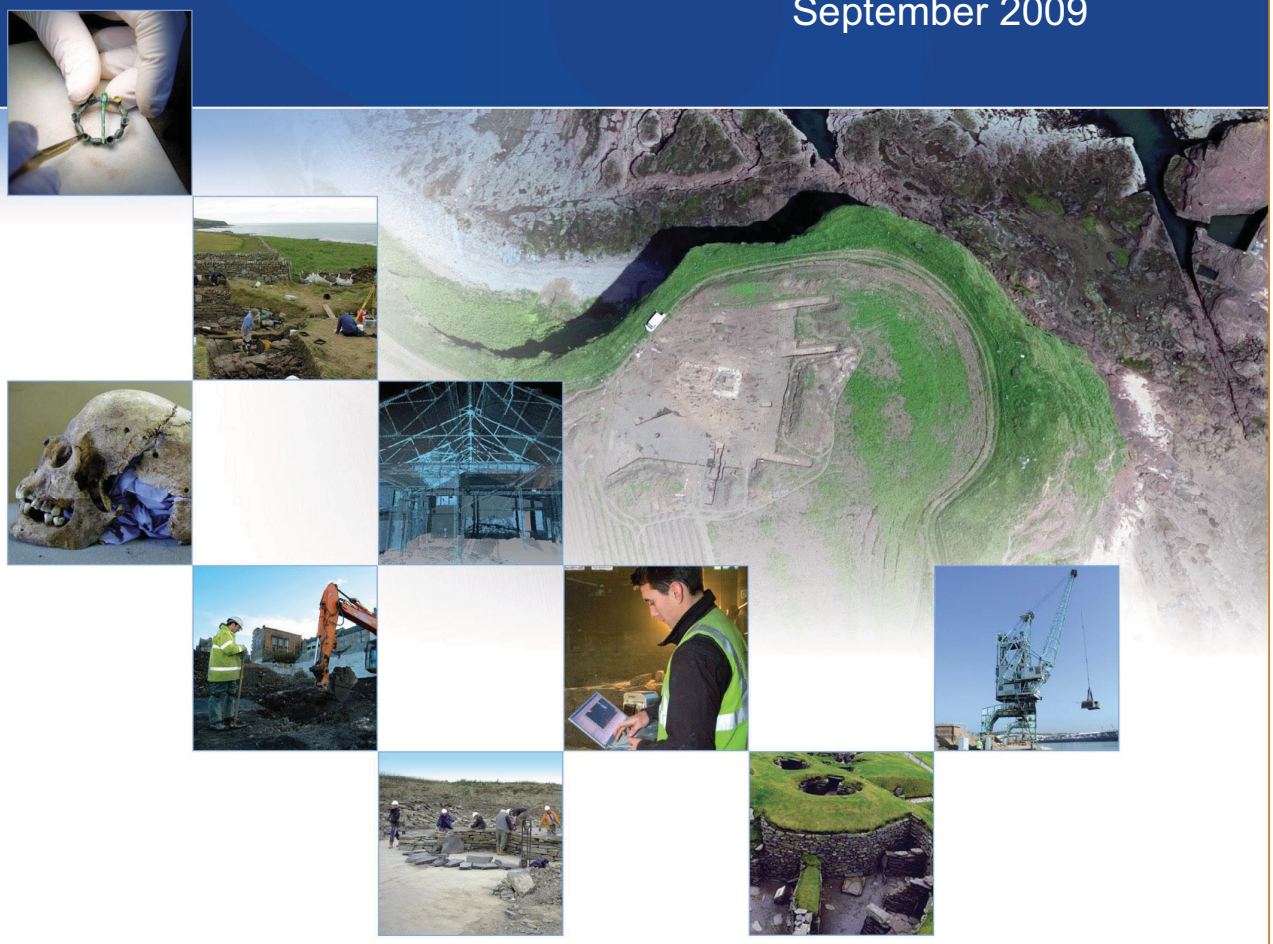
Alum Scar Bridge, Samlesbury Bottoms, Lancashire
Historic building survey and watching brief report

September 2009



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Alum Scar Bridge, Samlesbury Bottoms

Historic Building Report

On Behalf of:	**North Midland Construction Nunn Close, The County Estate, Huthwaite Sutton-in-Ashfield Nottinghamshire NG17 2HW**
National Grid Reference (NGR):	**SD 63578 28837**
AOC Project No:	**51018**
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This document has been prepared in accordance with AOC standard operating procedures.

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Summary

In March 2009, AOC Archaeology was commissioned to undertake a laser scan survey of Alum Scar Bridge prior to its refurbishment. The survey was followed by a structural watching brief.

Alum Scar bridge was probably constructed in the late 18th century, replacing an earlier 17th century bridge which was used to access the Alum mines at Alum Cragg. The present bridge was probably largely rebuilt by the landowner Henry Sudell who held Woodfold Park to the east of the bridge and who also owned the former mill to the north of the bridge.

The completed survey is of sufficient detail to provide a permanent record of the structure that would also allow the bridge to be rebuilt exactly as it stood prior to the refurbishment. The survey was followed by a watching brief which monitored the internal structure of the bridge exposed during the refurbishment works.

1 Introduction

1.1 Alum Scar Bridge is located within Alum House Wood on the edge of Woodfold Park in the parish of Samlesbury Bottoms (**Figure 1**). The bridge spans a tributary of the River Darwen known as Alum House Brook (also known as Arley Brook) and is located at National Grid Reference: SD 63578 28837.

1.2 The solid geology of the area around Alum Scar Bridge consists of Pennine Lower Coal Measures with interbedded shales and sandstones. The superficial deposits consist of slowly permeable slightly acid loamy and clayey soils ('Soilscape').

1.3 The bridge appears to have served as a crossing for an old cart road which was paved with cobbles. The road would have provided access to the south-west edge of the Woodfold Park estate and also the Alum mines to the south of the bridge at Alum Crag. The track and bridge probably also served the former mill to the north of the bridge, the associated weir for which still remains. The structure is a Grade II Listed Building and as such is of significant architectural and historical value.

2 Aims and objectives

2.1 The purpose of the project was defined in the project specification issued by the Lancashire County Archaeology Service (LCAS) and the Highways and Environmental Management Team at Lancashire County Council as follows:

- to provide a permanent record of the bridge through measured drawings (plan and elevations) and rectified photographs. The record must be detailed enough to allow accurate rebuilding of the bridge to be undertaken

2.2 Additionally, an Archaeological (and structural) Watching Brief was undertaken during the work to remove and replace material from the bridge. The aim of the watching brief was:

- to recover and record material concerning the bridge's date and method of construction and to identify any earlier remains underneath the present fabric.

3 Methodology

3.1 Historic Building Recording

The historic building survey was concerned with producing a detailed record of the bridge prior to its refurbishment which will involve taking down and rebuilding parts of the structure in order to make the bridge stable and suitable for a cycle route. The bridleway over the bridge is shown on historic maps dating to the later 18th and 19th centuries and the bridge was probably built at around the same time, although it may have replaced an earlier structure. The bridge, therefore, merits a full and detailed record to be created prior to alterations being made. The Lancashire County Archaeology Service (LCAS) recommended a Level 3 historic buildings survey as outlined in English Heritage's 'Understanding Historic Buildings: a guide to good recording practice' (2006) which includes a drawn record comprising plans and elevations and a full black and white photographic

and written record preceded by an element of archive research. Further details of each aspect of the methodology are explained below.

3.1.1 Archive research

A brief historical assessment was undertaken prior to the survey in order to collect as much historical background information as possible from publicly available sources. The research included a map regression exercise using maps from the Blackburn Central Library, which can be viewed in **Figures 2 - 6** of this report. In addition to the cartographic evidence, all available secondary sources were explored. Some items were unavailable for public viewing with particular reference to the Woodford Estate records held at Blackburn library. It is outside the scope of this study to undertake an extensive search of these estate papers though a detailed examination of the estate accounts may make reference to the bridge.

3.1.2 Photographic record

A general photographic record was made of the structure in black and white print using a 35mm SLR camera and tripod where necessary. Each photograph was duplicated in colour digital using a Nikon D80 SLR camera to a minimum of 10 megapixel resolution, a selection of which have been used to illustrate this report. A 1m or 2m ranging pole was used for scale where access and health and safety allowed. In addition to general photographs, detail photographs were taken of specific architectural features. The full set of photographs and copy of this report will be deposited with Lancashire Archives and will be available for future generations to consult.

A full photograph index has been compiled and can be found in Appendix 1 of this report.

3.1.3 Written record

A written record was compiled of the bridge using *pro-forma* record sheets which included comment on condition, construction, architectural detail, phasing and function. The written descriptions can be cross referenced with the main plan and elevations (**Figure 7 to 33**).

3.1.4 Drawn record

The archaeological recording brief issued by LCAS and the Highways Team requested the use of rectified photographs to obtain a detailed stone by stone record of the bridge. This method was, however, believed to be too complicated and is largely superseded by the use of laser scanner which can produce the same dataset to a greater resolution. The methodology was reviewed and a Written Scheme of Investigation was approved by LCAS prior to the commencement of the survey (Watson 2009).

A Trimble GS101 laser scanner was used to produce a three-dimensional point cloud of the bridge at a resolution appropriate for the production of stone-by-stone drawings. The laser scanning produced high-volume three-dimensional datasets that were manipulated in CAD software for the production of two-dimensional elevation and plan drawings (**Figures 7 to 33**). Due to the nature of the structure and the irregular plane of the elevations, the elevation drawings were divided into individual sections in order to provide the most accurate stone by stone record.

3.2 Archaeological watching brief

3.2.1 The historic building recording was followed by a structural watching brief which monitored the refurbishment works. Fieldwork was undertaken between 30th April 2009 and 10th June 2009 whilst the bridge was dismantled in a controlled manner by a team of stone masons from Stone Edge Masonry and by the contractors, North Midland Construction. All stones which were to be replaced in their original positions were numbered before removal. The masons removed two or three courses of facing stones at a time; the contractors then demolished the exposed rubble backing to the walls and excavated out a portion of the material filling the bridge. This process was repeated until the pre-determined limits of excavation were reached.

3.2.2 The contractors used two 360^{o} tracked excavators fitted with large toothless buckets for the site excavations. The project archaeologist monitored all wall and ground reduction until it became clear that little further could be achieved by maintaining a continuous presence on site, from which point (6th May 2009), and with the prior agreement of LCAS, an intermittent presence was maintained. All exposed surfaces, elevations and trench sections were examined during and after excavation. Drawn, written and photographic records were compiled according to AOC Archaeology's standard operating procedures (AOC Archaeology 2003, 1.1-9.1, Appendix 1, Appendix 2: 21.1-21.3).

3.2.3 All fieldwork records were checked and cross-referenced. Stratigraphic relationships were also checked once fieldwork was complete. Structural and artefactual evidence was considered in combination with information derived from documentary and cartographic sources.

3.2.4 A number of factors placed constraints on the archaeological works. First, the depth of the excavations and the absence of shoring for some of the exposed sections meant that it was only safe to observe some deposits and elevations from a distance. Similarly, access and visibility were occasionally reduced when working at height on tiered scaffolding. In particular, these constraints made it impossible to record a single, continuous section through the deposits filling the bridge. However, partial sections were drawn and measurements taken at various locations during the course of the works which has enabled a schematic section to be reproduced (**Figure 35**). It should also be noted that the mechanical removal of large quantities of packing material within the bridge did not facilitate the retrieval of artefacts (spoil heaps were periodically inspected, however).

3.2.5 The site archive for the watching brief consists of:

7	Day record sheets
1	Levels register
1	Drawing register
1	Context register
7	Digital photograph record sheets
4	Black & white and colour slide photograph record sheet
10	Context sheets
14	Masonry record sheets
12	Scale drawings

255 Digital photographs
130 Black and white negatives
130 Black and white prints
130 Colour slides

The project archive is intended to be deposited at: Blackburn Museum and Art Gallery

Address: Museum Street, Blackburn, BB1 7AJ

Tel: 01254 667130

4 Historical background

4.1 To the south of the bridge is Alum Crag which is the location of a former Alum mine. Alum was quarried from this site during the 17th and 18th centuries and was used as a mordant in the dyeing industry (Ashmore 1982, 12). The mines were visited by James I in 1617 during his stay at the nearby Houghton Hall (Eaton 1936, 192; VCH 1912, 303). It is likely that the track and a bridge to cross the brook (though it may not have been the current structure) existed around this time and provided a route to reach the Alum mines from the north-west.

4.2 The earliest map to show the track and the crossing over the brook is Yate's 1786 map (**Figure 2**). Though the map certainly suggests that there was a bridge across the brook at the time it was drawn, it may not necessarily be the structure seen today. The map does suggest, however, that the bridge may be built on the site of an earlier structure.

4.3 The trackway is also shown on Greenwood's 1818 map (**Figure 3**) though it is difficult to see the crossing over the brook in any detail due to the scale and style of the map. It does, however, suggest that the area surrounding the bridge was woodland and perhaps part of the Woodfold estate at this time.

4.4 The 1829 map by Hennet (**Figure 4**) again shows the track which appears to be one of the main roads leading from Nabshead and to the south-east. Again, the area is shown as woodland and the crossing is difficult to discern.

4.5 During the late 18th century and the early 19th century, there was a mill situated to the north of the bridge. The mill, known as Maudlumb Mill, was built by Henry Sudell who was the major local landowner and occupant of Woodfold Hall further to the north of the bridge (Eaton 1936, 183). Sudell bought many of the estates in Mellor and Samlesbury and enclosed Woodfold Park in 1799 (Eaton 1936, 183). The wall to the north-east of the bridge may be part of the walled enclosure and was probably built at the same time as the bridge. The bridge, thus, may have been a project funded by Sudell in order to access the Woodfold estate and Maudlumb mill. Certainly, both the mill and the bridge are shown on the 1844 Ordnance Survey map (**Figure 5**).

4.6 If indeed Alum Scar Bridge was part of the Woodfold Estate, its construction may have followed the successes and failures of the estate. Sudell fled Blackburn in 1827 when the Hall was marched upon by a mob of angry weavers following Sudell's refusal to give them an advance for their work in his mills (Cole nd). The estate was sold by auction in 1831 to John Fowden Hindle. It later became acquired by Daniel Thwaites, the brewer, in 1878. The

hall itself was constructed in 1798 by the architect James Wyatt and was a fine hall with columns and triangular pediment to its façade (Pevsner 1969, 177). The hall had become disused by 1949 and has recently been converted to residential flats. It is likely that the bridge was built around the later 18th century in conjunction with the construction of the house and other building projects on the estate. As the local industries in the area, including Maudlumb Mill and the Alum Works, fell into disuse in the later 19th century, the track was probably only used as a bridleway, hence its need for refurbishment.

5 Architectural descriptions

5.1 Introduction

5.1.1 The following descriptions have been written as part of the initial historic building recording survey and therefore, describe the bridge *prior* to the refurbishment. The section below will discuss items of the structure uncovered during the watching brief.

5.1.2 The bridge is set at the base of a deep ravine with a shallow brook running beneath it (**Plate 1**). The bridge appears to have two separate phases with the dressed sandstone blocks to the centre of the bridge representing the later phase of its development and the abutment walls appearing earlier. This phasing, however, contradicts the method of construction and it would be difficult to construct the abutment walls prior to the central section of the bridge and the arch.

5.1.3 The parapets of the bridge only appear in the central section of the bridge, above the dressed stone construction. The floor of the parapet was probably cobbled but there were no cobbles visible over the present structure during the initial recording (**Plate 2**). The internal walls were contained by modern timber fencing during the initial recording, for health and safety reasons.

5.1.4 To the north of the bridge are the stone remains of the weir complete with arches for the water channels (**Plate 3 & 4**). The weir was probably associated with the former mill which is identified on the historic maps.

5.2 North elevation (Figure 7 to 18)

5.2.1 The central section of the bridge is constructed of dressed red sandstone blocks with buttresses flanking a central rounded arch (**Plate 5**). Above this central section is a parapet with rounded coping stones (**Plate 6**) which is punctuated by two small square holes for drainage. To either side of the central dressed stone section of the elevation are roughly coursed sandstone rubble abutment walls. Clear breaks mark the difference in the method of construction (**Plate 7**). The east abutment wall is supported by a sloping buttress which is also constructed of sandstone rubble.

5.3 South elevation (Figure 7, 8 and 19 to 33)

5.3.1 As with the north elevation, the south elevation has a central section of dressed sandstone punctuated by a rounded arch flanked by tall buttresses (**Plate 8**). Above the central section is a stone coped parapet but, unlike the north elevation, the coping is pointed (**Plate 9**).

Below the coping are courses of larger stones which are almost twice the size of those used in the lower courses suggesting the parapet is a later addition.

To either side of the buttresses, the abutment walls are constructed of roughly coursed sandstone rubble. The abutment wall to the west side follows the curve of the track. The wall to the east is supported by two large sloping buttresses, each constructed of roughly coursed sandstone rubble (**Plate 10**).

5.4 Underside of arch

5.4.1 The barrel of the arch and its abutment walls are constructed of dressed sandstone (**Plate 11**). To the base of the arch, set in the east and west walls, are a row of projecting stones which were used to construct and support the arch.

6 Results of the Archaeological Watching Brief

6.1 Context numbers were applied to deposits and structural elements as appropriate and to facilitate stratigraphic analysis. These are listed in Appendix 2; significant relationships are depicted in **Figures 34 - 39**. The following sections should be read in conjunction with these data.

6.2 The internal deposits

6.2.1 A thin layer of topsoil and trampled material sealed the deposits within the bridge (context 100); the masons retrieved a coin of 1908 from this context. Below this, the fragmentary remains of a cobbled surface were observed during machining (context 102; **Plate 12**). In places, the surface took the form of a layer of angular stones without cobbles, up to 200mm in depth. This material was clearly intended to form a durable surface across the bridge. Below context 102, the void between the bridge walls was entirely filled with layers of re-deposited natural clay and stones. Broad divisions between these layers were indentified and recorded (contexts 101, 117, 118, 119, 120, 121; **Plates 13 - 15; Figure 34**). The sterility of these deposits was surprising: no artefacts were observed during the excavations or when examining spoil heaps other than rare fragments of ceramic building material in context 101. This suggests that the material was excavated and re-deposited in relatively quick succession. The clay and stones are local in character and were probably excavated from the banks and hillsides surrounding the bridge (scarps and depressions are still visible in the hillside).

6.2.2 The natural bedrock was only observed on the western limit of excavation where a construction cut for the bridge was visible in the south-facing elevation (context 122; **Plate 16; Figure 35**). The bedrock consisted of abundant medium-large platy, angular stones in a silty/clayey soil matrix (context 123).

6.3 The bridge walls

6.3.1 Dressed masonry walls

The dressed masonry on each elevation can be sub-divided into three elements: a central section of dressed stone incorporating the arched opening through the bridge and two extensions of dressed masonry to the east and west; the latter are not on the same alignment as the central section (contexts 103, 104 and 105). The stones of the extensions have been shaped to accommodate the change in angle and, in the lower courses, partially overlie the stones of the arch itself (**Plate 17**). These elements appear to be of one build, however, the change in alignment being a deliberate aspect of the design.

The backing to the dressed stone walls consisted of random rubble and there was a small rubble core between the opposing faces (**Plates 18 & 19**). A small number of the dressed stones were 'through stones'. The bonding material was irregularly spread and varied in nature, consisting primarily of friable, pinkish mortar with lime flecks and greyish brown sandy silt. However, the uppermost courses of the rubble backing to the dressed masonry on the north side of the bridge (contexts 103 and 104) were bonded with cemented off-white mortar. This section appears to have been re-built or consolidated at some point. It was noted in the initial historic building survey that the north and south parapets are of different phases, the south parapet having pointed coping stones, the north rounded (see section 5.1 above). It is possible that the rebuilding or consolidation of the rubble backing relates to work on the north parapet but this is speculative.

6.3.2 Rubble walls

The rubble abutment walls of the bridge were constructed of an outer skin of roughly coursed rubble, an inner skin of random rubble and an intervening core of rubble and mortar (contexts 106, 112, 113 and 114). The bonding material again varied, consisting of friable pinkish mortar with lime flecks and greyish brown sandy silt. However, there were many voids within the rubble backing, some sections having the appearance of dry stone construction rather than mortared wall. The rubble backing had also bowed or distorted under pressure in some areas. The overall impression was of a rudimentary construction, surprising in a structure of this height that required stability.

6.3.4 Incorporated within the north-western rubble wall (context 113) were two flawed parapet coping stones reused as rubble (**Plate 20**).

6.4 The central arch

6.4.1 The internal structure of the arch was also exposed during the works. The stones forming the soffit of the arch were through-stones of a substantial size and protruded unevenly into the body of the bridge (**Plate 21**). The abutment walls to the west and east of the arch, supporting the arch structure, were wider than anticipated and were stepped somewhat unevenly (**Plates 22 & 23; Figure 36**). These walls were of rubble construction, similar to the rubble backing of the bridge walls. Each abutment wall was, in turn, supported by a central rubble buttress (**Plates 24 & 25**). The bases of the abutment walls and the

buttresses were not exposed during the works. The masonry appeared robust but unrefined.

6.5 The buttresses

6.5.1 All three buttresses were of rubble construction identical to that of the rubble walls. As the buttresses were not dismantled, their internal structure was not observed.

6.5.2 The upper courses of buttress 107, at the south-eastern extent of rubble wall 112, abutted the end stones of the wall whilst its lower courses rested against the surface of the wall (**Figure 37**). Both relationships indicate that its construction post-dates that of wall 112.

6.5.3 The upper courses of buttress 108, to the west of buttress 107, appear to have been keyed into rubble wall 112. Disturbed masonry and the use of a different type of mortar indicated that the upper courses of wall 112 had been partially dismantled to enable the buttress to be keyed in; the wall was then reconstructed (**Figure 38**). The lower part of buttress 108, however, abutted the rubble wall indicating that the upper part of the buttress was keyed in to provide additional stability due to its height (it is notably taller than the other buttresses). Clearly, it is also a later addition to the bridge.

6.5.4 Buttress 124, on the north elevation, abutted rubble wall 106 (**Plate 26**). It is clear therefore that all three buttresses represent later additions to the bridge structure.

7 Discussion

7.1 Phasing and development

7.1.1 Other than a coin dating to 1908 found in the topsoil, no artefacts were retrieved from the bridge structure or its in-fill material that indicated the date of Alum Scar Bridge. The cartographic evidence shows that there has been a bridge in the same location since the 18th century although it may have replaced an earlier structure which was used to access the Alum mines to the south. It is most likely that the bridge was built in the late 18th or early 19th century as suggested by its appearance and the relative activity in the Woodfold Estate, namely a certain amount of investment within the park and the construction of Maudlumb mill to the north.

7.1.2 The north and south elevations of the bridge show clear vertical ‘phase breaks’ or straight joints between the central sections of dressed masonry and the rubble wing walls. During the watching brief it was possible to examine these relationships both in plan and on the internal elevations. No definitive evidence of phase breaks in the rubble backing was observed: the rubble backing to the wing walls and to the dressed masonry appeared to be of one build (**Plates 14 & 27**).

7.1.3 The only exceptions to this were in the upper courses of the rubble backing of the north-eastern and north-western wing walls (contexts 106 and 113). Here, short, discontinuous ‘breaks’ in the rubble were recorded between the backing of rubble walls 106 and 113 and the backing to dressed walls 103 and 104; these ran vertically for approximately 0.90-

1.00m, below which there was no visible evidence of a phase break (**Plate 28**; **Figure 39**). These apparent phase breaks, both of which suggest that the rubble walling post-dates the dressed masonry, may relate to a phase of rebuilding at parapet level and immediately below on the northern side of the bridge, as suggested above. Alternatively, they may be illusory, perhaps the result of settlement of the upper courses of rubble.

7.1.4 On balance, the evidence of the rubble backing walls suggests that the bridge is predominantly of one build and that it was part of the original design to construct the central sections with dressed facing stones. Given the rudimentary construction of the rubble sections of the bridge, it is possible that cost was a consideration and that this restricted the amount of dressed stone used. This is speculation, however, and an alternative hypothesis is that the bridge was built entirely of rubble in the first instance and that the central sections were rebuilt in dressed stone at a later date. There is little evidence to substantiate this, however: no major disruption to the masonry was observed in plan or section as the bridge was dismantled and the bonding materials showed no variation between the rubble walls and the dressed masonry.

8 Conclusions

8.1 The survey at Alum Scar was intended to record the building as it stands. The subsequent refurbishment works and watching brief provided a further opportunity to further understand the construction of the structure and the complexities of its phasing. Unfortunately, there was no datable evidence uncovered to assess whether this was the case and documentary evidence for the structure is particularly sparse. The bridge appears, however, to have been built in one phase in the late 18th or early 19th century but it almost certainly replaced an earlier bridge in the same location given the access requirement to the Alum mines in the south. The bridge has remained a bridleway and cycle path until the present day and will continue to do so now that the refurbishment works have been completed.

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data available via http:// www.magic.gov.uk/default.htm

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9.2 Cartographic references

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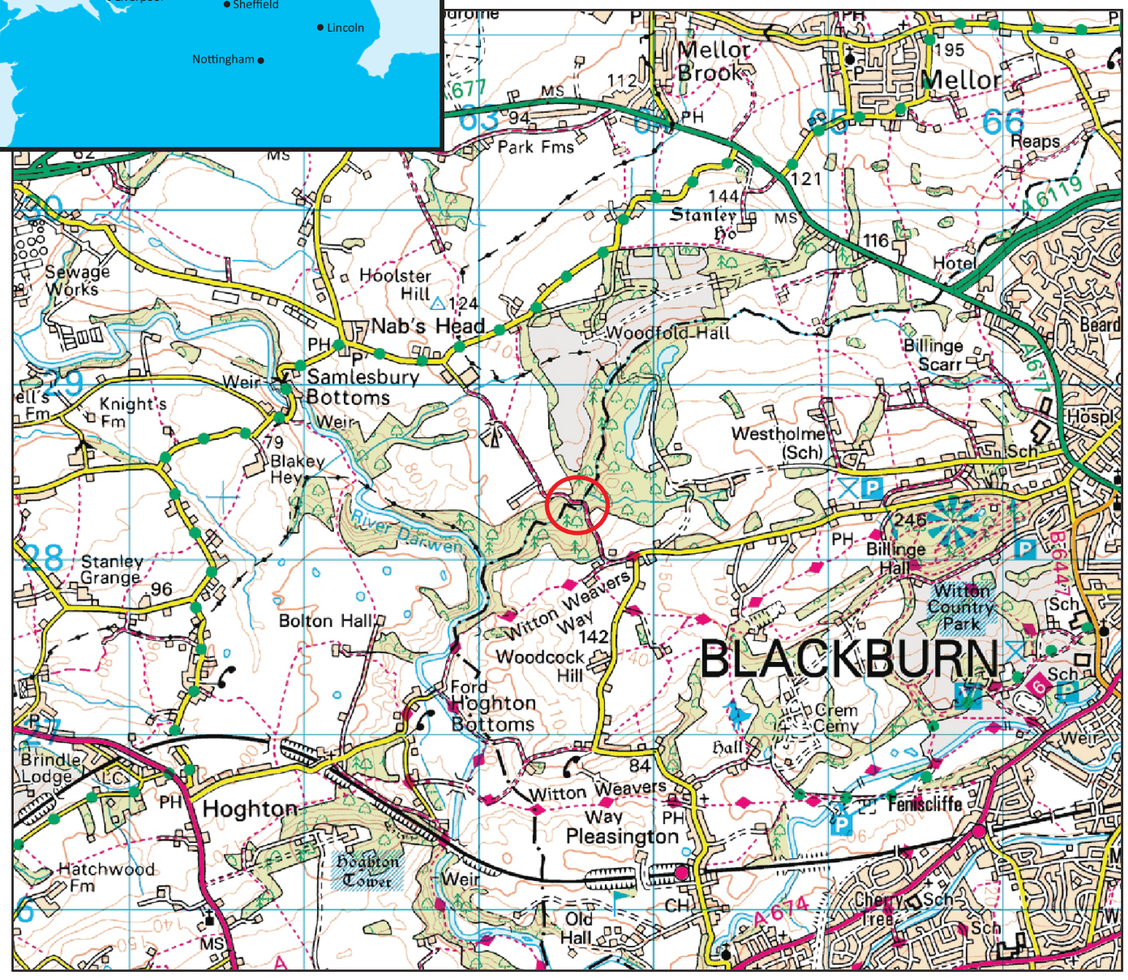
1818 Greenwood Map of the *County Palatine of Lancaster*.

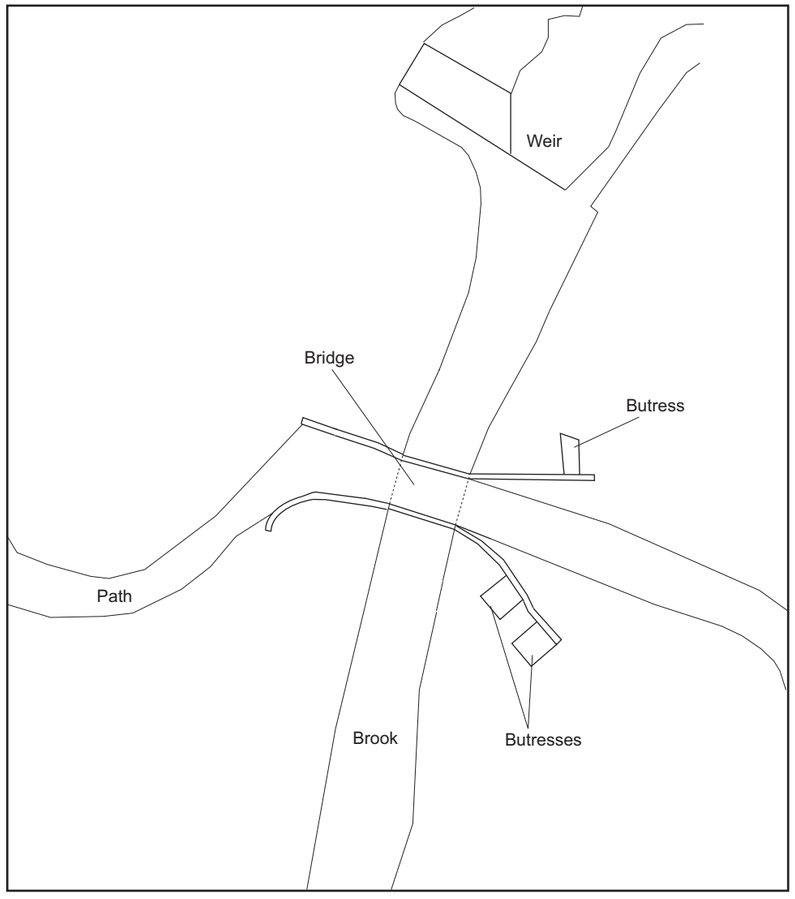
1829 Hennet, G Map of the *County Palatine of Lancaster and parishes*.

1844 Ordnance Survey map *Lancashire* Sheet LXII 6 inch to a mile

1892 Ordnance Survey map *Lancashire* Sheet LXII.XIV 25 inch to a mile

Figures





Site plan

Figure 1: Location map showing Alum Scar Bridge, Samlesbury Bottoms, South Ribble

Figure 2: Extract from the 1786 Map by Yates

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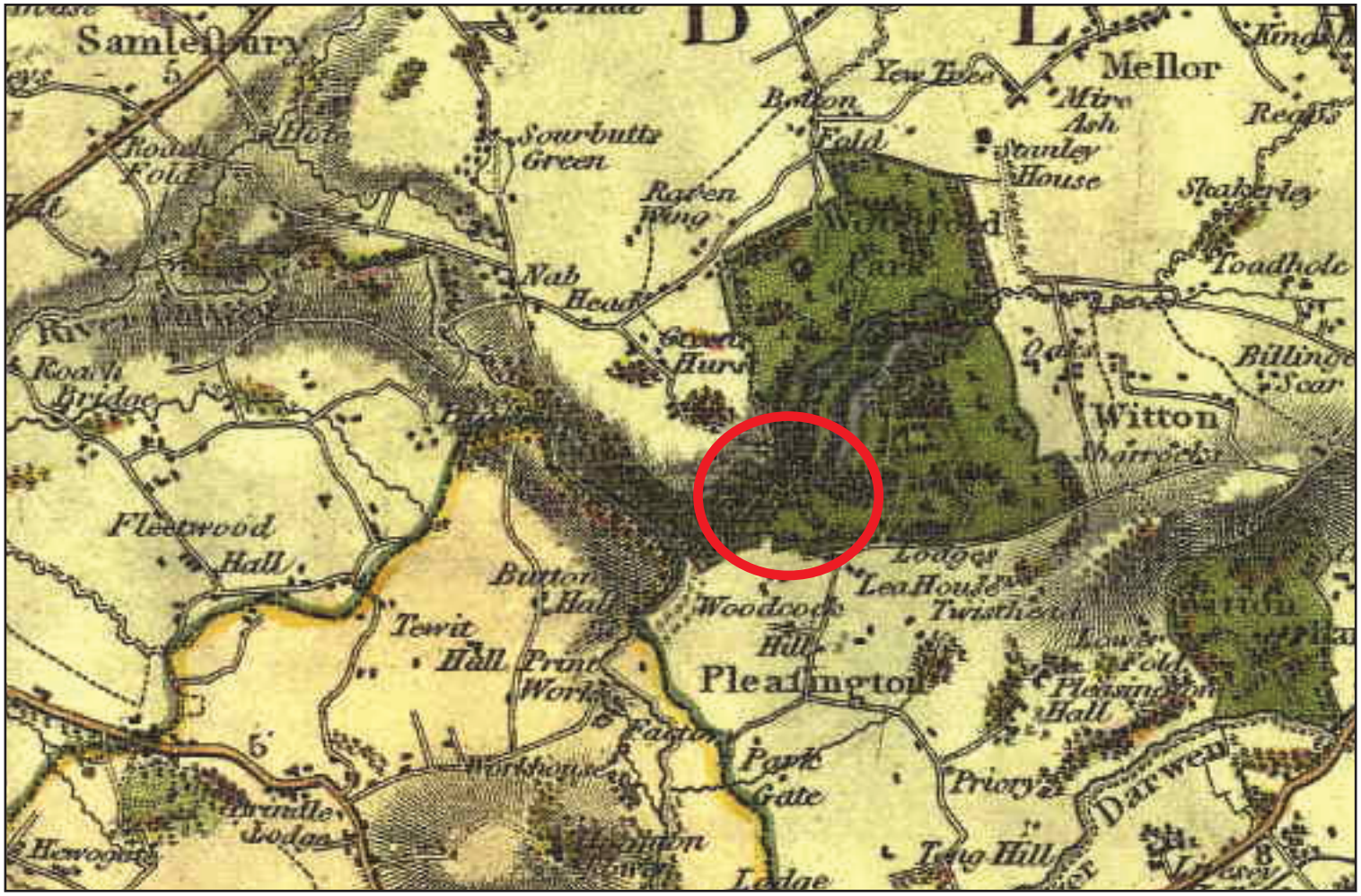

Figure 3: Extract from 1818 Map by Greenwood

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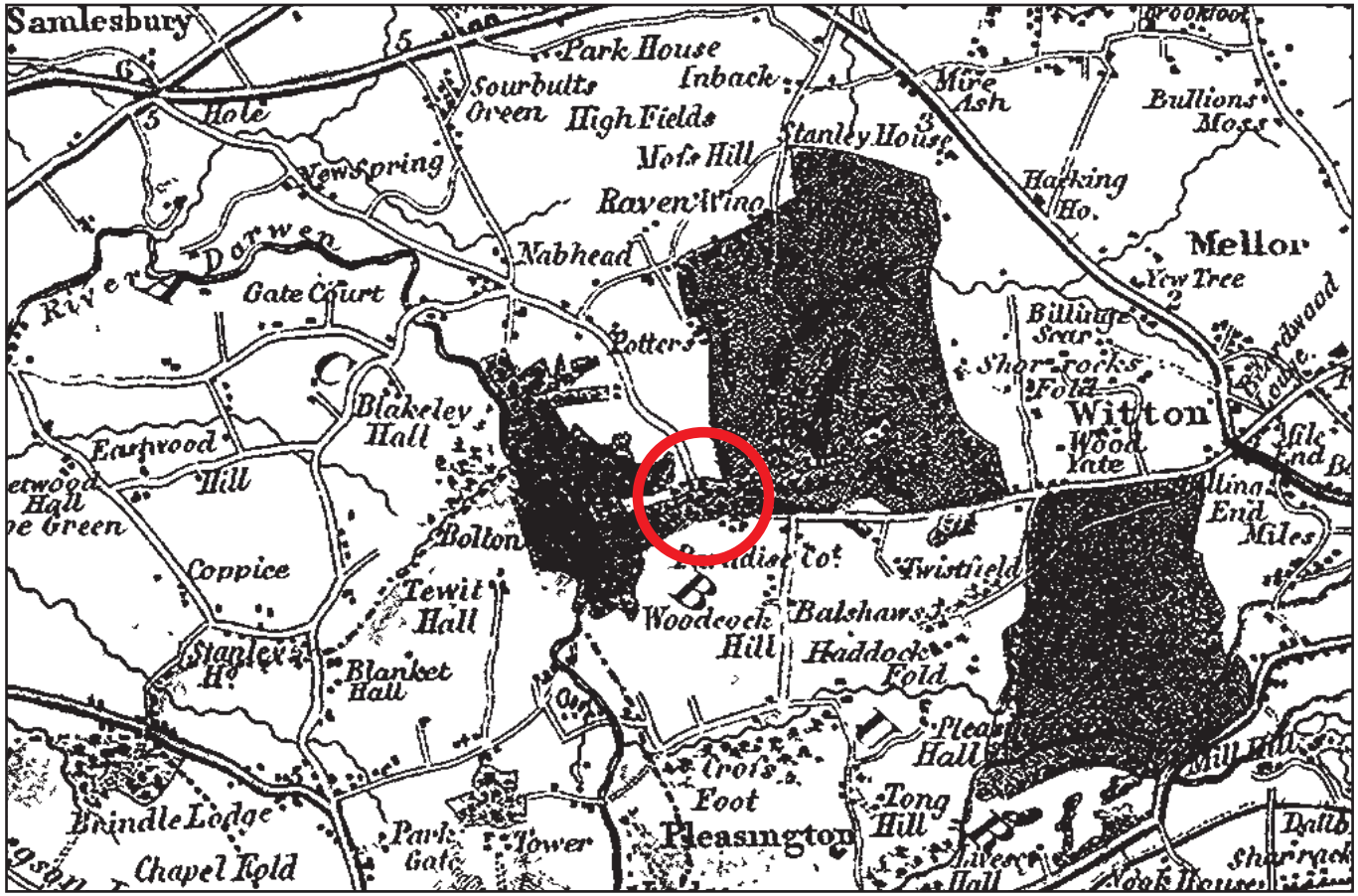

Figure 4: Extract from 1829 Map by Hennet

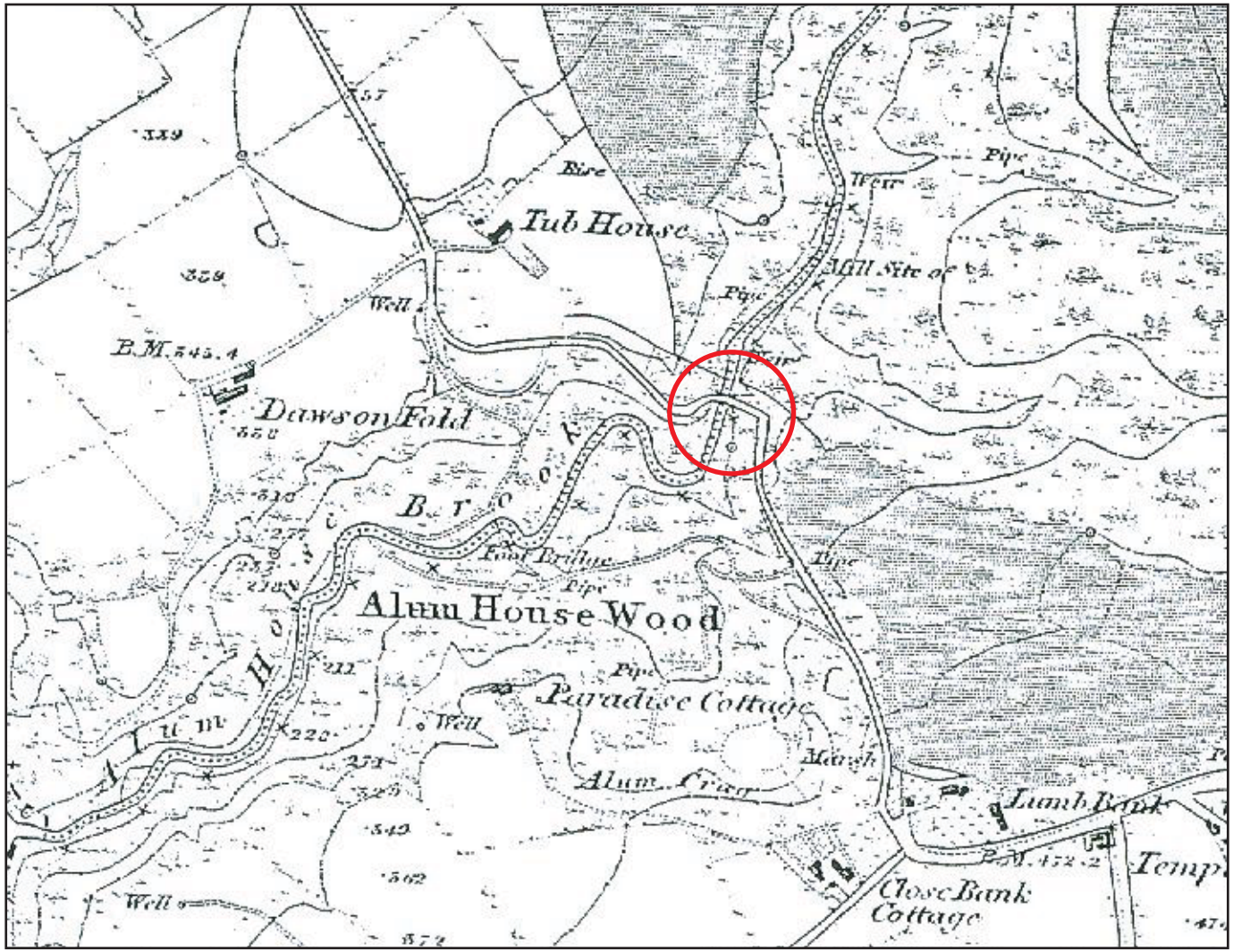

Figure 5: Extract from 1844 Ordnance Survey map

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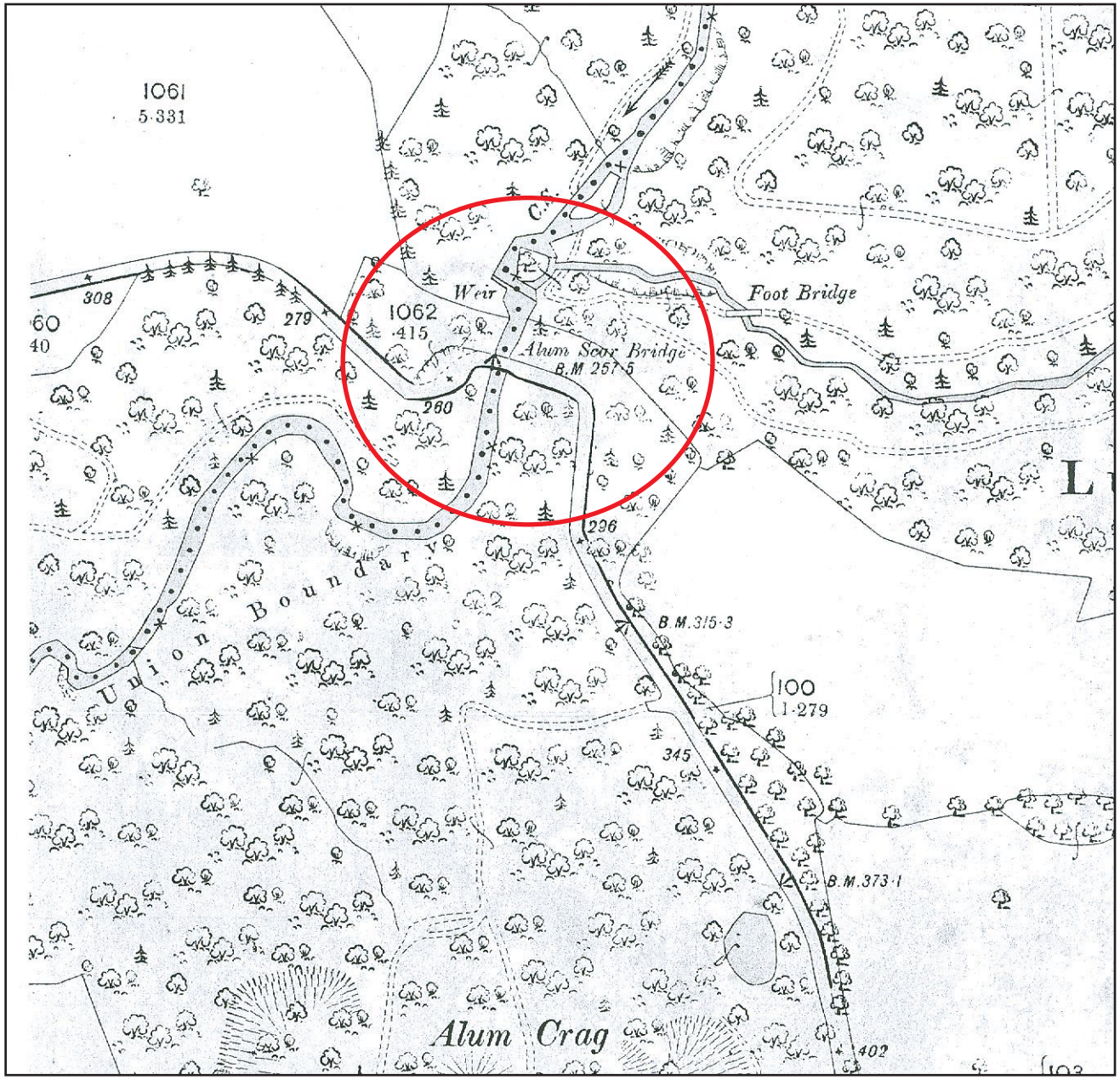

Figure 6: Extract from 1892 Ordnance Survey map

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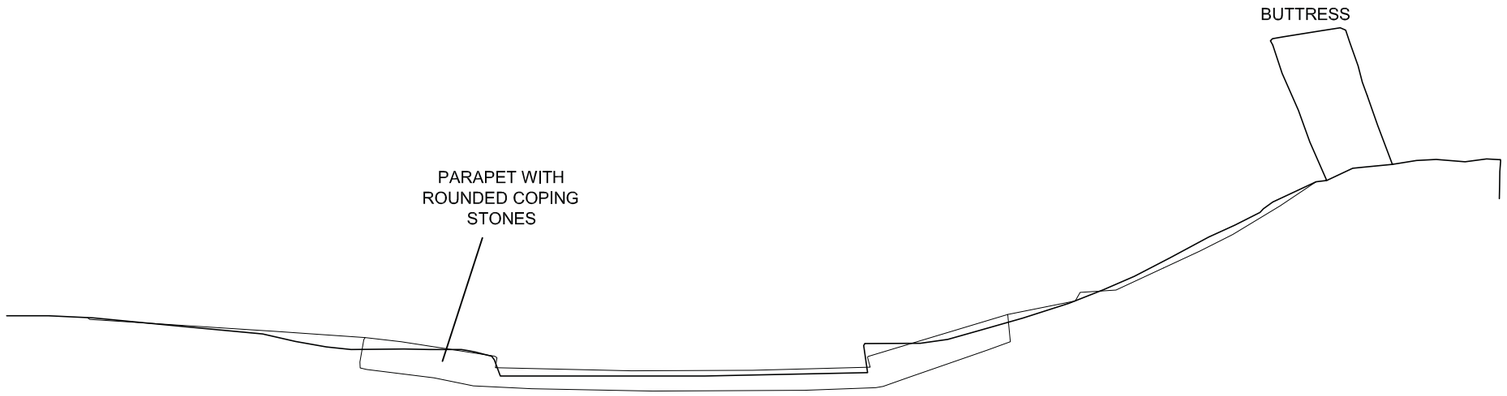

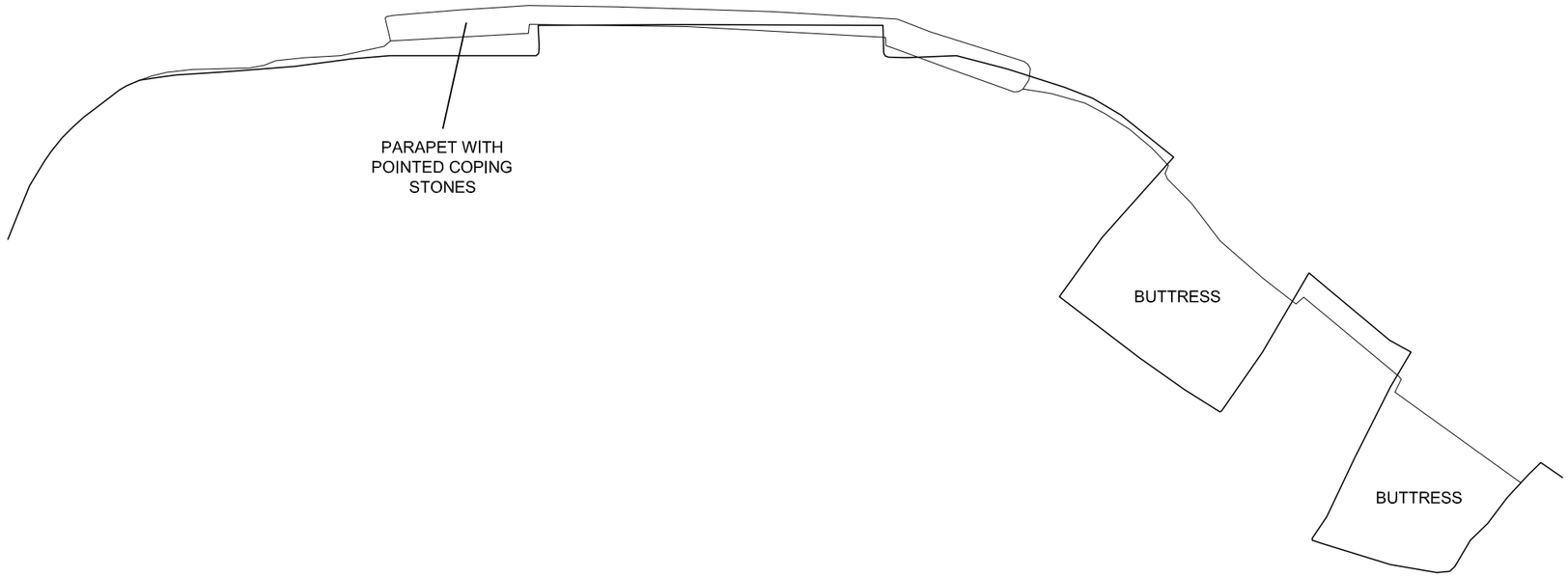

N

50ft

15m

General Notes

Figure 7: Plan of Alum Scar Bridge

Key

Ground line

Top of bridge

Drawing & scanning:
G.Hudson & C.Watson

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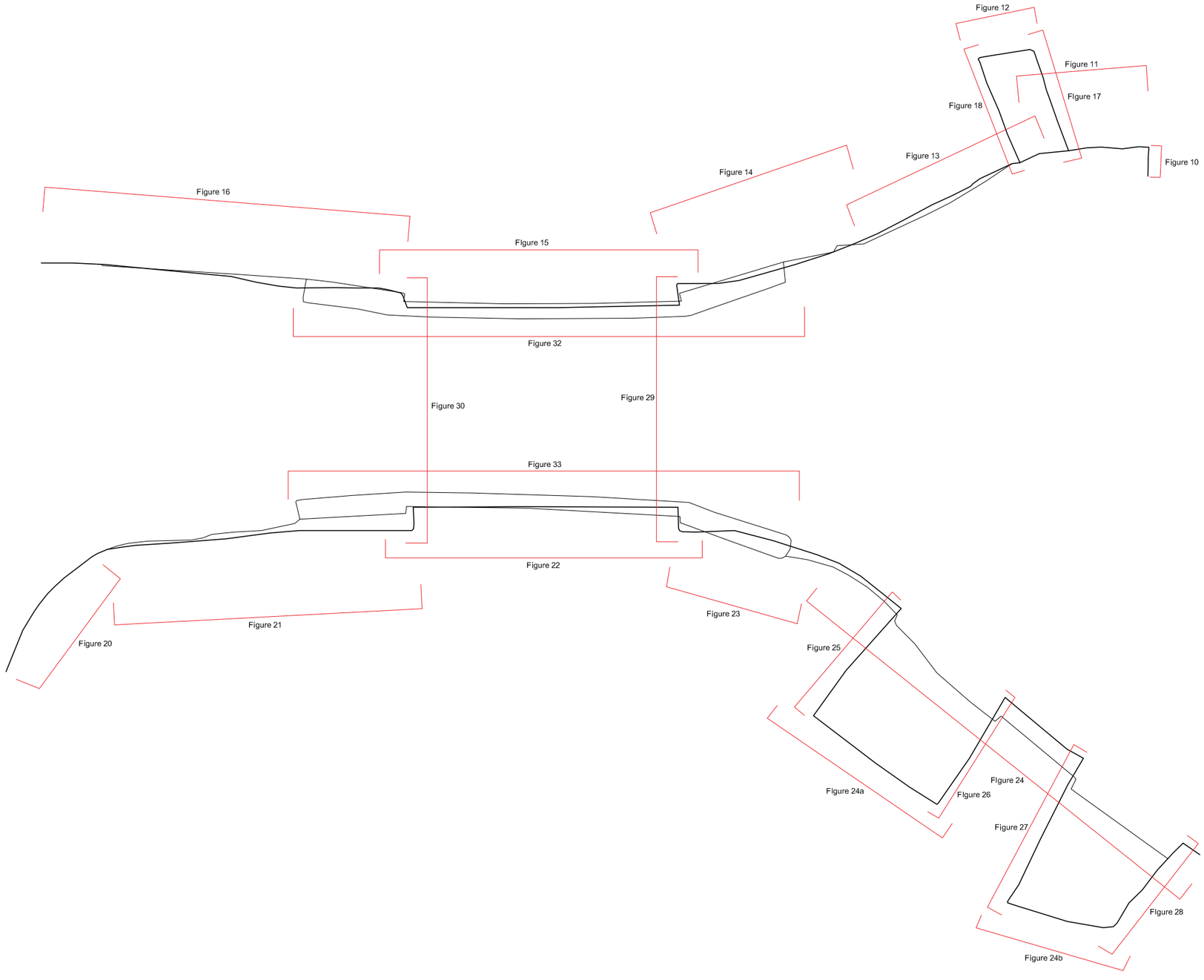

General Notes

Figure 8: Plan of Alum Scar Bridge

Key

Ground line

Top of bridge

Drawing & scanning:
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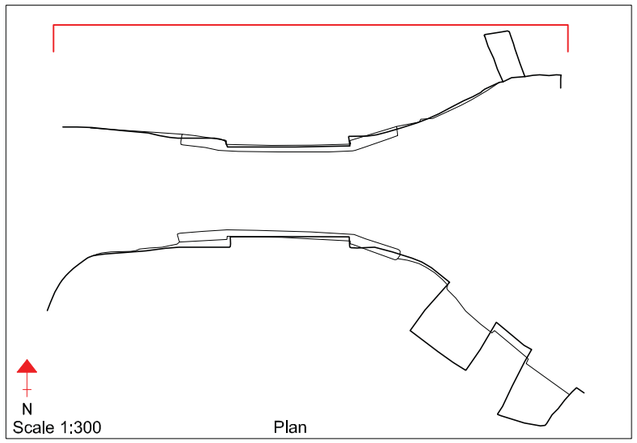

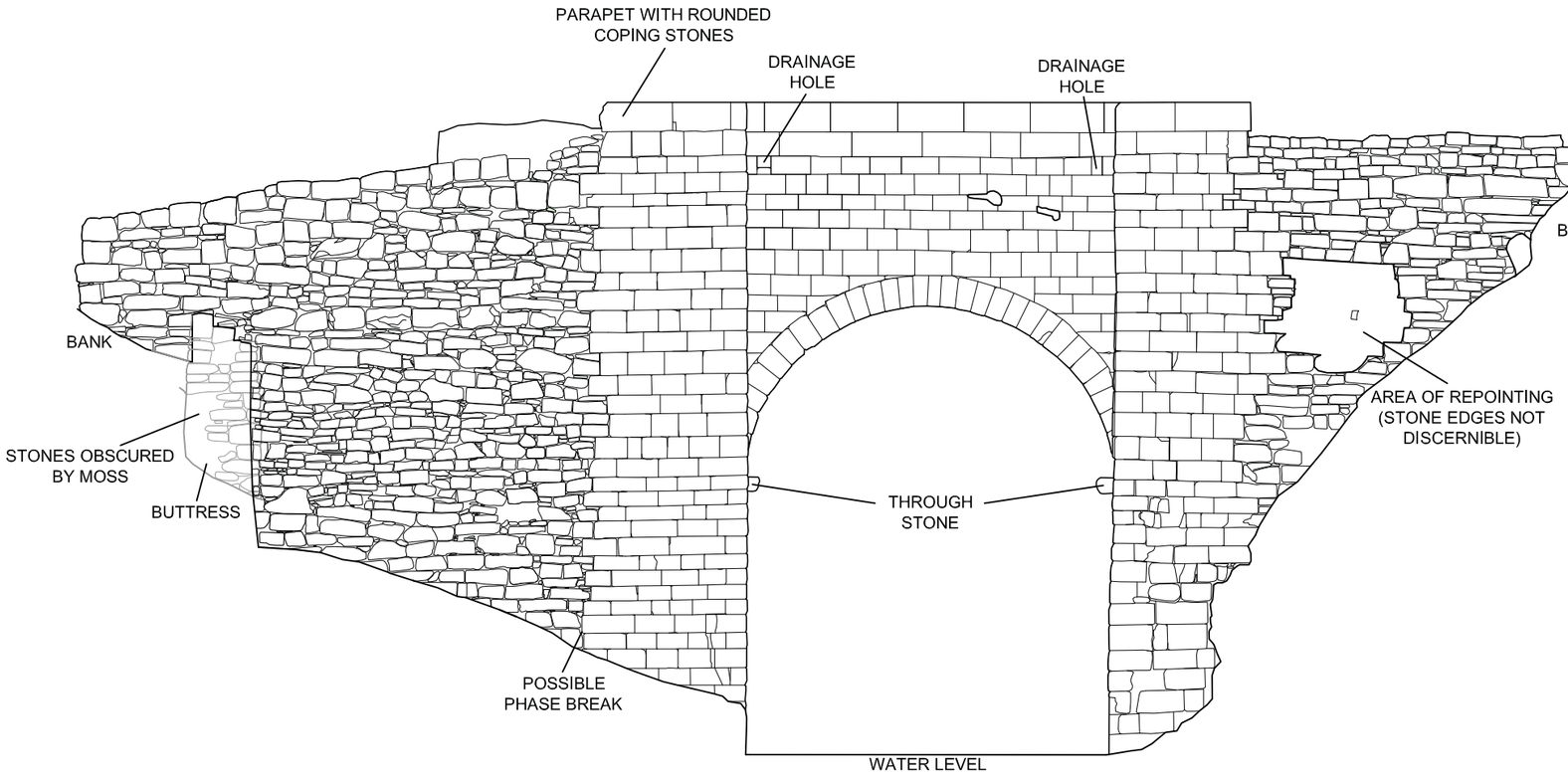

General Notes

Figure 9: North Elevation of Alum Scar Bridge

N.B. The bridge illustration is distorted as this is what it would look like if all the elevations drawn perpendicular to the structure were joined together

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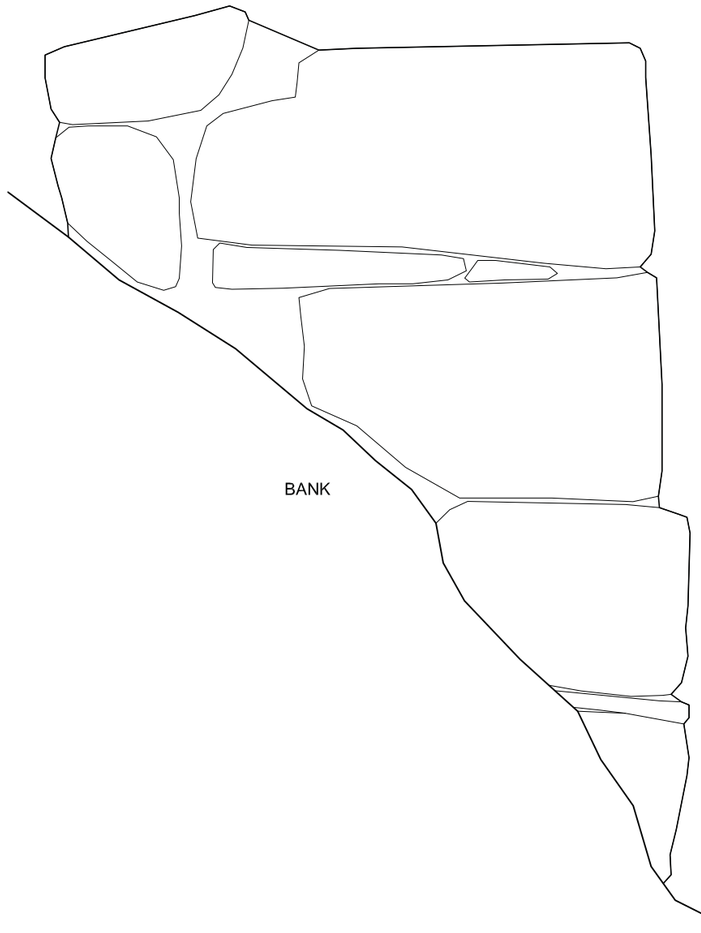

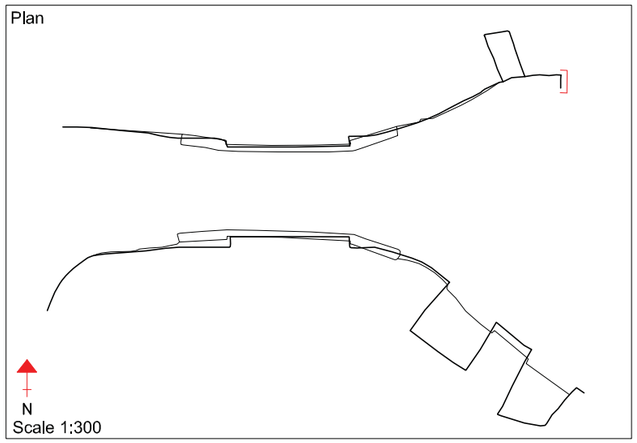

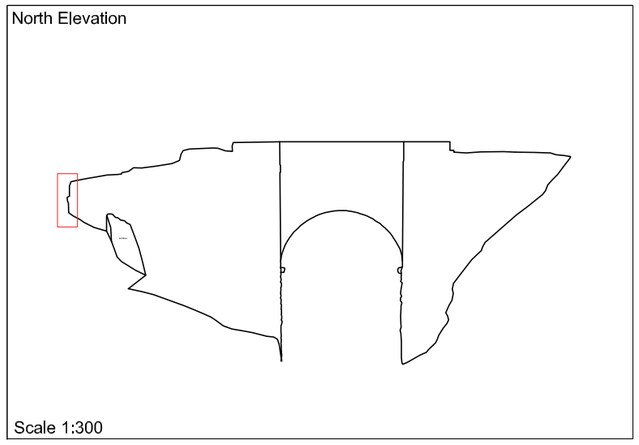

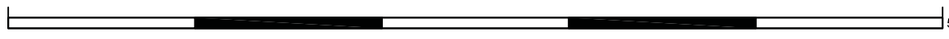

General Notes

Figure 10: North elevation of Alum Scar Bridge part 1

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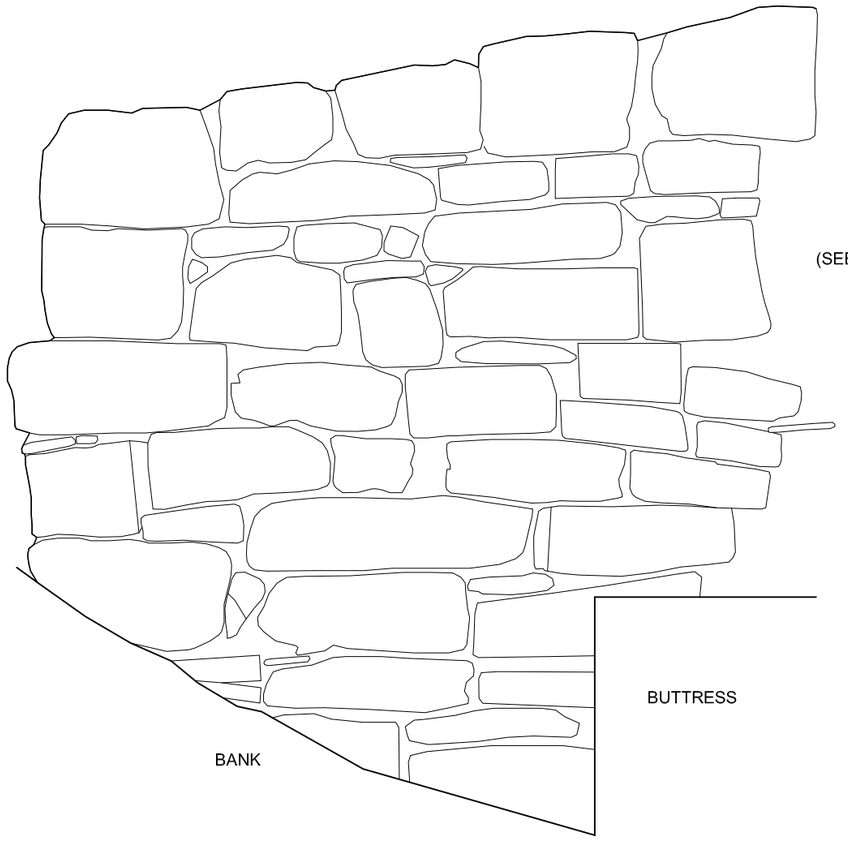
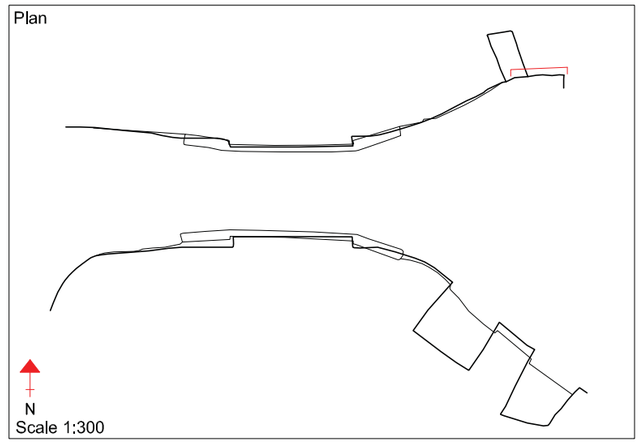
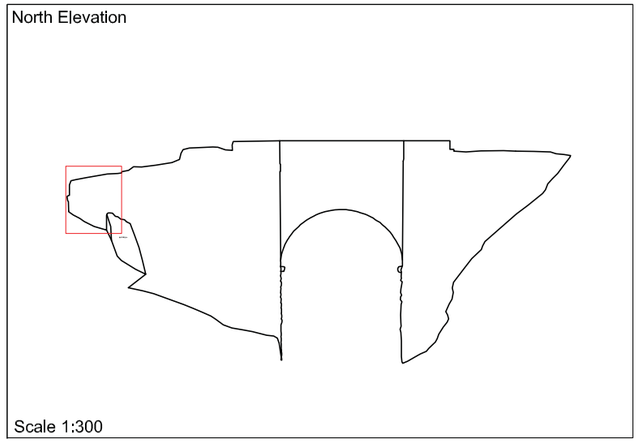


(SEE FIGURE 12)





General Notes

Figure 11: North elevation of Alum Scar Bridge part 2

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G.Hudson & C.Watson

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(SEE FIGURE 11)

(SEE FIGURE 13)

AREA OBSCURED BY MOSS

BANK

AREA OBSCURED BY MOSS

BANK

5ft

2m

Plan

N

Scale 1:300

North Elevation

Scale 1:300

General Notes

Figure 12: North elevation of Alum Scar Bridge part 3

Drawing & scanning:
G.Hudson & C.Watson

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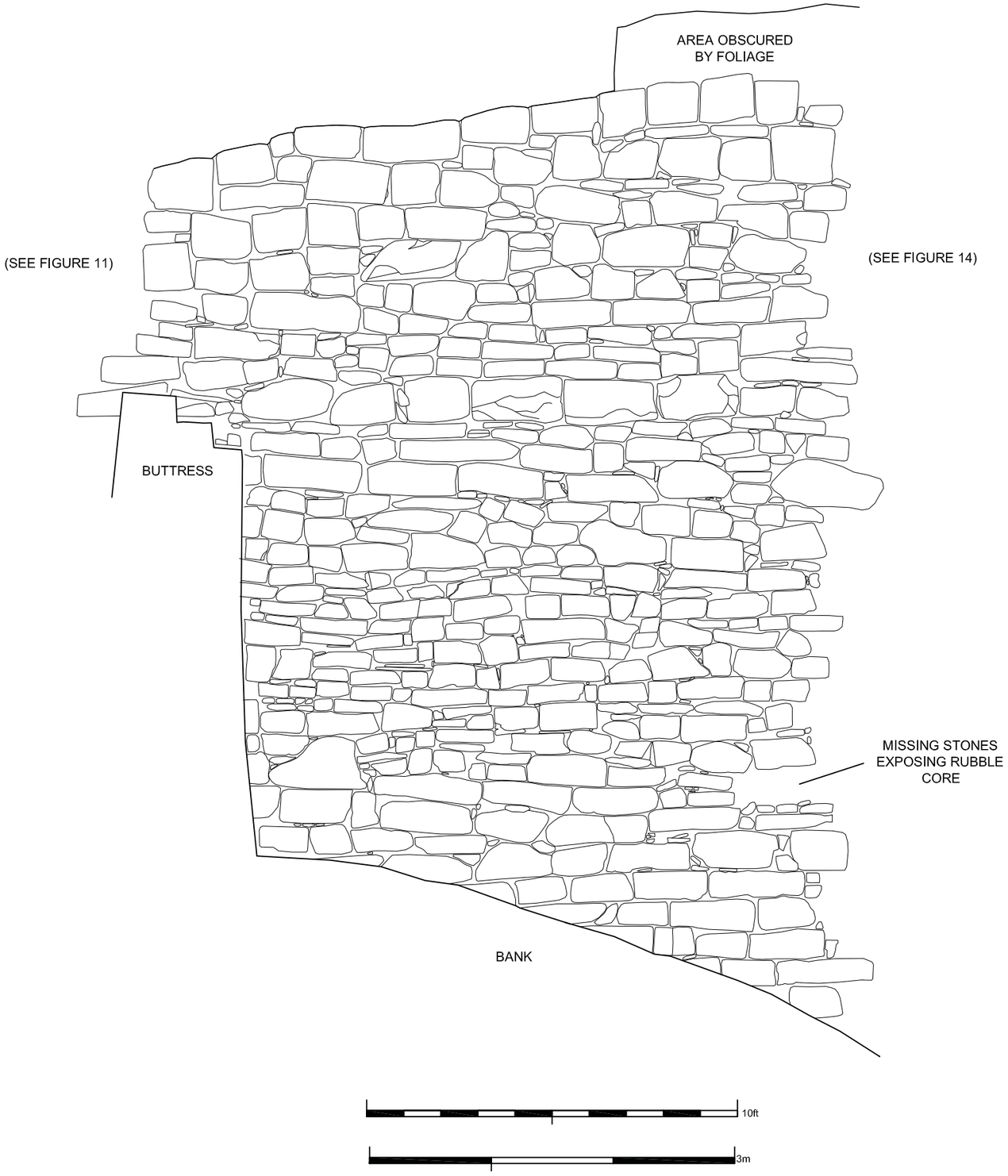

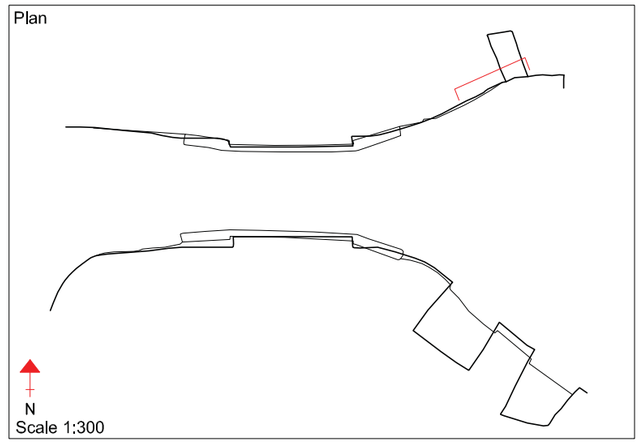

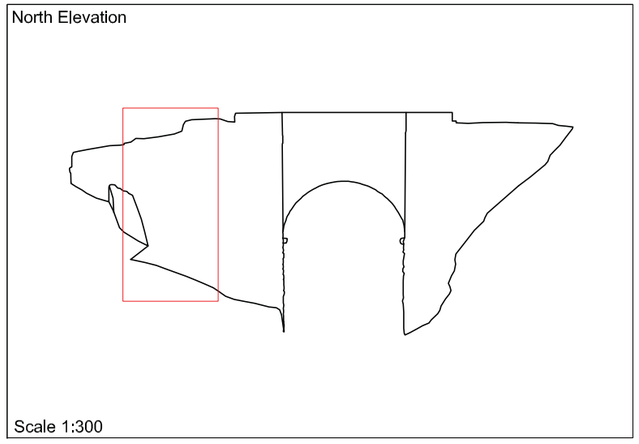

General Notes

Figure 13: North elevation of Alum Scar Bridge part 4

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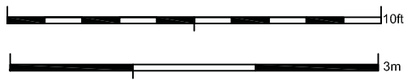

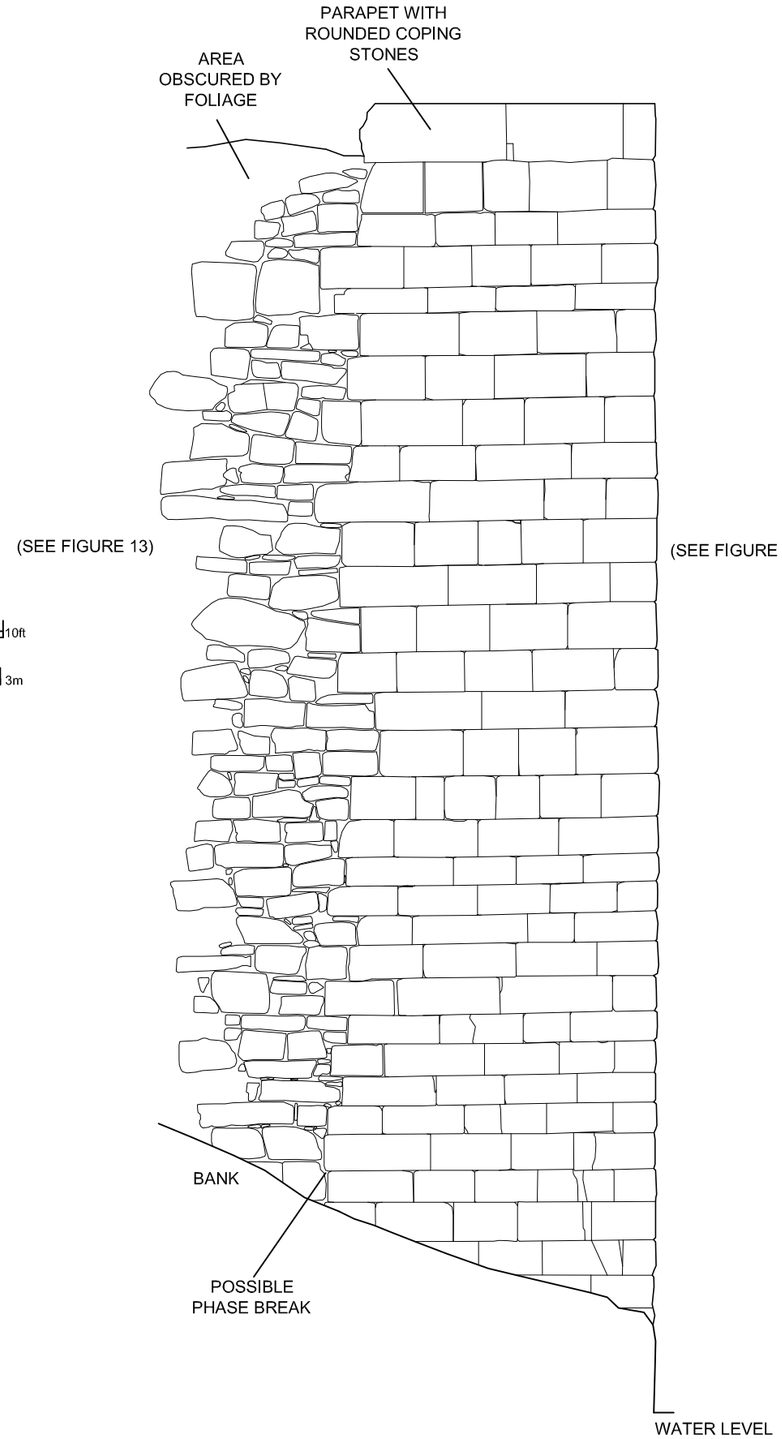

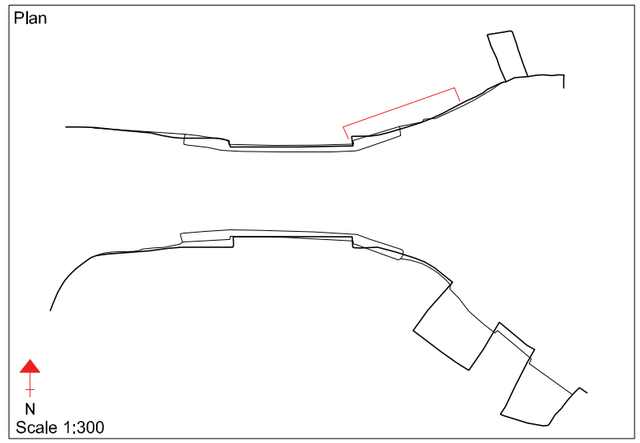

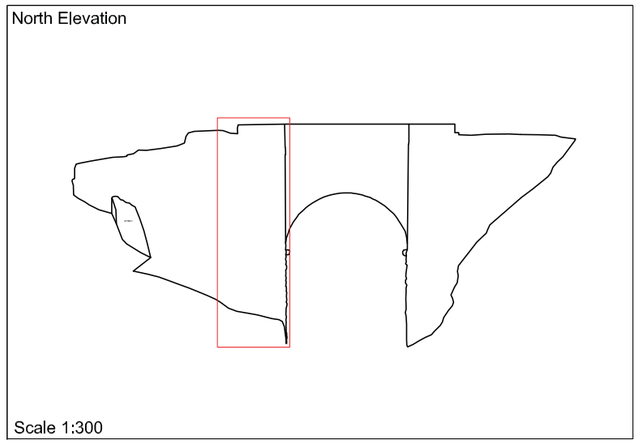

General Notes

Figure 14: North elevation of Alum Scar Bridge part 5

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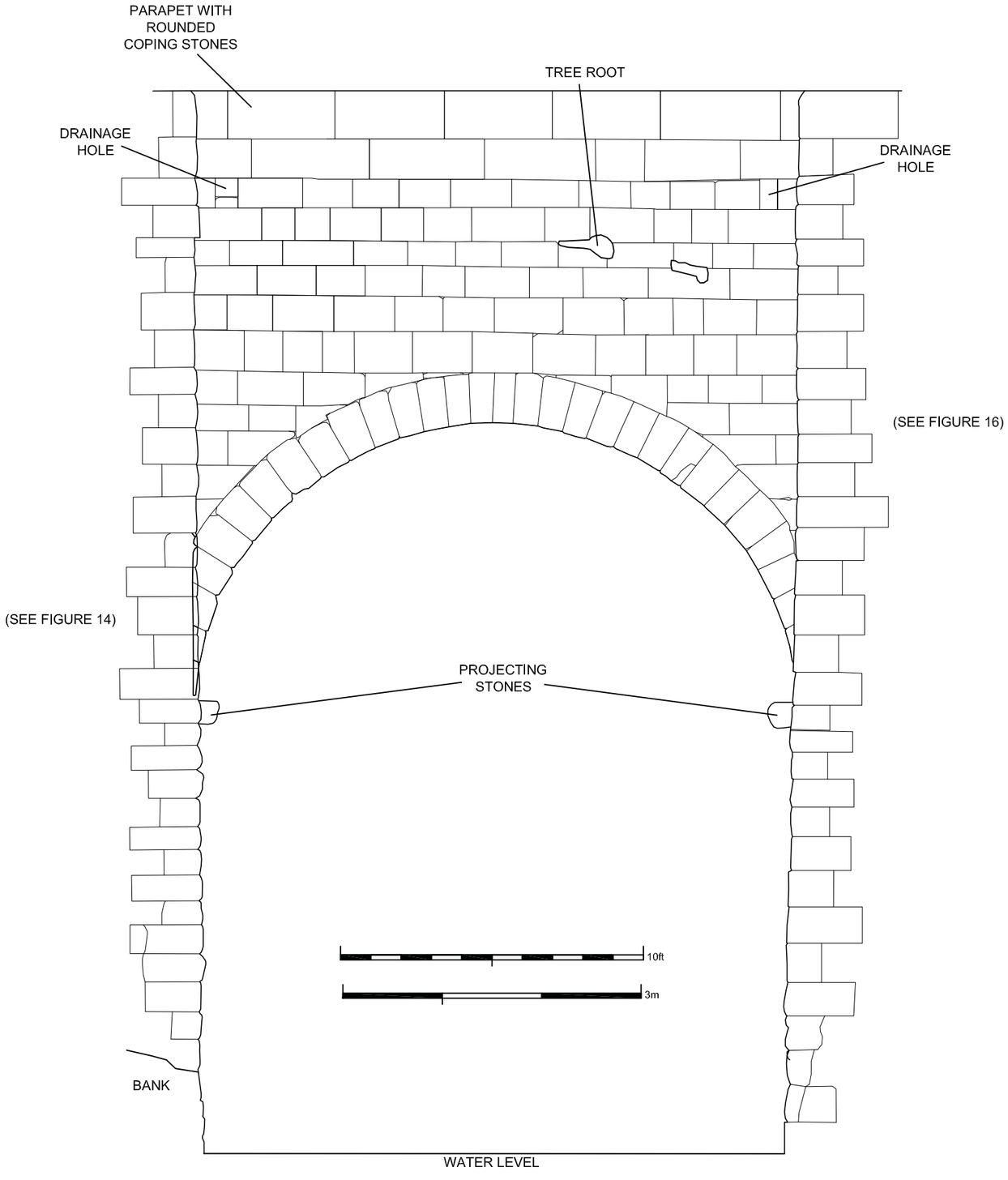

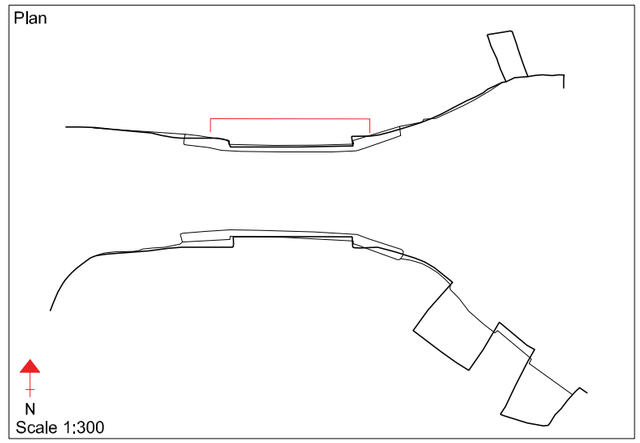

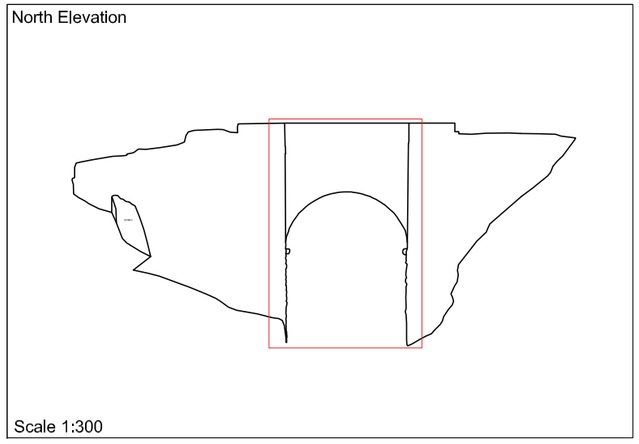

General Notes

Figure 15: North elevation of Alum Scar Bridge part 6

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G.Hudson & C.Watson

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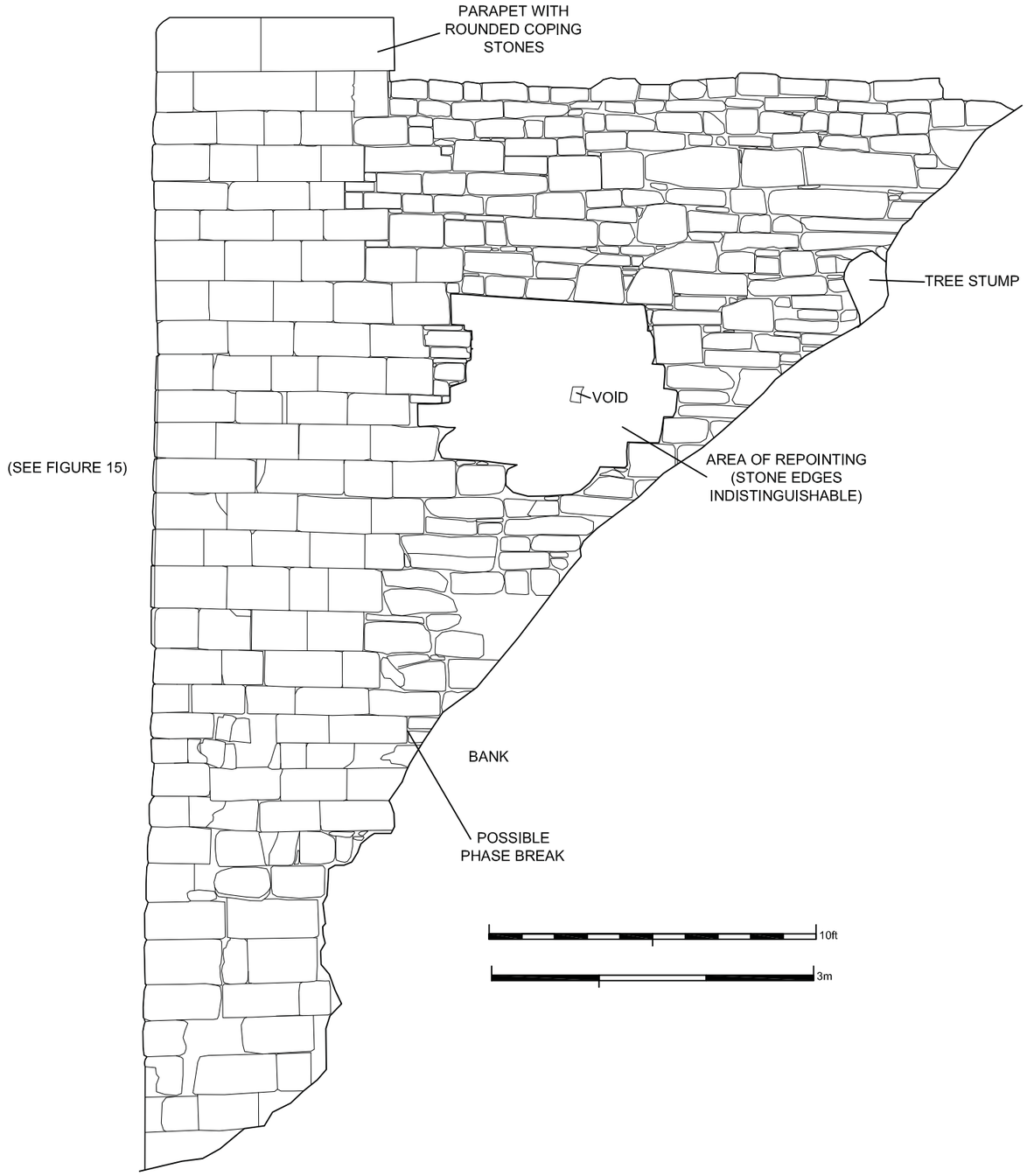
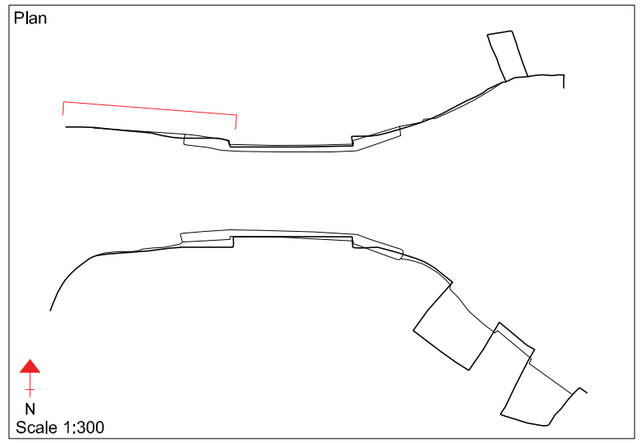
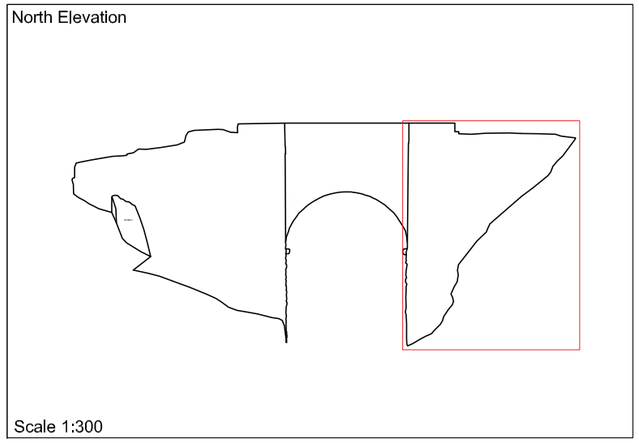


(SEE FIGURE 15)





General Notes

Figure 16: North elevation of Alum Scar Bridge part 7

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G.Hudson & C.Watson

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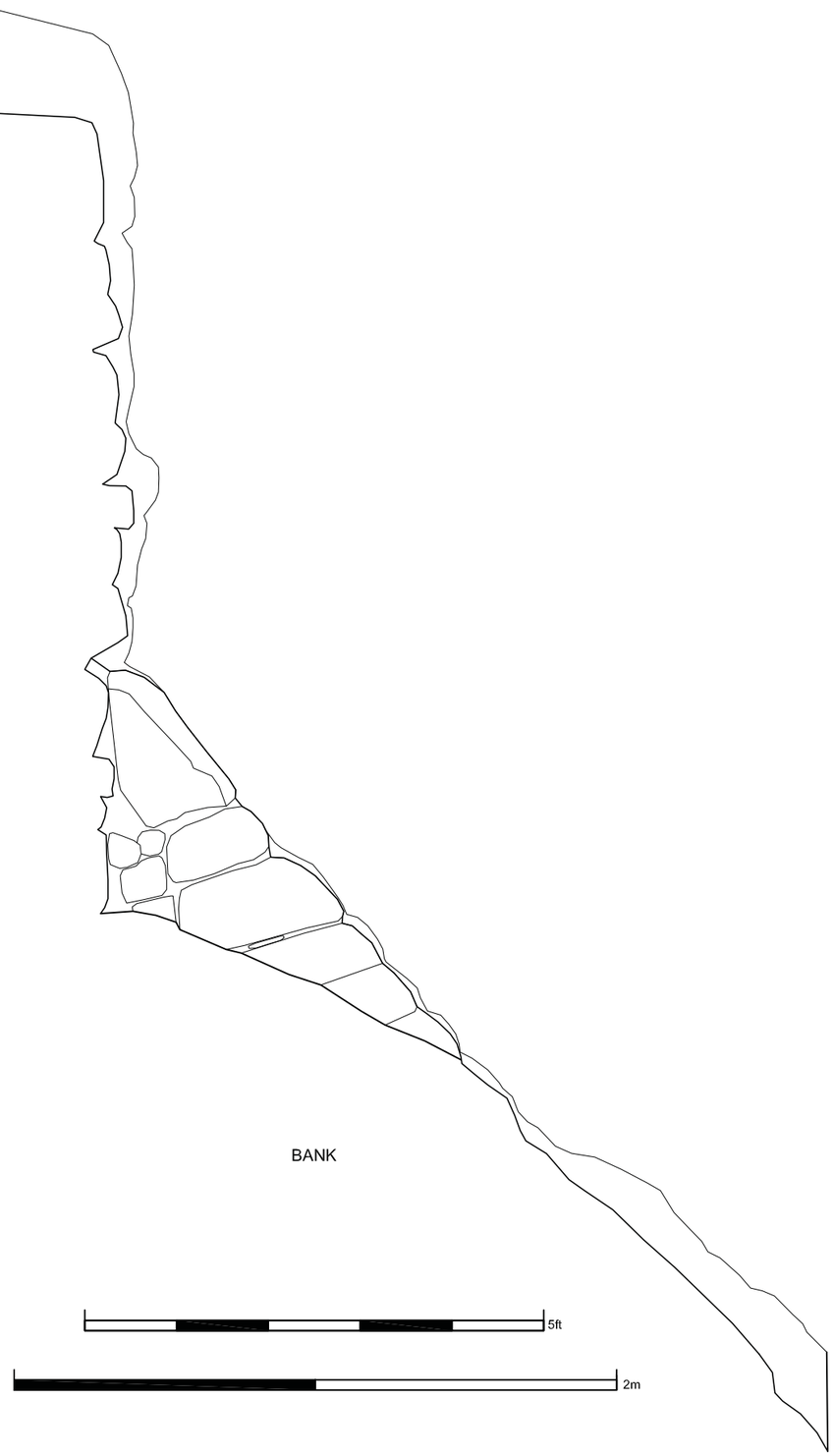

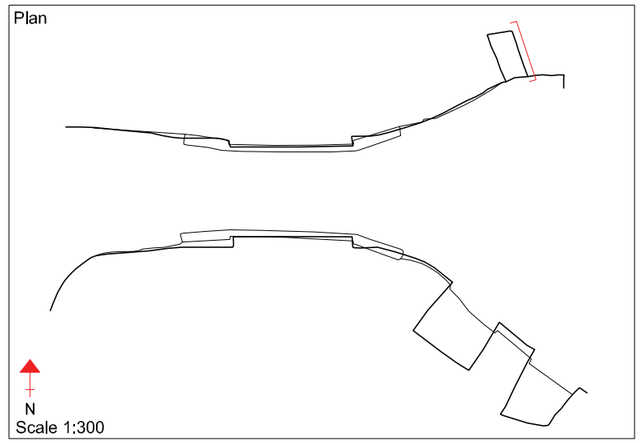

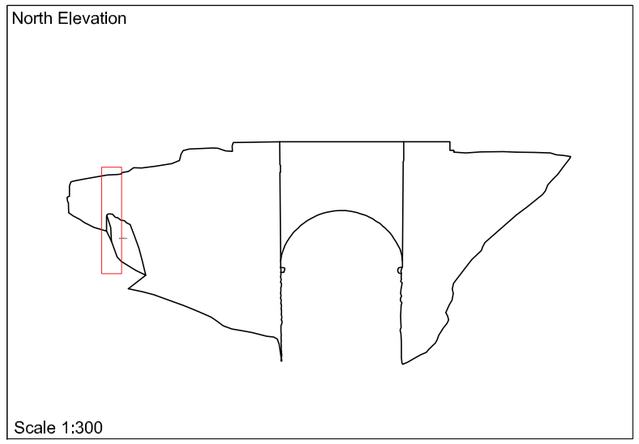

General Notes

Figure 17: East elevation of buttress extending from north elevation of Alum Scar Bridge

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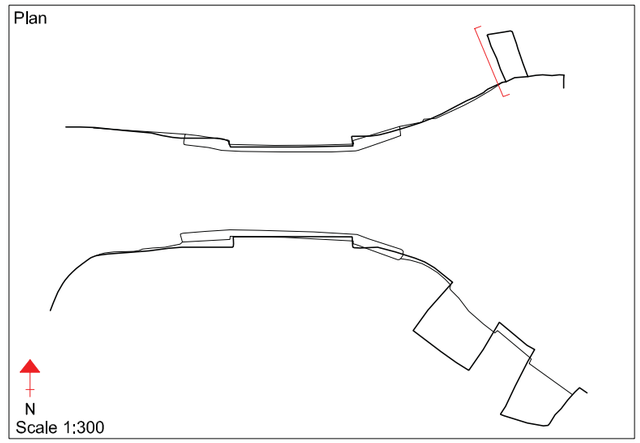

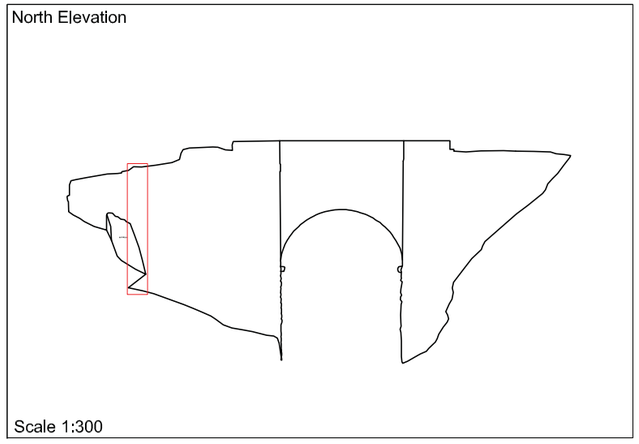

General Notes

Figure 18: West elevation of buttress extending from north elevation of Alum Scar Bridge

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Scale 1:300 Plan

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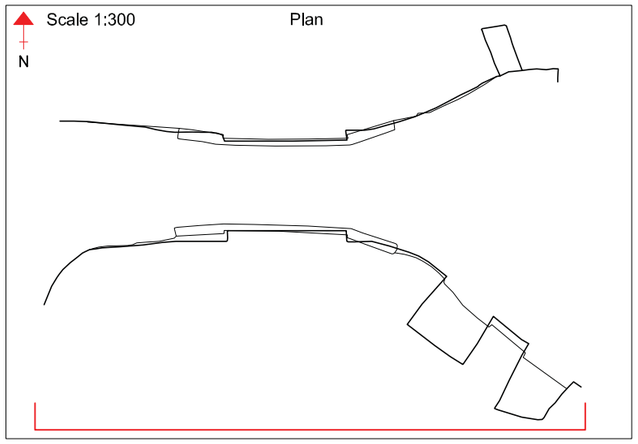

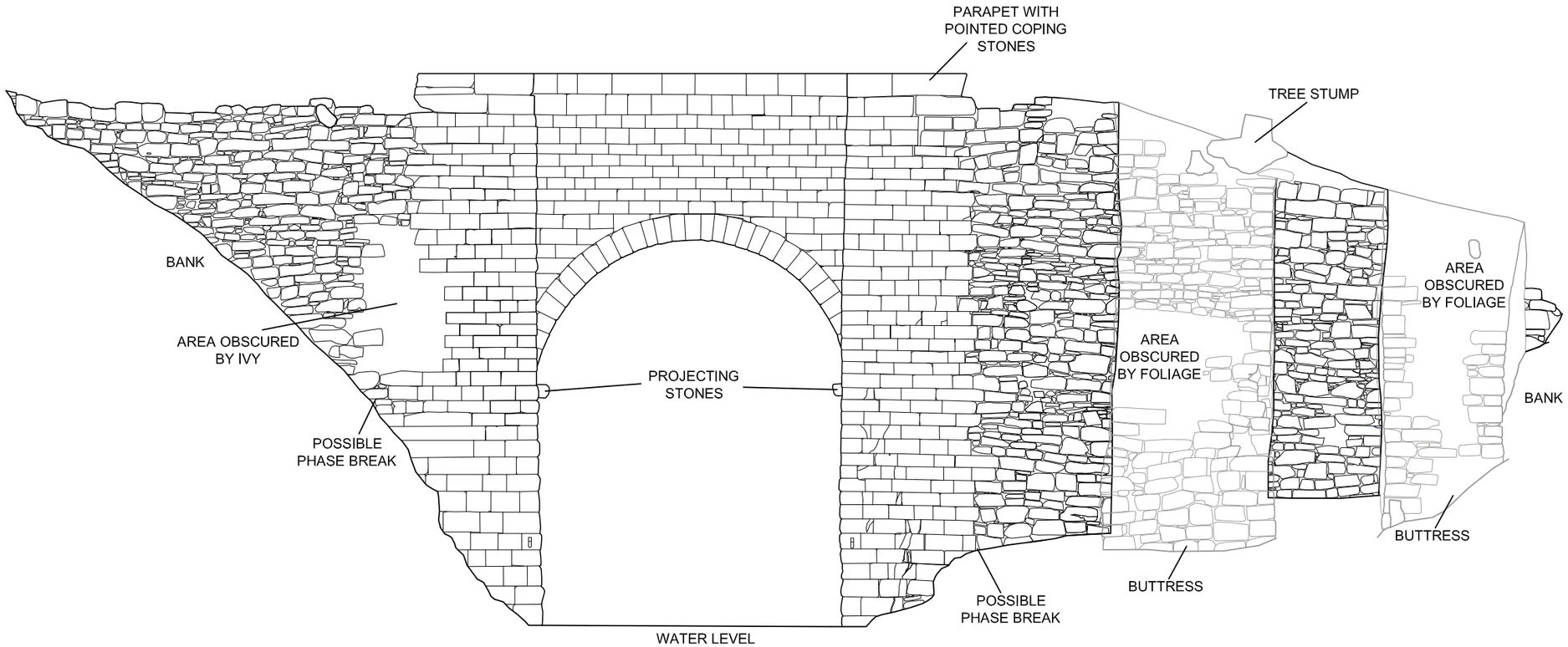

General Notes

Figure 19: South elevation of Alum Scar Bridge

N.B. The bridge illustration is distorted as this is what it would look like if all the elevations drawn perpendicular to the structure were joined together

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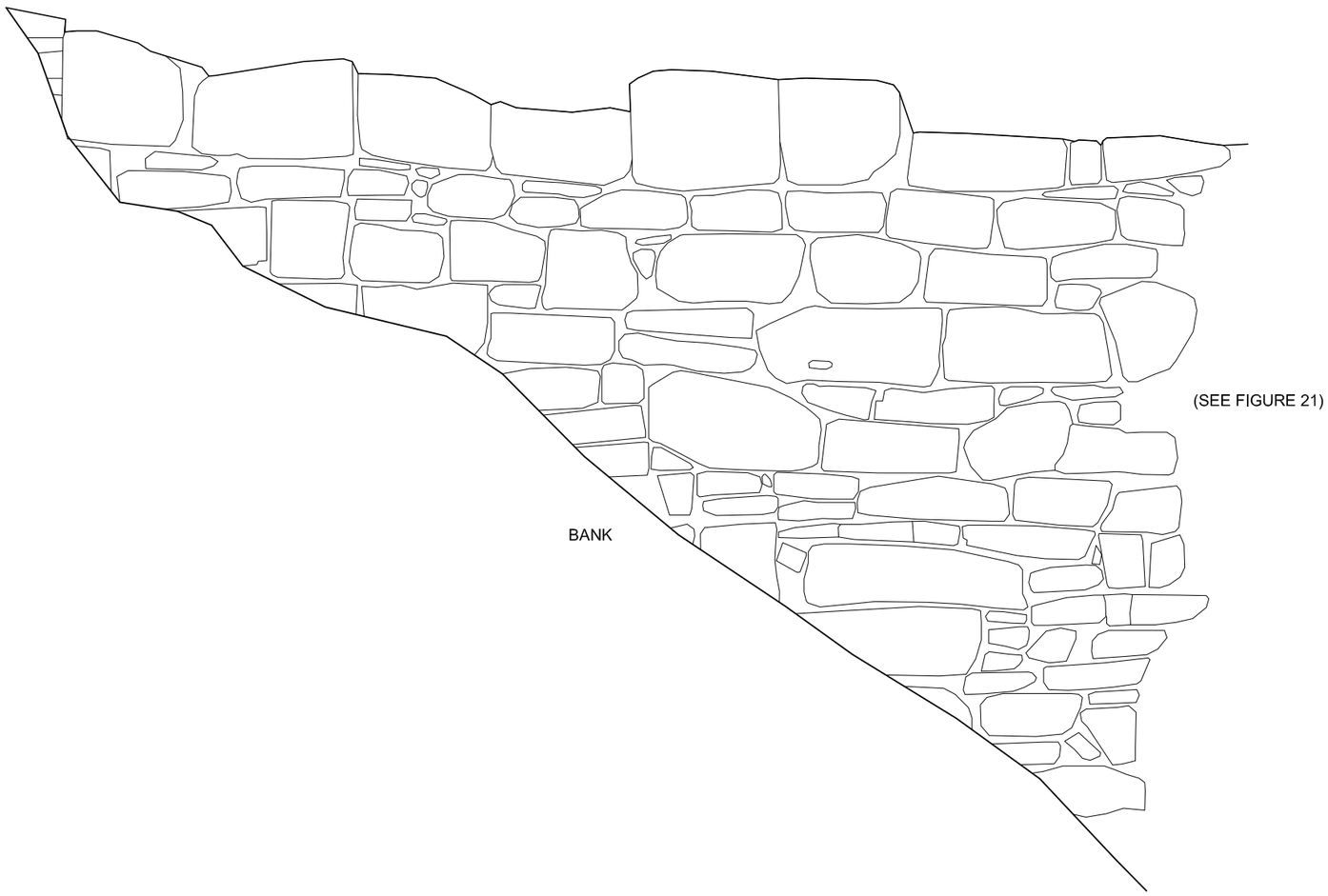

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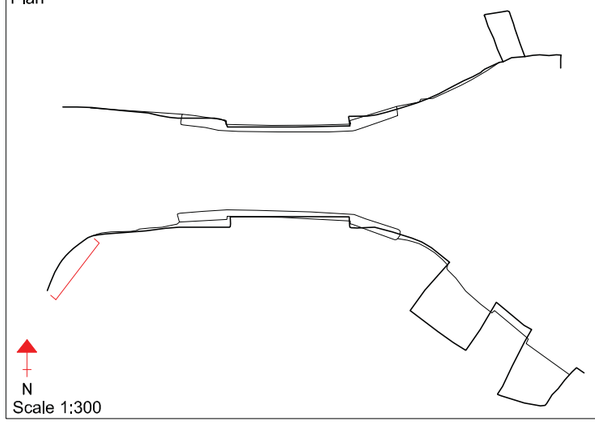

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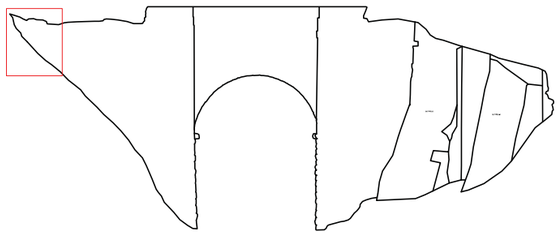
South Elevation



Scale 1:300

Figure 20: South elevation of Alum Scar Bridge part 1

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Project	Sheet
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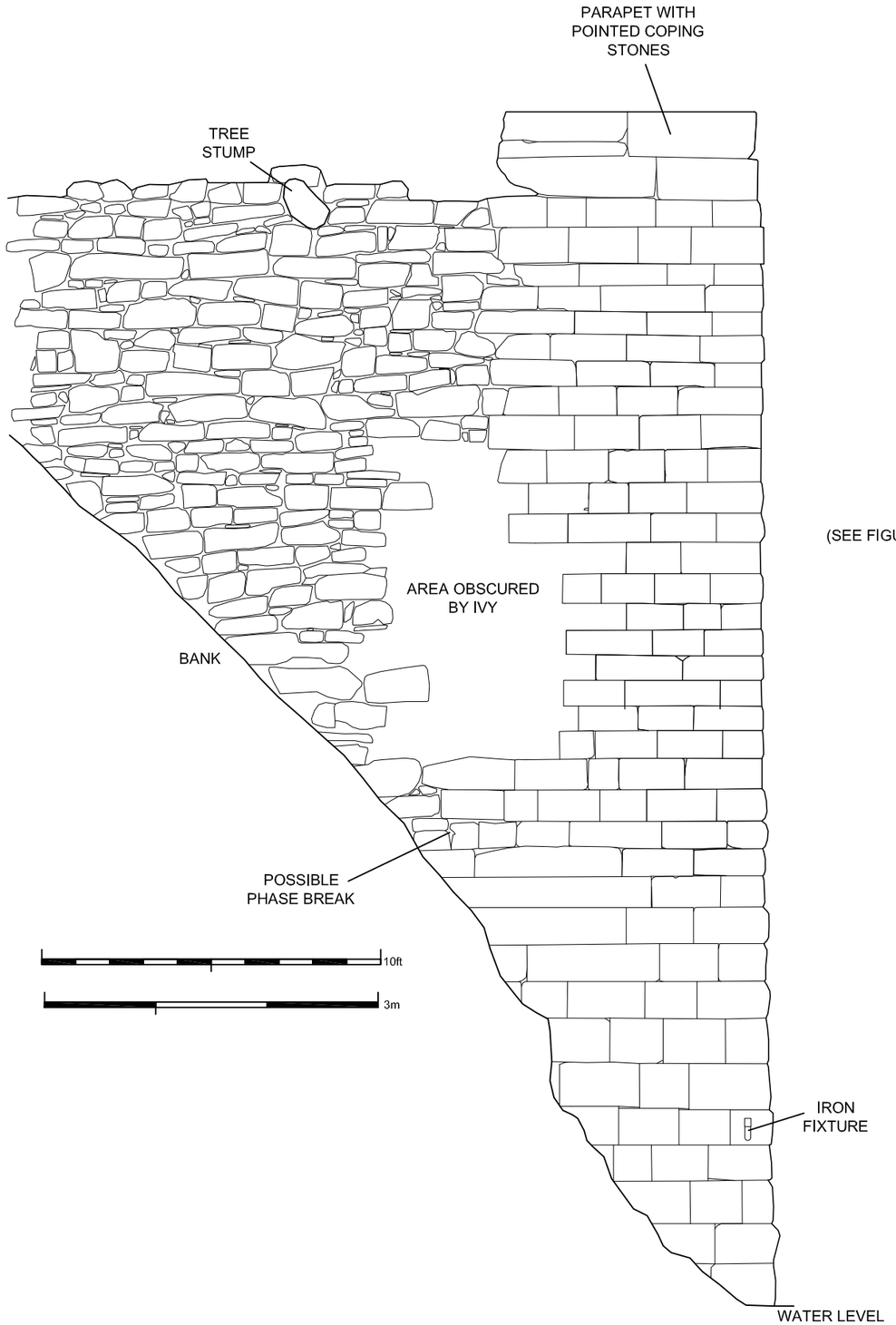
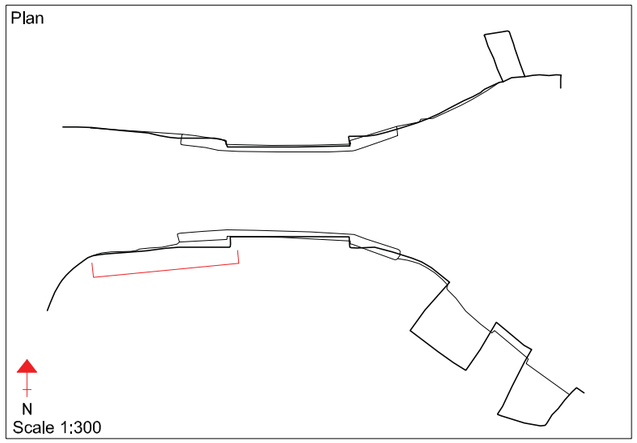
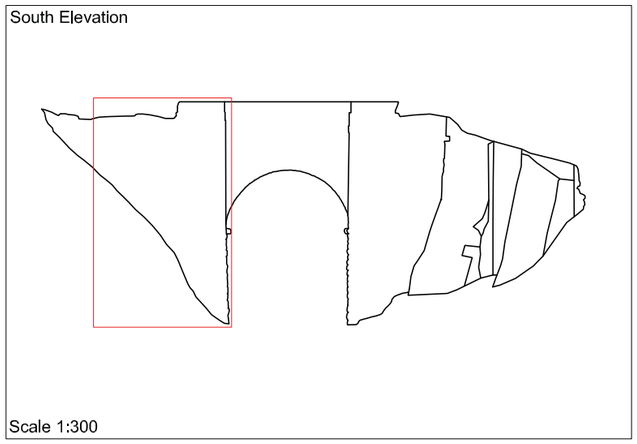
Scale 1:20 @ A3	

(SEE FIGURE 20)



(SEE FIGURE 22)





General Notes

Figure 21: South elevation of Alum Scar Bridge part 2

Drawing & scanning:
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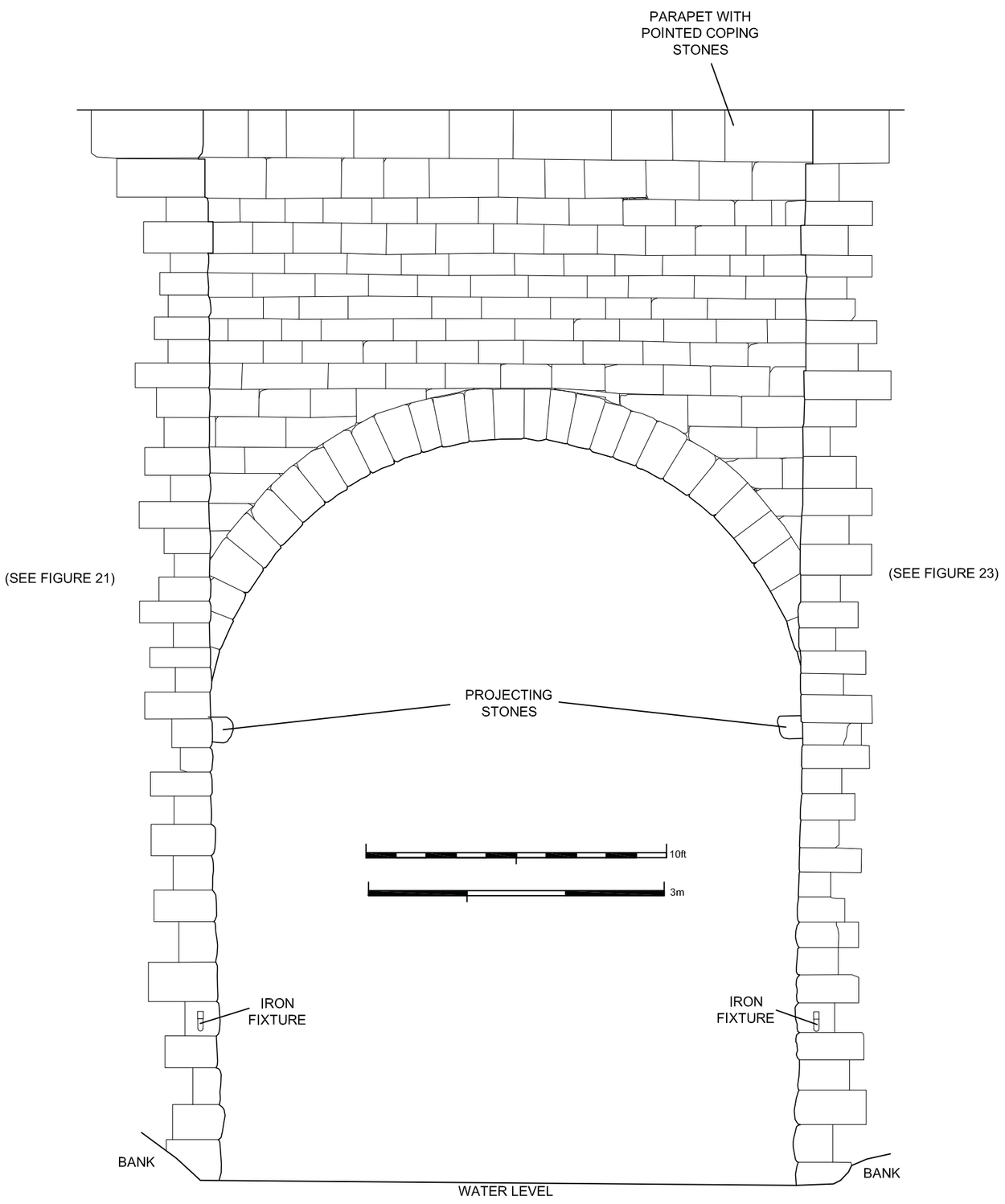

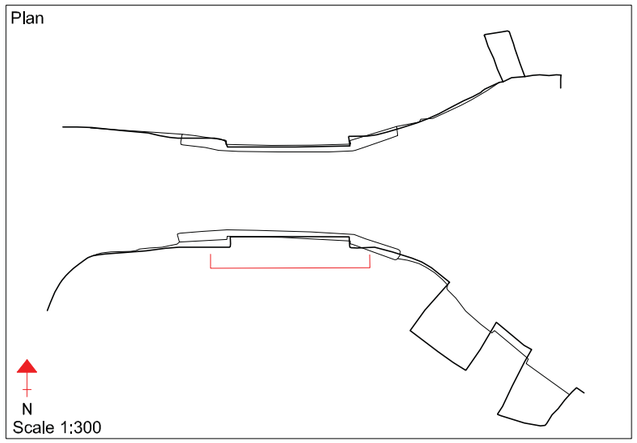

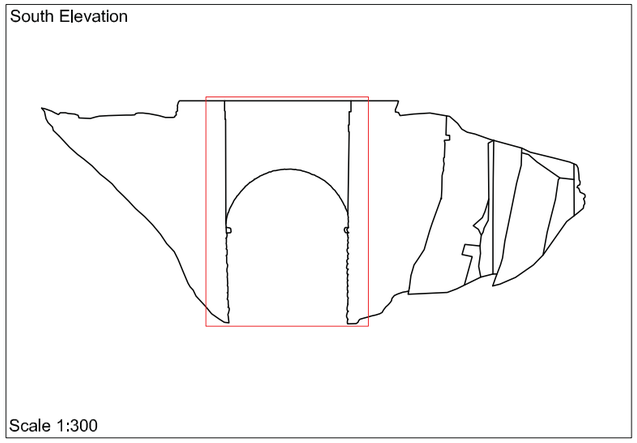

General Notes

Figure 22: South elevation of Alum Scar Bridge part 3

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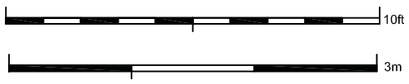

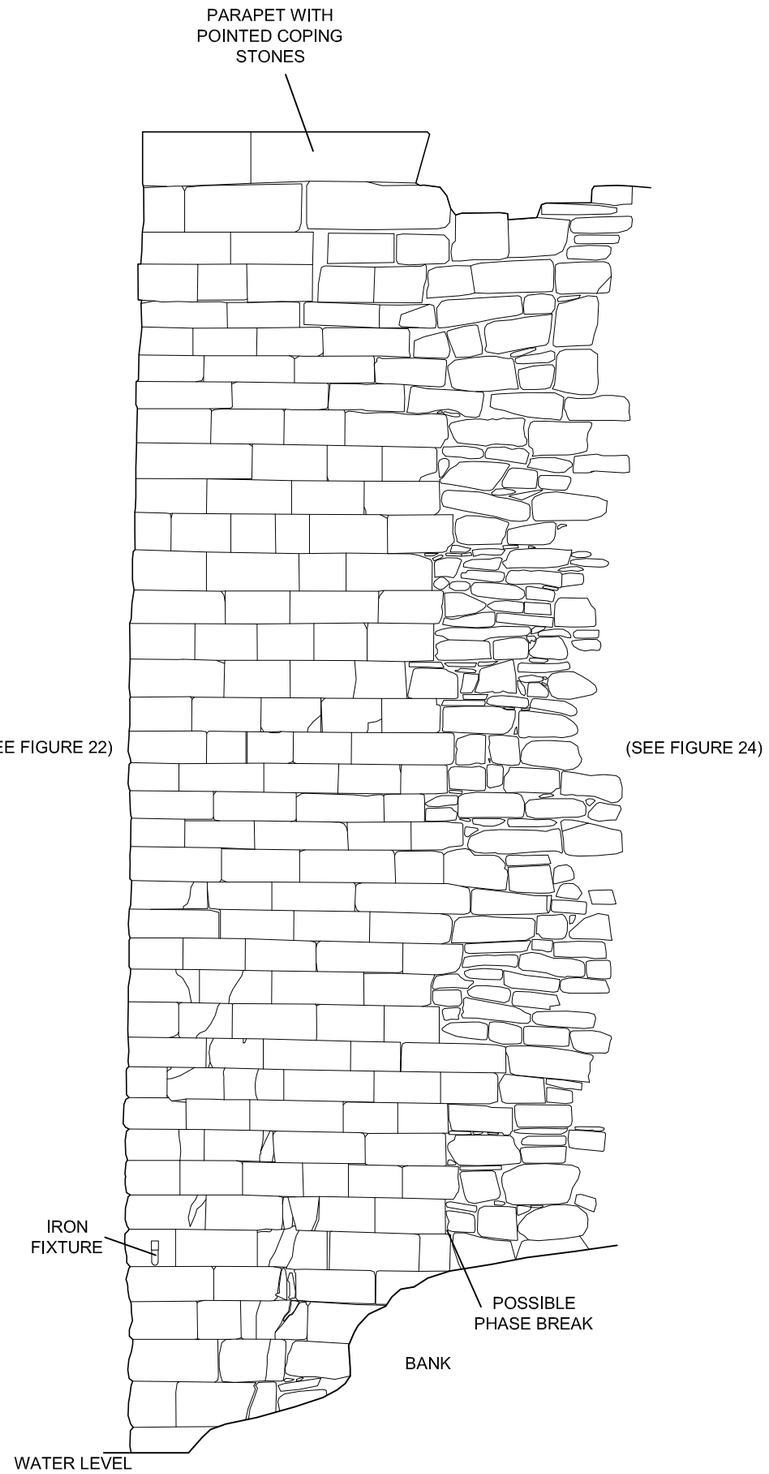

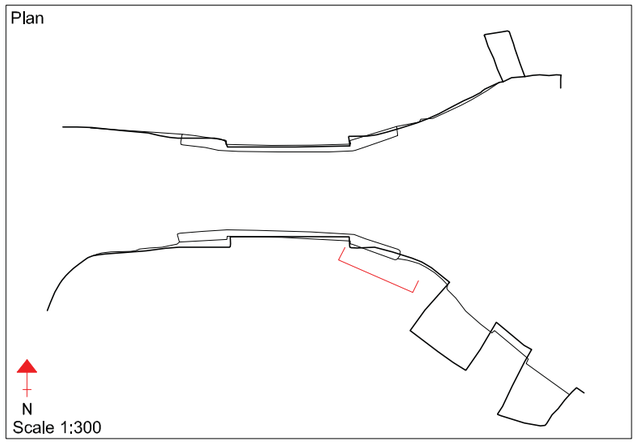

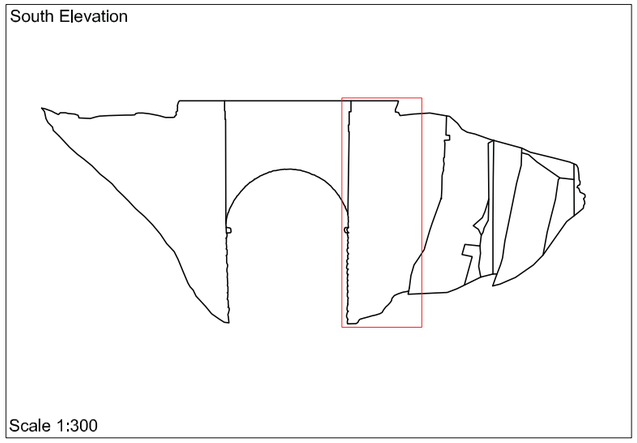

General Notes

Figure 23: South elevation of Alum Scar Bridge part 4

Drawing & scanning:
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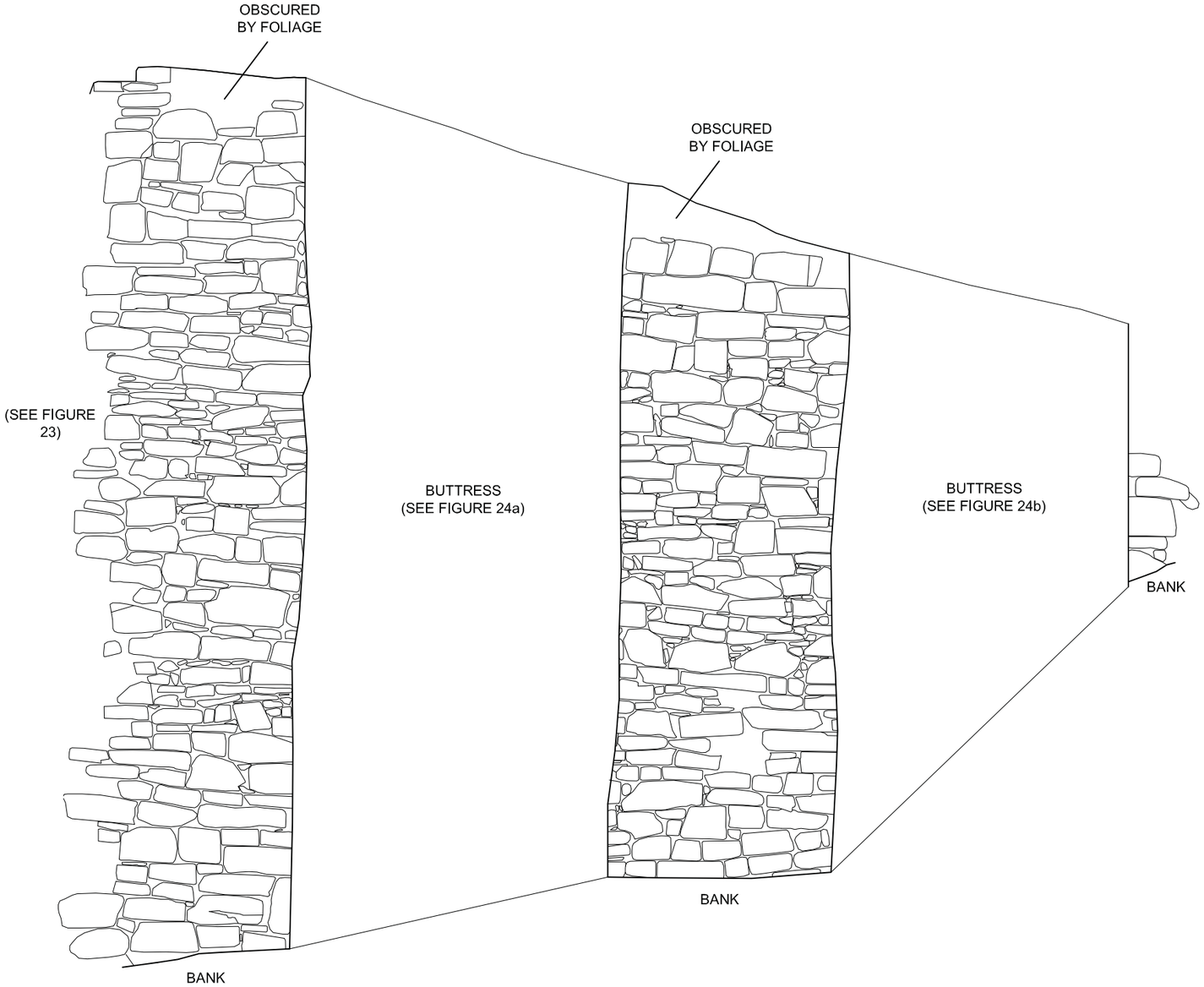

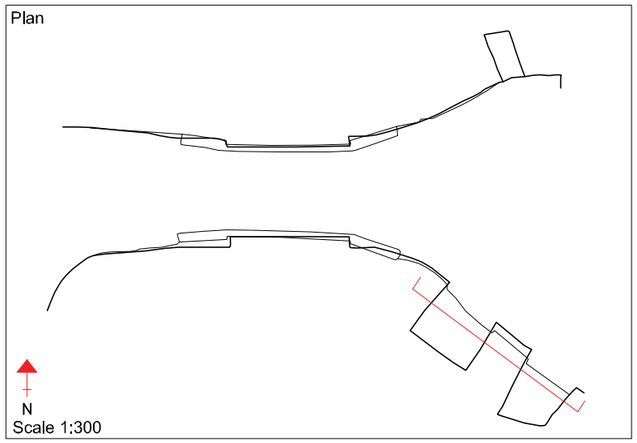

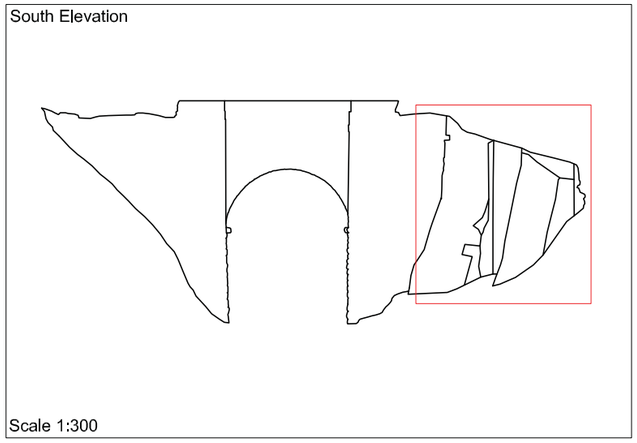

General Notes

Figure 24: South elevation of Alum Scar Bridge part 5

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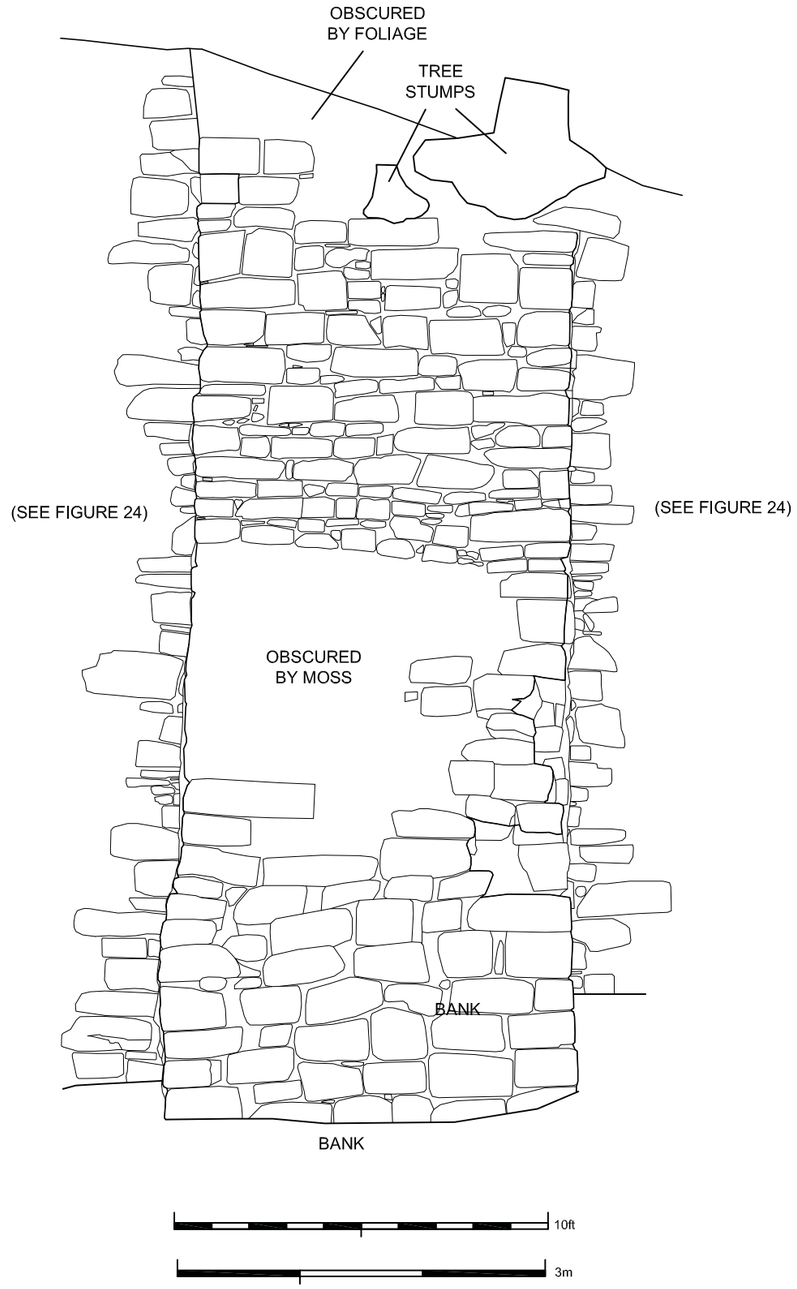

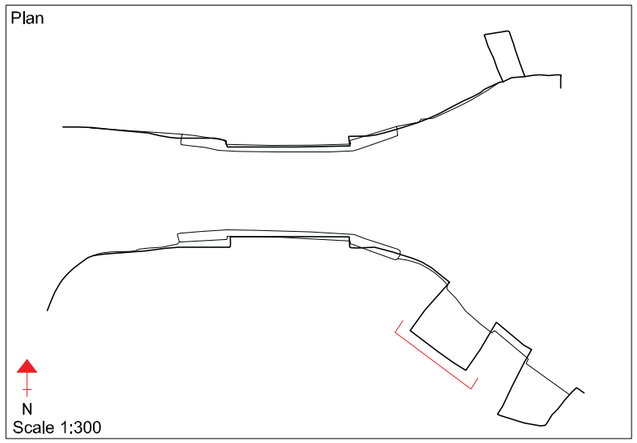

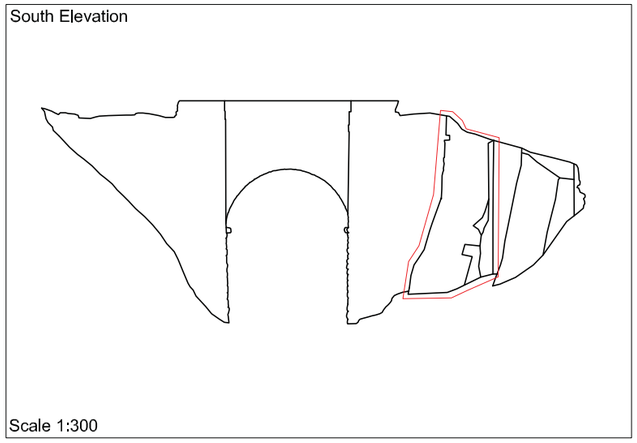

General Notes

Figure 24a: South elevation of west buttress, Alum Scar Bridge

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G.Hudson & C.Watson

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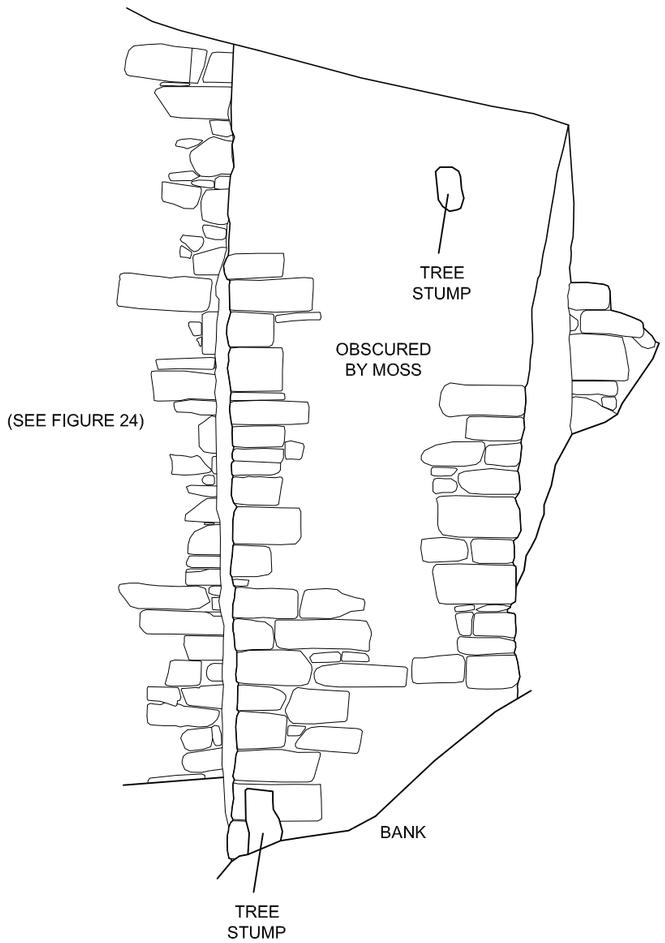
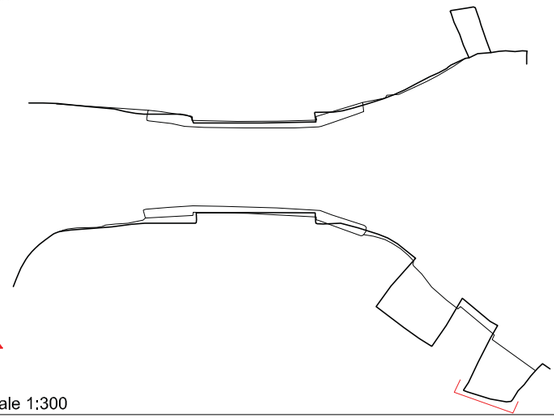


10ft

3m

Plan



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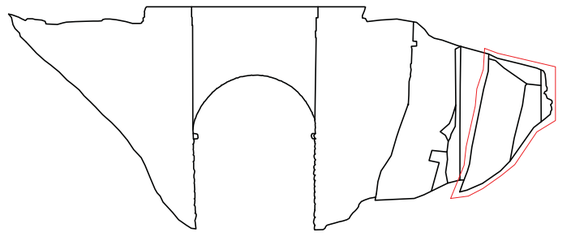
Scale 1:300

South Elevation



Scale 1:300

General Notes

Figure 24b: South elevation of east buttress, Alum Scar Bridge

Drawing & scanning:
G.Hudson & C.Watson

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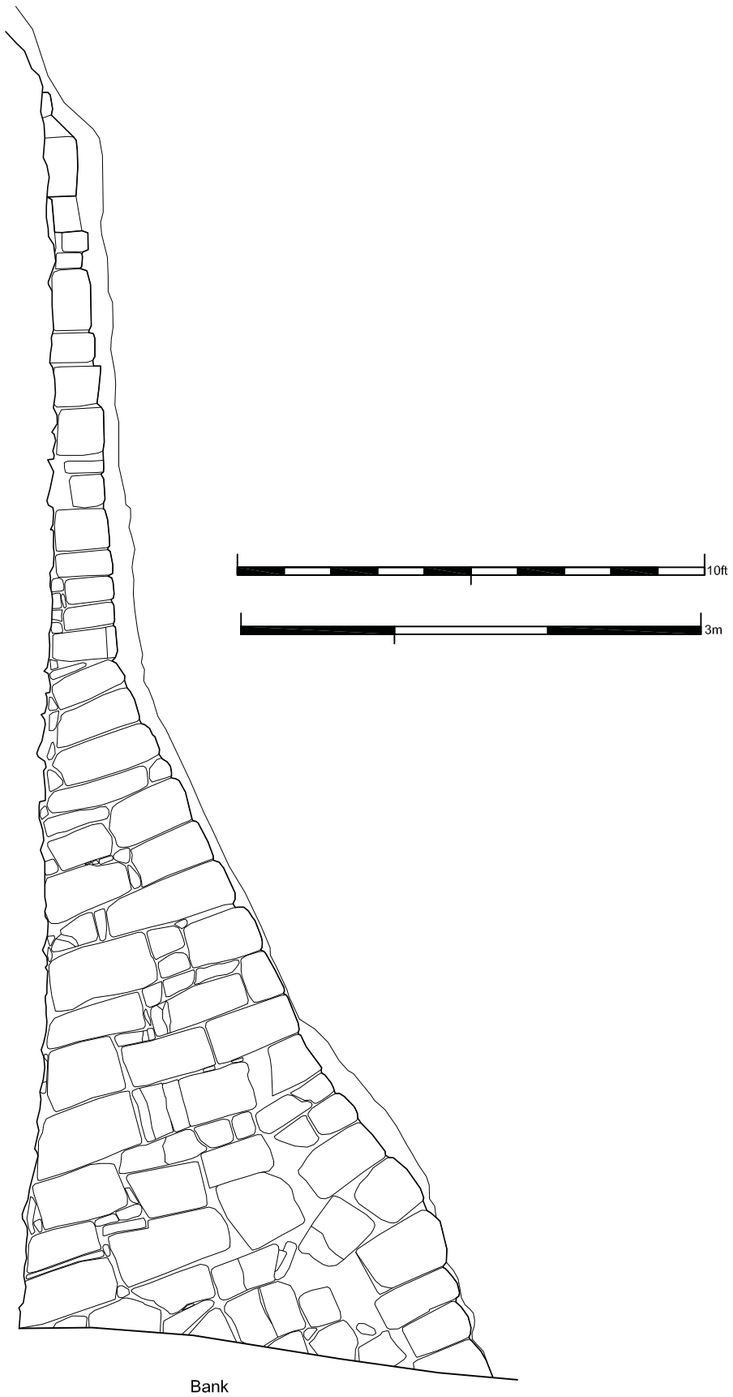

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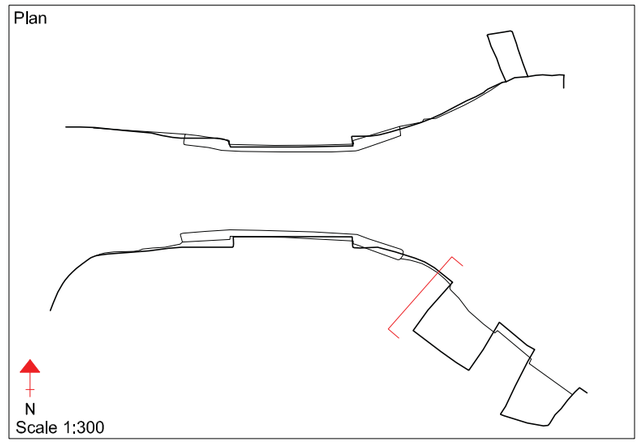

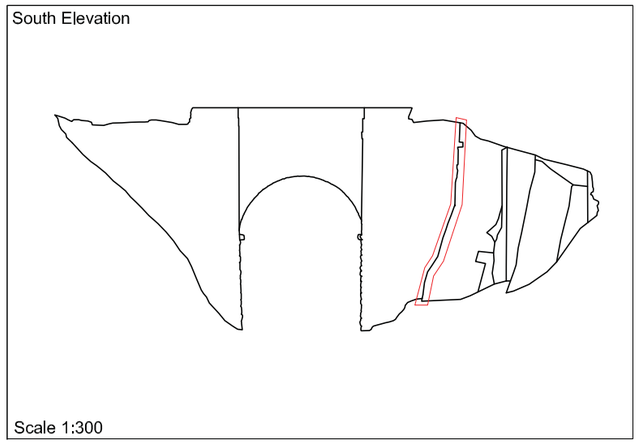

General Notes

Figure 25: West elevation of west buttress extending from south elevation, Alum Scar Bridge

Drawing & scanning:
G.Hudson & C.Watson

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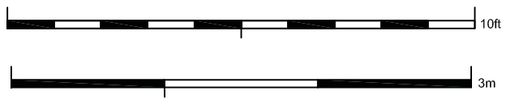

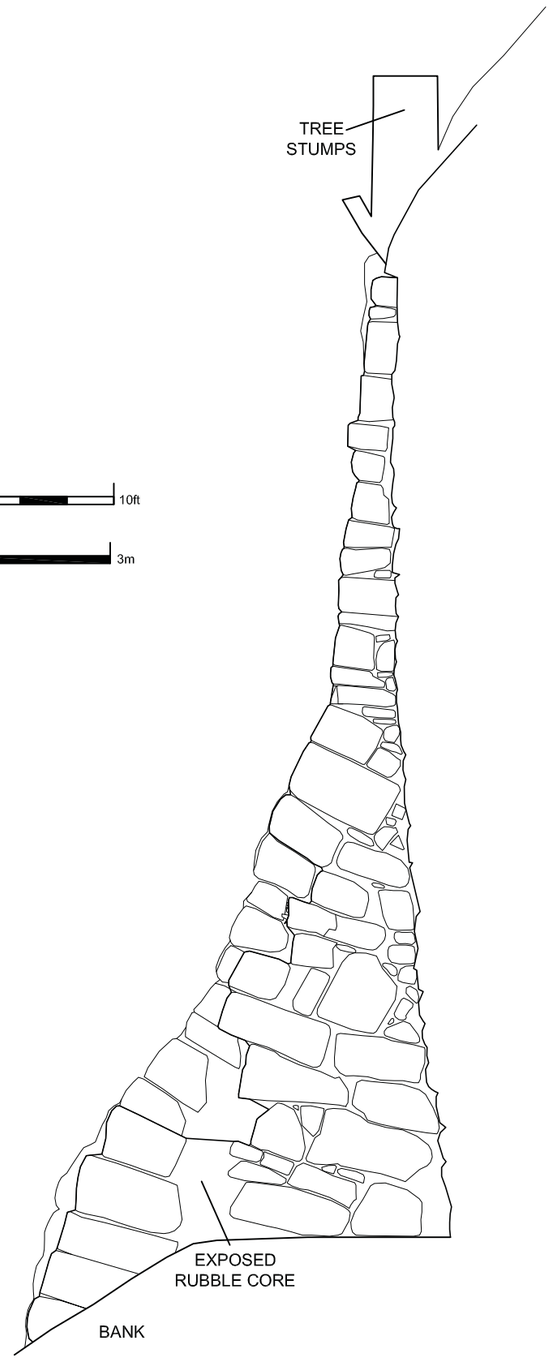

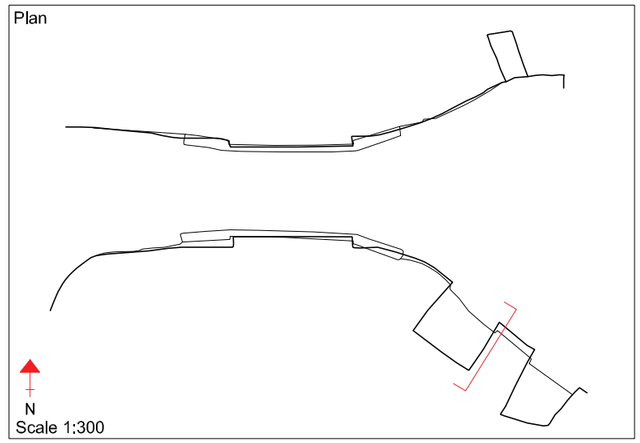

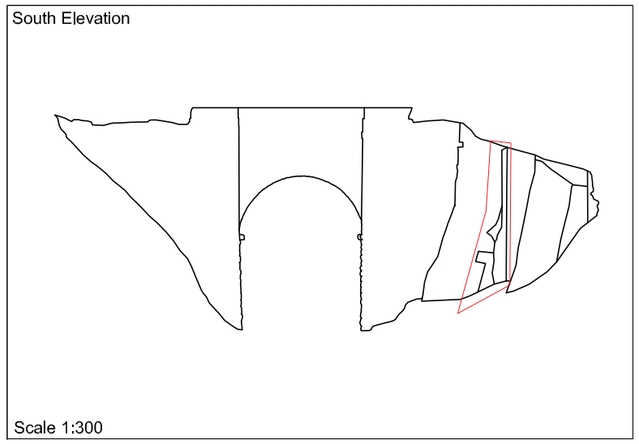

General Notes

Figure 26: East elevation of west buttress extending from south elevation, Alum Scar Bridge

Drawing & scanning:
G.Hudson & C.Watson

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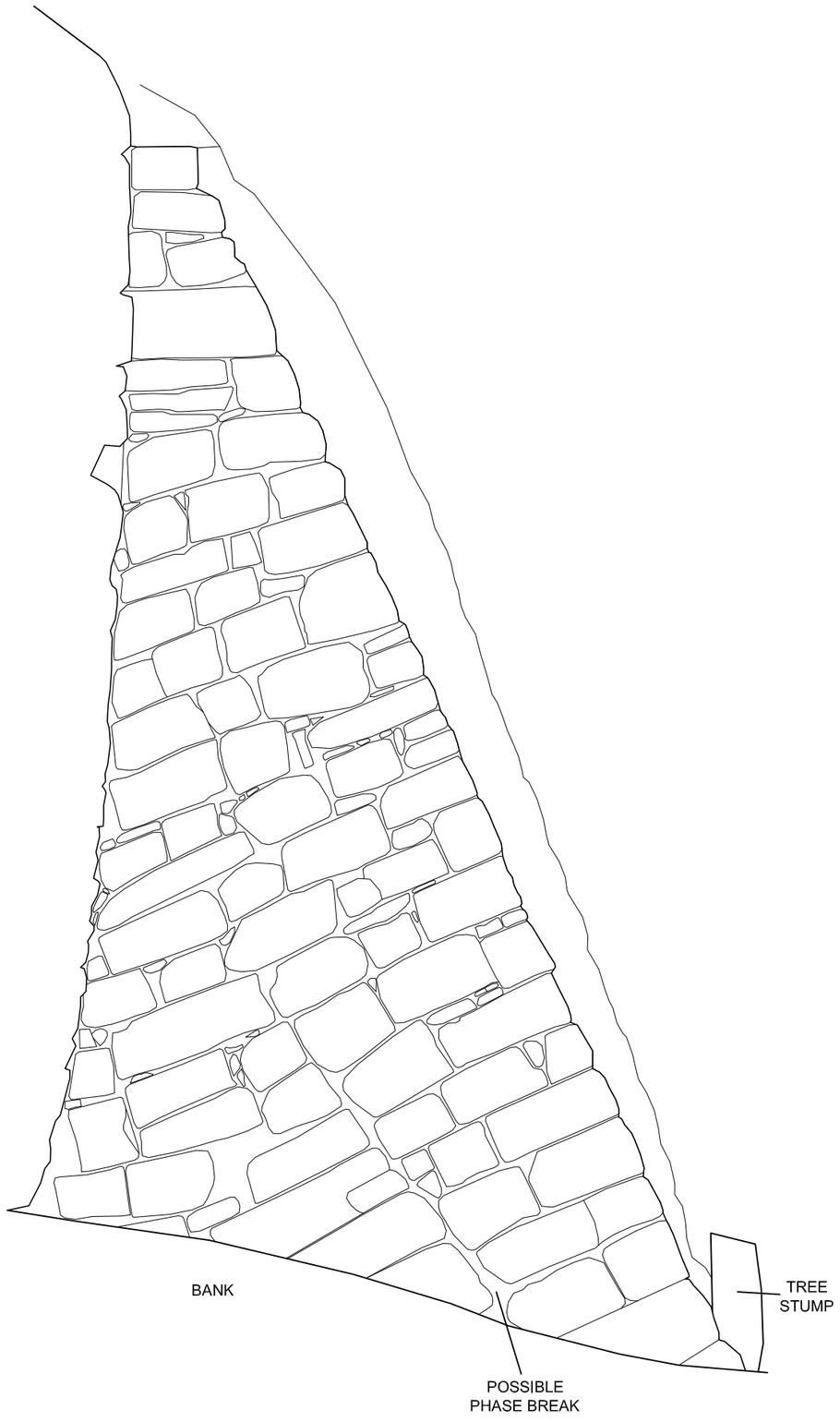

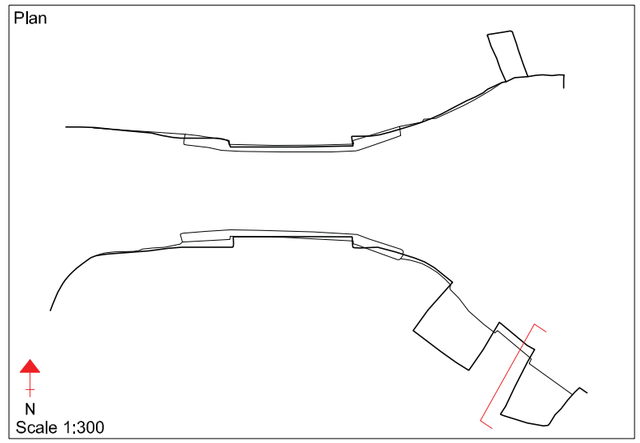

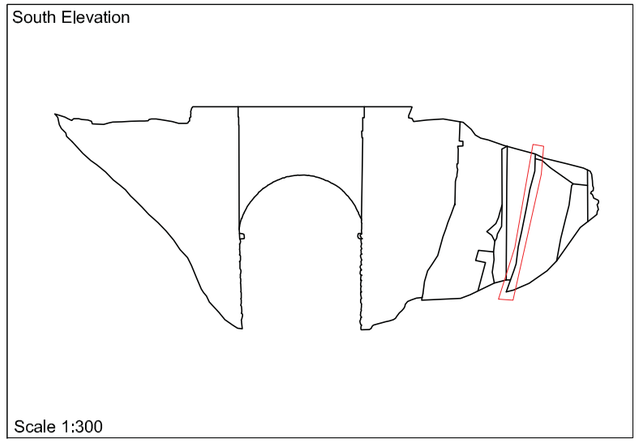

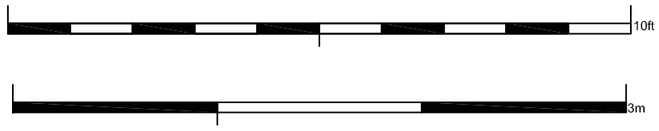

General Notes

Figure 27: West elevation of East buttress extending from south elevation, Alum Scar Bridge

Drawing & scanning:
G.Hudson & C.Watson

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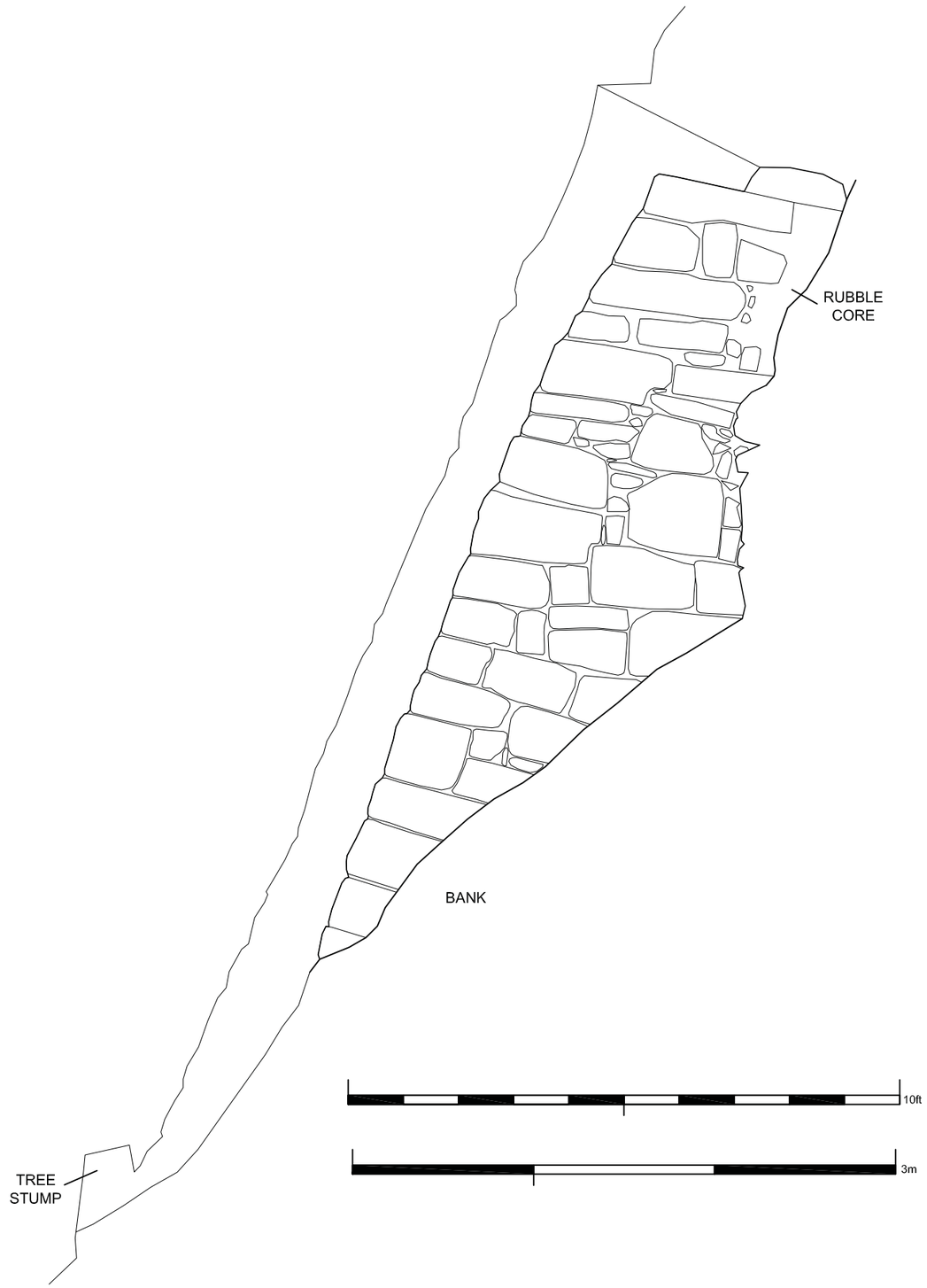
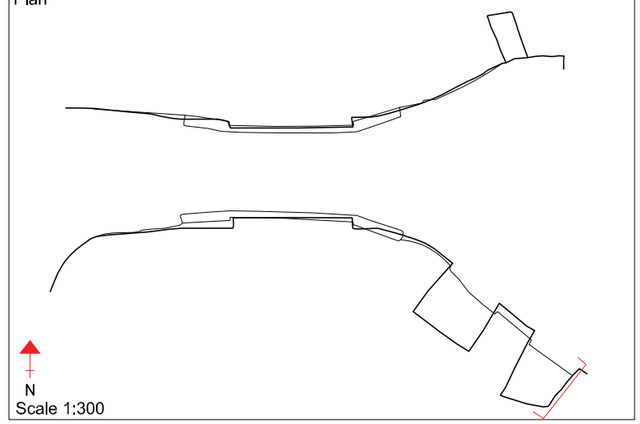
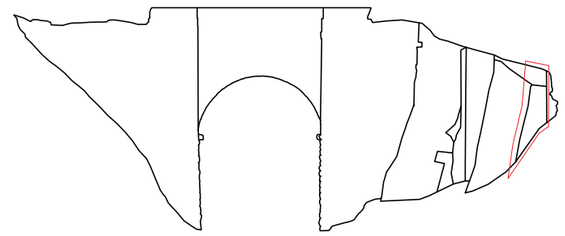


Plan



Scale 1:300

South Elevation



Scale 1:300

General Notes

Figure 28: East elevation of east buttress extending from south elevation, Alum Scar Bridge

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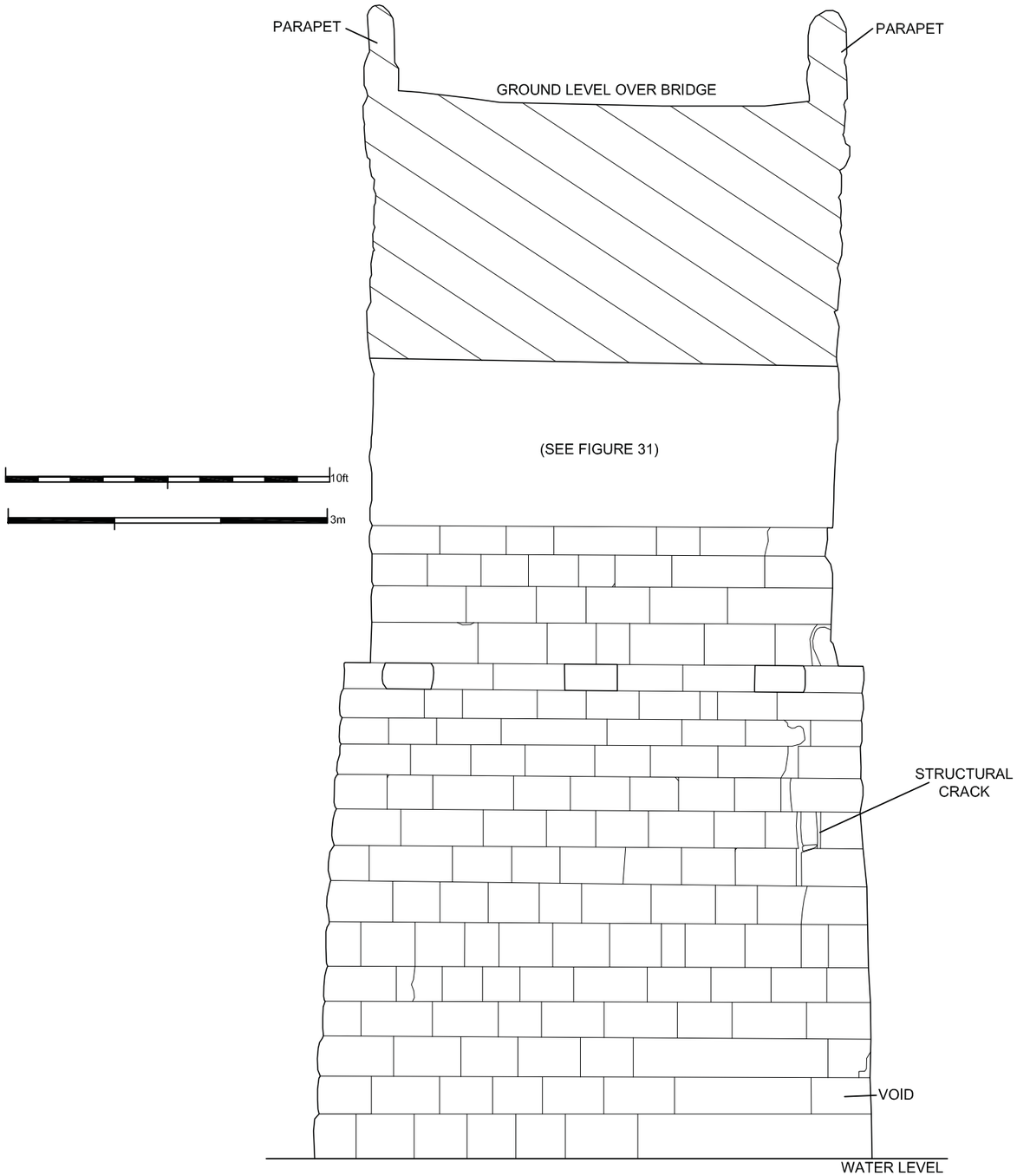

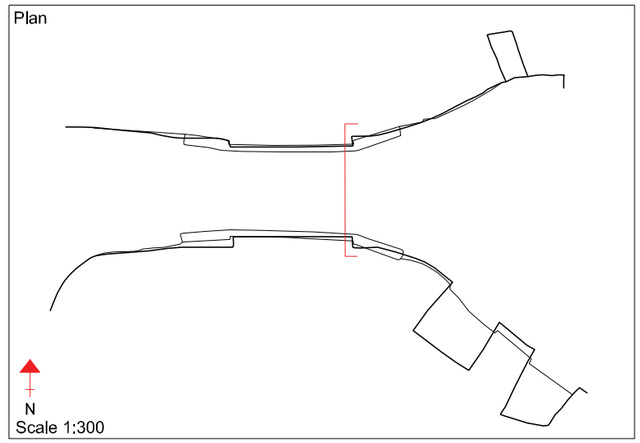

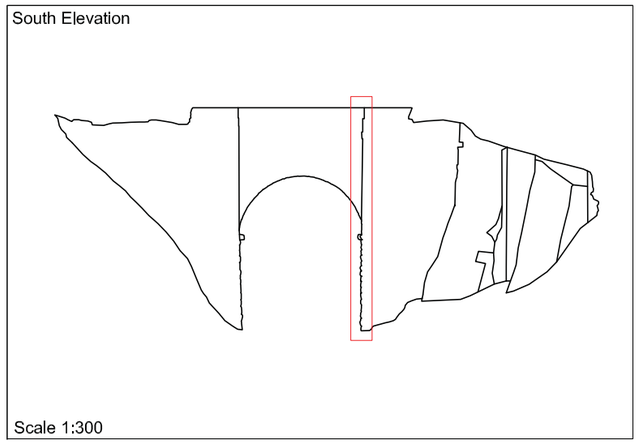

General Notes

Figure 29: West elevation of internal arch, Alum Scar Bridge

Drawing & scanning:
G.Hudson & C.Watson

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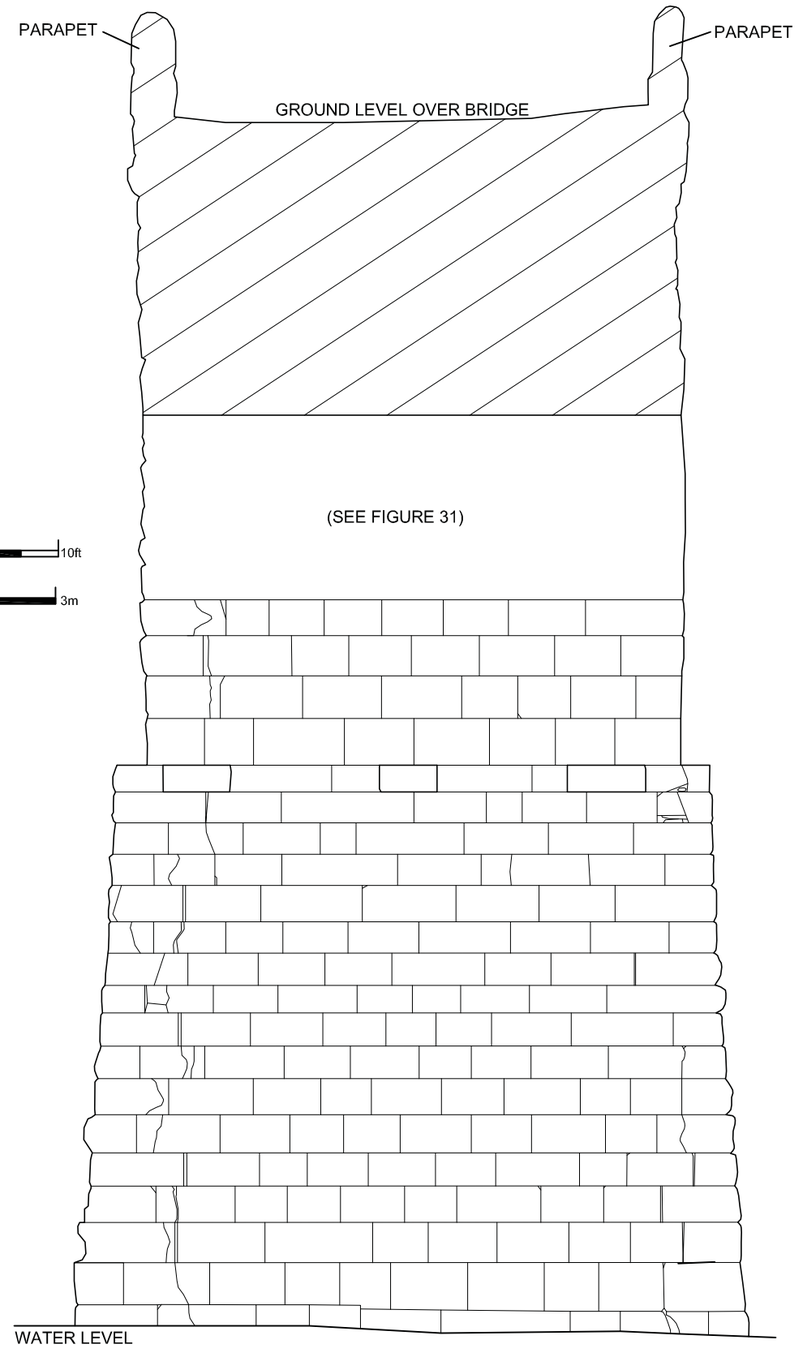
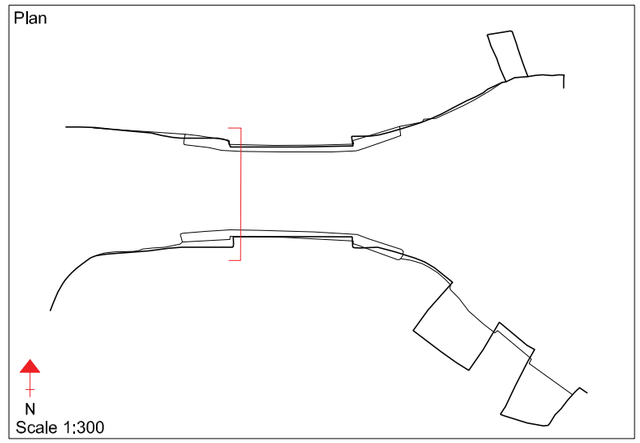
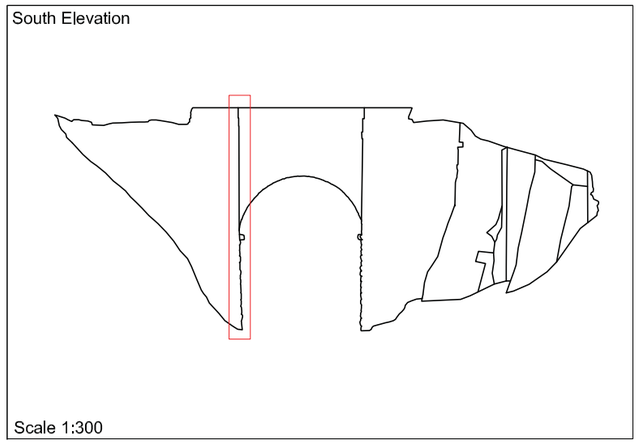


10ft
3m





General Notes

Figure 30: East elevation of internal arch, Alum Scar Bridge

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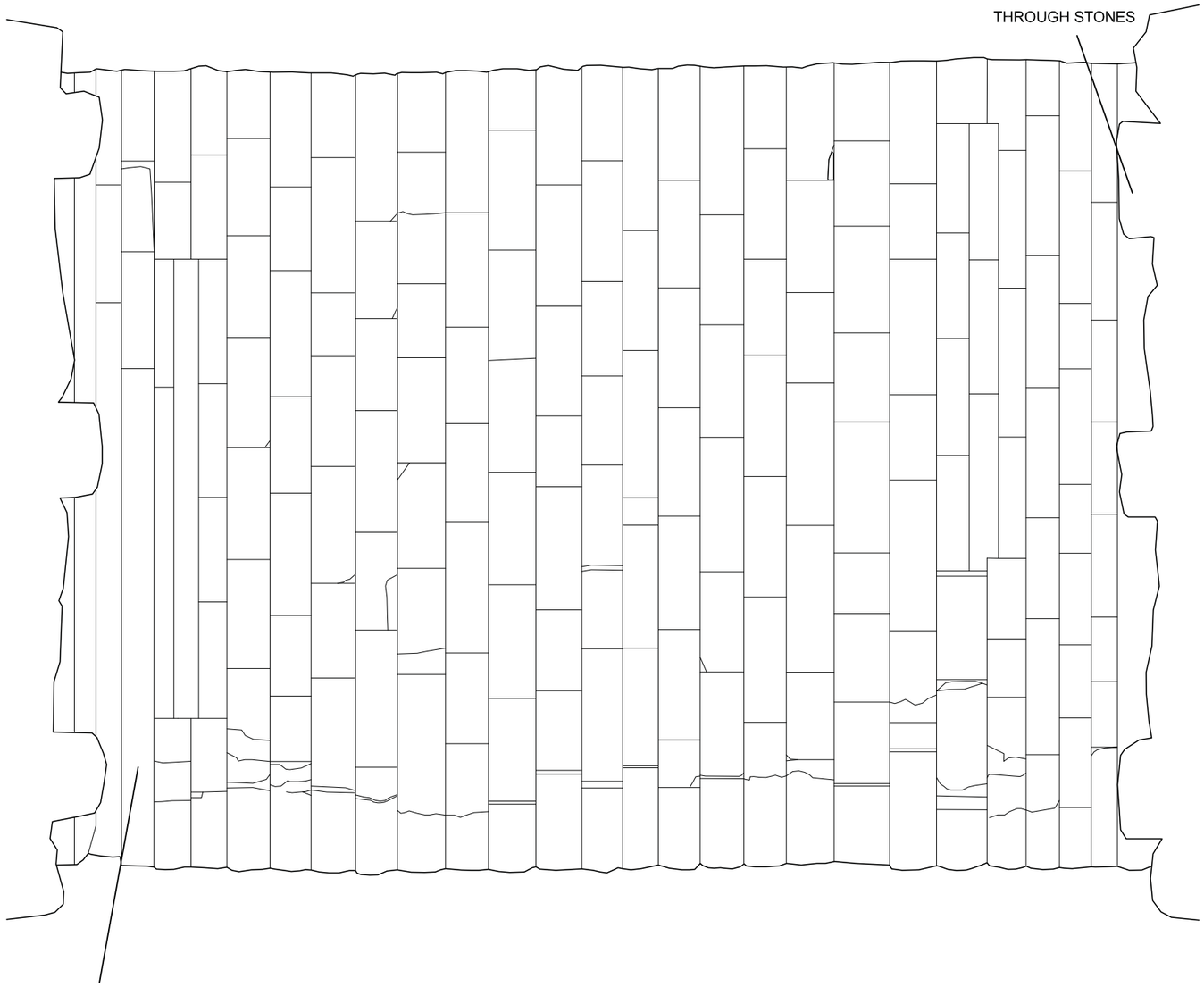

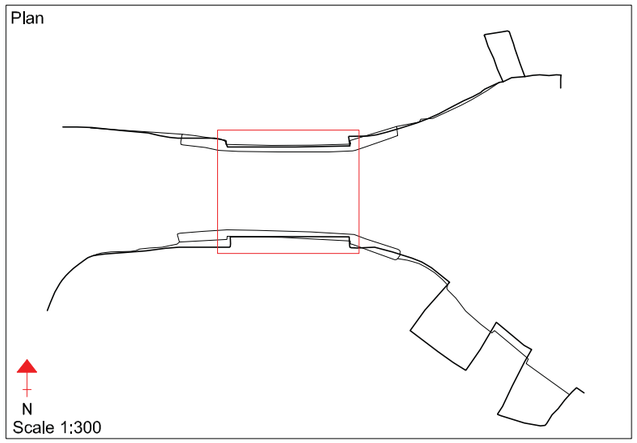

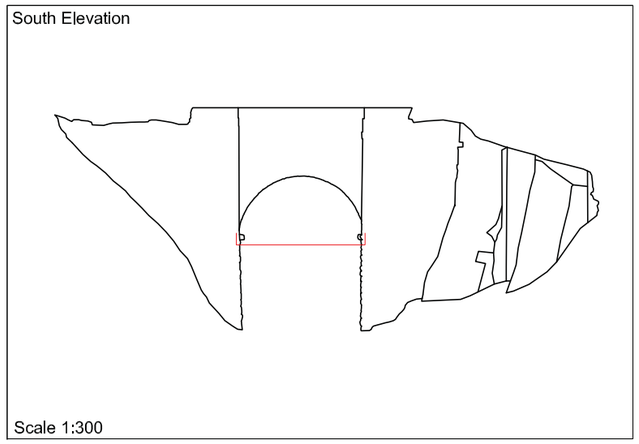

General Notes

Figure 31: Underside of arch, Alum Scar Bridge

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G.Hudson & C.Watson

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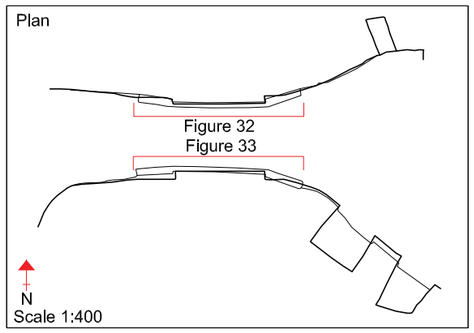
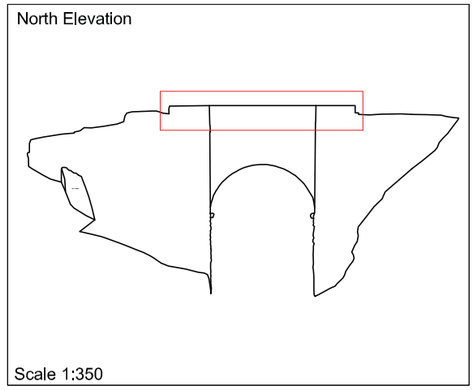
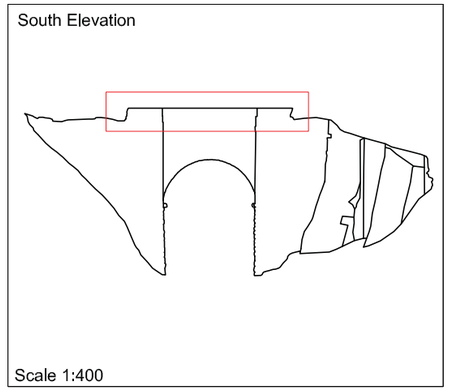






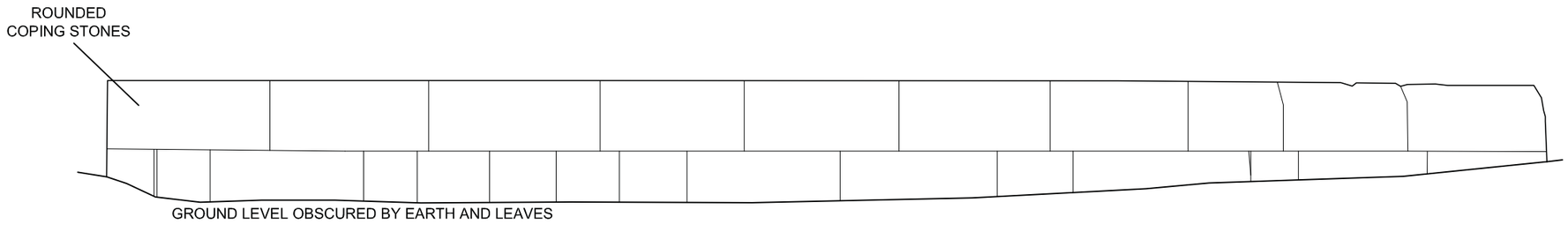


FIGURE 32: INTERNAL NORTH ELEVATION OF PARAPET

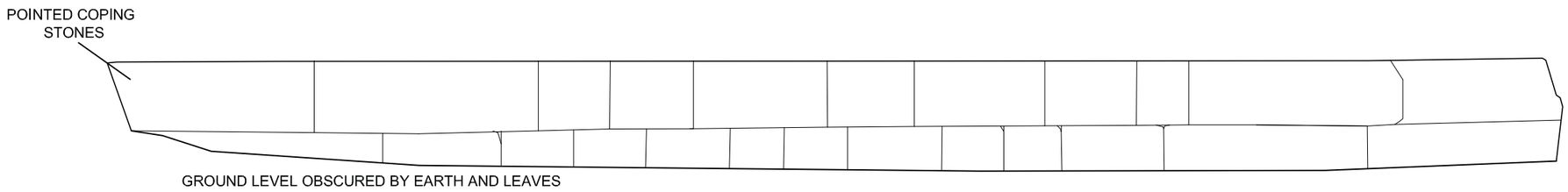
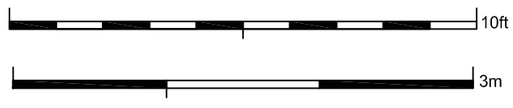


FIGURE 33: INTERNAL SOUTH ELEVATION OF PARAPET



N.B. SOME STONES DRAWN FROM EXTERNAL SCANS DUE TO FENCE OBSCURING INTERNAL PARAPETS IN PLACES

General Notes

Figures 32 & 33: Internal parapet elevations, Alum Scar Bridge

Drawing & scanning:
G.Hudson & C.Watson

AOC Archaeology Group

No.	Revision/Issue	Date
	0/1	09/09

Firm Name and Address

AOC Archaeology
Edgefield Industrial Estate,
Edgefield Road,
Loanhead,
Midlothian,
EH20 9SY.

Project Name and Address

Alum Scar Bridge
Blackburn.

Produced for North Midland Construction

Project AOC 51018	**Sheet**
Date 18 /09/ 09	
Scale 1:40 @ A3	

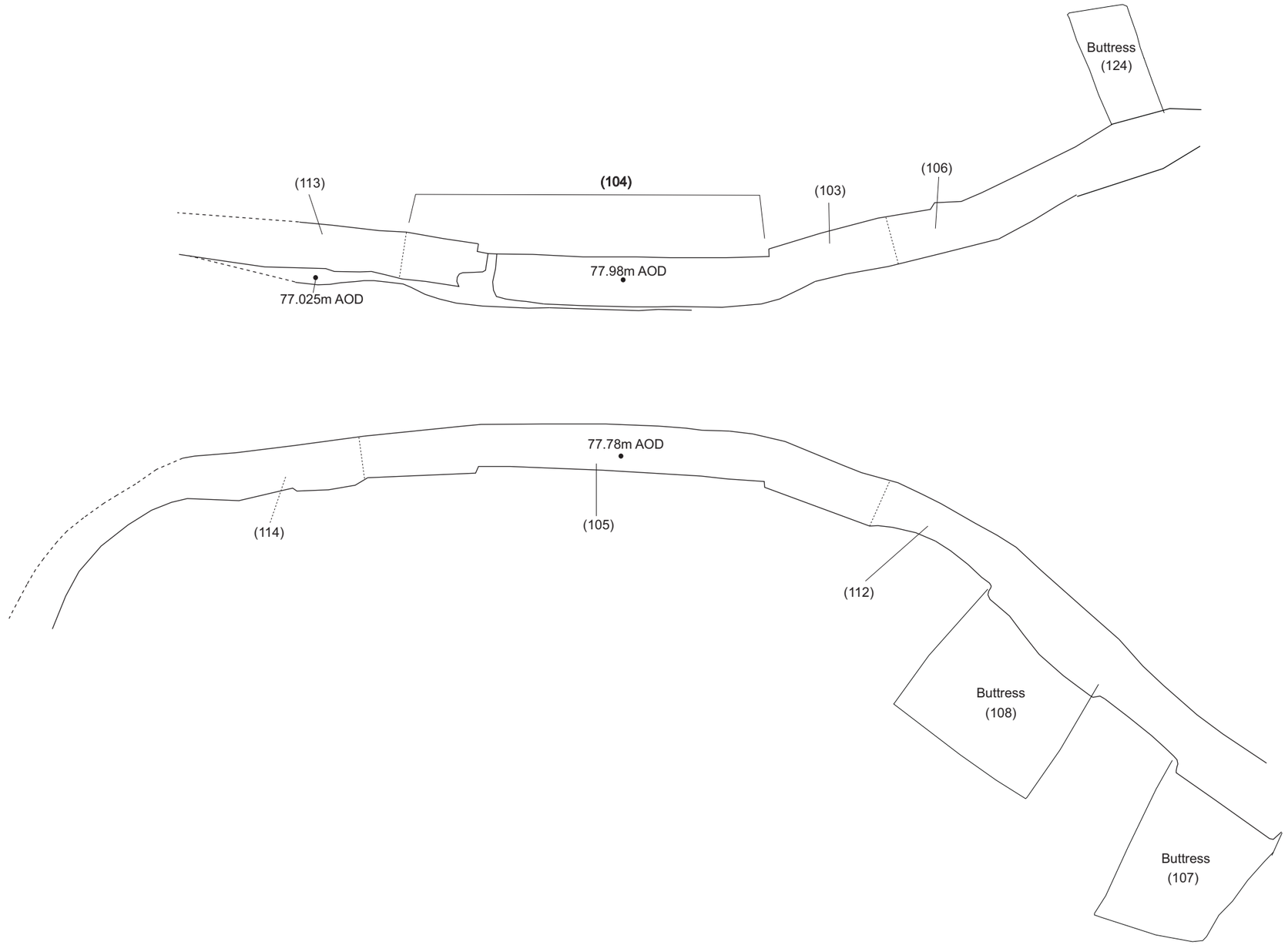


Figure 34: Plan of the upper courses of Alum Scar Bridge showing division of contexts

0 10m

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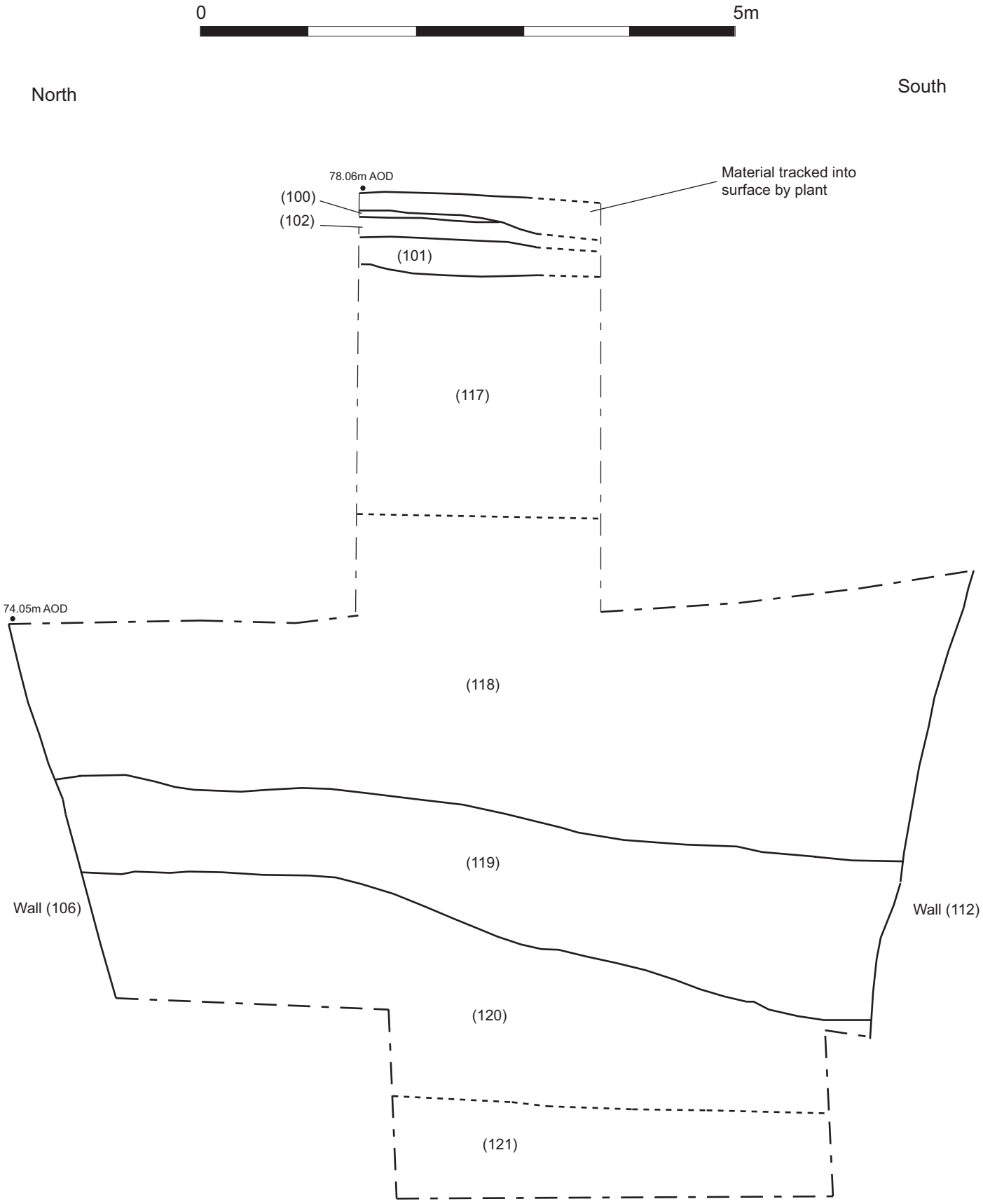

Figure 35: Reconstructed west-facing section through deposits within bridge structure

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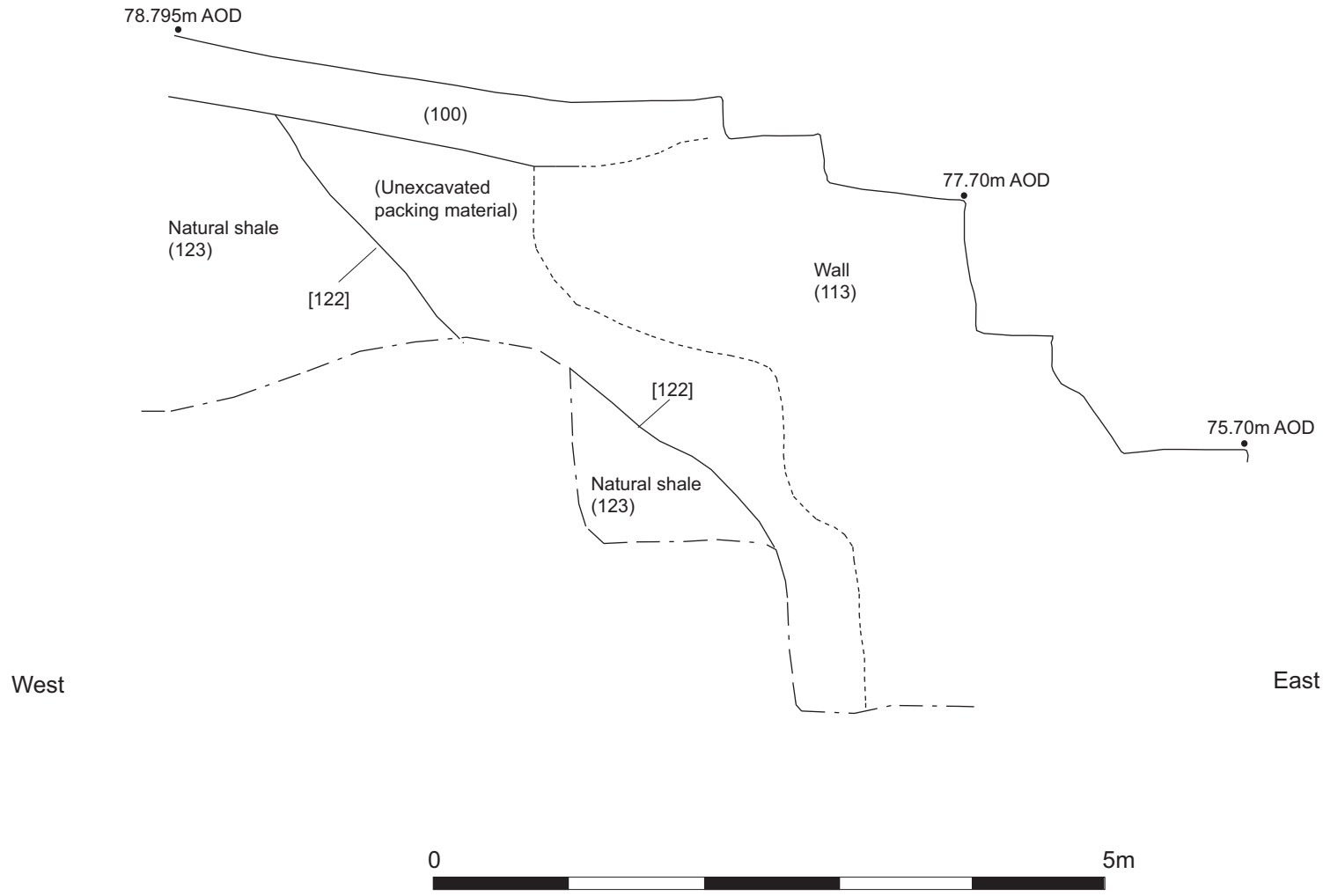

Figure 36: South facing section/ elevation, showing construction cut 122, Alum Scar Bridge

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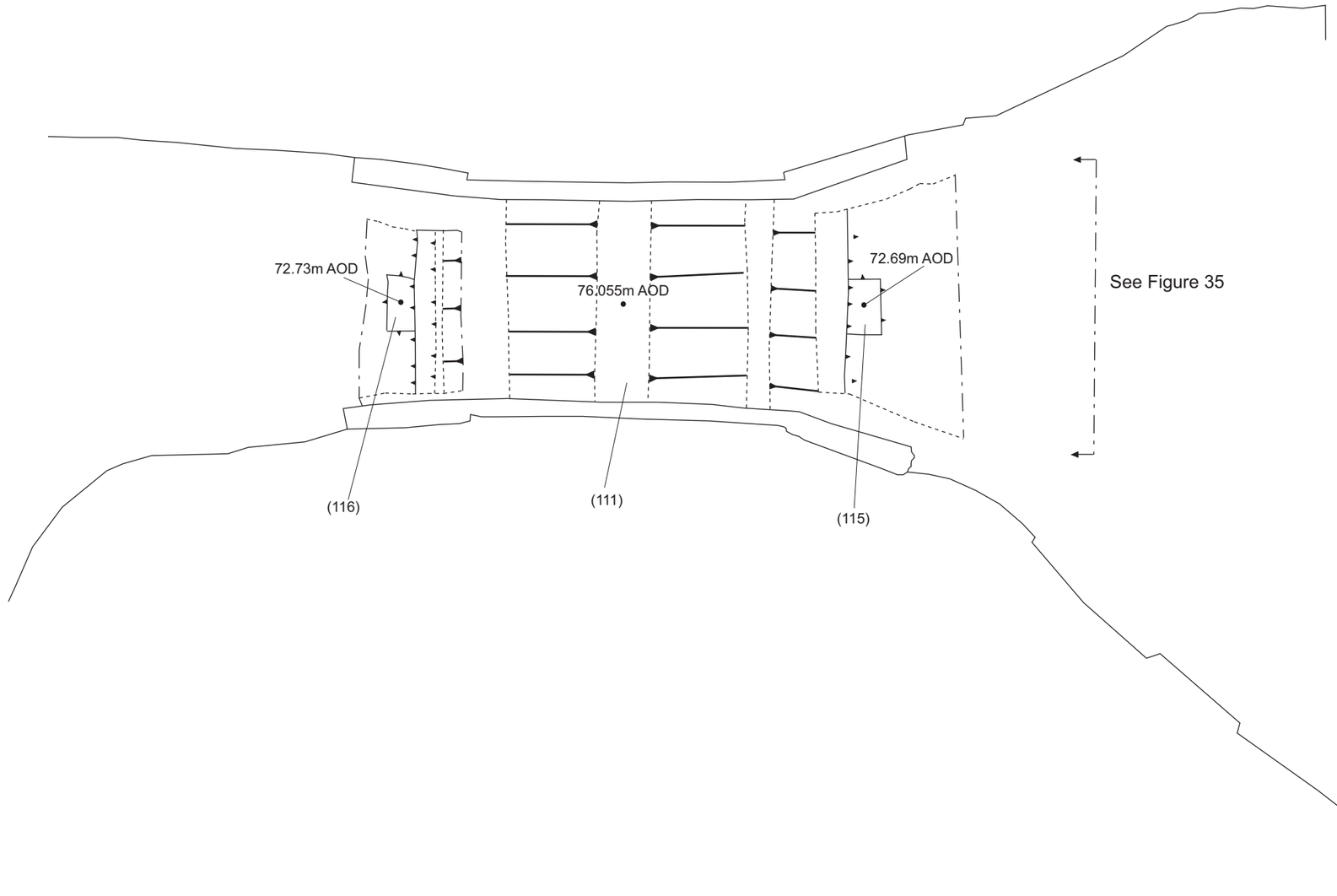

Figure 37: Plan of internal arch structure,
Alum Scar Bridge

0 10m

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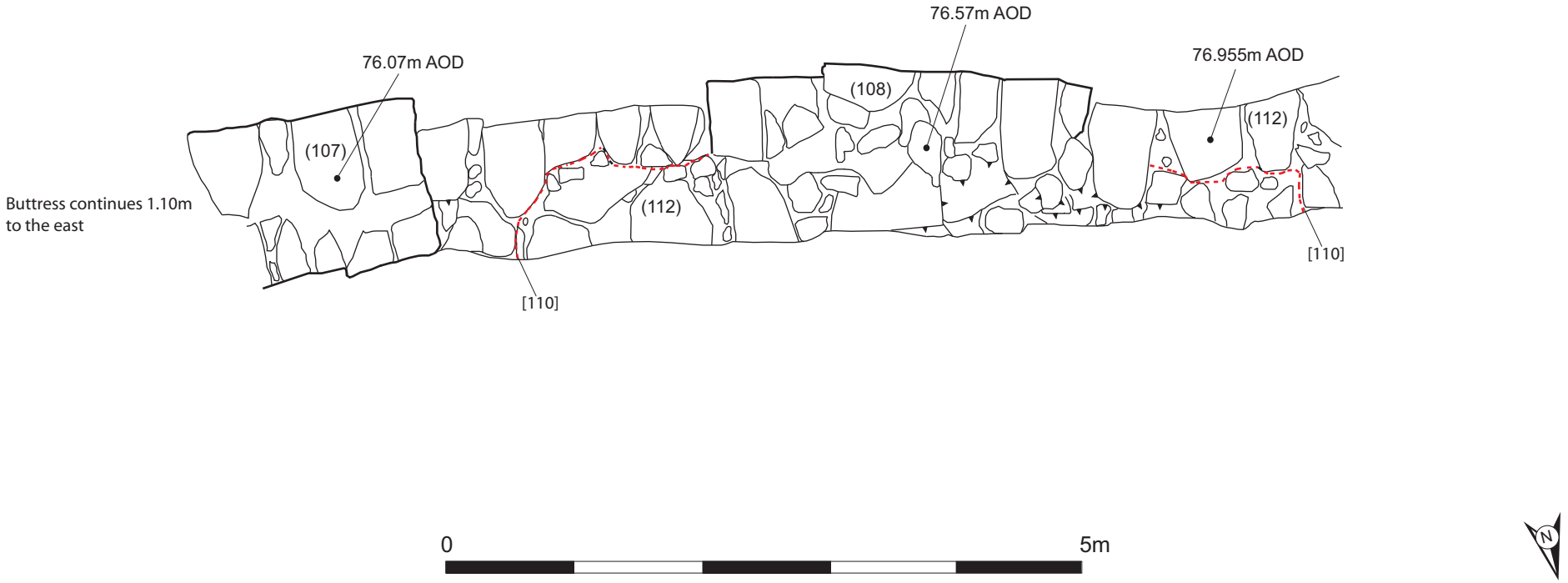

Figure 38: Plan of buttresses 107 and 108 showing cut 110 (to insert buttress 108 into wall 112), Alum Scar Bridge

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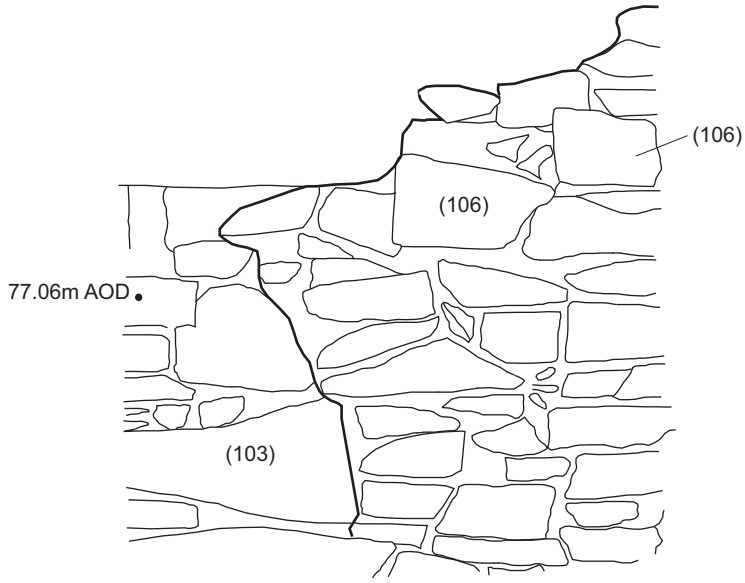

Figure 39: South facing elevation showing possible phase break between walls 106 and 103, Alum Scar Bridge

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Plates