubble deposit over the natural glacial till, presumably a foundation in the very wet ground. An earlier wall, a double line of rectangular stones with infill of small stones, lay diagonally under the corner of F9.
- **Trench 6** examined F6, a rectangular east-west building on the hillock beside the spring,



- **Trench 7** examined F10, a rectangular building at the southern edge of the site. This had a flagstone and cobble floor. There was a cobbled yard beside it. The trench was extended southwards across a small mound, F11, confirming that this was a natural rock outcrop.
- **Trench 8** examined the east wall of F5, a rectangular structure to the north of F6.
- **Trench 9** examined the west wall of F17, a rectangular north-south building on the hillock. To its west was a probable yard, F7. In the later stages of the excavation, Trench 6 was extended southwards into F17 and joined Trench 9, forming a single combined trench.

A journal article has already been published describing the first and second seasons findings (Green and Frodsham 2019). The following reports concerning Holwick can be downloaded from the AA website:

- Holwick Landscape Survey Report on the 2011 survey by AA members of the floor of upper Teesdale, covering 2.35 km<sup>2</sup> (Oxford Archaeology North: Schofield and Quartermaine 2011)
- Holwick Scar Settlement Survey Report on the group of rectangular structures (shielings or peat storage buildings) on the hillside above Well Head. (Eastmead 2018)
- Survey Report of the field in which the Well Head settlement is situated, with a gazetteer of structures found in this 2017 survey. (Green 2017a)
- Project Design for the first (2017) season of excavation at Well Head. (Green 2017b)
- Interim Report on the first (2017) season of excavation at Well Head Project and Project Design for second (2018) season (Green 2018)
- Interim Report on the second (2018) season of excavation at Well Head (Green 2019a)
- Project Design for the 3rd season of excavation at Holwick (Green 2019b)

Previous archaeological work in the North Pennines is comprehensively described in Part 1 (Resource Assessment) of the North Pennines Research Framework (Frodsham 2019).

Well Head is one of the largest of a series of small deserted farmsteads and hamlets along the southern edge of the valley floor of upper Teesdale. They consist of the dwarf-wall foundations of rectangular longhouses, with associated enclosures and fields. These settlements are thought to have been in use in the high medieval era (1066 AD to 1350 AD), but none have been previously excavated to confirm this. The landscape they are set in is little changed since described by Sopwith (1833):

*“The village of Holwick and its adjoining scenery are worthy of the tourist's attention. He will there find the whin sill in that prominent station which it occupies in all the most interesting scenery of High Teesdale. The land about High Force and Wynch Bridge presents a kind of intermediate scenery between the barren mountain and the richly cultivated vale. Stone walls and rustic hamlets are superseded by hedges and comfortable farm-houses, while that most beautiful of nature's ornaments, the tree, begins to enrich the aspect of the country, and the eye looks forward to increasing fertility and beauty”*

In the 2011 Holwick Survey (Schofield and Quartermaine 2011), the valley floor was surveyed at Level 1 and, in addition, three of the deserted settlements (and some other sites) were surveyed at Level 3 (Ainsworth 2007). The survey results and the archaeology and history of the area are discussed in detail in the survey report. The report recommended (paragraph 6.5.7) that the Well Head settlement should also be investigated further; it was not one of the sites investigated at Level 3 in 2011.

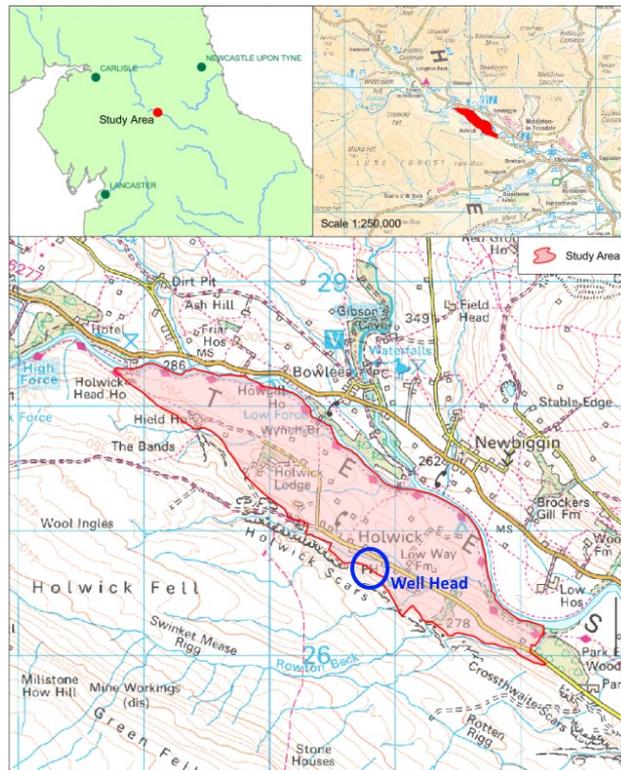
The AA 2017 Well Head Settlement Survey showed that the settlement is a complex group of rectangular buildings, ten of which could be identified, with associated yards, platforms, tracks, and field boundaries. The rectangular buildings of the settlement survive as dwarf-wall foundations of stone and earth about 0.2m high. It is located in a classic position for long-term settlement: on a



small hillock by a spring, at the boundary of the good “in-by” land and the rough grazing of the higher ground.

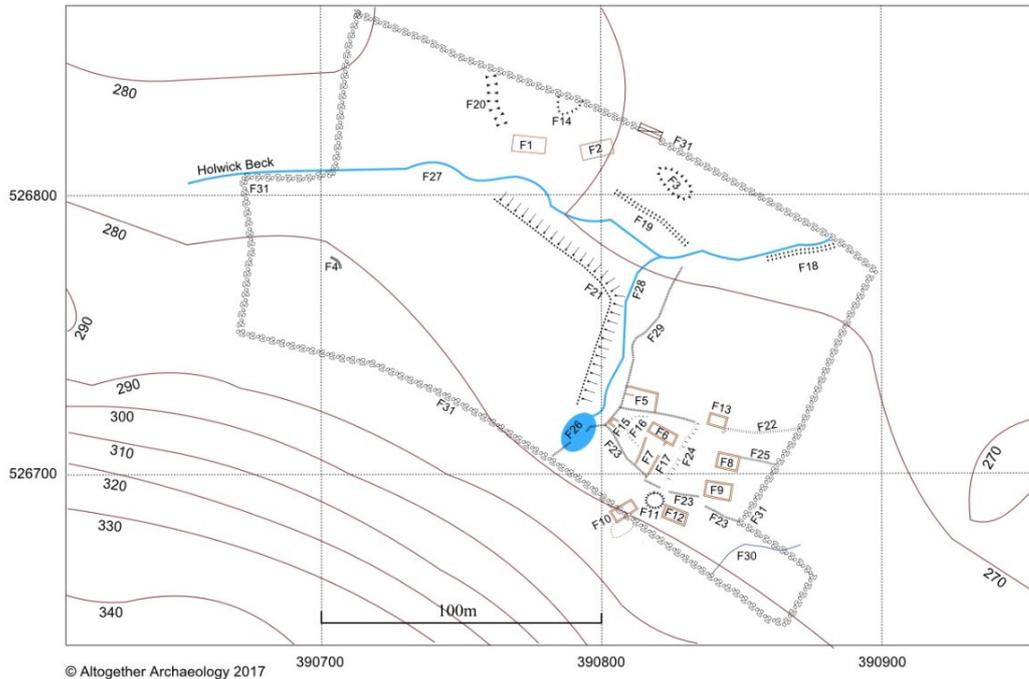
A nearby group of buildings on the side of the valley above Well Head was also surveyed (Eastmead 2018). This is a scheduled site, monument 1019458, listed as a shieling (a farm occupied only in the summer, part of a transhumance pattern of agriculture), but more probably used for peat storage.

The historical background, geology, and results of the site survey have been discussed in previous reports, so are not repeated in this document.

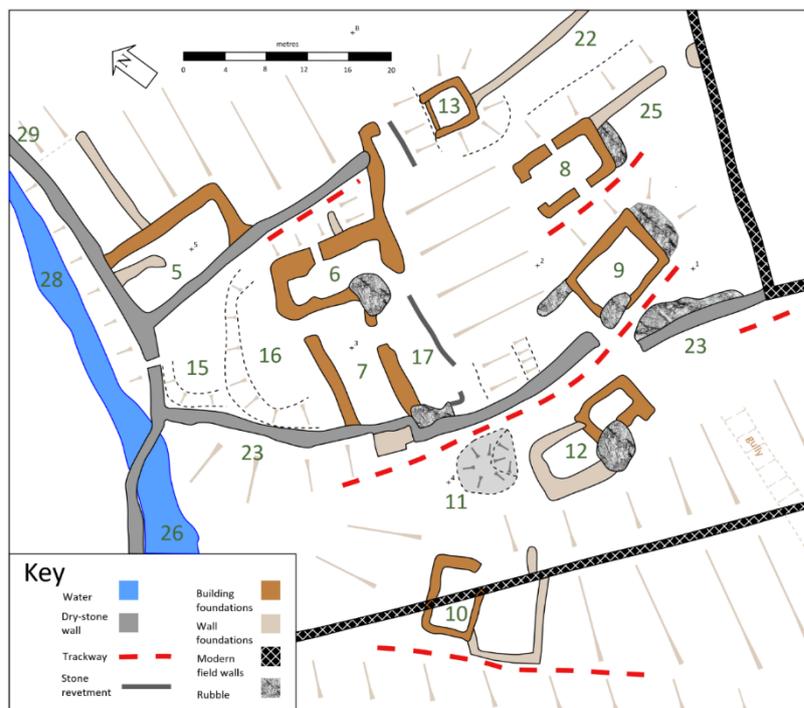


**Figure 1: Location map of Well Head. The 2011 landscape survey area is shaded in pink.**  
*Map from Schofield and Quartermaine (2011): Oxford Archaeology North.*  
*Map data © Crown copyright.*

Well Head Deserted Settlement (Holwick): Feature References



**Figure 2:** Hand-held GPS survey of Well Head, showing feature numbers (from Well Head Survey Report: Green 2017a).



**Figure 3:** Theodolite-with-disto survey of core area of the Well Head settlement, showing feature numbers (from Well Head Survey Report: Green 2017a).



## 2 SUMMARY OF FIRST (2017) AND SECOND (2018) EXCAVATION SEASONS

This section is a brief summary. For more detailed information, see the reports on the 2017 and 2018 excavations (Green 2018 and 2019a, Green and Frodsham 2019).

### 2.1 Trench locations

A total of nine trenches were excavated over three seasons, all except one (Trench 4) in the core area of the settlement, to the east of the spring. Trench sizes and co-ordinates are given in the interim reports for each season. They are shown in outline in the aerial view below. The sizes of dimensions and co-ordinates of each trench are given in the relevant interim report.



**Figure 4: Trench locations shown on a Google Earth aerial view of the core area of Well Head.**

1st season (2017) – purple. 2nd season (2018) -black. 3<sup>rd</sup> season (2019) yellow  
Trench 4 was 150m to the east and not shown. Trench 9 is the southern part of Trench 6.

### 2.2 Structures examined in the first (2017) and second (2018) season excavations

The survey plan (Figure 3) shows the location of these structures. This section gives only brief summaries of the findings: see the previous interim reports for full details (the 1<sup>st</sup> season report for Trenches 1 and 2, the 2<sup>nd</sup> season report for Trenches 3, 4, and 5).

**Building F8**, explored by Trench 1, is a rectangular (10m x 5m to wall centres) building, of which only dwarf walls of unbonded roughly-dressed stones remain. There are entrances near the middle of each long side, opposite each other. The east (down-slope) end has a worn cobbled floor of large stones. The west end has a few flagstones at its edge, probably the remnants of a robbed-out flagstone floor. On the north side of the building is a surface of small worn cobbles, with an overlying rectangular surface of larger cobbles at its west end. To the south of the building is another cobbled surface but much more irregular and with larger stones. A gutter in this diverts water from the building.





**Figure 5: Building F8 (Trench 1). Photogrammetric vertical view** (*Stephen Eastmead*)

Presumably originally the building was a longhouse with livestock housed in the east end and with a yard for them to the south of the structure. Humans would have lived in the west end of the longhouse, using the cobbled area to the north for outside activities. Later, the good quality floor was robbed and the building may then have become a byre or barn.

**Building F9**, explored by Trench 3, is a rectangular (16m x 5m to wall centres) building. Like F8, it has dwarf walls of unbonded stones. It is divided into two sections by a stone cross wall, which has a doorway through it at the north end. The entrances to the building are opposite each other on the long sides, immediately to the west of the cross-wall. There is a good quality cross-passage floor of flagstones between the entrances with the cross-wall on its west side and a probable wooden partition (shown by a discontinuity in the stone floor) on the west side. The eastern section of the longhouse has a rough stone floor with platforms for livestock each side of a drain down the centre-line of the building. The drain exits the west wall under a stone lintel.

The western section of the building, presumably for humans, has a good quality flagstone floor, except the westernmost 2m which has a compacted clay floor. There is a hearth on the floor, against the cross-wall. The westernmost part of the north wall of the building is absent. Under the line of the missing wall is a hearth-stone, with adjacent laminated layers of burnt material and clay. Carbon-dating suggested that the last use of this hearth was in the range 1460-1640 AD (Sample 303, Appendix 1). The building clearly had a wooden frame as there are padstones about 4m apart on the inside of the long walls, forming four pairs. The eastern pair is set about a metre in from the inside of the east wall, suggesting the roof was hipped. Similarly, the western pair is 2m from the inside of the west wall. This pair (of which the northern padstone is absent) probably supported a partition across the building as the floor is flagstone to the east, but compacted clay to the west.



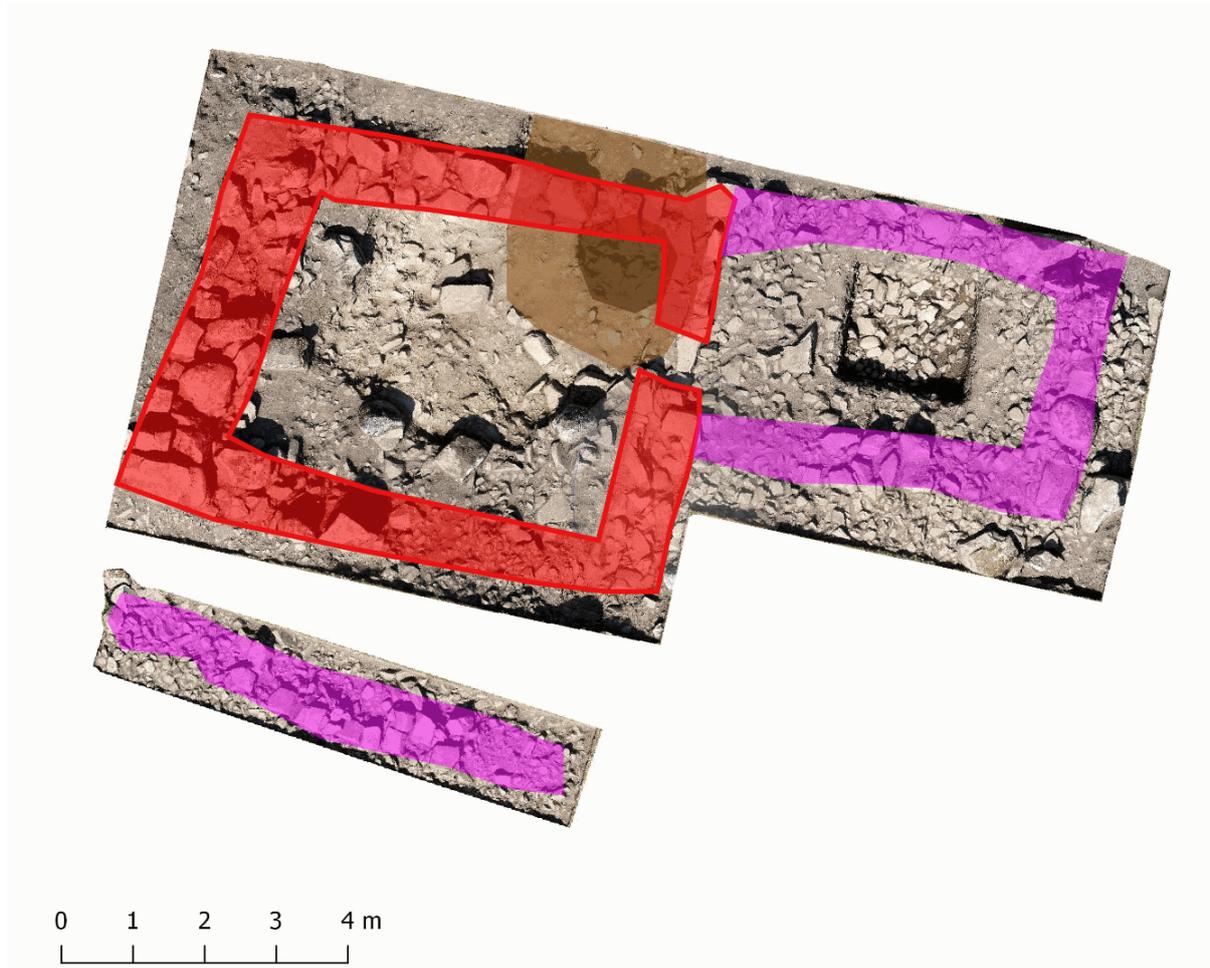
**Figure 6: Building F9 (Trench 3). Photogrammetric vertical view.** (Stephen Eastmead).

Underneath the good quality level flagstone floor of the western section of the longhouse and the cross passage is an earlier sloping floor, continuous under the cross-wall with the floor of the eastern section. A levelling deposit include pot-sherds and some clay pipe-stems was found between the two floor levels, but under the lower floor the only finds were of medieval-type sherds. This dates the reflooring as being mid-17<sup>th</sup> century or later. Finds in the longhouse were of the medieval or early modern period (up to about mid-18<sup>th</sup> century), pointing at the longhouse being out of residential use before the 19<sup>th</sup> century. A small trench, 3a, confirmed that a stone path led northwards from F9

**Building F12**, explored by Trench 5, is formed of two unequal adjoining rectangular sections. The eastern is the smaller. All walls are very crude: lines of undressed, unbonded stones in a single course. Most of the walls are a formed of two lines of stones, sometimes with smaller packing stones in between the lines. The south wall is very damaged, tumbling into the building's interior. Both sections have scooped floors of rubble, without a clear floor layer. The only extant entrance is an opening with threshold slab between the two.

There is a heat-damaged area in the north-east corner of the western section, extending under the exterior wall. Carbon-dating suggested that the last use of this hearth was in the range 1510-1660 AD (Sample 403, Appendix 1). Deposits on the heat-damaged floor surface suggest iron-working was taking place in the building at that time. The small, eastern section, had organic deposits suggestive of use as a peat-store at one time. In general finds from F12 were few, compared to the longhouse type buildings F8 and F9, and were either post-medieval or of the high medieval green-glaze type.

There is no evidence that the building was a house at any time. It is probable that it was used for storage and as a smithy, before later adaptation (post-1660, after the wall over the heat-damaged floor area was built or rebuilt) for livestock.



**Figure 7: Building F12 (Trench 5). Annotated photogrammetric vertical view. Walls are shown in red and purple. In the north-east corner of the western cell is a heat damaged area (dark brown) embedded in surface (light brown) which extends beyond the north wall. (Stephen Eastmead)**

**Terraces F15 and F16**, explored by Trench 2, are on the west side of the hillock in the core of the Well Head settlement. Excavation showed no post-holes or other evidence of buildings on the terraces, but there was a flagstone surface forming a path across the lower terrace. The terraces were revetted with stones so are clearly man-made. They were probably used as vegetable plots and/or yards for small livestock.

**Cairn F4**, explored by Trench 4, is a 6m arc of stones about 150m to the north-west of the Well Head settlement, on the other side of the large spring. The arc is on the edge of a steep slope down to a beck. The area around it is a featureless on aerial and lidar views. Excavation showed that the stones form a double line, with flat stones on the inside of the arc. If originally a circle, the structure would have been 9m across approximately. At the assumed centre of the circle is another area of flat stones. Earth-fast boulders in the robbed-out section are scarred with plough-marks; this suggests that the extant part of the structure survived through being on the edge of a steep drop, and thus inconvenient to plough.





**Figure 8: Cairn F4 (Trench 4). photogrammetric vertical view, before removal of areas of flat stones interior to bank and in centre of hypothetical 9m circle (drawn on). (Stephen Eastmead)**

At the time of excavation, it was suggested by several archaeologists that F4 might be a Bronze Age ring cairn. This is consistent with the radiocarbon date, around 1800 BC, of charcoal found under a slab of stone inside the arc (Sample 501, Appendix 1). The date is similar to that of another North Pennine ring cairn at Birkside Fell.

### 3 PROJECT AIMS FOR THE THIRD (2019) SEASON

The first season of excavation confirmed that the Well Head settlement was indeed a deserted medieval hamlet. The large number of sherds of pottery recovered (over 750) were of a wide range of dates from 11<sup>th</sup> to 17<sup>th</sup> centuries (plus a single sherd of Roman pottery). Clearly the settlement was in use for a long period, as suggested by its complexity of structure and the well-worn tracks connecting it to the upland shielings and pasture. The pottery collection was already one of the largest recovered in the area from the medieval period and is itself of great interest.

The second season showed that one of the buildings, F9, was a sophisticated complex medieval timber-framed longhouse, with padstones to carry the crucks of the frame. The east (animal) end had platforms for livestock each side of a drain which exited through the east gable. The building had undergone adaption, probably in the mid-17<sup>th</sup> century, when a hearth (probably for metal-working) at its west end fell out of use, and the parlour and cross-passage were given a good-quality level flagstone floor, with a hearth against the cross-wall. Finds, as in the first season, included much high-medieval green-glaze ware as well as spindle whorls, but no pottery from earlier periods, nor from after the 18<sup>th</sup> century. Another building, F12, had evidence of use as a smithy up to the early 17<sup>th</sup> century, as storage for peat and other produce, and probably was finally used in a damaged state to house livestock.

The aims of the third season included:

- To examine a further probable building, F10, which is crossed diagonally by a modern field-wall. The three buildings excavated in the first two seasons were very different from each other, so examining another building seemed likely to provide further information. F10 clearly went out of any use over 200 years ago: the field wall crossing it, but not the building itself, is on a c1800 map. Hence, deposits in it were likely to be relatively undisturbed.
- To examine a mound, F11, in the settlement: possibly natural, possibly man-made.
- To examine the central part of the hamlet, the area on top of the hillock, where the survey suggested that there were three adjoining rectangular structures, F6, F7, and F17. As the location is central and higher than the surrounding structures, they could be higher status buildings, and possibly older.
- To re-examine the timber-framed longhouse, F9. In particular, to gather evidence as to whether there was evidence of earlier structures beneath the walls and padstones, whether the walls had been rebuilt in stone from wood, and whether the timber frame had originally been earth-fast. Further investigation, with sampling, was also desirable of the area surrounding the hearth under the line of the west end of the north wall, to see when and for what it was used.

This would still leave some areas of the settlement unexcavated, e.g. building F13. An alternative strategy would have been to switch investigation to other nearby presumed medieval settlements, such as that at Middle House, only 400m away. None of these have been excavated previously. Overall, it was decided that it would be better to focus on a single settlement, hence the return to Well Head for a third season.



## 4 METHODS

### 4.1 Excavation methods, finds and samples

These are outlined in the Project Design for 2018 2nd season Excavation (Green 2018) which also details site access, health and safety, insurance, and welfare. Plans for reporting the project are also outlined in that document. The project team was unchanged: **Paul Frodsham** (Oracle Heritage Services: Professional Archaeologist and Director), **Martin Green** (AA Fieldwork Co-ordinator), **Stephen Eastmead** and **Tony Metcalfe** (AA Fieldwork Task Group Members).

### 4.2 Community engagement

AA received grant support for the 2019 season from Northern Heartlands to increase community awareness of the archaeology of upper Teesdale. Northern Heartlands is a County Durham Community Foundation scheme and receives funding from the Heritage Lottery Fund. “Academic” aspects of the Holwick project (e.g. report printing, radiocarbon dating, environmental sample analysis) are funded by AA from members’ subscriptions and donations. The following community events were held:

- Open sessions with guided tours for the public to visit the excavation
- Creation of two films of the excavations (by Lonely Tower Film and Media)
- Recording of podcasts about the excavations (by Rachel Cochrane)
- An evening at the Bowlees Visitor Centre (North Pennines AONB) to publicly show the films
- A visit by primary school children from a local school to tour and take part in the dig
- A follow up session at the school
- Two finds-processing days in Mickleton Village Hall to enable local people to take part in the washing and processing of pottery finds and to see and handle other archaeological finds
- Public guided walks during the excavations to see archaeological sites of upper Teesdale



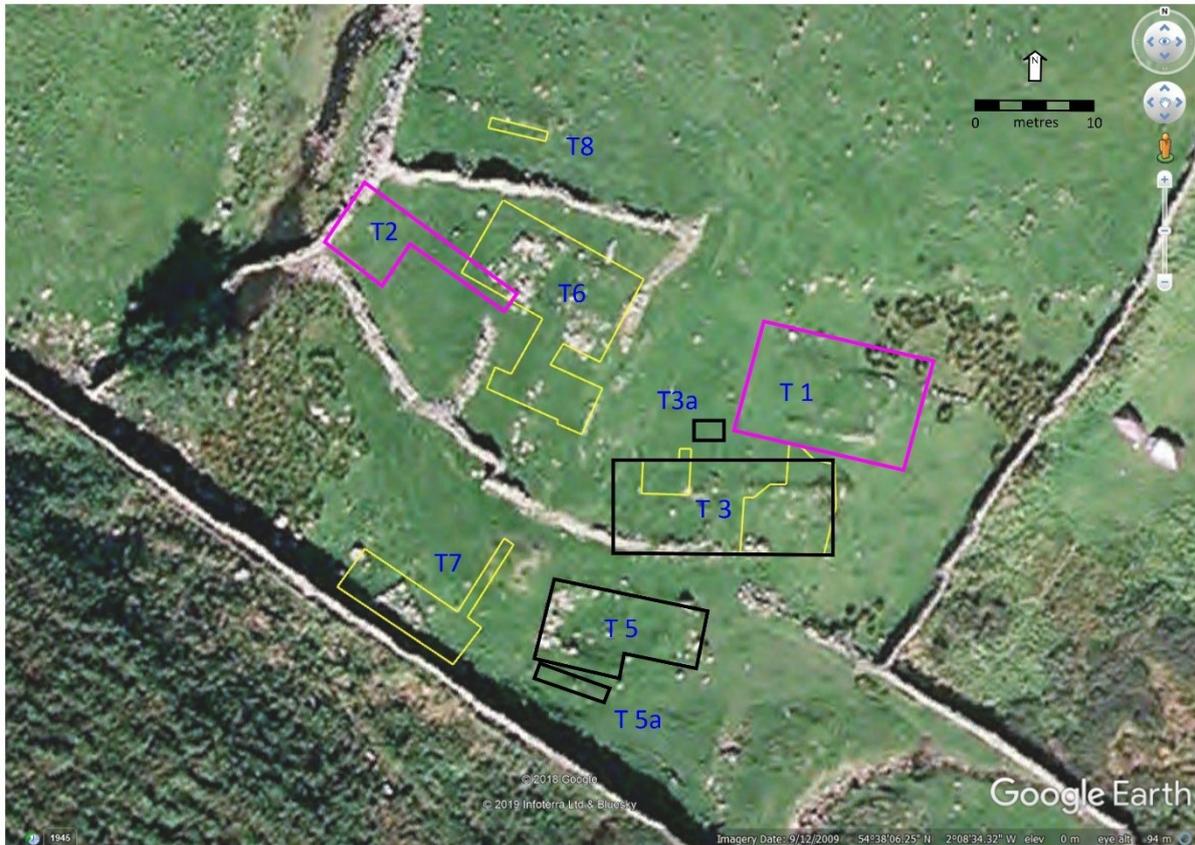
**Figure 9: Schoolchildren taking part (left) and visitors viewing the trenches (right)**

The seven podcasts are available at [www.rachelcochrane.com/portfolio-item/holwick-stories/](http://www.rachelcochrane.com/portfolio-item/holwick-stories/). Both of the 15-minute films are available on YouTube.com. The podcasts and films can also be accessed via [altogetherarchaeology.org](http://altogetherarchaeology.org) (videos and podcasts page).



### 4.3 Trench locations 2019

Three new trenches (6, 7, 8, 9) were excavated in 2019; subsequently Trench 6 was extended southwards to merge with Trench 9. In addition, parts of Trench 3 of 2018 were reopened as Trenches 3NW, 3NE, and 3SE. Excavation was by hand, with turf, stones, and soil stacked in separate heaps. Back-filling was also by hand.



**Figure 10: Trench positions: 2017 in purple, 2018 in black, and 2019 in yellow.**

Trench sizes were as follows, orientation is approximate (in general “north” means towards the Tees and valley floor, “south” is towards the head-dyke field wall and the uplands). The precise trench locations and orientations are shown by the geo-located vertical photogrammetry views for each trench in Appendix 2.

- Trench 3NW (4m EW x 2.8m NS, with a 1m x 1m extension northwards from the east end) reopened the NW corner of 2018’s Trench 3 to re-examine and take samples from the underlying part of building F9, including a hearth and adjacent laminated layers.
- Trench 3NE/SE (10m x 10m irregular shape) was initially two separate trenches, each 4m x 2m, re-opening parts of 2018’s Trench 3. They examined the eastern ends of the north and south walls of building F9 to check whether, underneath the walls and padstones, was an earlier phase of the building, e.g. post-holes. Unexpectedly, probable walls on a different alignment were found; the trenches were enlarged and merged to investigate these. An area in the middle of F9 was not re-excavated, and a small extension northwards went beyond the extent of the original Trench 3.
- Trench 6/9 examined the structures on top of the hillock in the centre of the settlement. It was initially two trenches: Trench 6 (14m EW x 7m NS) was placed over F6, a rectangular



building. Trench 9 (9m EW x 2m NS) was placed across F17, crossing the intervening wall into F7. Subsequently the trenches were extended and merged to include some of the intervening area.

- Trench 7 (12m EW x 4m NS) examined F10, the most southerly building of the settlement. As this is crossed by an extant high field-wall, only the north-eastern half of the building could be excavated, along with part of an adjacent yard and wall. An extension (7.3m NS x 1m EW) extended northwards from near the east end of Trench 7 to examine mound F11.
- Trench 8 (5m EW x 1m NS) was placed across the east wall of rectangular structure F5.



## 5 DESCRIPTIONS OF 2019 TRENCHES

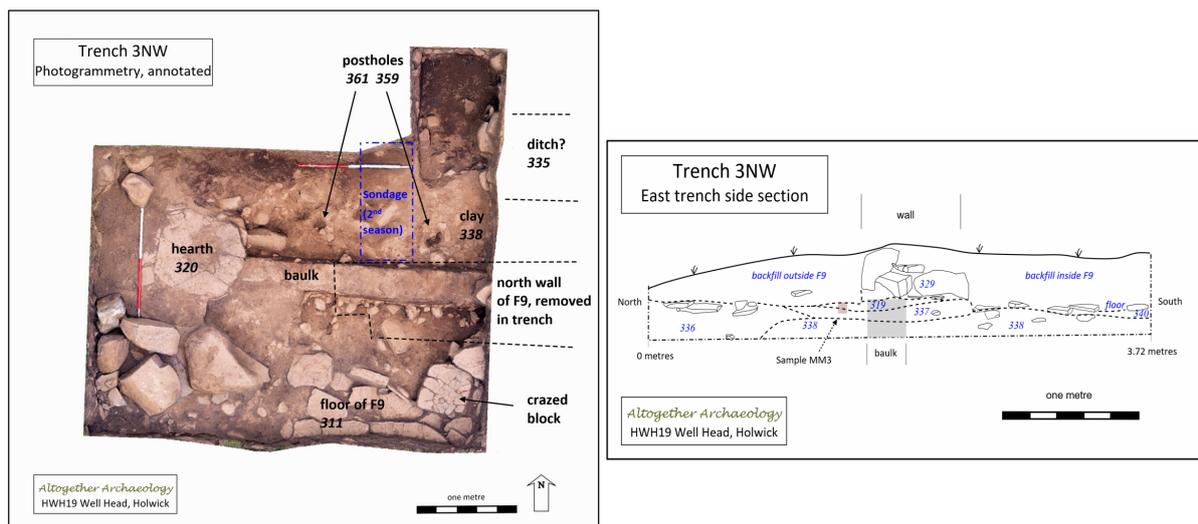
### 5.1 General information

Context numbers in the following descriptions are given in *italics*. The contexts are listed in context tables in Appendices 7, 8, 9, and 10. The designation of the structures etc (F7, F9, etc) uses the feature numbering of the initial 2017 survey (see above for plan).

Photogrammetry images of the trenches with an Ordnance Survey co-ordinate grid are given in Appendix 2. The dimensions and positions of the trenches are given in Section 4.3, above. Large versions of the photogrammetry images and plans of the trenches are in Appendices 3,4,5, and 6.

### 5.2 Trench 3NW: re-opening of part of Trench 3

This trench re-opened the north-west corner of 2018's Trench 3, to uncover that corner of longhouse F9 where the north wall was absent. Under the line of the wall was a hearth, containing charcoal. Around the hearth was a laminated deposit, possibly industrial. The aim of the re-opening was to examine this area further and to take more samples, with the specialist help of Dr Karen Milek, associate professor of geoarchaeology at Durham University.



**Figure 11: Trench 3NW annotated photogrammetry and drawing of section.**

There are larger versions of these diagrams in Appendix 3.

The hearth 320, when excavated in the second season, contained charcoal radiocarbon-dated to the 1480s or 1590s, with the earlier date more likely. Detailed results are shown in Appendix 2: there is a 95% likelihood of the true date being within 40y of these dates. This shows that the hearth went out of use before the upper flagstone floor was inserted beside it in the western section of F9. This floor must be mid-17<sup>th</sup> century or later as the levelling deposit underneath it contains clay pipe-stems.

Running west from the hearth were laminated deposits, 319 and 337, totalling about 0.2m in depth. They consisted of thin consolidated laminations of pale grey clay and darker layers containing charcoal and coal fragments. The top of the hearth was level with the top of these, and both the hearth and the laminated deposits lay on a clay-with-stones subsoil 338. The laminated deposits continued for about 2.5m east of the hearth. At their east end they were underneath the north wall of F9, which was left undisturbed in the previous excavation but in this excavation was removed in

the area of the trench (see the above diagram for the position of the wall). The wall was absent, possibly never present, over the hearth, and for 0.8m east of the hearth's edge. The laminated deposits extended 0.7m northwards from the house wall; at their northern limit they lay over the fill of a possible ditch, 336. The deposits did not extend into the interior of building F9, their southern edge being cut off at the line of the inner face of the F9's north wall.

A 0.3m wide baulk was left in situ under the wall-line. Block samples were taken from this baulk, 0.9 and 1.2m east of the hearth, so were of deposits that had been under the wall of F9 and hence undisturbed by the previous excavation. The samples are being analysed in the Durham University archaeology laboratories.



**Figure 12: Trench 3NW: block sampling of laminated layers in the south side of the baulk.  
At top is wider view showing edge of hearth at extreme top left**



**Figure 13: Trench 3NW: block sampling of laminated layers in the baulk, looking east: Perry Gardner and Dr Karen Milek (Durham University). See Appendix 11 for further sampling photographs**

To the north of the baulk, the deposits were excavated down to the clay-with-stones subsoil. In the previous excavation a 0.2m deep sondage had been dug down to this level, on the north side of the wall (see diagram for position). Two postholes were cut into the clay about 0.3m to the north of the wall-line and about 1.2m apart. The eastern (359) had stones set around it, the other (361) was less well-defined.

A full interpretation of the features in Trench 3NW, will only be possible once the samples have been analysed. It seems probable that some industrial process, e.g. iron-working, occurred here over a long period so that laminated layers were deposited adjacent to the hearth. The post-holes may have been for a shelter to protect workers. These industrial deposits were under the north wall of the longhouse, so must pre-date the wall. Alternatively, at least some of the deposit may result from the destruction by fire of a wooden structure. It is clear that by the time the longhouse was upgraded (probably in the 17<sup>th</sup> century), the deposits were removed from inside the building (if ever present), the hearth was redundant and the new level, higher, flagstone floor inserted in the western part of the building, with a new hearth against the cross-wall.

As a large timber-framed building, it is expected that many modifications would have been made to the building over its centuries of use (see the second season report for a detailed discussion of this). Modification may have included rebuilding/replacement of the stone walls, since the walls are there as weather protection for the timber frame, not to bear the load of the roof. Thus, even though the laminated deposits extend under the stones of the wall, this does not indicate that they must have been laid down before the building was first constructed: the wall may have been rebuilt repeatedly during the life of the building. The walls are of undressed irregular whinstone blocks and lack mortar, so would not have been robust. In fact, the building may have originally been built with wooden (or wattle) protective walls, not stone ones.

### 5.3 Trench 3NE/SE: re-opening of part of the eastern end of Trench 3

Trench 3 of the 2018 excavations uncovered building F9, a longhouse with padstones that probably supported a timber frame. Due to time limitations, no attempt was made to dismantle the walls or flagstone/cobble floor of F9, apart from limited excavation under part of the floor. There is still much unknown about the structure and development of rural medieval longhouses; see the 2018 (second season) Interim Report and Green and Frodsham (2019) for discussion of this and references to specialist articles. In particular, it is not clear if such houses were built originally with dwarf stone walls, or if the original wall was of e.g. wattle-and-daub between earth-fast posts, with stone walls added later to provide better weather protection. It is also unclear if the timber frames were originally set in post-holes, then supported on padstones later when the bottom of the timbers had rotted.

Therefore, part of Trench 3 was re-opened to remove partly the walls and padstones, to seek evidence of pre-existing structures, such as post-holes, under the padstones and/or along the wall line. There was also the hope that dating the deposits under the walls would give further information as to the age of the longhouse. Hence two trenches were opened along the eastern ends of the south (Trench 3SE) and north (Trench 3NE) walls of F9, including the corners with the east wall. After cleaning of the wall and floor, the walls were dismantled and the adjoining padstones, the easternmost pair, were removed.

In Trench 3SE, deposits under the wall were waterlogged. This is the uphill side of the building and has a drainage gully in the rough cobbled surface along the outside face (see Section 2.2 and the 2018 Interim Report). There were no post-holes under the wall line or under the padstone. Immediately under the wall were the floor-stones (flags and cobbles) which extended about half-way under the width of the wall from the inside. Both the floor and the wall were supported by a deposit of irregular rubble. This seems to have been placed over the subsoil to consolidate the wet location. No other structures (e.g. postholes) were found under the wall-line or padstone. A section across the wall is shown in Appendix 3.



**Figure 14:** Trench 3SE looking at section of south wall from inside of building. *On left:* the wall has been removed to show the floor-stones which reach the centre line of the wall (shown by the ranging pole) The outer half of the wall lies on irregular rubble. *On right:* in the same location the floor-stones and top layer of foundation rubble have been removed to show the underlying waterlogged rubble embedded in clay subsoil.

In this part of the longhouse, an animal pen was next to the wall; hence the floor-stones are best preserved at the edge of the floor and under the wall. further inside the building they have been disrupted by livestock trampling.



**Figure 15:** Trench 3SE. *On left* the same location as in the previous figure, after removal of all rubble, showing the undisturbed subsoil. *On right* looking east along line of removed wall to padstone (above point of ranging rod) with section across wall to its right.

Subsequently the padstone and all the east end of the north wall were removed. Unexpectedly, underlying the south-east corner of the building was a double line of stones, 365, with small stones between, probably a wall base. This was aligned diagonally across the corner of F9, NNE to SSW. It did not extend south of F9. The trench was extended northwards, joining with Trench 3NE, to define how far northwards this stone alignment continued. It was found to terminate at the drain in the centre of the east wall of F9, and didn't extend beyond the building. See Figure 18 for a plan.



**Figure 16:** Trench 3SE. The wall-base running diagonally under the south-east corner of longhouse F9. *Top left* looking from inside F9, before removal of stones of F9's walls. *Top right* looking north along line of the underlying wall-base after removal of F9's walls. *Bottom left* same view, after removal of packing stones. *Bottom right* after complete removal of a section.

The assumption is that this underlying structure was preserved where the longhouse was constructed over it, but destroyed outside the footprint of the building by drain construction and clearance, and by livestock disturbance.

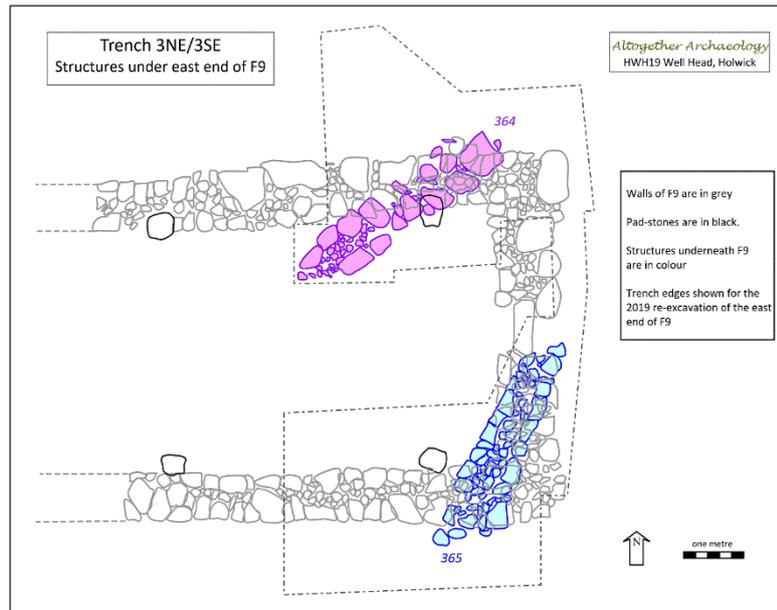
Trench 3NE explored the north wall of F9 at its eastern end. As in Trench 3SE, the wall and a padstone were removed to expose any underlying structures. Here the ground was less water-logged and the wall of F9 was underlain by a brown topsoil-like deposit containing some medium-sized stones and charcoal flecks. It also had a number of sherds of a coarse-fabric dark-grey pottery, unlike that found elsewhere in the trench.



**Figure 17:** Trench 3NE. Looking eastwards along the line of the north wall of F9. *On left:* A section of the wall of F9 has been removed showing a brown underlying deposit (white labels are finds positions of pot-sherds). The right end of the 50cm scale is resting on the north-easternmost padstone. *On right:* is similar view, after removal of padstone and adjoining wall of F9, to show double line of stones passing diagonally beneath.

As in Trench 3SE, no evidence was found of post-holes underneath F9's walls and the padstone; but, once again, a double line of stones, 364, on a diagonal alignment passed under the wall. It was aligned ENE to WSW. See Figure 18, below. These stones were under, and surrounded by, the brown deposit and lay, like the deposit, on clay-with-stones subsoil. This double line of stones under the north-east corner of F9 was similar to that under the south-east corner in that it had smaller packing stones between the facing stones. The two structures, 364 and 365 were different, however: neither aligned with the building F9 or with each other, and the stones of the north-east corner structure were more rounded and the line less regular, so it did not have straight faces.

This structure was followed northwards, but did not continue beyond the footprint of F9, presumably being lost to disturbance. An attempt was made to follow it towards the centre of F9; it was found, as expected, to pass underneath the western wall of the north animal pen of F9. Unfortunately, the intact flagstone floor in the centre of the building was too heavy to lift safely, so how much further the structure continues is unknown.



**Figure 18: Trench 3NE/SE. Plan of the two structures underlying F9, showing their relationship to the walls and padstones of the west end of F9. See Appendix 3 for an enlarged version.**

Photogrammetry of Trenches 3NE and 3SE as well as enlarged drawings of the structures under the corners of F9 are shown in Appendix 3. Both structures are clearly earlier than the construction of F9 and do not share the alignment of any other structures on the site. They appear to be the foundation layer of two walls, presumably the upper parts have been robbed-out for stone to build F9 and other buildings. The pot-sherds found in the deposit below the north wall of F9 have not been identified or dated as yet (they do not seem similar to other pottery on the site), hopefully radiocarbon dating of the deposit will be successful.

## 5.4 Trench 6/9: investigation of structures on top of the hillock (F6, F7 and F17)

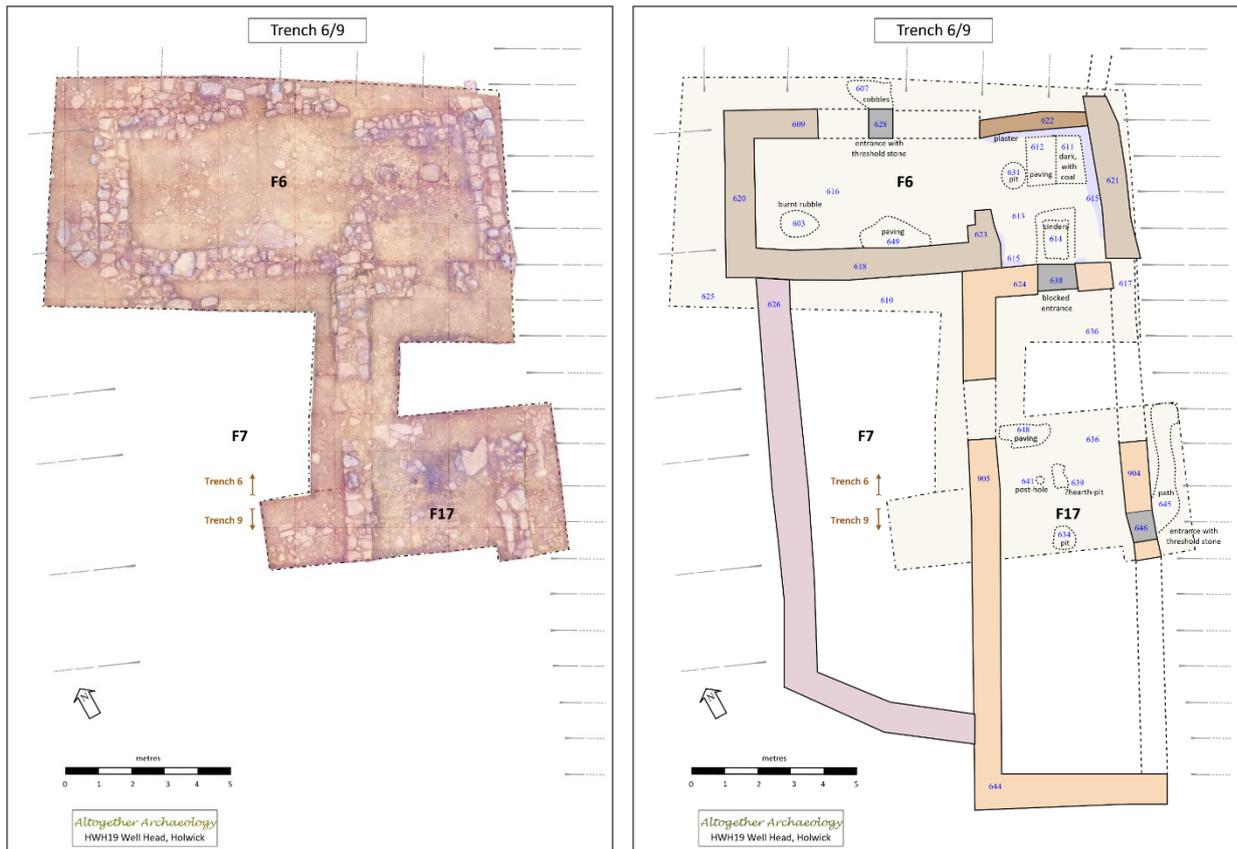
### 5.4.1 The trench



**Figure 19: Drone photograph of structures on hillock at the centre of Well Head, before excavation. Orientation as in trench plan (see next figure). Image is 30m wide.**

This figure shows the summit of the hillock with structures labelled. F7 and F17 are two rectangular structures aligned north-south, with a common long side. Adjoining them to the north is another rectangular structure, F6, aligned east-west. On the west side of the hillock are two terraces, F15 and F16, that were excavated in 2017. On the north-west side of the hillock is another rectangular structure, F5. The structures survive as dwarf stone walls, under the turf in places. Across the hillock run ruinous field walls, probably constructed of stone robbed from the buildings and, in places, following their outline. These walls were probably constructed for livestock control beside the stream (just to the left of this drone photograph). The stream would have been used for watering livestock and probably as a sheep-wash.

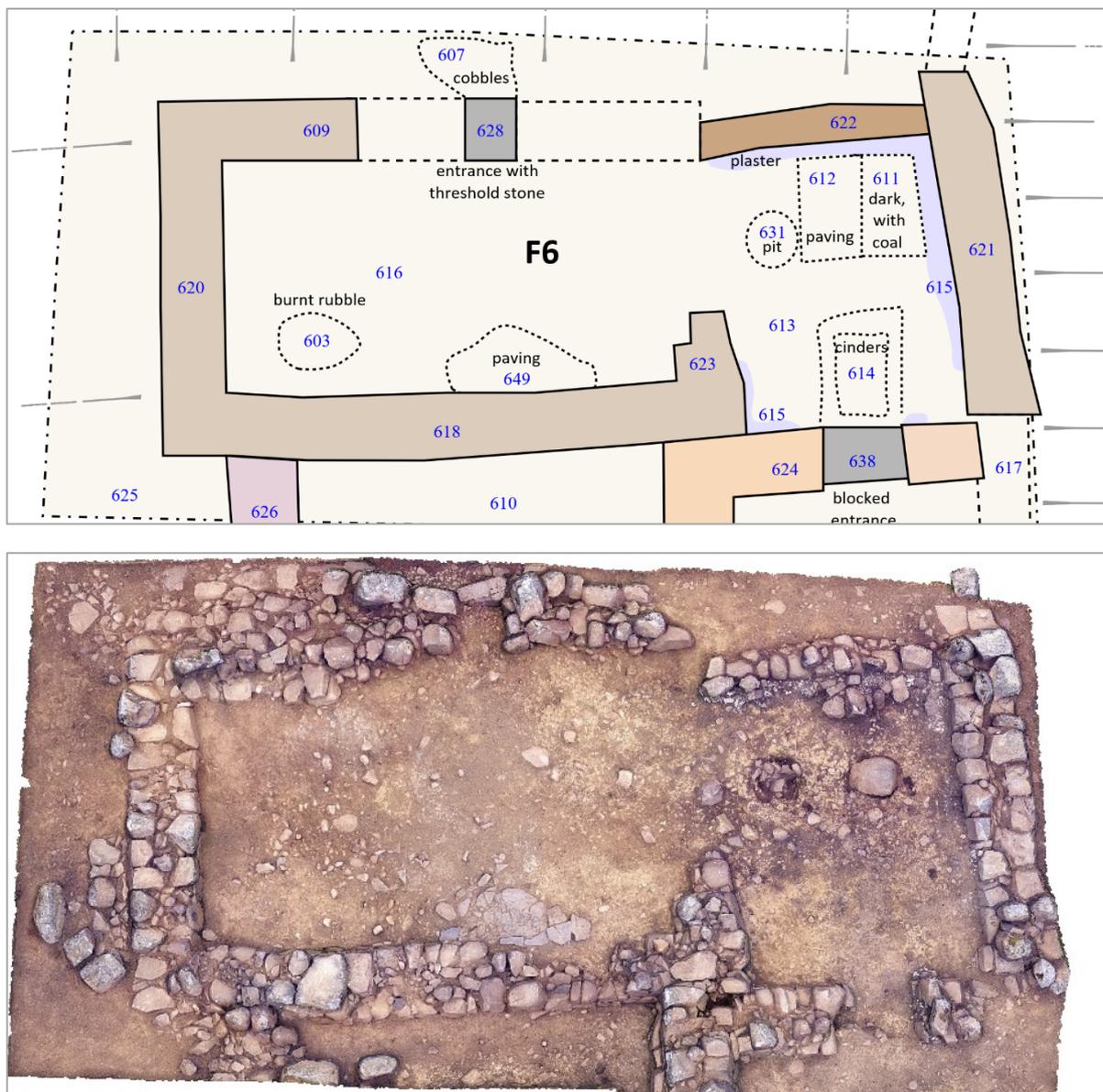
See Section 4.3 and Appendix 4 for the size, orientation and position of the trench. Trench 6 was initially laid out to fully excavate F6, a rectangular structure, 11.5m x 4.5m, on the top of the hillock in the centre of the settlement. This was thought, from the survey result, to be a probable longhouse. Excavation has shown a more complex structure than predicted. To the south of F6, and at right angles to it, are adjacent rectangular structures F7 and F17, sharing a wall. Trench 9 was laid out to run across this wall to investigate whether the two structures were buildings, yards, or a building and a yard. Initial results showed that F17 was a building, with an entrance threshold slab at the east end of Trench 9, whereas F7 was probably a yard. Subsequently, the two trenches were extended towards each other and merged to allow fuller examination of building F17.



**Figure 20:** Photogrammetry image of Trench 6/9 with interpretation plan. In Appendix 4 these are shown at enlarged size. Enlarged views of F6 and F17 are given below.

### 5.4.2 Building F6

The building F6 has dwarf walls about 0.9m wide, of one to three irregular courses of undressed and unbonded stones. The walls lie directly on the clay subsoil, with no foundation trench. The interiors of the walls are of smaller packing stones between wall-faces of larger blocks. Appendix 13 contains a photographic survey of the walls of F6. After the final photogrammetry image was taken, sections of the north and west walls were removed, confirming the lack of underlying structures.



**Figure 21:** Close-ups of F6, the upper part of the previous images. See them for scales. Features 611, 612, and 614 have been removed in this view, showing the underlying compacted floor surface.

The south (long) and east (gable) wall-bases of western end of F6 are largely intact. The north wall had slumped outwards, downslope, although a small section near the north-east corner was intact. There was an entrance, 628, on the north side, about 4.5m from the west end. The threshold stone slab had slipped outwards, like the adjacent wall, but can be identified since it shows wear and is of the same fine-grained gritstone used for other thresholds in the settlement (in F9 and F17, see below). There was a surface of small cobbles, 607, leading up to the entrance from the outside (the threshold stone now overlies part of this). See Figure 22 below.



**Figure 22:** The north entrance to F6. The 30cm scale is on the displaced threshold slab.  
*On left: looking inwards. On right: looking outwards. Note cobbled surface.*

The west gable wall, 620, was intact and of similar construction to the east gable. However, the south wall was absent at the eastern end of the building, with the north wall rebuilt very crudely with roughly placed rounded stones (or possibly, it had lost its outer facing stones). The eastern third of the building formed a separate compartment. A cross-wall, 623, of which only the south end survives, divided the two compartments. There were no corner quoin stones at this junction so it is unlikely to have built as an outside corner. The two compartments of the building clearly had different uses, and there have been alterations during the life of the building. In addition, the rectangular building to the south, F17, abuts F6 and at one time had an entrance through its northern gable, later blocked up, 638.

The western compartment of F6 was filled with a layer of rubble, presumably from collapse of its walls. There was an area of burning, 603, in this rubble; probably a fire after the building was already ruined. The floor 616 was formed of compacted clay-rich material, mainly similar in nature to the underlying subsoil with which it was continuous, although there were irregular patches of bluer clay-rich deposit. There was an area of shattered paving, 649, against the inside face of the south wall. This may be a remnant of any otherwise robbed-out floor surface. It lay directly opposite the northern entrance, but there was no evidence of a southern entrance adjacent to it: if this ever existed, it had been blocked and the threshold slab removed. There was, as mentioned above, a surface of small rounded cobbles, 607, in the north entrance to the building. The northern limit of this surface outside the building was not defined as it lay outside of the northern edge of the trench.

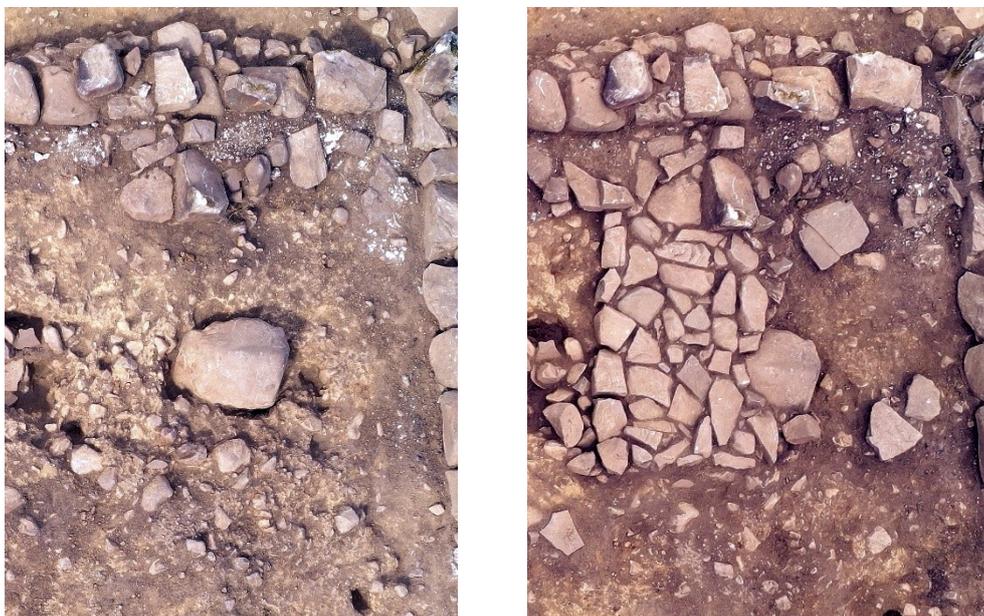
The eastern compartment was also filled with rubble from wall collapse. Its floor surface was in the most part similar to that in the western compartment. However, in the northern half of the compartment there was, from west to east, a pit 631, a rectangular area of paving 612, and (in the NE corner of the building) an area of dark deposit including coal, 611. In the southern half there was a rectangular thin cinder-rich deposit, 614. There were many fragments of white plaster, 615, lying beside the inner face of the walls of the eastern compartment. These features are described in turn.

The pit 631 was cut into the floor immediately to the west of flagged floor surface 612. It was 60cm x 50cm, 30cm deep, and irregular. The fill was of topsoil like material with a high proportion of angular stones. No finds were made in it, or any burnt material; a sample was taken.



**Figure 23:** Pit 631. *On left:* before excavation of fill. Looking west, paving 612 at bottom of image. *On right:* after removal of half of fill.

The rectangular area of paving 612 is of close-packed angular stones up to 20cm length. Its western edge, adjacent to pit 631, is well-defined; the northern edge adjoins the outer wall, and the other edges are irregular. On removal, the paving was found to lie directly on the subsoil-like compacted floor of the building. It appears to be constructed to incorporate a large boulder on its east edge, the boulder is sunk into the clay floor surface



**Figure 24:** *On left:* Paved surface 612. Drone image, north at top. *On right:* Same area, after removal of paving. A large boulder remains, sunk into the floor in the centre of the image. Note white plaster fragments along the inside face of the north and east walls of the building.

The cinder-rich deposit 614 is about 1cm thick, it included small fragments of coal. It was surrounded by an irregular line of stones defining a rectangle 1.0m x 1.6m (external), 0.8m E-W x 1.3m N-S (internal). See Figure 25 (below). The stones weren't heat-affected, nor was adjacent wall. the

deposit is adjacent to the blocked northern doorway of F17 and across the line of the absent south wall of F6; hence it probably post-dated the doorway being blocked. It was probably waste heap.



**Figure 25: Cinder-rich deposit 614. On left: drone photograph showing kerb stones before removal of these and rubble. North at top, feature outlined in white. On right: after removal of stones, looking south, showing thin dark deposit of compacted burnt material.**

White plaster, in fragments up to 10cm was found against the inner face of all four walls of the eastern compartment of F6. It was mingled with a bluish grey clay-like material and lay on the floor surface of the building. The deposit was continuous near the north-east corner, and intermittent elsewhere (see Figure 21 for its distribution). It is absent beside the blocked doorway in the south wall. The only place where plaster is still attached to the stones of the wall is in the southwest corner of the eastern compartment (see Figure 26). There was no plaster in the eastern compartment of F6, nor in any other buildings excavated on the site, so this part of F6 is unique.



**Figure 26: Plaster in the eastern compartment of building F6. On left: fragments of plaster lying against the inside face of the north wall. On right: Plaster still attached to stones in the south-west corner.**

The only possible padstones for crucks in F6 are shown in Figure 27 below. They form a pair, lying 2m from the centre line of the western gable wall. The identification is far from certain. If F6 were indeed a cruck-framed building like F9, then (assuming a cruck separation of a little under 4m), it would have had three crucks (unlike F9 which has four crucks), giving a layout:

west gable – 2m – cruck – 3.5m – cruck – 3.5m – cruck – 2m – east gable



No padstones were identified at the other four predicted positions, but the building's walls are badly damaged or absent at three of these sites, so the padstones, if ever present, are now lost. There are no likely candidates for padstones in the gable walls, hence no evidence of gavelforks (Alcock 1977) being part of the timber framing.



**Figure 27:** Possible pair of padstones in F6. *Top:* location of padstones, north at top. *Bottom left:* Northern padstone. *Bottom right:* Southern padstone.

### 5.4.3 Building F17

Two parallel rectangular structures, sharing a long north-south wall, lie to the south of F6. Although not clear before excavation, it is probable that F7 was a building and F17 a yard. This is based on the evidence:

- their common wall is similar to that of the building F6
- the south-west corner of F17 survives above ground as a massive structure, 644
- the west wall of F17 includes an entrance, 646, with threshold slab and flagged approach path
- the excavated part of the floor of F7 is not compacted and lacks features
- The excavated part of the floor of F17 includes a hearth-pit with adjacent post-hole, another pit, and an area of paving
- the western wall of F7, although only excavated at its northern end, seems less well built
- the western wall of F7 has a bend in it, identified on the survey

Partial roofing of F7 cannot be excluded in view of the limited area excavated.



**Figure 28:** Close-up of F17, the lower part of the previous images (Figure 20). Photogrammetry image of trench on left, plan on right (to same scale).

F17 is a long, narrow structure, 16m x 4.5m, approximately the same size as the timber-framed longhouse F9 excavated in 2018. Its floor, as with F6, was of compacted clayey subsoil material. The walls, as with F6, lay directly on the subsoil with no evidence of underlying structures. Much of the east wall had been lost, probably by collapse down the steep side of the hillock. However, an entrance, 646, survived at the centre of the east wall. It was 0.7m wide and had a cracked worn threshold slab of fine-grained sandstone, similar to that on the north wall of F6 and in F9. A paved path, 646, running diagonally up the side of the hillock, approached this entrance. The entrance had been blocked by placement of a large stone across it. There was no matching opposite entrance on the west wall of F17. A section of the end of this wall is absent and the southern half is unexcavated, so an entrance through it elsewhere may have existed.



**Figure 29:** Eastern entrance, 646, of F17 after removal of blocking stone. *Left:* looking east (from inside). *Right:* looking north. Note worn, cracked sandstone threshold.

The south-west corner of F17, 646, has been incorporated into the later roughly built stone walls constructed across the site. It is of unbonded undressed whinstone, in courses and with small packing stones to level the quoins. It survives to a height of 1.6m at the corner and for about 0.8m horizontally each way from the corner. Beyond that, the walls become cruder, with more irregular stones, and no coursing. There are no similar well-built sections of wall, making it likely that this is a survival from F17. Its survival was enabled by it being a corner (hence more stable) and on a relatively flat part of the hillock. The later crude wall which incorporates it, F23 (see plans in Figures 2 and 3) seems to curve and form an otherwise unexplained angle to incorporate it, again suggesting that this corner predated the rest of the wall.



**Figure 30:** South-west corner, 644, of F17 incorporated in the later crude stone walls constructed across the site after abandonment of the buildings.

The excavated part of the floor of F17 is of compacted clay-rich material, similar to subsoil. It has several features in it, described in turn.



**Figure 31:** The central part of F17 with features labelled (vertical drone view, image is 4.5m wide)

The flagstone paving, 648, covers a fairly small area (1.8m x 0.9m) and is worn and fractured. On its south-west edge was a small patch (0.5m x 0.2m) of paving formed of small stones on edge.



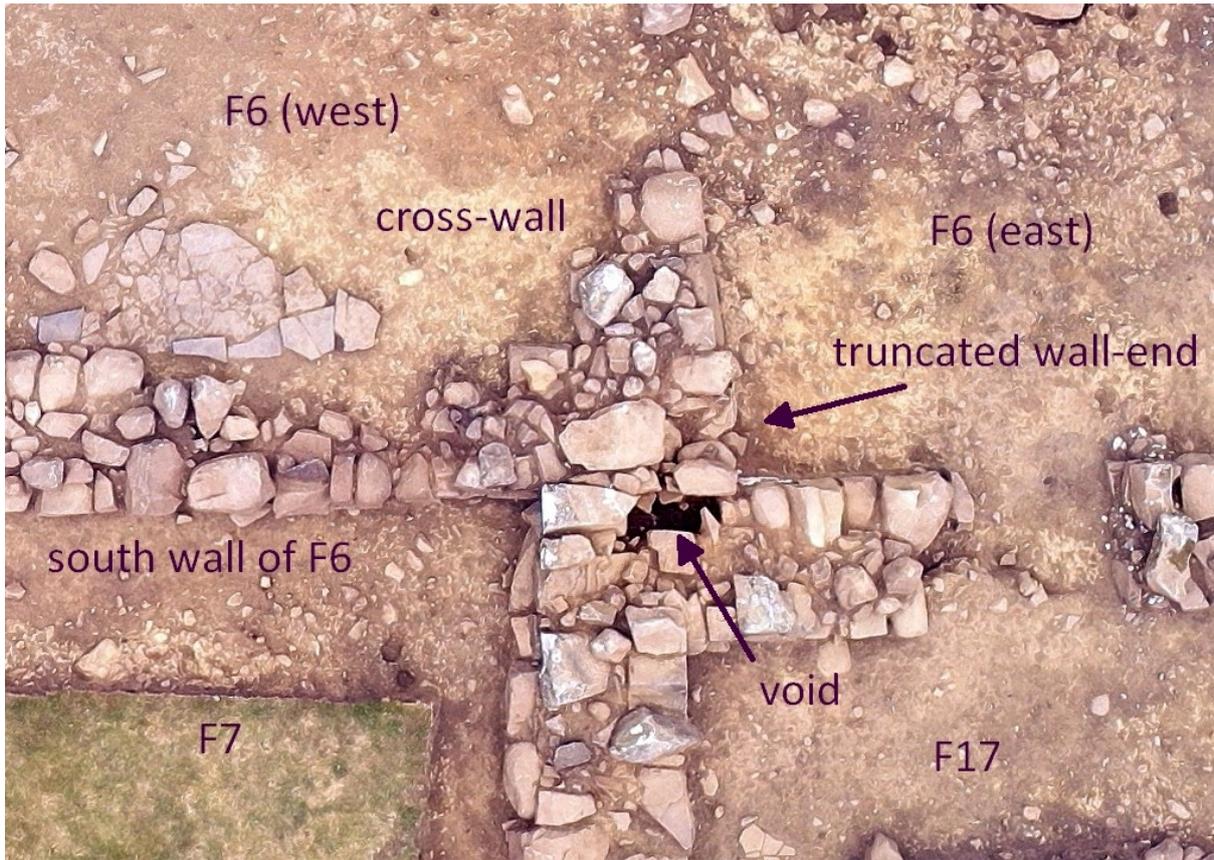
**Figure 32:** *Left: the area of paving, 648, under excavation, looking east. Right: posthole 641. See previous figure for a wider view of these features.*

In the centre of the building was an irregular pit, 639, about 0.7m wide and 0.2m deep. The fill was of gritty burnt material with abundant small charcoal fragments. It had no edging stones, but nearby were fractured flagstones, possibly the remnants of a surrounding floor surface. To its west, about 0.4m from its edge, was a posthole, 641, 0.18m in diameter containing packing stones. This may have been part of a structure to support cooking vessels. No other postholes were noted, but there was a pit, 634, about 1.6m south of the hearth-pit, in the central axis of the building. It had a diameter of 0.6m and depth of about 20cm. Its fill was of stones, up to 10cm length, in an uncompacted subsoil-like matrix, with no evidence of burning or organic matter. In view of its position on the mid-line of the building, it may have been for a structural post (although its location opposite the entrance, 646, makes it unlikely to have been an original feature of the building's structure).

The north wall of F17 had a blocked entrance, 638, about 1m wide. There was no extant threshold slab. The blocking wall was crudely constructed of irregular stones with topsoil-like material, including plaster fragments, between them. There was no line of plaster along the north side of these blocking stones. This suggests that the door was probably blocked *after* the walls of the eastern compartment of F6 had been plastered.

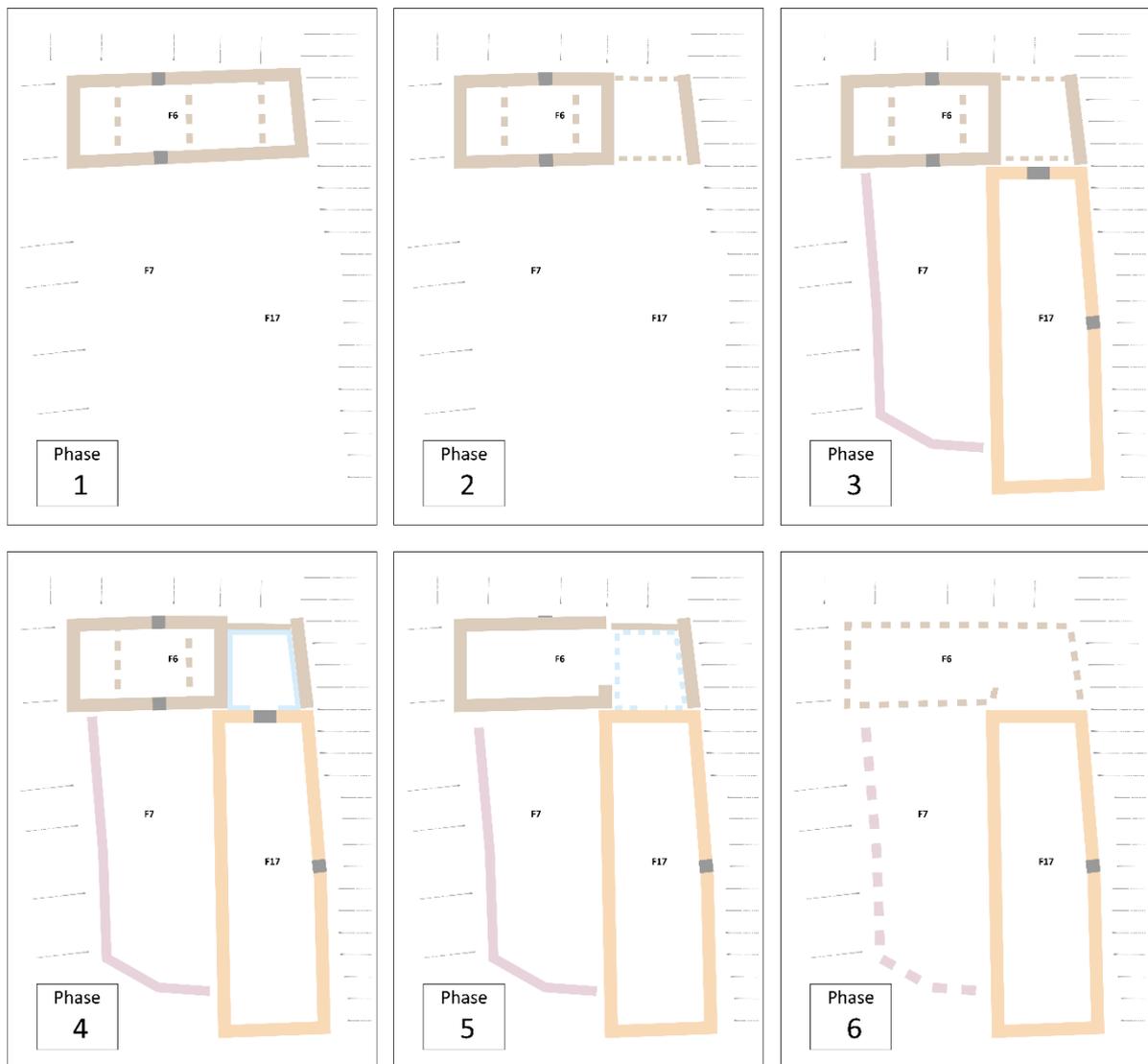
The north-west corner of F17 abutted the south wall of F6 so they were clearly separate buildings: construction with no gap would have been a benefit on this windy location on the hillock. A close-up view of the abutting corners is shown in the next figure. It is apparent that at the corner, the north wall of F17 had a void instead of facing stones against the south wall of F6, suggesting that F6 was already there when F17 was built. To the east of the corner, the north wall of F17 had facing stones on both sides, so that the south wall of the eastern compartment of F6 was already lost by then. The fact that this wall *did* previously exist is indicated by the lack of quoin stones at the east end of the extant section of the south wall: the wall appears truncated.

This view of the corners also shows that the cross wall and south wall of F6 are not keyed together, so the cross-wall was built after the south (external) wall of the building.



**Figure 33:** The adjacent corners of F6 and F17. Vertical drone photograph.

#### 5.4.4 Phases in the development of buildings F6 and F17



**Figure 34: Possible phases in the construction of F6 and F17**

The possible phases shown above are speculative, although finds analysis and radiocarbon dating may allow refinements when available. The initial phase was the construction of a three-cruck longhouse aligned east-west on the hillock. Subsequently (phase 2) the longhouse is shortened at the east end with a new eastern gable built further west, reducing it to a two-cruck house. A rectangular building, F17, was then constructed abutting F6 but aligned north-south (phase 3). It is not clear if this was initially a domestic or agricultural building, though at some stage occupation is likely due to the hearth-pit and areas of paving. It had a door in its north wall giving access to what had been the eastern part of F6. This had a new crude north wall built and was plastered (phase 4), perhaps for use as a dairy. By this time the yard, F7, to the west of F17 has been defined by a wall abutting F6.

Next (phase 5), the north door of F17 was blocked up, and the dairy (?) that it used to access became a store-room and workshop, with a cinder pile across the blocked doorway and a coal-heap in its north-east corner. Finally (phase 6), the old longhouse, F6, became ruinous, and the only extant



building left on the hillock was the rectangular building, F17. This must have been the situation by the time the early 19<sup>th</sup> century map was drawn. By that time, F17 had become an agricultural building and no longer in use as a dwelling (or the map would have labelled it as a farmhouse).



## 5.5 Trench 7: investigation of F10, a rectangular structure crossed by the field-wall

Trench 7 examined rectangular building F10, the southernmost of the structures in the settlement. See Section 4.3 for the trench position and size. The building is 7m x 5m. These are external measurements: the walls are nearly 1m in width. Passing across the building diagonally is a high field wall, typical of post-medieval “enclosure act” type walls that still divide the landscape. This wall is the current “head-dyke”, i.e. the boundary of the improved land of the valley floor, beyond which is unimproved rough moorland.

There is no known Enclosure Act for the area, the land seems to have been enclosed and boundaries revised piecemeal in the post-medieval period, so the date when this field wall was constructed is uncertain. Old maps of the area are shown in Schofield and Quartermaine (2011). In their Plates 6 and 10, the field-wall appears in its current position on maps dated 1820 and 1800-1820, as well as on the first edition OS map of 1854. However, in their Figure 4, the wall isn't shown on a map dated 1826: the boundary of the improved land is along the tumbled wall just to the north. This tumbled wall is F23 in the AA survey of Well Head (see Figures 2 and 3 in the present report). In none of these maps is building F10 shown, the assumption must be that it was out of use before the field-wall was built diagonally across it. See Section 7.2 for further discussion of the head-dyke.



**Figure 35:** A portion of the field-wall (photogrammetry image). Note the boulders at its base.

**Figure 36:** Vertical view of field wall crossing F10 (north at top). There is a modern fence parallel to and south of the wall. The unexcavated portion of F10 is seen south of the wall.

Trench 7 has a significant feature in common with the adjacent Trench 5 (excavated in 2018) in that the buildings excavated (F10 and F12) have foundations of undressed massive dolerite blocks. The geology of Holwick was discussed in Section 8 of the Interim Report on the 2018 (second season) excavation. Dolerite is an igneous rock, a type of basalt locally known as whinstone. This formed when molten rock (magma) intruded through the softer Carboniferous rocks of Teesdale. The magma did not reach the surface, solidifying into dolerite layers up to 80m thick. After millions of years of erosion of the softer rocks, the dolerite has been partially revealed in parts of north-east England between Teesdale in County Durham and the Berwick to Holy Island area of Northumbria.



**Figure 37:** Dolerite columns at Holwick Scar.

**Figure 38:** The field-wall between the spring and Holwick Scar. Note the scattered dolerite boulders fallen from the scar.

On cooling, the dolerite cracked vertically into columns (see Figure 37). Blocks of dolerite have fallen from the scar, forming a boulder scree at its base. Buildings F10 and F12, the closest to the scar, use these monolithic dolerite rocks in their wall foundations to a greater degree than other buildings at Well Head, which generally use less massive stones. The later field-wall bisecting building F10 and its associated enclosure also has these boulders as foundation stones. Many of these large stone appear to be missing, particularly from F12: presumably re-used in the wall (as also will have smaller stones from the buildings).

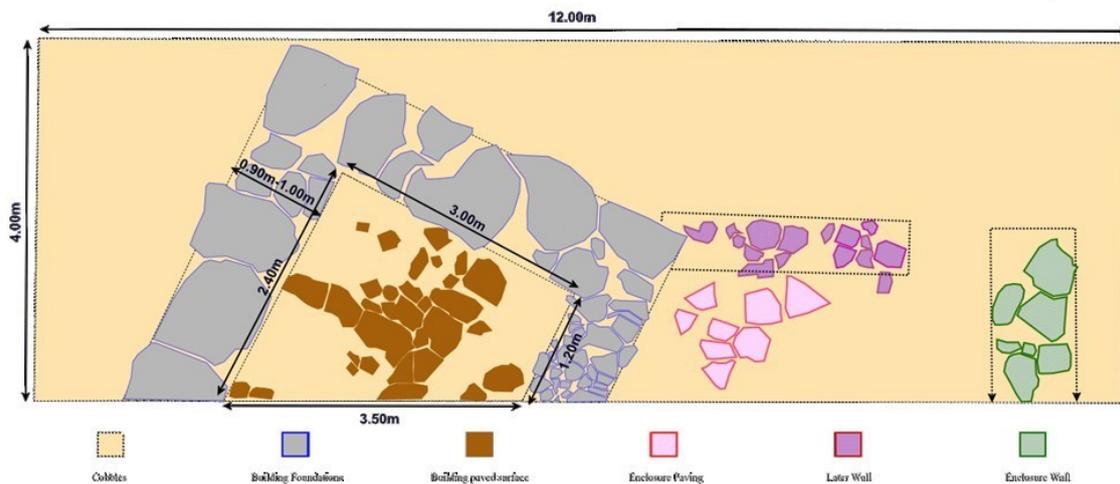


**Figure 39:** Dolerite boulders as foundation stones in (*on left*) F12 excavated in 2018 and (*on right*) F10 excavated in 2019.

On excavation, the main walls of F10 were between 0.9m and 1.0m wide, chiefly constructed using large dolerite stones from the adjacent scree slopes, as already described. The floor was partially paved, otherwise roughly cobbled. A single sherd of medieval pottery was found underneath one of the paving stones.



Trench 7: Trench Dimensions & Key



**Figure 40: Photogrammetry and interpretation plan of Trench 7, prior to the northern extension and the excavation of the floor of F10 and part of the yard area.**

All the excavated area outside the building was roughly cobbled, forming a yard, apart from an area of crude flat paving. It is possible that the ‘cobbling’ outside of the enclosure may have been partly natural as the southern wall in F12 was also sitting on top of this type of ‘cobbling’; a large component of the subsoil here is scree from the scar. However, the clear boundary to the cobbling found in the extension to the trench (see below) does suggest that it is a man-made surface. The aerial view in Figure 36 shows that a small enclosure wall curved around from the south-east corner of F10, northwards, passing under the field-wall and terminating in the east end of Trench 7 (shown in green on the plan). It was noted during the initial survey of Well Head and is shown on the survey plans (Figures 2 and 3).

A short stub wall of later appearance appears to have extended from the north-east corner of F10 towards the end of the enclosure wall (shown in purple on the plan). There was no evidence that it extended to meet the enclosure wall. The gap may have been an entrance to the enclosure by the building.



Well Head Settlement appears to have been used as a picnic site, judging by the collection of 19<sup>th</sup>-century finds in the topsoil. There was a modest amount of medieval and later pottery particularly inside the building, but no real evidence that it had any prolonged residential use (or if it did, then it was kept clear of refuse). No hearth was found, nor an entrance (though these may have been in the unexcavated portion). The massive dolerite rocks in the foundations of both F10 and F12, may indicate that these two buildings were quick early constructions to provide temporary residential shelter whilst the settlement was developed, and later being used for animal, industrial or storage use. Both Trenches 5 and 7 contained large amounts of hammer-scale in and below the topsoil layers. Some is also present in the other trenches. At least three local deposits of iron ore are known, so iron-working is to be expected at Well Head.

The photogrammetry image shown above (Figure 40) shows the trench after initial cleaning. Subsequently the floor of F10 was removed, but no underlying structures were found. A sondage was placed across the paved area and some of the cobbling in the yard, but again no underlying structures found. An extension of the trench, 7.3m x 1.0m, was excavated north-eastwards to the cairn-like mound F11 that had been noted during the initial survey. It was hoped to establish whether it was an archaeological or geological feature. In addition, the extension would investigate how far the cobbled yard around the building extended, and it would cross a 1m diameter shallow depression, showing if it was significant.



**Figure 41:** Trench 7 final photogrammetry. North at top. (See Appendix 2 for this image with coordinates shown).

Excavation showed that the mound F11 was clearly bedrock, probably lifted and tilted by the dolerite intrusion that formed Holwick scar. The circular anomaly in the grass was found to be caused by the rough meadow grass growing around the top of a large irregular boulder, which also marked the northerly terminus of the cobbles in this area (see Figure 44 for photograph). Hence the cobbled area extended 5m in this direction from building F10.



**Figure 42:** Sandstone bedrock mound feature F11.

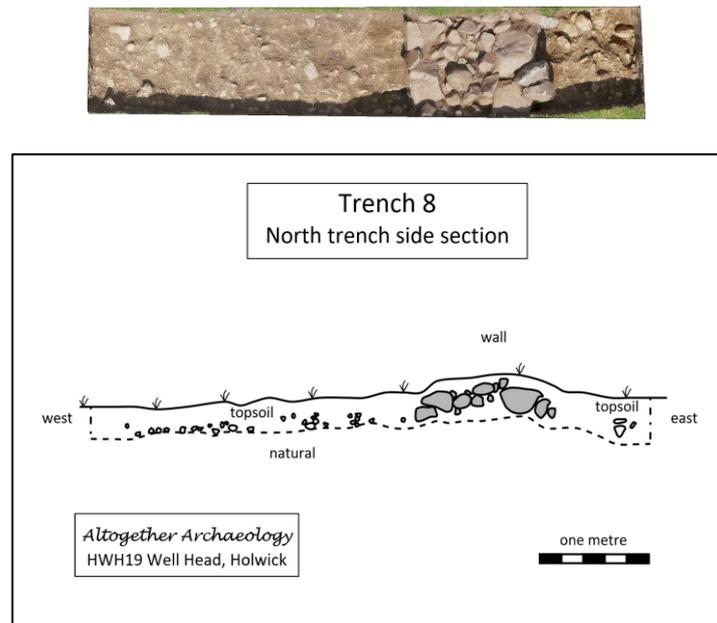
**Figure 43:** Interpretation plan of the trench extension to explore mound F11



**Figure 44:** Extension of Trench 7, the cobbled yard ending at boulder, (see plan in previous figure).

## 5.6 Trench 8: a section through the eastern wall of rectangular structure F5

The rectangular structure F5 is the northernmost of the structures in the core area of the Well Head settlement. It lies on the north-eastern side of the central hillock, with a possible yard extending northwards from its western end. F5 and its yard each measure approximately 12m x 5m. Tumbled field walls run along their western and southern edges, making interpretation of the dwarf-wall remains difficult. There is no obvious entrance but a possible internal wall is seen at F5's west end (shown on the survey plans, Figures 2 and 3). Trench 8 was sited to cross the eastern wall of F5. Its position and dimensions are given in Section 4.3.



**Figure 45: Photogrammetry (north at top) and drawn section along Trench 8, at the same scale. See Appendix 6 for larger versions of these images.**

Excavation showed that there was no floor surface in structure F5. Below 0.2m to 0.3m of topsoil was the compact natural stony clay subsoil. The dwarf wall was about 0.2m high. 1m wide, and made of undressed stones up to 0.4m across, but mostly smaller. Like other walls in the settlement, it had an infill of smaller stones between the two faces, but no bonding. The interface between topsoil and clay subsoil was lower by approximately 10cm outside of F5 (i.e. to the east). The ground may have been lowered to improve drainage, or the floor inside F5 may have been levelled-up by re-depositing subsoil in it.

There were few finds and no suggestion of industrial activity. On this limited excavation, there is no evidence that F5 was a dwelling; it was probably a farm building used for storage or livestock. It may have been roofless.

## **6 FINDS**

### **6.1 Ceramics**

A report on of pottery finds will be included in the final report, once the largest possible collection of pottery from the site has been analysed. All pottery from 2017 and 2018 has been washed and labelled, but due to lack of nearby comparison sites, as large a collection as possible is needed before publishing conclusions. Pottery appears to span a wide range of dates from 12<sup>th</sup> to 17<sup>th</sup> centuries at least. Many of the sherds of medieval green-glaze type pottery could be classed as Tees Valley Ware, but this is ill-defined and not well studied, meaning that typologies are difficult to determine. The pot-sherds found under the wall of F9 in the 2019 Trench 3NE/SE have not yet been identified: they differ from other pottery on the site.

A significant absence is that no roof or floor tiles were found. Nor were any stone or slate roof materials found. The roofs of the settlement were clearly all of organic material, probably heather.

### **6.2 Other finds**

To be discussed. Interestingly, a large number of metal buttons were found in Trench 6/9, but there was far less medieval pot found than in the first and second season. This strongly suggests that later (post-medieval) occupation of the site was concentrated on the top of the hillock (F6 and F17).



## 7 DISCUSSION

### 7.1 The layout of the Well Head settlement

With completion of three seasons of excavation, the layout of the core area of the Well Head settlement can be shown by combining all the vertical photogrammetry images of the trenches.



**Figure 46:** The core area of Well Head settlement. Photogrammetry vertical views of all trenches are superimposed on an aerial view (Google Earth).



Key							
Stone revetment?	—	Building foundations	■	Trackway	- - -	Modern field wall	▨
Water	■	Ruined field wall	■	Wall foundations	■	Rubble	■
						Slope	—

Co-ordinates shown are Ordnance Survey eastings and northings. Trench numbers are in yellow, feature numbers in pink

**Figure 47: The core area of Well Head settlement. Photogrammetry vertical views of all trenches are superimposed on the plan of Well Head made before excavation (see Well Head Survey report). The area shown and photogrammetry views are identical to the previous figure.**

It is noticeable that this is not a neatly laid out, regular settlement. It has clearly grown organically. There is a tendency for the longhouses' long axes to be north-west to south-east, but closer to east-west than north-south. Interestingly, longhouses in the Duddon Valley (in the Lake District) also tend to have a north-west to south-east orientation, though closer to north-south (Matthiessen et al 2015). This is despite the Duddon Valley and Teesdale having different alignments (running south-west and south-east).

The layout of the Well Head settlement is clearer in the following plan in which post-medieval field walls and the tumbled walls across the site have been omitted, to show just the ground plans of the buildings, their yards and the tracks between them.



**Figure 48: The core area of Well Head settlement, excluding modern features. The structures underlying F9 are shown in red.**

The arrangement of two rectangular buildings at right angles is at first sight unusual. However, Coggins (1986) gives plans showing this arrangement at Simy Folds, Holwick Castles, and Willy Brig Sike. These sites are, respectively, 2.1km, 1.5km, and 1.2km from Well Head. He comments that “the arrangement of two buildings, placed at right angles so as to form two side of a yard as at Simy Folds seems to occur in the Pennines but not as far as I know elsewhere” (Coggins 2004). It may therefore be more associated with the location (and its weather), rather than the era.



**Figure 49: Upper Teesdale sites with two buildings at right-angles, enclosing a yard.**  
*left: excavation plan of Simy Folds (Site 1), centre: survey plan of Holwick Castles*  
*right: sketch plan of Willy Brig Sike.* All plans reduced to approximately the same scale.  
 From Coggins (1986) and Coggins, Fairless and Batey (1983).

Excavation of the site was extensive enough to show the tracks through the settlement and the cobbled surfaces beside the buildings. Two tracks climb diagonally south-east from the settlement up the valley-side, accessing the uplands. There is a broad track through the settlement to the spring, so that livestock could be easily watered without crossing the surrounding arable land. Villagers would also have quick access to clean water. The relationship between the settlement and the arable land on its north side is less clear. The later tumbled stone wall across the north side of the settlement may lie, at least partly, over a boundary wall or bank protecting the arable area. The wall foundations, F22, seem to be part of this wall across the northern edge of the hamlet, see Figure 48.

The land to the north appears, both on lidar and to the eye, featureless, lacking any structures or large stones. The edge of the settlement is therefore very clear, with the land to the north having been cleared for agriculture. Similarly, the land to the west of the settlement, beyond the spring, appears to have been cleared for agriculture. See the lidar image in Figure 51 (below).



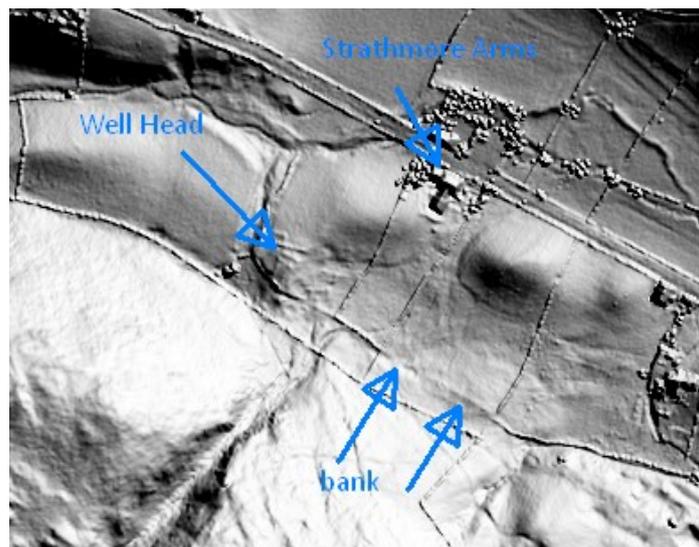
## 7.2 The head-dyke

The head-dyke (the wall dividing the uplands from the good land of the valley bottom) is currently formed by the high stone field wall along the bottom of the scar. This passes above the spring and crosses the foundations of building F10 diagonally, so is clearly not in its original position. The plans of c1820 (see Figure 50, below) show the head dyke in its current position, indicating that the modern field-wall was already in situ by then. However, rather oddly, the 1826 map does not show the modern field wall, and suggests that the head-dyke at that time was the tumbled wall across the settlement, which runs along the line of the south side of F9 and the south end of F17. The 1826 map must have been based on an earlier survey, hence the otherwise inexplicable discrepancy.



**Figure 50: Plans of Well Head, box outlines the same area.** Schofield and Quartermaine (2011)  
*left: Plan of c1820 (DRO D/Wat P/88). right: Plan of 1826 (DRO D/HH/2/14/153).*

Further evidence that the tumbled wall was at one time the head-dyke is given by lidar. A hill-shaded DSM lidar image (Figure 51, below) shows a low bank (arrowed) running across a field to the east of Well Head. The tumbled wall across the settlement, the end-wall of the Strathmore Arm's garden, this low bank and (continuing eastwards) a modern field wall, are all in alignment. This is likely to have been the head-dyke before the current wall was built.



**Figure 51: Lidar DSM hill-shade image of Well Head. A bank to east of settlement is arrowed.**

If this was the line of the medieval head-dyke, then Well Head lay across the dyke, with at least two of its buildings (F10, F12) on the upland side of the dyke, and the main residential buildings (F6, F9, F17) on the lowland side. This emphasises the fact that the dyke was not a defensive wall: it was (and still is) there to control the movement of livestock, protecting arable and hay fields from damage. The settlement lay across the dyke to give it easy access to both upland and lowland resources, and control movement between them. Once the buildings of Well Head had fallen out of use, they were replaced by what is now the tumbled wall across the settlement, making use, in its irregular course, of what was left of the buildings to plug the gap in the dyke.

The re-positioning of the dyke nearer to Holwick Scar in the post-medieval period increased the area of enclosed land a little. As Well Head was now unoccupied, its position no longer determined the path of the dyke. The fact that the newly enclosed land beside the Scar was suitable only for grazing no longer mattered, as pastoral agriculture had become dominant, even on the valley floor.

### 7.3 Previous settlement

A good settlement site remains a good site through the ages. In addition, once a site is settled and the land around it cleared for agriculture, then future farmers will be attracted to it. Even if the land has been unused for centuries, bringing it back into use would be relatively easy since the land has been cleared of stones and there will be no large trees to fell.

At Long House Close in the Lake District, the foundations of stone-built cross-passage house stands on a levelled and kerbed platform, scooped into the hill-slope. A probable hearth on the platform has been carbon-dated to the Middle Bronze Age: the platform was probably the site of an unenclosed roundhouse. However, the cross-passage house is late medieval (Bradley and Quartermaine 2019, page 73):

*“...the site at Long House Close was occupied again after a long hiatus. It was presumably chosen because it offered, in the form of the Bronze Age site, a ready-made building platform in an area cleared of stone, and with clear views down the valley.”*

The upland settlement at Simy Folds, 2km from Well Head, is best-known for having radiocarbon dates in the Early Medieval Period, but also yielded evidence that it was originally settled in the Bronze Age (Coggins, Fairless and Batey 1983). Bronze Age pottery was found on the site, and a pollen diagram showed evidence of clearance and cereal growing at that time, with later re-occupations. However cereal pollen was absent after 1240-1400 cal AD (Coggins 2004), presumably due to climate degradation.

At Well Head itself, excavation has shown that there was certainly a Bronze Age presence: there is the damaged remains of a ring-cairn 150m from the settlement, dated to around 1800 BC (see Section 2.2). In Northumberland and the Lake District, this type of cairn is often found near water and cleared agricultural land, in contrast to round burial cairns which are more likely to be sited on prominent positions visible from afar (Quartermaine and Leech 2012, page 345). The implication is that the floor of Upper Teesdale was in agricultural use in the Bronze Age, with the ring-cairn a funerary monument for families living in the immediate area. It clearly wasn't sited to be visible from a long distance. In fact, the floor of Teesdale would have probably been covered in scrubland and woods (as indicated in the Simy Folds pollen diagram) before agricultural clearance, so the ring-cairn would only be visible at all due to the start of farming.



## 8 ACKNOWLEDGEMENTS

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Open-source data were used in this report from the Environment Agency (lidar), British Geological Survey (geology), Google Earth (aerial views), National Library of Scotland (old maps) and Ordnance Survey (mapping). We are grateful for the chance to use this information; copyright notices are given at the front of this report.



**Figure 52:** Excavation in progress, looking south. Trench 6 on the hillock is at the centre. Trench 3NE/SE is on the left, below the notch in the skyline.



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## 10 APPENDIX 1: RADIOCARBON DATES FROM 2018 (2ND SEASON) EXCAVATION

Three samples taken during the 2018 excavation were sent for radiocarbon dating. The certificates for the radiocarbon dates are shown on the next page and give full details of the results. They arrived too late for inclusion in the Second Season (2018) Interim Report. The results are summarised below, with dates shown to 2 sigma probability, i.e. there is a 95% chance that the date lies in one of the date ranges given. In some cases, there are multiple possible date ranges for a sample because the calibration curve is kinked. The dates are shown as “cal AD” and “cal BC” rather than “AD” and “BC” because if future research changed the radiocarbon calibration curve, then the dates would be changed. In practice calibration curves are now well established and a significant future change is unlikely. See the certificates reproduced below for reference numbers and radiocarbon ages.

**Sample 303:** Charcoal in hearth 320 under the line of the north wall of the western end of F9. (Trench 3)

Radiocarbon date: **1448 to 1524 cal AD or 1558 to 1632 cal AD.**

Allowing for the firewood being a decade or two old, this suggests that the hearth was probably last used sometime between 1460 and 1640 AD. The hearth was therefore out of use by the time the upper flagstone floor was inserted into the west end of F9. The insertion of this floor was after 1640 as the deposit under it, used to level the floor, contained clay pipe stems.

**Sample 403:** Charcoal from under slab at edge of ring-cairn (Trench 4)

Radiocarbon date: **1907 to 1746 cal BC.** This suggests that the ring cairn is early Bronze Age.

The Birkside Fell ring cairn radiocarbon dates were 1890 and 1820 cal BC (+/- 150 years), so are identical within in the error margins (Tolan-Smith 2005). This North Pennine cairn is similar to the Well Head ring cairn: see the discussion in the 2018 (2<sup>nd</sup> season) Well Head excavation report (Green 2019a: Section 7), so the closeness of the dates is re-assuring.

**Sample 501:** Charcoal from compacted surface in F12 (Trench 5)

Radiocarbon date: **1499 to 1502 cal AD, or 1513 to 1600 cal AD, or 1617 to 1653 cal AD.**

This date of last use, between 1510 and 1660 is roughly the same, or possibly a little later than, the hearth in F9 (Sample 303, above). As there is evidence that both these hearths were used for metal working, there seems to have been a “de-industrialisation” of this site for the last century of its occupation.



# Certificate for Sample 303



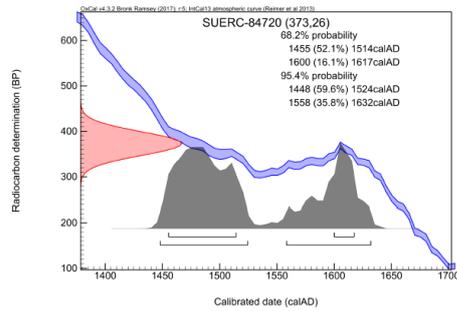
Scottish Universities Environmental Research Centre  
Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK  
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## RADIOCARBON DATING CERTIFICATE

26 February 2019

**Laboratory Code** SUERC-84720 (GU50210)  
**Submitter** Luke Parker  
Archaeological Research Services Ltd  
Angel House  
Portland Square  
Bakewell  
Derbyshire DE45 1HB  
**Site Reference** Well Head Deserted Medieval Settlement, Teesdale  
**Context Reference** Burnt residue in a depression in a hearthstone, hollowed by heat damage.  
**Sample Reference** HWH18/303  
**Material** Charcoal - Unknown  
**δ<sup>13</sup>C relative to VPDB** -25.5 ‰  
**Radiocarbon Age BP** 373 ± 26



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.1.  
The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.  
Please contact the laboratory if you wish to discuss this further.

**N.B.** The above <sup>14</sup>C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.  
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.  
Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Stuiver et al. (2016) *Radiocarbon* 58(1) pp.9-23.  
For any queries relating to this certificate, the laboratory can be contacted at [suerc-14lab@glasgow.ac.uk](mailto:suerc-14lab@glasgow.ac.uk)

Conventional age and calibration age ranges calculated by: *E. Dunbar*

Checked and signed off by: *P. Neary*



\* Stuiver & Reimer (2006) *Radiocarbon* 58(1) pp.357-40  
† Reimer et al. (2013) *Radiocarbon* 55(4) pp.1869-87

# Certificates for Samples 403 and 501

Martin Green  
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Consett DH8 9UF  
United Kingdom  
Customer No.  
2502774



<sup>14</sup>CHRONO Centre  
Queens University  
Belfast  
42 Fitzwilliam Street  
Belfast BT9 6AX  
Northern Ireland

UBANo	Sample ID	Material Type	<sup>14</sup> C Age ±	F14C ±	±
UBA-39783	HWH18-403		3504	29	0.6465 0.0023
UBA-39784	HWH18-501		296	23	0.9638 0.0028

## Information about radiocarbon calibration

RADIOCARBON CALIBRATION PROGRAM\*  
CALIB REV7.0.1

Copyright 1986-2019 M Stuiver and P.J Reimer  
\*To be used in conjunction with:  
Stuiver, M., and Reimer, P.J., 1993, *Radiocarbon*, 35, 215-230.  
Annotated results (text) - -

39783	UBA-39783	Radiocarbon Age BP	3504 +/- 29		# Reimer et al. 2013
		Calibration data set:	intcal13.14c		relative area under
		% area enclosed	cal AD age ranges		probability distribution
		68.3 (1 sigma)	cal BC 1883- 1867	0.180	
			1848- 1773	0.820	
		95.4 (2 sigma)	cal BC 1907- 1746	1.000	
39784	UBA-39784	Radiocarbon Age BP	296 +/- 23		# Reimer et al. 2013
		Calibration data set:	intcal13.14c		relative area under
		% area enclosed	cal AD age ranges		probability distribution
		68.3 (1 sigma)	cal AD 1523- 1559	0.631	
			1563- 1570	0.077	
			1631- 1647	0.292	
		95.4 (2 sigma)	cal AD 1499- 1502	0.005	
			1513- 1600	0.700	
			1617- 1653	0.295	

References for calibration datasets:  
Reimer P.J, Bard E., Bayliss A., Beck JW, Blackwell PG, Bronk Ramsey C, Buck CE, Cheng H, Edwards RL, Friedrich M, Grootes PM, Guilderson TP, Hafflidason H, Hajdas I, Hattlath C, Heaton TJ, Hogg AG, Hughen KA, Kaiser KF, Kromer B, Manning SW, Niu M, Reimer RW, Richards DA, Scott EM, Southon JR, Turney CSM, van der Plicht J.  
IntCal13 and MARINE13 radiocarbon age calibration curves 0-50000 years calBP  
*Radiocarbon* 55(4). DOI: 10.2458/azu\_js\_rc.55.16947

Comments:  
\* This standard deviation (error) includes a lab error multiplier.  
\*\* 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)  
\*\* 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)  
where ^2 = quantity squared.  
[ ] = calibrated range impinges on end of calibration data set  
0\* represents a "negative" age BP  
1955\* or 1960\* denote influence of nuclear testing C-14

NOTE: cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

## Radiocarbon Date Certificate

Laboratory Identification: UBA-39783  
Date of Measurement: 2019-03-04  
Site: Holwick Well Head  
Sample ID: HWH18-403  
Material Dated: charcoal  
Pretreatment: AAA  
Submitted by: Martin Green

Conventional 3504±29  
<sup>14</sup>C Age: BP  
using AMS  
Fraction corrected δ<sup>13</sup>C

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## Radiocarbon Date Certificate

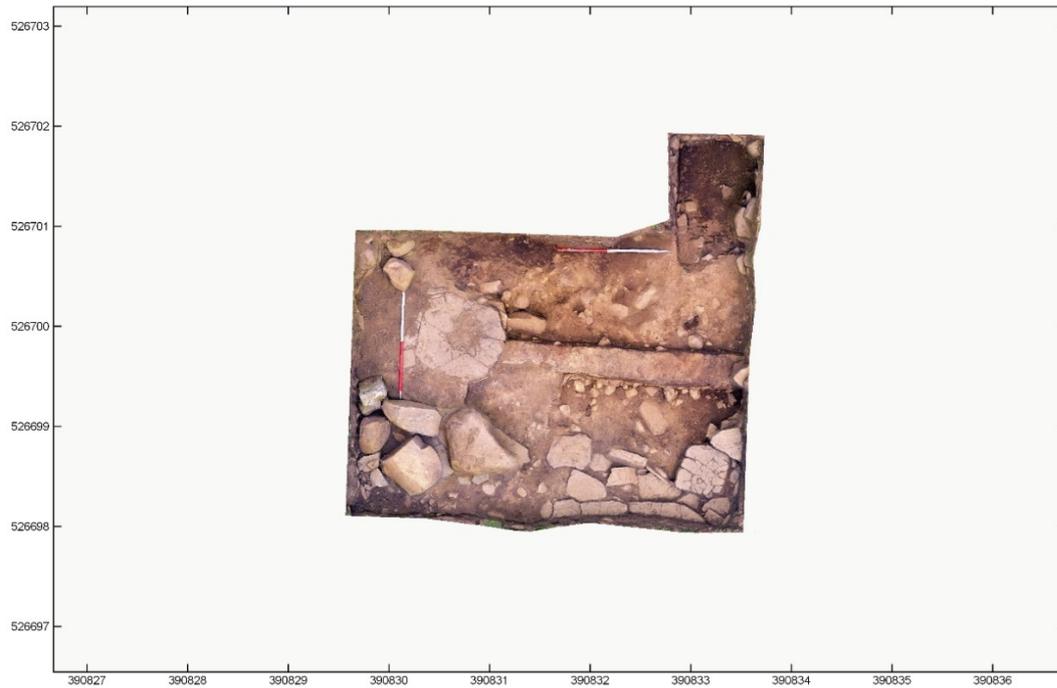
Laboratory Identification: UBA-39784  
Date of Measurement: 2019-03-04  
Site: Holwick Well Head  
Sample ID: HWH18-501  
Material Dated: charcoal  
Pretreatment: AAA  
Submitted by: Martin Green

Conventional 296±23  
<sup>14</sup>C Age: BP  
using AMS  
Fraction corrected δ<sup>13</sup>C

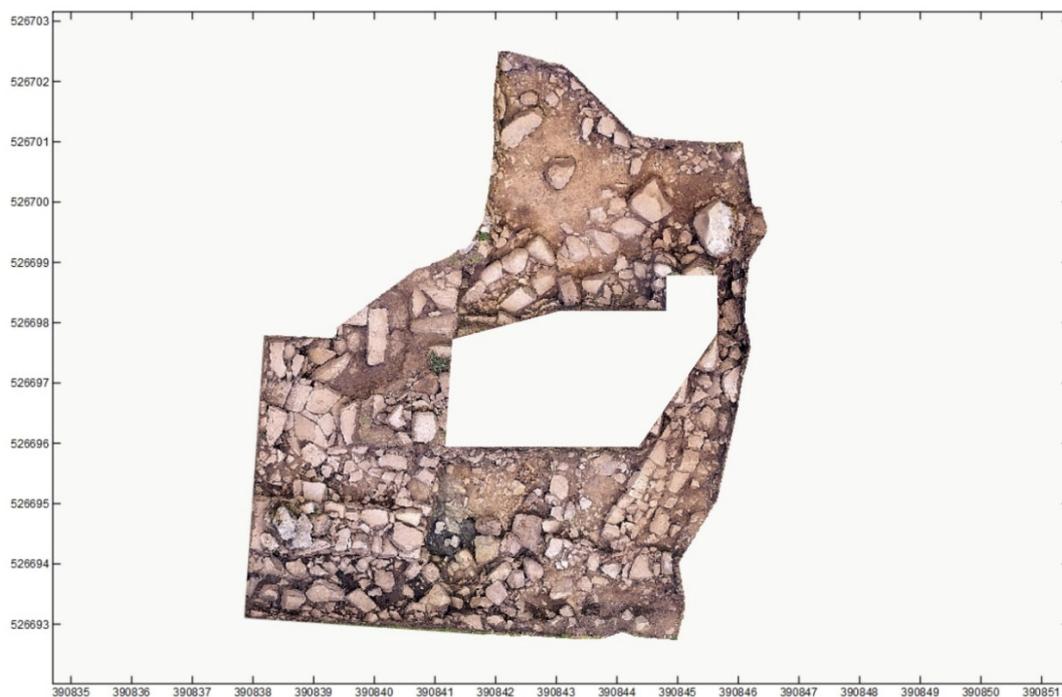


## 11 APPENDIX 2: ALL TRENCHES PHOTOGRAMMETRY WITH GRID CO-ORDINATES

Final photogrammetry vertical views for all 2019 trenches, with OS eastings and northings marked. North is at the top. Enlarged versions of these images are shown in the following appendices. *Photogrammetry and surveying by Stephen Eastmead.*

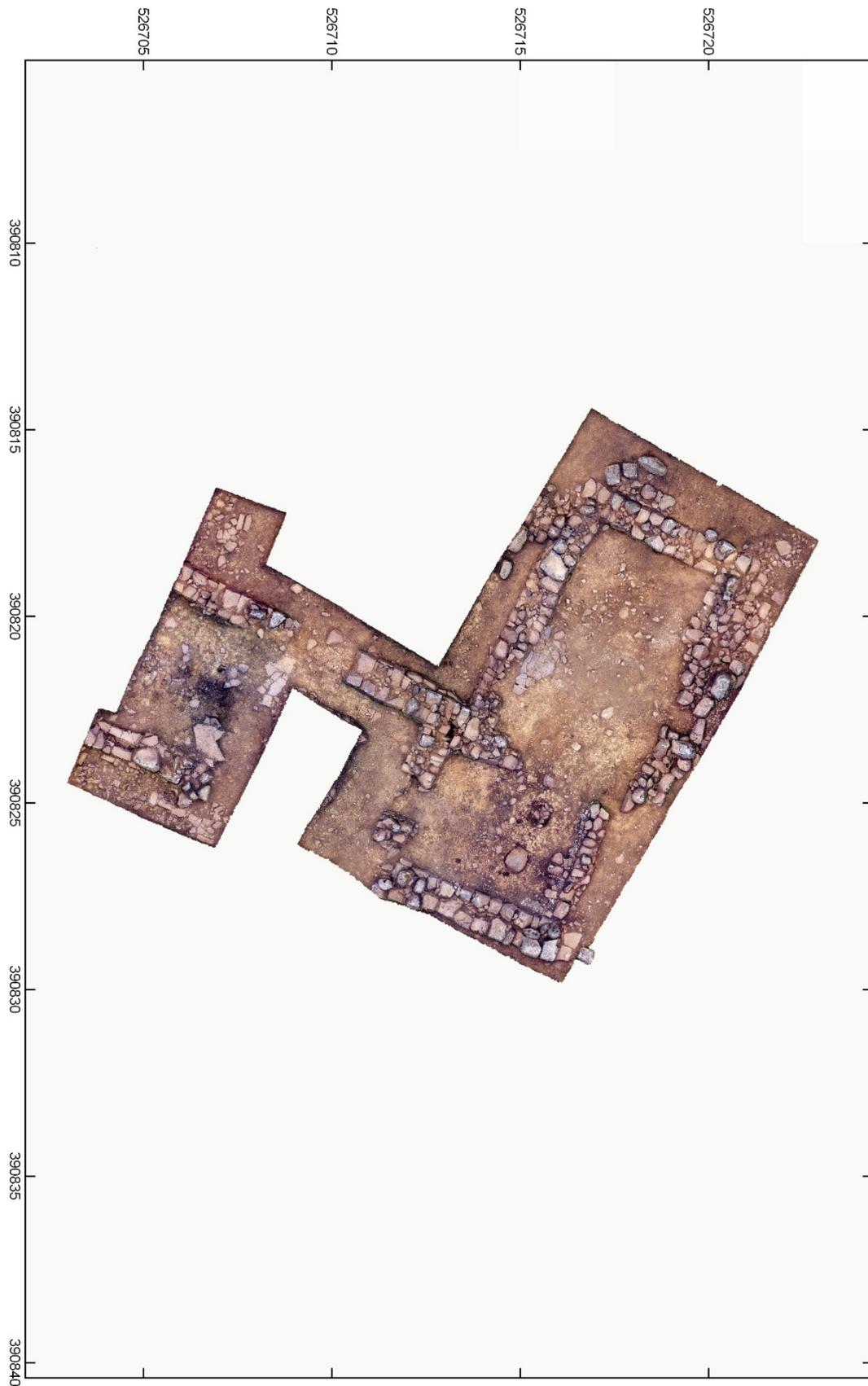


**Trench 3NW, a re-opening of the NW corner of 2018's Trench 3. *Grid markings at 1m intervals***



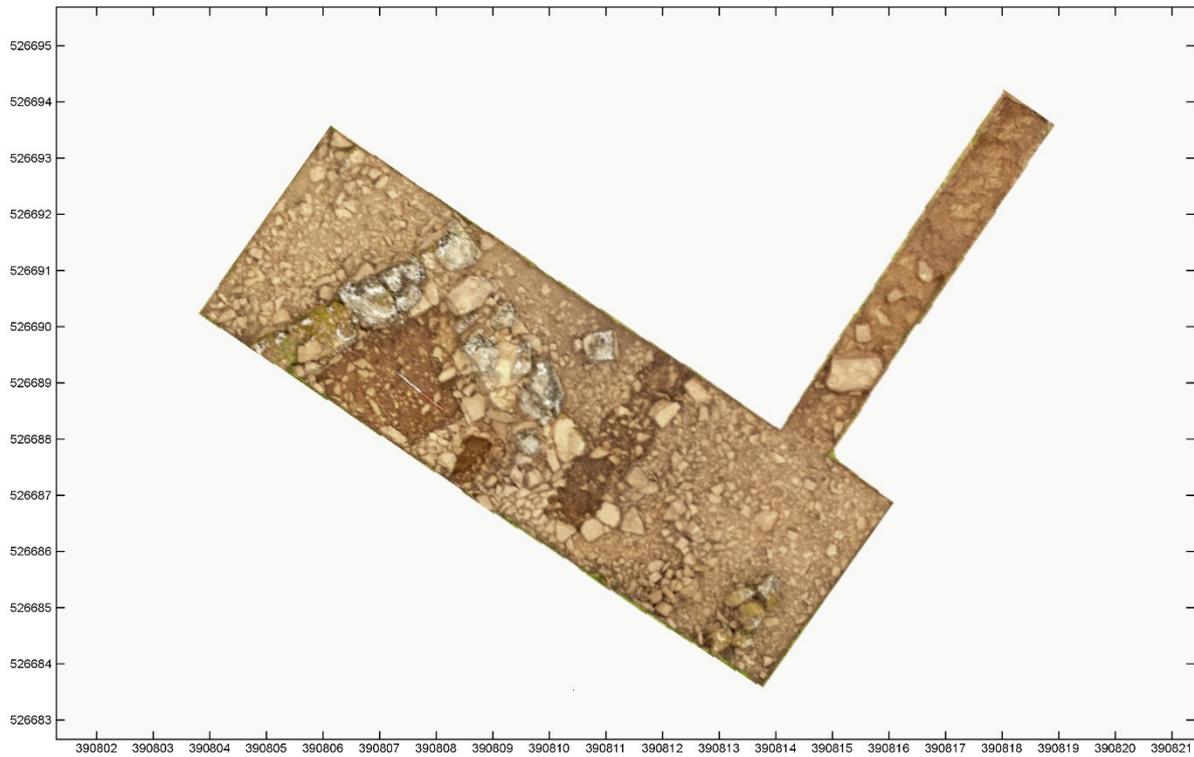
**Trench 3NE and 3SE, re-opening of the NE and SE corners of 2018's Trench 3. They merged at their western ends. The central area (white) wasn't re-excavated. *Grid markings at 1m intervals***



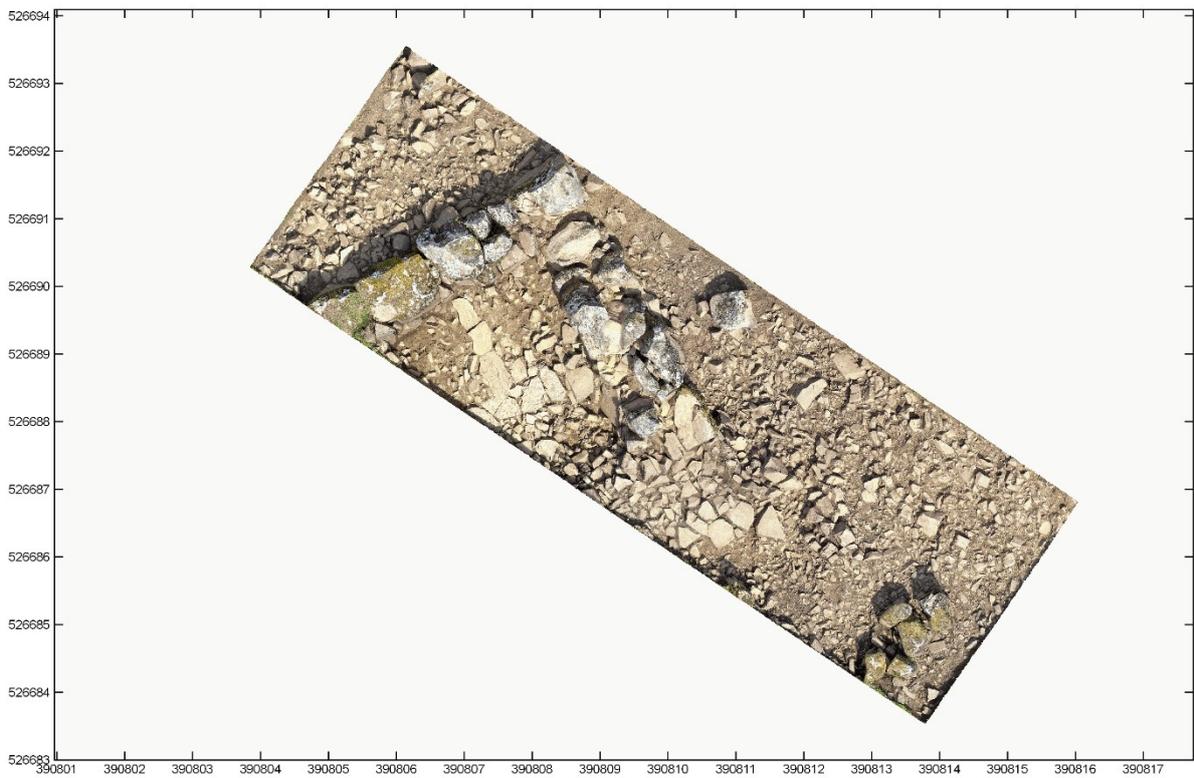


**Trench 6/9. Image is rotated so north is to right. Trench 6 is northern part, 9 is southern. Grid markings at 5m intervals.**

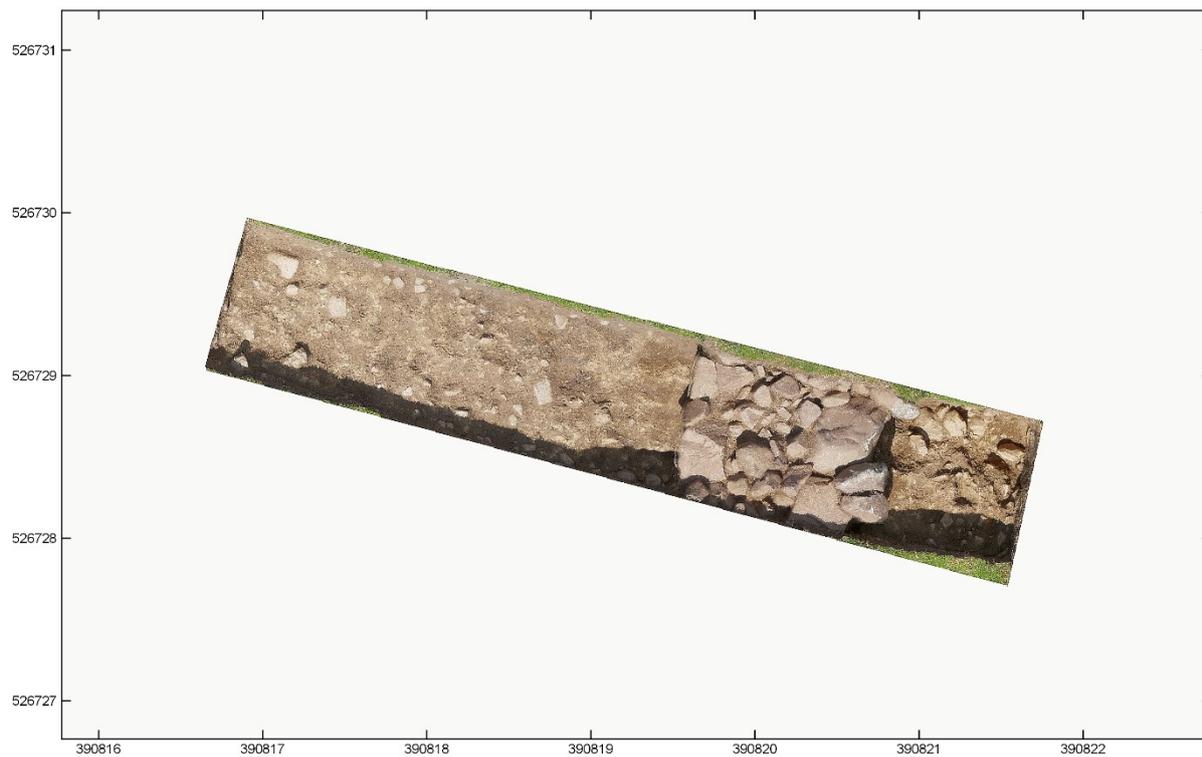




**Trench 7 with 7B, the 1m wide extension to the north-east. *Grid markings at 1m intervals***



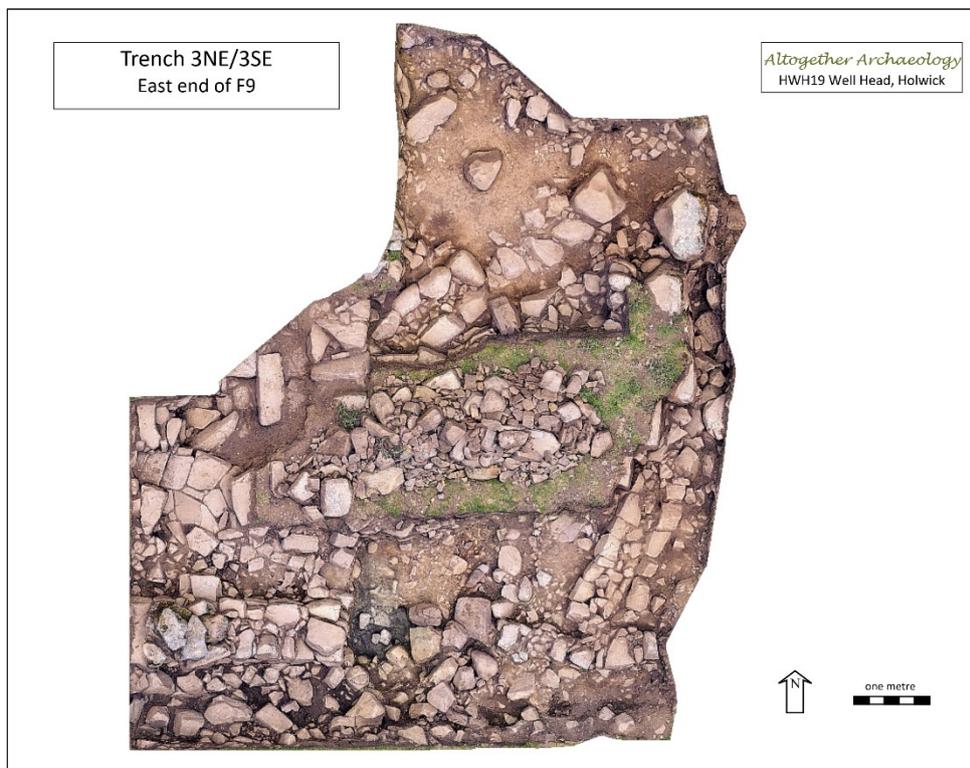
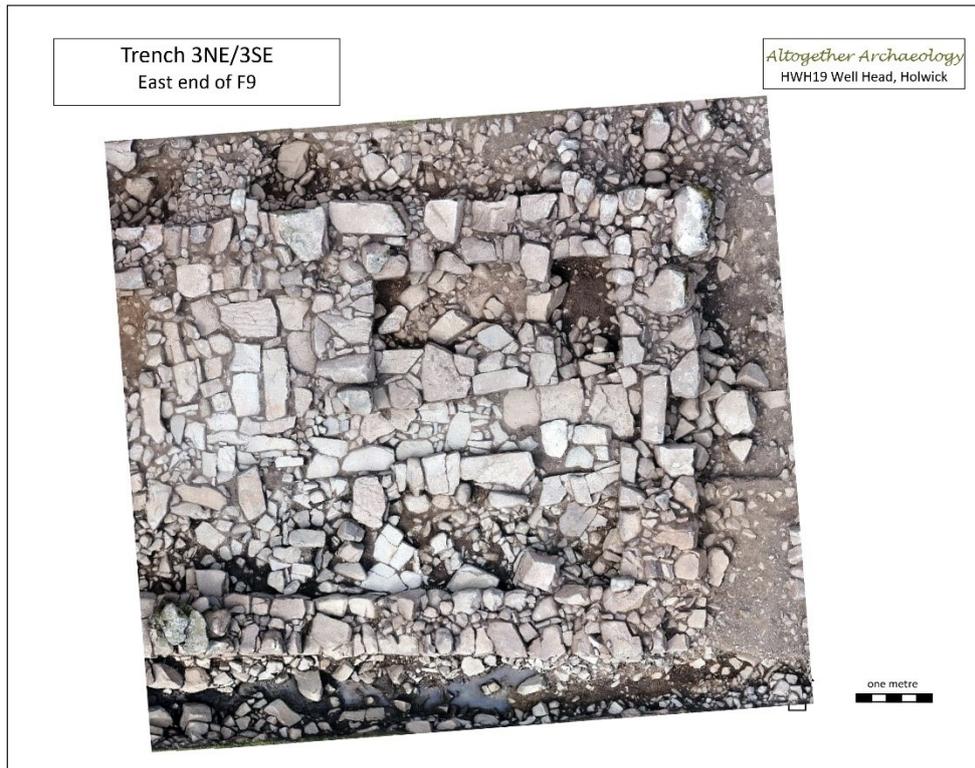
**Trench 7 (enlarged) before removal of floor in building F10, sondage through yard surface, and excavation of Trench 7B. *Grid markings at 1m intervals.***



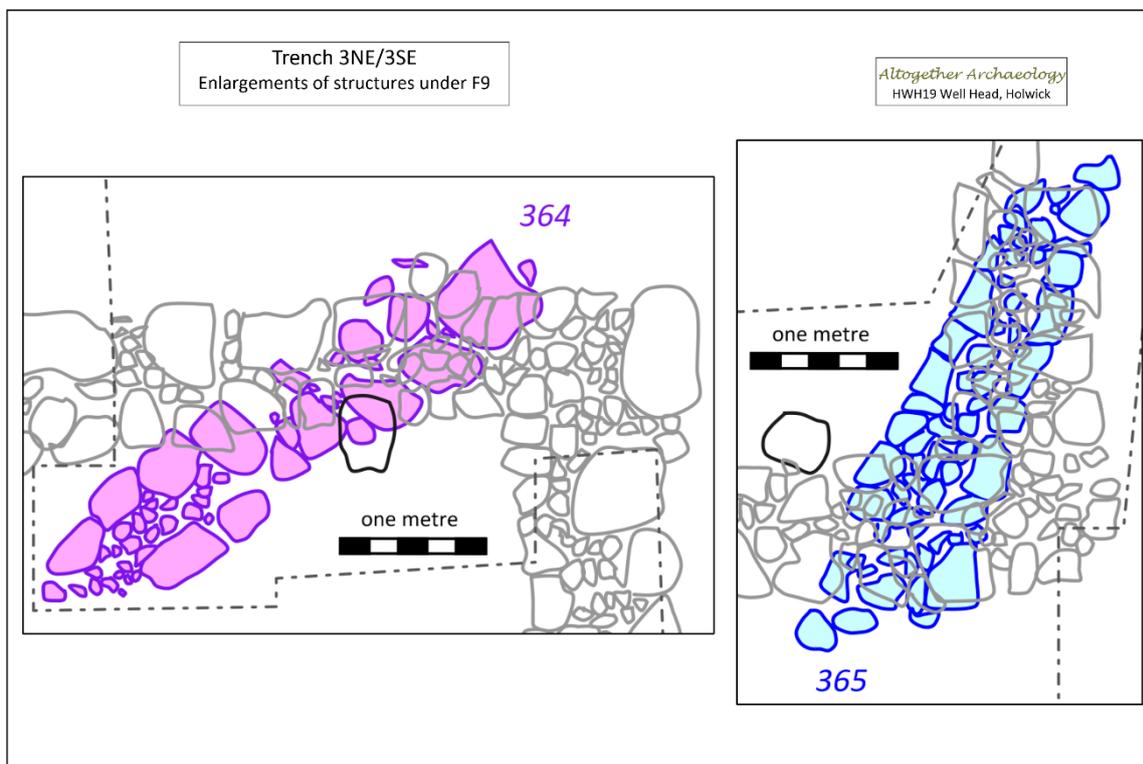
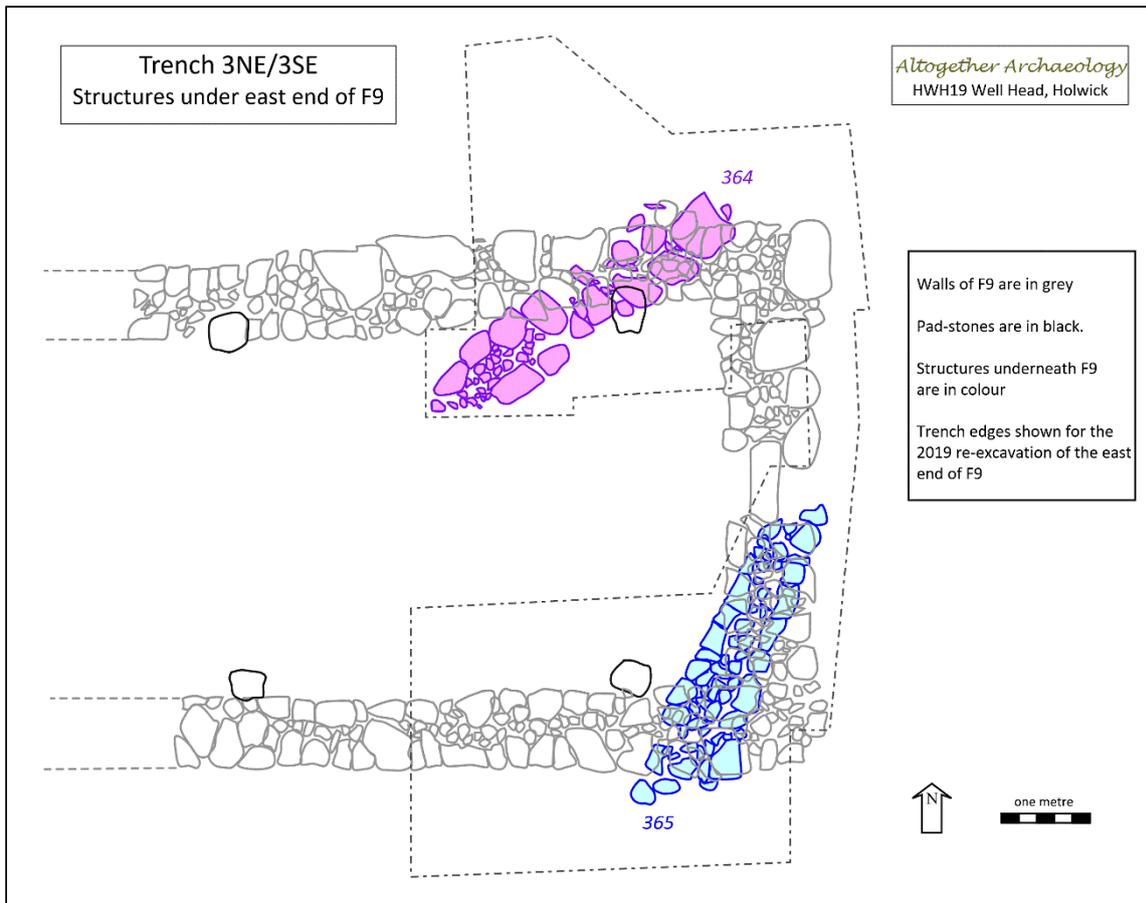
**Trench 8. *Grid markings at 1m intervals***

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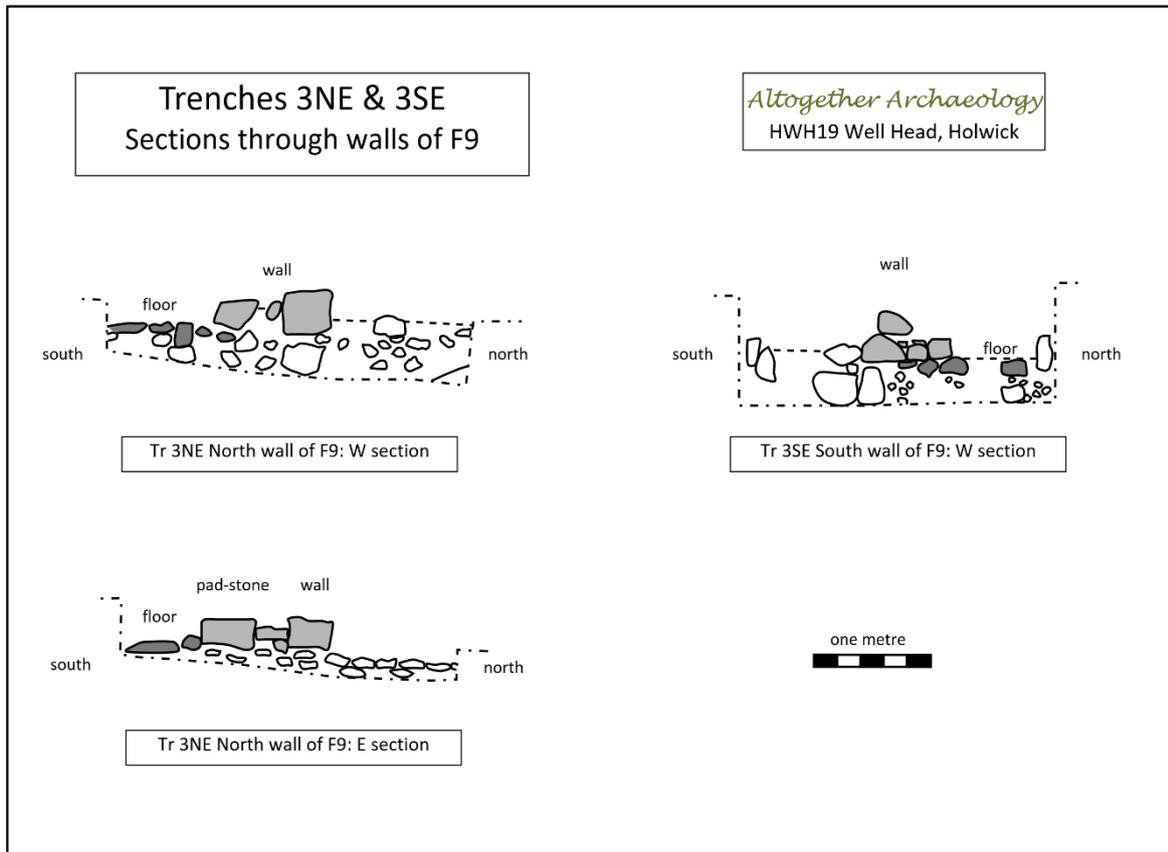
## 12 APPENDIX 3: TRENCHES 3NE/SE AND 3NW PHOTOGRAMMETRY, PLANS AND SECTIONS



**Trench 3NE/SE photogrammetry. Upper image shows 2018 photogrammetry of the east end of building F9. In the lower image, taken in 2019, the walls have been removed apart from the section at the bottom left of the images. The central portion (green) was not excavated in 2019.**

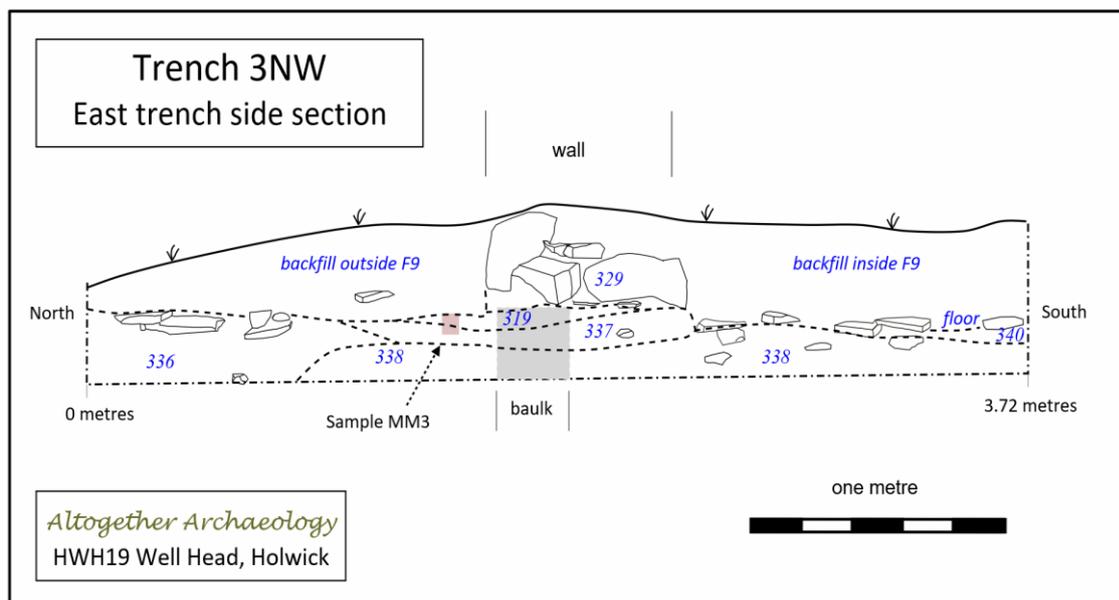
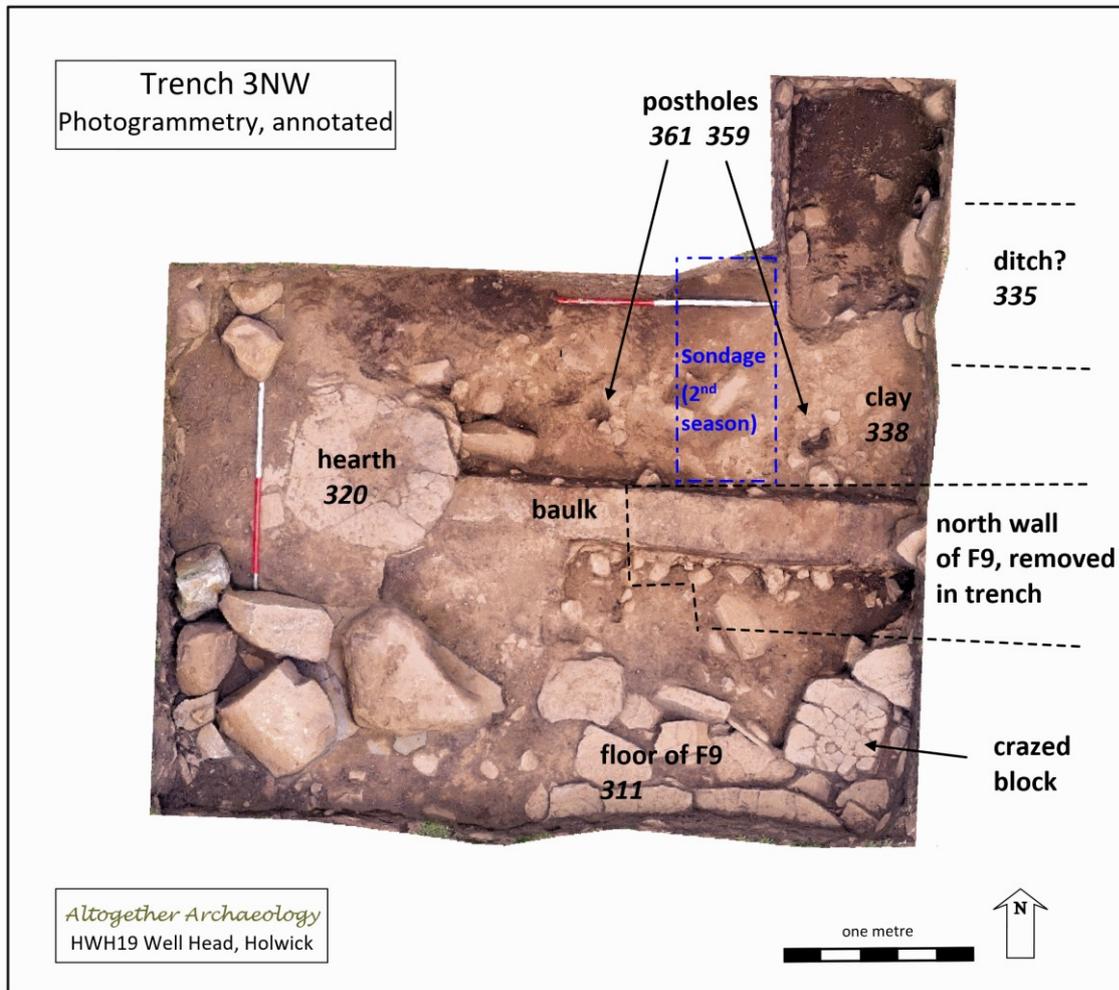


**Trench 3NE/SE plan taken from photogrammetry images (see previous page). The upper image shows the whole of the east end of building F9. The lower image shows enlargements of the structures under the east end of building F9.**



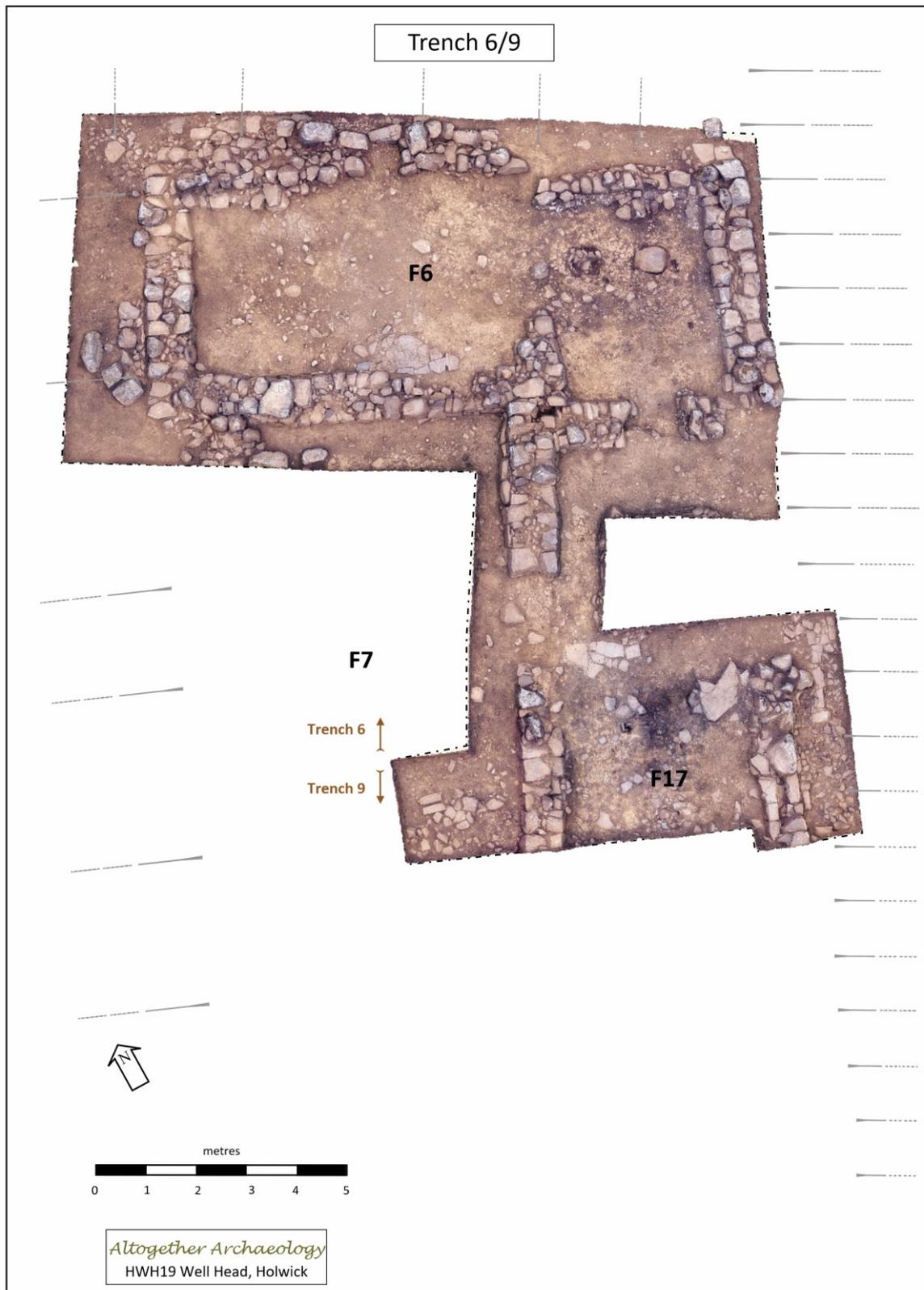
**Trench 3NE/SE drawings of sections through north and south walls of building F9. The north wall east section is through the easternmost padstone. The north and south wall west sections are at the western end of the 2019 trenches.**

***Sections drawn by Liz Ryan and Stuart White***

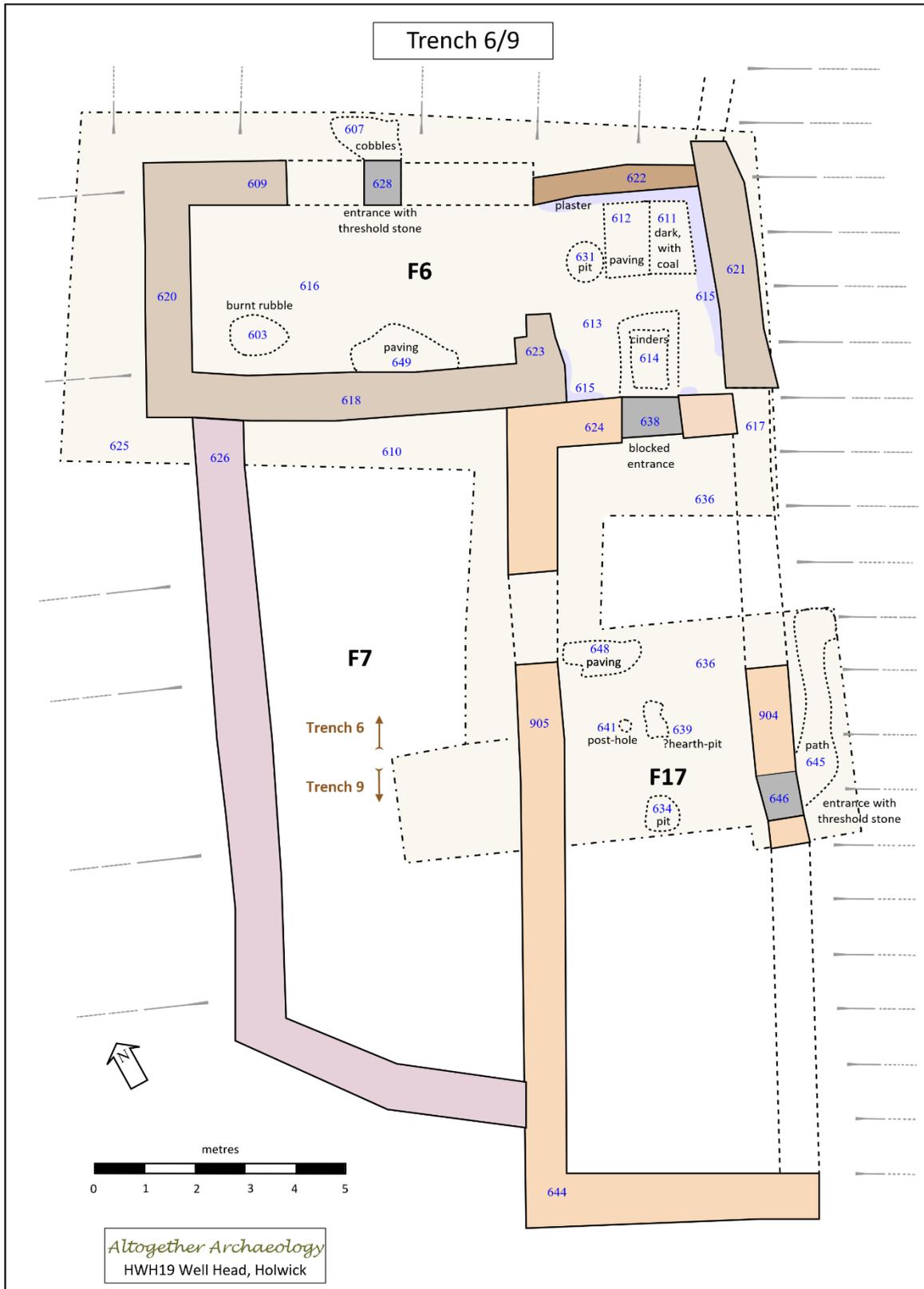


**Trench 3NW photogrammetry and north-south section at east end of trench. The context numbers given are those used in the 2018 (2<sup>nd</sup> season) excavation (see context table for equivalences).**

### 13 APPENDIX 4: TRENCH 6/9 PHOTOGRAMMETRY AND PLAN



**Photogrammetry of Trench 6/9.**



Plan of Trench 6/9, derived from photogrammetry (see previous image)

## 14 APPENDIX 5: TRENCH 7 PHOTOGRAMMETRY AND PLAN

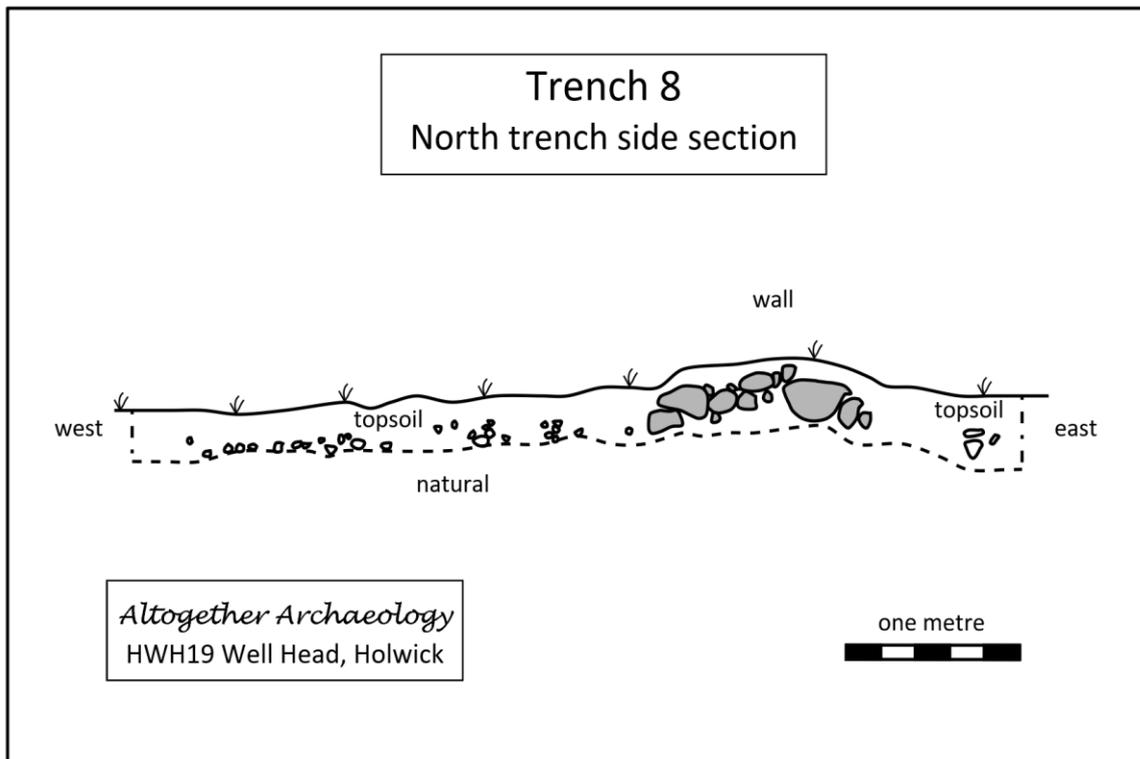


Photogrammetry of Trench 7 (top image) with interpretation shown in lower image.

Photogrammetry before removal of floor surface in building and extension of the trench. See Appendix 2 for final photogrammetry after removal of floor.

*Plan drawn by Stephen Eastmead.*

15 APPENDIX 6: TRENCH 8 PHOTOGRAMMETRY AND SECTION



Photogrammetry of Trench 8 with section drawing of north side of the 5m x 1m trench.

*Section drawn by Andrew & Sheila Newton*

## 16 APPENDIX 7: TRENCHES 3NW, 3NE AND 3SE CONTEXT TABLE

N.B. In the 2<sup>nd</sup> season excavation (HWH18, Trench 3) contexts were in the range 301-352. In the 3<sup>rd</sup> season (HWH19, Trenches 3NW, 3NE, 3SE) they were in the range 353-373. In Trench 3NW, equivalence is shown between 2<sup>nd</sup> and 3<sup>rd</sup> season contexts. Some provisional (two-digit) context numbers were allocated in T3NW, e.g. the backfill of T3 is context 06. These provisional context numbers are given, where relevant.

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
353	Deposit	3NW				Large stones, angular 15cm, in topsoil-type matrix. Backfill.
354	Deposit	3SE				Dark deposit under floor slab under S wall of F9. Contains possible coal.  Sample number 604
355	Deposit	3NW	319	304		Layer below rubble 304 but above black layer. Against N wall of F9.  Sample number 619 (lump of ?roasted iron ore)
356 =319 =02	Deposit	3NW	338	319 =05		Black deposit with coal & charcoal. Its upper part is 319 (=02). Lower part is 337 (=03). Both are laminated layers of dark material (including coal and charcoal fragments and of clay). They form the upper part of the east-west baulk. Is over a clay-with-stones sub-soil 338 (=01). At its northern edge it overlies the fill 336 (=04) of cut 335, a possible ditch parallel to and north of the north wall of F9. It lies under the stones of the north wall of F9 329 (=05).  Block samples taken in section (MM3) and baulk (MM1 and MM2). See photos below.
357	Deposit	3NE				Black layer, firm and humic, under N wall line of F9, includes black flecks & potsherds.  Sample number 601
358	Deposit	3NE				Same as 357 but outside wall-line of F9
359	Cut	3NW	338	356		Probable post hole, cut into compact yellow sand/clay subsoil 338 material. Stones around.
360	Deposit	3NW	359	356		Fill of cut 359. Sampled & photographed.
361	Cut	3NW	338	356		Possible small posthole, 1m west of 359, cut into compact yellow sand/clay subsoil 338 (=01) material.
362	Deposit	3NW	361	356		Fill of cut 361. Dark
363 =336 =04	Deposit	3NW				Brown, loose, clay and sand. In western extension of Tr 3NW. May be ditch-fill of cut 335
364	Structure	3NE				Double line of large rounded stones running diagonally NE-SW across interior of F9 from NE corner.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
365	Structure	3SE				Double line of rectangular stones NNE-SSW across SE corner of F9 and beyond E wall.
366	Deposit	3NW				Black-brown deposit. charcoal and coal flecks. Magnetic. Inside F9, to W of crazed block. 0.3m to 0.8m from W edge. confined between 2 long stones.  Sample number 625
367	Deposit	3NW				Possible chock stones around crazed block, with clay packing. Potsherd.
368	Surface	3SE 3NE				Good quality lower flagged floor of F9.
369	Deposit	3SE 3NE				Thin brown deposit under floor 368. about 2cm thick. Lies over clay ?subsoil 370.  Sample number 610
370	Natural	3SE 3NE				Orange ?subsoil under 369.  Sample number 613
371	Natural	3NW				Orange ?subsoil under crazed block inside F9  Sample number 617
372	Natural	3SE				Orange ?subsoil under line of stones across SE corner of F9, 365.  Sample number 611
373	Natural	3NE				Orange ?subsoil under line of large rounded stones from NE corner of F9, 364.  Sample number 612



## 17 APPENDIX 8: TRENCH 6/9 CONTEXT TABLE

Trench 6 was southernmost part of Trench 6 was originally Trench 9 before Trench 6 was extended southwards to include it. Context numbers starting with a “9” were in Trench 9 before the merger.

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
601	Topsoil	6	603 604 605 608 609 611 612 613 615 618 621 622 623 624		602	Topsoil inside F6 and on walls.
602	Topsoil	6	607 610 645		601 633	Topsoil outside F6
603	Deposit	6	616	601	604	Area of rubble showing burning inside SW corner of F6. Under topsoil. Centred 0.7m from S wall and 1.3m from W wall. Deposit 10cm thick, Stones 15cm angular. Dark topsoil-like matrix.
604	Deposit	6	616 649	601 605	603	Area of rubble inside W end of F6. Area 3m x 4m. 20cm angular stones in topsoil matrix. Few finds. Some coal, occ sherd and Fe nail. Around 603. Over 616.
605	Deposit	6	604 609 620	601		Large rubble 40cm stones directly under turf. Inside W end of N wall of F6. Probably tumble from wall collapse.
606	Deposit	6		607 609	613	Compact yellow clay/sand with small 2cm stones No finds. Under E end of N wall-line of F9 (wall is absent here). May be redeposited natural, and same as 613, 616 and (maybe) 610
607	Surface	6	606	602 628	609	Patch of worn cobbles up to 4cm max, forming a surface abutting N wall of F6, by and to W of threshold slab of N entrance. Partly overlain by displaced threshold slab 628.
608	Deposit	6	613 614 629	601		Bank of rubble, both angular and rounded 10cm to 40cm, in SW corner of eastern cell of F6. Presumably from wall collapse.
609	Structure	6	606	601 605	607 628	N wall of F6, to W of the N entrance. Badly slumped outwards (to north), But interior wall line is preserved at W end.
610	Surface	6		602 618 633	616	Orange sandy clay with lot of small/medium stones. To S of S wall of F6. Dips down to N 1m S of wall. Some stones 5cm – 10cm. Under topsoil 602.
611	Deposit	6	613	601 615	612	Area to E of 612 in NE corner of eastern cell of F6. Dark topsoil-like (but less organic). Loose. fragments of coal. Overlies 613 which dips under it.
612	Surface	6	613	601 615	611	Area of small flagstones forming a surface in N side of the eastern cell of F6. On E side abutting 611. 1m E-W x 1.5m N-S. Stones 20cm. Topsoil between stones Well defined W margin which is aligned with the E terminus of the best part of S wall of F9, 624. Overlies 613. Doesn't adjoin 614.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
613	Surface	6		601 608 611 612 614 615 629 631	606 616 617	Compacted surface of orange sandy clay/small stones in eastern cell of F6. Possibly redeposited subsoil forming floor. Continuous with 616, the equivalent context in the western cell. Underlies 614.
614	Deposit	6	613	608		Thin dark deposit on 613. 1cm thick. Against blocked up entrance, 638, in S wall, 624, of eastern cell of F6. Includes coal/cinder. Early drone photos (Day 5) show that it was surrounded by an irregular line of stones (stones angular about 0.15m maximum). The stones define a rectangle 1.0m x 1.6m (external), 0.8m E-W x 1.3m N-S (internal). The stones aren't heat-affected, nor is adjacent wall.  Sample number 602
615	Deposit	6	611 612 613 623 624	601 608	621 622	Blue clay with 10cm lumps of plaster inside E, N and S walls of eastern cell of F6. Not continuous: along inner face of E wall and first 40cm of N wall from NE corner. Then again further W on N wall, and in SW corner of S wall. (see photos). Above 612, 613. Adherent to wall stones in SW corner, not elsewhere.  Sample number 615
616	Surface	6		603 604 649	610 613 647	Compacted surface of orange sandy clay/small stones (1cm or less) in western cell of F6. Some patches of greyish clay. Possibly redeposited subsoil forming floor. Continuous with 613, the equivalent context in the eastern cell. Underlies rubble layers 603, 604. Flecks charcoal/coal. Fe nails. Top is above wall-bases so abuts walls. Some areas possibly mildly heat-affected. Was there a robbed flagstone floor above?
617	Natural	6		621 624 619	613 636	Orange/yellow gritty clay outside SE corner of F6. Continuous with 613 through the missing SE wall corner of F6. Natural or redeposited natural?
618	Structure	6	610 625	601	620 623 624 626	S wall of western cell of F6.
619	Deposit	6	617	627		Dark brown sandy topsoil-like layer to S of S wall of eastern cell of F6. Over clay 617, and under rubble 627. Contains coal (including 2 large lumps 6cm). Stones up to 5cm. A few small fragments plaster. Probably old soil surface on to which the S wall of F6 collapsed outwards.
620	Structure	6	625 647	605	618	W wall of western cell of F6
621	Structure	6	617	601	615 622	E wall of eastern cell of F6
622	Structure	6		601	615 621	N wall of F6, to east of N entrance. Only surviving remains are rounded boulders in a line, with plaster and blue clay 615 lying beside their inner faces.
623	Structure	6		601 615	618 624	N-S cross-wall dividing F6 into eastern and western compartments. Only the southern 2m is extant, except for a single stone at its N end.
624	Structure	6	617	601 615 637	618 623	Wall between eastern compartment of F6 and F17. Its western 3m is a double-skin un-mortared wall, but the eastern 1.5m is loose and rubbly with the SE corner of F6 missing, presumably lost down the slope. There is a blocked doorway, 637, through it.
625	Natural	6		618 620	647	Orange clay ?subsoil around the outside of F6 on its SW and W sides.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
626	Structure	6			618	Rubblly wall running south from SW corner of F6, forming the W wall of F7. A 2m stretch of it just to the south of F6 had already been exposed by HWH17 Trench 2.
627	Deposit	6	619 636	630		Rubble of angular stones outside the E end of the S wall of F6, presumably tumble from wall. Stones 10cm – 20cm. Lies over 636 and probable old topsoil 619.
628	Structure	6	607		609	N entrance of F6. Has a threshold slab of fine-grained sandstone, similar to threshold slab in eastern entrance to F17, 643. This slab has been displaced northwards, so lies over part of cobbled surface 607.
629	Deposit	6	613 632	608		Brown topsoil-like over floor surface 613 of eastern cell of F6. Intermittent. Presumably soil deposited after abandonment of building, but before walls collapsed strewing rubble over inside of building.
630	Topsoil	6	627 636 640 642 643 648			Topsoil inside F17, south of F6. Same as 901.
631	Cut	6	613	632		Pit cut into floor of eastern cell of F6, lying to west of flagstones 612, cut into floor surface 613. 0.6m x 0.5m. 0.3m deep. Irregular.
632	Deposit	6	631	629		Fill of pit 631. Topsoil-like with angular stones up to 10cm long. No finds.  Samples numbers 603 (upper fill) and 606 (lower fill).
633	Topsoil	6	610		602	Topsoil in F7. Same as 902.
634	Cut	6	636	635		Pit at E end of Trench 9 (subsequently Trench 6 was extended southwards to include Trench 9), so this pit was in SE corner of Trench 6. Cut into floor 636. 0.6m diameter
635	Deposit	6	634			Fill of pit 634. Stony.  Sample number 620
636	Natural	6		627 630 634 639 641 643 648	617	Compacted surface of orange sandy clay/small stones forming floor of F17. Possibly redeposited subsoil forming floor Quite irregular, some stony areas with one area of flagstones 648. Similar to 616, the floor of F6.
637	Structure	6	624	638		Blocked doorway through south wall of eastern cell of F6. Width 1.0m (north side), 1.2m (south side). Thickness 0.96m.
638	Deposit	6	637			Rubblly wall blocking entrance 637. Irregular stones, mostly angular, 0.4m x 0.3m to 0.11m x 0.15m. Contains small fragments yellow clay, coal, and fragments of plaster. In topsoil-like matrix.
639	Cut	6	636	640		Pit in centre of F17. 20cm deep, irregular circular. width 0.7m. Hearth? Not defined by stones. Cut into floor 636.
640	Deposit	6	639	630		Fill of 639. Dark, gritty with lot of charcoal/coal.  Samples numbers 607 (upper fill) and 609 (lower fill).
641	Cut	6	636	642		Post-hole in floor of F17. to W of 639. Cut into orange clay floor 636. Stones around it (see photos). Diameter 0.18m



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
642	Deposit	6	641	630		Fill of 641. Very dark brown, organic.  Sample number 608
643	Structure	6	636 904	630 646		Blocked doorway in E wall 904 of F17. Has threshold stone of fine-grained sandstone, similar to that in N doorway of F6, 628.
644	Structure	6				Upstanding SE corner of F17, now incorporated into a field-wall. Un-mortared, roughly coursed masonry.
645	Surface	6		602 903		Flagstone paving forming a path from outside blocked doorway of F17, 643. Stones are worn, fractured, very variable in size up to 20cm.
646	Deposit	6	643			Rubble filling blocked doorway 643.
647	Natural	6		620	616 625	Subsoil under W wall 620 of F6.  Sample number 614
648	Surface	6	636	630		Area of flagstone paving inside F17 on its west side, north of ?hearth-pit 639. 1.8m E-W x 0.9m N-S.
649	Surface	6	616	604		Area of flagstone paving inside F6 on south side of the western cell. 1.2m E-W x 0.6m N-S.
901	Topsoil	6/9				Topsoil of Trench 9 to E of wall 905. Inside building F17. Brown loamy soil with comparatively few large stones. Same as 630.
902	Topsoil	6/9				Topsoil of Trench 9 to W of wall 905. Inside F7, a probable yard area. Brown loamy soil with a lot of medium rubbly stones. Same as 633.
903	Topsoil	6/9	645			Topsoil at extreme E end of Trench 9, beyond the E wall 904 of F17. Brown loamy.
904	Structure	6/9		643		E stone wall of Building F17. A blocked doorway 643 passes through it. Its northern section (including its presumed junction with the SE corner of F6, and that corner itself) have been lost: probably tumbled outwards, down a steep slope
905	Structure	6/9				W stone wall of F17, with probable yard F7 beyond it. A section has been lost, probably due to a track passing through. At the NW corner of the building F17, it is abutting but not keyed into building F6.



## 18 APPENDIX 9: TRENCH 7 CONTEXT TABLE

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
701	Topsoil	7	705	-	702 703	Topsoil inside the main walls of building F10. 5 displaced large wall stones were removed from the inside of the building before it was de-turfed. The topsoil consisted of a blackish brown friable silty sand with occasional medium cobbles. The internal width of the building was 3.00m at its north-east end. The south-east wall to the south-west trench side was 1.20m internally, the north-west wall to the south-west trench side was 2.40m internally. 3.50m of the south-west side of Trench 7 was inside the building. A wide range of finds was recovered from this context from medieval to 20C, a mix of ceramic, metal and glass.
702	Topsoil	7	707	-	701 703	Topsoil outside both the main building structure and the enclosure wall to the east of the main building. The topsoil consisted of a blackish brown friable silty sand with occasional medium and larger cobbles. This context surrounded the main building and the attached enclosure to the E.
703	Topsoil	7	707	-	701 702	Topsoil inside of the enclosure to the E of the main building, F10.
704	Structure	7		-	-	Stone walls of building F10: The north and west walls are between 0.90m and 1.00m wide. The east wall appears to be narrower. The NE corner is not as well defined as the NW corner and neither is the E wall. The E wall appears to have been more extensively robbed or demolished during the building of the post-medieval field wall. The vertical image of the building, showing the E wall on both sides of the field wall, indicates that the E wall was of similar width to the N and W walls.
705	Surface	7	709	701	-	The floor surface of F10, a mix of sandstone pavement and a cobbled surface made from different size cobbles. Two pottery sherds were retrieved from under this surface as well as some carbon like material probably originating from dried peat.
706	Structure	7		-	-	Stone wall of enclosure: building F10 has an attached enclosure wall starting at the south-east corner of the building on the southern side of the post-medieval field wall. It gradually curves around the SE side of the building terminating about 1.80m into Trench 7, comprising five substantial enclosure wall foundation stones.
707	Surface	7	710	702 703	-	This random cobbled surface was found both inside the enclosure wall 706 and to the NE edge of Trench 7. Trench extension 7B to the mound F11 revealed that this cobbled surface terminated at the monolithic stone found in Trench 7B: see diagram.
708	Structure	7	707	702	-	Later stone wall remnant: There appears to have been a later short wall, 4.00m long, which may have included some form of gate, connecting the end of the enclosure wall in Trench 7 with the NE corner of the building F10. The wall is constructed on top of the enclosure floor 707. It shows evidence of having been constructed on two slightly different alignments.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
709	Deposit	7	713	705	-	The building's internal floor area revealed in Trench 7 is an irregular trapezoidal shape, see diagram. The flags and cobbles 705 were removed to look for dating evidence and sample this sealed context. This underlying soil-like deposit was of mid brown appearance, of friable texture and soft compaction and of silty sand composition, containing approximately 10% stone inclusions 1 – 10cm long. This was a thin layer 2cm – 5cm deep.  Samples number 701, 702, 703
710	Deposit	7	714	707	-	This soil-like deposit under the cobbled surface 707 was of mid brown appearance, of friable texture and soft compaction and of silty sand composition, containing approximately 30% - 40% stones of varying sizes approximately 3cm – 20cm long.  Sample number 704
711	Topsoil	7B	-	-	712	The topsoil in trench extension 7B, between the cobbled surface 707 and the mound F11. It consisted of a blackish brown friable silty sand with occasional medium and larger cobbles, like topsoil 701. A monolithic stone was found in the Trench 7B close to where it meets Trench 7. The cobbled surface 707 terminated at the monolith. This context was not excavated to subsoil once the nature of context 715 was established.
712	Topsoil	7B	715	-	711	The topsoil on the cairn-like mound F11 consisted of a mid-brown friable silty sand of loose compaction with occasional medium and larger cobbles. This context was not excavated to subsoil once the nature of context 715 was established.
713	Subsoil	7		709	-	A soft yellowish-brown subsoil layer below 709: friable sandy silt with 50% - 60% small to medium stones.
714	Subsoil	7	-	710	-	A soft yellowish-brown subsoil layer below 710. Similar in nature to subsoil 713.
715	Geology	7B	-	712	-	Substantial natural sandstone bedrock layer, outcropping to form mound F11.



## 19 APPENDIX 10: TRENCH 8 CONTEXT TABLE

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
801	Topsoil	8	802			Topsoil of Trench 8
801	Structure	8	803	801		Stone wall, un-mortared. The E wall of structure F5.
803	natural	8		801 802		The subsoil in Trench 8. Yellow sandy clay with stones.



## 20 APPENDIX 11: SAMPLE LIST

Sample #	Trench #	Weight kg	Context #	% of context	Context Description	Reason
601	3NE	1.85	357	10	dark deposit under N wall of F9	dating, environmental
602	6	0.11	614	5	dark burnt layer, coal/cinder in SE of F6	environmental
603	6	0.54	632	50	<b>upper</b> fill of pit 631 in E cell of F6	dating, environmental
604	3SE	1.20	354	50	dark deposit under floor slab under S wall of F9, includes coal	dating, environmental
605	3NW	0.14	360	100	fill of ?posthole , looks charred	dating
606	6	1.45	632	30	<b>lower</b> fill of pit 631 in centre of E cell of F6	dating, environmental
607	6	bag 1 1.68 bag 2 c6.00	640	50	<b>upper</b> fill of pit 639 in centre of F17. Inc bags of “burnt stuff”	dating, environmental
608	6	0.17	642	100	fill of ?posthole 641 in F17	dating, environmental
609	6	5.81	640	100	<b>lower</b> fill of pit 639 in centre of F17. Inc bag of “charcoal”	dating, environmental
610	3SE	3.90	369	10	thin brown deposit under lower flagged floor of F9 above subsoil.	dating, environmental
611	3SE	4.73	372		?subsoil under diagonal wall 365 under SE corner of F9	dating, environmental
612	3NE	2.34	373		?subsoil under diagonal line of stones 364 under NE corner of F9	dating, environmental
613	3SE	2.75	370		?subsoil under centre of F9 below lower flag floor	dating, environmental
614	6	2.07	647		?subsoil under W wall of F6	dating, environmental
615	3NW	bag 1: 0.31 bag 2: 0.17	356		Dark material under demolished wall E end of baulk. Photo: see below. Includes bag of “burnt bone”	dating, environmental
616	3NW	1.80	356		Between block samples of laminations in baulk. Photo: see below.	dating, environmental
617	3NW	0.86	371		?subsoil, orange clay with stones under crazed block, just inside F9	dating, environmental
618	6	c7.00	615	20	plaster inside E cell of F6	environmental
619	3NW	0.31	355		“roasted iron ore”	environmental
620	6/9	0.38	635		fill of pit 634, E end of T9 in F17	dating, environmental



Sample #	Trench #	Weight kg	Context #	% of context	Context Description	Reason
621	3NW	2.71	"Layer 1"		"under demolished wall by hearth	dating, environmental
622	3NW	2.96	"Layer 2"		"under demolished wall"	dating, environmental
623	3NW	0.99	"Layer 3"		"under demolished wall"	dating, environmental
624	3NW	2.61	"Layer 4"		"under demolished wall. All 130cm E-W"	dating, environmental
625	3NW	0.62	366		black deposit by crazed block inside F9. Between 2 long stones. "charcoal/coal flecks. Magnetic"	dating, environmental
701	7	4.16	709			dating, environmental
702	7	0.53	709		SE corner	dating, environmental
703	7	0.72	709			dating, environmental
704	7	1.11	710		under cobbles/flags	dating, environmental
MM1	3NW	-	356		in baulk, laminated deposit ?industrial	block sample for Durham labs
MM2	3NW	-	356		in baulk, laminated deposit ?industrial	block sample for Durham labs
MM3	3NQ	-	356		in east trench section, laminated deposit ?industrial	block sample for Durham labs

See next page for photographs of sampling.





Positions of Sample 615 and 616: white labels indicate sampling position



Rectangular block sample tins in position in Trench 3NW. Photo looking north-east. See Section 5.2 of this report for further photographs of taking samples MM1 and MM2.

MM1 and MM2 in baulk (lower left of image)

MM3 in trench section (upper centre of image)



## 21 APPENDIX 12: SMALL FINDS POSITIONS

Small find #	Easting	Northing	Elevation	GPS Date
602	390820.602	526718.852	277.428	
603	390827.452	526711.386	277.517	
604	390842.498	526693.367	274.526	
606	390826.298	526715.660	277.557	
607	390826.583	526711.507	277.609	
608	390829.535	526713.135	276.912	
609	390825.179	526714.122	277.569	
610	390827.651	526711.411	277.497	
611	390828.344	526715.727	277.247	
612	390827.734	526713.617	277.413	
613	390828.644	526714.017	277.256	May 17
613	390824.754	526715.360	277.559	May 17
614	390827.444	526709.300	277.412	May 17
614	390826.377	526712.163	277.631	May 17
615	390827.885	526712.124	277.540	
616	390827.426	526713.335	277.476	May 17
616	390819.780	526718.741	277.420	May 17
617	390827.464	526710.159	277.455	May 17
617	390843.187	526698.339	274.497	May 17
618	390843.624	526698.768	274.407	
619	390827.858	526712.048	277.441	
620	390827.874	526712.109	277.428	
625	390822.212	526704.353	278.193	
626	390824.065	526703.780	278.119	
627	390823.511	526704.052	278.128	
629	390822.863	526704.155	278.135	
630	390823.155	526710.415	277.983	
631	390825.865	526714.608	277.475	
633	390843.753	526698.727	274.410	
634	390825.321	526711.833	277.671	
635	390825.941	526714.493	277.397	
636	390843.508	526699.990	274.397	
637	390824.347	526703.831	278.084	
641	390827.667	526713.699	277.384	
642	390826.867	526709.629	277.567	May 20
642	390822.301	526706.125	278.065	May 24
643	390826.917	526709.495	277.568	
644	390843.236	526698.598	274.373	
645	390818.605	526706.905	278.069	
646	390821.414	526707.369	278.248	
648	390823.061	526709.245	278.003	
649	390825.918	526705.594	277.638	
650	390826.380	526713.991	277.385	
651	390844.602	526698.725	274.293	
652	390824.189	526705.208	277.990	



653	390845.019	526698.679	274.281
654	390845.026	526693.339	274.594
655	390822.328	526705.707	278.191
656	390823.714	526703.128	278.153
657	390845.138	526693.341	274.631
658	390821.504	526705.554	278.229
659	390844.958	526698.839	274.237
660	390822.309	526705.409	278.131
661	390824.532	526703.020	277.922
662	390824.692	526702.884	277.811
664	390823.756	526705.673	278.072
665	390824.557	526705.190	277.967
666	390845.801	526698.572	274.178
667	390845.796	526698.492	274.126
668	390846.079	526698.831	274.195
669	390845.897	526699.064	274.144
670	390846.234	526699.539	274.202
674	390825.193	526706.200	277.815
677	390816.713	526716.653	277.512
678	390818.814	526720.268	277.258
679	390845.661	526694.629	274.458
680	390846.193	526698.298	274.106
681	390825.118	526706.785	277.830
682	390825.278	526706.493	277.757
683	390825.361	526706.588	277.726
Unreadable T6..	390821.543	526704.547	278.120
Unreadable T6..	390821.819	526704.674	278.078
701	390806.861	526689.788	277.982
702	390808.932	526691.008	277.880
703	390811.076	526688.965	278.127
704	390811.702	526686.404	278.533
705	390808.197	526688.609	278.213
706	390813.018	526688.338	278.252
707	390815.532	526686.592	278.490
708	390812.331	526686.145	278.560



## 22 APPENDIX 13: PHOTOGRAPHIC SURVEY OF WALLS OF F6

These photographs recorded the walls of building F6 and the adjacent part of building F17.



The index numbers of the photographs run in unbroken sequence from 473 to 632, a total of 160 photographs. A key to position and direction of the photographs is shown above. The photographs themselves are all shown in the following seven pages, with their index number stamped in their bottom left corner.

The photographs were taken before completion of excavation.











