

**Haweswater Aqueduct
Resilience Programme (HARP).
Woodgate Hill, Bury, Greater
Manchester.**

**Archaeological Trial Trenching
Report**

For United Utilities Water

December 2023

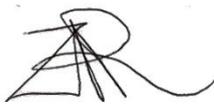
Ecus Ltd

Report to: United Utilities Water Ltd

Report Title: Woodgate Hill, Bury, Greater Manchester.
Archaeological Trial Trenching Report.

Version: 1.2
Issue Date: December 2023
Report Ref: 21075

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Version	Author	Description	Date
0.1	HD	First draft	20/07/2023
0.2	ZAR	First QA	28/08/2023
0.3	OG	Second QA	12/09/2023
1.0	ZAR	Final Issue	14/09/2023
1.1	METG	Client comments	06/11/2023
1.2	GS	GMAAS comments	13/12/2023

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Executive Summary

Ecus was commissioned by United Utilities to undertake an archaeological trial trench evaluation at the proposed Woodgate Hill site to aid the discharge of a planning condition associated with the replacement Haslingden and Walmersley tunnel section which forms part of the Haweswater Aqueduct Resilience Programme. The Woodgate Hill site consisted of seven trenches within four fields set to pasture, across an area of approximately 8ha, c.2km to the northeast of Bury. The site was centred on National Grid coordinates NGR 382243 412531.

The trial trenches were excavated in two phases. Trenches 1-6 were excavated first, in descending numerical order and working from south to north. The seventh trench, Trench 14, was located 0.25 miles to the south-east and was excavated last.

The majority of the archaeological remains recorded by the trial trenching related to post medieval farming in the form of potential ridge and furrow ploughing, stone-lined drains and ceramic field drains. Two branches of a palaeochannel, a stone trackway and two shallow gullies were the only features recorded with the potential to be of an earlier date, however none contained diagnostic dating material.

Based on the results of the trial trench evaluation, the risk of negative impact during pipeline and compound construction on any significant archaeological features is considered low. However, due to the limited window through archaeological horizons provided by the trenching, it is considered possible that further archaeological remains are present within the potential tunnel corridor or compound area.

Until a construction contractor for the scheme has been appointed, the detailed design of the compound layout and haul roads cannot be finalised. It has been agreed that once these designs are available, the contractor would cross check any required topsoil and subsoil removal within the red line boundary against the geophysical survey and areas that have been previously disturbed. They would then agree with GMAAS areas that might benefit from an archaeological watching brief during the proposed construction works.

1. Introduction

- 1.1.1 Ecus was commissioned by United Utilities to undertake an archaeological trial trench evaluation at the proposed Woodgate Hill WTW Compound and Woodgate Hill Mine Grouting Area to aid the discharge of a planning condition associated with the replacement Haslingden and Walmersley tunnel section which forms part of the Haweswater Aqueduct Resilience Programme. The Woodgate Hill site (hereafter “The Site”) consisted seven trenches across four fields set to pasture, across an area of approximately 8ha, c.2km to the northeast of Bury. The site was centred on National Grid co-ordinates NGR 382243 412531.
- 1.1.2 In October 2020, Ecus contracted Magnitude Surveys (2020) to carry out a magnetometer survey across c. 8 ha of land. No anomalies suggestive of significant archaeological features were identified within the survey area, though anomalies of undetermined origins were detected. These anomalies likely relate to agriculture, quarrying, or modern activity, though an archaeological origin could not be ruled out. Concentrated deposits of highly magnetic material were also detected in some areas. The stronger of these anomalies may relate to quarrying or extraction within the area, although these activities are not suggested by historic maps.
- 1.1.3 Initial consultation with the Greater Manchester Archaeological Advisory Service (GMAAS) identified that an archaeological evaluation, based on the results of the geophysical survey, was required prior to construction to satisfy the planning condition in line with the National Planning Policy Framework (NPPF) paragraph 194 (MHCLG 2021).
- 1.1.4 The archaeological evaluation of the Site comprised a 4% sample, consisting of seven trenches. Four trenches measured 20 m by 1.8 m and three 30 m by 1.8 m. The trenches were sited to target geophysical anomalies but also to test seemingly ‘blank’ areas on the survey plot.
- 1.1.5 This document presents the results of the archaeological trial trench evaluation, which was carried out as stipulated in a Written Scheme of Investigation (WSI) (Ecus 2023) and conducted in accordance with relevant standards and guidance.

1.2 Site Background

- 1.2.1 The Site is c. 300 m east of the M66 and c. 2 km north-east from the centre of Bury. The Site consists of multiple arable fields covering an area of c. 8 ha.
- 1.2.2 The Site slopes from the highest point in the north tip of 185 m above Ordnance Datum (aOD) to 137 m aOD at the southern edge.
- 1.2.3 The bedrock geology is recorded as Pennine Lower Coal Measures Formation, composed of mudstone, siltstone, and sandstone, with a band of called Woodhead Hill Rock (sandstone) running

through the centre. Some superficial deposits are recorded to the north of the Site as Devensian Till (Diamicton), but the majority of the Site has no superficial deposits recorded (BGS 2023).

1.3 Archaeological and historical background

1.3.1 The following summary of the archaeological and historical background is drawn from the Magnitude Surveys Geophysical Report (2021) and was outlined previously in the WSI (Ecus 2023).

Prehistoric and Roman

1.3.2 Iron Age activity has been identified c. 465 m east of the Site, with a possible hillfort recorded along with an earthwork bank.

Early medieval and medieval

1.3.3 Medieval agricultural activity has been recorded within the environs of the Site in the form of ridge and furrow cultivation.

1.3.4 A possible medieval castle is recorded c. 510 m east of the north edge of the Site.

Post-medieval to modern

1.3.5 Demolished industrial features dated to the post-medieval to modern period have been recorded within the vicinity of the Site, including Broad Oak Mill c. 995 m to the southeast of the Site and Fen Grove Weaving Mill, a former textile mill c. 255 m to the southwest.

1.3.6 Farmsteads are recorded around the Site, including Chesham Fold c. 345 m to the southwest and Gorsey Brow Farm, c. 180 m west.

1.3.7 Mid-20th-century covered reservoirs and associated buildings are recorded c. 190 m to the west of the Site and c. 60 m south of the Site.

1.3.8 A map regression shows that the survey area was mostly open ground on the 1885–1900 Ordnance Survey map, with a tree plantation running northwest to southeast.

Historic mapping

1.3.9 On the 1888–1913 Ordnance Survey map, a quarry is depicted annotated 'Old Quarry' to the east of the Site. Hole Bottom Cemetery, including a mortuary chapel, is shown to the south of the Site.

1.3.10 No significant changes are noted until the 1949–69 Ordnance Survey map, in which a rectangular area of levelled ground is depicted c. 200 m northwest of the Site. Two buildings are shown south of the levelled ground, directly north of Riddings Farm. The strip of plantation is no longer visible, most likely having been removed during the landscaping works. The Old Quarry to the east of the

Site is no longer recorded.

Geophysical survey

1.3.11 Following a magnetometer survey commissioned by ECUS in 2020, Magnitude Surveys Ltd produced a report for the site (2021) which stated the following:

- The geophysical survey detected anomalies of agricultural and modern origin;
- No anomalies suggestive of significant archaeological activity were identified;
- Modern interference was recorded in the form of magnetic disturbance from field edges and underground services, with some magnetic disturbance likely relating to the construction of the service reservoir; and
- Natural variations have been identified following the slopes of the survey areas, and the geology of the area has produced a relatively noisy magnetic background.

2. Methods

2.1 General

2.1.1 Ecus is a Chartered Institute for Archaeologists Registered Organisation (ClfA).

2.1.2 All work was undertaken by experienced Ecus staff who are personally accredited members of ClfA or who demonstrably work to an equivalent standard for fieldwork.

2.2 Standards and guidelines

2.2.1 The methodology contained in this report is based upon the following published standards and guidelines of practice:

- *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Historic England 2015a);
- *Code of Conduct: professional ethics in archaeology* (Chartered Institute for Archaeologists 2021);
- *Standard and guidance for archaeological field evaluation* (Chartered Institute for Archaeologists 2020a);
- *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (Chartered Institute for Archaeologists 2020b); and
- *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute of Archaeologists 2020c).

2.3 Aims and objectives

2.3.1 The aims and objectives for the evaluation trenching were outlined in the WSI. The aims were:

- identify and record any archaeological deposits, structures or built fabric within the identified areas of interest;
- determine the extent, condition, character, significance and date of any exposed archaeological remains;
- recover artefacts disturbed by the site works;
- prepare a comprehensive record of and report on archaeological observations during the site work; and
- identify mitigation strategies to ensure the recording, preservation or management of archaeological remains within the Site.

In order to achieve the above aims, the general objectives of the evaluation were:

- to test the results of the geophysical survey (Magnitude 2021);
- to determine the presence or absence of archaeological features, deposits, structures, artefacts or ecofacts within the specified areas;
- to establish, within the constraints of the evaluation, the extent, character, date, condition and quality of any surviving archaeological remains;
- provide evidence to address relevant research topics within the North West Regional Research Framework;
- to place any identified archaeological remains within a wider historical and archaeological context in order to assess their significance; and,
- to make available information about the archaeological resource within the site by reporting on the results of the evaluation.

2.4 Evaluation trenching methodology

2.4.1 The trenches were located using survey-grade GPS and recorded on the latest Ordnance Survey maps to enable accurate relocation of the trenches.

Soil stripping

2.4.2 Mechanical stripping of topsoil and subsoil from the trenches was carried out in accordance with the ClfA guidelines laid out in “*Standard and guidance for archaeological field evaluation*” (2020a).

2.4.3 Topsoil and subsoil were stacked separately to aid reinstatement. Spoil derived from machine stripping and hand excavation was visually scanned for finds retrieval.

2.4.4 Following investigation, the trenches were signed off by the Greater Manchester Archaeological Advisory Service (GMAAS) prior to backfilling under archaeological supervision. Arisings were returned to each trench in the correct order and tracked in.

Hand excavation

2.4.5 Following initial stripping of trenches, a measured survey of all visible archaeological features was made and a sample of the archaeological features and deposits identified were hand excavated, enough to address the aims of the evaluation.

2.4.6 The sample levels for types of excavated features were as follows:

- 100% of features of a ritual or ceremonial nature;

- 20–50% sample (minimum 1 m length) of domestic and settlement-related linear features, depending on their nature and significance;
- 50% of discrete features (such as pits and postholes) as a minimum, though some will be 100% excavated to confirm function or for ease of excavation (in the case of small features);
- 10–20% sample (minimum 1 m length) of the overall length of non-settlement-related linear features, such as medieval or earlier field boundaries, depending on their nature and significance;
- 5% sample (minimum 1 m length) of the overall length of linear features of lesser archaeological significance such as post-medieval or later boundary ditches.

Recording

- 2.4.7 All archaeological deposits were recorded using a continuous numbered context system on a pro-forma recording system in accordance with industry standards. The context record is hierarchically based. Each context record fully describes the location, extent, composition, and relationships of the subject and will be cross-referenced to other, relevant assigned records. Recording is in a digital format using the DiggIt application (<https://www.diggitar archaeology.com>). A drawn record of all archaeological features was made at an appropriate scale. Sections/profiles were drawn at a scale of 1:10, trenches were planned via GPS trench survey.
- 2.4.8 A photographic record of the site was taken using digital photography at a minimum resolution of 10 megapixels and included a clearly visible, graduated metric scale, site code and context feature number(s) where appropriate. A register of all photographs was maintained and all digital photography was performed in accordance with national guidance (Historic England 2015c).

3. Trench Results

3.1 Introduction

- 3.1.1 The following section presents the results of the archaeological evaluation. The context descriptions for recorded archaeological features are reproduced in Appendix 1.
- 3.1.2 The evaluation consisted of 7 mechanically excavated trenches across two areas. Trenches 1-6 in the fields to the north and east of Hercules Farm, and Trench 14 approximately 0.25 miles to the south-east. The trenches will be described in numerical order.

3.2 Trench 1

- 3.2.1 Trench 1 measured 20m x 1.8m and was orientated north-west to south-east. The trench was located at the base of the hill, down-slope of Hercules Farm and adjacent to the course of Gypsy Brook (Fig.1). The trench sloped downwards from north-west to south-east.
- 3.2.2 The orange natural clay (**105**) was encountered at a depth of 0.5m at both ends of the trench, with plated sandstone bedrock appearing at the north-western end.
- 3.2.3 A palaeochannel (**102**), measuring approximately 10m in width, cut through the natural clay on a roughly east to west trajectory and was likely a relict channel of the Gypsy Brook. A sondage excavated at its centre encountered its base at a depth of 1.1m below ground level (bgl), eroded into the natural bedrock and bluish-grey boulder clay (Plate 1). It was filled by an initial deposit of dark greyish-brown silt (**104**), 0.5m thick, that contained moderate amounts of natural organic material, notably twigs. Deposit **104** was superseded by a 0.3m thick layer of light grey plastic clay (**103**) which appeared to seal the palaeochannel.
- 3.2.4 A 0.8m wide shallow gully (**109**) cut through deposit **103**, apparently following the northern edge of palaeochannel **102**. It was filled by a sterile, light brownish-grey clayey-silt that contained no diagnostic material attaining to a potential date or usage. A later stone-filled feature was excavated above gully **109** along the same alignment and potentially represents a later phase (Plate 2, Fig.3). This will be discussed in more detail below.
- 3.2.5 Palaeochannel **102** and gully **109** were sealed by a 0.1m thick subsoil horizon (**101**) of mottled orange-grey silty clay. Cutting through the subsoil at the north-western end of the trench was a 1.6m wide, shallow ditch (**111**), following the same east to west alignment as earlier gully **109**. Ditch **111** was filled by a compacted deposit of sandstone fragments (**112**), the upper surface of which had been cambered to form a rough track surface.
- 3.2.6 Cutting through the subsoil horizon, at the south-eastern end of the trench, was a stone drain

running along a north to south alignment (Plate 3). The drain sat within a vertical-sided cut (**106**), 0.6m wide and 0.25m deep, and was constructed of flat sandstone slabs along the base and top with 3 rough courses forming the walls (**107**). The central aperture was approximately 0.15m square and contained a light grey sandy-silt fill (**108**) which had accumulated along the base. The culvert was also encountered at the north-western end of Trench 2 to the south (**206**).

3.2.7 Trench 1 was sealed by a 0.25m thick topsoil horizon (**100**).

3.3 Trench 2

3.3.1 Trench measured 30m x 1.8m and was located within the same field as Trench 1, approximately 20m to the south-east, and was also orientated north-west to south-east.

3.3.2 The orange natural clay was observed at the south-eastern end of the trench, at a depth of approximately 0.5m. A second palaeochannel (**209**) cut through the upper natural clay along a north to south alignment, and likely converges with channel **102** within the field to the north-east. A sondage was excavated through the centre of **209** and encountered its base at a depth of 1m bgl, eroded into the natural bedrock and bluish-grey boulder clay (**215**, Plate 4). A mixed deposit of eroded bedrock fragments within a grey sandy-silty matrix had accumulated along the base (**214**), which was superseded by a dark greyish-brown silt (**213**) and a light grey plastic clay (**212**), comparable to fills **104** and **103** of palaeochannel **102** in Trench 1.

3.3.3 Palaeochannel **209** was sealed by a mottled orange and grey subsoil horizon (**211**), up to 0.3m thick, but which was cut by all other recorded features within Trench 2.

3.3.4 At the north-western end of the trench was a shallow, circular feature (**204**), which measured 1.1m in diameter and 0.25m deep and extended into the south-western edge of the trench (Plate 5). It was filled by a mixed deposit of redeposited orange clay and dark greyish-brown silty clay (**205**) but contained no diagnostic finds.

3.3.5 The southwards course of stone drain **106** was encountered again to the south of **204** and recorded in Trench 2 as **206**. Its structure was consistent with that recorded in Trench 1, however its upper slabs had been heavily disturbed and the cut infilled with topsoil, presumably as a result of modern farming (Plate 6).

3.3.6 A shallow stone-lined drain (**203**), 0.5m wide, ran along a north-east to south-west alignment, towards the western edge of underlying palaeochannel **209**. This too had been heavily truncated, with only a single course of fragmentary stone surviving along its base (Plate 7).

3.3.7 At the south-eastern end of the trench, a 0.15m thick layer of redeposited orange clay (**201**) sat above the subsoil and potentially resulted from upcast of material from the excavation of quarry

pits, although no nearby examples are indicated on the geophysical survey (Plate 8).

3.3.8 The features within Trench 2 were sealed by a 0.25m thick horizon of topsoil (**200**).

3.4 Trench 3

3.4.1 Trench 3 measured 20m x 1.8m and was located in the field to the east of Hercules Farm. It was orientated north-east to south-west and was sited at the northern extent of the field, at the base of the slope.

3.4.2 The natural orange clay (**303**) was encountered at a depth of 0.3m – 0.5m, the ground level sloping down to the north-east. A 0.1m thick subsoil horizon of mottled orange and grey silty clay (**302**) had accumulated above the natural clay and was superseded at the north-eastern end of the trench only by a 0.1m thick black peat deposit (**301**), presumably reflecting an area of previously boggy ground.

3.4.3 The only feature encountered in the trench was a stone-lined drain (**304**), 0.5m wide and orientated east to west, which was constructed of a basal course of sandstone fragments topped with rough sandstone slabs (Plate 9). Fragments of nineteenth century pottery were recovered from drain **304**. The drain potentially corresponds to a weak linear anomaly identified in Area 5 of the geophysical survey (Magnitude 2020)

3.4.4 Trench 3 was sealed by a 0.2m thick topsoil horizon (**300**), that was increasingly stony towards the south-western end of the trench. The stone was potentially a deliberate inclusion in that area to counteract the boggy ground at the base of the field, adjacent to the farm buildings.

3.5 Trench 4

3.5.1 Trench 4 measured 30m x 1.8m and was orientated north-west to south-east, approximately 45m south-east and upslope of Trench 4 within the field adjacent to Hercules Farm.

3.5.2 No archaeological features were identified in Trench 4. The natural geology (**402**) was an orange-brown shaley clay with patches of degraded coal (Plate 10). This was superseded by a 0.1m thick mottled orange and grey subsoil horizon (**301**) and 0.25m topsoil (**300**).

3.6 Trench 5

3.6.1 Trench 5 measured 30m x 1.8m and was orientated east to west, approximately 15m south and upslope of Trench 4.

3.6.2 The natural orange clay (**502**) was encountered at a depth of 0.3m – 0.6m, varying due to natural undulations of the ground. Two archaeological features were recorded cutting through the natural

clay.

- 3.6.3 Seven metres from the western end of the trench was a 0.6m wide gully (**503**), running along a roughly north to south alignment (Plate 11). Gully **503** was 0.17m deep and had moderately steep sides and a flat base. It was filled by mid greyish-brown silty clay (**504**) with occasional small sub-rounded stones, but which contained no finds or environmental evidence.
- 3.6.4 The terminus of a second gully (**509**) was recorded c.9m from the eastern end of the trench (Plate 12). It was orientated north-west to south-east and measured 0.5m wide but only 0.05m deep due to substantial truncation by modern farming. It was filled by a mid greyish-brown silty clay deposit that contained charcoal and occasional flecks of CBM (**510**). Due to the truncated nature of the feature, this deposit was unable to be sampled due to potential contamination.
- 3.6.5 A 0.1m thick subsoil horizon of orange and grey mottled silty clay (**501**) sealed gullies **503** and **509** and was recorded across the trench. Two stone-lined drains (**505**, **507**) were cut through the subsoil, following a parallel north-east to south-west alignment and situated approximately five metres apart. Drain **505** was the most westerly, it measured 0.6m wide and consisted of a rough course of sandstone blocks along the edges of the cut, which were topped with sandstone slabs (**506**, Plate 13). Drain **507** appeared to have been of comparable construction, however the upper sandstone slabs (**508**) had been displaced, seemingly by a recut of the drain which was infilled by a compacted deposit of cobbles (**509**, Plate 14). The drains potentially correspond with weak linear trends along the same alignment identified in Area 12 of the geophysical survey (Magnitude 2020).
- 3.6.6 Trench 5 was sealed by a 0.3m thick topsoil horizon.

3.7 Trench 6

- 3.7.1 Trench 6 measured 20m x 1.8m and was orientated north-west to south-east. It was sited on a plateau in a field to the south of the access road to Hercules Farm.
- 3.7.2 The natural geology was a stony orange-brown clay (**602**), encountered at a depth of 0.4m. This was superseded by a 0.1m thick subsoil horizon (**601**) of mottled orange and grey silty clay across the trench.
- 3.7.3 Towards the centre of the trench, the vestiges of two furrows (**604**) ran along a north-east to south-west alignment, separated by a distance of c.4m (Plate 15). The furrows were each 1m wide and survived only 0.1m in depth and were filled by a mottled orange and grey silty clay (**605**), of similar composition to subsoil **601**. The regimen of furrows had been previously identified on the geophysical survey results for Area 6 (Magnitude 2020).
- 3.7.4 Trench 6 was sealed by a 0.3m thick topsoil horizon (**600**).

3.8 Trench 14

- 3.8.1 Trench 14 measured 20m x 1.8m and was orientated north-east to south-west. It was set apart from Trenches 1-6, some 400m to the south-east of Trench 6 (Plate 16).
- 3.8.2 A single, shallow pit (**1402**), 0.75m in diameter, was recorded at the north-eastern end of the trench (Plate 17). It was filled by a dark brown stony deposit of loam (**1403**), similar to topsoil and was therefore likely post-medieval or modern, however its stratigraphic relationship was difficult to discern within the trench as it was only visible cutting into the natural geology.
- 3.8.3 The natural geology was an orange brown sandy clay with frequent sandstone inclusions (**1401**) and this was capped directly by 0.25m of topsoil (**1400**) with no intervening subsoil horizon. Sherds of late post-medieval pottery and bottle glass were recorded within the topsoil but were not retained.

4. Conclusions

- 4.1.1 The archaeological evaluation fulfilled the aims and objectives set out in the WSI (Ecus 2023). The majority of the archaeological remains recorded related to post medieval agriculture and field drainage, a number of which corresponded to weak linear anomalies identified during the geophysical survey in Area 6 and Area 12 (Magnitude 2020). These were stone drain **304**, parallel stone drains **505** and **507** and agricultural furrows **604**. Culvert **106/206** was previously unattested, but stratigraphically ascribes to the horizon associated with post-medieval agriculture.
- 4.1.2 Two palaeochannel courses were identified in Trench 1 and Trench 2. No finds were recovered from either to indicate the period in which they were active and the environmental samples taken were also undiagnostic of any nearby human activity. Neither of the channels are depicted on the Ordnance Survey mapping of 1851, indicating they were relict by the 19th century. The siting of gully **109** and later trackway **111** along the north-western edge of channel **102** does however suggest that the area remained increasingly wet and required additional measures in order to traverse it. This feature is also not seen on the early Ordnance Survey mapping and we can therefore assume that this too predates the 1851 map.
- 4.1.3 The only other features which predated the post-medieval agricultural horizons and their associated drainage features, were two truncated gullies recorded in Trench 5. The fill of gully **503** was sterile and undiagnostic, potentially indicative of an early field boundary or enclosure. Gully **509** however, despite being heavily truncated, displayed a fill which contained visible flecks of charcoal and burnt material, potentially daub. Its north-west to south-east alignment was also in contrast to the other features recorded in Trench 5. Unfortunately, due to its shallow depth and potential contamination, no secure environmental samples could be taken and no finds were recovered despite full excavation of the feature within the trench.
- 4.1.4 Based on the results of the trial trench evaluation, the risk of negative impact from the tunnel construction on any significant archaeological features is considered low. However, the presence of the two gullies (despite their truncated state) and the courses of two palaeochannels, that predate the post-medieval agricultural horizons, indicates that there is still potential for earlier archaeological remains to be encountered which were not recorded by the geophysical survey.
- 4.1.5 Until a construction contractor for the scheme has been appointed, the detailed design of the compound layout and haul roads cannot be finalised. The WSI (Ecus 2023, para. 2.3.4) noted that it has been agreed that once these designs are available, the contractor would cross check any required topsoil and subsoil removal within the red line boundary against the geophysical survey and areas that have been previously disturbed. They would then agree with GMAAS areas that might benefit from an archaeological watching brief during the proposed construction works.

5. Archiving

5.1 Physical Archive

5.1.1 No physical archive was created during the works so a repository museum will not need to be approached at this point. Environmental samples were taken from contexts **104** and **213** but were deemed to be of no archaeological potential and were discarded in consultation with GMAAS.

5.2 Digital Archive

5.2.1 The digital archive is currently held at Ecus's office in Barnard Castle under the project code 21075, and will be deposited with the Archaeology Data Service through their ADS-easy system following completion of all archaeological work for the scheme and approvals by GMAAS of all associated reporting. An OASIS form (OASIS ID: ecusltd1-516488) has been created and copy of the final, approved version of this report will be uploaded to the ADS via the OASIS form.

6. Copyright

6.1 Digital Archive

6.1.1 The copyright and ownership of the digital archive from the archaeological work will rest with Ecus Ltd. On completion of the contracted works, Ecus will deposit the material with the Archaeology Data Service through their ADS-easy system, to whom they will transfer title and/or licence the use of the records.

6.2 Report

6.2.1 Full copyright of each report shall be retained by Ecus Ltd under the Copyright, Designs and Patents Act 1988 with all rights reserved, excepting that the Developer will be licensed:

- to use each report in all matters directly relating to the scheme; and
- to make each report available for public dissemination as part of the dissemination measures.

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Appendix 1: Context Descriptions

Context no.	Type	Feature	Cut no.	Trench	Description
100	Layer			1	Topsoil of trench 01. Colour: dark brownish black. Composition: loam. Compaction: wet, malleable.
101	Layer			1	Subsoil of trench 01. Colour: mid greyish brown. Composition: clayey silt. Compaction: moist, friable.
102	Cut	Palaeochannel		1	Cut of NW-SE Palaeochannel. Shape in plan: linear. Break at top: gradual. Sides: moderate, concave. Break at base: imperceptible. Base: uneven.
103	Fill	Palaeochannel	102	1	Upper grey clay of Palaeochannel of trench 01. Colour: light grey. Composition: clay. Compaction: moist, firm.
104	Fill	Palaeochannel	102	1	Lower dark grey silt Palaeochannel of trench 01. Colour: mid brownish grey. Composition: clayey silt. Compaction: moist, malleable.
105	Layer			1	Natural of trench 01. Colour: mid brownish orange. Composition: bedrock in boulder clay.
106	Cut	Culvert		1	Cut of N-S culvert. Shape in plan: linear. Break at top: sharp. Sides: vertical, straight. Break at base: sharp. Base: flat.
107	Masonry	Culvert	106	1	Form: N-S linear culvert. Materials: greyish orange plated sandstone. Bonding: none. Finish and coursing:

Context no.	Type	Feature	Cut no.	Trench	Description
					stones featuring random coursed coursing.
108	Fill	Culvert	106	1	Fill of culvert {107}. Colour: mid grey. Composition: silt. Compaction: moist.
109	Cut	Stone-filled gully		1	Cut of E-W stone-filled gully. Shape in plan: linear. Break at top: gradual. Sides: moderate, concave. Break at base: imperceptible. Base: sloping towards S.
110	Fill	Stone-filled gully	109	1	Fill of stone-filled gully [109]. Colour: mid bluish grey. Composition: silty clay. Compaction: moist, malleable.
111	Cut	Stone-filled gully		1	Cut of E-W stone-filled gully. Shape in plan: irregular spread. Break at top: 1) N: imperceptible 2) S: sharp. Sides: 1) N: shallow, straight 2) S: vertical, concave. Break at base: imperceptible. Base: sloping towards S.
112	Fill	Stone-filled gully	111	1	Fill of stone-filled gully [111]. Colour: mid orangey yellow. Composition: poorly sorted clayey cobble. Compaction: moist.
113	Layer			1	Natural of trench 01. Colour: yellow. Composition: clay.
200	Layer			2	Topsoil of trench 02. Colour: dark brownish black. Composition: loam. Compaction: wet, malleable.

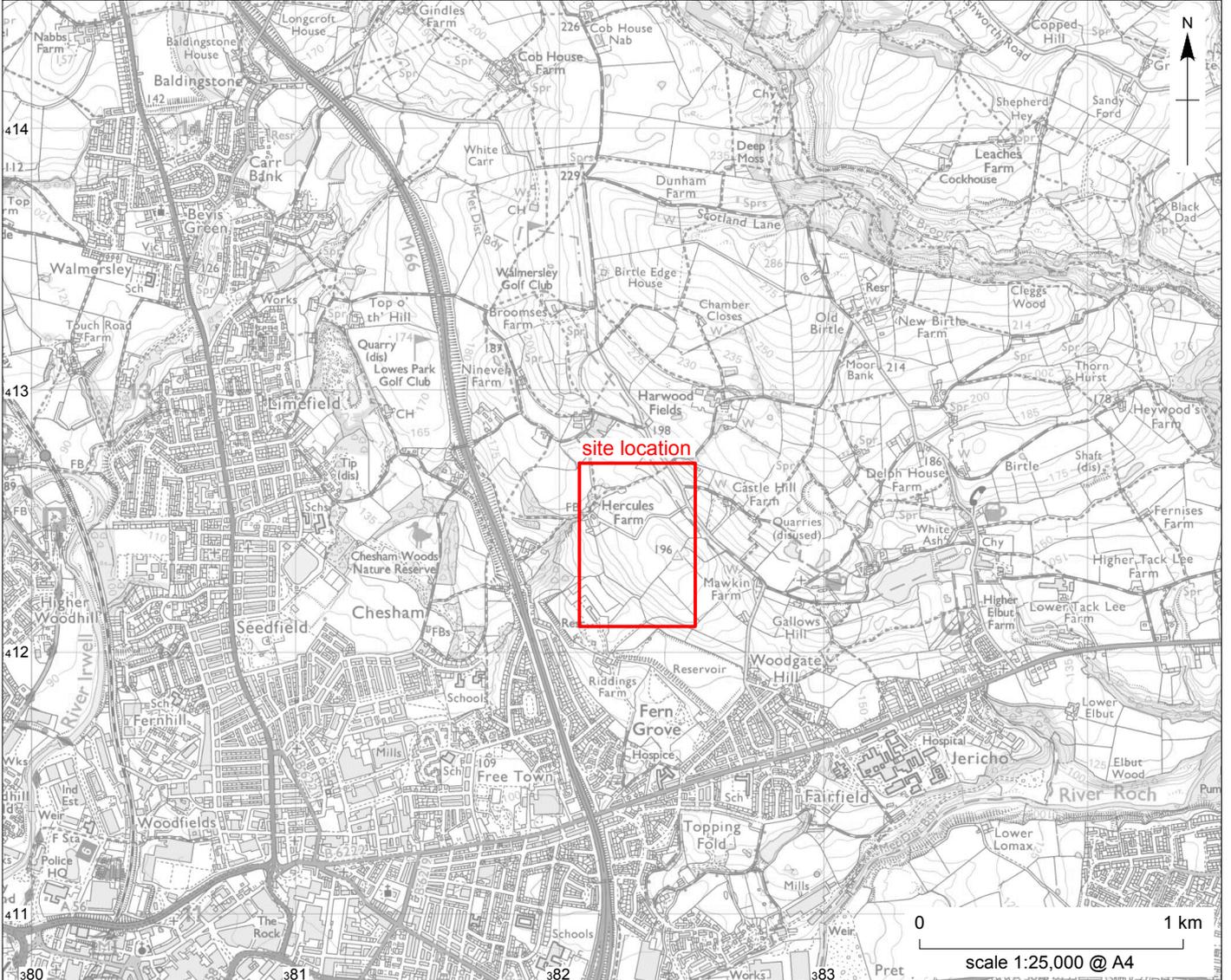
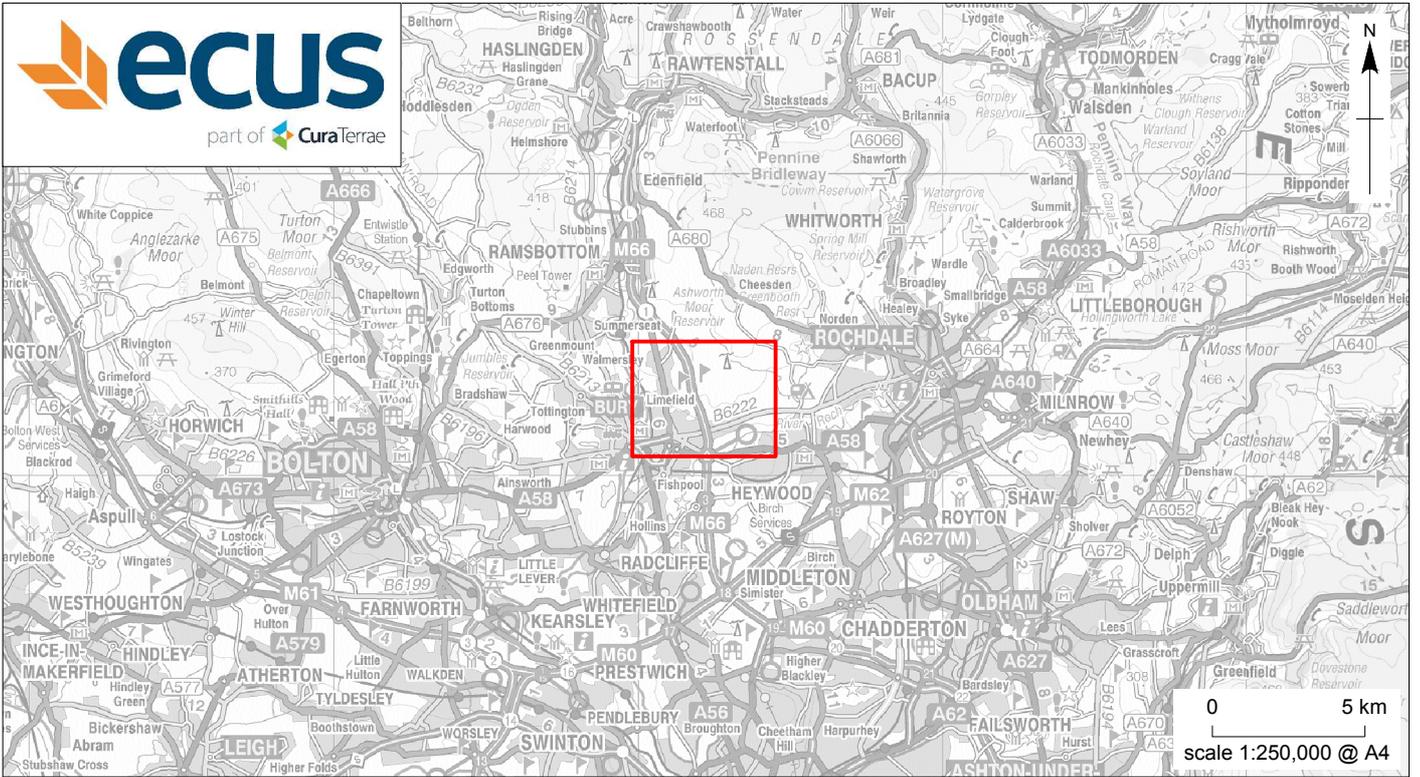
Context no.	Type	Feature	Cut no.	Trench	Description
201	Layer			2	Redeposited natural of trench 02. Colour: light yellowish orange. Composition: clay. Compaction: dry, firm. Inclusions: occasional small angular elongate limestone and grit, evenly distributed.
202	Fill	Stone drain	203	2	Fill of stone drain. Colour: mid grey. Composition: stone. Compaction: dry. Inclusions: frequent large angular platy limestone.
203	Cut	Stone drain		2	Cut of stone drain. Shape in plan: linear. Break at top: sharp. Sides: steep, concave. Break at base: gradual. Base: flat.
204	Cut	Pit, gully terminus		2	Cut of NW-SE pit, gully terminus. Break at top: gradual. Sides: shallow, concave. Break at base: gradual. Base: rounded.
205	Fill	Pit	204	2	Fill of pit [204]. Colour: mid yellowish brown. Composition: clayey loam. Compaction: moist, firm.
206	Cut	Stone culvert		2	Cut of N-S stone culvert. Shape in plan: linear. Sides: steep, straight. Break at base: imperceptible. Base: flat.
207	Fill	Stone culvert	206	2	Fill of stone culvert [206]. Colour: mid grey. Composition: silt. Compaction: moist.
208	Masonry	Stone culvert	206	2	Form: N-S linear culvert. Materials: greyish orange plated sandstone. Bonding: none. Finish and coursing: stones featuring random coursed coursing.

Context no.	Type	Feature	Cut no.	Trench	Description
215	Layer			2	Natural of trench 02. Colour: mid bluish grey. Composition: silty clay. Compaction: moist, firm. Inclusions: rare small angular platy shale, evenly distributed.
300	Layer			3	Topsoil of trench 03. Colour: dark blackish brown. Composition: loam. Compaction: moist.
301	Layer			3	Peat deposit of trench 03. Colour: dark black. Composition: peat. Compaction: moist, malleable.
302	Layer			3	Subsoil of trench 03. Colour: mid greyish brown. Composition: silty clay. Compaction: moist, friable.
303	Layer			3	Natural of trench 03. Colour: light orangey yellow. Composition: clay. Inclusions: occasional medium to large sandstone.
304	Cut	Stone Drain		3	Cut of drain. Shape in plan: linear. Break at top: sharp. Sides: vertical, straight. Break at base: sharp. Base: flat.
305	Masonry	Stone Drain	304	3	Form: E-W linear drain. Materials: orangey brown sandstone. Bonding: none. Finish and coursing: stones featuring random coursed coursing.
400	Layer			4	Topsoil of trench 04. Colour: dark greyish brown. Composition: clayey silt. Compaction: moist, friable.

Context no.	Type	Feature	Cut no.	Trench	Description
401	Layer			4	Subsoil of trench 04. Colour: mid yellowish brown. Composition: silty clay. Compaction: moist, malleable.
402	Layer			4	Natural of trench 04. Colour: mid brownish orange. Composition: shaley clay. Compaction: moist, firm. Inclusions: occasional flecks to small angular platy coal.
500	Layer			5	Topsoil of trench 05. Colour: dark blackish brown. Composition: loam. Compaction: moist, malleable.
501	Layer			5	Subsoil of trench 05. Colour: mid greyish brown. Composition: clayey silt. Compaction: moist, friable.
502	Layer			5	Natural of trench 05. Colour: mid brownish orange. Composition: clay. Compaction: dry, firm.
503	Cut	Gully		5	Cut of NE-SW gully. Shape in plan: linear. Break at top: sharp. Sides: steep, concave. Break at base: gradual. Base: flat.
504	Fill	Gully	503	5	Fill of gully [503]. Colour: light brownish grey. Composition: clayey silt. Compaction: moist, malleable. Inclusions: occasional medium sub-rounded platy sandstone, evenly distributed.
505	Cut	Stone Drain		5	Cut of E-W drain. Shape in plan: linear. Break at top: sharp. Sides: vertical, straight. Break at base: sharp. Base: flat.

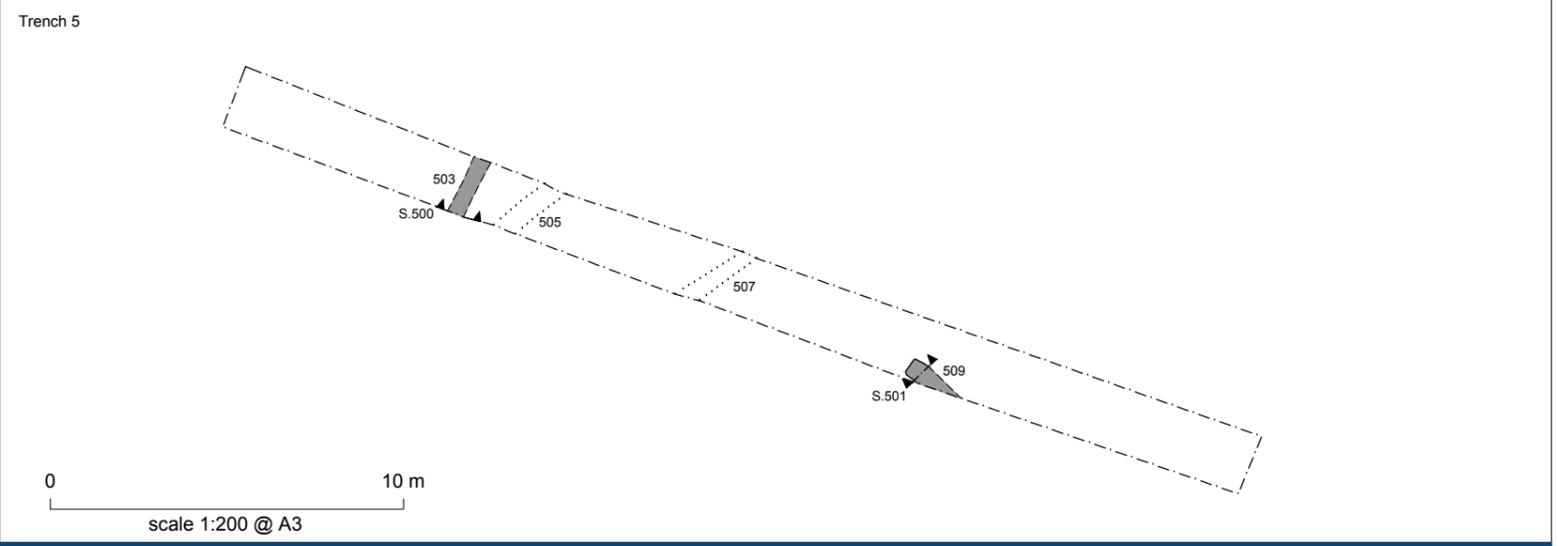
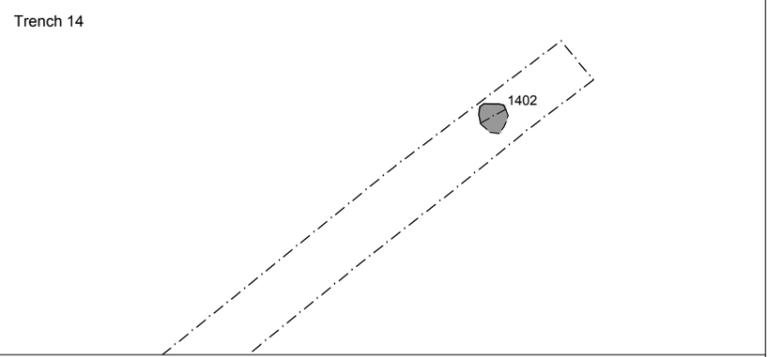
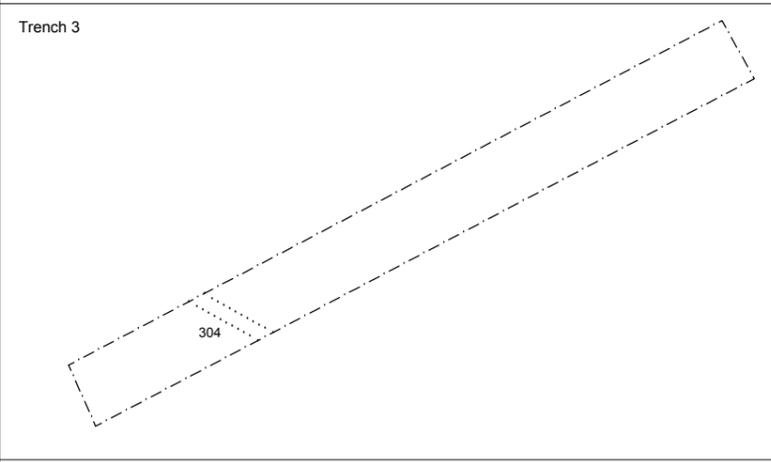
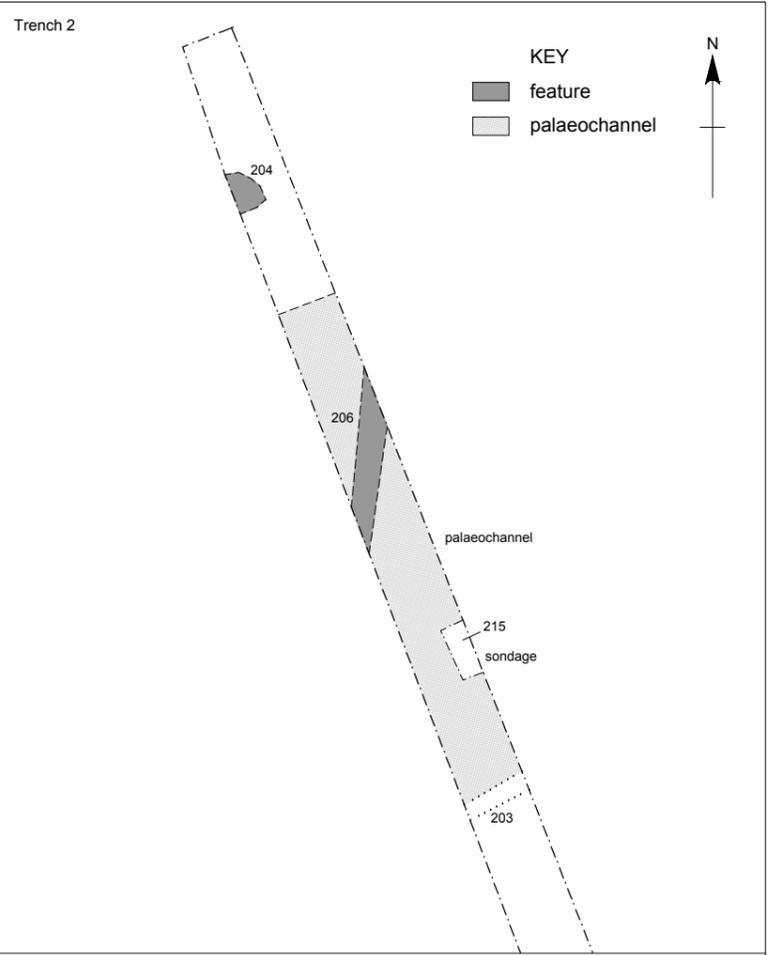
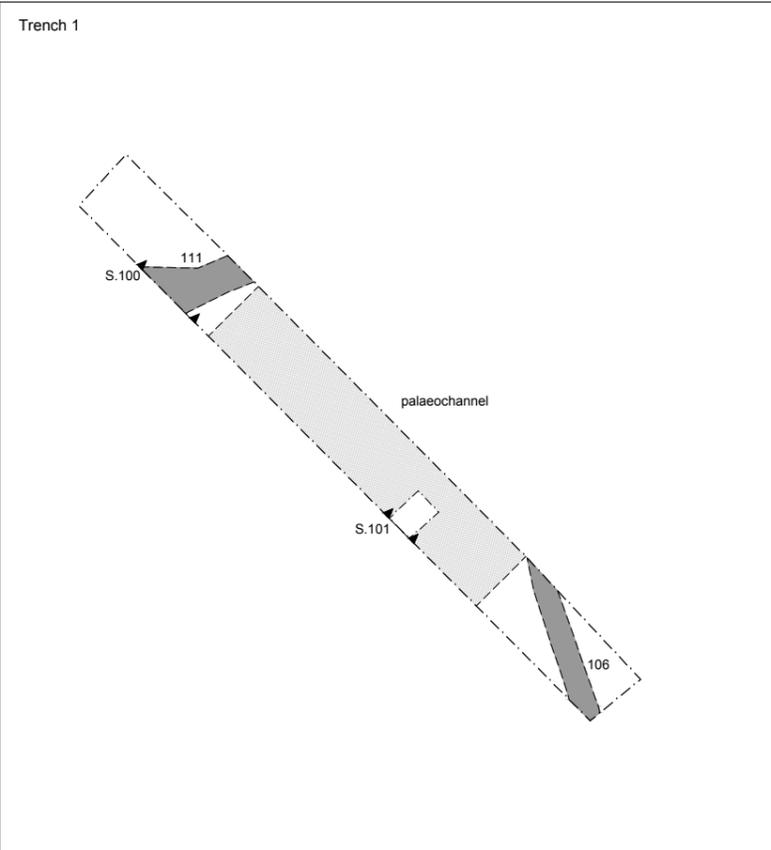
Context no.	Type	Feature	Cut no.	Trench	Description
506	Masonry	Stone Drain	505	5	Form: E-W linear drain. Materials: orangey brown sandstone. Bonding: none. Finish and coursing: stones featuring random coursed coursing.
507	Cut	Stone Drain		5	Cut of drain. Shape in plan: linear. Break at top: sharp. Sides: vertical, straight. Break at base: sharp. Base: flat.
508	Masonry	Stone Drain	507	5	Form: E-W linear drain. Materials: orangey brown sandstone. Bonding: none. Finish and coursing: stones featuring random coursed coursing.
509	Cut	Gully		5	Cut of N-S gully. Break at top: gradual. Sides: shallow, concave. Break at base: imperceptible. Base: flat.
510	Fill	Gully	509	5	Fill of gully [509]. Colour: mid greyish brown. Composition: silty clay. Compaction: dry, friable. Inclusions: moderate flecks of charcoal, evenly distributed.
600	Layer			6	Topsoil of trench 06. Colour: dark greyish brown. Composition: loam. Compaction: moist, malleable.
601	Layer			6	Subsoil of trench 06. Colour: light greyish brown. Composition: clayey silt. Compaction: moist, loose.
602	Layer			6	Natural of trench 06. Colour: mid yellowish orange. Composition: clayey silt. Compaction: dry, friable. Inclusions: moderate medium sub-angular platy sandstone.

Context no.	Type	Feature	Cut no.	Trench	Description
604	Cut	Furrow		6	Cut of NE-SW furrow. Shape in plan: linear. Break at top: imperceptible. Sides: shallow, concave. Break at base: imperceptible. Base: rounded.
605	Fill	Furrow	604	6	Fill of furrow [604]. Colour: light orangey grey. Composition: clayey silt. Compaction: dry, loose.
1400	Layer			14	Topsoil of trench 14. Colour: dark brownish black. Composition: silt. Compaction: moist, loose.
1401	Layer			14	Natural of trench 14. Colour: light reddish brown. Composition: sandy silt. Inclusions: frequent medium to large sub-rounded to rounded rocks/bedrock.
1402	Cut	Pit		14	Cut of NE-SW pit. Shape in plan: sub-circular. Break at top: sharp. Sides: moderate, straight. Break at base: sharp. Base: uneven.
1403	Fill	Pit	1402	14	Fill of pit [1402]. Colour: mid blackish brown. Composition: sandy loam. Compaction: friable. Inclusions: frequent small sub-rounded stones, concentrated towards throughout feature.



Haweswater Aqueduct Resilience Programme Woodgate Hill, Greater Manchester: site location

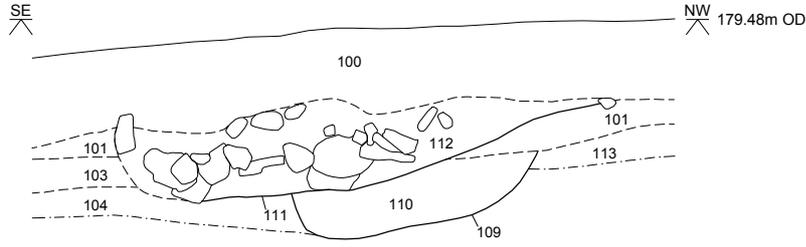
Figure 1



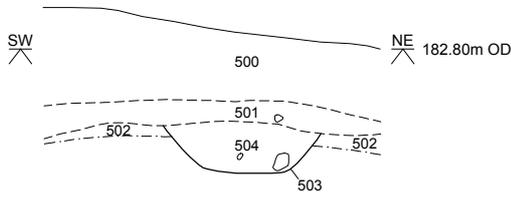
Haweswater Aqueduct Resilience Programme Woodgate Hill, Greater Manchester: trench plans and sections

Figure 2

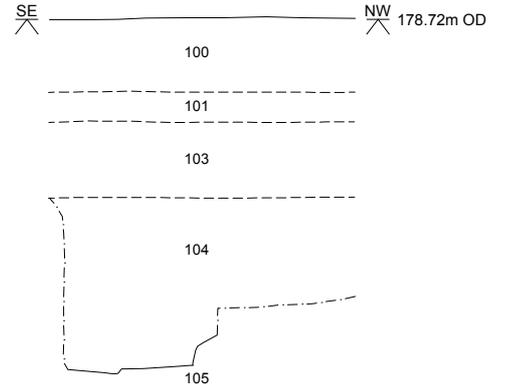
Section 100



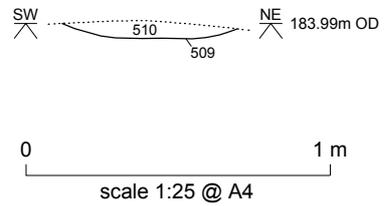
Section 500



Section 101



Section 501



Haweswater Aqueduct Resilience Programme Woodgate Hill, Greater Manchester: sections Figure 3



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Trench 1: north east facing section of sondage through
palaeochannel 102

Plate 1



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Trench 1: north east facing section of gully 109 and
potential trackway 111

Plate 2



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Trench 1: culvert 106, looking north

Plate 3



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Trench 2: south west facing section of sondage through
palaeochannel 209

Plate 4



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Trench 2: overview of circular feature 204

Plate 5



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Trench 2: overview of culvert 206/106, looking north west

Plate 6



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Trench 2: overview of drain 203

Plate 7



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Trench 2: trench shot, looking north west, showing
deposit 201 in the foreground

Plate 8



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Trench 3: overview of stone-lined drain 304

Plate 9



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Trench 4: trench shot, looking north west

Plate 10



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Trench 5: north facing section of gully 503

Plate 11



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Trench 5: truncated gully terminus 509

Plate 12



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Trench 5: Overview of stone drain 505

Plate 13



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Trench 5: Overview of stone drain 507

Plate 14



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Trench 6: Trench shot, looking north west, showing furrows 604

Plate 15



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Trench 14: Trench shot, looking north east

Plate 16



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Trench 14: South east facing section of pit 1402

Plate 17

