A69 Haydon Bridge Bypass, Northumberland

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SUMMARY

Haydon Bridge is currently situated on a single carriageway section of the A69 Trunk Road, mid-way between Carlisle and Newcastle, in Northumberland. It is proposed to re-route the existing A69 around the southern edge of Haydon Bridge as a single carriageway bypass. The proposed bypass runs from its junction with the A69 at West Rattenraw (NY 8305 6415) to the junction of the A69 with the A686 (NY 8516 6443).

In April 2004, CVC Highway Solutions was commissioned by the Highways Agency to carry out the detailed design and construction of the A69 Haydon Bridge Bypass. As part of this task an archaeological evaluation was deemed necessary, to determine the nature and extent of the below ground survival of archaeological remains within the route corridor of the proposed bypass, and to determine the measures necessary to mitigate the impact of the route development on any remains of archaeological significance. Palaeoenvironmental coring was required for an area (Area A) at the western end of the scheme. In addition, a watching brief was stipulated during the topsoil stripping of areas not covered by the evaluation exercise. Work could not be carried out prior to construction because agreement could not be reached with the landowners.

OA North was commissioned to undertake this work, with the watching brief commencing on 11th January 2007 and undertaken intermittently until March 2007. The evaluation exercise commenced on 29th January 2007 and was undertaken over four weeks, finishing on 23rd February. The palaeoenvironmental coring was undertaken on 30th January. Three areas (SMS 1-3) identified as having potential archaeological significance, were then mitigated by a Strip, Map and Sample (SMS) exercise, which finished on 17th April 2007.

Overall the results of the fieldwork were disappointing, confirming a general lack of features of archaeological interest. Archaeological features were revealed in only a small number of trenches. Linear features were identified in Trenches 27, 44, 57, 59, 78, 79, 88 and 100, with finds only recovered from the linear feature in Trench 88, which was post-medieval in date. Trench 51 truncated a extant field boundary, comprising a ditch with external banks; no finds were recovered from this boundary. A further field boundary was excavated in Trench 6, although again no finds were recovered from it. Shallow bonfire pits occurred in Trenches 32 and 55 and apparently isolated postholes in Trenches 39, 98 and 99. Two adjacent postholes were revealed in Trench 95. A large stone-filled pit was located in Trench 7. No finds were recovered from any of these features. Trench 32 was positioned to examine the ridge and furrow observed in the vicinity and an earthwork enclosure identified during survey work in the area; although profiles were recorded, no dating or stratigraphic evidence was recovered.

No features of archaeological interest were revealed in the course of the watching brief on areas used as a workers' compound and for spoil storage. The palaeoenvironmental coring in Area A produced no significant results. Monolith samples retrieved from palaeochannels detected within Area B (Trenches 23 and 35), were assessed (*Appendix 7*) but further analysis was not considered justified.

Three Strip, Map and Sample (SMS) areas were excavated on the basis of the archaeology recorded during the evaluation exercise. SMS 1 comprised an area of 0.34 ha and was excavated on the basis of the features identified in Trenches 57 and 59. Four postholes, a possible kiln or fire pit, a linear feature, probably relating to drainage, and a soakaway were revealed by the topsoil strip. None of the features produced any artefacts. SMS 2 was excavated on the basis of features found in Trenches 78 and 79; it comprised a 0.26 ha area. The topsoil strip revealed the remainder of a pit located in Trench 78 and two stone-filled land drains. A single copper alloy object, from the fill of one of the drains, was the only artefact recovered from SMS 2. SMS 3 comprised a 0.05 ha area surrounding Trench 95, and was excavated on the basis of two postholes within it. No further features were revealed in the SMS area.

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The evaluation was undertaken by Paul Clark, Alastair Vannan, Alex Beben, Richard Colebrook, Pascal Eloy, Andrew Frudd, Thomas Mace and Liz Murray, with the palaeoenvironmental coring in Area A undertaken by Denise Druce, Sandra Bonsall and Steve Clarke. The watching brief was variously undertaken by Paul Clark, Christina Robinson, Richard Lee, Tom Mace and Andrew Frudd. Work on the SMS areas was undertaken by Paul Clark, Alastair Vannan, Ged Callaghan and Richard Colebrook. Christina Robinson undertook the site survey, and together with Anne Stewardson produced the figures. Rebekah Pressler examined the pottery, Stephen Rowland the bone and Caroline Bulcock the flint. The palaeoenvironmental assessment of the monolith cores from Area B (*Appendix 7*) was undertaken by Dr Lucy Verrill. This report was written by Paul Clark, with contributions by Caroline Bulcock, and edited by Fraser Brown who acted as the Project Manager.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 Haydon Bridge is currently situated on a single carriageway section of the A69 Trunk Road, mid-way between Carlisle and Newcastle, in Northumberland (Fig 1). It is proposed to re-route the existing A69 around the southern edge of Haydon Bridge as a single carriageway bypass.

1.1.2 In April 2004, CVC Highway Solutions was commissioned by the Highways Agency to carry out the detailed design and construction of the Haydon Bridge Bypass. As part of this task, a Stage 3 Environmental Impact Assessment (EIA) was carried out, to inform the production of an Environmental Statement (ES; Highways Agency 2005). The EIA was carried out between April 2004 and June 2005, and the ES was published in June 2005. A geophysical survey was undertaken in August 2005 to test areas of potential archaeological sensitivity identified by the EIA. Following this, an archaeological evaluation, targeted on the results of the geophysical survey, was deemed necessary. This aimed to determine the nature and extent of the below ground survival of archaeological remains within the route corridor of the proposed bypass, and to determine the measures necessary to mitigate the impact of the route development on any remains of archaeological significance. In addition, a watching brief was stipulated during the topsoil stripping of areas not covered by the evaluation exercise.

1.1.3 In response to a brief (*Appendix 1*) from CVC Highway Solutions, OA North produced a method statement (*Appendix 2*) for the evaluation programme, comprising trenching and palaeoenvironmental coring, and for the watching brief. Ideally the land covered by watching brief would have been evaluated in advance of construction, but as no statutory powers of access existed, and because no agreement could be reached with the landowner, this work could not be undertaken until construction started. The watching brief commenced on 11th January 2007 and was undertaken intermittently until March 2007. The evaluation exercise commenced on 29th January 2007 and was undertaken over four weeks, finishing on 23rd February. The palaeoenvironmental coring of Area A was undertaken on 30th January. Following on from the results of the evaluation, three areas (SMS 1-3) were then mitigated by a Strip, Map and Sample (SMS) exercise, which finished on 17th April 2007.

1.1.4 This report sets out the results of the evaluation trenching and palaeoenvironmental coring, the watching brief, the three SMS areas.

1.2 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 Haydon Bridge is located within the broad valley of the River South Tyne, 30 miles east of Carlisle and 30 miles west of Newcastle, in Northumberland. The

proposed bypass runs from its junction with the A69 at West Rattenraw (NY 8305 6415) south across the River South Tyne. It then curves south-east across the flood plain, rising up the southern valley side, to pass to the south of East Land Ends Farm. The bypass continues eastwards, just below the crest of the low ridge between the valleys of the River South Tyne and the Langley Burn, passing between Haydon Bridge Cemetery and Esp Hill Farm. It crosses Gees Wood, which lies in the steeply sided valley of the Langley Burn, and descends the end of the low ridge to rejoin the A69 at its junction with the A686 (NY 8516 6443). The route has been divided into five sections (Figs 2-6):

- Area A – from West Rattenraw to the north bank of the River South Tyne (Fig 2)
- Area B – from the River South Tyne to Land Ends Lane (Fig 3)
- Area C – from Land Ends Lane to Cemetery Road (Figs 4-5)
- Area D – from Cemetery Road to Gees Wood (Fig 5)
- Area E – from Gees Wood to the junction of the A686 with the A69 (Fig 6).

1.2.2 The northernmost part of Area A slopes gently down towards the river, although south of the railway line the slope was much steeper. The southern river bank is also fairly steep, although the majority of Area B is a flat terrace (between 65m aOD to 68m aOD), rising up sharply at its southern end to meet Land Ends Lane. To the south of Land Ends Lane the ground rises up initially fairly steeply before flattening off towards Cemetery Road (90m aOD). East of Cemetery Road, in Area D, the ground gently rises up to the east, before flattening off towards Gees Wood 92m aOD. In Area E, the ground generally sloped down towards the river 80m aOD. The majority of the land affected by the scheme is currently under pasture.

1.2.3 The solid geology along the scheme comprises grey mudstones and siltstones with intercalated sandstones of the Namurian series, dating to the Carboniferous period (BGS 1982). The overlying drift geology comprises boulder clays, sands and gravels, including typical brown alluvial soils of the Wharfe series and typical brown earths of the Ellerbeck series (Soil Survey of England and Wales 1983).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

1.3.1 An historical and archaeological background was produced as baseline data for the Environmental Statement (ES) on the A69 Haydon Bridge Bypass (HA 2005). It is only proposed to summarise the resulting background data below, to give some context for the results of the evaluation and SMS exercises. No

references are given for the following as all information was derived from the ES.

1.3.2 ***Prehistoric:*** there were no known sites of prehistoric date within the area impacted upon by the road scheme, though elsewhere in the region, there is evidence for Neolithic activity in the form of cup marked designs carved into rock outcrops at High Shaw and Tony's Patch, in Haydon parish. Elsewhere in the area stone axe heads have been found in river beds. Evidence for Bronze Age settlement has been found in the form of burials in stone cists. These have been found at West Wharmley and Low Morralees. From the later prehistoric period, evidence for farming survives in the form of cord rig plough marks at Grindon.

1.3.3 ***Roman:*** the dominant feature of the Roman period in the parish of Haydon is Hadrian's Wall. Although Haydon Bridge, and the proposed route, lie outside the area of the World Heritage Site and its setting, there are a number of features associated with it. These include various camps, signal towers and roads, such as Stanegate, the main east-west road. Stones from Roman buildings, including inscribed and carved stones, have often been found reused and can be seen in some buildings around Haydon. There are native rural settlements of the Roman period at Knag Burn and Howden Hill. There was evidence of lead smelting at Knag Burn, and the remains of pits dug for coal have been found in Haydon.

1.3.4 ***Medieval:*** following the Norman conquest, the area around Haydon Bridge became part of the Langley Barony, based on Langley Castle to the south of the scheme. The castle was built in the fourteenth century, probably by Anthony de Lucy, who died in 1343. Although known as a castle from the mid-fourteenth century, it is probably the best preserved tower house in Northumberland. It was destroyed by Henry IV in 1405, and remained in ruins until it was restored at the end of the nineteenth century. The settlement of Haydon Bridge grew up around a crossing point on the River Tyne, where there has been a bridge for at least 700 years. The town grew from two medieval settlements, Langley and Haydon. Langley, on the south bank of the river, was the centre of the barony of the same name, and its township had 17 taxpayers in 1296, suggesting a significant settlement. This impression was confirmed by John Speed's map of 1610. The medieval chapel at Langley was apparently made redundant following the building of the bridge, which provided access across the river to Haydon chapel. Haydon was established on the north bank of the River South Tyne, and was clearly intended to serve as the local market for the barony, probably complementing Langley's role as the administrative centre. It was granted a charter for a weekly market and annual fair in 1344. Haydon was clearly not a successful market centre, and the market and fair fell into disuse.

1.3.5 ***Post-medieval:*** the area around Haydon Bridge became important for the mining of both coal and lead, as well as lead processing during this period. The Langley Barony mines and Langley and Blaghill smelt mills were important centres of industrial development in the eighteenth century. In the

nineteenth century coal mining became more intensive, and mine buildings of the period still survive at Stublick Colliery. Esp Hill farm, located immediately to the south of the scheme, near Cemetery Road, is listed grade II and has a door lintel dated 1824. The farm was clearly in existence before this date, however, as it is shown on a map of 1820. On the south-west boundary of the farm, on the east side of Cemetery Road, a sandstone abutment is the only surviving, above-ground remains of a leat which once supplied Esp Hill farm with water. The water was brought from Crook Hill, perhaps from a spring, and was taken over Cemetery Road by means of an aqueduct supported on the sandstone abutment. The culvert which carried the water away from the farm appears to survive below ground, running north-westwards down the hill towards the cemetery. This feature was probably built sometime after 1841, as it is not shown on the tithe map of that date. It was extant on the OS map of 1865, and was also shown by the OS in 1898, 1824 and 1952. The leat had gone by 1975.

2. METHODOLOGY

2.1 METHOD STATEMENT

2.1.1 A method statement for the evaluation trenching, watching brief and palaeoenvironmental coring (*Appendix 2*) was written, in response to a brief (*Appendix 1*) provided by CVC Highway Solutions. The discovery of archaeological features in a number of trenches led to the production of a further method statement (*Appendix 3*) for the excavation of three Strip, Map and Sample (SMS) areas. An earthwork survey of various linear banks, ridge and furrow and enclosures in Area B and a rapid photographic survey of a sandstone abutment on Cemetery Road (*Section 1.3.5*) were undertaken under verbal instruction. As part of the evaluation, and in accordance with the project brief (*Appendix 1: Section 4.2.5*) and method statement (*Appendix 2: Section 1.4.11*), monolith core samples were taken from the fills of palaeochannels in two trenches for palaeoenvironmental assessment (*Appendix 7*). The method statements were fully adhered to throughout all phases of the investigations. However, several of the evaluation trenches could not be excavated because they lay within areas already stripped as watching brief or because there was no access for reasons of health and safety; an additional trench (105) was excavated across a geophysical anomaly. All work undertaken was consistent with the relevant standards and procedures of the Institute of Field Archaeologists and generally accepted best practice.

2.2 EVALUATION TRENCHING

2.2.1 Initially 104 trenches were included within the archaeological evaluation, although thirteen of these were not excavated. Trenches 11, 13, 14 were considered to be too close to the railway line, and the slope was prohibitively steep where 36, 37 were located. Trenches 62, 63, 64, 65, 66, 67 were in an area covered by watching brief before the evaluation took place. Trenches 93 and 94 could not be evaluated due to land access issues. In addition, a further trench, Trench 105, targeting a geophysical anomaly, was added to the evaluation exercise during the course of the works on instruction, rather than undertaking a watching brief in advance of stripping this area. Trench 32 was moved from its original position to target an earthwork enclosure discovered during the course of the works.

2.2.2 The uppermost modern surface of the evaluation trenches was removed by machine (fitted with a toothless ditching bucket) under archaeological supervision to the surface of the first significant archaeological deposit. Thereafter, the trenches were cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions.

2.2.3 All investigation of intact archaeological deposits was exclusively manual. Selected pits and postholes were half-sectioned, linear features were subjected

to no more than a 10% sample, and extensive layers were sampled by partial rather than complete removal. In terms of the vertical stratigraphy, maximum information retrieval was achieved through the examination of sections of cut features. All excavation, whether by machine or by hand, was undertaken with a view to avoiding damage to any archaeological features which appeared worthy of preservation *in situ*.

2.2.4 All information identified in the course of the site works was recorded stratigraphically, using a system, adapted from that used by Centre for Archaeology of English Heritage, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records were available for inspection at all times.

2.2.5 Results of all field investigations were recorded on *pro-forma* context sheets. The site archive includes both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20 and 1:10). All artefacts and ecofacts were recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

2.2.6 In some of the trenches it was necessary to mechanically investigate a small area within the trench, usually at one end, in order to ensure the natural sequence of deposits was understood. Where this exceeded a depth of 1.2m, the excavation was stepped.

2.3 WATCHING BRIEF

2.3.1 Watching briefs were undertaken on two areas, the compound area to the west of Cemetery Road and the topsoil storage area in Area B (Figs 3 and 5). During the topsoil strip in Area B an earthwork enclosure was also investigated (Fig 7).

2.3.2 A programme of field observation accurately recorded the location, extent, and character of any surviving archaeological features and/or deposits during the ground disturbance for areas not covered by the evaluation exercise. The watching brief comprised archaeological observation during the excavation for these works, the systematic examination of all subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified.

2.3.3 Putative archaeological features and/or deposits identified by the machining process, and natural deposits in the immediate vicinity of any such features, were cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections were studied and drawn. Features were sample excavated and extensive layers were sampled by partial rather than complete removal.

2.3.4 During this phase of work, recording comprised a full description and preliminary classification of the features or materials revealed, and their accurate location. Features were planned accurately at appropriate scales and added on to the large-scale digital plan. A photographic record was made simultaneously.

2.4 PALAEOENVIRONMENTAL SAMPLING OF AREA A

2.4.1 Two areas within Area A (Fig 2) were identified as having potential for the survival of palaeoenvironmental remains, the first was located to the north of the present A69 and west of the lane to West Rattenraw and the second located to the east of the lane to West Rattenraw. Both areas were initially probed to locate the deepest sediments. On the basis of the probing, a single gouge auger core was taken from the western area and two from the eastern to evaluate and record the underlying deposits. An open chambered Eijkelkamp gouge auger was used to record the sediments down to the underlying mineral deposits.

2.5 SMS AREAS

2.5.1 Three areas were subject to SMS to elucidate and mitigate features revealed by the evaluation exercise, and any further features identified. All these areas were located within the footprint of the scheme. SMS 1 was located in Area C and comprised a 0.34 ha area in the vicinity of evaluation Trenches 57 and 59, south of East Lands End farm (Figs 4 and 8). SMS 2 was in Area D and consisted of a 0.26 ha area in the vicinity of evaluation Trenches 78 and 79, west of Gee's Wood (Figs 5 and 9). SMS 3 was in Area E and comprised a 0.05 ha area surrounding Trench 95, opposite the sewage works and south of the existing carriageway (Figs 6 and 10).

2.5.2 ***Stripping***: during the mitigation of all three SMS areas, the topsoil, subsoil and non-structural post-medieval and later deposits were removed under archaeological supervision by mechanical excavator(s) provided by CVC and fitted with a toothless ditching bucket. Stripping proceeded until the uppermost horizons of significant archaeological remains were revealed or, where these were absent, the natural substrate. The topsoil was stockpiled separately from the subsoil and other deposits. The stripped areas, including the vertical edges where necessary, were cleaned sufficiently to enhance the definition of features.

2.5.3 The topsoil was stripped in a systematic and logical manner, ensuring that, where practicable, the excavators and machines used to remove spoil did not rut, compact or otherwise damage buried or exposed archaeological features and deposits by crossing previously stripped areas.

2.5.4 ***Mapping***: All the SMS areas were plotted on the ground by dGPS surveying equipment (with a tolerance of generally +/- *c*. 1.0 m) and were tied in to the Ordnance Survey grid. The stripping teams paid close attention to achieving a

clean stripped surface to reduce the need for extensive hand cleaning. The principal aim of the initial work was to produce a plan of the revealed features that was used to define and quantify the second stage of formal and detailed excavation. Plans were maintained as stripping progressed and features were defined on the ground. A general site plan was produced at an appropriate scale to map the exposed features.

2.5.5 ***Sampling***: linear features were excavated to the extent that they were characterised and understood. An appropriate range of discrete/isolated features (pits, postholes etc) and non-linear negative features were also investigated.

2.5.6 All contexts were recorded using standard recording systems in accordance with the IFA Standards and Guidance for archaeological excavations; planning and surveying were based on a site grid tied into the Ordnance Survey National Grid and ordnance datum levels were taken where appropriate.

2.5.7 All hand excavation respected the stratigraphy of archaeological layers, features, deposits and structures. Where required, each context was excavated in sequence. Complex features and excavated interventions were recorded by individual hand-drawn plans made at a scale of 1:20 or 1:10. Sections were drawn at 1:10 or 1:20. All features revealed in the excavated areas were planned.

2.5.8 A full photographic record comprising black and white negative archivable film was made. In addition digital photographs taken with an optical zoom camera of at least 300 dpi were taken. All finds were processed according to the IFA Guidelines for Finds Work. In all cases, all bags and boxes will be marked with the site code and context number and Museum Accession Number.

2.6 ARCHIVE

2.6.1 A full professional archive has been compiled in accordance with the method statement (*Appendix 2*) and in accordance with current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited at the Northumberland County Record Office and the finds archive will be deposited in the Museum of Antiquities, Newcastle-upon-Tyne on completion of the project.

3. RESULTS

3.1 EVALUATION TRENCHING

3.1.1 ***Introduction:*** in total, 92 trenches, across Areas A-E, were excavated in the course of the evaluation exercise, ranging in length between 25.8m and 50m, measuring 2m in width and between 0.35m and 1.7m in depth. The exact dimension of each trench is provided in *Appendix 4*. The trenches producing archaeology are discussed below, by area.

3.1.2 ***Area A (Trenches 1-10 & 12; Fig 2):*** the trenches in this area (Fig 2, Plate 1) revealed natural geology comprising a mixture of sands and sandy silts. A probable palaeochannel, *c* 10m wide, was located towards the north-eastern end of Trench 8. The eastern end of Trench 6 was excavated through an upstanding bank marking a field boundary. This feature was clearly man-made, comprising layers of silt and sandy-silt (***601-603***), although no dating evidence was recovered from it. A probable stone-filled soakaway (***706***; Plate 2) measuring 1.8m in diameter and 0.46m in depth, was identified in Trench 7. No artefacts were recovered from this feature.

3.1.3 ***Area B (Trenches 15-35 & 38-39; Fig 3):*** the trenches in this area (Fig 3) predominantly revealed natural alluvial deposits and a number of palaeochannels. Palaeochannels were positively identified in Trenches 23, 24, 30, 34 and 35. Monolith samples were taken from the palaeochannels in Trenches 23 and 35 and these were subsequently assessed for palaeoenvironmental remains (*Appendix 7*). An east/west aligned stone-filled soakaway (***2703***) was located in Trench 27, whilst a possible pit (***2806***) and a linear feature (***2804***) were revealed in Trench 28. The possible pit (***2806***) measured 1.25m by 0.9m in plan and was 0.25m deep, although it extended beneath the baulk and, consequently, its full extent remains unknown. No finds were recovered from any of the fills (***2807-2810***) of this feature. The linear feature (***2804***) appeared to represent the truncated remains of a possible drain, measuring 0.6m long, 0.34m wide and surviving to a depth of 0.05m. No finds were recovered from its fill (***2805***).

3.1.4 Trench 32, which was located to target an earthwork enclosure (*Section 3.8*), revealed evidence of both the feature and also ridge and furrow. The upstanding features, however, were contained entirely within the topsoil and no finds were retrieved from them. The furrows appeared as vague negative profiles at the interface of the topsoil and subsoil and again contained no artefacts. Apparently unrelated to the earthwork enclosure, was a single linear cut feature (***3206***), measuring 0.95m wide and 0.09m deep, was revealed running south-west/north-east across the trench; no artefacts were recovered from it. A small patch of burning (***3203***), directly on top of the natural (***3202***), was also revealed in this trench.

3.1.5 A palaeochannel was detected flowing south-west/north-east through Trenches 34 and 35. In the centre of Trench 34, to the south of the palaeochannel and following it, was a 0.4m high bank (***3408***), either a natural levy or formed from material dredged up from the channel. An undated drainage ditch and/or boundary (***3407***), greater than 2.2m in width and 0.9m in depth, also cut through this trench on a similar alignment to the palaeochannel, on the south-east side of the bank. The ditch was later recut along its length by another ditch with v-shaped profile (***3403***). In Trench 35, the palaeochannel was cut along its length by a ditch (***3506***), possibly a continuation of ditch ***3407*** located in Trench 34. A single posthole (***3902***), measuring 0.62m by 0.52m in plan and 0.38m in depth, was revealed in Trench 39. No finds were recovered from any of the features in this area.

3.1.6 ***Area C (Trenches 40-61; Fig 4-5):*** the trenches in this area (Fig 4 & 5, Plate 3) revealed natural geology comprising a mixture of sands, gravels, sandy clays and sandy silts. A possible palaeochannel was located in Trench 43, although this contained no obvious organic deposits. A shallow ditch (***4402***), 0.58m wide and 0.13m deep, was observed running approximately east/west across Trench 44. An extant north/south field boundary, comprising ditch and external banks, was sampled within Trench 51. The banks were up to 2m wide and 0.30m high, whilst the ditch (***5103***) was 0.41m wide and 0.12m deep. A fire pit, ***5505***, was revealed in Trench 55, measuring 1.2m in length, 0.98m in width and 0.06m in depth. A probable pit (***5706***) 0.94m in diameter and 0.3m in depth, was revealed in Trench 57 and a curvilinear ditch (***5904***; 2m wide and 0.45m deep), with very clean silts (***5902-3***), was identified in the northern end of Trench 59. No finds were retrieved from any of the excavated features in this area.

3.1.7 ***Area D (Trenches 68-81; Fig 5):*** the trenches in this area (Fig 5) revealed a range of natural geology including gravels, sands, silts and clays. A feature (***7802***) that was either the terminus of a ditch or a pit was detected in Trench 78, extending beneath the baulk. It measured 0.6m wide and was excavated to a depth of 1.25m. No finds were recovered from it. Identified within Trench 79, was the terminus of a linear feature (***7906***). Measuring 0.65m wide and 0.55m deep, this too extended beneath the edge of the trench. None of the features in this area contained any finds.

3.1.8 ***Area E (Trenches 82-92 & 95-105;Fig 6):*** the natural geology in this area comprised sands, sandy clays, sandy silts and gravels. Revealed in Trench 88, was a small pit (***8809***; Plate 4), measuring 1.1m in diameter, extending into the trench edge. Finds from this feature included post-medieval pottery and various pieces of metal, suggesting it was a farmer's rubbish pit. In Trench 95, a pair of postholes (***9506*** and ***9507***) were located 0.8m apart. Posthole ***9506*** measured 0.33m in diameter and was 0.10m deep, whereas ***9507*** was 0.47m by 0.31m in plan and 0.16m deep. Trench 98 contained a single posthole (***9805***), measuring 0.55m in diameter and 0.16m in depth. A struck flint (*Section 3.9.2*) was also recovered from the backfill (***9802***) of a slot containing a ceramic land drain. Trench 99 contained a single posthole (***9904***), measuring 0.49m by 0.40m in plan and 0.27m in depth. A shallow ditch (***10006***),

measuring 1.9m in width by 0.24m in depth, was revealed running east/west across Trench 100. No finds were retrieved from these features, apart from those mentioned above.

3.2 WATCHING BRIEF

3.2.1 Watching briefs were undertaken on two areas, the compound area to the west of Cemetery Road in Area C (Fig 3; Plate 5) and the topsoil storage area in Area B (Figs 3 and 5). An earthwork enclosure (Fig 7) within Area B (*Section 3.7.5*) was also investigated as part of the watching brief although it proved to exist solely as an upstanding bank in the topsoil. No finds were recovered from the bank. No further features were revealed within Area B. A stone culvert was exposed running parallel and immediately next to Cemetery Road, during the watching brief for the compound, and a number of stone-filled drains were also observed. No further features were revealed during the watching brief in Area C.

3.3 PALAEOENVIRONMENTAL SAMPLING OF AREA A

3.3.1 In total, three gouge auger sequences of sediments were recorded, one to the west of the track to West Rattenraw and two to the east of it (Fig 2; Table 1). The investigation revealed that the sediments in the area west of the trackway were fairly shallow: 0.26m of clayey topsoil overlaid 0.74m of mottled blue/grey and orange silt, which became clayey with depth. East of the trackway, the topsoil was deeper, reaching 0.73m in core 2, overlying a deposit of mottled blue/grey and orange silt. A band of humified peat, *c* 0.05m thick, was present within this silty layer in both cores, variously located at depths of 0.77m (Core 3) and 0.98m (Core 2). Spot samples were taken at 0.55m, 0.65m, 0.75m and 0.98m from Core 2 and at 0.70m, 0.77m and 0.81m from Core 3 in case any further palaeoenvironmental assessment was recommended.

3.3.2 The sediment descriptions of the three cores are shown below;

Core number	Depth m	Sediment description
1	0-0.26	Clayey topsoil
1	0.26-0.55	Mottled blue/grey and orange silt
1	0.55-1.00	Mottled blue/grey and orange silt becoming clayey with depth
1	1.00	Solid
2	0-0.08	Topsoil (loam)
2	0.08-0.28	Clayey loam (topsoil)

Core number	Depth m	Sediment description
2	0.28-0.45	Mixed sandy topsoil with charcoal inclusions and brick flakes
2	0.45-0.50	Sandy clayey laminated loam (topsoil)
2	0.50-0.65	Dark brown organic clayey loam (topsoil)
2	0.65-0.73	Very clayey organic loam (topsoil)
2	0.73-0.98	Blue/grey clayey sandy silt
2	0.98-1.03	Humified peat
2	1.03-1.40	Blue/grey sandy silt
2	1.40-1.55	Mottled blue/grey clayey silty sand
3	0-0.08	Topsoil (loam)
3	0.08-0.37	Clayey loam (topsoil)
3	0.37-0.67	Sandy silt
3	0.67-0.77	Blue/grey sandy clay
3	0.77-0.81	Humified peat
3	0.81-1.16	Blue/grey clayey sandy silt (organic at top)
3	1.16-1.30	Very wet -lost sample (likely to be silty sand)

Table 1: Recorded sediment sequences from gouge auger coring Area A, Haydon Bridge.

3.3.3 It should be noted that further monolith samples were retrieved from Trenches 23 and 35 in Area B; the proposals for the assessment of these are presented in *Appendix 7*.

3.4 SMS 1

3.4.1 SMS 1 (Fig 8, Plate 6) was located in Area C, incorporating Trenches 57-59 and the eastern ends of Trenches 55-56. It covered 0.34 ha and was excavated on the basis of the features identified in Trenches 57 and 59 during the evaluation exercise (*Section 3.1.6*). The natural geology revealed by the topsoil strip predominantly comprised orange sandy-clay, although there were patches of gravel present. Two postholes (***8*** and ***12***) were located in the south-western corner of the site, 0.16m apart. Posthole ***8*** was 0.4m in diameter and 0.2m deep, whilst ***12*** was 0.28m in diameter and 0.13m deep. Neither posthole contained any artefacts.

3.4.2 To the north-east of the postholes and to the east of fire pit ***5505***, identified in Trench 55, a possible kiln or fire pit, ***6***, was revealed. This measured 1.1m in diameter, although it only survived to a maximum depth of 0.05m. A small feature, ***4***, truncating its northern edge may possibly have been a rake-out pit, but this is far from certain.

3.4.3 Two further postholes (***20*** and ***22***) were located in the central part of the site, 2.5m apart, either side of what appeared to be a natural depression (***18***). Posthole ***20*** was 0.4m in diameter and 0.5m deep, whilst ***22*** was 0.34m in diameter and 0.22m deep. Neither posthole contained any artefacts. Identified east of the postholes, was a linear feature (***26***=***33***), initially revealed as ***5904*** in Trench 59. It was aligned broadly north/south with a distinct dogleg, averaging 1.3m in width and 0.4m in depth. The fills of this feature were predominantly fine water-lain silts, suggesting a drainage function. A 9m wide palaeochannel, orientated north/south, was located to the east of ***26***. Truncating its uppermost deposits were a number of stone-rich features, one of which (***32***) was excavated. No finds were recovered and the stony deposits were probably laid to improve drainage. A probable soakaway (***14***) was located to the east of the palaeochannel, measuring 2.25m in diameter, by 0.45m in depth and extending under the northern limit of excavation.

3.5 SMS 2

3.5.1 SMS 2 (Fig 9, Plate 7), in Area D, was excavated on the basis of features (***7802*** and ***7906***) found in Trenches 78 and 79. Located west of Gee's Wood, it covered 0.26 ha area, incorporating Trenches 78, 79 and 81 and parts of Trenches 77 and 80 (*Section 3.1.7*). The topsoil strip revealed that ***7802*** was actually a roughly rectangular, straight-sided pit, measuring 2.5m by 0.6m. No artefacts were recovered from it. After the topsoil strip, it was clear that feature ***7906*** was actually part of a small palaeochannel, an old stream course, orientated north/south and flowing through the area.

3.5.2 Two stone-filled land drains (***36*** and ***38***) were located towards the north-eastern end of the site, in an area cut by a number of regular stone-filled soakaways. A single copper alloy object, was recovered from fill ***35*** of the eastern drain.

3.6 SMS 3

3.6.1 SMS 3 (Fig 10, Plate 8), located in Area E, was excavated on the basis of two postholes, ***9506*** and ***9507*** within Trench 95 (*Section 3.1.8*). It covered 0.05 ha and was located opposite the sewage works and south of the existing carriageway of the A69. The topsoil strip revealed sandy-clay natural geology over the entire site. It was not possible to excavate in the immediate environs of the postholes, due to a waterpipe that had been laid since the evaluation. No other features were revealed here.

3.7 EARTHWORK SURVEY

3.7.1 An earthwork survey was undertaken using dGPS surveying equipment on two areas of ridge and furrow, two banks and a small enclosure within Area B. The results of this survey are presented in plan (Fig 7).

3.7.2 The smaller area of ridge and furrow occurred in the south-west corner of Area B. Being entirely within the soil storage area, and surviving only as undulations in the topsoil, this was destroyed when the area was stripped. The distance between the top of one ridge and the next was approximately 3.5m. The ridge and furrow was visible over a roughly square shaped area covering 0.14ha. It was orientated south-east/north-west; an alignment that closely followed an extant field boundary located just to the south-west, and was at a perpendicular to the return of this boundary to the north-west. The ridge and furrow were entirely contained between this boundary and a linear earthwork boundary to the south-east. It seems that this was once a small area of cultivated land on the edge of the floodplain, within a larger uncultivated field.

3.7.3 The linear earthwork boundary, which lay to the south-east of the ridge and furrow, was interrupted but could be traced running south-west/north-east over a distance of 170m. It survived as a low mound approximately 0.4m wide and no more than 0.5m higher than the surrounding land surface. The bank lay at the bottom of a steep slope that denoted the south-eastern edge of the floodplain, and may have either been a naturally formed levy or a man made feature. Trenches 34 and 35 (*Section 3.1.5*) sampled a palaeochannel that also followed the base of the slope. The palaeochannel had later been recut by a ditch and, in the centre of Trench 34, a bank associated with the ditch may have been a continuation of the linear earthwork.

3.7.4 The second area of ridge and furrow was much larger than the first covering an area of 1.1ha. It was located 40m further to the north-west, and was aligned south-west/north-east. The area was approximately rectangular in shape, tapering to the north-west, the longest axis following the alignment of the ridges and furrows. The ridge and furrow did not seem to relate to any extant field boundaries and appeared entirely unconstrained, although they did follow the same general alignment of the longest axis of the field containing the first area of ridge and furrow. A profile through the ridges and furrows was revealed by Trench 32 (*Section 3.1.4*). The furrows did not penetrate below the subsoil and the ridges were not well pronounced, the distance between the top of one ridge and the next was 5m. The ridge and furrow outside of the road corridor were destroyed when the soil storage area was stripped.

3.7.5 Superimposed on top of the ridge and furrow and clearly later, was an L-shaped earthwork enclosure. The westernmost arm of the enclosure measured 38m in length, orientated south-east/north-west, returning in the south to run 76m south-west/north-east. The earthwork was not pronounced being less than 0.2m higher than the surrounding ridges and only 2m in width. Projecting 8m eastwards from the western arm of the enclosure, were two low banks forming a smaller enclosure, contained within the first, that had an entrance in the east.

It was considered possible this was once the site a building, and it was subsequently stripped under archaeological supervision (*Section 3.2.1*), although no features survived below the topsoil.

3.8 PHOTOGRAPHIC SURVEY

3.8.1 A rapid photographic survey (included within the project archive) was undertaken on the sandstone abutment of the aqueduct formerly carrying water over Cemetery Road to Esp Hill Farm (Fig 5).

3.9 FINDS

3.9.1 In total, thirty artefacts were retained during the excavations (Table 2);

Context	Pottery	Bone	Cu Alloy	Flint	Clay Pipe	**Total**
Topsoil	20				3	**23**
35			1			**1**
6002	2	1				**3**
8807	2					**2**
9802				1		**1**
Total	**24**	**1**	**1**	**1**	**3**	**30**

Table 2: Table of artefacts by context

3.9.2 The pottery all dated to either the eighteenth or nineteenth centuries and the clay pipe recovered comprised undiagnostic stem fragments. The copper alloy object from fill ***35*** was an undated fitting fragment, whilst the bone from ***6002*** was a sheep metatarsal. The piece of flint from ***9802*** was a core rejuvenation flake with some possible reworking of the end to create a burin point. A full listing of the finds is provided as *Appendix 6*.

4. DISCUSSION

4.1 EVALUATION TRENCHING

4.1.1 The evaluation trenching was on the whole disappointing and few archaeological features were found, even in areas where archaeology might have been expected from the results of the desk-based study and geophysical survey. The vast majority of features that were revealed contained no artefacts and thus remain undated. Very few artefacts were retrieved from the evaluation, watching brief or the SMS areas, supporting the impression given that the area had generally been used in a fairly non-intensive way as farmland. The trenches in the area of the three SMS areas suggested sufficient archaeology to merit further excavation but, the remainder of the scheme was considered to be of very low significance.

4.2 PALAEOENVIRONMENTAL SAMPLING OF AREA A

4.2.1 The topsoil lay over mottled blue/grey and orange sandy clay/silts, which developed on the former river terraces, either as floodplain deposits, or as hill-wash from the surrounding slopes. The thin deposits of peat possibly developed in backwater hollows cut off from the flow of the river, or, alternatively, developed in the slightly wetter conditions prevailing in a hollow during a period of slope stabilisation and decreased minerogenic deposition. The shallow nature of the peat in the cores argues against any further investigation.

4.3 PALAEOENVIRONMENTAL ASSESSMENT OF MONOLITH CORES

4.3.1 Monolith samples taken from the palaeochannels identified in Trenches 23 and 35 were submitted for assessment *(Appendix 7)*. Pollen preservation was high and radiocarbon-dated palynological assessment successfully indicated changes in vegetation and land use in both the Neolithic and from the Early Medieval to the late Medieval periods. Whilst the results of the assessment are of interest in general terms and significant in a regional context, they are not unique and, as the samples were not associated with anthropomorphic features, further analysis is not considered justifiable.

4.4 SMS AREAS

4.4.1 When the SMS areas were stripped, the features identified in the evaluation trenches were shown not to be indicative of significant activity foci. SMS 1 produced evidence of a second probable fire pit close to that identified in Trench 55, but both of these are undated by artefacts and could be fairly recent. Two undated pairs of postholes were also revealed in SMS 1 but did not appear structural. Drainage features were revealed in SMS 1 and 2. No

further archaeology was revealed in SMS 3. The results from SMS areas reinforce the impression given by the trial trenching: that past land-use within the road corridor had not been intensive.

5. BIBLIOGRAPHY

5.1 PRIMARY SOURCES

British Geological Survey, 1982 *Lake District Solid Geology*, Sheet 54ºN 04ºW: 1:250000

Soil Survey of England and Wales, 1983 *Soils of Northern England*, 1:250,000

5.2 SECONDARY SOURCES

English Heritage, 1991 *Management of Archaeological Projects*

Highways Agency, 2005 *Environmental Statement on the A69 Haydon Bridge Bypass*

6. ILLUSTRATIONS

6.1 FIGURES

6.2 PLATES

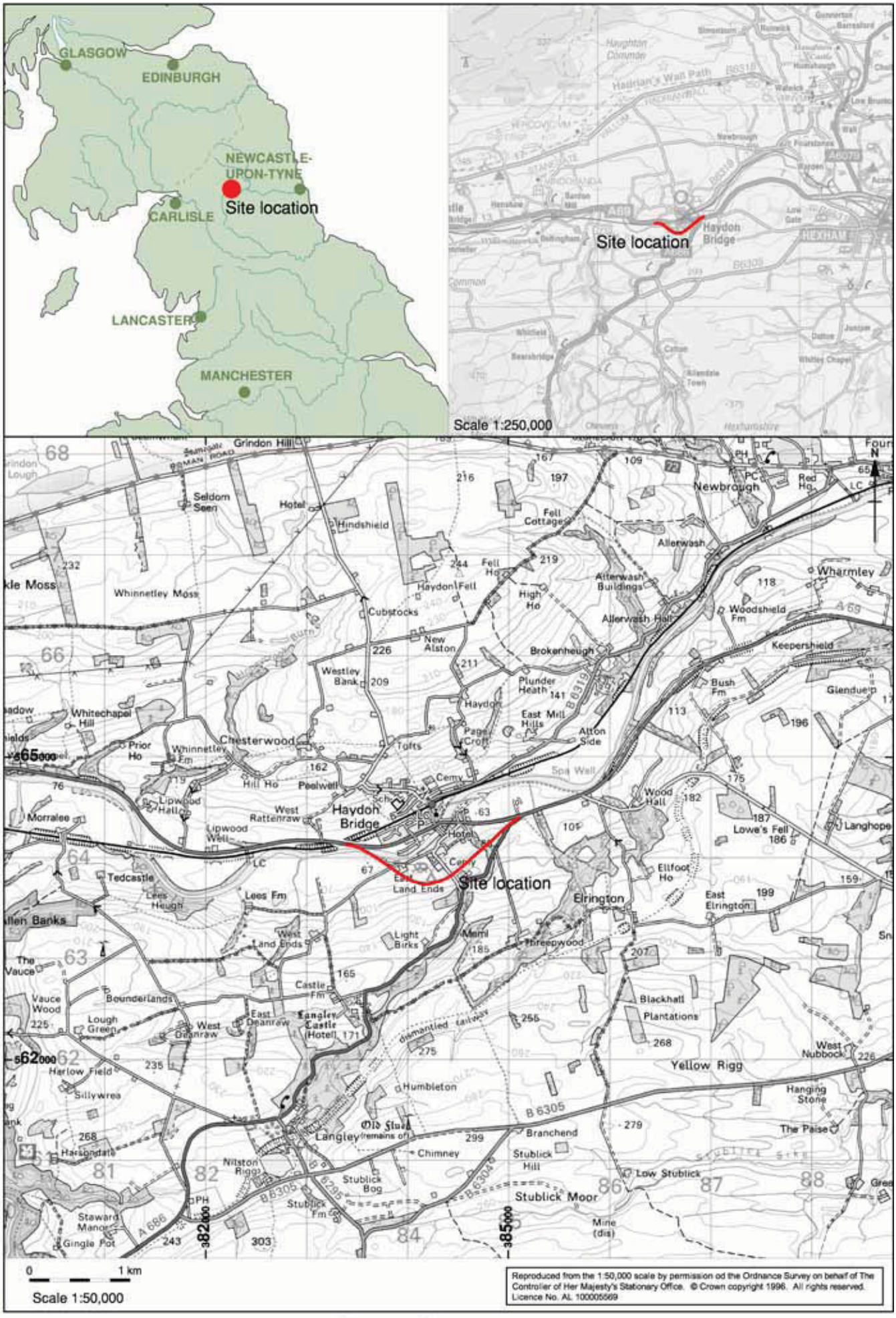

Figure 1: Site location

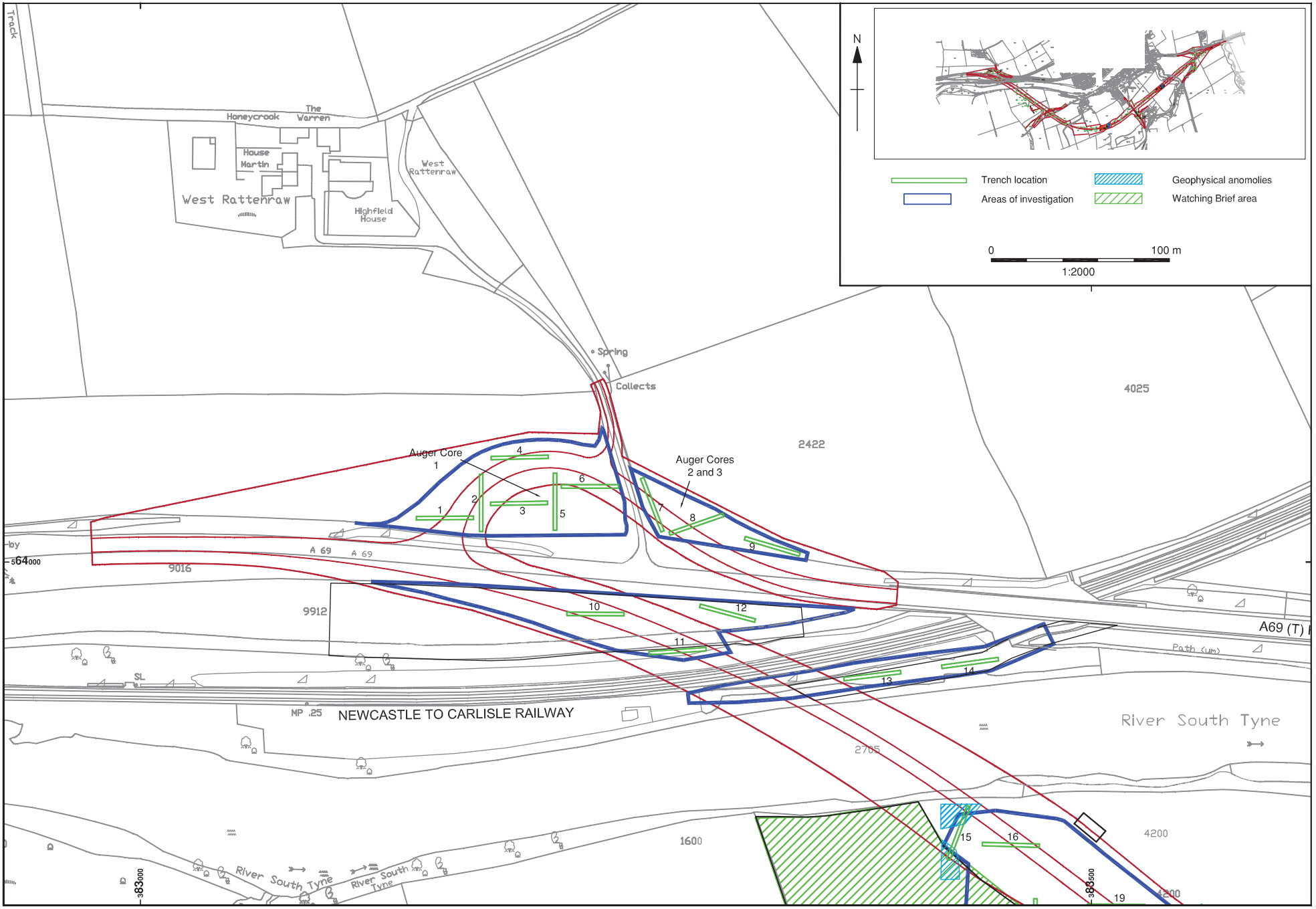

Figure 2: Area A

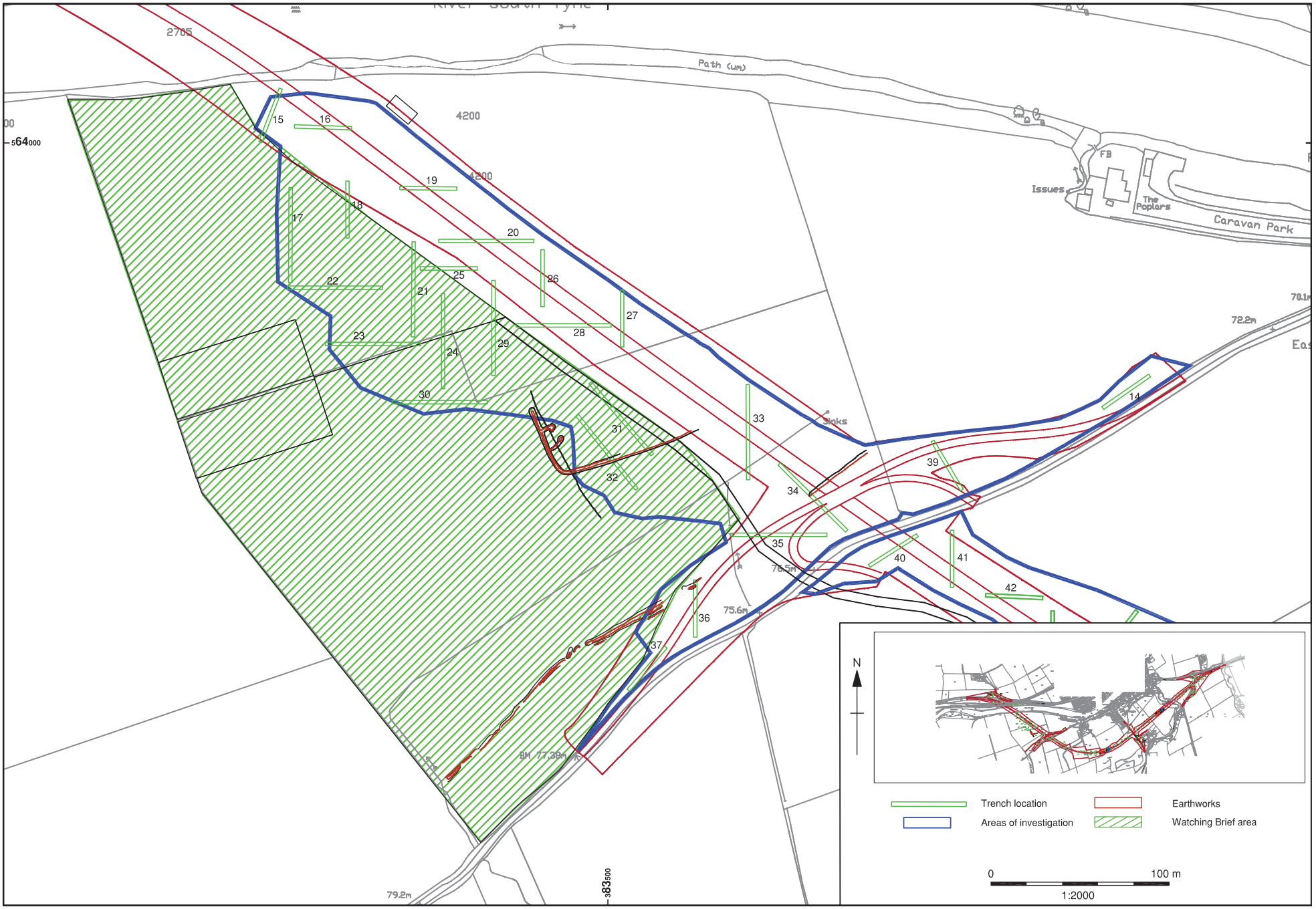

Figure 3: Area B

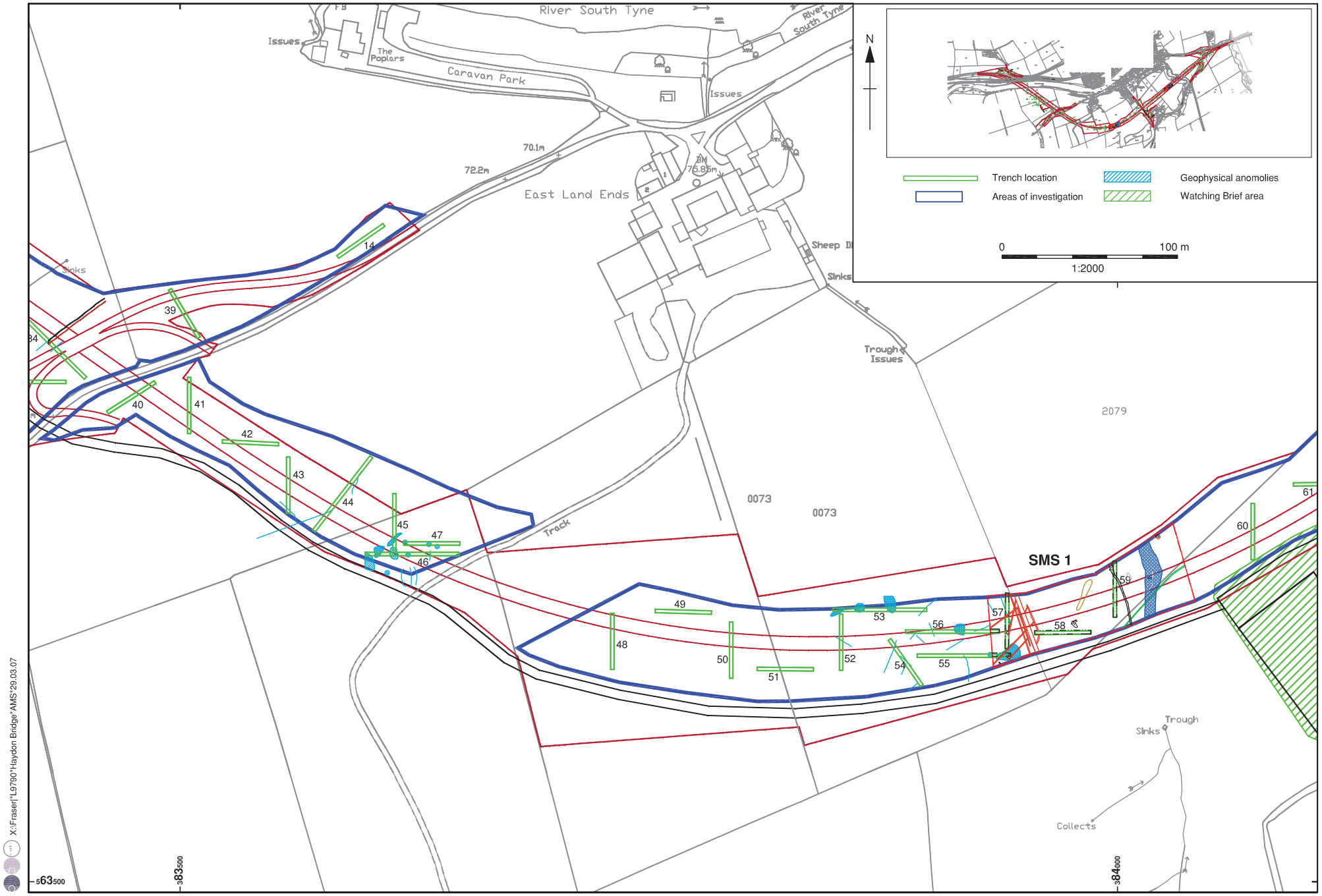

Figure 4: Area C - western half

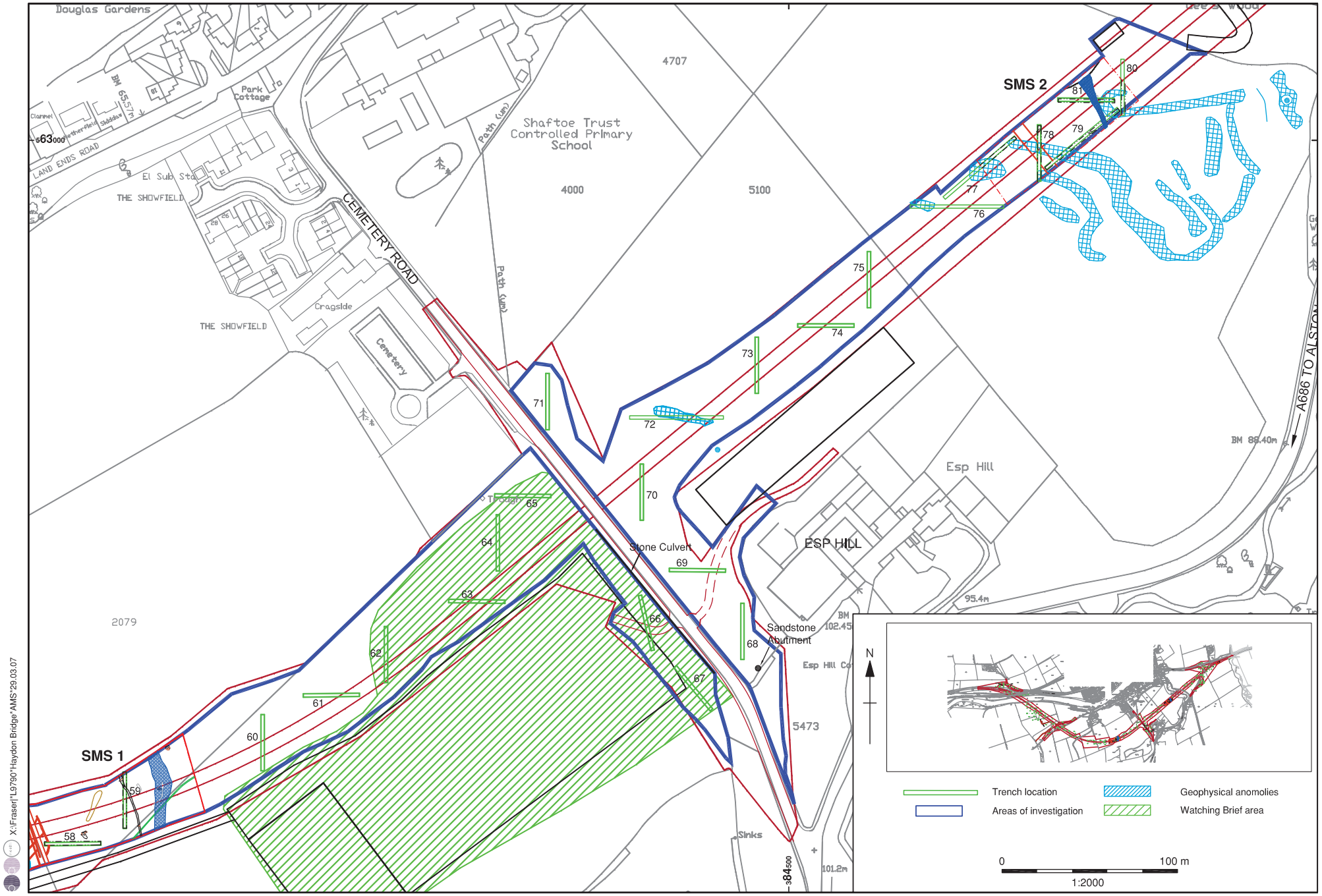

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Figure 5: Area C - eastern half, and Area D

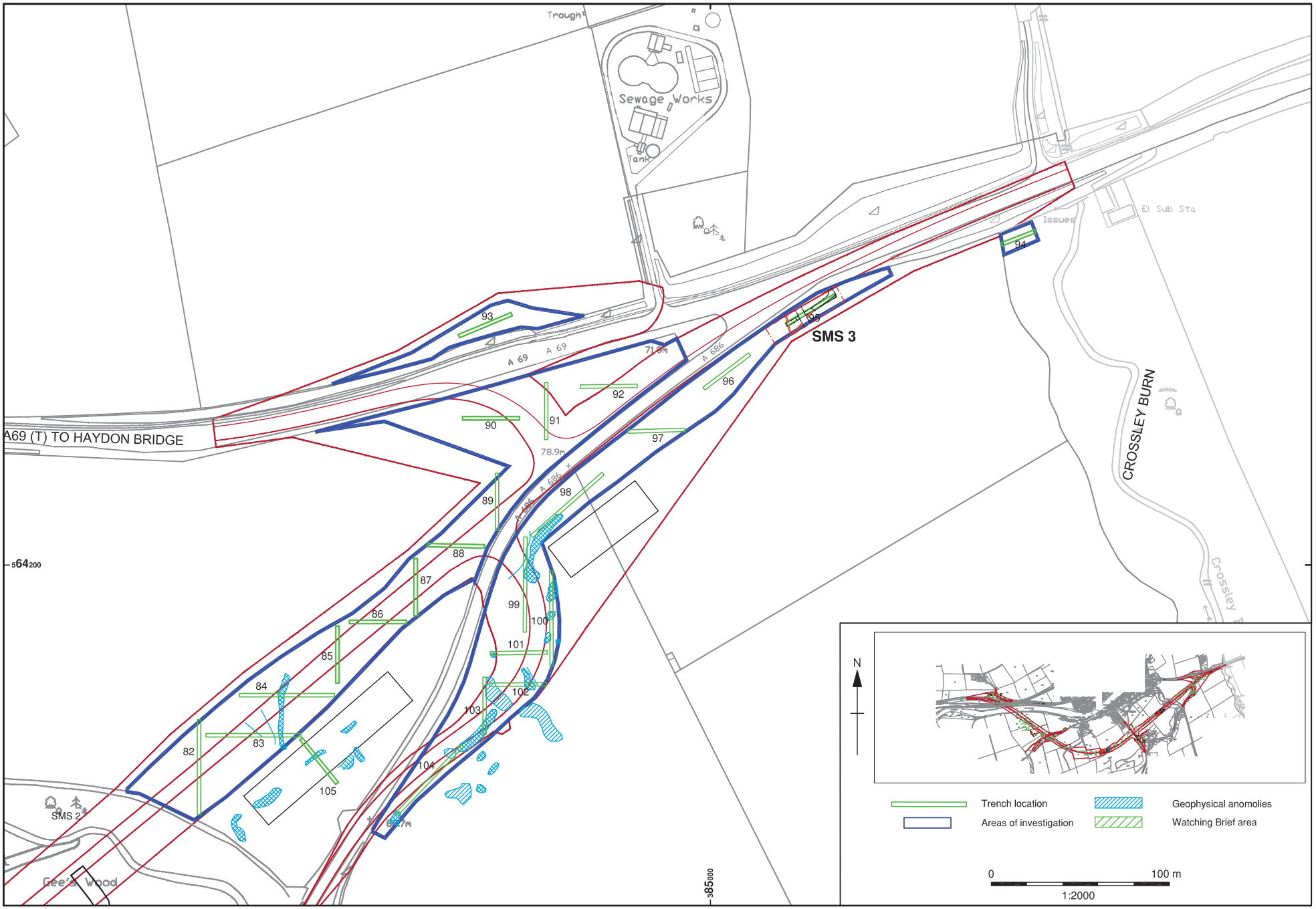

Figure 6: Area E

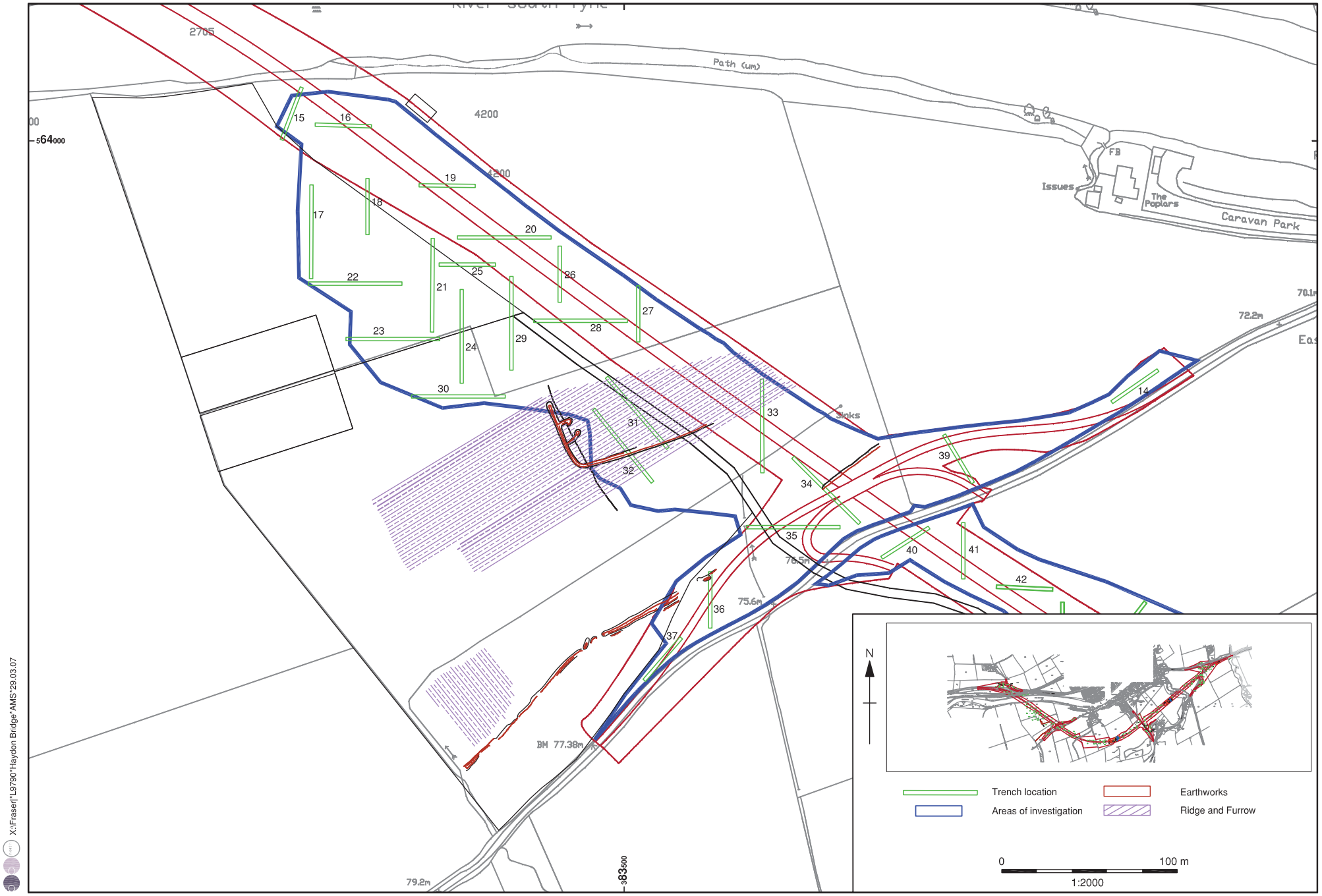

Figure 7: Earthwork survey in Area B

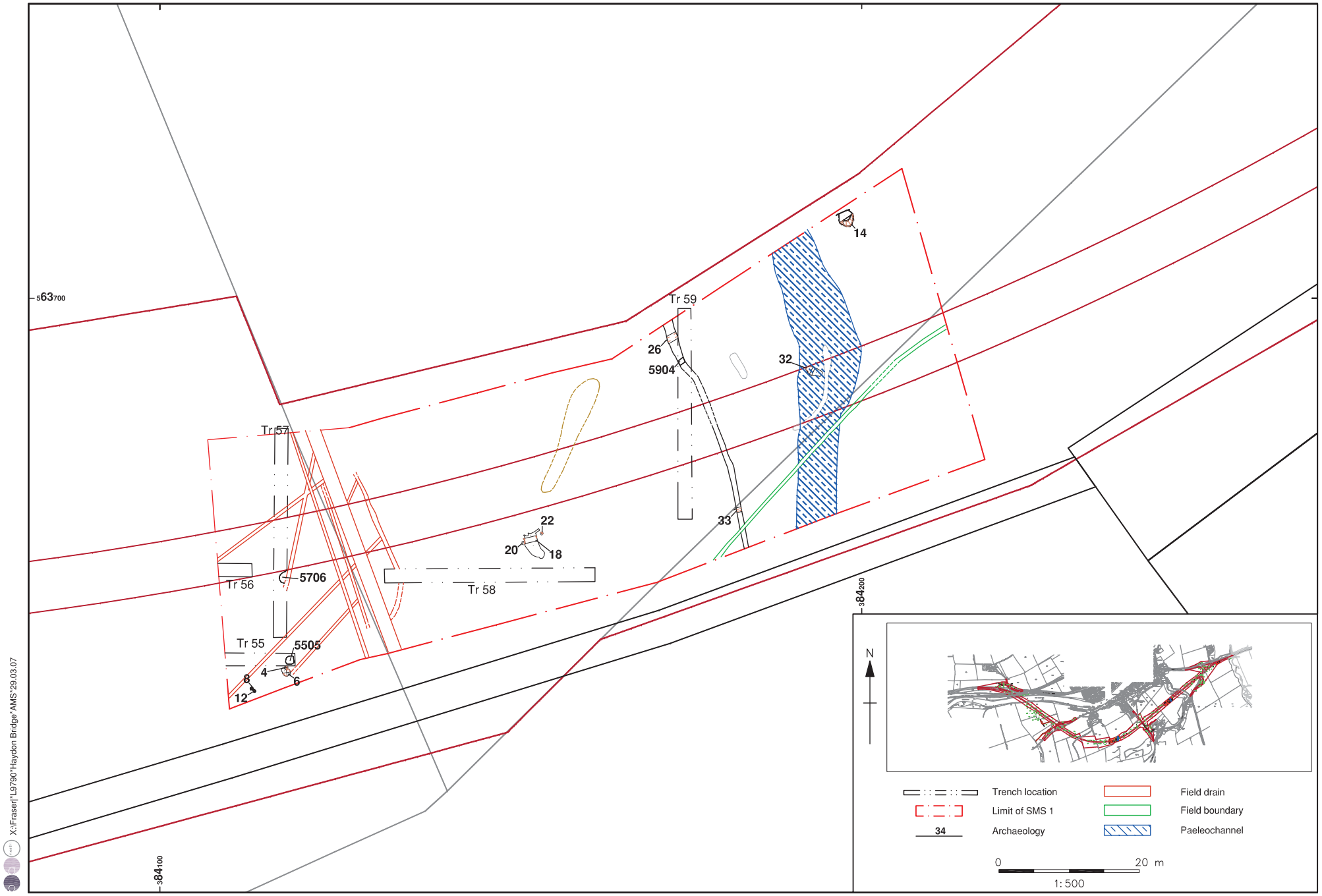

Figure 8: Haydon Bridge; SMS 1

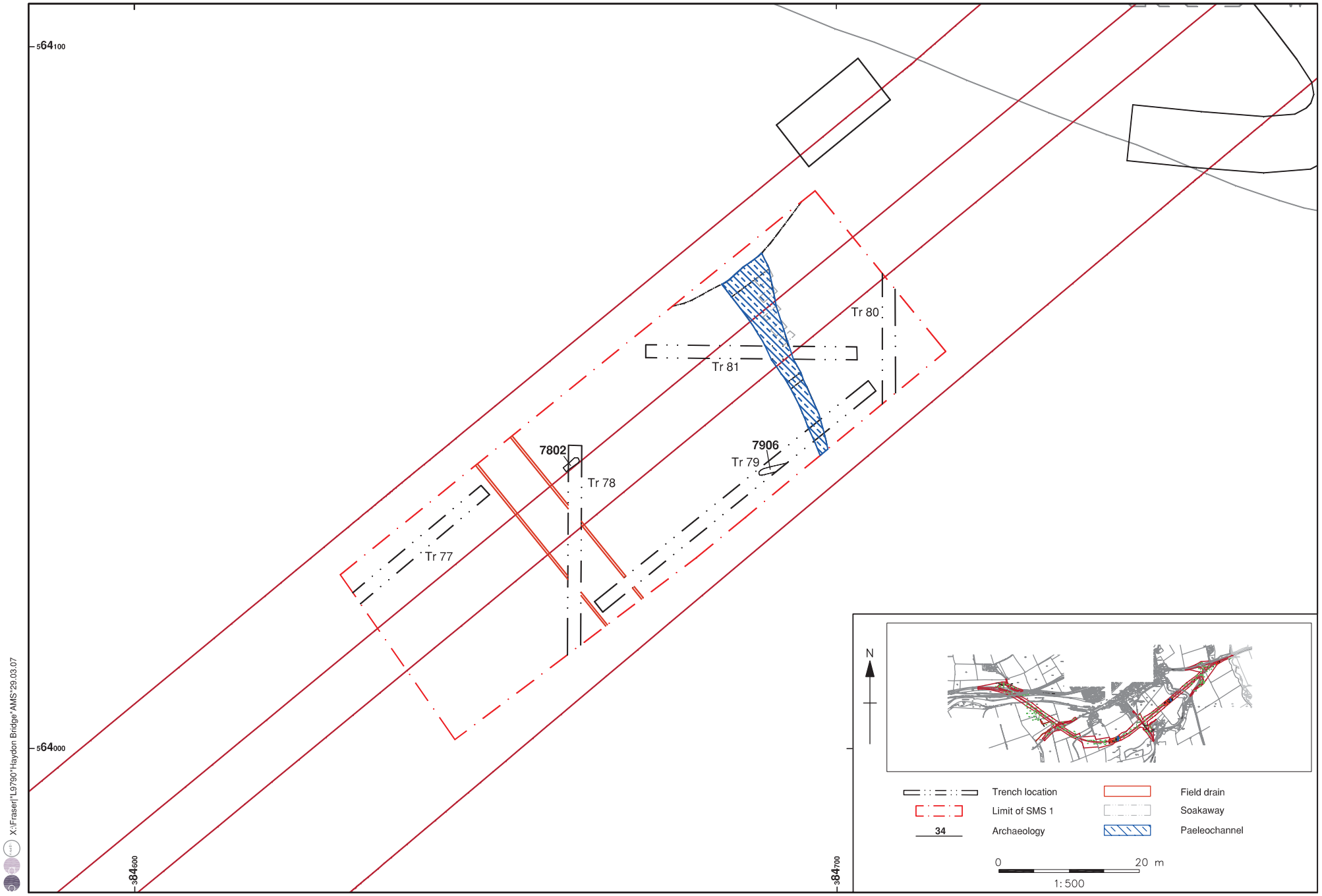

Figure 9: Haydon Bridge; SMS 2

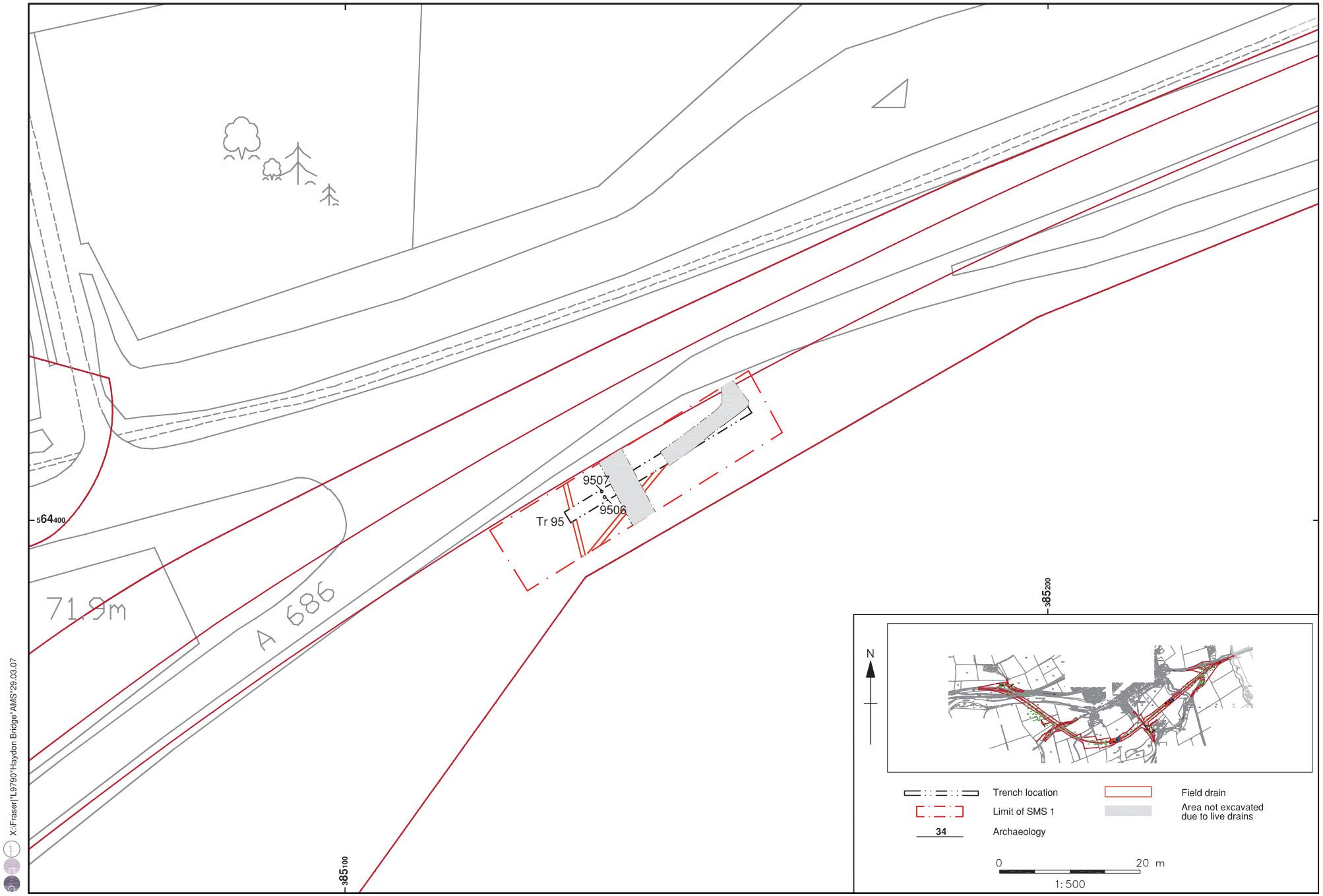

Figure 10: Haydon Bridge; SMS 3

Plate 1: South facing view of Trench 3 under excavation

Plate 2: North-west facing view of soakaway ***706***

Plate 3: North-west facing view of Trench 47 under excavation

Plate 4: North facing view of pit ***8809***

Plate 5: South facing view of the topsoil strip during compound area watching brief

Plate 6: West facing view of SMS 1

Plate 7: East facing view of SMS 2

Plate 8: North-east facing view of SMS 3

APPENDIX 1: PROJECT BRIEF

BRIEF FOR ARCHAEOLOGICAL EVALUATION ON THE ROUTE OF THE PROPOSED A69 HAYDON BRIDGE BYPASS, NORTHUMBERLAND

1. SITE DESCRIPTION AND SUMMARY

Site: Land south of Haydon Bridge, Northumberland

Grid Reference: NY 847 640

Land Use: Agricultural

1.1 Detailed specifications and tenders are invited from appropriately resourced, qualified and experienced archaeological contractors to undertake the archaeological project outlined by this Brief and to produce a report on that work. The work should be under the direct management of either an Associate or Member of the Institute of Field Archaeologists, or equivalent, and any response to this Brief should follow IFA Code of Conduct.

2. BACKGROUND

2.1 Haydon Bridge is situated on a single carriageway section of the A69 Trunk Road, approximately mid-way between Carlisle and Newcastle, within the broad valley of the River South Tyne. It is proposed to re-route the A69 Trunk Road around the southern edges of Haydon Bridge as a single carriageway bypass.

2.2 The proposed bypass runs from its junction with the present A69 at West Rattenraw south across the River South Tyne. It then curves south-east across the flood plain, rising up the southern valley side, to pass to the south of East Land Ends Farm. The bypass continues eastwards, just below the crest of the low ridge between the valleys of the River South Tyne and the Langley Burn, passing between Haydon Bridge Cemetery and Esp Hill Farm. It crosses Gees Wood, which lies in the steeply sided valley of the Langley Burn, and descends the end of the low ridge to rejoin the A69 at its junction with the A686. For the purposes of this brief, the route has been divided into five sections:

Area A – from West Rattenraw to the north bank of the River South Tyne

Area B – from the River South Tyne to Land Ends Lane

Area C – from Land Ends Lane to Cemetery Road

Area D – from Cemetery Road to Gees Wood

Area E – from Gees Wood to the junction of the A686 with the A69.

2.3 In April 2004, CVC Highway Solutions was commissioned by the Highways Agency to carry out the detailed design and construction of the Haydon Bridge Bypass. As part of this task, a Stage 3 environmental impact assessment (EIA) was carried out, to inform the production of an Environmental Statement (ES). The EIA was carried out between April 2004 and June 2005, and the ES was published on 14th June 2005. Guidance for a Stage 3 assessment recommends that field survey is undertaken at this stage, but the Highways Agency has no powers to enter privately owned land to conduct archaeological survey which involves breaking the ground. Thus, access could not be obtained during the course of the EIA, in order to carry out intrusive archaeological survey. Following completion of the assessment,

however, access was granted to carry out a geophysical survey. This was carried out in August 2005.

2.4 Further information concerning the location, extent, survival and significance of the known archaeological remains on the site, as well as the potential for unknown archaeological remains to survive, is still required. This brief sets out the requirements for an archaeological evaluation, to determine the nature and extent of the below ground survival of archaeological remains within the route corridor of the proposed bypass, and to determine the measures necessary to mitigate the impact of the route development on any remains of archaeological significance.

2.5 This brief was written in accordance with guidance given in the section on the Stage 3 assessment of cultural heritage impacts as contained in of the *Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment*, Planning Policy Guidance note 16 (Archaeology and Planning) and with policy BE28 of the Tynedale Borough Council Local Plan.

3. ARCHAEOLOGICAL BACKGROUND

3.1 Prior to the Stage 3 EIA, there were no previously known archaeological features along the line of the route, or its associated works. In Area A, however, a Neolithic polished stone axe (SMR number 7646) was found in the field to the north of the proposed junction with the existing A69, and a late Bronze Age palstave and bronze socketed axe (SMR number 7642), as well as four bronze vessels of probable medieval date (SMR number 7645) were all recovered during the cutting of the Newcastle to Carlisle railway line. In addition, earthworks to the south of West Rattenraw Farm are thought to represent the remains of a small medieval settlement, deserted during the post medieval period (SMR number 7656).

3.2 In Area B, the geophysical survey identified a number of features of possible archaeological origin, particularly in the field closest to the river. Adjacent to Land Ends Lane, a small rectangular earthwork indicates the presence of a former small enclosure, or possible field barn.

3.3 The geophysical survey in Area C identified two possible areas of archaeological features; at the base of the steep valley side, and at the top of the slope, in the field to the south of East Land Ends Farm. Geophysical survey was limited in this area, as the geology of the land to the west of Cemetery Road comprises waterlogged boulder clay and is thought to be less likely to have attracted settlement.

3.4 East of Cemetery Road, in Area D, a linear feature had been identified on aerial photographs. This feature was not picked up in the geophysical survey, though a number of other likely archaeological features were identified, particularly at the eastern end next to Gees Wood.

3.5 In Area E, a number of features of possible archaeological origin were identified by the geophysical survey on both sides of the A686, leading up to its junction with the A69.

4. SCOPE OF THE PROJECT

4.1 ***Objectives:***

4.1.1 The evaluation should aim to determine, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed road construction. An adequate representative sample of all areas where archaeological remains are potentially threatened should be studied. This includes those areas of archaeological potential identified by the Stage 3 assessment and the geophysical survey, as well as apparently blank areas, where the archaeological potential remains unknown. The

total area to be affected by the road construction in each section is shown on the enclosed plan.

4.2 ***Work Required:***

4.2.1 A desk-based assessment was carried out as part of the Stage 3 Environmental Impact Assessment, and the results are contained in the Cultural Heritage Section of the Environmental Statement. Trial trenches can be excavated without any preliminary work, beyond a familiarisation with the reports of the work already undertaken in the vicinity.

4.2.2 A series of linear trial trenches will be excavated to sample approximately 5% of the route corridor. This will total around 6,673m² of trenches. Trenches must be at least 1.7m wide and no more than 2m wide. All deposits and features of archaeological interest identified within those trenches will be investigated and recorded, unless otherwise agreed with the archaeological consultant for CVC Highway Solutions. Initial topsoil removal can be undertaken by machine, using a wide toothless ditching bucket, but subsequent cleaning and investigation must be by hand.

4.2.3 Area A, which lies within the floodplain of the River South Tyne, should also be appraised for its palaeoenvironmental potential and, if considered necessary, sample auger cores should be taken for assessment. Advice on appropriate procedures must be obtained from the English Heritage Scientific Advisor for North-East England, Dr Jacqui Huntley, Department of Archaeology, University of Durham, Science Laboratories, South Road, Durham. The agreed sampling strategy must be included in the specification.

4.2.4 The evaluation should provide a predictive model of surviving archaeological remains detailing zones of relative importance against known development proposals.

4.2.5 The following analyses should form part of the evaluation, as appropriate. If any of these areas of analysis are not considered viable or appropriate, their exclusion should be justified in the subsequent report.

- A suitably qualified specialist should assess the environmental potential of the site through the examination of suitable deposits, including: (1) soil pollen analysis and the retrieval of charred plant macrofossils and land molluscs from former dry-land palaeosols and cut features, and; (2) the retrieval of plant macrofossils, insect, molluscs and pollen from waterlogged deposits.

- Advice is to be sought from a suitably qualified specialist in faunal remains on the potential of sites for producing bones of fish and small mammals. If there is potential, a sieving programme should be undertaken. Faunal remains, collected by hand and sieved, are to be assessed and analysed, if appropriate.

- The advice from a suitably qualified soil scientist should be sought on the whether soil micromorphological study or other analytical techniques will enhance understanding site formation processes of the site, including the amount of truncation to buried deposits and the preservation of deposits within negative features. If so, analysis should be undertaken.

5. SPECIFICATION

5.1 Before the project commences a project specification must be submitted to, and approved by, the archaeological consultant for CVC Highway Solutions. All work should be carried out in compliance with the codes of practice of The Institute of Field Archaeologists, and will follow the IFA Standard and Guidance for Archaeological Field Evaluation. All artefact processing, conservation and storage will be carried out in compliance with IFA and UKIC guidelines.

The detailed specification must be prepared in accordance with the recommendations of The Management of Archaeological Projects, 2nd ed. 1991, and must include:

- a description and justification of the trench layout, with a description of the excavation sampling strategy and recording system to be used. A plan of the proposed trench layout should be provided, using the plans accompanying this brief
- a description of the finds and environmental sampling strategies to be used
- a description of the post excavation and reporting work that will be undertaken
- details of key project staff, including the names of the project manager, site supervisor, finds and environmental specialists and any other specialist sub-contractors to be employed
- details of on site staffing, expressed in terms of person days
- a projected timetable for all site work and post excavation work
- costings for all work, including post excavation, with day rates for individual staff members, and a specified contingency for additional trenches expressed as a cost per square metre

5.2 Any significant variations to the proposal must be agreed by the archaeological consultant for CVC Highway Solutions in advance.

6. REPORTING AND PUBLICATION

6.1 The archaeological work should result in a report, which should include as a minimum:

- a site location plan, related to the national grid
- a front cover/frontispiece which includes the national grid reference of the site
- the dates on which the fieldwork was undertaken
- a concise, non-technical summary of the results
- an explanation of any agreed variations to the brief, including justification for any analyses not undertaken (see 4.2.5)
- a description of the methodology employed, work undertaken and the results obtained
- plans and sections at an appropriate scale showing the location and position of deposits and finds located
- a list of, and dates for, any finds recovered and a description and interpretation of the deposits identified
- a description of any environmental or other specialist work undertaken and the results obtained

6.2 Three copies of the report should be deposited with CVC Highway Solutions within two months of completion of fieldwork.

6.3 Should further archaeological work result from the evaluation, the results of the evaluation will need to be made available for inclusion in a summary report to a suitable regional or national archaeological publication.

6.4 Recommendations concerning any subsequent mitigation strategies and/or further archaeological work following the results of the field evaluation should not be included in the report. Such recommendations are welcomed by CVC Highway Solutions, and may be outlined in a separate communication.

6.5 Northumberland SMR is taking part in the pilot study for the Online Access to Index of Archaeological Investigations (OASIS) project. The online OASIS form at http://ads.ahds.ac.uk/project/oasis must therefore also be completed as part of the project.

7. THE ARCHIVE

7.1 An archive must be prepared in accordance with the recommendations of *The Management of Archaeological Projects,* 2nd ed 1991, and arrangements made for its deposit with an appropriate repository. Advice on an appropriate repository can be obtained from the Assistant County Archaeologist at Northumberland County Council. A copy shall also be offered to the National Monuments Record.

7.2 The landowner should be encouraged to transfer the ownership of finds to a local or relevant specialist museum. The museum's requirements for the transfer and storage of finds should be discussed before the project commences.

7.3 The CVC Highway Solutions and the County Historic Environment Service must be notified of the arrangements made.

8. PROJECT MONITORING

8.1 One week's notice in writing must be given to the archaeological consultant for CVC Highway Solutions prior to the commencement of fieldwork.

8.2 Fieldwork will be monitored by the archaeological consultant for CVC Highway Solutions. Monitoring notes will be recorded, which will be completed following receipt of the final project report. Copies of the notes will be forwarded to the contractor if requested.

9. FURTHER REQUIREMENTS

9.1 Details of land ownership will be provided by CVC Highway Solutions, who will also arrange for access.

9.2 It is the archaeological contractor's responsibility to establish safe working practices in terms of current health and safety legislation. A safety plan, including risk assessments, should be submitted with the tender documentation.

9.3 Human remains must be left *in situ*, covered and protected when discovered. No further investigation should normally be permitted beyond that necessary to establish the date and character of the burial, and the archaeological consultant for CVC Highway Solutions, the County Archaeology Service and the local Coroner must be informed immediately. If removal is essential, it can only take place under appropriate Home Office and environmental health regulations.

9.4 Costs should be expressed in the following form:

- total cost for all required works

- cost breakdown, separately itemising costs for plant hire, palaeoenvironmental sampling, other fieldwork, post excavation assessment and reporting, archive compilation and deposition, project management

- staff day rates

- contingency costs per square metre of additional excavation

- contingency for fencing-off restored trenches. Price to be expressed as a cost per linear metre of stock-proof fencing.

10. WORKING TECHNIQUES

10.1 In order for damage to soils and farmland to be minimised the following working techniques shall be adopted by the archaeological contractor:

- Standards outlined in the "Code of Good Agricultural Practice for the Protection of Soil" shall be regarded as a minimum standard of working. It can be downloaded from www.defra.gov.uk/environ/cogap/soilcode.pdf.

- If more than 150mm of subsoil is to be removed, on replacement, it shall be compacted in 150mm layers using a vibrating plate (wacker) or similar. Material should not be replaced in trench if too wet to work *in situ*.

- Material shall be replaced in the same order in which it was excavated, i.e. subsoil will be replaced before topsoil.

- Field drains shall not be disturbed, dug out or removed. If a field drain is encountered, the trench shall be stopped and / or restarted away from the drain.

- No machine work is to be undertaken when the ground is waterlogged.

- If trenches fill with water, this shall be pumped out prior to work continuing.

- When replacing material, surplus material shall be mounded over the site of the trench to allow for subsequent settlement.

- After replacement of material, and in agreement with landowners and tenants, trenched areas shall be fenced off from stock to prevent further damage to area. This item to be priced as a contingency item – see item 9.4 above.

APPENDIX 2: METHOD STATEMENT

1. INTRODUCTION

1.1 *Project Background:*

1.1.1 Haydon Bridge is situated on a single carriageway section of the A69 Trunk Road, approximately mid-way between Carlisle and Newcastle, within the broad valley of the River South Tyne. It is proposed to re-route the A69 Trunk Road around the southern edges of Haydon Bridge as a single carriageway bypass. The bypass is centred on NY 847 640 and will pass through predominantly agricultural land.

1.1.2 The proposed bypass runs from its junction with the present A69 at West Rattenraw south across the River South Tyne. It then curves south-east across the flood plain, rising up the southern valley side, to pass to the south of East Land Ends Farm. The bypass continues eastwards, just below the crest of the low ridge between the valleys of the River South Tyne and the Langley Burn, passing between Haydon Bridge Cemetery and Esp Hill Farm. It crosses Gees Wood, which lies in the steeply sided valley of the Langley Burn, and descends the end of the low ridge to rejoin the A69 at its junction with the A686. The route has been divided into five sections:

- Area A – from West Rattenraw to the north bank of the River South Tyne;
- Area B – from the River South Tyne to Land Ends Lane;
- Area C – from Land Ends Lane to Cemetery Road;
- Area D – from Cemetery Road to Gees Wood;
- Area E – from Gees Wood to the junction of the A686 with the A69.

1.1.3 In April 2004, CVC Highway Solutions (hereafter the 'client') was commissioned by the Highways Agency to carry out the detailed design and construction of the Haydon Bridge Bypass. As part of this task, a Stage 3 environmental impact assessment (EIA) was carried out, to inform the production of an Environmental Statement (ES). The EIA was carried out between April 2004 and June 2005, and the ES was published on 14th June 2005. Guidance for a Stage 3 assessment recommends that field survey is undertaken at this stage, but the Highways Agency has no powers to enter privately owned land to conduct archaeological survey which involves breaking the ground. Thus, access could not be obtained during the course of the EIA, in order to carry out intrusive archaeological survey. Following completion of the assessment, however, access was granted to carry out a geophysical survey. This was carried out in August 2005.

1.1.4 Further information concerning the location, extent, survival and significance of the known archaeological remains on the site, as well as the potential for unknown archaeological remains to survive, is still required. Consequently, the archaeological consultant acting on behalf of the client produced a brief setting out the requirements for an archaeological evaluation, to determine the nature and extent of the below ground survival of archaeological remains within the route corridor of the proposed bypass, and to determine the measures necessary to mitigate the impact of the route development on any remains of archaeological significance. The following method statement has been produced in response to the consultant's brief.

1.2 SCOPE OF THE PROJECT

1.2.1 The evaluation exercise will aim to determine, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed road construction. An adequate representative sample of all areas where archaeological remains are potentially threatened will be studied. This includes those areas of archaeological potential identified by the Stage 3 assessment and the geophysical survey, as well as apparently blank areas, where the archaeological potential remains unknown.

1.2.2 A series of linear trial trenches will be excavated to sample approximately 5% of the route corridor. This will total around 6,673m² of trenches. Trenches must be at least 1.7m wide and no more than 2m wide. All deposits and features of archaeological interest identified within those trenches will be investigated and recorded, unless otherwise agreed with the archaeological consultant for CVC Highway Solutions.

1.2.3 Area A, which lies within the floodplain of the River South Tyne, will also be appraised for its palaeoenvironmental potential and, if considered necessary, sample auger cores will be taken for assessment.

1.2.4 The evaluation will aim to provide a predictive model of surviving archaeological remains detailing zones of relative importance against known development proposals.

1.2.5 Watching briefs will also be undertaken during the topsoil stripping of areas not covered by the evaluation exercise, for example the main compound to the west of Cemetery Road.

1.3 METHODOLOGY FOR PROJECT

1.3.1 This method statement is to be read in conjunction with the project health and safety plan, which defines in detail the health and safety measures to be undertaken on site. An initial risk assessments has also been undertaken, with more required for any subsequent phases of work that may become necessary. The methodology for the evaluation trenching, watching brief and palaeoenvironmental sampling exercises are detailed below.

1.4 METHODOLOGY FOR EVALUATION TRENCHING

1.4.1 The attached figure shows the locations of the 104 evaluation trenches, which have been positioned to investigate a combination of geophysical anomalies and 'blank' areas of unknown potential; in the latter case, the positioning has been determined by factors such as slope and aspect.

1.4.2 Access to all areas of the site is to be arranged by the client, who is currently in the process of fencing the area defined by the Compulsory Purchase Order) CPO boundaries.

1.4.3 The uppermost modern surface of the evaluation trenches will be removed by machine (fitted with a toothless ditching bucket) under archaeological supervision to the surface of the first significant archaeological deposit. Thereafter, the trenches will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions.

1.4.4 Any investigation of intact archaeological deposits will be exclusively manual. Selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal. It is hoped that in terms of the vertical stratigraphy, maximum information retrieval will be achieved through the examination of sections of cut features. All excavation, whether by machine or by hand, will be undertaken with a view to avoiding damage to any archaeological features which appear worthy of preservation *in situ*.

1.4.5 All information identified in the course of the site works will be recorded stratigraphically, using a system, adapted from that used by Centre for Archaeology of English Heritage, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to

identify and illustrate individual features. Primary records will be available for inspection at all times.

1.4.6 Results of all field investigations will be recorded on *pro-forma* context sheets. The site archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20 and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

1.4.7 The deposition and disposal of any artefacts recovered in the evaluation will be agreed with the legal owner prior to the work taking place. Except for items subject to the Treasure Act, all artefacts found during the course of the project will be donated to an appropriate receiving museum.

1.4.8 Environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from suitable deposits (i.e. the deposits are reasonably well dated and are from contexts the derivation of which can be understood with a degree of confidence). Where such deposits are encountered, an appropriate sampling strategy will be agreed with the consultant.

1.4.9 A suitably qualified specialist will assess the environmental potential of the site through the examination of suitable deposits, including: (1) soil pollen analysis and the retrieval of charred plant macrofossils and land molluscs from former dry-land palaeosols and cut features, and; (2) the retrieval of plant macrofossils, insect, molluscs and pollen from any waterlogged deposits, should they be present.

1.4.10 Advice will also be sought from a suitably qualified specialist in faunal remains on the potential of sites for producing bones of fish and small mammals. If there is potential, a sieving programme will be undertaken. Faunal remains, collected by hand and sieved, will be assessed and analysed, if appropriate.

1.4.11 Samples will also be collected for technological, pedological and chronological analysis as appropriate. If necessary, access to conservation advice and facilities can be made available. OA North maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

1.4.12 Advice from a suitably qualified soil scientist will also be sought as to the whether soil micromorphological study or other analytical techniques will enhance understanding site formation processes of the site, including the amount of truncation to buried deposits and the preservation of deposits within negative features. If so, analysis should be undertaken.

1.4.13 Human remains will be left *in situ*, covered and protected when discovered. No further investigation will normally be permitted beyond that necessary to establish the date and character of the burial, and the archaeological consultant for CVC Highway Solutions, the County Archaeology Service and the local Coroner must be informed immediately. If removal is essential, it will only take place under appropriate Home Office and environmental health regulations.

1.4.14 If necessary the trenches will be excavated to a maximum depth of 1.2m. The evaluation will be undertaken to sufficient depth in order to establish the character of the archaeological remains. In some cases it may be advisable to mechanically investigate a small area within an area of the trench, usually at one end, in order to ensure the natural sequence of deposits is understood. If a depth of greater than 1.2m is required then the excavation will be stepped.

1.4.15 Should any trenches need to be left open overnight, CVC Highway Solutions will be informed of their number and location in sufficient time to enable them to fence them before the end of the working day.

1.5 METHODOLOGY FOR WATCHING BRIEF

1.5.1 A programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits during the ground disturbance for areas not covered by the evaluation exercise, for example the area of the compund to the west of Cemetery Road. These groundworks will be carried out under constant archaeological observation.

1.5.2 The watching brief will comprise archaeological observation during the excavation for these works, the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified.

1.5.3 Discovery of archaeological remains will require a temporary cessation of the clearance/construction work, to allow OA North archaeologists sufficient time to ascertain the significance of the remains. Provided the remains are not considered to be of major significacnce, they will be recorded as rapidly as possible, to minimise disruption to the work programme.

1.5.4 Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (i.e. selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

1.5.5 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid co-ordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to the large-scale digital plan. A photographic record will be undertaken simultaneously.

1.6 METHODOLOGY FOR PALAEOENVIRONMENTAL SAMPLING OF AREA A

1.6.1 The palaeoenvironmental potential for Area A was discussed between Jacqui Huntley, the English Heritage Scientific Advisor for North-East England, Department of Archaeology, University of Durham and Elizabeth Huckerby, the Environmental Manager for Oxford Archaeology North, at a site meeting held on January 6th 2006. The following palaeoenvironmental sampling strategy was agreed after walking around Area A, which is adjacent to the new crossing associated with the Carlisle-Newcastle railway line as part of the Haydon Bridge by-pass. The four areas outlined in the project brief as needing evaluation centred around the lane to West Rattenraw:

1.6.2 North of present A69 and west of lane to West Rattenraw: the area is currently under pasture with rough and wetter patches indicated by ranker grassland. At the northern boundary bank there is a retaining wall, which is part hedged and at the western edge a small streamlet. Generally the land has a gentle south running slope and probably an old terrace; there is slight hollow in the middle of area and this rises to south against the road but appears to be the natural topography and not an artefact from road building.

1.6.3 Area 1: it was considered at the site meeting that there is some potential in the slight hollow of this area. It is proposed to evaluate this with a single sequence of gouge auger coring to

determine whether there is any organic survival. If organic deposits are recorded spot samples will be taken from the major stratigraphic units and the top and basal peat of the sequence for environmental assessment.

1.6.4 North of present A69 and east of lane to West Rattenraw: this area is also under pasture. It is fairly flat immediately adjacent to road with steeper slopes to the north than to the west of the lane. There is a distinct hollow under this steep slope and a "spring issues" is shown on the 1:10,500 OS map in the north-west corner of this area but there is no obvious outflow on the ground.

1.6.5 Area 2: there is possibly slightly more potential in the stronger hollow and it is proposed to evaluate this with up to two sequences of cores to determine whether peat survives both within this hollow and extending towards the main road. It was not clear whether the road works will disturb the ground at all in the hollow but if peat is present then the hydrology could well be affected by the road works to its south. If peat or organic sequences do survive then it is important to establish their spatial as well as temporal extent. This will done by taking spot samples from the major stratigraphic units and the top and basal peat for environmental assessment.

1.6.6 South of the A69 between it and the railway: this is a long thin area with the remains of old road and is heavily disturbed with broken hardcore, tarmac, cinders etc.

1.6.7 Area 3: there is no obvious potential in this area given the disturbance. However there may be some survival of organic deposits at a considerable depth, which would be costly to evaluate through coring. It is proposed therefore to use a watching brief type investigation once the road works have commenced. Should organic material prove to be present monolith samples will be removed for environmental assessment.

1.6.8 South of the railway between it and the River Tyne: the railway is in a cutting in this area, with a steep bank up on the south side, which had a rough track running along it. To the south the ground falls steeply down to the river over only a few metres.

1.6.9 Area 4: there is no potential for coring as the ground appears unsuitable and very steep.

1.6.10 In the first instance the two areas with some potential north of the present A 69 will be cored using a gouge auger which is rapid and effective in determining whether organic material survives at all. If it does, spot samples will be taken from major stratigraphic boundaries, the top of the sequence and the basal peats and the potential for pollen analysis and the date of deposits will be assessed. Dating at this stage will be targeted at the questions to be addressed should pollen also prove to be present and in good condition. The position of the cores will be recorded geographically using GPS.

1.6.11 The spot samples will be assessed for biological indicators, such as pollen, waterlogged plant and insect remains. If such indicators have been preserved and are worthy of further detailed analytical work it will be necessary to retrieve larger samples using a coring method with better integrity, i.e. less chance of cross-contamination for example with a Russian-type peat corer, a terrier rig or a cobra corer. The temporal extent of the peat in both these areas will be achieved by radiocarbon dating samples taken from the top and basal peat.

1.7 POST-EXCAVATION AND REPORT PRODUCTION

1.7.1 ***Archive:*** The results of the evaluation and watching briefs will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate

repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct.

1.7.2 This archive can be provided in the English Heritage Centre for Archaeology format, both as a printed document and on computer disks as ASCii files (as appropriate). The paper archive will be deposited with the Northumberland Record Office within six months of the completion of the fieldwork. The material archive (artefacts and ecofacts) will be deposited with an appropriate museum following agreement with the client. The museum's requirements for the transfer and storage of finds will be discussed before the project commences. The landowner(s) will be encouraged to transfer the ownership of finds to a local or relevant specialist museum. Details of the landowners are to be provided by the client following appointment. The client and the County Historic Environment Service will be notified of the arrangements made.

1.7.3 The archaeological work will result in a report, which will include as a minimum:

- a site location plan, related to the national grid;
- a front cover/frontispiece which includes the national grid reference of the site;
- the dates on which the fieldwork was undertaken;
- a concise, non-technical summary of the results;
- an explanation of any agreed variations to the brief, including justification for any analyses not undertaken;
- a description of the methodology employed, work undertaken and the results obtained;
- plans and sections at an appropriate scale showing the location and position of deposits and finds located;
- a list of, and dates for, any finds recovered and a description and interpretation of the deposits identified;
- a description of any environmental or other specialist work undertaken and the results obtained.

1.7.4 Three copies of the report should be deposited with CVC Highway Solutions within two months of completion of fieldwork.

1.7.5 Should further archaeological work result from the evaluation, the results of the evaluation will need to be made available for inclusion in a summary report to a suitable regional or national archaeological publication. The final report is designed as a document for the specific use of the client, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.

1.7.6 Recommendations concerning any subsequent mitigation strategies and/or further archaeological work following the results of the field evaluation will not be included in the report. Such recommendations will be outlined in a separate communication toCVC Highway Solutions.

1.7.7 Northumberland SMR is taking part in the pilot study for the Online Access to Index of Archaeological Investigations (OASIS) project. The online OASIS form at http://ads.ahds.ac.uk/project/oasis will therefore also be completed as part of the project.

APPENDIX 3: PROJECT DESIGN FOR SMS AREAS

1 INTRODUCTION

1.1 Haydon Bridge is situated on a single carriageway section of the A69 Trunk Road, approximately mid-way between Carlisle and Newcastle, within the broad valley of the River South Tyne. It is proposed to re-route the A69 Trunk Road around the southern edges of Haydon Bridge as a single carriageway bypass. The bypass is centred on NY 847 640 and will pass through predominantly agricultural land.

1.2 The proposed bypass runs from its junction with the present A69 at West Rattenraw south across the River South Tyne. It then curves south-east across the flood plain, rising up the southern valley side, to pass to the south of East Land Ends Farm. The bypass continues eastwards, just below the crest of the low ridge between the valleys of the River South Tyne and the Langley Burn, passing between Haydon Bridge Cemetery and Esp Hill Farm. It crosses Gees Wood, which lies in the steeply sided valley of the Langley Burn, and descends the end of the low ridge to rejoin the A69 at its junction with the A686. The route has been divided into five sections:

- Area A – from West Rattenraw to the north bank of the River South Tyne;
- Area B – from the River South Tyne to Land Ends Lane;
- Area C – from Land Ends Lane to Cemetery Road;
- Area D – from Cemetery Road to Gees Wood;
- Area E – from Gees Wood to the junction of the A686 with the A69.

1.3 In April 2004, CVC Highway Solutions (hereafter the 'client') was commissioned by the Highways Agency to carry out the detailed design and construction of the Haydon Bridge Bypass. As part of this task, a Stage 3 environmental impact assessment (EIA) was carried out, to inform the production of an Environmental Statement (ES). Following completion of the assessment, however, access was granted to carry out a geophysical survey. This was carried out in August 2005.

1.4 Further information was required concerning the location, extent, survival and significance of the known archaeological remains on the site, as well as the potential for unknown archaeological remains to survive. Consequently, the archaeological consultant acting on behalf of the client (hereafter 'the consultant') produced a brief setting out the requirements for an archaeological evaluation, to determine the nature and extent of the below ground survival of archaeological remains within the route corridor of the proposed bypass, and to determine the measures necessary to mitigate the impact of the route development on any remains of archaeological significance.

1.5 A project design was produced for these works by Oxford Archaeology North (OA North) who were commissioned to undertake the works. A programme of archaeological trial trench evaluation was undertaken in accordance with this project design between 29th of January and the 24th of February. Generally speaking there were few significant archaeological features identified in the trial trenches. In three areas (SMS1-3) there were clusters of archaeological features that were considered to indicate the survival of buried archaeological remains that would require further mitigation. This document proposes a detailed methodology for the mitigation of all the SMS areas.

2 FIELDWORK METHODOLOGY SMS AREAS

2.1 It is recommended that three areas be subject to further stripping under archaeological supervision (strip, map and sample (SMS)) to elucidate and mitigate features revealed by the evaluation exercise, and any further features that are identified. The open area excavations (SMS1-3) are also located within the footprint of the A69 Haydon Bridge Bypass Scheme and are indicated on Figures 1 - 3. They comprise:

- SMS 1 (Fig 1): Area C, a 0.34 ha area in the vicinity of evaluation trenches 57 and 59, south of East Lands End farm.
- SMS 2 (Fig 2): Area D, a 0.26 ha area in the vicinity of evaluation trenches 78 and 79, west of Gee's Wood.
- SMS 3 (Fig 3): Area E, a 0.05 ha area surrounding trench 95, opposite the sewage works and south of the existing carriageway .

2.2 The principle objectives of the excavations are:

- To make a full graphic, photographic and written record of the archaeological evidence in a manner whereby the extent, nature, form, date, function and relationships of archaeological features and/or deposits can be established to achieve "preservation by record" in advance of road construction;
- To identify and investigate the potential of the evidence to address the project research aims and objectives;
- To communicate the results of the project to the public, the client and other stakeholders;
- To prepare an archive of the project, and to deposit the archive and finds with the appropriate museum.

2.3 The excavation methodology would follow the principles and guidelines for archaeological excavation as set down out in the Institute of Field Archaeologists: Standard and Guidance for Archaeological Excavations (IFA 2001). In the unlikely event that sensitive archaeological remains were observed to continue outside the SMS areas, upon agreement with all interested parties, provision would be made to extend the excavation areas (within the areas likely to be disturbed) if the discovered archaeological remains warrant it.

2.4 The programme of archaeological works will take the form of strip, map and sample (SMS) investigations in two stages: Stage 1 - in the first instance, topsoil and overburden material will be removed to expose the first archaeological horizon. All archaeological features thus exposed will be sufficiently cleaned to allow them to be recorded, and a pre-excavation plan will be produced; Stage 2 - then, following agreement of a strategy with the consultant, any archaeology revealed in the strip will be sample excavated and recorded. The sample will be appropriate and proportional to the importance, quantity and complexity of the archaeology exposed, as well as its perceived research value.

2.5 ***Stage 1***: the initial topsoil stripping will be designe d to expose the character and nature of the archaeological remains and assess their potential research value. The primary aims will be:

- To expose archaeological remains across the whole archaeological site by the mechanical removal of topsoil and any masking subsoil;
- To create a pre-excavation plan of exposed deposits;
- To collect datable/activity specific material from the surface of exposed deposits;
- To confirm the priorities for further archaeological investigation.

2.6 ***Stage 2***: further archaeological investigations will be designed to recover data sufficient to allow for "preservation by record" and to address the research aims of the project with regard to establishing the extent, date, character and significance of the archaeological remains. The primary aims will be:

- To characterise the overall nature of the archaeological resource and to understand the process of its formation;
- To create a detailed plan of all archaeological features;
- To establish the character of those features in terms of cuts, soil matrices and interfaces;
- To recover, where appropriate, across the archaeological site representative ecofactual and palaeoenvironmental samples to provide evidence of function and past land-use;
- To establish in outline a dated sequence of structures and/or deposits and thus to define changes in site organisation over time.

2.7 ***Stripping***: during the mitigation of all three SMS areas, the topsoil, subsoil and non-structural post-medieval and later deposits will be removed under archaeological supervision by mechanical excavator(s) provided by CVC and fitted with a toothless ditching bucket. Stripping will proceed until the uppermost horizons of significant archaeological remains have been revealed or, where these are absent, the natural substrate. The topsoil will be stockpiled separately from the subsoil and other deposits. At the discretion of the client, this will either occur in storage bunds adjacent to the trench or at a remote storage area to which spoil will be hauled. The stripped areas, including the edges if necessary, will be cleaned sufficiently to enhance the definition of features.

2.8 The mechanical excavator(s) used to accomplish the topsoil strip will be fitted with a 2m wide toothless ditching bucket (or similar). If appropriate, further machine excavation will be carried out after hand excavation and recording of such deposits has been completed. (Such techniques are only appropriate for the removal of homogenous low-grade deposits, which may give a "window" into underlying levels; or for characterising features where there is no danger of removing important stratigraphic relationships and sufficient stratigraphy will remain to allow the excavation of hand excavated samples). The machine used will be safe, in good working order and powerful enough for the work and to be able to mound spoil and overburden neatly, at a minimum distance of 1.5m from the trench edges. The topsoil will be stripped in a systematic and logical manner, to ensure that where practicable the excavators and machines used to remove spoil do not rut, compact or otherwise damage buried or exposed archaeological features and deposits by crossing previously stripped areas.

2.9 ***Mapping***: All the SMS areas have been plotted on the ground by GPS surveying equipment (with a tolerance of generally +/- *c*. 1.0 m) and will be tied in to the Ordnance Survey grid. The stripping teams will pay close attention to achieving a clean stripped surface, using the mechanical plant under close archaeological supervision, to reduce the need for extensive hand cleaning. Limited areas may still require hand cleaning, to clarify complex feature intersections. The principal aim of the initial work will be to produce a plan of the revealed features that can be used to define and quantify the second stage of formal and detailed excavation. Plans will be maintained as stripping progresses and features will be defined on the ground. A general site plan will be produced at an appropriate scale to map the exposed features.

2.10 ***Sampling***: the research value of the archaeology and the necessity to achieve "preservation by record" in advance of road construction will inform the second stage excavation sampling strategies. The exact sampling levels will be determined by the nature of the remains. The resources available for the investigation of the site will be allocated so as to most effectively answer research questions. As a guide, the sampling of features is likely to include:

- The complete (100%) excavation of any grave or cremation subsequent to the conditions in *Section 2.17* being satisfied;

- Any structures will be excavated to the extent that they are sufficiently characterised and understood, this will involve excavating a representative range of structural elements such as post-holes, construction trenches, hearths etc. Some sufficiently important structures eg hearths, kilns, midden deposits etc may require 100% samples;

- Any positive feature, archaeological feature or deposit likely to obscure earlier features will be completely removed in the most appropriate fashion, after being recorded;

- Linear features will excavated to the extent that they are characterised and understood. This will include 100% of terminals and ditch intersections and sufficient interventions to provide evidence of dating and formation. As a guide linear features up to 5m in length will be subject to a 20% sample while linear features over 5m long will be subject to 10% (samples to be at least 1m wide);

- An appropriate range of discrete/isolated features (pits, postholes etc) and non-linear negative features will be investigated. It should be noted that in most cases such features will be half-sectioned, but where either no dating/functional evidence has been obtained, or where artefacts have been recovered of such a nature that the recovery of additional material of a similar nature is thought to be worthwhile, then further sampling will be undertaken. Where clusters of like features occur, it may prove sufficient to investigate a representative sample.

2.11 All contexts will be recorded using standard recording systems in accordance with the IFA Standards and Guidance for archaeological excavations; planning and surveying will be based on a site grid tied into the Ordnance Survey National Grid and ordnance datum levels will be taken where appropriate.

2.12 Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation *in situ*. Any hand excavation will respect the stratigraphy of archaeological layers, features, deposits and structures. When required, each context will be excavated in sequence.

2.13 Complex features and excavated interventions will be recorded by , individual hand-drawn plans made at a scale of 1:20 or 1:10. These detailed plans and the area plan produced in Stage 1 will be digitised and combined to produce a post-excavation plan of the site.Sections will be drawn at 1:10 or 1:20 unless circumstances dictate otherwise. All features revealed in the excavated areas will be planned.

2.14 A full photographic record comprising black and white negative archivable film will be made. In addition digital photographs taken with an optical zoom camera of at least 300 dpi will be taken.

2.15 All finds will be processed according to the IFA Guidelines for Finds Work. In all cases, all bags and boxes will be marked with the site code and context number and Museum Accession Number.

2.16 Consideration should be given to taking environmental samples (30 litres each where possible) from well stratified, datable deposits. This programme will be undertaken to enable the recovery of carbonised and waterlogged remains, vertebrate remains, molluscs and small artefactual material. An environmental specialist will be consulted as to the validity of any sampling strategy employed. If appropriate monolith samples will be taken for pollen etc.

2.17 Any finds of human remains will be left *in situ*, covered and protected and the local Coroner informed. If removal is essential it will only take place under appropriate Home Office

licence, section 25 of the Burial Act 1857 and local environmental health regulations, and if appropriate in compliance with the Disused Burial Grounds (Amendment) Act 1981.

2.18 All finds of gold and silver will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act of 1996. Where removal can not be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.

3 GENERAL WORKING PRACTICES AND STANDARDS

3.1 The work will be undertaken in accordance with the submitted project design (this document). The work will be undertaken in general accordance with the methods and practices described in the Management of Archaeological Projects (English Heritage, 1991 (revised 1996)).

3.2 All OA North staff are appropriately qualified and experienced professionals, and work in compliance with the 'Standard and Guidance for Archaeological Field Evaluation (Institute of Field Archaeologists, 1994 (revised 2001)).

3.3 The fieldwork will be undertaken in a manner likely to cause the minimum of disturbance commensurate with achieving its objectives.

3.4 CVC Health and Safety guidelines will be adhered to on site.

3.5 A copy of OA North's Health and Safety policy has already been submitted during the evaluation phase of the project. The risk assessment issued for the evaluation phase of works continues to be applicable to the excavation phase; there are no additional hazards and work is taking place in the same areas.

3.6 It is expected that the works will be undertaken within the confines of a permanent CPO boundary. CVC will be responsible for informing OA North which areas are outside the permanent CPO boundary and will make detailed land entry and access arrangements.

3.7 The work areas will be protected by appropriate temporary fencing where necessary, which will be supplied and installed by CVC.

3.8 The location of any necessary fencing or services for temporary building or other structures will be agreed by CVC in advance of fieldwork.

3.9 OA North will be co-operate with CVC, to ensure their excavations are safe by appropriate use of battering, stepping, shoring etc if this should be appropriate.

3.10 CVC will ensure that all mains service locations are identified and marked prior to work starting so that damage to these can be avoided, although it is not foreseen that this will be an issue as the SMS areas have been previously swept with a cable location tool and then trench excavated.

3.11 CVC will be responsible for the provision of site accommodation and hygiene facilities. Welfare facilities will include a mess cabin, a 'dirty' unit for changing, with washing facilities, a toilet. The mess cabin will be designated as a 'clean' area. No personnel are permitted to enter until they have removed dirty or contaminated PPE and washed their hands. The mess cabin and toilet/washing block will have hot and cold running water. The required Health and Safety Information (see Safety Plan) will be displayed in the Site Office, and the storage position of First Aid Kits will be indicated to all members of the team on arrival.

3.12 General site security will be handled by CVC. The area is rural and the specific security risk to archaeological works is considered low. Site security for Unexpected Finds will be considered on a case-by-case if the need arises. All incidents that might affect the security and/or safety of

the site will be brought to the attention of the Project Manager the same day. Incidents of criminal property damage, theft, trespass or other serious incidents that occur outside site working hours and immediately threaten the security of the site or the safety of members of the public or project personnel, will be reported to the project security guards or their supervisor, or, in their absence, the police. During working hours the OA North Project Officer will report the incident. All site records, surveying equipment, cameras etc. will be taken off site at the end of the working day. Bulky equipment, finds and samples will be stored on site in a secure steel toolstore during the week and returned to OA North premises at the end of each week. Intrinsically valuable registered finds will normally be returned to OA North premises or a suitably equipped central storage site located in the main construction compound, the same day that they are removed from the trench. Where this is impossible, consideration will be given to providing additional security staff at the trench location until the find is removed.

4 PROGRESS REPORTS AND MONITORING

4.1 OA North will submit brief weekly progress reports to the consultant CVC, detailing activities started, completed or the work completed, together with any changes to the programmed completion dates with reasons and proposals to retrieve any slippage. Daily on-site staff numbers will be included.

4.2 The archaeological contractor's work will be monitored by the consultant.

APPENDIX 4: TRENCH LIST

Trench Number	Location	Alignment	Length	Maximum Depth	Context Numbers	Archaeology
1	Area A	East/west	30m	1.25m	***100-106***	No
2	Area A	North/south	30m	1.20m	***200-202***	No
3	Area A	East/west	30m	1.70m	***300-304***	No
4	Area A	East/west	30m	1.25m	***400-406***	No
5	Area A	North/south	30m	1.25m	***500-507***	No
6	Area A	East/west	30m	1.20m	***600-607***	Yes
7	Area A	North-north-west/south-south-east	30m	1.20m	***700-710***	Yes
8	Area A	East-north-east/west-south-west	30m	1.10m	***800-807***	Palaeochannel
9	Area A	West-north-west/east-south-east	30m	1.07m	***900-905***	No
10	Area A	East/west	30m	1.00m	***1000-1004***	No
12	Area A	West-north-west/east-south-east	30m	0.95m	***1200-1203***	No
15	Area B	North-north-east/south-south-west	30m	1.26m	***1500-1504***	No
16	Area B	East/west	30m	1.23m	***1600-1604***	No
17	Area B	North/south	50m	1.15m	***1700-1705***	No
18	Area B	North/south	30m	1.12m	***1800-1804***	No
19	Area B	East/west	30m	1.00m	***1900-1903***	No
20	Area B	East/west	50m	1.26m	***2000-2005***	No
21	Area B	North/south	50m	1.70m	***2100-2106***	No
22	Area B	East/west	50m	1.60m	***2200-2205***	No
23	Area B	East/west	50m	1.60m	***2300-2305***	Palaeochannel
24	Area B	North/south	30m	1.40m	***2400-2406***	Palaeochannel
25	Area B	East/west	30m	1.02m	***2500-2503***	No
26	Area B	North/south	30m	1.53m	***2600-2605***	No
27	Area B	North/south	30m	1.90m	***2700-2704***	Yes
28	Area B	East/west	50m	1.25m	***2800-2814***	Yes
29	Area B	North/south	50m	1.9m	***2900-2902***	No
30	Area B	East/west	50m	0.80m	***3000-3003***	Palaeochannel
31	Area B	North-west/south-east	50m	1.15m	***3100-3103***	No

Trench Number	Location	Alignment	Length	Maximum Depth	Context Numbers	Archaeology
32	Area B	North-west/south-east	30m	0.70m	***3200-3208***	Yes
33	Area B	North/south	25.80m	1.09m	***3300-3302***	No
34	Area B	North-west/south-east	41.85m	1.20m	***3400-3416***	Yes
35	Area B	East/west	45m	1.28m	***3500-3513***	Yes
38	Area B	North-east/south-west	30m	0.51m	***3800-3801***	No
39	Area B	North-north-west/south-south-east	30m	0.50m	***3900-3905***	Yes
40	Area C	North-east/south-west	30m	1.3m	***4000-4003***	No
41	Area C	North/south	30m	1.16m	***4100-4103***	No
42	Area C	East/west	30m	0.35m	***4200-4202***	No
43	Area C	North/south	30m	0.60m	***4300-4304***	Palaeochannel
44	Area C	North-east/south-west	50m	0.84m	***4400-4403***	Yes
45	Area C	North/south	30m	0.95m	***4500-4502***	No
46	Area C	East/west	50m	1.10m	***4600-4602***	No
47	Area C	East/west	30m	0.75m	***4700-4703***	No
48	Area C	North/south	30m	0.50m	***4800-4803***	No
49	Area C	East/west	30m	0.70m	***4900-4903***	No
50	Area C	North/south	30m	0.50m	***5001-5002***	No
51	Area C	East/west	30m	0.68m	***5100-5103***	Yes
52	Area C	North/south	30m	0.55m	***5200-5201***	No
53	Area C	East/west	50m	0.65m	***5300-5303***	No
54	Area C	North-west/south-east	30m	0.72m	***5400-5401***	No
55	Area C	East/west	50m	0.50m	***5500-5505***	Yes
56	Area C	East/west	50m	0.68m	***5600-5602***	No
57	Area C	North/south	30m	1.08m	***5700-5702***	Yes
58	Area C	East/west	30m	0.60m	***5800-5802***	No
59	Area C	North/south	30m	0.50m	***5900-5904***	Yes
60	Area C	North/south	30m	0.45m	***6000-6002***	No
61	Area C	East/west	30m	1.00m	***6100-6102***	No
68	Area D	North/south	30m	0.70m	***6800-6804***	No

Trench Number	Location	Alignment	Length	Maximum Depth	Context Numbers	Archaeology
69	Area D	East/west	30m	0.55m	***6900-6902***	No
70	Area D	North/south	30m	0.55m	***7000-7003***	No
71	Area D	North/south	30m	1.3m	***7100-7103***	No
72	Area D	East/west	50m	0.68m	***7200-7205***	No
73	Area D	North/south	30m	1.35m	***7300-7307***	No
74	Area D	East/west	30m	1.12m	***7400-7405***	No
75	Area D	North/south	30m	1.30m	***7500-7506***	No
76	Area D	East/west	50m	1.00m	***7600-7604***	No
77	Area D	North-east/south-west	50m	0.61m	***7700-7704***	No
78	Area D	North/south	30m	0.75m	***7800-7808***	Yes
79	Area D	North-east/south-west	50m	0.80m	***7900-7907***	Yes
80	Area D	North/south	30m	1.24m	***8000-8004***	No
81	Area D	East/west	30m	0.70m	***8100-8103***	No
82	Area E	North/south	50m	1.10m	***8200-8205***	No
83	Area E	East/west	50m	0.64m	***8300-8302***	No
84	Area E	East/west	50m	0.81m	***8400-8405***	No
85	Area E	North/south	30m	1.43m	***8500-8502***	No
86	Area E	East/west	30m	1.46m	***8600-8604***	No
87	Area E	North/south	30m	1.25m	***8700-8703***	No
88	Area E	East/west	30m	0.58m	***8800-8809***	Yes
89	Area E	North/south	30m	0.90m	***8900-8902***	No
90	Area E	East/west	30m	0.90m	***9000-9003***	No
91	Area E	North/south	30m	1.07m	***9100-9103***	No
92	Area E	East/west	30m	0.85m	***9200-9202***	No
95	Area E	North-east/south-west	30m	1.30m	***9500-9508***	Yes
96	Area E	North-east/south-west	30m	2.00m	***9600-9604***	No
97	Area E	East/west	30m	0.85m	***9700-9702***	No
98	Area E	North-east/south-west	50m	0.50m	***9800-9805***	Yes
99	Area E	North/south	50m	1.2m	***9900-9904***	Yes

Trench Number	Location	Alignment	Length	Maximum Depth	Context Numbers	Archaeology
100	Area E	North/south	50m	0.70m	***10000-10006***	Yes
101	Area E	East/west	30m	0.50m	***10100-10104***	No
102	Area E	East/west	30m	0.50m	***10200-10202***	No
103	Area E	North/south	30m	0.50m	***10300-10305***	No
104	Area E	North-east/south-west	50m	1.50m	***10400-10403***	No
105	Area E	North-west/south-east	30m	0.84m	***10500-10503***	No

APPENDIX 5: CONTEXT LIST

Context Number	Trench Number	Description
1	SMS 1	Topsoil
2	SMS 1	Natural
3	SMS 1	Fill of ***4***
4	SMS 1	Pit cut
5	SMS 1	Fill of ***6***
6	SMS 1	Cut of fire pit
7	SMS 1	Fill of ***8***
8	SMS 1	Posthole
9	SMS 1	Fill of ***10***
10	SMS 1	Postpipe within ***12***
11	SMS 1	Fill of ***12***
12	SMS 1	Posthole
13	SMS 1	Fill of ***8***
14	SMS 1	Pit cut
15	SMS 1	Fill of ***14***
16	SMS 1	Fill of ***14***
17	SMS 1	Fill of ***14***
18	SMS 1	Cut of linear feature
19	SMS 1	Fill of ***18***
20	SMS 1	Posthole cut
21	SMS 1	Fill of ***20***
22	SMS 1	Posthole cut
23	SMS 1	Fill of ***22***
24	SMS 1	Fill of ***26***
25	SMS 1	Fill of ***26***
26	SMS 1	Ditch cut
27	SMS 1	Fill of ***28***
28	SMS 1	Cut
29	SMS 1	Fill of ***30***
30	SMS 1	Posthole

Context Number	Trench Number	Description
31	SMS 1	Fill of ***32***
32	SMS 1	Cut
33	SMS 1	Ditch cut
34	SMS 1	Fill of ***33***
35	SMS 2	Fill of ***36***
36	SMS 2	Land drain
37	SMS 2	Fill of ***38***
38	SMS 2	Land drain
100	1	Topsoil
101	1	Light grey sandy-clay subsoil
102	1	Natural
103	1	Natural
104	1	Mid brown sandy-silt
105	1	Mid grey sandy-silt
106	1	Mid brownish-grey clay
200	2	Topsoil
201	2	Mid grey sandy-clay subsoil
202	2	Natural
300	3	Topsoil
301	3	Mid grey clayey-sand
302	3	Natural
303	3	Natural
304	3	Natural
400	4	Topsoil
401	4	Light brown sand
402	4	Natural
403	4	Natural
404	4	Natural
405	4	Natural
406	4	Light brown silty sand
500	5	Topsoil
501	5	Mid brown sandy-silt

Context Number	Trench Number	Description
502	5	Light grey clayey-sand
503	5	Light grey silty-clay
504	5	Mid grey silty-sand
505	5	Natural
506	5	Cut of land drain
507	5	Fill of ***506***
600	6	Topsoil
601	6	Mid brown sandy-silt
602	6	Mid brown sand
603	6	Light brown sand
604	6	Mid grey silty-sand
605	6	Light brown silty-sand
606	6	Mid brown clayey-sand
607	6	Natural
700	7	Topsoil
701	7	Light grey silty-sand
702	7	Mid grey silty-sand
703	7	Light grey silty-sand
704	7	Light grey sand
705	7	Mid grey silty clay
706	7	Soakaway
707	7	Fill of ***706***
708	7	Natural
709	7	Natural
710	7	Light brown sandy-silt
800	8	Topsoil
801	8	Mid brown silty-clay
802	8	Light grey sand
803	8	Mid grey clay
804	8	Grey silt
805	8	Grey sandy-silt
806	8	Dark brown silt

Context Number	Trench Number	Description
807	8	Grey sandy-silt
900	9	Topsoil
901	9	Light brown silty-sand
902	9	Natural
903	9	Light grey sandy-clay
904	9	Natural
905	9	Natural
1000	10	Topsoil
1001	10	Dark brown sandy-silt
1002	10	Mid brown sandy-silt
1003	10	Natural
1004	10	Dark grey silt
1200	12	Topsoil
1201	12	Mid brown sandy-silt
1202	12	Natural
1203	12	Natural
1500	15	Topsoil
1501	15	Mid brown silty-sand
1502	15	Light brown sandy-clay
1503	15	Natural
1504	15	Natural
1600	16	Topsoil
1601	16	Mid brown clayey-silt
1602	16	Dark brown sandy-silty-sand
1603	16	Natural
1604	16	Natural
1700	17	Topsoil
1701	17	Mid brown sandy-silt
1702	17	Mid brown clayey-silt
1703	17	Natural
1704	17	Fill of ***1705***
1705	17	Natural hollow

Context Number	Trench Number	Description
1800	18	Topsoil
1801	18	Mid brown sandy-silt
1802	18	Mid brown sandy-silt
1803	18	Dark brown sand
1804	18	Natural
1900	19	Topsoil
1901	19	Mid brown sandy-clay
1902	19	Mid brown clayey-sand
1903	19	Natural
2000	20	Topsoil
2001	20	Mid brown sandy-clay
2002	20	Mid yellow sandy-clay
2003	20	Coarse gravel
2004	20	Charcoal lens
2005	20	Natural
2100	21	Topsoil
2101	21	Mid yellow sandy-clay
2102	21	Mid brown gravel and clay
2103	21	Sandy natural
2104	21	Natural
2105	21	Natural
2106	21	Natural
2200	22	Topsoil
2201	22	Brown clayey-silt
2202	22	Grey sandy-clay
2203	22	Natural
2204	22	Natural
2205	22	Natural
2300	23	Topsoil
2301	23	Gravels
2302	23	Brown sandy-silt
2303	23	Manganese-rich deposit

Context Number	Trench Number	Description
2304	23	Yellow silty-clay
2305	23	Grey silt
2306	23	Grey clayey-silt
2307	23	Orange silty-sand
2400	24	Topsoil
2401	24	Brown sandy-silt
2402	24	Grey silt
2403	24	Gravel
2404	24	Brown coarse sand
2405	24	Grey silty-clay
2406	24	Grey organic-rich silt
2500	25	Topsoil
2501	25	Brown sandy-silt
2502	25	Brown silty-sand
2503	25	Natural
2600	26	Topsoil
2601	26	Brown sandy-silt
2602	26	Brown silty-sand
2603	26	Natural
2604	26	Brown sandy-silt
2605	26	Light grey silt
2700	27	Topsoil
2701	27	Orange sand
2702	27	Natural
2703	27	Drain
2704	27	Fill of ***2703***
2800	28	Topsoil
2801	28	Mid brown sandy-silt
2802	28	Yellow clay
2803	28	Natural
2804	28	Linear cut
2805	28	Fill of ***2804***

Context Number	Trench Number	Description
2806	28	Possible pit cut
2807	28	Fill of ***2806***
2808	28	Fill of ***2806***
2809	28	Fill of ***2806***
2810	28	Fill of ***2806***
2811	28	Natural
2812	28	Natural
2813	28	Natural
2814	28	Natural
2900	29	Topsoil
2901	29	Red sandy silt
2902	29	Natural
3000	30	Topsoil
3001	30	Grey silty-clay
3002	30	Orange silty clay
3003	30	Organic-rich deposit
3100	31	Topsoil
3101	31	Brown sandy-silt
3102	31	Brown silty-sand
3103	31	Natural
3200	32	Topsoil
3201	32	Brown sandy-silt
3202	32	Natural
3203	32	Area of burning
3204	32	Natural
3205	32	Fill of ***3206***
3206	32	Furrow
3207	32	Natural
3208	32	Earthen bank
3300	33	Topsoil
3301	33	Grey sandy-silt
3302	33	Natural

Context Number	Trench Number	Description
3400	34	Topsoil
3401	34	Brown sandy-silt
3402	34	Fill of ***3403***
3403	34	Linear cut
3404	34	Grey silty-sand
3405	34	Brown sandy-silt
3406	34	Grey sandy-silt
3407	34	Ditch cut
3408	34	Bank material
3409	34	Grey sandy-silt
3410	34	Grey silt
3411	34	Gravel
3412	34	Gravel
3413	34	Grey silt
3414	34	Grey sandy-silt
3415	34	Grey silty clay
3416	34	Sand and gravel
3417	34	Brown sandy-silt
3500	35	Topsoil
3501	35	Grey silt
3502	35	Waterlogged organic-rich deposit
3503	35	Grey silt
3504	35	Waterlogged organic-rich deposit
3505	35	Brown silty-clay
3506	35	Possible ditch cut
3507	35	Possible ditch cut
3508	35	Brown silty-sand
3509	35	Orange sandy-silt and gravel
3510	35	Brown sandy-silt and gravel
3511	35	Grey sandy-silt
3800	38	Topsoil
3801	38	Natural

Context Number	Trench Number	Description
3900	39	Topsoil
3901	39	Brown sandy-silt
3902	39	Posthole cut
3903	39	Fill of ***3902***
3904	39	Natural
3905	39	Natural
4000	40	Topsoil
4001	40	Brown sandy-silt
4002	40	Grey sandy-silt
4003	40	Natural
4100	41	Topsoil
4101	41	Brown sandy-silt
4102	41	Grey clayey-silt
4103	41	Natural
4200	42	Topsoil
4201	42	Orange silty-sand
4202	42	Natural
4300	43	Topsoil
4301	43	Grey silty-clay
4302	43	Natural
4303	43	Natural
4304	43	Natural
4400	44	Topsoil
4401	44	Natural
4402	44	Linear cut
4403	44	Fill of ***4402***
4500	45	Topsoil
4501	45	Brown silt
4502	45	Natural
4600	46	Topsoil
4601	46	Brown silt
4602	46	Natural

Context Number	Trench Number	Description
4700	47	Topsoil
4701	47	Brown sandy-silt
4702	47	Natural
4703	47	Natural
4800	48	Topsoil
4801	48	Natural
4802	48	Natural
4803	48	Natural
4901	49	Topsoil
4902	49	Brown sandy-silt
4903	49	Natural
5001	50	Topsoil
5002	50	Natural
5100	51	Topsoil
5101	51	Natural
5102	51	Fill of ***5103***
5103	51	Linear cut
5200	52	Topsoil
5201	52	Natural
5300	53	Topsoil
5301	53	Natural
5302	53	Natural
5400	54	Topsoil
5401	54	Natural
5500	55	Topsoil
5501	55	Brown clayey-sand
5502	55	Natural
5504	55	Fill of ***5505***
5505	55	Fire Pit
5600	56	Topsoil
5601	56	Natural
5700	57	Topsoil

Context Number	Trench Number	Description
5701	57	Brown sandy-silt
5702	57	Natural
5703	57	Brown sandy-silt
5704	57	Fill of ***5706***
5705	57	Fill of ***5706***
5706	57	Cut
5800	58	Topsoil
5801	58	Brown silty-clay
5802	58	Natural
5900	59	Topsoil
5901	59	Grey silty-clay
5902	59	Fill of ***5903***
5903	59	Fill of ***5903***
5904	59	Ditch cut
6000	60	Topsoil
6001	60	Natural
6002	60	Backfill of land drain
6100	61	Topsoil
6101	61	Natural
6102	61	Natural
6800	68	Topsoil
6801	68	Brown sandy-silt
6802	68	Natural
6803	68	Natural
6804	68	Natural
6900	69	Topsoil
6901	69	Natural
6902	69	Natural
7000	70	Topsoil
7001	70	Natural
7002	70	Natural
7003	70	Land drain

Context Number	Trench Number	Description
7100	71	Topsoil
7101	71	Brown sandy-silty-clay
7102	71	Brown silty-sand
7103	71	Brown sand
7104	71	Natural
7200	72	Topsoil
7201	72	Grey clay
7202	72	Natural
7203	72	Natural
7204	72	Natural
7205	72	Natural
7300	73	Topsoil
7301	73	Brown sandy-silt
7302	73	Grey clayey-silt
7303	73	Grey clay
7304	73	Natural
7305	73	Natural
7306	73	Natural
7307	73	Natural
7400	74	Topsoil
7401	74	Grey clay
7402	74	Grey silty clay
7403	74	Grey clay
7404	74	Natural
7405	74	Natural
7500	75	Topsoil
7501	75	Brown sandy-silt
7502	75	Brown silty-clay
7503	75	Natural
7504	75	Natural
7505	75	Natural
7506	75	Natural

Context Number	Trench Number	Description
7600	76	Topsoil
7601	76	Grey silty-clay
7602	76	Natural
7603	76	Natural
7604	76	Natural
7700	77	Topsoil
7701	77	Brown silty-sand
7702	77	Natural
7703	77	Fill of ***7704***
7704	77	Cut of land drain
7800	78	Topsoil
7801	78	Fill of ***7802***
7802	78	Cut feature
7803	78	Brown silty-clay
7804	78	Natural
7805	78	Natural
7806	78	Natural
7807	78	Natural
7808	78	Natural
7900	79	Topsoil
7901	79	Natural
7902	79	Natural
7903	79	Natural
7904	79	Natural
7905	79	Natural
7906	79	Cut feature
7907	79	Fill of ***7906***
8000	80	Topsoil
8001	80	Brown sandy-silt
8002	80	Natural
8003	80	Natural
8004	80	Natural

Context Number	Trench Number	Description
8100	81	Topsoil
8101	81	Brown silty-sand
8102	81	Natural
8103	81	Natural
8200	82	Topsoil
8201	82	Grey sandy-silt
8202	82	Grey sandy-clay
8203	82	Grey sandy-silt
8204	82	Grey sandy-silt
8205	82	Natural
8300	83	Topsoil
8301	83	Grey sandy-silt
8302	83	Natural
8400	84	Topsoil
8401	84	Natural
8402	84	Natural
8403	84	Natural
8404	84	Natural
8405	84	Natural
8500	85	Topsoil
8501	85	Natural
8502	85	Grey sandy-silt
8600	86	Topsoil
8601	86	Brown clayey-silt
8602	86	Natural
8603	86	Natural
8604	86	Natural
8700	87	Topsoil
8701	87	Brown clayey-sand
8702	87	Natural
8703	87	Natural
8800	88	Topsoil

Context Number	Trench Number	Description
8801	88	Brown sandy-silt
8802	88	Natural
8803	88	Natural
8804	88	Natural
8805	88	Fill of ***8809***
8806	88	Fill of ***8809***
8807	88	Fill of ***8809***
8808	88	Fill of ***8809***
8809	88	Probable ditch terminus cut
8900	89	Topsoil
8901	89	Brown sand
8902	89	Natural
9000	90	Topsoil
9001	90	Brown sandy-silt
9002	90	Natural
9003	90	Natural
9100	91	Topsoil
9101	91	Brown sandy-silt
9102	91	Grey sandy-clay
9103	91	Natural
9200	92	Topsoil
9201	92	Natural
9202	92	Natural
9500	95	Topsoil
9501	95	Natural
9502	95	Natural
9503	95	Natural
9504	95	Brown sandy-silty-clay
9505	95	Fill of ***9506***
9506	95	Posthole
9507	95	Posthole
9508	95	Fill of ***9507***

Context Number	Trench Number	Description
9600	96	Topsoil
9601	96	Brown silty-sand
9602	96	Natural
9603	96	Natural
9604	96	Natural
9700	97	Topsoil
9701	97	Natural
9702	97	Natural
9800	98	Topsoil
9801	98	Natural
9802	98	Fill of land drain
9803	98	Fill of ***9805***
9804	98	Fill of ***9805***
9805	98	Posthole
9900	99	Topsoil
9901	99	Natural
9902	99	Natural
10000	100	Topsoil
10001	100	Grey sandy-silt
10002	100	Natural
10003	100	Natural
10004	100	Natural
10005	100	Fill of ***10006***
10006	100	Linear feature
10100	101	Topsoil
10101	101	Natural
10102	101	Natural
10103	101	Natural
10104	101	Natural
10200	102	Topsoil
10201	102	Natural
10202	102	Natural

Context Number	Trench Number	Description
10300	103	Topsoil
10301	103	Natural
10302	103	Natural
10303	103	Natural
10304	103	Natural
10305	103	Natural
10400	104	Topsoil
10401	104	Natural
10402	104	Natural
10403	104	Natural
10500	105	Topsoil
10501	105	Natural
10502	105	Natural
10503	105	Natural

APPENDIX 6: FINDS LIST

Context No	OR No	Material	Frag Count	Description	Date
35	3	Copper Alloy	1	Fragment of fitting	?
6002	1	Bone	1	Sheep metatarsal	?
6002	2	Pottery	1	Blackware	eighteenth-nineteenth century
6002	2	Pottery	1	Creamware with press moulding	eighteenth century
8807	2	Pottery	2	Pearlware	nineteenth century
9802	1	Flint	1	Core rejuvenation flake/burin	Neolithic?
Topsoil	6	Clay Pipe	3	Stem fragments	post-medieval
Topsoil	7	Pottery	5	Pearlware	nineteenth century
Topsoil	7	Pottery	9	Creamware	eighteenth-nineteenth century
Topsoil	7	Pottery	1	Stoneware	nineteenth century
Topsoil	7	Pottery	1	Yellow glazed red earthenware	nineteenth century
Topsoil	7	Pottery	1	Blackware	eighteenth-nineteenth century
Topsoil	7	Pottery	1	Cream glazed red earthenware with Wieldon type streaking	eighteenth-nineteenth century
Topsoil	7	Pottery	2	Porcelain	eighteenth-nineteenth century

APPENDIX 7: PALAEOENVIRONMENTAL ASSESSMENT OF MONOLITH CORES

1 Introduction

2.1 Three monoliths from two palaeochannels in evaluation trenches from Area B at Haydon Bridge, A69, were submitted for palynological assessment. Two of the monoliths (M8 and M9) were from Trench 23, forming a continuous sequence, and the remaining one, M4, was from Trench 35.

2 Quantification and Methods

2.1 ***Quantification and sediment description***: the monoliths were cleaned, described and subsampled. The sediment types and their depths are shown in Tables 1 and 2. Depths given are relative to the top of the trenches.

Depth (m) from top of M9	Description	Number of samples
0-0.05	Orange sand.	0
0.05-0.38	Light brown silt with charcoal fragments, charcoal band at 0.16-0.18.	4
0.38-0.63	Dark clay with charcoal fragments, wood fragment at 0.38-0.43, thin sandy band at 0.44-0.45.	3
0.63-0.71	Wood layer.	1
0.71-0.87	Very dark clay with wood fragments.	1
0.87-0.88	Dark silt.	0

Table 1: Sediment stratigraphy, Trench 23, monoliths M8 and M9

Depth (m) from top of M4	Description	Number of samples
0-0.05	Fine sand.	0
0.05-0.24	Dark organic silt.	1
0.24-0.45	Dark silt, less organic matter, few rounded stones.	2
0.45-0.66	Very dark organic silt.	2

Table 2: Sediment stratigraphy, Trench 35, monolith M4

2.2 ***Laboratory Methods***: in total, 13 subsamples - five from Monolith M8 and four from Monolith M9 in Trench 23 (Table 4), and five from Monolith M4 in Trench 35 (Table 5) - were prepared for pollen analysis using a standard chemical procedure (method B of Berglund and Ralska – Jasiewiczowa, 1986). Samples of 1cm^3 were processed using HCl, NaOH, sieving, HF, and Erdtman's acetolysis, to remove carbonates, humic acids, particles > 170 microns, silicates, and cellulose, respectively. The samples were then stained with safranin, dehydrated in tertiary butyl alcohol, and the residues mounted in 2000 cs silicone oil. Slides were examined at a magnification of 400x (1000x for critical examination) by ten equally-spaced traverses across at least two slides to reduce the possible effects of differential dispersal on the slide (Brooks & Thomas, 1967). Two *Lycopodium* tablets (Stockmarr, 1972) were added to a known volume (10ml) of sediment at the beginning of the preparation so that pollen concentrations could be calculated. Pollen was identified using the key of Moore *et al* (1991) and a modern pollen reference collection. Indeterminable grains were also recorded as an indication of the state of the pollen preservation. Nomenclature follows Stace (1997) and Bennett *et al* (1994). Pollen percentages are calculated as percentage of total land pollen and pteridophyte spores. Other taxa (aquatics, *Sphagnum*, indeterminate grains and microscopic charcoal) are presented as percentages of the sum plus group.

2.3 ***Radioncarbon dating***: four samples (at depths of 0.16-0.18m and 0.85-0.88m in Trench 23 and 0.06-0.08m and 0.63-0.65m in Trench 35) were submitted to the Scottish Universities Environmental Research Centre (SUERC), East Kilbride, for AMS radiocarbon dating (Table 3).

Lab No	Trench	$\delta^{13}C$	Depth m	Radiocarbon age BP (1σ)	Calibrated age range AD/BC (2 σ)
SUERC 14955	23	-28.4%	0.16-0.18	4045±40	2850-2460 cal. BC
SUERC 14956	23	-29.2%	0.85-0.88	5210±40	4230-3950 cal. BC
SUERC 14957	35	-29.7%	0.06-0.08	360±40	1440-1640 cal. AD
SUERC 14958	35	-29.2%	0.63-0.65	1315±40	640-780 cal. AD

Table 3: A69 Haydon Bridge radiocarbon dates: $\delta^{13}C$

2.4 Pollen data are presented in Tables 4 and 5 below. Pollen was preserved in high concentrations in all the samples assessed. Preservation was generally fair, and the low percentages of indeterminate grains would not preclude further investigation. Radiocarbon dates are presented in Table 3. Radiocarbon dates in the text are presented as the 2σ range cal. BC, and interpolated dates are calculated from linear interpolation between the two measured points. Calibration was performed with OxCal v4.0 (Bronk Ramsey 1995; Bronk Ramsey 2001) using the IntCal04 curve (Reimer *et al* 2004).

2.5 ***Trench 23***: the lowermost spectrum at a depth of 0.85m, from a dark clay with wood fragments, contains a pollen assemblage with restricted diversity of taxa. *Alnus glutinosa* (alder) is the dominant woodland taxon, with *Quercus* (oak) pollen secondary. *Corylus avellana*-type (hazel) and *Ulmus* (elm) pollen are also well-represented. Few non-arboreal pollen grains or fern spores are recorded. In the overlying sediment, which is richer in charcoal fragments, alder pollen is extremely well-represented, although the taxon declines gradually throughout. Oak and elm pollen have declined, whilst *Betula* (birch) and hazel pollen are relatively steady at low percentages. Other woodland taxa are only occasionally represented. Poaceae (grass) pollen is present, declining from initial values above 10%. Several open-ground herbs are represented sporadically, including *Plantago lanceolata* (ribwort plantain), and two cereal-type pollen grains are present. Fern spores are present, better represented in the upper spectra.

2.6 In the uppermost sediment, a lighter charcoal rich silt, alder pollen values fluctuate oak and birch pollen declines and hazel pollen is generally better represented. From initially low values, grass pollen expands to similar levels seen in the previous sediment and a more diverse suite of open ground herb pollen taxa is recorded, with the occasional cereal-type grain present. Fern spores increase at the upper boundary.

2.7 ***Trench 35***: the lowermost spectrum at a depth of 0.61m in this profile, from very dark organic silt, is dominated by grass pollen. A varied suite of open-ground herbs, including cereal-type grains, is present, which is typical for the remainder of the profile. Alder dominates the tree pollen group, with hazel secondary, and birch and oak also present. Above this sample, at a depth (0.48m) from the same deposit, grass pollen values decline and fern spores increase. Most tree pollen types are unchanged.

2.8 In the overlying sediments (dark organic silts with few rounded stones between 0.46 and 0.24m) alder pollen experiences a brief expansion and then declines, whereas hazel pollen remains more or less steady and birch and oak pollen increase. Having initially declined, fern spores and microscopic charcoal particles both increase towards the top of the profile.

Depth m		**0.07**	**0.14**	**0.19**	**0.36**	**0.41**	**0.46**	**0.62**	**0.67**	**0.85**
Tree & shrub pollen %		**67.7**	**78**	**77.9**	**78.4**	**78.1**	**79.5**	**82.4**	**80.5**	**93.7**
Crop pollen %				**0.7**	**0.2**	**0.4**			**0.8**	
Herb pollen %		**13.2**	**14**	**12.9**	**9.1**	**13.1**	**5.9**	**15.8**	**12.5**	**2.9**
Pteridophyte spores %		**19.1**	**7.9**	**8.6**	**12.3**	**8.5**	**14.6**	**1.8**	**6.3**	**3.4**
Pollen + spore sum		**303**	**328**	**280**	**408**	**260**	**391**	**165**	**128**	**413**
Total fossil concentration grains/cm^3)		**750753**	**812697**	**1156276**	**1895466**	**1932632**	**558919**	**292019**	**396437**	**548194**
Trees & Shrubs										
Alnus glutinosa	Alder	44.9	59.8	54.6	45.3	57.3	57.5	61.8	62.5	34.1
Betula	Birch	2.3	2.7	2.1	3.9	7.3	4.3	2.4	4.7	5.3
Corylus avellana-type	Hazel	12.2	7.3	14.3	13.5	8.8	10.2	7.9	7.8	11.4
Hedera helix	Ivy									1
Pinus sylvestris	Scots pine		0.3	0.4	0.5	0.4	0.3	1.2		0.2
Quercus	Oak	6.9	6.1	5.4	13	4.2	6.9	6.1	3.1	27.6
Rosaceae	Rose family		0.6		0.2			1.8		0.5
Salix	Willow	1	0.9	0.4				0.6	1.6	0.2
Taxus baccata	Yew				0.2					
Tilia cordata	Lime/linden				0.2				0.8	3.1
Ulmus	Elm		0.3		1.5		0.3			10.2
Calluna vulgaris	Ling	0.3		0.7				0.6		
Crops										
Cerealia	Cereal			0.7	0.2	0.4			0.8	
Herbs										
Poaceae	Grass family	8.3	9.1	6.4	2.9	8.5	2.8	13.9	10.2	1
Cyperaceae	Sedge family	0.3	0.3	1.4	3.9	0.4	1.3		0.8	1
Lactuceae	Dandelion family	0.3				0.8				
Apiaceae	Cow parsley family		0.3					0.6		0.5
Brassicaceae	Shepherd's purse family		0.3	0.4						
Caryophyllaceae	Pink family	1	0.6	0.7	0.7			0.6		0.2
Digitalis purpurea-type	Foxglove type					0.4				

Depth m		**0.07**	**0.14**	**0.19**	**0.36**	**0.41**	**0.46**	**0.62**	**0.67**	**0.85**
Filipendula	Meadowsweet		0.3							
Lotus-type	Bird's-foot trefoils	1		0.4		1.2				
Melampyrum	Cow-wheats			0.7	0.5		0.3			
Plantago lanceolata	Ribwort plantain		0.6	0.7	1	1.5	1			
Plantago coronopus	Buck's-horn plantain			0.4						
Plantago major/media	Greater/hoary plantain			0.4						
Plantago undiff	Plantain undiff	1.7	0.9							
Ranunculus-type	Buttercup type	0.3		0.7		0.4	0.3			
Rubiaceae	Bedstraw family								0.8	
Rumex	Dock									0.2
Solanum dulcamara	Bittersweet	0.3	0.9					0.6	0.8	
Succisa pratensis	Devil's-bit scabious		0.6	0.4						
Urtica	Nettle			0.4			0.3			
Pteridophytes										
Polypodium vulgare-type	Common polypody type	1.7	1.5		1.5	0.4			0.8	0.5
Pteridium aquilinum	Bracken	0.7	0.3	2.5			0.8	0.6	0.8	
Pteropsida (monolete) indet.	Undiff ferns	16.8	6.1	6.1	10.8	8.1	13.8	1.2	4.7	2.9
Sphagnum	Sphagnum		0.3	0.4				1.2	1.5	0.5
Aquatics										
Potamogeton	Pondweed									0.2
Typha angustifolia	Lesser bulrush				0.7					
Unidentifiable		8.7	3.8	2.1	4.7	5.1	3.7	4	7.9	1
Microscopic charcoal		+++	+++	+++	+++	42.5	+++	+++	82	+++

The numbers in the table are the percentages of total land pollen and pteridophytes spore sum, excluding *Sphagnum* spores, aquatics, unidentifiable grains and microscopic charcoal where they are the percentages of the sum plus the total of the appropriate group (for example charcoal = the number of charcoal particles as a percentage pollen sum plus the charcoal particles). For microscopic charcoal, three crosses indicates too many particles to count.

Table 4: A69 Haydon Bridge Trench 23 pollen assessment table.

Depth m		**0.08**	**0.31**	**0.44**	**0.48**	**0.61**
Tree & shrub pollen %		**37.5**	**50.6**	**69.5**	**35.8**	**39.2**
Crop pollen %		**1.7**	**0.6**	**0.9**	**1.5**	**0.6**
Herb pollen %		**29.5**	**20.8**	**11.7**	**10.2**	**45.3**
Pteridophyte spores %		**31.3**	**28**	**17.9**	**52.4**	**14.9**
Pollen + spore sum		**288**	**168**	**223**	**332**	**309**
Total fossil concentration grains/cm^3		**172642**	**271473**	**218106**	**300954**	**348009**
Trees & shrubs						
Alnus glutinosa	Alder	17	13.7	30.5	19.6	21.4
Betula	Birch	6.9	11.9	11.2	3.9	5.5
Corylus avellana-type	Hazel	5.2	7.7	8.5	6.6	9.1
Fraxinus excelsior	Ash	0.3		0.9		
Ilex aquifolium	Holly		0.6			
Pinus sylvestris	Scots pine	0.7	0.6			
Quercus	Oak	6.6	11.9	15.7	1.5	1.6
Rosaceae	Rose family		1.2	0.4	0.3	0.3
Salix	Willow		0.6	0.4	2.1	0.6
Taxus baccata	Yew			0.4	0.9	
Ulmus	Elm		1.2	0.4	0.6	
Calluna vulgaris	Ling	0.7	1.2	0.9	0.3	0.6
Crops						
Cerealia	Cereal	1.7	0.6	0.9	1.2	0.6
Cannabis / *Humulus*	Hemp / Hop				0.3	
Herbs						
Poaceae	Grass family	15.6	14.3	5.4	9.3	33.3
Cyperaceae	Sedge family	2.1	1.2	0.4		2.6
Lactuceae	Dandelion family	1	1.2	2.2	0.3	1.6
Solidago virgaurea-type	Michaelmas daisy type	0.7	1.8			
Cirsium type	Thistle type			0.4		
Alchemilla/Aphanes	Lady's-mantle/Parsley piert	0.7				
Apiaceae	Cow parsley family	0.7				0.3
Brassicaceae	Cabbage family			0.4	0.3	1.6
Caryophyllaceae	Pink family	0.7	1.8			
Chenopodiaceae	Goosefoot family	0.7				
Lotus-type	Bird's-foot trefoils	0.3	0.6			1.3
Persicaria maculosa-type	Redshank type					0.3
Plantago lanceolata	Ribwort plantain	1.4		0.4		1.3
Plantago undiff	Plantain undiff				0.3	0.3
Potentilla-type	Cinquefoil type	0.3				
Ranunculus-type	Buttercup type	1		0.4		
Rubiaceae	Bedstraw family			0.9		
Rumex	Dock	4.2				0.6
Solanum dulcamara	Bittersweet			0.9		1.9
Pteridophtes						
Pteridium aquilinum	Bracken	7.6	0.6	0.9	1.2	3.9
Pteropsida (monolete) indet.	Undifferentiated ferns	23.6	27.4	17	51.2	11
Sphagnum	Sphagnum	0.7		0.4		1.6
Unidentifiable		7.4	4.5	3.5	2.6	7.5
Microscopic charcoal		37.7	36.6	30.7	42.2	63.9

Table 5: A69 Haydon Bridge Trench 35 pollen assessment (see Table 4 for key

3 Interpretation and discussion

3.1 ***Trench 23***: sediment accumulation in this palaeochannel began in the late Mesolithic/early Neolithic (4230-3950 cal. BC; SUERC 14956 5210±40 BP) when the environment was wooded. Alder was well represented, probably growing in the wetter areas of the floodplain and the channel sides. The remaining tree pollen taxa suggest that the mid-Holocene woodland in this part of the Tyne Valley was dominated by oak, with elm, hazel, birch and lime also being frequent. Oak, hazel and alder seem to have been the main pre-clearance woodland taxa at many sites close to Hadrian's Wall (Huntley 1999). The low prevalence of Pteridophyte spores and the near-absence of herbaceous pollen indicate that whilst fern undergrowth was present in the woodland, the canopy was largely closed. As sedimentation continued, the alder population expanded, but as a high pollen producer, it is probably over-represented in the profile. Nevertheless, it is evident that the classic mid-Holocene Elm Decline occurred at some point between 0.85m and 0.67m and therefore postdates 4230 - 3950 cal. BC.

3.2 There is evidence of woodland decline and the presence of substantial areas of open ground from a depth of 0.67m. The decline was most marked in the values of oak pollen, but hazel and birch were also affected and lime was only sporadically recorded from this point onwards. The dominance of alder in the pollen record probably reflects the spread of local, floodplain, vegetation. An alder rise coincidental with the Elm Decline has been noted at Fellend Moss (Davies and Turner 1979). There are no definitive signs that humans were responsible for the clearance; except for the grass pollen and fern spores, there were few other herbs recorded and no ruderal types like Centaurea cyanus (cornflower) and Plantago lanceolata (ribwort plantain) that are indicative of anthropogenic activity (Behre 1986). The single cereal-type grain may have originated from a wild grass such as *Glyceria* (sweet grasses), which has large pollen grains similar in size to Hordeum-type (barley) and, therefore, is not a certain indication of arable agriculture (Andersen 1978). These grasses are found growing today in or by water and are as such likely to have been growing in a floodplain environment.

3.3 Between a depth of 0.46m and 0.36m there is possible evidence for a short-lived phase of human activity. Although grass pollen was at lower levels than at *c* 0.65m, there was a suite of ruderal herbs including ribwort plantain, dandelion and buttercup type. The slight increase in dryland woodland types and fern spores, and the decline in alder, suggest that open woodland had partially replaced alder on the floodplain, possibly as a result of intentional floodplain clearance. Above 0.16m there is again evidence of shifting woodland dynamics, with a decline of alder pollen at 0.07m, lower percentages of birch and oak than previously, and fluctuating hazel pollen values. Grass pollen remained steady having increased from its values at 0.36m.

3.4 Overall, the high levels of alder pollen, presumably reflecting localised floodplain vegetation, can be interpreted as exaggerating the landscape-scale importance of the taxon throughout the pollen profile by masking other pollen types. It follows that the other components of the pollen assemblages are under-represented. It can be surmised that following the Elm Decline between depths of 0.85m and 0.67m, there may have been some minor, short-lived episodes of Neolithic anthropogenic activity in the Haydon Bridge area, but that there was never complete woodland clearance during this period. The conclusions from this assessment support those from other published studies in the region of Hadrian's Wall, most of which indicate only small, temporary clearances with little evidence for cereal cultivation in the Neolithic and Bronze Age (Davies and Turner 1979; Dumayne 1994; Wiltshire 1997).

3.5 ***Trench 35***: the basal sediments in this palaeochannel began to accumulate in the Early Medieval period in a largely open environment, with pollen from the grasses being the dominant taxon, accompanied by a fairly broad suite of other herbaceous taxa. The pollen catchment area is likely to be from a relatively extensive open landscape, and the data suggest that copses of hazel, birch and oak trees were present, so it possibly resembled parkland. The presence of alder pollen and fern spores in the pollen assemblage suggest that an alder carr woodland may have been growing along the channel.

3.6 Above 0.48m there is evidence of woodland regeneration, evident by increases in the major arboreal taxa oak, birch and hazel. As alder also increases, it is likely that this taxon may have formed part of the canopy away from the river banks as well as within it. Percentages of grass and other herbaceous plant pollen correspondingly declined as woodland regenerated.

3.7 This woodland regeneration was probably not long-lasting, and the trend ceased and declined after 0.44m. The values of grass pollen remained relatively low, although a fairly wide suite of herbaceous pollen was present. Fern spores increased in the upper two samples.

3.8 The interpretation from this brief assessment supports that of Davies and Turner (1979) at Fellend Moss, in which grass and open-ground indicators remained high in the post-Roman period, maintaining moderate levels until the seventh century AD. There may have been low-level or intermittent anthropogenic activity throughout the Early Medieval and medieval periods, with significant levels of cereal-type pollen and ruderal herbs (*Rumex* (sorrels), dandelion, ribwort plantain, buttercups) at 0.6m (1440 - 1640 cal. AD; SUERC 14957 360±40 BP) more certainly reflecting late medieval agriculture.

4 Conclusion and recommendations

4.1 Radiocarbon-dated palynological assessment of two palaeochannel fills from Haydon Bridge has successfully indicated changes in vegetation and land-use in the Neolithic and from the Early Medieval to the late medieval periods. The results and interpretations of these profiles are in agreement with those from elsewhere in the Tyne Lowlands. As there are few dated pollen diagrams from these phases of history and prehistory along Hadrian's Wall and, more specifically, from the Tyne Valley - with most published diagrams concentrating on the Roman period - these deposits are of regional significance in helping to understand the environment of Haydon Bridge before and after Roman governance.

5 Bibliography

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