

THE STANEGATE AT VINDOLANDA

Bardon Mill, Northumberland

ARCHAEOLOGICAL WATCHING BRIEF AND EXCAVATION DURING DRAINAGE WORKS

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*Prepared for Northumberland County Council Highways
and Neighbourhood Services by:*

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SUMMARY

An archaeological watching brief was maintained during the installation of a new drainage scheme along the Stanegate at Vindolanda in June 2014. This followed on from earlier test-pit evaluation during winter of the same year which suggested that works would only impact Roman deposits at the western end of the drainage run (see Appendix 2)

The watching brief in June 2014 provided only limited new evidence for Roman archaeology along the Stanegate. As predicted by the previous test-pit evaluation, the eastern and central parts of the drainage works had no impact on Roman remains. Only towards the western end of the run were early remains identified. These included the base of a truncated channel [01] cutting into blue-grey natural clay in the bottom of the trench. The fill of this channel was wet and contained surviving organic material including four pieces of leather as well as a worked piece of timber and a lopped piece of a branch of silver birch. Two pieces of pottery recovered from the fill were of Roman date. At the western end of the drainage trench, a fragment of a stone wall ([04]) was exposed in the north face of the trench. This was probably the southern continuation of a building seen during excavation of Roman deposits to the north of the Stanegate in 2009 by The Vindolanda Trust.

Palaeoenvironmental samples were taken from the base fill of channel [01] (deposit [02]) and from a soil deposit [03] adjacent and probably contemporary with part of a wall of a Roman building [04]. The samples provided evidence for waterlogged preservation with both containing abundant uncharred vegetative material and seeds. Some domestic waste was also present, with bone, charcoal and leather noted in context [02], and bone, pot and charred cereal remains recorded in context [03]. The spelt-type wheat grain in layer [03] is consistent with a Roman date for this deposit. Roman pottery provides a broad date for gully fill [02].

1. PROJECT BACKGROUND

1.1 Remedial Works on the Stanegate at Vindolanda

Northumberland County Council Highways Services carried out road drainage works within Scheduled Monument No. 1014820 along the Stanegate in the area of Vindolanda Roman Fort in June 2014 to remediate serious problems including erosion of the road surface and make-up caused by intermittent heavy flooding. One part of the works, an 85m stretch to the north of the fort and *vicus* required the installation of a flood drainage system (figure 2) requiring the excavation of new trenches for 150mm drainage pipe, eventually four gully pots and one chamber.

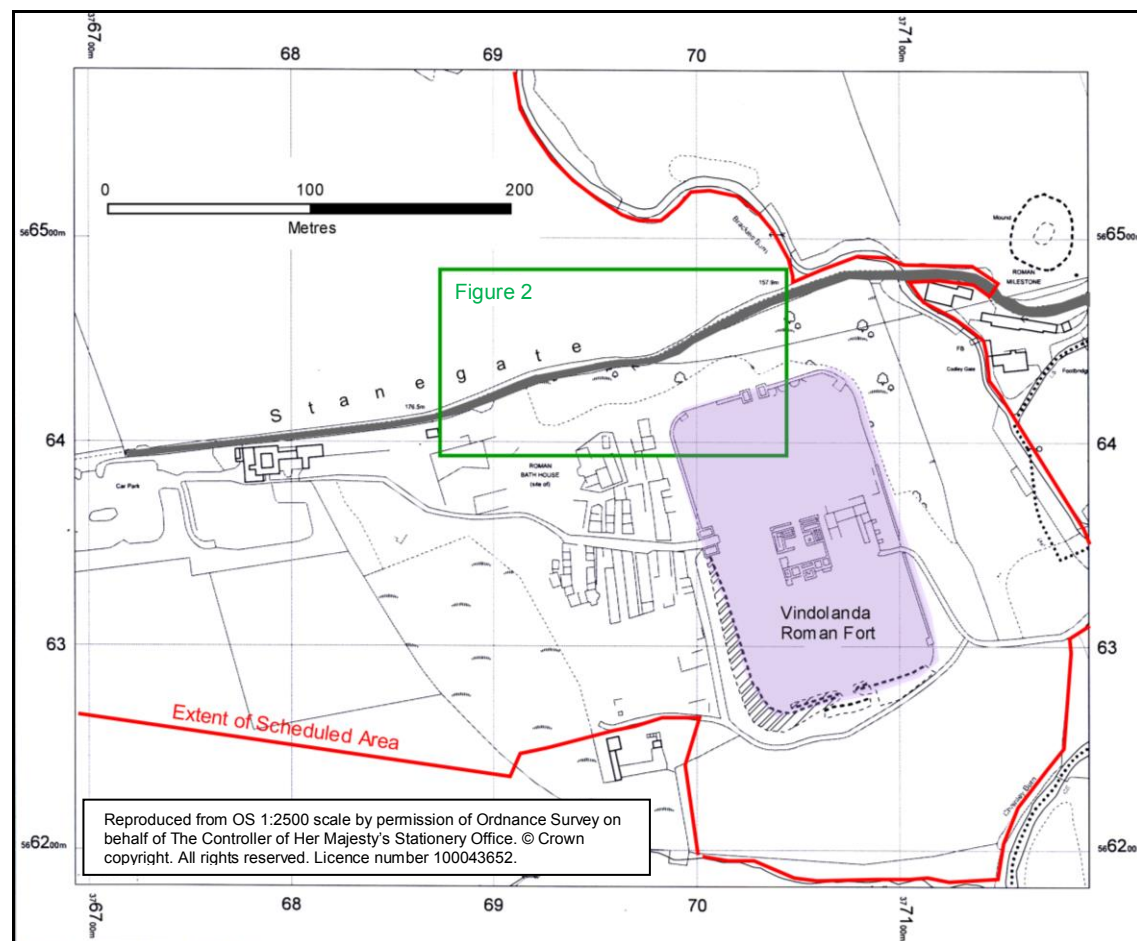


Figure 1: Vindolanda Roman fort and adjacent remains with the east-west running Stanegate to the north. The potential area of resurfacing of the road is shown in grey tone. Drainage works were carried out within the area of the green box (figure 2).

1.2 Archaeological Evaluation

Given the likely sensitivity and significance of archaeological remains around the area of the new drainage system, archaeological evaluation prior to development works was requested by Mike Collins, Inspector for Hadrian's Wall for English Heritage (now Historic England). This consisted of the excavation of three test pits

along the Stanegate to the north of Vindolanda. Evaluation was carried out under scheduled monument consent by Alan Williams Archaeology (AWA) in January 2014 and is detailed in Appendix 2 in this report. In summary, Test Pits B and C in the central and eastern parts of the scheme located no archaeological deposits. Test Pit A at the western end of the drainage run located evidence for probable Roman deposits in a location immediately south of where Roman stratigraphy and structures had been excavated by the Vindolanda Trust in 2009.

1.3 Archaeological Mitigation

Following discussion with Mike Collins, a strategy to mitigate the likely impact of the drainage works on archaeological deposits along the Stanegate was set in place involving:

- An archaeological watching brief to be maintained during all groundwork including the excavation of the trench for the drainage pipe and excavations for the central gully and chamber at the eastern end of the drain run;
- Archaeological excavation of pits for the two gully pots at the western end of the drainage run where archaeological deposits had been identified at a depth of 0.5m.

This was set out in a WSI prepared by AWA (Appendix 1).

2. HISTORICAL BACKGROUND

2.1 Roman Vindolanda

The Roman site at Chesterholm, commonly known by its Roman name, *Vindolanda*, consists of the remains of a series of timber and stone forts and associated civil settlements (at least ten phases of occupation) located on a platform on the western edge of the deep valley of the Chainley Burn, above Brackies Burn to the north and Doe Sike to the south and overlooking the important east-west trunk road and possible early frontier line of the Stanegate (Hodgson in Symonds and Mason 2009, 10-15). The latest stone fort and a range of excavated extra-mural stone buildings stand on the site today. Occupation at Vindolanda continued between the 80s AD with periods of abandonment into the post-Roman period. By Severan times (190s AD), a major civilian settlement accompanied the military installation, growing up

across the footprint of an abandoned military annexe to the west of the first stone fort (Birley in Symonds and Mason 2009, 26).

2.2 The Course of the Stanegate

Today, the line of the Roman Stanegate runs up to Vindolanda from the east as an intermittent earthwork and path. It crosses the Bradley Burn (the northern continuation of the Chainley Burn) adjacent to a standing Roman milestone. A surfaced minor road continues the nominal line of the Stanegate westwards across the Brackies Burn and the northern periphery of the buried remains of the military and civilian occupation at Vindolanda. The Roman course of the Stanegate in this area was not constant and the line has also certainly been subject to alteration and re-grading in post-Roman times (pers. comm. Dr Andrew Birley). West of the car parks for the Vindolanda site, the Stanegate continues in a straight line past Causeway House and Smiths Shield.

2.3 Roman Occupation Adjacent to the Stanegate

Figure 4, kindly provided by Dr A Birley, shows the excavation plan of a substantial stone building of the civil settlement or *vicus* on the north edge of the Stanegate adjacent to point A on figure 3 (this building was excavated in 2009 and is forthcoming in *Archaeologia Aeliana*) which post-dated an earlier military structure. In addition to excavated structures and earthworks of the stone forts and military annexe and of the civilian settlement which succeeded it, the deeply buried and waterlogged remains of first and second century timber forts and ditches will extend in certain areas below the present road line.

2.4 Roman Cemeteries

Roman burials (all cremations) and a grave stone have been found in fields to the west of the entrance to the main car park for the Vindolanda site and on both sides of the Stanegate. There is no evidence that cemeteries extended to the area north of the fort. Current excavation in this area by the Vindolanda Trust has confirmed this negative evidence for cemetery remains (pers. comm. Dr Andrew Birley).

3. DEVELOPMENT WORKS

Ground-works by Northumberland County Council Highways Services (NCCHS) requiring archaeological input were carried out between 4th and 10th of June 2014 (figure 2). They involved the insertion of drainage gully pots (**A** on figure 2) on either side of the road adjacent to the main site entrance. These were c.0.8m square and

1m deep connected across the road by a run of 150mm diameter drainage pipe set in a trench 0.5m deep and 0.6m wide. This pipe extended west for a short distance along the north verge of the Stanegate set into the slope (**F** on figure 2) to link in with an existing drain, and east along the Stanegate in a trench (again 0.5m deep by 0.6m wide) on the north verge of the road for 85m (**B** on figure 2) connecting with an existing stone conduit at the east end of the run. A chamber was constructed at the point the conduit met the drainage run (**D** on figure 2). Water was channelled from this chamber down to the Brackies Burn in the conduit. An intermediate gully was also installed as per specification at the break in slope along the road to the west (**C** on figure 2). Due to the discovery of a feeder of water on to the south verge of the road between the chamber and gully, an additional gully was set at this point (**E** on figure 2) and a piped connection, 0.5m deep by 0.5m wide, run across the road into the main drain on the north side. This alteration to the specification was agreed with Mike Collins.

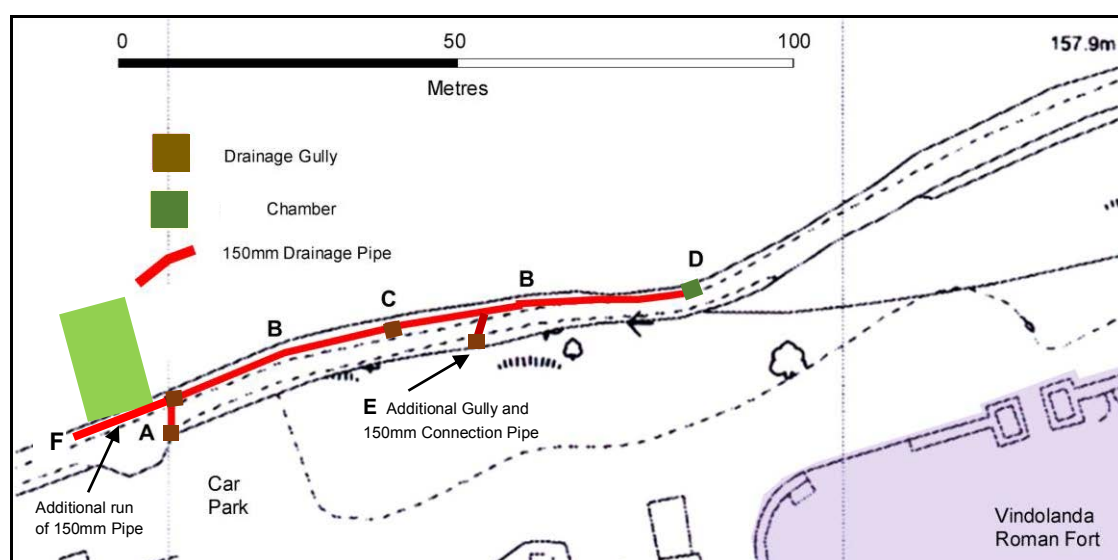


Figure 2: Drainage works along the Stanegate at Vindolanda. For key to letters see section 3, above. The green rectangle locates the Roman building excavated in 2009 by the Vindolanda Trust (see figure 10).

4. ARCHAEOLOGICAL RESULTS

Excavations accompanying the insertion of the drainage pipe along the north side of the Stanegate (**B** and **F**), the gully pot at **C** and the chamber at **D**, the location of an earlier stone conduit were archaeologically monitored. Monitoring works were also continued during the excavation of the additional gully pot (**E**) and pipe run across the road to take the feeder of water running in from south of the road (this was sourced back to water flowing from the excavated Roman spring cisterns and the

restored aqueduct on the Vindolanda site by the use of green dye).

4.1 Gully Pots B and E and Chamber D

Figures 3 and 4 show the chamber and the two gullies. No early archaeological deposits were identified during the excavation of these features. In both gully excavations, topsoil came down on to sandy gravel with many larger cobbles over blue-grey boulder clay. The age of the stone conduit at **D** was not established. It was not damaged by the insertion of the chamber. Instead of brick construction it was decided that a cut-down gully pot could be used set at a depth of 0.5m overlying the structure.

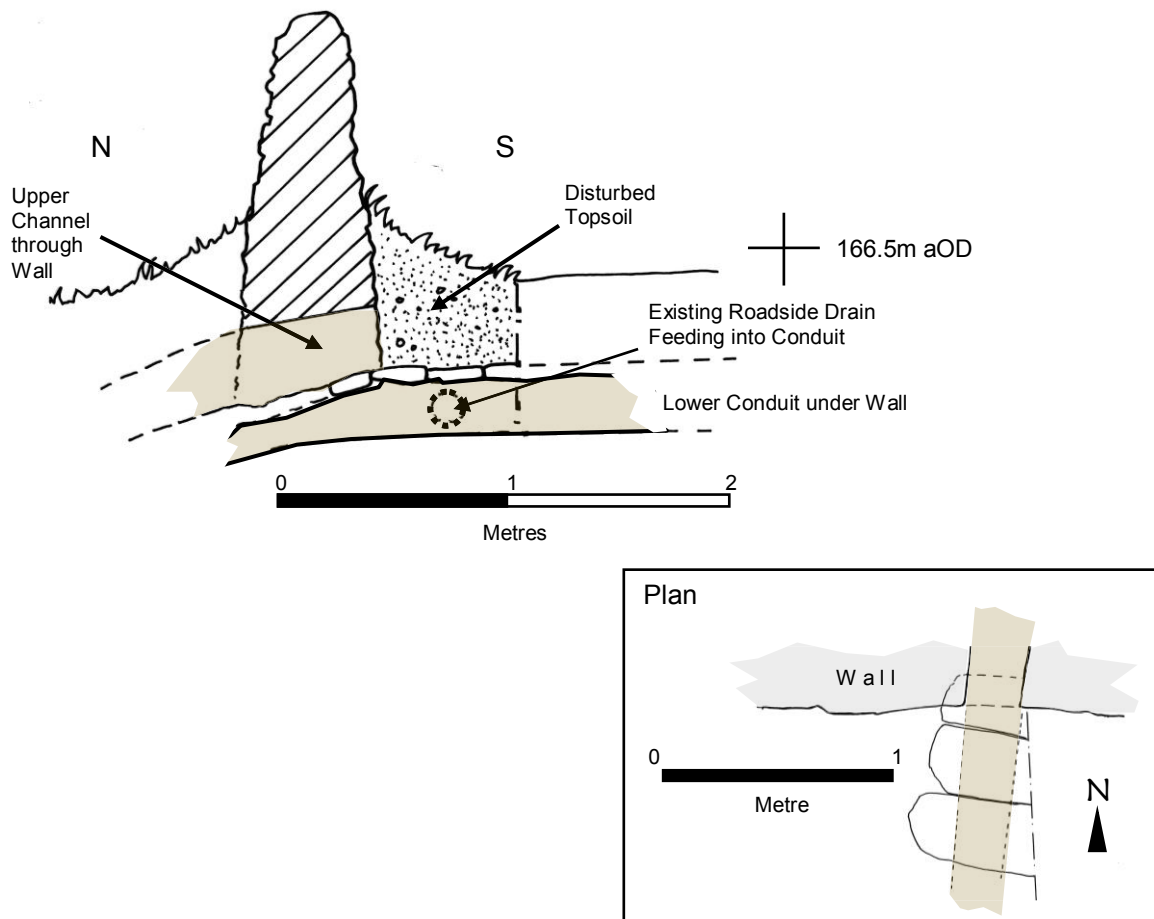


Figure 3: Chamber (D) at the eastern end of the drainage run. Section (top) and inset plan showing stone slabs covering conduit and projected line of conduit, below, in tone.

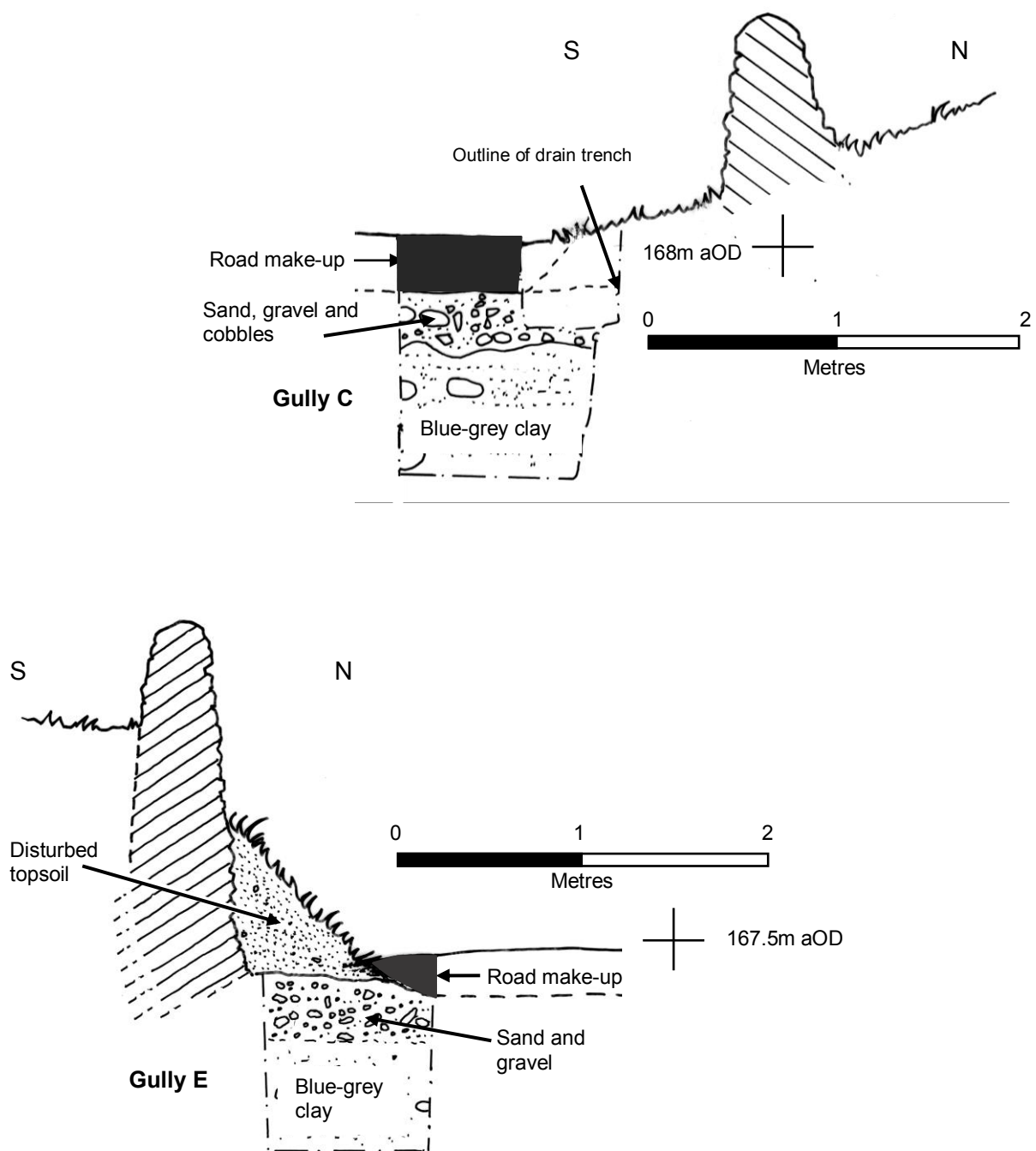


Figure 4: Sections of the excavations for Gully Pots C (top) and E (bottom).

4.2 Drainage Pipe

For the eastern 70m of excavations for the drainage pipe, no archaeological deposits were identified along the pipe trench. The profile within the trench was recent topsoil/road-make up directly on to a buff-brown stony/sandy deposit with many cobbles/pebbles overlying a blue-grey clay with some stones in the matrix. At 4.5m

to the east of Gully Pot A North, and running upslope to the west, the base of a truncated and irregular channel (01) was defined, cutting into blue-grey clay. This proved to be very shallow (c.0.05m maximum) and filled with a very dark grey organic soil (02) (soil sample 1) which contained four pieces of leather, two sherds of Roman pottery, one worked piece of wood and two fragments of branches of Silver Birch (see section 8: Finds). This channel ran beyond the trench towards the location of Gully Pot A North although towards this point it was truncated entirely by a roadside drain.

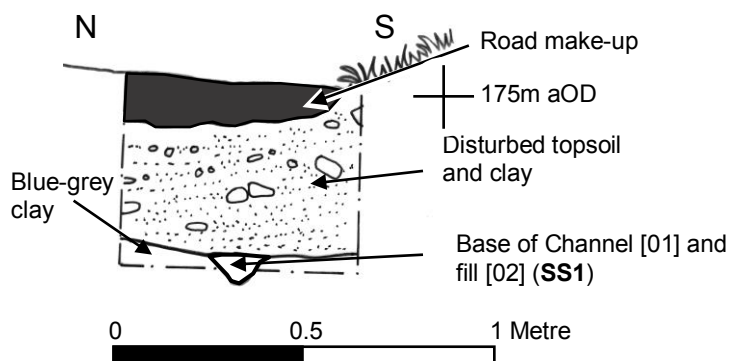


Figure 5: transverse section through Drainage Trench as located on figure 6, below showing truncated channel [01].

4.3 Excavation of Gully Pots A (North and South)

Pits for the gully pots and trench for the connecting drain across the road towards the western end of the drainage run were excavated by machine and closely observed archaeologically until any significant deposits were located. Although what were considered to be early waterlogged deposits had been identified in Test Pit A in the north verge of the Stanegate in the vicinity of Gully Pot A North, very little evidence was found in the current excavations for similar deposits. Stratigraphy in the two pits and connecting pipe trench consisted of road make-up above a sandy, stony layer over a thin band of dark brown loam (03) fading out to the south - the same layer seen in the drainage trench to the east - above blue-grey stony clay.

No waterlogged material was seen in the excavation for the gully pots as identified in Test Pit A to the north during the previous evaluation. The reason for the absence of this material is not clear: Probably, the waterlogged deposit was the fill of a discrete feature which did not extend to the south. Whether the blue-grey stony clay seen across the area was all natural subsoil or in parts was re-worked or dumped over earlier deposits was not certainly established.

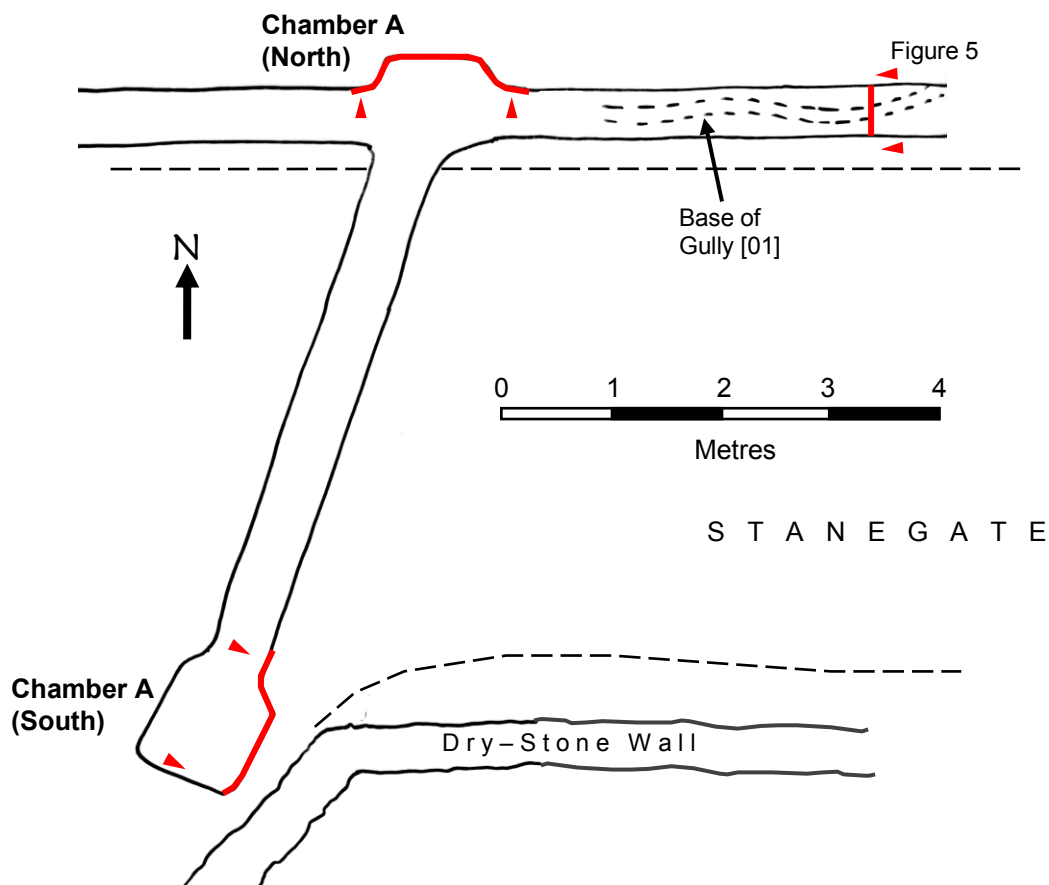


Figure 6: Schematic plan showing western end of the drainage run with Chambers A north and south, showing location of section across the drainage pipe trench (figure 5) and sections of chambers (figure 7) marked in red.

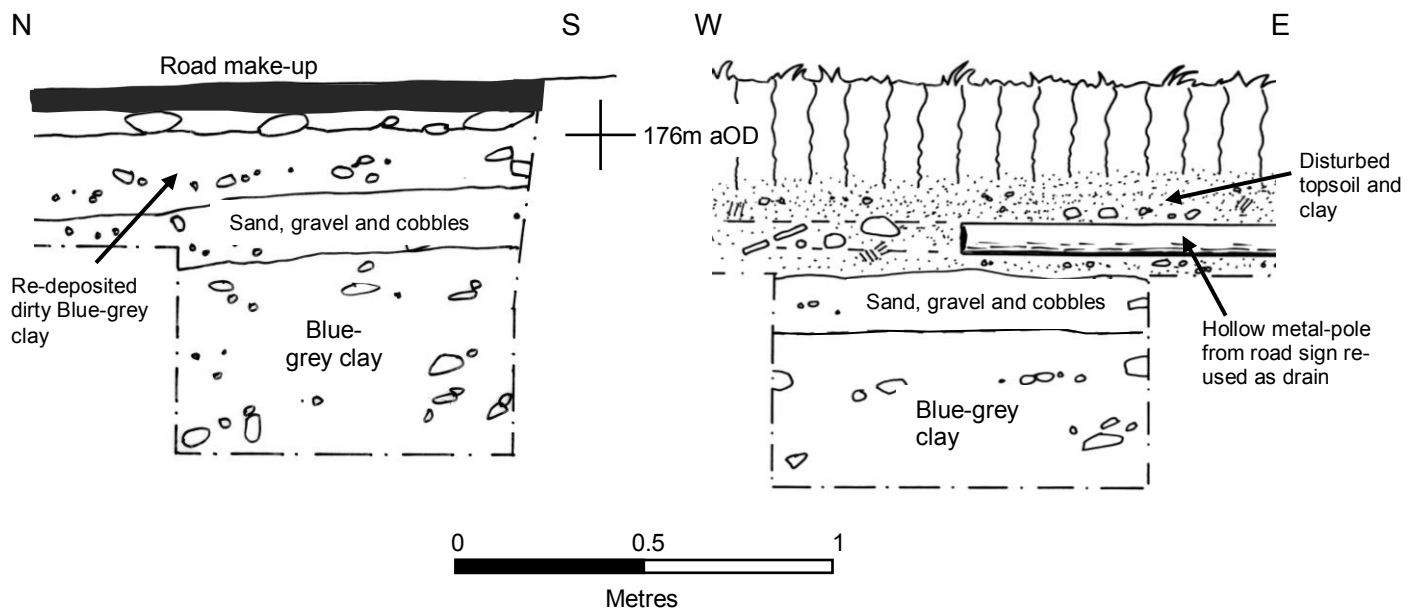


Figure 7: Sections of excavations for Chambers A South (left) and North (right).

4.4 Continuation of Drainage Pipe West of Gully A

The drainage pipe trench was continued in the road verge for 9m to the west of gully pot A North. This cut into a band of stony loam [03] (soil sample 2) above the blue-grey clay. 7.5m from the gully pot a stone feature (04) was uncovered. This was the south end, or possibly the truncated end, of a wall (figures 8 and 9). There was no clear evidence for a foundation trench and layer (03) identified to the east ran against the end of the feature. The wall can be equated with wall A shown on figure 10 which pre-dates a Severan (probably civilian) structure (in black), so probably 2nd century in date, and with a probably military context.

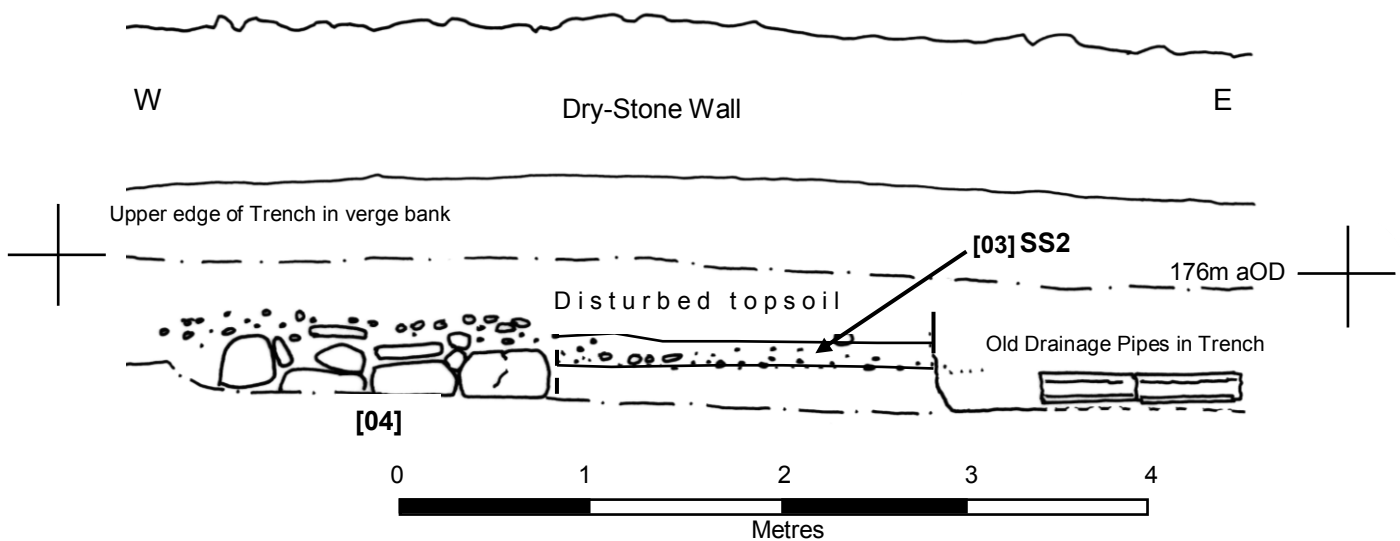


Figure 8: Section of western end of drainage trench showing wall [04] and early deposit [03]. 1:40 scale.

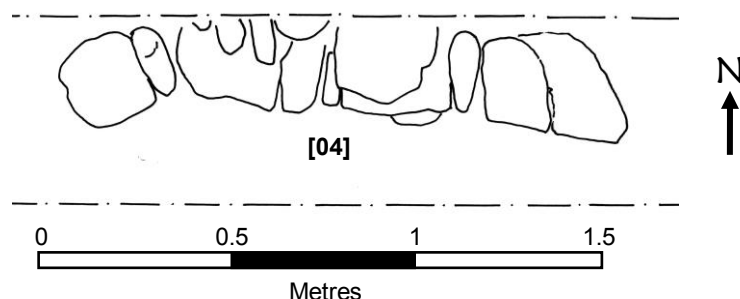


Figure 9: Plan of wall [04] extending from north face of modern drainage trench. 1:20 scale.

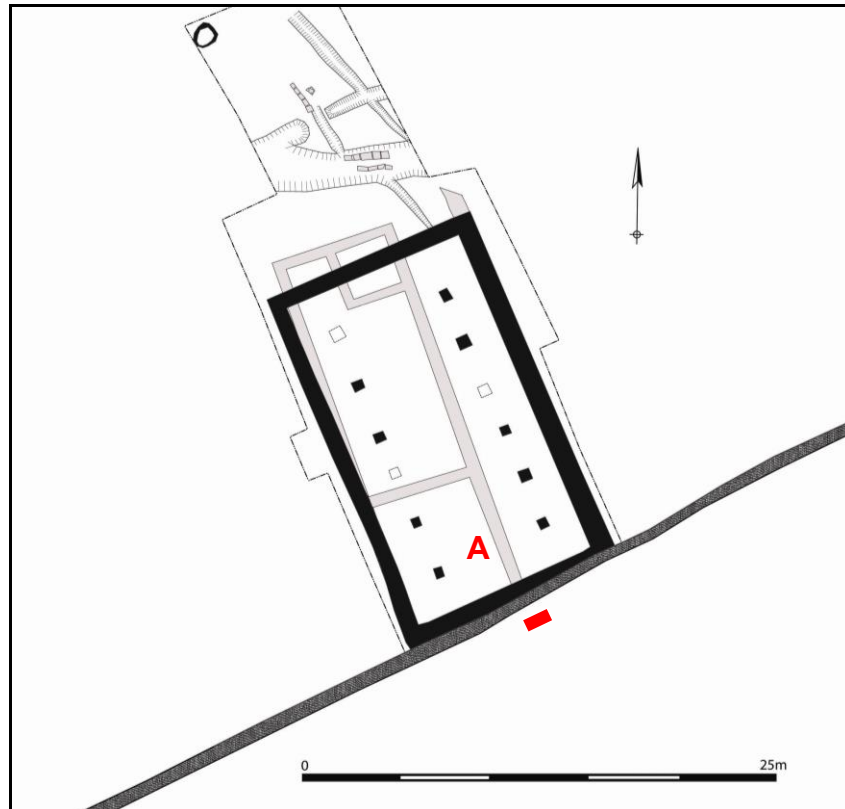


Figure 10: Roman buildings excavated next to the Stanegate in 2009 by the Vindolanda Trust. The dry-stone wall flanking the Stanegate is shown in dark grey. The approximate outline of the building in black is shown as a green rectangle on figure 2. The wall [04] seen in the north verge of the Stanegate (located with a red line above) probably belongs to an underlying building in pale grey, its wall marked 'A' in this illustration and probably of 2nd century date (with thanks to Dr A Birley, Vindolanda Trust).

4.5 Context Descriptions

[01] Channel or ditch running in an apparently irregular course downslope west-east approximately along the line of the Stanegate. Only c.10cm max. of base surviving. Profile of this very variable.

[02] Organic fill of base of [01]. Very dark grey-brown wet silty loam. 'Cessy' character. Layer contained all artefactual material recovered during the watching brief (see section 8, Finds. Soil sample 1 from this context.

[03] Layer butting wall [04] at west end of drainage trench. Wet, dark grey-brown stony silty-clay loam. Soil sample 2 from this context.

[04] south end of wall/footings exposed in north edge of modern drainage trench. Fairly small and irregular stones with clay bonding.

5. CONCLUSIONS

The watching brief during drainage works provided limited new evidence for Roman archaeology along the Stanegate. As predicted by previous test-pit evaluation (Appendix 2), the eastern and central parts of the drainage works had no impact on Roman remains. Only towards the western end of the run were early remains identified. These included the base of a truncated channel [01] cutting into blue-grey natural clay in the bottom of the drainage trench. The fill of this feature [02] was wet and contained surviving organic material (see below) including four pieces of leather as well as a worked piece of timber and a lopped piece of a branch of silver birch. Two pieces of pottery recovered from the fill were of Roman date. At the western end of the drainage trench, a fragment of a stone wall [04] was exposed in the north face of the trench alongside a contemporary soil deposit [03]. The wall was probably the southern continuation of a building seen during excavation of Roman deposits to the north of the Stanegate in 2009 by The Vindolanda Trust.

Palaeoenvironmental samples from deposits [02], the fill of a truncated channel, and [03] a soil layer adjacent to wall [04], both almost certainly of Roman date, provided evidence of anaerobic waterlogged conditions in the area, with preservation of uncharred plant macrofossils and other organic remains in both samples. Sedges favoured the damp conditions associated with the deposits. The ruderal weeds and other species of disturbed ground noted in layer [03] may reflect trampling or other disturbance in the vicinity of the deposit, with the abundance of common nettle possibly indicating nutrient-enrichment as a result of manure.

Both samples contained some domestic waste in the form of animal bone, charcoal, leather and pottery. Charred wheat-grain from layer [03] had a shape and size typical of spelt wheat (*Triticum spelta*), although the identification is not certain due to the variability of wheat grain morphology. Spelt wheat was one of the main field crops used throughout Britain during the Roman period (Greig 1991; Hall & Huntley 2007). The cf. brome caryopsis is also consistent with a Roman date for layer [03], as this arable weed frequently occurs with spelt wheat, and is believed to have been brought to Britain in imported spelt (Godwin 1975). Charred heather twigs, also from layer [03], may represent the remains of material collected for traditional uses such as fodder, bedding, thatch or fuel (Gale & Cutler 2000; Fenton 1978). Wood and charcoal remains from the samples suggest that alder, hazel, birch and oak were also resources available in the locality.

6. PLATES



Plate 1: Chamber D at the eastern end of the drainage run showing The upper slabs of a conduit running under the field wall and a channel above running through the field wall. A clay-tile drain runs into the conduit from the west. Looking north-east. Scale 2m long.



Plate 2: Looking west along the Stanegate from Chamber D.



Plate 3: *Cutting the trench across the Stanegate to Gully E.*



Plate 4: *Gully E. collecting feeder of water through wall from the south.*



Plate 5: *The excavated pit for Gully C. Grey clay at the base, sand and cobbles above.*



Plate 6: *The drainage pipe running upslope to the west from Gully C*



Plate 7: *Truncated channel [01] at base of Drainage trench.*



Plate 8: *Pit for Chamber A (North). Looking north.*



Plate 9: Chamber A (South). Looking east.



Plate 10: Wall [04] in north face of drainage trench. Looking north.



Plate 11: Looking west along the drainage trench towards wall [04].

7. BIBLIOGRAPHY

Bidwell, P (1985) *The Roman Fort at Vindolanda* HBMCE Archaeological Report 1

Birley, R (1977) *Vindolanda: A Roman Frontier Post on Hadrian's Wall*

Symonds, MFA and Mason, DJP (eds.) (2009) *Frontiers of knowledge: A research assessment for Hadrian's Wall*

8. FINDS

1. POTTERY (figure 11).

1. Base of cup/beaker. Oxidised ware
2. Worn fragment of Samian. Not diagnostic. Not illustrated.

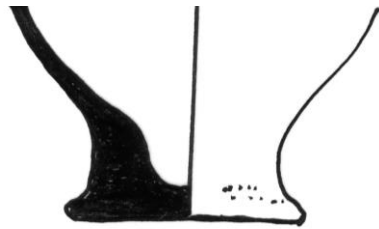


Figure 11: Profile (1:1) of base of small cup/beaker from fill [02] of channel [01].

2: LEATHER (plate 12)

Four pieces of leather were recovered from the fill [02] of channel [01]. The fragments were found in an almost certainly Roman context (from limited pottery evidence, see above) at the base of the feature.

1. Fine grained piece, 1mm thick max. Surviving length 155mm by 72mm wide. Surviving lengths of original turned edges on long sides, both short ends torn away. Slot with turned edges 40mm long by 5mm wide. No evidence of stitching. Uncertain original use and extent.
2. Fine grained piece, 1mm thick max. Surviving length c. 235mm by 155mm wide across top edge. Turned edges along both sides; cut edge along top of 'arm' extending to left (see plate 12). Short edge at bottom and upper right edge torn away. No evidence of stitching. Uncertain original use and extent.
3. Fine grained piece, 1mm thick max. Surviving length 95mm by 30mm wide. One turned long edge, other edge torn away. No evidence of stitching. Uncertain original use and extent.

NB It is possible that fragments 1, 2 and 3 are from one piece although not found in immediate association.

4. Fine grained piece. 1mm thick, 64mm long by 58mm wide. Cut away on three sides, torn away on fourth. No turned edges or evidence of stitching. Offcut.

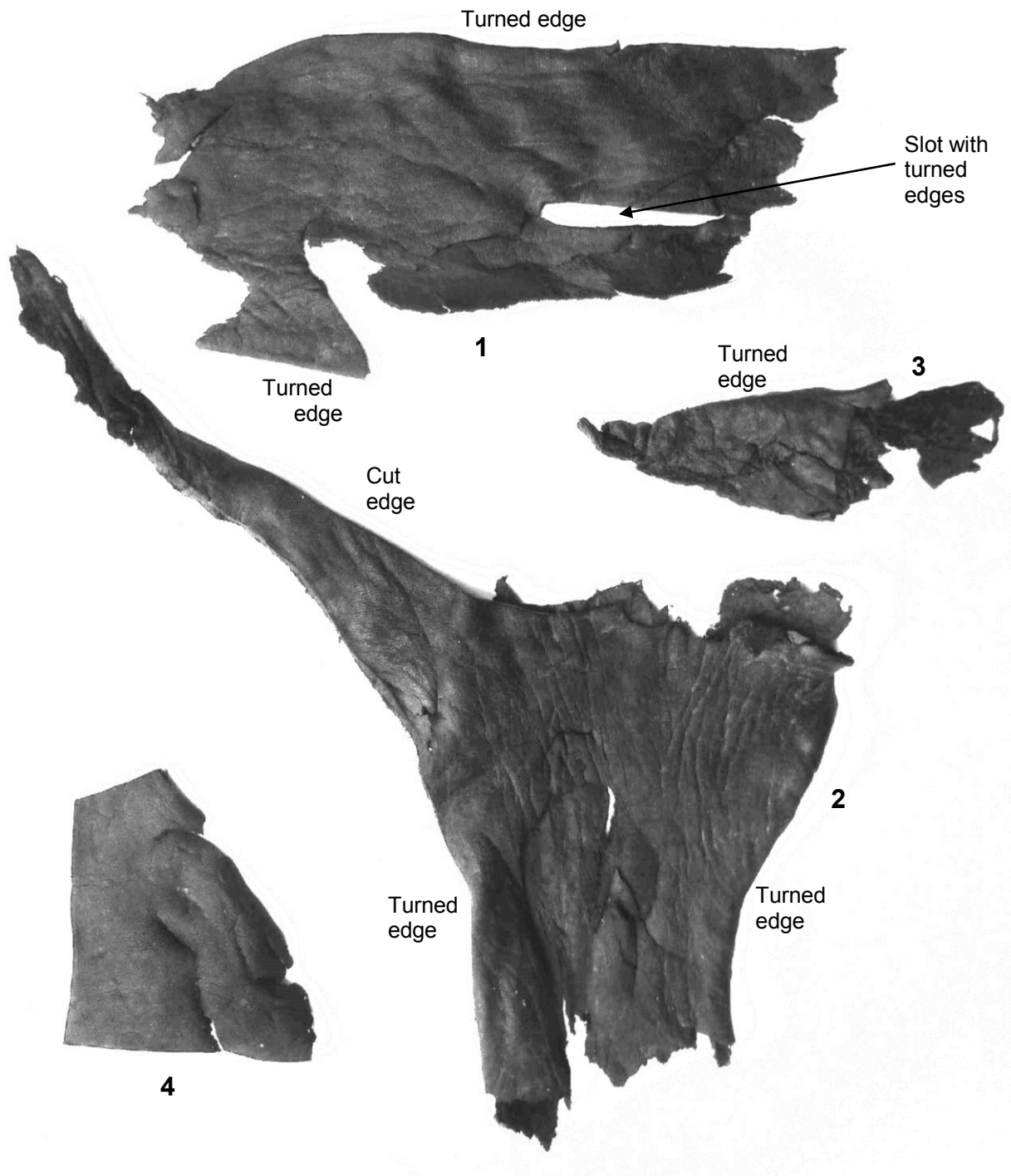


Plate 12: *Leather fragments from fill [02] of channel [01]. Not to scale.*

3: Wood (plate 13 and figure 12)

1. Fragment of a larger object. From fill [02] of channel [01]. Oak. 30mm thick by 110mm along broken face. Cut to a right-angle with 5mm chamfers along edges. Uncertain original extent or use.

2. Two small fragments of silver birch from [02]. One piece lopped. Not illustrated



Plate 13: Piece of worked oak (1) from fill [02] at base of channel [01].
Plan (top) and side view 1:1.



Figure 12: the extent of the piece is uncertain, but has straight sides cut at an approximate right-angle and with chamfered edges. Not to scale.

9. Palaeoenvironmental Assessment

ARCHAEOLOGICAL
SERVICES
DURHAM UNIVERSITY

on behalf of
Alan Williams Archaeology

Drainage works on the Stanegate
Vindolanda
Northumberland

palaeoenvironmental assessment

report 3817
June 2015



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1. Summary

The project

- 1.1 This report presents the results of palaeoenvironmental assessment of two bulk samples taken during archaeological works at Stanegate, Vindolanda.
- 1.2 The works were commissioned by Alan Williams Archaeology, and conducted by Archaeological Services Durham University.

Results

- 1.3 The samples provide evidence for waterlogged preservation with both comprising abundant uncharred vegetative material and seeds. Some domestic waste is present, with bone, charcoal and leather noted in context (2), and bone, pot and charred cereal remains recorded in context (3). The spelt-type wheat grain in layer (3) is consistent with a Roman date for this deposit. Dating evidence is absent from gully fill (2), although material suitable for radiocarbon analysis is present, if required.

Recommendations

- 1.4 No further work is recommended for the plant macrofossil remains as the flots were scanned in their entirety and no additional information would be provided from an analysis. It is likely that the contexts are not sufficiently sealed to warrant pollen analysis, and invertebrate analysis is not recommended due to the small size of the beetle assemblages. If the artefactual evidence does not provide close dating, AMS dating of carefully selected terrestrial plant remains could be undertaken to confirm the origin of the deposits. If additional work is undertaken at the site, the results of this assessment should be added to any further palaeoenvironmental data produced.

2. Project background

Location and background

- 2.1 Archaeological works were conducted by Alan Williams Archaeology during drainage works on the Stanegate, Vindolanda, Northumberland. This report presents the results of palaeoenvironmental assessment of two bulk samples comprising a gully fill (context 2) containing Roman pottery, and a layer of soil (context 3) adjacent to the base of a Roman wall.

Objective

- 2.2 The objective of the scheme of works was to assess the palaeoenvironmental potential of the samples, establish the presence of suitable radiocarbon dating material, and provide the client with appropriate recommendations.

Dates

- 2.3 Samples were received by Archaeological Services on 12th May 2015. Assessment and report preparation was conducted between May and June 2015.

Personnel

- 2.4 Bulk sample processing, assessment and report preparation was conducted by Dr Charlotte O'Brien.

Archive

- 2.5 The site code is **SDV14**, for **Stanegate Drainage Works, Vindolanda 2014**. The flots and finds are currently held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University awaiting collection. The charred plant remains will be retained at Archaeological Services Durham University.

3. Methods

- 3.1 The bulk samples were manually floated and sieved through a 500 μ m mesh. In addition, a 0.25 litre subsample of gully fill (context 2) was wet sieved over a nest of sieves ranging from 150-500 μ m. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope. Identification of these was undertaken by comparison with modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (1997). Habitat classifications follow Preston *et al.* (2002).
- 3.2 Selected charcoal fragments were identified, in order to provide material suitable for radiocarbon dating. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990) and Hather (2000), and modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University.
- 3.3 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts & Gerrard 2006; Hall & Huntley 2007; Huntley 2010).

4. Results

- 4.1 The sample from gully fill (2) was organic in nature and produced a large flot dominated by uncharred vegetative material. The waterlogged conditions allowed the preservation of bracken frond fragments, wood, moss and small leather pieces. A moderate assemblage of waterlogged seeds was recorded, which included sedges, rushes, knotgrass, thistles, cinquefoils, selfheal, buttercups, docks and violets. Two fragments of hazel roundwood were identified. Fragments of unburnt animal skull and rib were recorded. The small charcoal assemblage comprised of birch, hazel and oak. Charred plant macrofossils were absent from this sample.
- 4.2 Uncharred vegetative material, waterlogged seeds and a small quantity of invertebrate remains were present in layer (3) indicating that this sample was also deposited under anaerobic conditions. Common nettle, sedges, cinquefoils and docks were the most commonly recorded waterlogged remains. The charred plant remains comprised of heather twigs, a wheat grain and a fragment of a grass caryopsis (possibly brome). A few fragments of alder, birch and hazel charcoal were recorded. A small amount of burnt animal bone and a fragment of pottery were present.
- 4.3 Material suitable for radiocarbon dating is available for both samples. The results are presented in Appendix 1.

5. Discussion

- 5.1 Anaerobic waterlogged conditions allowed the preservation of uncharred plant macrofossils and other organic remains in both samples. Sedges favoured the damp conditions associated with both deposits. The ruderal weeds and other species of disturbed ground noted in layer (3) may reflect trampling or other disturbance in the vicinity of the deposit, with the abundance of common nettle possibly indicating nutrient-enrichment as a result of manure.
- 5.2 Both samples comprise some domestic waste in the form of animal bone, charcoal, leather or pottery. The charred wheat grain from layer (3) had a shape and size typical of spelt wheat (*Triticum spelta*), although the identification is not certain due to the variability of wheat grain morphology. Spelt wheat was one of the main field crops used throughout Britain during the Roman period (Greig 1991; Hall & Huntley 2007). The cf. brome caryopsis is also consistent with a Roman date for layer (3), as this arable weed frequently occurs with spelt wheat, and is believed to have been brought to Britain in imported spelt (Godwin 1975). The charred heather twigs in layer (3) may represent the remains of material collected for traditional uses such as fodder, bedding, thatch or fuel (Gale & Cutler 2000; Fenton 1978). The wood and charcoal remains from the samples suggest that alder, hazel, birch and oak were available local resources.

6. Recommendations

- 6.1 No further work is recommended for the plant macrofossil remains as the flots were scanned in their entirety and no additional information would be provided from an analysis. It is likely that the contexts are not sufficiently sealed to warrant pollen analysis, and invertebrate analysis is not recommended due to the small size of the beetle assemblages. If the artefactual evidence does not provide close dating, AMS dating of carefully selected terrestrial plant remains could be undertaken to confirm the origin of the deposits. If additional work is undertaken at the site, the results of this assessment should be added to any further palaeoenvironmental data produced.

7. Sources

- Fenton, A S, 1978 *The Northern Isles – Orkney and Shetland*. Edinburgh
- Gale, R, & Cutler, D, 2000 *Plants in archaeology; identification manual of artefacts of plant origin from Europe and the Mediterranean*. Otley
- Godwin, H, 1975 *History of the British Flora*. Cambridge
- Greig, J R A, 1991 The British Isles, in W Van Zeist, K Wasylkova & K-E Behre (eds) *Progress in Old World Palaeoethnobotany*. Rotterdam
- Hall, A R, & Huntley, J P, 2007 *A review of the evidence for macrofossil plant remains from archaeological deposits in northern England*. Research Department Report Series no. **87**. London
- Hather, J G, 2000 *The identification of the Northern European Woods: a guide for archaeologists and conservators*. London
- Huntley, J P, 2010 *A review of wood and charcoal recovered from archaeological excavations in Northern England*. Research Department Report Series no. **68**. London

Petts, D, & Gerrard, C, 2006 *Shared Visions: The North-East Regional Research Framework for the Historic environment*. Durham

Preston, C D, Pearman, D A, & Dines, T D, 2002 *New Atlas of the British and Irish Flora*. Oxford

Schweingruber, F H, 1990 *Microscopic wood anatomy*. Birmensdorf

Stace, C, 1997 *New Flora of the British Isles*. Cambridge

Appendix 1: Data from palaeoenvironmental assessment

Sample		1	2
Context		2	3
Feature		Gully	Layer
Material available for radiocarbon dating		✓	✓
Volume processed (l)		2	6
Volume of flot (ml)		450	150
Residue contents			
Bone (burnt / calcined)	indet. frags	-	+
Bone (unburnt)	indet. frags	+	-
Coal / coal shale		-	+
Pot (number of fragments)		-	1
Flot matrix			
Beetles		-	+
Bracken (uncharred)	frond frags	+	-
Charcoal		++	+
Coal / coal shale		-	+
Heather twigs (charred)		-	++
Leather		+	-
Moss		+++	-
Uncharred seeds		+++	++++
Vegetative material (uncharred)		++++	++++
Wood		+	-
Charred remains (total count)			
(a) cf. <i>Bromus</i> sp (Bromes)	caryopsis	-	1
(c) <i>Triticum</i> sp (Wheat species)	grain	-	1
Waterlogged remains (abundance)			
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	1
(a) <i>Urtica urens</i> (Small Nettle)	achene	-	2
(h) <i>Rumex acetosella</i> (Sheep's Sorrel)	nutlet	-	1
(r) <i>Galeopsis</i> sp (Hemp-nettles)	nutlet	-	1
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	1
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	1	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	1
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	5
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	1
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	2	1
(w) <i>Carex</i> sp (Sedges)	trigonous nutlet	3	3
(w) <i>Juncus</i> sp (Rushes)	seed	2	-
(x) <i>Cirsium</i> / <i>Carduus</i> sp (Thistles)	achene	-	1
(x) <i>Potentilla</i> sp (Cinquefoils)	achene	2	2
(x) <i>Prunella vulgaris</i> (Selfheal)	nutlet	1	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	2	1
(x) <i>Rumex</i> sp (Docks)	nutlet	-	2
(x) <i>Viola</i> sp (Violets)	seed	1	1
Identified charcoal (✓ presence)			
<i>Alnus glutinosa</i> (Alder)		-	✓
<i>Betula</i> sp (Birches)		✓	✓
<i>Corylus avellana</i> (Hazel)		✓	✓
<i>Quercus</i> sp (Oaks)		✓	-

[a-arable; c-cultivated; h-heathland; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche.

(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]

APPENDIX 1: WSI for Mitigation Works

THE STANEGATE AT VINDOLANDA

Henshaw, Bardon Mill

(NY 7670 6635 to 7715 6645)

Scheduled Monument No: 1014820

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL WATCHING BRIEF AND ARCHAEOLOGICAL EXCAVATION DURING DRAINAGE WORKS

February 2014

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- SUMMARY**
- 1. BACKGROUND TO THE PROJECT**
- 2. HISTORICAL BACKGROUND**
- 3. PROPOSED DEVELOPMENT WORKS**
- 4. POTENTIAL ARCHAEOLOGICAL IMPACTS**
- 5. ARCHAEOLOGICAL EVALUATION**
- 6. REQUIREMENTS**
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- 8. BIBLIOGRAPHY**
- 9. HEALTH AND SAFETY**

APPENDIX 1: WSI For Test Pit Evaluation

Figures

Fig 1: The location of Vindolanda Roman fort at Chesterholm

Fig 2: Vindolanda Roman fort and adjacent remains

Fig 3: Drainage works on the Stanegate

Fig 4: A Roman building excavated next to the Stanegate

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SUMMARY

Northumberland County Council Highways and Neighbourhood Services intend to carry out works within scheduled monument No. 1014820 along the Stanegate to the north of Vindolanda Roman Fort, Bardon Mill, Northumberland to alleviate serious drainage issues including erosion of the surface and make-up of the road and intermittent heavy flooding.

Given the sensitivity and significance of archaeological remains underlying areas of the project footprint, an archaeological evaluation of the proposed drainage run was requested by Mike Collins, Inspector for Hadrian's Wall for English Heritage, advisors to DCMS. This consisted of the excavation of three test pits along the course of the run carried out under scheduled monument consent by Alan Williams in January 2014 (Appendix 1). In summary, wet archaeological deposits, probably of Roman date, were seen only at the western end of the run (Test Pit 1).

Following discussion with Mike Collins, this document sets out an acceptable strategy to mitigate the likely impact of the drainage works on archaeological deposits. This will involve:

- An archaeological watching brief to be maintained during all groundwork including the excavation of the trench for the drainage pipe and excavations for the central gully and brick chamber at the eastern end of the drain run;*
- Full archaeological excavation of the two gullies at the western end of the drainage run where archaeological deposits were seen at a depth of 0.5m.*

1. BACKGROUND TO THE PROJECT

1.1 Northumberland County Council Highways and Neighbourhood Services intend to carry out works along the Stanegate to the north of Vindolanda Roman Fort, Bardon Mill, Northumberland (see figure 1) to alleviate serious drainage issues. These problems have resulted in erosion of the surfacing and make-up of the road and intermittent heavy flooding. The road is currently closed and is impassable for normal traffic because of the deep rutting. The development area lies almost entirely within Scheduled Monument No.1014820 (*Vindolanda (Chesterholm) Roman forts, civil settlement and cemeteries, adjacent length of the Stanegate Roman road and two milestones*) and within Northumberland National Park. Archaeological remains lying within or adjacent to the works are described in sections 2 and 4 of this document. In summary they include the Roman Stanegate itself, Roman cemeteries, probably associated with both the civilian and military occupation of the site military and structural remains of both the civil settlement and military installations dating to the Roman period.

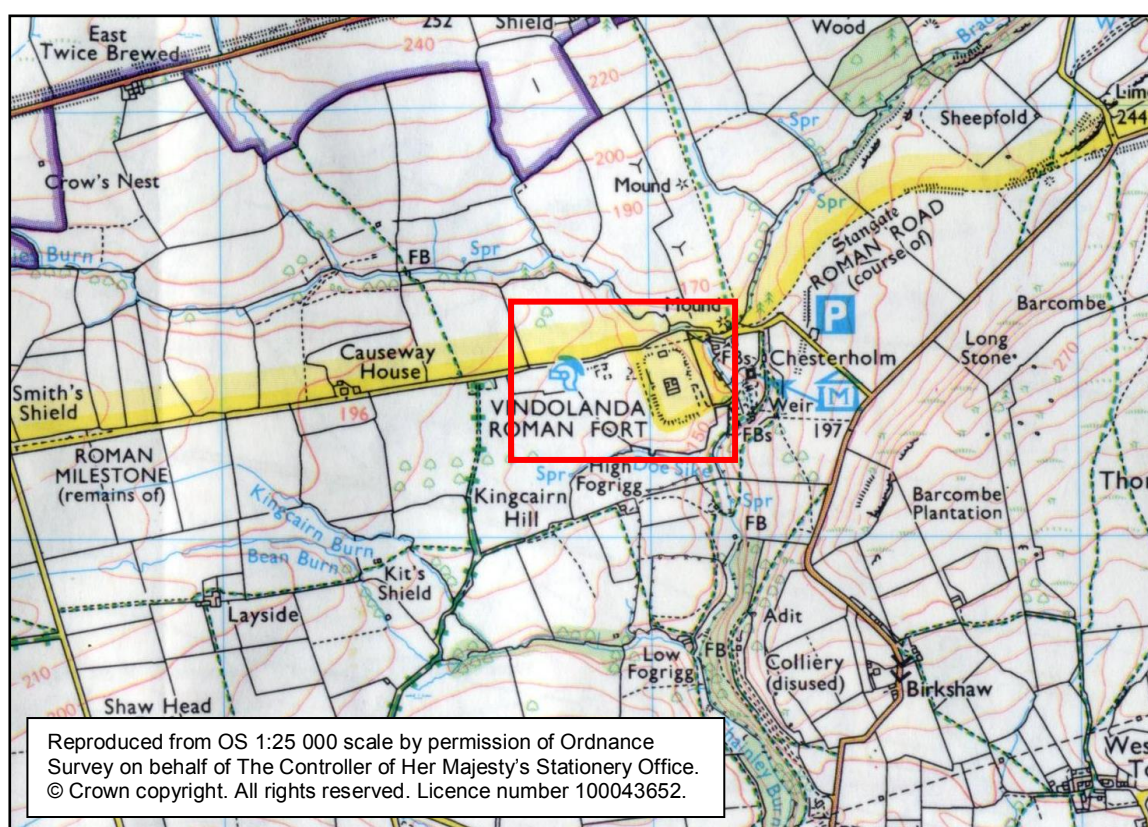


Figure 1: The location of Vindolanda Roman fort at Chesterholm showing the line of the Stanegate running east-west to the north of the fort. The red box locates figure 2.

1.2 The proposed works run for a distance of 525m along the Stanegate to the north, north-east and north-west of the Roman remains at Vindolanda (see figure 2). Over most of this length, the works will have no potential to impact on the important archaeological remains across the area, involving only re-surfacing of the road and patching of erosion hollows and potholes; investigation of an existing manhole opposite the main entrance to the car park (not shown on plan, at NY76700 66390) and the discrete patching of an area of carriageway 110m to the west of this.

However, as shown on figure 3 and described above, flood alleviation measures will need to be taken in an area of serious surface run-off on a sloping area of the Stanegate immediately to the north-west of the stone fort. Remedial works will involve the insertion of drainage gully pots on either side of the road adjacent to the main site entrance connected by a run of 150mm diameter drainage pipe inserted across the road between the gully pots. This pipe will then run eastwards set into a new trench along the north verge of the Stanegate for a distance of 85m connecting with an existing stone conduit. A brick chamber will be constructed at the point the conduit meets the new drainage pipe.. Drainage water is to be channelled from this chamber, as at present, down to the Brackies Burn in the stone conduit. An intermediate gully will also be installed at the break in slope along the road to the west of the brick chamber.

1.3 Given the sensitivity and significance of the archaeological remains underlying areas of the project footprint, an archaeological evaluation of the proposed drainage run was requested by Mike Collins, the English Heritage Inspector for Hadrian's Wall as advisor to DCMS. This consisted of the excavation of three test pits along the course of the run carried out by Alan Williams in January 2014 (Appendix 1). In summary, archaeological deposits, probably of Roman date and waterlogged, were seen only at the western end of the run (Test Pit 1). Following discussion with Mike Collins, this document sets out an acceptable strategy to mitigate the likely impact of the drainage works on archaeological deposits. This will involve:

1.3.1 An archaeological watching brief maintained during all groundwork including the excavation of the trench for the drainage pipe and excavations for the central gully and brick chamber at the eastern end of the drain run;

1.3.2 Full archaeological excavation of the two gullies at the western end of the drainage run where archaeological deposits were seen at a depth of 0.5m.

2. HISTORICAL BACKGROUND

2.1 Roman Vindolanda

The Roman site at Chesterholm, commonly known by its Roman name, *Vindolanda*, consists of the remains of a series of timber and stone forts and associated civil settlements (at least ten phases of occupation) located on a platform on the western edge of the deep valley of the Chainley Burn, above Brackies Burn to the north and Doe Sike to the south and overlooking the important east-west trunk road and possible early frontier line of the Stanegate (Hodgson in Symonds and Mason 2009, 10-15). The latest stone fort and a range of excavated extra-mural stone buildings stand on the site today. Occupation at Vindolanda continued between the 80s AD with periods of abandonment into the post-Roman period. By Severan times (190s AD), a major civilian settlement accompanied the military installation, growing up across the footprint of an abandoned military annexe to the west of the first stone fort (Birley in Symonds and Mason 2009, 26).

2.2 The Course of the Stanegate

Today, the line of the Roman Stanegate runs up to Vindolanda from the east as an intermittent earthwork and path. It crosses the Bradley Burn (the northern continuation of the Chainley Burn) adjacent to a standing Roman milestone. A surfaced minor road continues the nominal line of the Stanegate westwards across the Brackies Burn and the northern periphery of the buried remains of the military and civilian occupation at Vindolanda. The Roman course of the Stanegate in this area was not constant and the line has also certainly been subject to alteration and

re-grading in post-Roman times (pers. comm. Dr Andrew Birley). West of the car parks for the Vindolanda site, the Stanegate continues in a straight line past Causeway House and Smiths Shield.

2.3 Roman Occupation Adjacent to the Stanegate

Figure 4, kindly provided by Dr A Birley, shows the excavation plan of a substantial stone building of the civil settlement or *vicus* on the north edge of the Stanegate adjacent to point A on figure 3 (this building was excavated in 2009 and is forthcoming in *Archaeologia Aeliana*) which post-dated an earlier military structure. In addition to excavated structures and earthworks of the stone forts and military annexe and of the civilian settlement which succeeded it, the deeply buried and waterlogged remains of first and second century timber forts and ditches will extend in certain areas below the present road line.

2.4 Roman Cemeteries

Roman burials (all cremations) and a grave stone have been found in fields to the west of the entrance to the main car park for the Vindolanda site and on both sides of the Stanegate. There is no evidence that cemeteries extended to the area north of the fort. Current excavation in this area by the Vindolanda Trust has confirmed this negative evidence for cemetery remains (pers. comm. Dr Andrew Birley).

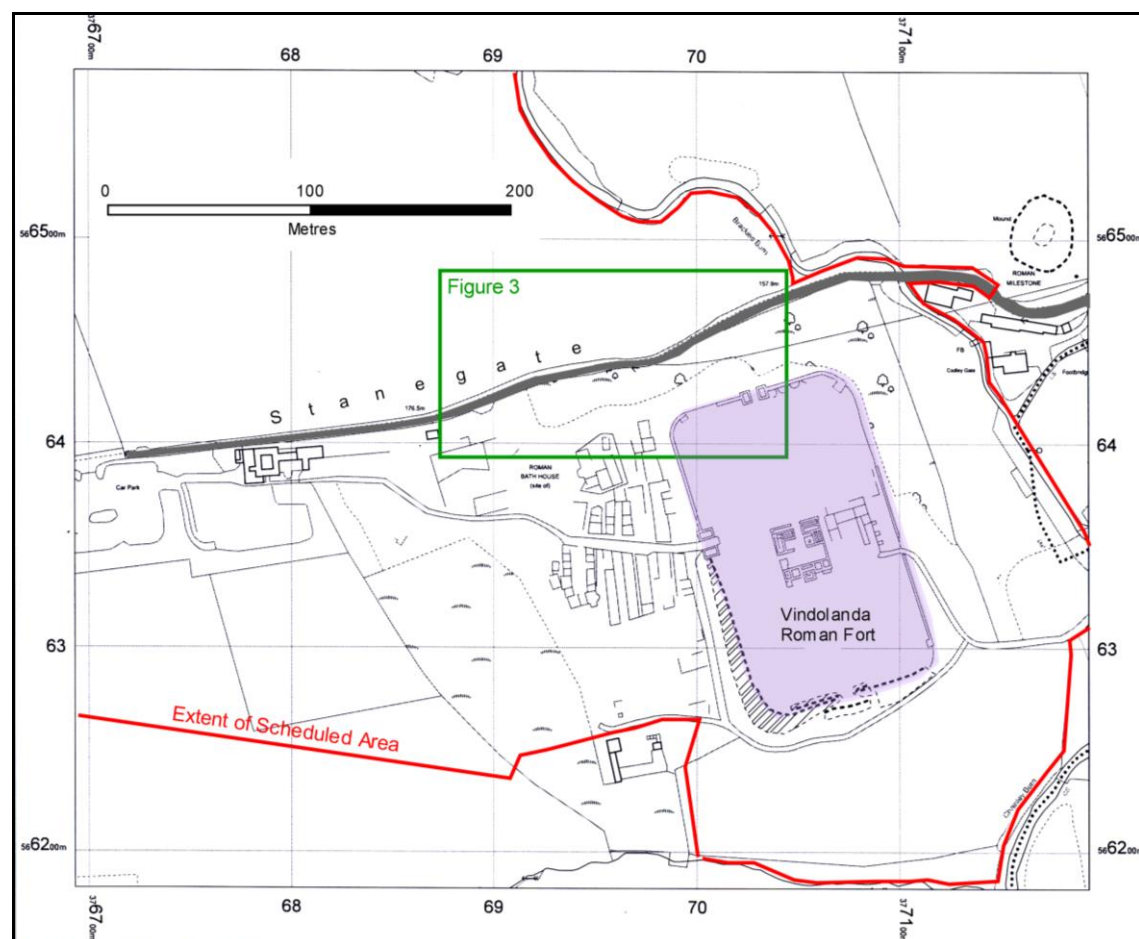


Figure 2: Vindolanda Roman fort and adjacent remains with the east-west running Stanegate to the north. The potential area of resurfacing of the road is shown in grey tone. Drainage works which may impact on archaeological deposits all lie within the area of figure 3, indicated by the green box.

3. PROPOSED DEVELOPMENT WORKS

3.1 The proposed drainage works on the Stanegate at Chesterholm are detailed on the drawing *Scheme Layout: U7055 Vindolanda Drainage and Carriageway Resurfacing* prepared by Northumberland County Council. In addition to extensive re-surfacing of the Stanegate, the following flood alleviation measures are outlined (see figure 3):

A: Installation of two gully pots linked by 150mm drainage pipe across the carriageway. Each gully to be max.1.2m deep by c. 0.6m square. Slot for pipe c. 0.5m deep.

B: Northern gully pot at **A** to feed into a 150mm diameter plastic drainage pipe running for 82m along the north verge of the Stanegate in a new trench falling to the east. The pipe will be set in a trench a maximum of 0.5m deep and 0.5m wide.

C: Installation of a third gully pot along **B** at the break in slope along the road and also in the north verge. Dimensions of the gully are the same as **A**.

D: Continuation of 150mm drainage pipe **B** from **C** to an existing stone conduit discharging water downslope in a pipe to the Brackies Burn. A new brick access chamber will be constructed at on the existing stone conduit on the north verge of the road.

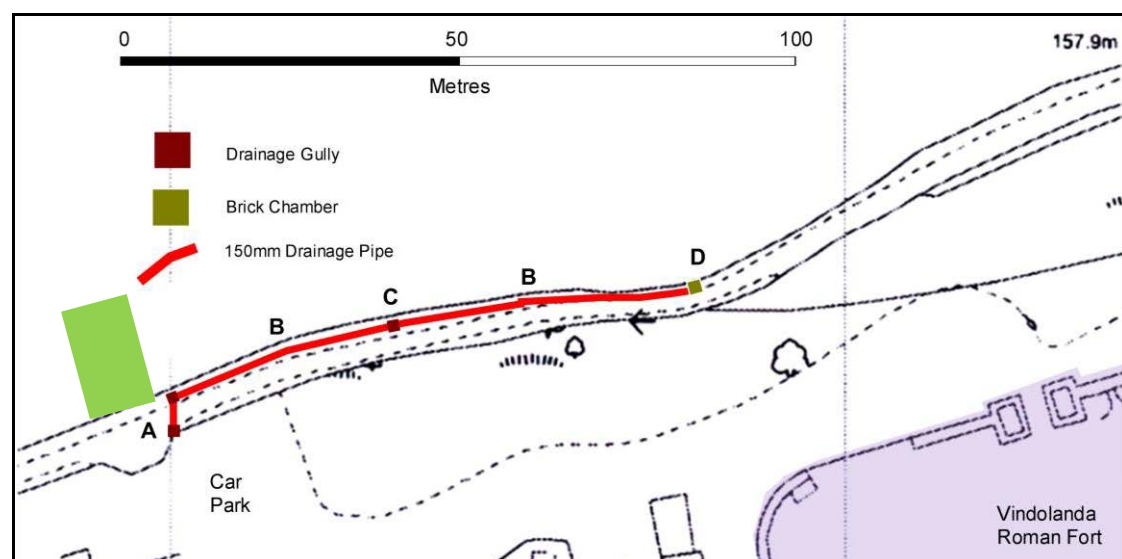


Figure 3: Proposed drainage works along the Stanegate at Vindolanda. For key to letters see section 3, above. The green rectangle locates the Roman building excavated in 2009 by the Vindolanda Trust (see figure 4).

4. POTENTIAL ARCHAEOLOGICAL IMPACTS

Possible impacts on the important Roman remains at Vindolanda by the drainage works will be limited to the area outlined in section 3, above. This lies to the north and north-west of the stone fort and within and adjacent to the extant linear depression of the north ditch of the stone fort. Other archaeological features will also extend across the area dating from the first century AD to the post-Roman period.

4.1 The western gully-pots (at **A**) and the drainage pipe (**B**) lie along an area of the Stanegate probably re-routed from the original Roman line (known to lie to the north in the Antonine period) and heavily regraded in modern times to provide a reasonable gradient for the modern track up the westwards climbing slope to the north-west of the fort (pers. comm. Dr A Birley). Archaeological excavation in 2009 (A Birley forthcoming) to the north of point A on figure 3 has revealed a Roman stone building belonging to the third century civil settlement or vicus.

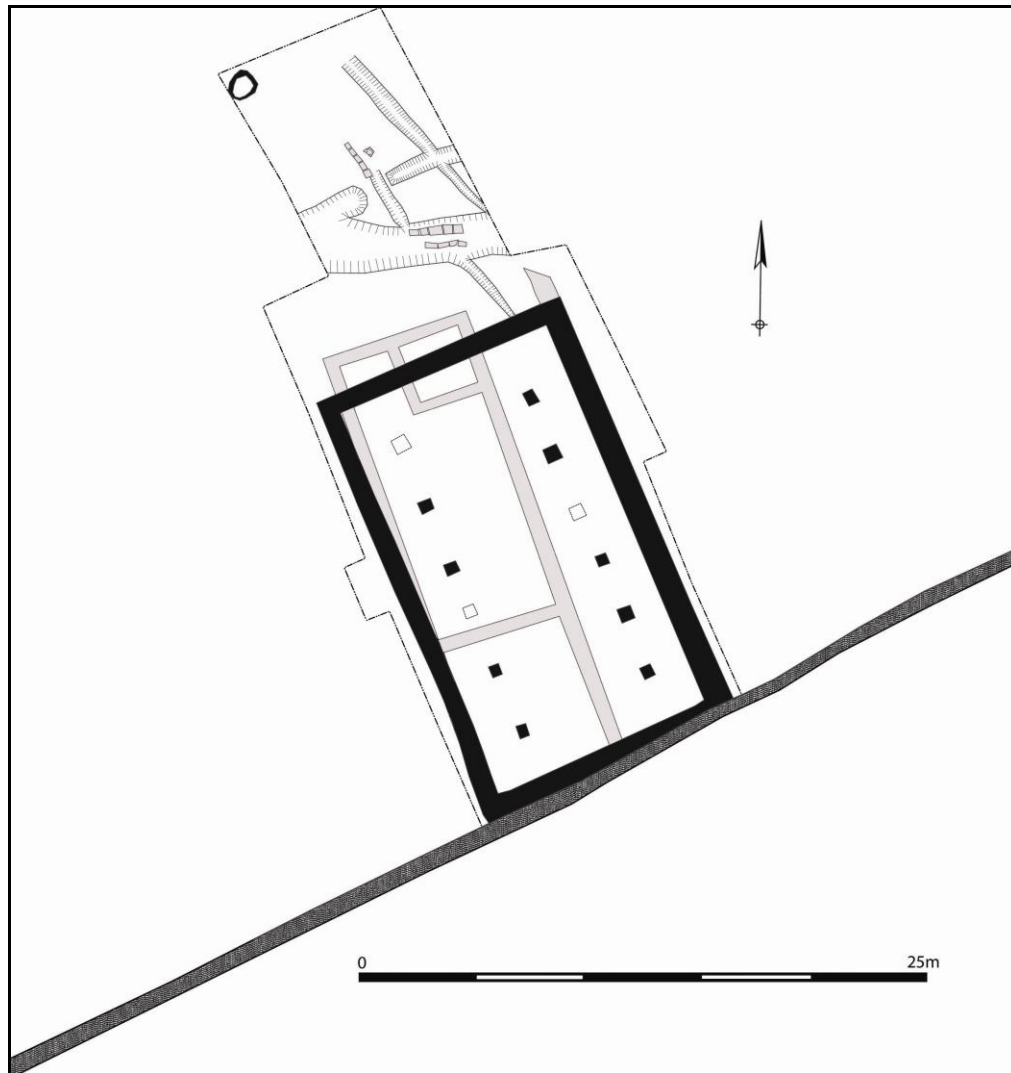


Figure 4: A Roman building excavated next to the Stanegate in 2009 by the Vindolanda Trust immediately to the north of point A on figure 3 where its footprint is shown as a green rectangle (with thanks to Dr A Birley, Vindolanda Trust). The dry stone wall flanking the Stanegate is shown in grey.

5. ARCHAEOLOGICAL EVALUATION

Given the significance of archaeological remains underlying areas of the project footprint, an archaeological evaluation, involving the excavation of three test pits along the proposed route of the drain was requested by Mike Collins of English Heritage, advisors to DCMS, in order to establish the likely archaeological impact of the works and to inform future development. The three test pits were excavated under scheduled monument consent on 29th and 30th January 2014 by Alan Williams.

The location of the test pits along the Stanegate can be seen on figure 3 in this report. Only in Test Pit 1, located opposite the entrance to the site car park at the west end of the proposed drainage run, were archaeological deposits encountered which, beginning at a depth of c. 0.5m from the road surface, consisted of a possible gully cut into the top of a wet loamy silt, perhaps a ditch fill, which continued below the depth of excavation. Although no artefactual material was recovered, it would seem probable that these were Roman features. In Test Pit 2, what appeared to be clay subsoil was reached at 0.5m from the level of the road surface and in Test Pit 3, a ceramic drainage pipe was uncovered at a depth of 1m from road level.

6. REQUIREMENTS

6.1 Based on the results of the evaluation, a strategy for archaeological works to accompany the project was agreed with Mike Collins:

- An archaeological watching brief will be maintained alongside all groundworks including the excavation of the trench for the drainage pipe and excavations for the central gully and for the brick chamber at the eastern end of the drain run. All machine excavation will be carried out using a smooth ditching blade.
- The two gullies at the western end of the drainage run, where archaeological deposits were seen at a depth of 0.5m, will be fully archaeologically excavated and an appropriate record made.
- Should remains of national significance be located by the archaeological contractor during either excavation or watching brief, the English Heritage Inspector for Hadrian's Wall will be informed and a decision taken as to the progress of works.

6.2 Pre-Start Meeting A pre-start meeting will be timetabled for NCC, the contracting archaeologist and any other interested parties to confirm the archaeological requirements of the project and of the project timetable. Mike Collins of English Heritage will be informed of the intended start date of the project.

6.3 Methodology A record of all features excavated will be produced using appropriate archaeological context recording. All features will have a full written and drawn record. Measurements will be expressed in metres. Plans and sections will be produced at 1:10 or 1:20 scale. A digital camera will be used to record all features.

6.3.1 Pottery, metalwork and animal bone will be retained and located by context. Modern material will be discarded subsequent to the completion of fieldwork. Finds of significance will be deposited with the Museum of Antiquities as agreed with Mr Andrew Parkin.

6.3.2 Loose architectural fragments will be treated as small finds and recorded individually (with reference to the appropriate repository standards and guidelines). The find location will be recorded three dimensionally.

6.3.3 Final drawings will be provided as ink on drafting film.

6.3.4 The potential requirement for specialist analyses is an unavoidable risk in all archaeological excavations. The scientific investigation of any features/deposits which are considered significant will be undertaken as a non-negotiable part of this programme. Any such analyses would be carried out by specialists and priced to the client on a costs only basis

6.3.5 Environmental samples will be taken from sealed and dateable deposits to elucidate the agricultural/ecological regime on the site over the period. Deposits/fills with potential for environmental evidence will be assessed by taking bulk samples of 30 litres from contexts selected for analysis. Deposits/fills totalling less than 30 litres in volume will be sampled in their entirety. Samples will be processed and analysed by Dr Charlotte O'Brien of Archaeological Services University of Durham.

6.3.6 A maximum of 2 samples of material suitable for dating by scientific means (eg: Radiocarbon, Luminescence, Remnant Magnetism, etc.) will be collected if deemed appropriate and of archaeological value.

6.3.7 On completion of the fieldwork, samples will be processed and artefacts cleaned, conserved, identified, labelled and packaged. An appropriate programme of analysis and publication of the results will be completed if no further archaeological investigations are to be carried out.

7. ARCHIVE AND REPORT

7.1 The site archive will be prepared to the standards specified in the Management of Research Projects in the Historic Environment (MoRPHE), English Heritage, 2006. Archive preparation and deposition will be undertaken with reference to the repository guidelines and standards, and where necessary the Museums and Galleries Commission (MGC), United Kingdom Institute for Conservation (UKIC) standards and guidelines.

7.2 An illustrated report will be supplied within 3 months (or shorter period by mutual agreement) on completion of the fieldwork. A copy of the report will be sent to the client, the English Heritage Archaeologist for Hadrian's Wall and the County Sites and Monument Record. The National Monuments Record will be asked if they wish to receive copies of the archive and report. The report will contain as a minimum:

- Non-technical summary
- Introductory statement
- Aims and objectives
- Methodology
- Results
- Assessment and recommendations
- Index and location of archive
- References and bibliography
- Copy of project design

7.3 If appropriate, arrangements will be made to publish the results of the investigations through a local or national journal.

7.4 AWA supports the Online Access to Index of Archaeological Investigations (OASIS). The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the

advent of large-scale developer funded fieldwork. The online OASIS form will be completed at <http://ads.ahds.ac.uk/project/oasis/>.

8. BIBLIOGRAPHY

Bidwell, P (1985) *The Roman Fort at Vindolanda* HBMCE Archaeological Report 1

Birley, R (1977) *Vindolanda: A Roman frontier post on Hadrian's Wall*

Symonds, MFA and Mason, DJP (eds.) (2009) *Frontiers of knowledge: A research assessment for Hadrian's Wall*

9. HEALTH AND SAFETY

9.1 AWA will comply with the Health and Safety at Work Act and subsequent additions and amendments.

APPENDIX 2: Test Pit Evaluation

DRAINAGE WORKS ON THE STANEGATE AT VINDOLANDA

ARCHAEOLOGICAL TEST PIT EVALUATION

January 2014



Prepared for Mr David Robinson, NCC Highways Division by:

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1. PROJECT BACKGROUND

1.1 Northumberland County Council Highways and Neighbourhood Services intend to carry out works along the Stanegate to the north of Vindolanda Roman Fort, Bardon Mill, Northumberland (see figure 1) to alleviate serious drainage issues. These problems have resulted in erosion of the surfacing and make-up of the road and intermittent heavy flooding. The development area lies almost entirely within Scheduled Monument number 1014820 (*Vindolanda (Chesterholm) Roman forts, civil settlement and cemeteries, adjacent length of the Stanegate Roman road and two milestones*) and within Northumberland National Park. Archaeological remains lying within or adjacent to the works are described in sections 2 and 4 of this document. In summary they include the Roman Stanegate itself, Roman cemeteries, probably associated with both the civilian and military occupation of the site military and structural remains of both the civil settlement and military installations dating to the Roman period.

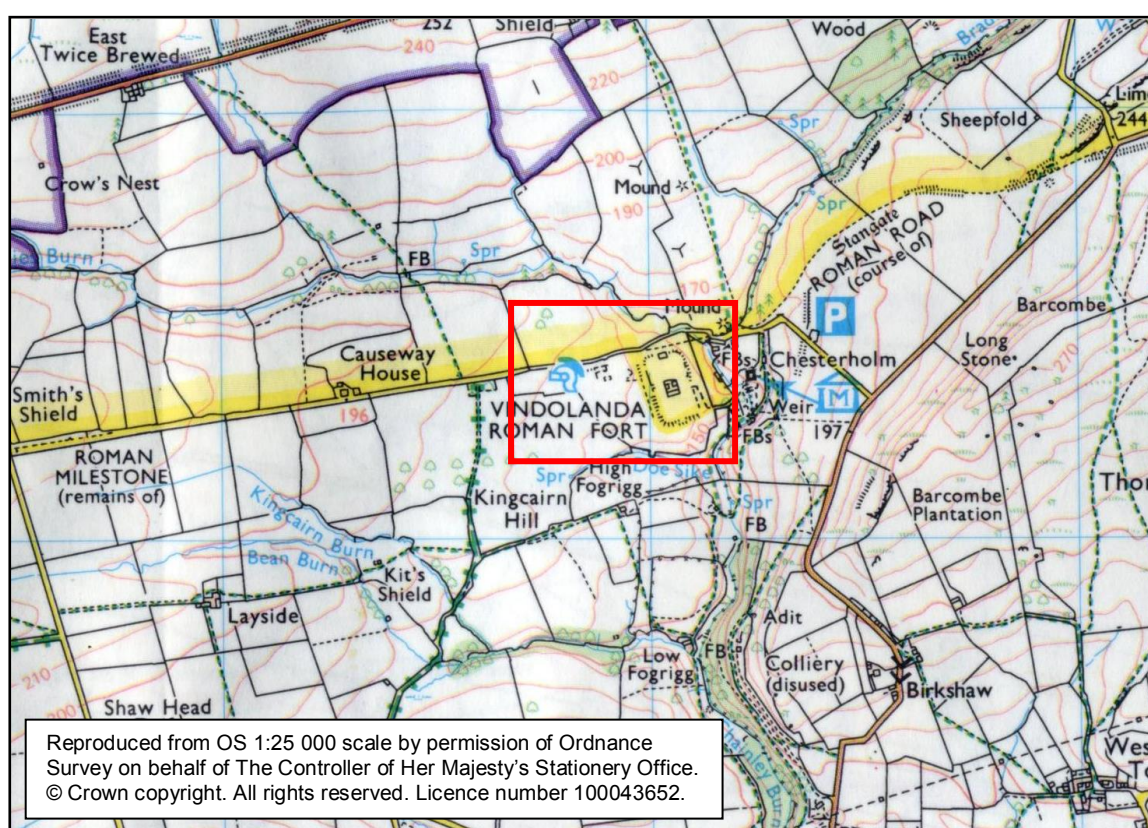


Figure 1: The location of Vindolanda Roman fort at Chesterholm showing the line of the Stanegate running east-west to the north of the fort. The red box locates figure 2.

1.2 The proposed works run for a distance of 525m along the Stanegate to the north, north-east and north-west of the Roman remains at Vindolanda (see figure 2). Over most of this length, the works will have no potential to impact on the important archaeological remains across the area, involving only re-surfacing of the road and patching of erosion hollows and potholes; investigation of an existing manhole opposite the main entrance to the car park (not shown on plan, at NY76700 66390) and the discrete patching of an area of carriageway 110m to the west of this.

However, as shown on figure 3, flood alleviation measures will need to be taken in an area of serious surface run-off on a sloping area of the Stanegate immediately to the

north-west of the stone fort. Proposed remedial works involve the insertion of drainage gullies on either side of the road adjacent to the main site entrance connected by a run of 150mm diameter drainage pipe inserted across the road between the gullies. This pipe will then run eastwards set into a new trench along the north verge of the Stanegate for a distance of 85m connecting with an existing stone conduit which will be upgraded to a brick chamber. Drainage water is to be channelled from this chamber, as at present, down to the Brackies Burn in an existing stone conduit. An intermediate gully will also be installed at the break in slope along the road to the west of the brick chamber.

1.3 Given the sensitivity and significance of the archaeological remains underlying areas of the project footprint, a strategy of archaeological evaluation, involving the excavation of three test pits (see figure 5) was requested by Mike Collins of English Heritage, advisor to DCMS. A written scheme of investigation was prepared for this evaluation by the archaeological contractor working with Northumberland County Council for the project, Alan Williams Archaeology. The following document sets out the results of the test pit evaluation carried out to the terms of the WSI in January 2014.

2. HISTORICAL BACKGROUND

2.1 Roman Vindolanda

The Roman site at Chesterholm, commonly known by its Roman name, *Vindolanda*, consists of the remains of a series of timber and stone forts (five timber and at least three stone phases) located on a platform on the western edge of the deep valley of the Chainley Burn, above Brackies Burn to the north and Doe Sike to the south and overlooking the important east-west trunk road and possible early frontier line of the Stanegate (Hodgson in Symonds and Mason 2009, 10-15). The latest Roman fort and a range of excavated extra-mural stone buildings stand on the site today. Occupation at Vindolanda continued between the 80s AD and into the post-Roman period. By Severan times (190s AD), a civilian settlement accompanied the military installation, growing up across the footprint of an abandoned military annexe to the west of the first stone fort (Birley in Symonds and Mason 2009, 26).

2.2 The Course of the Stanegate

Today, the line of the Roman Stanegate runs up to Vindolanda from the east as an intermittent earthwork and path, crossing the Bradley Burn (the northern continuation of the Chainley Burn) adjacent to a standing Roman milestone. A surfaced minor road continues the nominal line of the Stanegate westwards across the Brackies Burn and the northern periphery of the buried remains of the military and civilian occupation at Vindolanda. The Roman course of the Stanegate in this area was not constant and the line has also certainly been subject to alteration and re-grading in post-Roman times (pers. comm. Dr Andrew Birley). West of the car parks for the Vindolanda site, the Stanegate continues in a straight line past Causeway House and Smiths Shield.

2.3 Roman Occupation Adjacent to the Stanegate

Figure 4, kindly provided by Dr A Birley, shows the excavation plan of a substantial stone building of the civil settlement or *vicus* on the north edge of the Stanegate adjacent to point A on figure 3 (this building was excavated in 2009 and is forthcoming in *Archaeologia Aeliana*) which post-dated an earlier military structure. In addition to excavated structures and earthworks of the stone forts and military annexe and of the civilian settlement which succeeded it, the deeply buried and

waterlogged remains of first and second century timber forts and ditches will extend in certain areas below the present road line.

2.4 Roman Cemeteries

Roman burials (all cremations) and a grave stone have been found in fields to the west of the entrance to the main car park for the Vindolanda site and on both sides of the Stanegate. There is no evidence that cemeteries extended to the area north of the fort. Current excavation in this area by the Vindolanda Trust has confirmed this negative evidence for cemetery remains (pers. comm. Dr Andrew Birley).

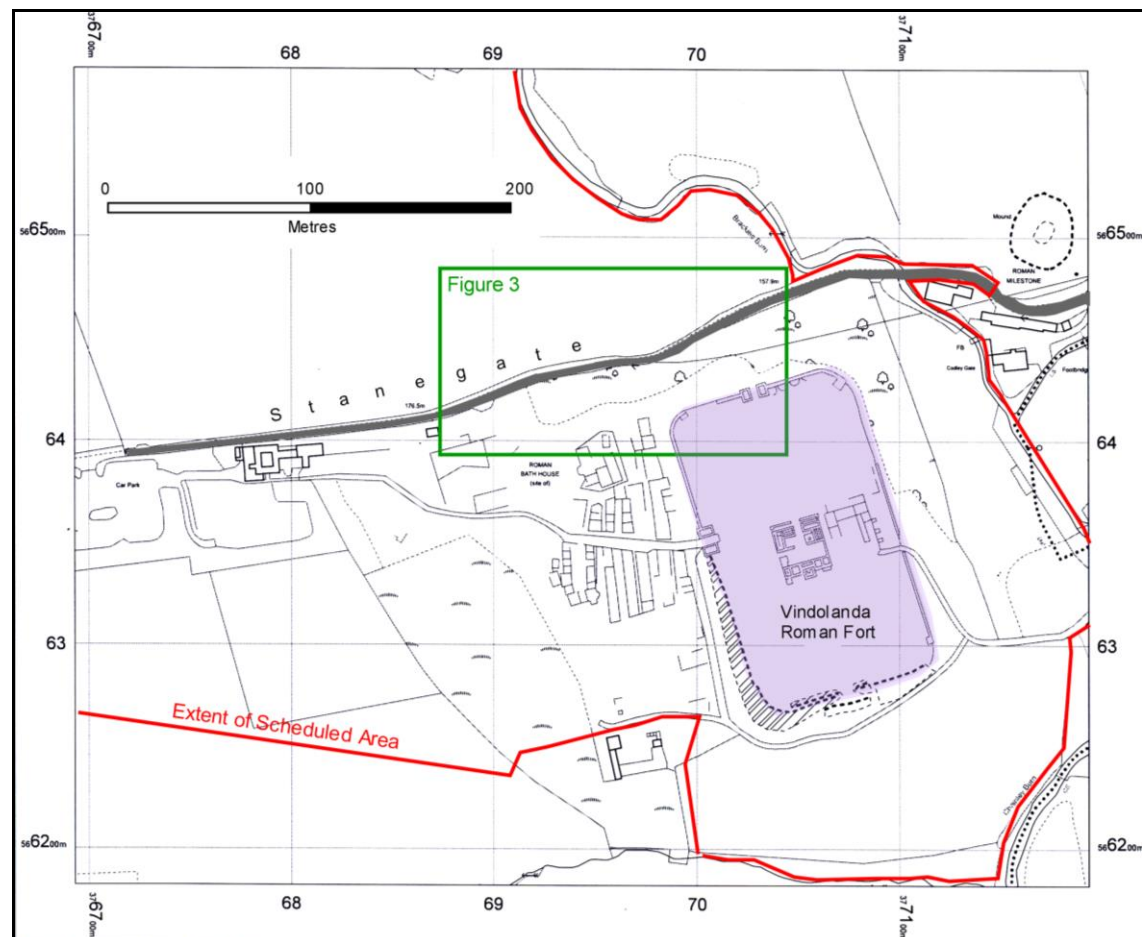


Figure 2: Vindolanda Roman fort and adjacent remains with the east-west running Stanegate to the north. The potential area of resurfacing of the road is shown in grey tone. Drainage works which may impact on archaeological deposits all lie within the area of figure 3, indicated by the green box.

3. PROPOSED DEVELOPMENT WORKS

3.1 The proposed drainage works on the Stanegate at Chesterholm are detailed on the drawing *Scheme Layout: U7055 Vindolanda Drainage and Carriageway Resurfacing* prepared by Northumberland County Council. In addition to extensive re-surfacing of the Stanegate, the following flood alleviation measures are outlined (see figure 3):

A: Installation of two gullies linked by 150mm drainage pipe across the carriageway. Each gully to be max. 1m deep by c. 0.6m square. Slot for pipe c. 0.6m deep.

B: Northern gully at **A** to feed into a 150mm diameter plastic drainage pipe running for 82m along the north verge of the Stanegate in a new trench falling to the east. The pipe will be set at a depth of 0.5m in a trench a maximum of 0.5m wide.

C: Installation of a third gully along **B** at the break in slope along the road and also in the north verge. Dimensions of the gully are the same as **A**.

D: Continuation of 150mm drainage pipe **B** from **C** to an existing conduit discharging water downslope in a pipe to the Brackies Burn. New chamber to be constructed over existing conduit.

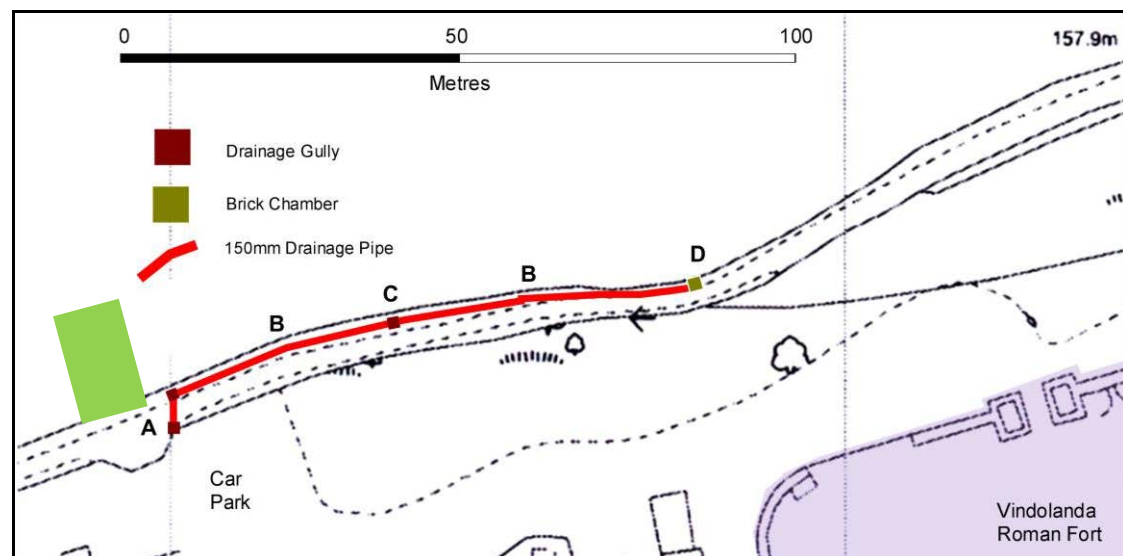


Figure 3: Proposed drainage works along the Stanegate at Vindolanda. For key to letters see section 3, above. The green rectangle locates the Roman building excavated in 2009 by the Vindolanda Trust (see figure 4).

4. POTENTIAL ARCHAEOLOGICAL IMPACTS

Possible impacts on the important Roman remains at Vindolanda by the proposed drainage works will be limited to the area outlined in section 3, above. This lies to the north and north-west of the stone fort and within and adjacent to the extant linear depression of the north ditch of the stone fort. Other archaeological features will also extend across the area dating from the first century AD to the post-Roman period.

4.1 The western gullies (**A**) and the drainage pipe (**B**) lie along an area of the Stanegate probably re-routed from the original Roman line (known to lie to the north in the Antonine period) and heavily regraded in modern times to provide a reasonable gradient for the modern track up the westwards climbing slope to the north-west of the fort (pers. comm. Dr A Birley). Archaeological excavation in 2009 (A Birley forthcoming) to the north of point A on figure 3 has revealed a Roman stone building belonging to the third century civil settlement or vicus.

Excavation for the gullies and pipe may impact on Roman features although given the re-grading of the road, remains may have already been removed. It is probably unlikely that remains of the early Stanegate will survive in the area.

4.2 Gully **C** and chamber **D** may lie within the footprint of the ditch of the stone fort.

Excavation for these installations will potentially impact on ditch fills and potentially on waterlogged deposits within the ditch.

5. ARCHAEOLOGICAL EVALUATION

5.1 Requirements Given the sensitivity of the site, a strategy for evaluation excavation was requested by Mike Collins of English Heritage (advisors to DCMS) and was put in place as per a WSI prepared by Alan Williams Archaeology to establish the archaeological potential of the development area and the likely archaeological impact of the works.

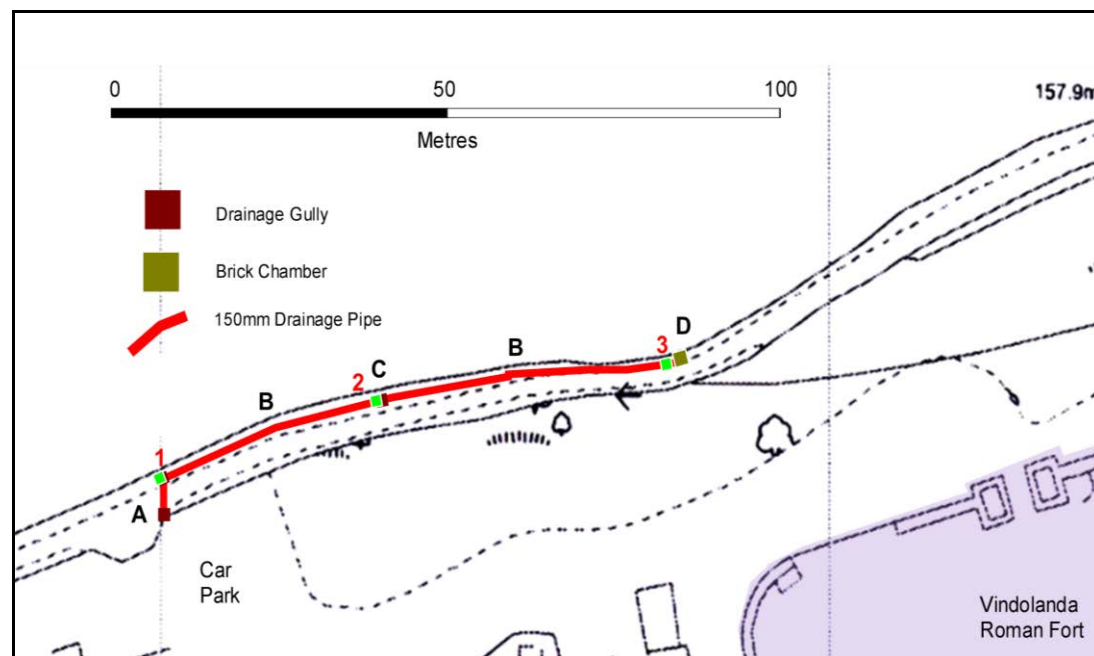


Figure 5: Test Pit Evaluation. The three test pits are shown in green and Numbered in red (1, 2 and 3) along the line of the drainage pipe.

As per the WSI, this involved the excavation of three test pits along the line of the intended drain (1, 2 and 3) as located on figure 5. The test pits were all cut to c0.8m by 0.5m and to c 1m deep. The test pits were located as per figure 5. All excavation was carried out manually by Alan Williams on 29th and 30th January 2014.

5.2 Test Pit A

This was excavated at the western end of the proposed drainage run in the location of the proposed gully across the Stanegate.

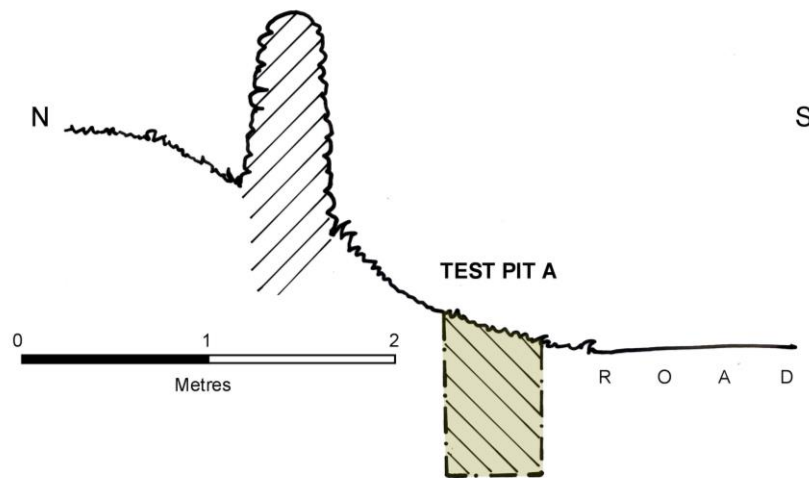


Figure 6: N/S profile across the location of Test Pit A

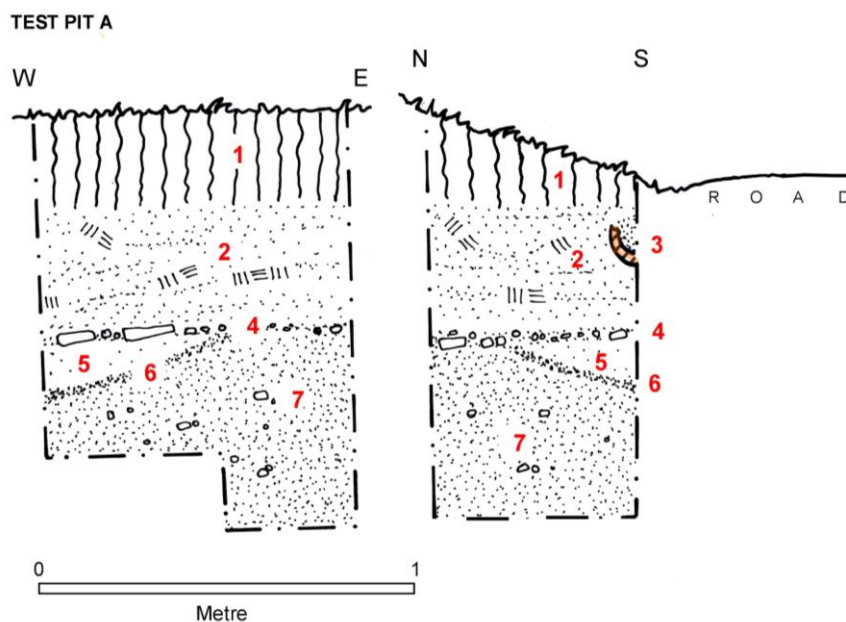


Figure 7: Sections of Test Pit A

Dark brown loam topsoil [1] overlay a pale to variegated medium grey to grey-brown sandy clay [2] into which had been bedded a six inch ceramic drainage tile running along the line of the Stanegate. This was smashed, full of silt, and not functioning. At the base of [2] was a layer of scattered stones [4], beneath which was a deposit of iron-panned silty-sand [5] lying over a thin dark brown layer of silt [6]. [5] and [6] probably represent a minor gully cut or eroded into [7], a medium khaki brown sandy-silty loam. This layer was waterlogged and laminated and contained fragments

charcoal but no organic material at the depth reached. No deposits within the test pit contained any pottery or other artefactual material.

5.3 Test Pit B

This was excavated towards the centre of the intended drainage run in the vicinity of a proposed gully pot.

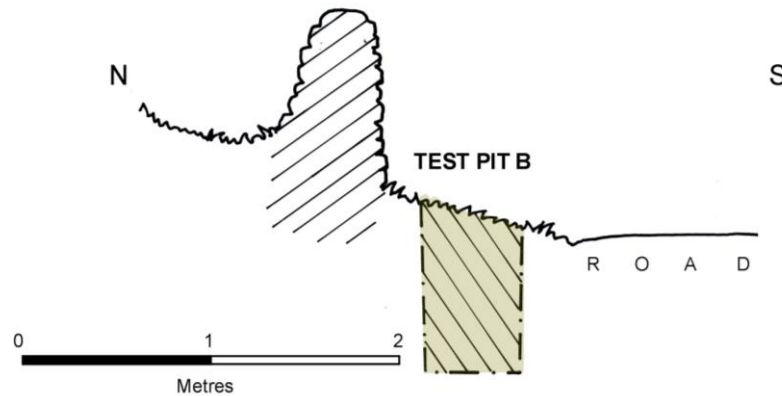


Figure 8: N/S profile across the location of Test Pit B

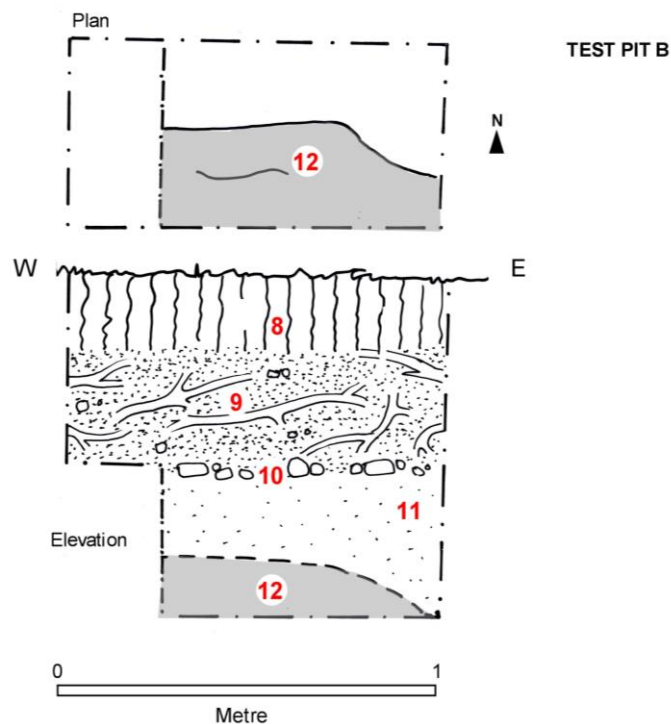


Figure 7: Plan (top) and section of Test Pit B

Dark brown loam topsoil [8] overlay a heavily rooted layer of dark brown sandy loam [9]. This overlay a spread of small stone [10], probably modern hoggins or road make up. Below [10] was a mottled grey-brown sandy clay. Within the matrix of clay was a very substantial boulder. Both clay and boulder may represent natural deposit.

5.4 Test Pit C

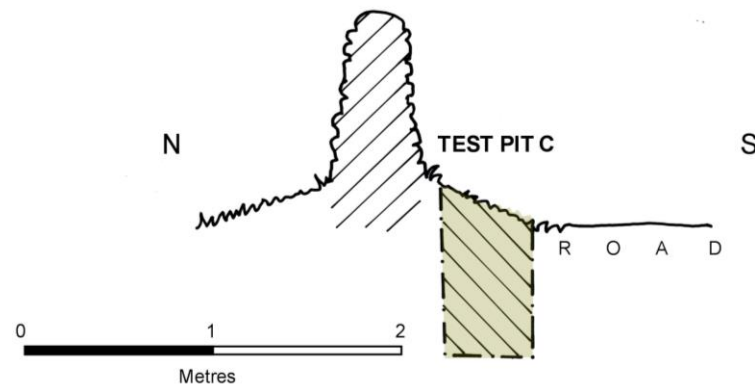


Figure 8: N/S profile across the location of Test Pit C

This was excavated at the eastern end of the proposed drainage run 2m to the west of a substantial stone conduit which currently carries surface water from the Stanegate under the dry-stone wall on the northern verge of the road and across the field to the north into the Brackies Burn.

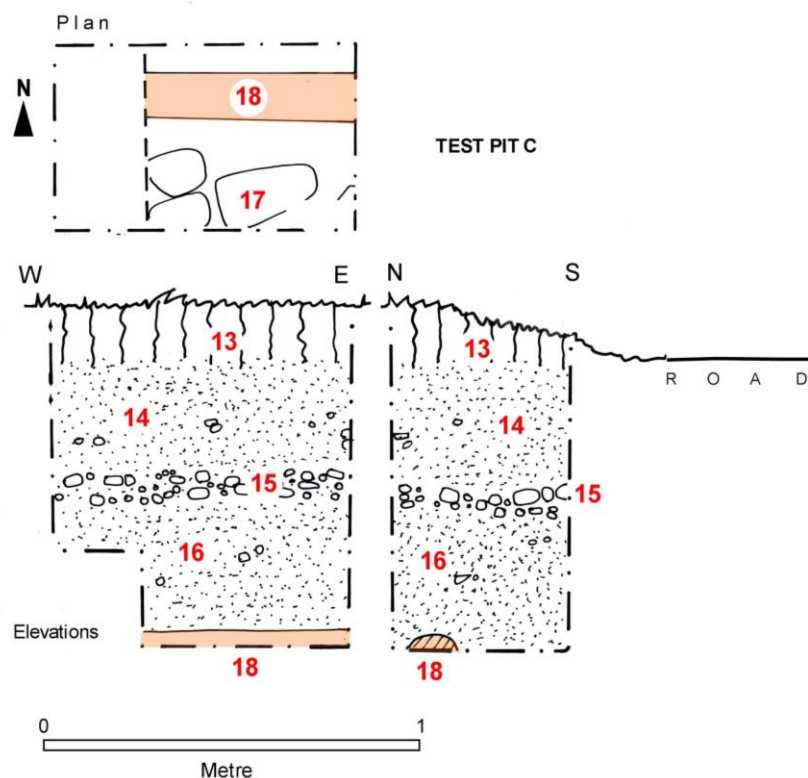


Figure 9: Plan and sections of Test Pit C

A thin dark-brown topsoil [13] overlay a medium brown sandy loam [14]. Beneath this was a band of small stone [15] probably modern hoggins. A layer of sandy loam [16]

extended beneath [15] and overlay a 6 inch ceramic drainage pipe [18] running on the line of the Stanegate. A number of thin slabby stones [17] lay adjacent to the tile. They did not appear to form a surface.

No evidence was uncovered within the test pits for any early road surface extending under the present northern verge of the modern Stanegate.

In Summary:

- In **Test Pit A** a wet and laminated deposit [7] with an overlying gully or channel [5], both probably but not certainly Roman, were exposed at a depth of 0.45m from the adjacent modern road surface. Deposit [7], becoming increasingly wet, was not bottomed at a depth of nearly 1m from the road surface.
- In **Test Pit B** possible clay subsoil with a boulder within the matrix was seen at a depth of 0.5m below the present road surface.
- In **Test Pit C** modern soil extended to a depth of 1m from the modern road surface where a ceramic drainage pipe was exposed.

6. CONCLUSIONS

6.1 It would seem likely that the excavation of all the drainage channel, the brick chamber at the eastern end of the run and the central gully will have minimal impact on archaeological deposits.

6.2 The waterlogged deposit [7] seen within Test Pit A quite probably represents the fill of a Roman feature, possibly a ditch. Certainly, very significant Roman remains are known to lie in the field immediately to the north. As presently specified, the gully running across the Stanegate at the western end of the drainage run would cut into this deposit to a depth of c.0.6m.

7. PRELIMINARY RECOMMENDATIONS

7.1 Development groundworks, including those for the overall drainage channel, gullies and brick chamber should be monitored under archaeological watching brief.

7.2 If possible, the depth of groundwork for the western drainage gully should be restricted to c. 0.5m below the current road surface. This would overlie the probable archaeological deposits identified here.

7.3 If restriction of the gully depth would have a likely serious effect on the efficiency of the drainage works, machine excavation should be continued to a depth of c.0.5m from the road surface. Archaeological deposits below this should be excavated manually by the attending archaeologist.

7.4 A WSI should be prepared prior to commencement of the drainage scheme setting out an agreed archaeological methodology for the watching brief and for the excavation of the western gully if required.