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**The Mill Weir Bridge  
& General Tam's Smokehouse  
House of the Binns, West Lothian**

**Standing Building Recording Survey**

**Report No. 2133**

 0131 273 4380

 0131 273 4381

 [info@cfa-archaeology.co.uk](mailto:info@cfa-archaeology.co.uk)

 [www.cfa-archaeology.co.uk](http://www.cfa-archaeology.co.uk)

## **CFA ARCHAEOLOGY LTD**

The Old Engine House  
Eskmills Business Park  
Musselburgh  
East Lothian  
EH21 7PQ

Tel: 0131 273 4380  
Fax: 0131 273 4381  
email: [info@cfa-archaeology.co.uk](mailto:info@cfa-archaeology.co.uk)  
web: [www.cfa-archaeology.co.uk](http://www.cfa-archaeology.co.uk)

Author	Michael Cressey HND BA MSc PhD FSA Scot MifA
Illustrator	Graeme Carruthers MA MifA
Editor	Melanie Johnson MA PhD FSA Scot MifA
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## **1. INTRODUCTION**

### **1.1 General**

This report presents the results of two Level 3 standing building surveys carried out at The Mill Weir Bridge (NGR: NT 05709 77875) and General Tam's Smokehouse (NGR: NT 05229 78564 Fig 1). Both sites are located within the House of the Binns Estate owned by the National Trust for Scotland (NTS). The survey is based on a Project Outline produced by the NTS. A standing building survey was required at both sites to record the structures as they stand today and to allow the NTS to make informed judgments on future schemes of consolidation and repair.

### **1.2 Background**

#### *The Mill Weir Bridge*

The Mill Weir Bridge carries the estate's former East Drive over the Midhope burn at the outflow from a mill pond situated approximately 400m to the south-west on the estate boundary. The bridge is constructed of dressed sandstone and random rubble and is c.12m long and c.4m wide with the deck bounded by low coping stones. The segmental arch spans c.4.85m with a stone-built overflow weir beneath. A rectangular-section sluiced culvert with a simple stone slab bridges the c.1m channel. A single sandstone marker stone marks the south end of the bridge. The stone has now been displaced by a fallen tree.

#### *General Tam's Smokehouse*

General Tam's Smokehouse is an unlisted roofless folly on the woodland walk that rises to Binns Tower (NMRS NT07NE 4.01). The smokehouse is situated about 30m from the entrance gate to the tower and comprises a single wall of angular basalt with an arched entrance that encloses a small cleft cut into the natural rock face.

### **1.3 Objective**

The objectives of the programme of archaeological work were:

- To carry out a standing building survey of the Mill Weir Bridge and General Tam's Smokehouse prior to their consolidation and repair.
- To establish a more refined understanding of the structural development of the Mill Weir Bridge and General Tam's Smokehouse based on the results of the standing building surveys
- To produce a comprehensive drawn, written and photographic record of the structures, their construction and their relationship to the surrounding landscape.

## 2. METHODOLOGY

### 2.1 General

CFA follows the Institute for Archaeologists' Code of Conduct, and Standards and Guidelines for Historic Building Survey as appropriate.

A Level 3 standing building survey was carried out, as defined by English Heritage (2006).

### 2.2 Desk-based Assessment

A desk-based assessment was not required prior to the surveys. However, familiarisation with the area's historical and archaeological background as described in the Project Outline was made in order to place both sites in their historical and landscape setting. Examination of early Ordnance Survey maps was carried out to establish any radical changes in structural form and layout (Fig 2).

### 2.3 Standing Building Survey

A comprehensive building survey (Table 1) was carried out equivalent with a Level 3 analytical survey (English Heritage 2006). This included the following elements:

- A digital photographic survey (conforming to current RCAHMS standards and guidelines) was carried out on the bridge elevations and bridge deck. Both the north and south-facing elevations of the smokehouse were photographed.
- Drawings were produced at 1:20 scale of all elevations showing all significant architectural detail, scars, breaks in build, cracks in the stonework, segmented arch voussoirs and any other features
- A scaled plan (1:20) of the bridge deck and parapet coping stones and the current deck surface was made. An interior ground plan within the smokehouse was also made.

Recording element	Building survey	Photographic Survey
Bridge Deck	Level 3	Comprehensive
Bridge exterior elevations	Level 3	Comprehensive
General Tam's Smokehouse	Level 3	Comprehensive

Table 1. Specific recording requirements at Mill Wear Bridge and General Tam's Smokehouse.

#### *Metric Survey*

An accurate survey of the bridge and smokehouse elevations was carried out using an industry-standard, reflectorless Total Station. The infra-red beam from this instrument enables points to be recorded in 3D to an accuracy of 1mm. The data was downloaded using Penmap software and imported to AutoCAD 2010.

Each architectural feature recorded on the deck and elevations has been afforded a unique identifying unit number and cross-referenced to the tables within the descriptive narrative.

Standard CFA pro-forma standing building recording forms were completed for each major elevation detailing critical dimensions and other architectural features.

*Photographic survey*

CFA used a Nikon D300 digital camera with a range of lenses and flash units during the building surveys.

A comprehensive photographic record was made and linked to a location plan showing the orientation of each photograph that was taken (Figs 5 and 6d). Selected representative images have been incorporated into this report as appropriate. A list of all the photographs taken is produced as Appendix 1. A full set of thumbnail digital photographs is included at the rear of the report.

### 3. MILL WEIR BRIDGE SURVEY RESULTS

#### 3.1 General

The Mill Weir Bridge is described in relation to an inventory of features recorded on both the east and west-facing elevations. Numbers in parentheses relate to individual feature numbers shown on the elevations (eg En = east-facing elevation). Condition parameters include *Good*, *Fair* and *Poor*.

#### 3.2 East-facing Elevation (Fig 3a, Plates 1-2)

The north abutment (**E1**) comprises individual blocks of stugged sandstone measuring 0.5m long and 0.4m deep. Much larger blocks have been used to construct the abutment underneath the bridge deck (Plate 6). In order to revet the outside edge of the abutment, courses of sandstone were used to strengthen it but these have been displaced exposing the stonework in section (**E2**). The north spandrel (**E3**, Plate 4) above the abutment has been constructed using coursed blocks of sandstone bonded with lime mortar. Gaps have been formed between the blocks where the lime mortar has eroded. Two large voids have been formed where smaller stone fillets have fallen out. The segmented arch (**E4**, Plate 5) is in good condition comprising twenty-five blocks of fairly uniform size. The voussoirs making up the arch have been stugged. The south spandrel (**E5**, Plate 1) comprises coursed blocks of rubble and is in a poor condition having been impacted upon by a large fallen tree which has resulted in the displacement of several large blocks of stone at the immediate south end.

The south abutment (**E6**, Plate 7) comprises large blocks of sandstone which are heavily colonised by moss, making it difficult to assess its condition. The stonework below the bridge is in good condition with regular coursed stonework to a height of 1.2m at the east end. The coping/kerb stones (**E7**) on the east-facing elevation comprise dressed blocks of sandstone bonded with lime mortar (Plates 14-15). They differ in size with larger stones (1.1m x 0.3m x 0.2m) used at the north end whilst towards the south end the stones are smaller (0.35m x 0.3m x 0.2m). At the immediate south end the coping stones have been displaced by a fallen tree.

Below the bridge and extending downstream for about 2m is the stone-built overflow weir (**E8**, Plate 8). This consists of large blocks of stone laid north to south in regular courses. The vertical edge where it surmounts the burn is eroded slightly with only minor displacement of some of its stones. The soffit stonework below the arch comprises regularly coursed ashlar blocks of sandstone laid east-west.

On top of the deck approximately 2.5m from the edge of the bridge is a marker stone (**E9**, Plate 16). The stone is in good condition, it measures 0.98m high x 0.3m x 0.23m and has been droved on its west and north-facing sides. The stone has been displaced from the vertical by the fallen tree.

#### *Observations on the east-facing elevation*

The fallen tree at the south end of the east-facing elevation has caused serious damage to the upper section of the bridge, in particular to the displacement of the bridge copings and to some extent probably the spandrel stonework. Owing to the dense



vegetation it was not possible to record this part of the elevation. The north abutment's outer edge has been partly lost to erosion. The north spandrel is eroding where lime mortar has been lost exposing large gaps between the stonework.

Feature No.	Element	Summary Description	Condition
E1	North abutment	Droved blocks of lime mortar bonded sandstone measuring c. 0.5m by 0.4m	<i>Fair.</i> Wide joints between the blocks where the mortar has eroded.
E2	North abutment return wall	A line of vertical stonework comprising individual blocks of stonework c. 1.5m high	<i>Poor.</i> Bank erosion on the north side of the abutment has exposed stonework in section. The stonework below the bridge is in a good condition.
E3	North Spandrel	Enclosed spandrel above the segmented arch. Comprising individual blocks of sandstone rubble bonded with mortar	<i>Poor.</i> Voids present where smaller fillets have been lost. Wide joints where mortar has eroded. Some displacement of upper stones. Minor vegetation colonisation.
E4	Segmented arch voussoirs	Individual voussoirs making up the bridge arch. Rusticated sandstone blocks c. 0.40m x 0.2m	<i>Fair.</i> Individual voussoir blocks have fairly tight joints.
E5	South spandrel	Infilled spandrel above the segmented arch. Comprising individual blocks of sandstone with rubble bonded with mortar.	<i>Poor.</i> The stones below the coping stones appear to be very loose where the mortar has eroded. Minor vegetation colonisation. Serious impact by a fallen tree.
E6	South abutment	The south abutment has a culvert running through it. Stonework stands to a height of 1m.	<i>Good.</i> The abutment appears to be sound apart from vegetation colonisation.
E7	Stone-faced overflow weir	Rusticated blocks of sandstone forming the east side of the overflow weir.	<i>Good.</i> Possible displacement on the vertical edge of the weir but these are minor. Surface rounding/erosion due to flowing water.
E8	Bridge coping stones	Individual blocks of sandstone laid end on. Variable lengths with some measuring 1.1m x 0.3m x 0.2m at the north side with smaller copings on the south side (0.35m x 0.3m x 0.2).	<i>Poor.</i> The stones themselves appear to be sound but some are loose towards the centre of the arch. Some of the kerbstones have been displaced on the south side by a falling tree.
E9	Marker stone	Single orthostat marker stone measuring 0.98m high x 0.3m x 0.23m. Droved on the west and north sides with vertical lines.	<i>Good.</i> The marker stone is in good condition but it has been displaced by a falling tree and now leans away from the vertical.

Table 2. Principal features recorded on the east-facing elevation of Mill Weir Bridge

### 3.3 West-facing Elevation (Fig 3b, Plate 10)

The north abutment (**W1**) comprises seven courses of individual blocks of stugged sandstone measuring 0.6m x 0.4m x 0.4m (Plate 12). The top two courses are heavily impacted by a tree root. One block of stone is tilting upwards by the pressure of the root. The north spandrel (**W2**, Plate 11) comprises coursed rubble which has large gaps where the mortar has degraded. The exact number of segmented arch voussoirs is

not currently known owing to the dense vegetation on the south side of the elevation; however, twenty were visible at the time of the survey. Unlike the east-facing elevation, the west-facing segmented arch (**W3**) contains voussoirs that vary in width. The condition of the segmented arch is fair with some heavy pointing having been carried out just beyond the mid section of the arch. The south spandrel is masked by vegetation and its condition could not be assessed.

The south abutment (**W5**) comprises large regular blocks of sandstone which survives to a height of c.1.5m at its west end. The stonework forming part of the culvert is eroding with large gaps between the stones where the mortar has failed.

The bridge coping stones (**W6**) have a combined length of 8.9m and comprise regularly laid blocks of rectangular sandstone bonded end-on with lime mortar. The stones are in good condition but are poorly bonded to spandrels and top of the arch. Below the arch is the upstream section of the overflow weir (**W7**). Its outside vertical edge is irregular owing to the loss of stonework (Plate 9).

Feature No.	Element	Summary Description	Condition/Impact
W1	North abutment	Seven courses of individual blocks of stugged sandstone blocks bonded by lime mortar. The stones measure c. 0.6m x 0.4m x 0.4m	<i>Poor.</i> Wide joints between the blocks were the mortar has eroded. Displaced top three courses caused by root impact
W2	North Spandrel	Infilled spandrel above the segmented arch. Comprising individual blocks of sandstone rubble bonded with mortar.	<i>Poor.</i> Voids present where smaller fillets have been lost. Very wide gaps where mortar has eroded. Particularly worse where it meets the arch. Minor vegetation colonisation.
W3	Segmented arch voussoirs	Individual voussoirs making up the bridge arch. Rusticated sandstone blocks c. 0.40m x 0.2m	<i>Fair.</i> Individual voussoir blocks have fairly tight joints, gaps present towards the centre of the arch.
W4	South spandrel	The spandrel fabric is hidden by dense vegetation	Condition unknown
W5	South abutment	The south abutment has a culvert running through it. Stonework stands to a height of 1m. Blocks of laid stonework associated with the side of the culvert stand to a height of about 0.5m	<i>Good.</i> The abutment under the bridge appears to be sound. The exposed section projecting upstream is eroding
W6	Bridge coping stones	Individual blocks of sandstone laid end on. Variable lengths with some measuring 1.1m x 0.3m x 0.2m at the north side with smaller copings on the south side (0.35m x 0.35m x 0.2).	<i>Poor.</i> The stones themselves appear to be sound but some have been displaced above the south spandrel
W7	Stone-faced overflow weir	Rusticated blocks of sandstone forming the west side of the overflow weir. Large sandstone blocks laid north-south	<i>Fair.</i> Some stone loss on the leading edge of the weir. Surface rounding/erosion due to flowing water.

Table 3. Principal features recorded on the east-facing elevation of Mill Weir Bridge

### *Observations on the east-facing elevation*

The north spandrel and parts of the top section of the abutment are eroded. The latter is being affected by tree roots that have grown within the joints in the stone resulting in displacement. The tree roots are thriving on the lime mortar. The stonework associated with the culvert is also eroding, with large gaps now present where the mortar has failed.

### **3.4 The Deck (Fig. 4)**

The deck of the bridge (Plate 13) measures approximately 13m long by 3.7m wide and is flanked by the coping stones that form a kerb on either side. The deck is covered with a dark friable loam. The track leading to the bridge is very overgrown. The track is flanked by a steep bank on its east side which is about 2m wide. On the west side the banks are much shallower and about 1m deep.

### *Observations on the deck*

The tops of the coping stones are masked by thick moss which hides their true dimensions. At the south end of the deck, those framing the east-facing elevation have been displaced by the fallen tree which has also dislodged the upstanding marker stone. The deck is covered by a dense cover of vegetation which has colonised the dark loamy soil covering it. Light exposure of the coping stones showed that gravel had been used to cover the deck but this has become mixed in with the soil. It seems likely that the deck was covered with gravel when the track was in use.

## **4. GENERAL TAM'S SMOKEHOUSE SURVEY RESULTS**

### **4.1 South-facing elevation (Fig 6a)**

The south-facing elevation (**S1**, Plate 17) comprises a main build of sub-angular blocks of basalt (whinstone). The elevation measures 5.9m long and stands to a height of 1.4m at its east end and 1.5m at its west end. The wall (Plates 19-20) is essentially a double skin wall faced with basalt with a rubble core. The quoins (**S2**) framing the door opening comprise large sub-rounded dressed blocks of basalt (Plates 21-22). On average these measure 0.4m x 0.3m x 0.3m. The segmented arch (**S3**) above the doorway comprises eight individual blocks of buff-coloured 'rattlebag' which is a very friable agglomerate and easily weathered. The top of the wall (**S4**) is very irregular and loose owing to the penetration of ivy roots.

### **4.2 North-facing elevation (Fig 6b)**

The interior north-facing elevation (**N1**, Plate 23, 25-26) is constructed using the same stone as on the outer south-facing elevation. The interior door quoins (**N2**) are irregular and slightly more angular in character than those on the south-facing elevation. The interior segmented arch (**N3**, Plate 24) comprises eight 'rattlebag' stones, one of granite and one of sandstone. At the east and west ends of the wall its toe is abutted by infilling stonework (**N4** and **N5**) that has been used to fill the gap formed between the rear wall and the sloping natural outcrop. The infilling stonework on the east side comprises medium sized blocks of angular basalt which almost resembles drystone walling (Plate 27). On the west side the infilling blocks are much larger (Plate 28). Both the infilling wall heads are overgrown with ivy.

### **4.3 Interior plan (Fig 6c)**

The floor plan is roughly triangular in shape with a slightly straighter base on the natural rock. The rock itself is a basalt outcrop (Plate 29). On the east side of the floor, the natural wall kinks inwards. The gap between the natural rock and the main elevation has been infilled with the aforementioned stonework (**N4** and **N5**).

#### *Observations on the elevations*

The elevations are in a fairly poor condition on account of the impact of ivy roots and the general loss of mortar between the stones due to weathering. The ivy on the wall head has loosened the top course of stones considerably. The interior of the wall seen within the entrance door is relatively sound but large gaps exist between the dressed stone towards the segmented arch. The arch itself appears to be intact but it is suffering from weathering. The use of different stones within the interior of the arch is probably purely practical but the use of a lighter coloured contrasting stone on the exterior south-facing elevation is intentional.

Feature No.	Element	Summary Description	Condition/Impact
S1	Main build	Main build of the south-facing elevation comprising sub-angular blocks of basalt whinstone. The elevation measures 5.9m long and is 0.6m thick. The wall is 1.4m at the east end and 1.5m at the west end.	<i>Poor.</i> The wall head is infested with ivy. Ivy roots have penetrated the core of the wall. The joints between the individual stones are wide owing to the loss of lime mortar.
S2	Door quoins	The stone quoins framing the doorway comprise large blocks of crudely dressed basalt and measure c. 0.4m x 0.3m x 0.3m.	<i>Fair.</i> The door surrounds are sound due to their hardness but the mortar joints between them are poor owing to root impact and weathering.
S3	Segmented arch	The segmented arch voussoirs above the doorway comprises eight individual blocks of buff-coloured agglomerate known as 'rattlebag'. This is very coarse stone with large inclusions and becomes very friable when weathered.	<i>Poor.</i> The voussoirs are not too badly weathered although the joints between them are deep owing to the loss of lime mortar.
S4	Wall head	The wall head is irregular and masked by ivy.	<i>Poor.</i> The stonework on top of the wall head is very loose owing to the impact of ivy.
N1	Main interior build	Main build of the south-facing elevation comprising sub-angular blocks of basalt whinstone. The elevation measures 4.04m long and is 0.6m thick. The wall is 1.7m high at the east end and 1.5m at the west end.	<i>Poor.</i> The wall head is infested with ivy. Ivy roots have penetrated the core of the wall. The joints between the individual stones are wide owing to the loss of lime mortar.
N2	Interior Door quoins	The stone quoins framing the doorway comprise large blocks of crudely dressed basalt and measure c. 0.4m x 0.3m x 0.3m.	<i>Fair.</i> The door surrounds are sound due to their hardness but the mortar joints between them are poor owing to root impact and weathering.
N3	Interior Segmented arch	Ten segmented arch voussoirs above the doorway comprising eight individual blocks of buff-coloured 'rattlebag', one sandstone and one of granite.	<i>Poor.</i> The voussoirs are not too badly weathered although the joints between them are deep owing to the loss of lime mortar.
N4	Infill boundary	A V-shaped section of infilling wall between the north-facing elevation and the natural rock outcrop. The wall is c.1.3m high comprising angular fragments of basalt bonded with lime mortar.	<i>Fair.</i> Apart from root impact on top of the wall it is in good condition owing to its sheltered position.
N5	Infill boundary	A wide V-shaped section of infilling wall between the north-facing elevation and the natural rock outcrop. The stones are much larger than those in N4 and are bonded with lime mortar.	<i>Fair.</i> Ivy root penetration is affecting the top of the wall and its joints are deep where the mortar has eroded.

Table 4. Principal features recorded on the north and south-facing elevations at General Tam's Smokehouse.

## **5. DISCUSSION**

### **5.1 Mill Weir Bridge**

In the absence of a detailed estate archive search the precise construction date of the bridge is difficult to establish. According to the NTS Project Outline (Appendix 3) little is known about the development of the estate landscape at the House of the Binns, or when the landscape park was laid out in the English style. Sir James Dalyell (1774-1841) appears to have been responsible for a reasonable amount of estate improvement. The architectural character of the bridge would certainly place it within the late 18<sup>th</sup> century or early 19<sup>th</sup> century. The bridge appears to be of a single phase construction.

The 1856 First Edition OS map (Fig 2a) shows the position of the bridge in relation to the mill sluice leading north-eastwards to Binns Corn Mill (NT07NE 115). By the date of the 2nd Edition 1897 map, the mill had moved to a new site about 81m to the SE (NT 06053 78030) and was now annotated 'Binns Saw Mill' with the old mill still depicted as roofed. The mill lead is annotated 'Old Mill Lade' suggesting that the saw mill had by this date become steam powered. The Ordnance Survey Object Name Book, describes the earlier mill as 'This name is given not only to the mill proper but to a dwelling house and offices to which are attached a few acres of land. The occupier is Mr Peter Seaton and the proprietor is Sir William Dalyell of Binns'.

During the life of the corn mill water was supplied by the mill lead and via the overflow weir. The overflow weir drained the mill dam but the culvert built into the bridge could have been controlled to slow or increase the rate of flow further downstream. Both the overflow stream and the mill lade were connected just east of the corn mill as depicted on Fig 2b. A mill and lade system is shown on the 1922 Ordnance Survey map but it is not known if the mill was still in operation.

#### *General Condition*

The condition of the bridge is considered to be generally poor due to lack of maintenance since it went out of use when the East Drive became redundant following the demolition of its lodge and gates. The fallen tree at the south end of the bridge has displaced the coping stones and the orthostat marker stone. The overgrown nature of the bridge is certainly impacting on the fabric. The north abutment on the west elevation is penetrated by thick roots which have dislodged a large stone.

### **5.2 General Tam's Smokehouse**

It is a matter of conjecture whether the cleft within the basalt outcrop is indeed natural or if it has been blasted to supply the stonework for the estate. The enclosing wall constructed of angular whinstone contrasts with the segmented arch above which is a buff coloured agglomerate. The use of this material for the arch was deliberate in order to embellish the otherwise plain elevation. It is not known if this stone is local or has been brought in from elsewhere.

## **6. CONCLUSION**

The analytical Level 3 surveys carried out at Mill Weir Bridge and General Tam's Smokehouse has recorded the fabric detail on both of these structures.

More is now known about the Mill Weir Bridge and its relation to the Binns Corn and Saw Mills shown on the 19<sup>th</sup> century ordnance survey maps. The bridge carried the former East Drive over the mill dam and this was drained by an overflow weir immediately below the bridge. The East Drive was abandoned in the 1960s.

The survey results also confirm that parts of the bridge are in a state of severe disrepair. Both root impact and weathering has affected the fabric of the bridge.

The survey work has also recorded the most significant features extant on General Tam's Smokehouse. The construction date is not known for this structure. Its condition is considered to be poor owing to the impact imparted by ivy, the roots of which are feeding on the lime mortar used to bond the stonework.

## **7. RECOMMENDATIONS**

It is recommended that further survey work should be undertaken once the dense vegetation masking the bridge has been cleared. This will allow recording of the missing elements that could not be recorded during the recent survey. This would include both sides of the box culvert and both spandrels at the south end of the bridge.

Any further archaeological work would be at the discretion of the NTS.

A summary of the results of this project will be submitted to *Discovery and Excavation in Scotland 2012*.

## **8. REFERENCES**

English Heritage 2006 *Recording Historic Buildings - a descriptive specification*, 3rd edition. London.

Ordnance Survey First Edition 1854 Linlithgowshire Sheet II.13 25" to the mile

Ordnance Survey Second Edition 1895 Linlithgowshire Sheet II.NW & SW 25" to the mile

Ordnance Survey Third Edition 1922 Linlithgowshire Sheet n IV 6" to the mile

## APPENDIX 1: PHOTOPGRAPHIC REGISTER

Shot	Description	Taken From	Conditions
1-2	South-facing superstructure of the retaining wall showing root impact	N	Dull
3-4	Corner of the bridge and retaining wall and displaced stones	E	Dull
5	Parapet and quoins on the east-facing elevation	E	Dull
6	East-facing parapet quoins and underside of the arch	SE	Dull
7	East-facing parapet quoins and underside of the arch	NE	Dull
8	South side of the east-facing parapet	NE	Dull
9-14	Sequential shots of the west-facing elevation showing quoin detail	W	Dull
15	Breastwork on east-facing elevation flanking culvert	NE	Dull
16	Parapet and arch at SE end	NE	Dull
17	North-facing breast-work below the arch	S	Dull
18	South-facing breast-work below the arch	N	Dull
19	Arch profile on the east-facing elevation	W	Dull
20	South-facing elevation on the west side of the bridge showing tree impact	S	Dull
21-22	South-facing elevation on the west side of the bridge showing tree impact in greater detail	S	Dull
23-24	Loose stonework on the west-facing parapet, north end	W	Dull
25	General view of the west-facing elevation	W	Dull
26-27	Loose stonework on the west-facing elevation and tree impact	W	Dull
28	General shot of the overgrown deck	N	Dull
29-30	General shot of the parapet coping stones	W	Dull
31-32	Droved sandstone marker stones displaced by fallen tree	S	Dull
33	Tree damage on the south end of the east-facing parapet	S	Dull
34	Arch profile looking west below the arch	E	Dull
35-36	Laid stonework below the bridge arches	E	Dull
37	Vertical edge of the laid stonework facing downstream	W	Dull
38-43	Contiguous shots of the voussoirs on the west-facing elevation of the bridge	W	Dull
44	Voussoir and bridge superstructure at north end of the west-facing elevation	W	Dull
45	Eroding track edge on the east side of the bridge	E	Dull
46	General shot of the overgrown deck	E	Dull
47	Eroding track edge on the east side of the bridge	E	Dull
48-49	General shot of the east-facing elevation	NE	Dull
50	Root impact on the revetted edge of the stream, north bank	E	Dull
51-52	General Tam's Smokehouse, south-facing elevation and entrance	S	Bright
53	Quoins on the west-side of the doorway	S	Bright
54	Arched opening and quoins above the doorway	S	Bright
55	Overgrown stonework on the east side of the doorway	S	Bright
56-57	Interior stonework of the doorway	W	Bright
58-59	Interior north-facing elevation and doorway	N	Bright
60	Interior stonework flanking the west side of the doorway	N	Bright
61	Interior stonework flanking the east side of the doorway	N	Bright
62	Interior infill between the natural basalt and main elevation	W	Bright
63	Interior infill between the natural basalt and main elevation	E	Bright
64	Interior rear wall of the natural outcrop	S	Bright
65	Interior rear wall of the natural outcrop, west side	SE	Bright
66	Interior rear wall of the natural outcrop, east side	SW	Bright
67	Inner west-facing face of the doorway	W	Bright
68	South-facing elevation voussoir detail on the arch head	S	Bright
69-70	Working shot of GC within the interior of the building	S	Bright



## APPENDIX 2: DISCOVERY AND EXCAVATION IN SCOTLAND

<b>LOCAL AUTHORITY:</b>	West Lothian
<b>PROJECT TITLE/SITE NAME:</b>	The Mill Weir Bridge & General Tam's Smokehouse, House of the Binns, West Lothian
<b>PROJECT CODE:</b>	HOB1
<b>PARISH:</b>	Abercorn (West Lothian)
<b>NAME OF CONTRIBUTOR:</b>	M Cressey
<b>NAME OF ORGANISATION:</b>	CFA Archaeology Ltd
<b>TYPE(S) OF PROJECT:</b>	Level 3 Standing building recording
<b>NMRS NO(S):</b>	N/A
<b>SITE/MONUMENT TYPE(S):</b>	Bridge and Folly
<b>SIGNIFICANT FINDS:</b>	N/A
<b>NGR (2 letters, 6 figures)</b>	Mill Weir Bridge (NT 057090 778750) General Tam's Smokehouse (NT 05229 78564)
<b>START DATE (this season)</b>	October 2012
<b>END DATE (this season)</b>	October 2012
<b>PREVIOUS WORK (incl. DES ref.)</b>	None
<b>MAIN (NARRATIVE) DESCRIPTION:</b> (May include information from other fields)	<p><i>Mill Weir Bridge</i></p> <p>A Level 3 standing building survey was carried out on the Mill Weir Bridge on the House of the Binns Estate. The bridge carried the estate's former East Drive and has lain abandoned since the drive went out of use in the 1960s. The bridge comprises a single segmented arch with ashlar-built abutments. On the south side of the bridge a box culvert has been built into its superstructure. A stone-laid overflow weir runs below the bridge. The bridge has no parapet but its deck is bordered by a line of kerb stones. A general condition survey formed part of the survey which will inform future management.</p> <p><i>General Tam's Smokehouse</i></p> <p>General Tam's Smokehouse is a roofless stone-built folly or grotto situated close to the House of the Binns Tower. The precise construction date is not known but it probably dates to the early 19<sup>th</sup> century. The building comprises a simple stone-built wall constructed of whinstone with a segmented arch above the small doorway. The doorway is surrounded by rough-dressed blocks of whinstone. The wall encloses a small cleft in the outcropping bedrock. A general condition survey formed part of the survey which will inform future management.</p>
<b>PROPOSED FUTURE WORK:</b>	None
<b>CAPTION(S) FOR ILLUSTRS:</b>	None
<b>SPONSOR OR FUNDING BODY:</b>	National Trust for Scotland
<b>ADDRESS OF MAIN CONTRIBUTOR:</b>	CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ.
<b>EMAIL ADDRESS:</b>	mressey@cfa-archaeology.co.uk
<b>ARCHIVE LOCATION (intended/deposited)</b>	Archive to be deposited in NMRS, Reports lodged with SMR and NMRS.



the National Trust  
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**The Mill Weir Bridge – House of the Binns (HOB), West Lothian  
Project Outline for Historic Building Survey**



## 1 Introduction

The National Trust for Scotland (NTS) property the House of the Binns (NT 05085 78573) is located 5km north-east of Linlithgow town on the A904 (Fig 1.). The Mill Weir Bridge (see cover image) stands in the south-east corner of the estate (NT 05709 77875) within an area of woodland and is accessible from a gated entrance directly to the west along the A904.

The Mill Weir Bridge carries the estates former East Drive over the Midhope burn at the outflow from the mill pond (Fig 2.). The bridge, built in yellow sandstone, is c.12m long and c.4m wide with the roadway defined by low side walls. The structure includes a segmental arch spanning c.4.85m with the stone-faced overflow weir beneath and a rectangular-section sluiced culvert with a simple stone slab bridging the c.1m channel. A single stone post marks the south end of the bridge on the East face (c.0.98m high x c.0.30m x c.0.23m). The approach embankments form the mill dam.



Figure 1. Location of the House of the Binns.



Figure 2. Location of the Mill Weir Bridge in the south east corner of the House of the Binns estate shown in red.

## 2 Tendering process

Tenders will be by means of invitation and include two copies of a Tender Document, based on the information contained herein; together these will constitute a Project Design. The closing date for the submission of the Tender Document will be stated in a separate letter of invitation to tender. The selection of the successful contractor will be on the basis of the quality of the services offered in the Tender Document, combined with the value for money achieved. The process will not be decided on the basis of cost alone.

## 3 Historical background

Little is known about the development of the estate landscape at the House of the Binns, or when the landscape park in the English style was laid out, but there seems to have been a reasonable amount of 'improvement' done by Sir James Dalrymple (1774-1841), the 5<sup>th</sup> Baronet who inherited the estate in 1791. There is a schedule entitled 'Explanation of the Estate of the Binns June 1771'. The schedule is marked 'Robert Dalrymple fecit from the original by Mr Penny BINNS June 20<sup>th</sup> 1794'. This

was done by General Robert Dalryell, Sir James' brother and it is interesting in that, in giving an itemised list of the areas of planting in the parks at The Binns which had been done by 1771, it implies that the park was laid out by this date and thereby probably by Sir Robert Dalryell (1726-1791).

That Sir Robert may have laid out the park would seem to be further implied by the land exchange attested by an extract of a decree in an action held before the sheriff of Lillithgow in November 1755. This involved an excambion of lands between the Binns estate and John Earl of Hopetoun, who was involved with improvements at his seat at Hopetoun House and who wished to enclose some 500 acres of his lands at Midhope, in order to straighten boundaries, plant and for 'the general improvement of the country'. In doing so an agreement was reached whereby 56+ acres of land from the Earl's lands at Midhope were exchanged for 9+ acres of land belonging to the Dalryell. The deal was not all of benefit of the Binns estate however, as the Kirk Road from The Binns to Abercorn parish church, which passed across the Midhope lands, was closed and diverted. The new route passed along the Midhope burn 'by way of the Coal Bridge'. This would explain the route through the eastern belt at The Binns, past Binns Mill by way of Terrace Rigg and the Midhope Glen to Abercorn Kirk.

Following the death of his farther it was Sir James who undertook to embellish the park in a more fashionable, early 19<sup>th</sup>-century style by 'Gothic' additions in the form of lodges and the tower on Binns Hill, said to have been built as a result of an after-dinner wager. These additions complemented the remodelling of the house which William Burn was commissioned to do c.1810-12. The 'Easter Gate' was a crenulated gateway with lodges at the entry to the east drive, which was probably also laid out at this time. The 'Easter gate' also known as 'Black Lodge', was designed and built by Thomas Brown who acknowledged receipt for the ten guineas payment that he received for this work in October 1823. The tower was built to designs by Alexander Allan, in 1826.

By 1845 the park was 'highly picturesque' so the planting carried out by Sir James or his father Sir Robert Dalryell had matured sufficiently to make a landscape of some effect with 'scattered trees and groups of evergreens' noted in the New Statistical Account.

The Mill Weir Bridge is first shown carrying the East Drive in the 1<sup>st</sup> Edition OS maps (1857) although earlier 19<sup>th</sup>-century small scale maps (Forrest 1818 and Thomas 1820) may indicate its presence.

The East Drive was eventually abandoned in the 1960s when the Lodge and Gates were demolished.

#### **4 Previous Research**

There had been no previous historical building recording or analyses carried out on the Mill Weir Bridge.

#### **5 Objectives of the standing building recording and analysis**

The overall objective of the programme of standing building recording and analysis is to take the opportunity to develop further understanding of Mill Weir Bridge ahead of repair. This will augment and develop current understanding of the Trust's property at House of the Binns and offer wider interpretation of the development and cultural significance of the area as a whole.

The project aims are as follows:

- a) to achieve a more refined understanding of the structural development and chronology of Mill Weir Bridge;
- b) to develop a comprehensive drawn, written and photographic record of the structure, its construction and its relationship to the surrounding landscape.

## **6 Methodology**

The project methodology should conform to the appropriate Standards and Guidelines of the Institute for Archaeologists.

### *Desk-based and other background research*

The contractor will not be responsible for undertaking a desk-based assessment prior to survey. They will however, be responsible for familiarising themselves with the relevant background material presented within this Project Outline. Familiarity with the area's historical and archaeological background is deemed necessary in interpreting data generated in the course of the Project.

### *Field recording (standing remains)*

All principal vertical surfaces of the structure will be measured and drawn at a scale of 1:20. The survey will record salient features and analytical detail but need not extend to a full stone-by-stone survey. All features of note will require a written pro forma description, and will be identifiable by a system of unique context numbers. Descriptions will, as appropriate, include details of dimensions, location, fabric, form, matrix, geology, mouldings, markings, presumed dating (where applicable), and stratigraphic information. The position of all described features will be recorded on at least one plan or elevation.

## **7 Products**

The contractor will produce, as a minimum, the following:

- a) A digital photographic record (conforming to current RCAHMS standards and guidelines) will be required of all elevations.
- b) Phased elevation drawings of all faces of the structure, showing details of former openings, scars, surface treatments and other features.
- c) Detailed scale drawings and/or photographs of architectural details of significance.
- d) Scaled plan of the building's footprint, to which all other photographs and illustrations will be related.
- e) Analytical report. This report will be prepared in line with the appropriate Institute for Archaeologists Standards. Following the introductory sections (including a narrative summary in layman's terms of the main findings, an indication of the constraints and limitations of the report, and an indication of how the report has been set out), the report will provide an analysis of the development of the Weir Bridge, focusing on information gleaned during the project. This will be followed by narrative descriptions (ordered by phase) of the elements of the structure and other features of archaeological and architectural interest germane to the objectives of the project outlined above.

If it is possible to provide an interpretation of the social and domestic workings of the bridge and its relationship to surrounding landscape features, this and any other appropriate interpretation should follow the descriptive section. The report will be fully referenced.

Copies of this Project Outline (excluding enclosures), the successful Tender Document (excluding financial details) and any written variations will be reproduced within an appendix.

The report will be illustrated by plans, elevations, details, sketches and photographs as appropriate.

- f) Summary report for submission to Discovery and Excavation in Scotland and enter the project data into OASIS: Online AccesS to the Index of archaeological investigationS (<http://www.oasis.ac.uk/scotland/>).

## **8 Logistics**

The standing building recording and analysis project will be managed by the NTS Archaeologist, Dr Daniel Rhodes, to whom all queries of a technical nature should be addressed.

The contractor will inform the Local Authority Archaeological Service of his or her activities **before** site work commences.

### *Access*

Access to the Weir Bridge is available to the contractor upon request. The dates of which will be arranged with the NTS Archaeologist.

### *Personnel and standards*

Contractors will provide the name of a single person who will be the archaeological Project Manager. The building recording work will be undertaken under the close supervision of either a suitably qualified and experienced buildings archaeologist, or an experienced buildings historian with a proven track record in the systematic recording and analysis of historic buildings, and in the production of analytical reports. It is expected that the successful contractor will work in compliance with the Institute for Archaeologists Standard for buildings recording and other appropriate guidelines.

Short CVs should be included in the Tender Document for the principal participants in the project.

Volunteers or trainee students may be used on the project, provided that they receive adequate supervision and training, and that volunteers gain no financial remuneration other than the repayment of bona fide expenses. The use of volunteers and students must be approved in advance by the NTS.

### *Health and safety*

The contractor will be responsible for implementing all appropriate health and safety requirements and any other current legislation which is applicable, and for ensuring that all sub-contractors appointed by him or her also implement all appropriate health and safety requirements and any other current legislation which is applicable

**The contractor will be expected to carry suitable insurance (the minimum requirement is professional indemnity insurance cover of £1 million) and will carry out and supply the NTS Archaeologist with a Risk Assessment and Health and Safety Method Statement prior to the commencement of works.** A Health and Safety Policy Document must also be submitted and approved by the NTS. The Tender Document should include details of proposed health and safety provision.

#### *Publicity*

The project and its results may be publicised through the local or national media. Any publicity must be handled by or through the NTS.

#### *Finances*

The Tender Document will contain an estimate of the cost of the project as described in this Project Outline, and should set out the following details:

- Wages (stating number and level of staff, daily rate per member of staff per day, and which staff will be used for each element of the work);
- Specialist costs;
- Travel and accommodation expenses;
- Hire costs;
- Equipment and consumables;
- Post-fieldwork costs;
- Report and archive production costs;
- Overheads and other costs;
- Any costs in-kind, not to be charged for.

A contingency sum may be included as a percentage of the overall costs. The contingency sum will only be applicable where unforeseen circumstances prevail, and its use will have to be justified. Written notification should be given as soon as practicable of any proposed variation over and above the basic estimate. Variations in expenditure, including the use of the contingency, will require prior written approval from the NTS. The detailed costings should be shown excluding VAT, but the overall costings should also be shown including VAT.

The NTS operates a system of staged payments, with the final instalment tendered on receipt of the approved final report. Contractors should note that if significant delays occur at one or more stages of the project, excepting those reasonably outwith the contractor's control, the percentage of the total fee held back until payment as the final instalment is likely to increase.

## **9 Reporting Procedures**

### *Reporting timetable*

Two copies of a draft report (which should include all illustrative material) should be provided within **four weeks** of completion of the field element. The NTS will attempt to provide comments on this first draft within four weeks; at that stage, a timetable for the submission of a revised draft (two copies) will be agreed, dependent upon the level of revision required. The final report will be submitted within **four weeks** of comments upon and approval of the revised draft by the NTS.



#### *Report production and distribution*

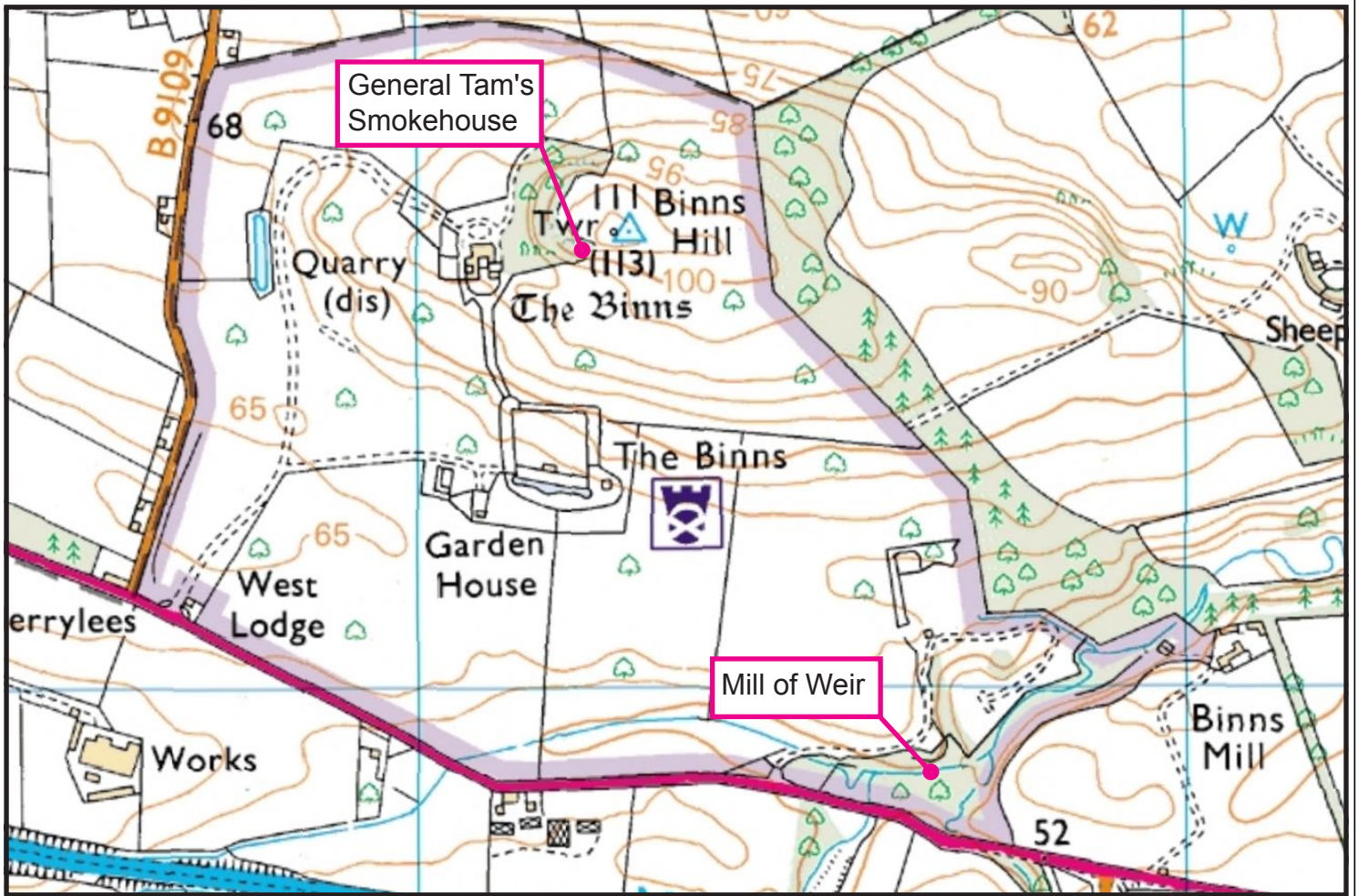
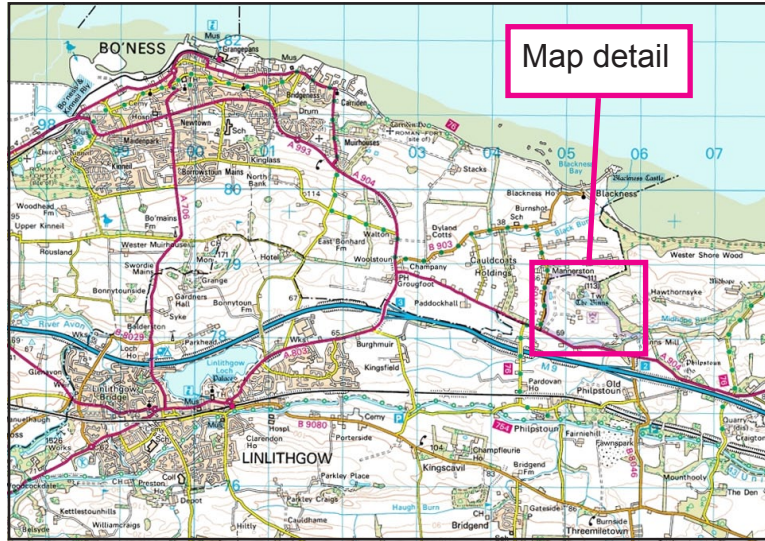
The NTS will require **four bound copies** of the final report each accompanied by a disk containing a digital version of the final report, all images produced during the project, any information databases which may have been compiled as well as digital survey information as AutoCAD LT 2004 and DXF/DWG files suitable for use on a PC running Windows XP. In addition, **the contractor should submit one bound copy to the local authority SMR and one to the NMRS.** Copyright of the reports and all other information (including electronic information) will rest with the NTS, but the contractor will have the right to use the reports and the survey results free of charge in relation to non-commercial activities or to promote the work of the contractor.

#### **10 The archive**

The primary archive will be deposited with the NMRS, and will include all original field records (both hard copy and digital) and notebooks, alongside a full set of catalogued photographs. The archive will be prepared to standards agreed with the NMRS and will be deposited with them within **six months** of submission of the final report.

#### **11 Further Guidance**

The contractor should liaise with the NTS Archaeologist, Dr Daniel Rhodes (0844 493 2421; 077 0694 5525; drhodes@nts.org.uk).



Key:

Fig. No: 1	Revision: A	Client: National Trust for Scotland
Title: Site locations		
Project: Mill of Weir Bridge and General Tam's Smokehouse		



**CFA** ARCHAEOLOGY LTD  
The Old Engine House  
Eskmills Park, Musselburgh  
East Lothian, Eh21 7PQ  
T: 0131 273 4380  
F: 0131 273 4381  
e: info@cfa-archaeology.co.uk  
w: www.cfa-archaeology.co.uk

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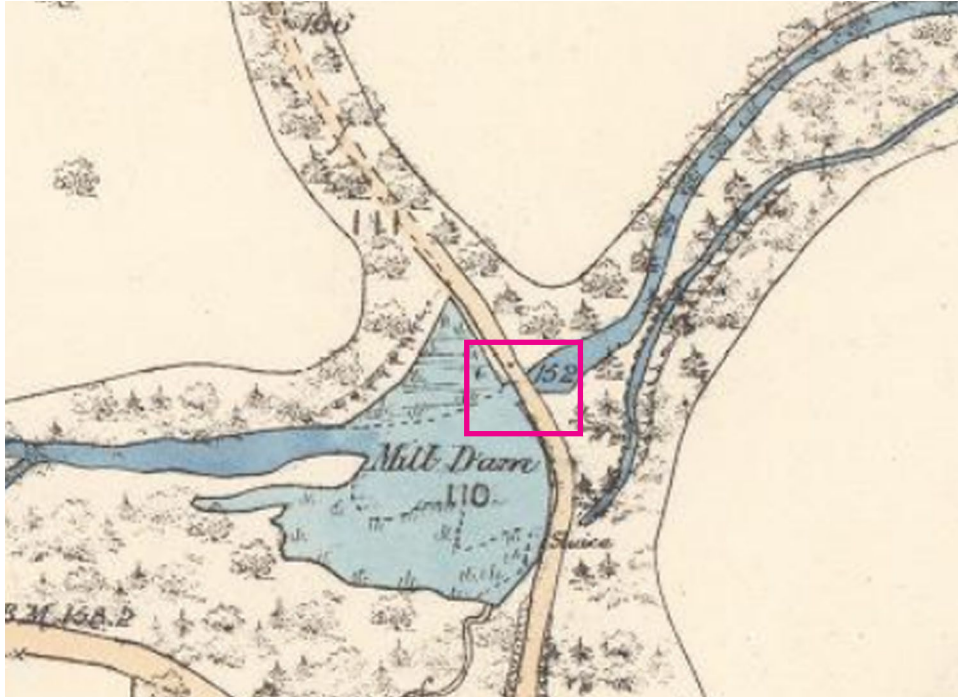


Fig. 2a: Extract from the 1856 Ordnance Survey map showing the bridge in relation to the mill dam

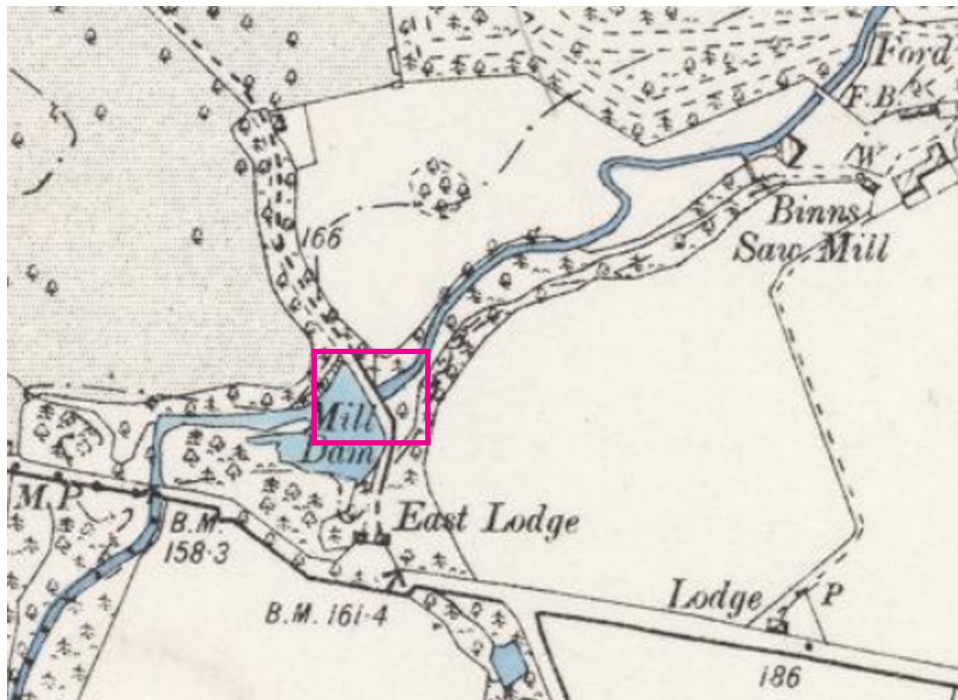
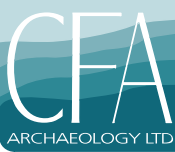


Fig. 2a: Extract from the 1897 Ordnance Survey map showing the bridge in relation to the dam and the lade leading to Binns Saw Mill

Key:	Fig. No:	2a-b	Revision:	A	Client:	National Trust for Scotland
	Title:					
	Project:	Mill of Weir Bridge and General Tam's Smokehouse				
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Key:

Displaced marker stone

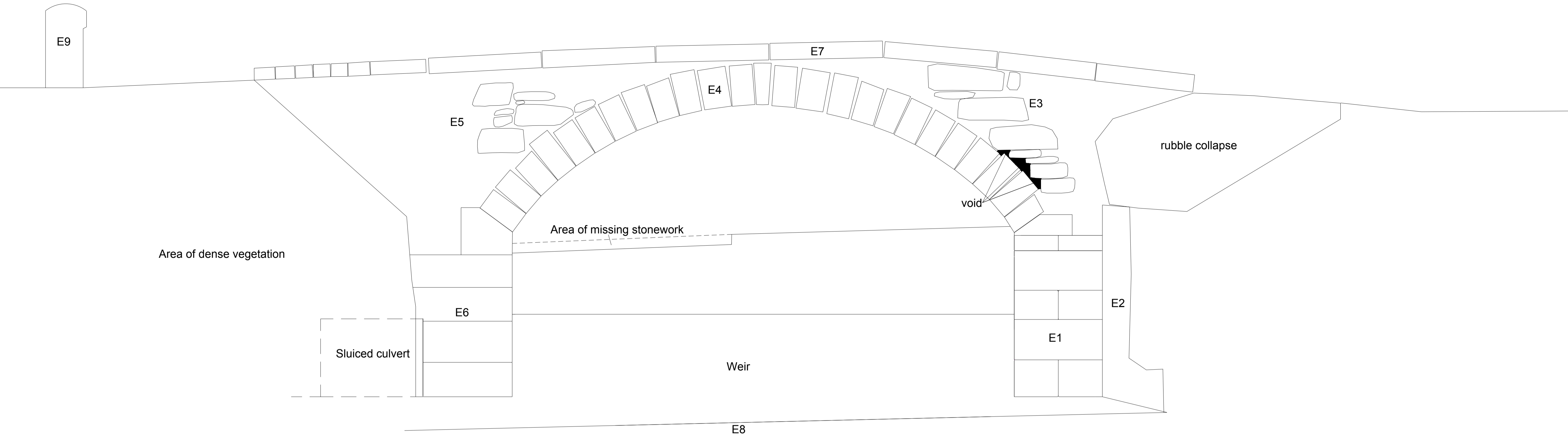


Fig. 3a East facing elevation

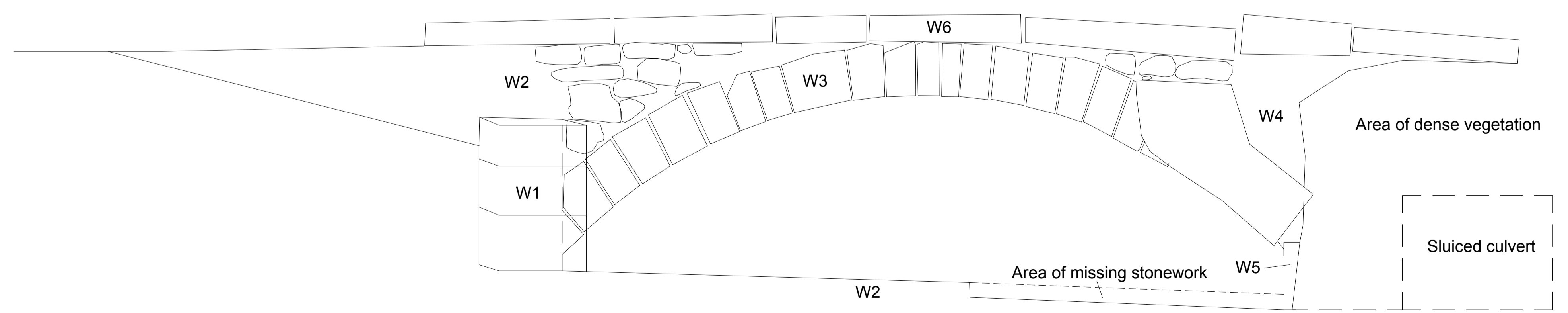


Fig. 3b West facing elevation



Fig. No: 3a-b Revision: 0  
Title: Elevations of Mill of Weir Bridge

Project: Mill of Weir Bridge and General Tam's Smokehouse

Client: National Trust for Scotland

Scale at A1: 1:20

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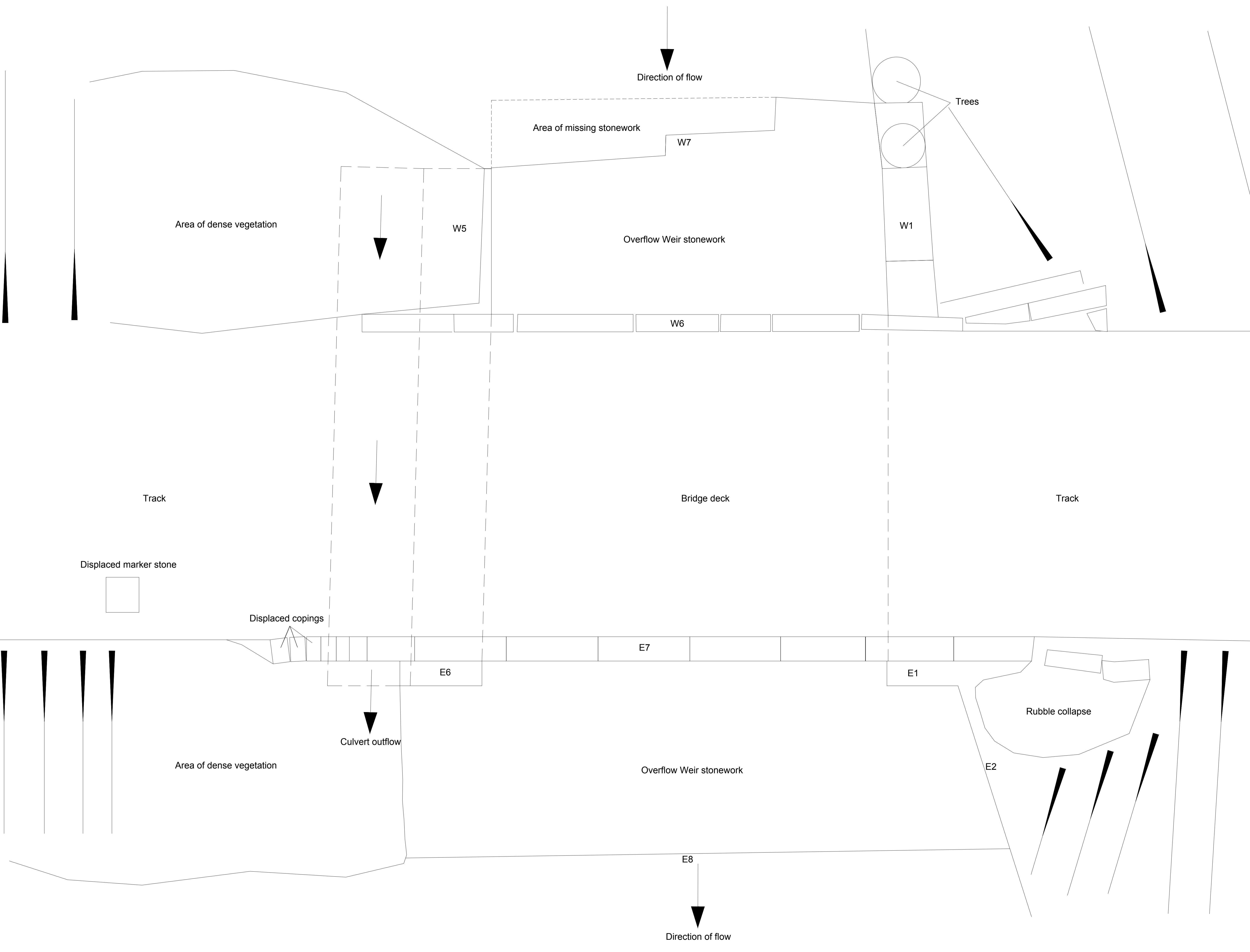


Fig. No: 4 Revision: 0

Title: Plan of Mill of Weir Bridge

Project: Mill of Weir Bridge and General Tam's Smokehouse

Client: National Trust for Scotland

Scale at A1: 1:20

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Key:



Fig. No: 5 Revision: 0

Title:  
Photo location plan of Mill of Weir Bridge

Project:  
Mill of Weir Bridge and General Tam's Smokehouse

Client:  
National Trust for Scotland

Scale at A1:  
1:20

Drawn by: GC Checked: LW Report No: 2133

Key:

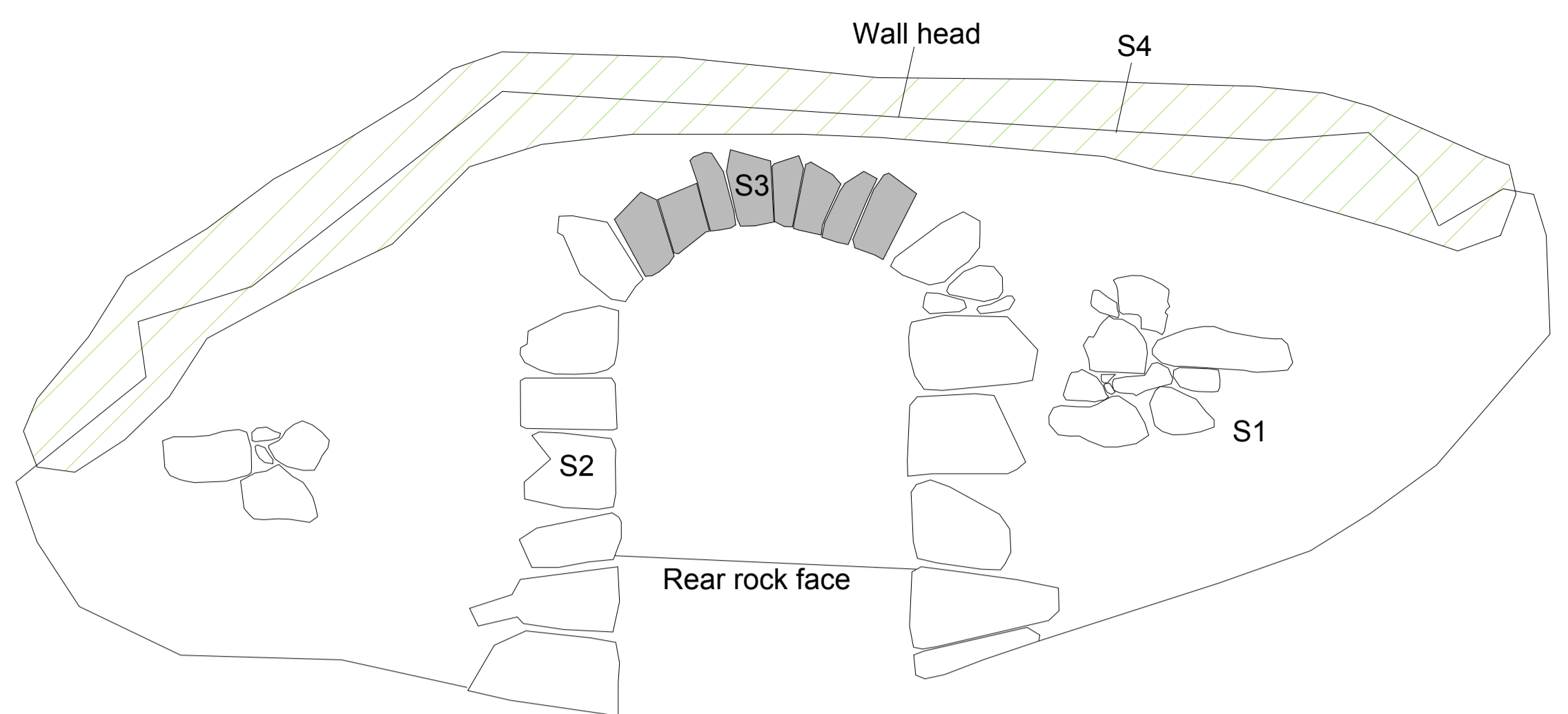


Fig. 6a External elevation

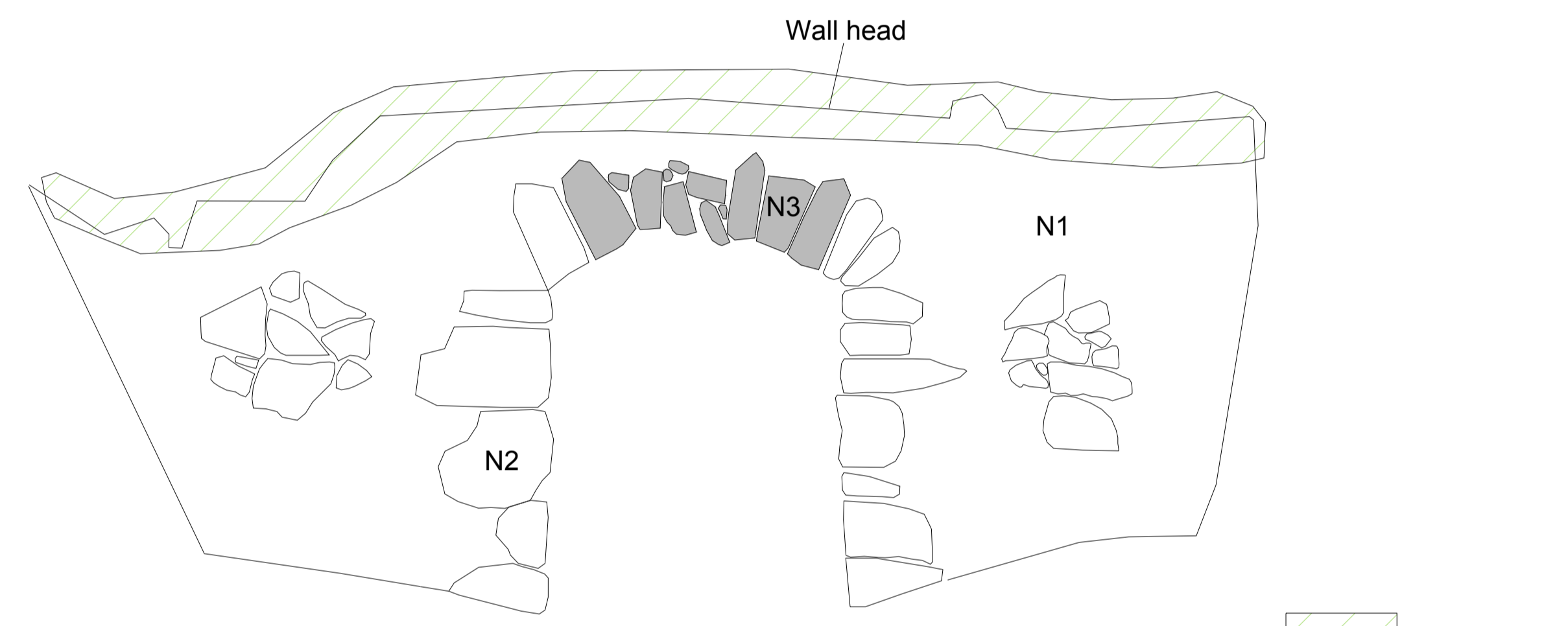


Fig. 6b Internal elevation

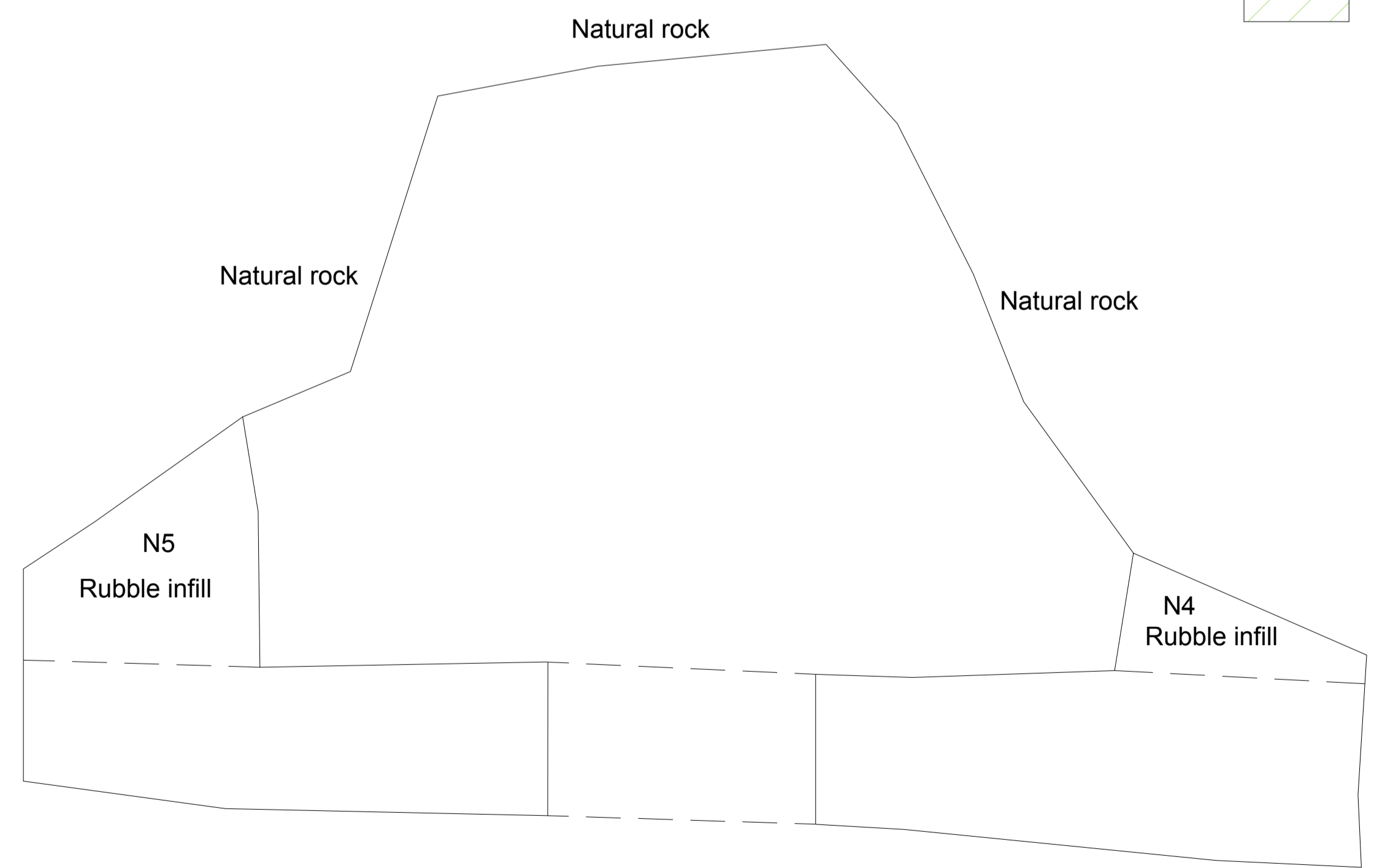
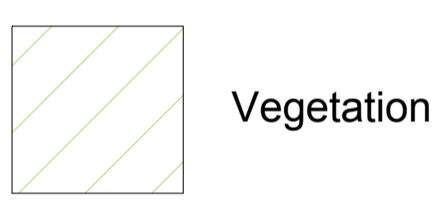


Fig. 6c Plan of Smokehouse

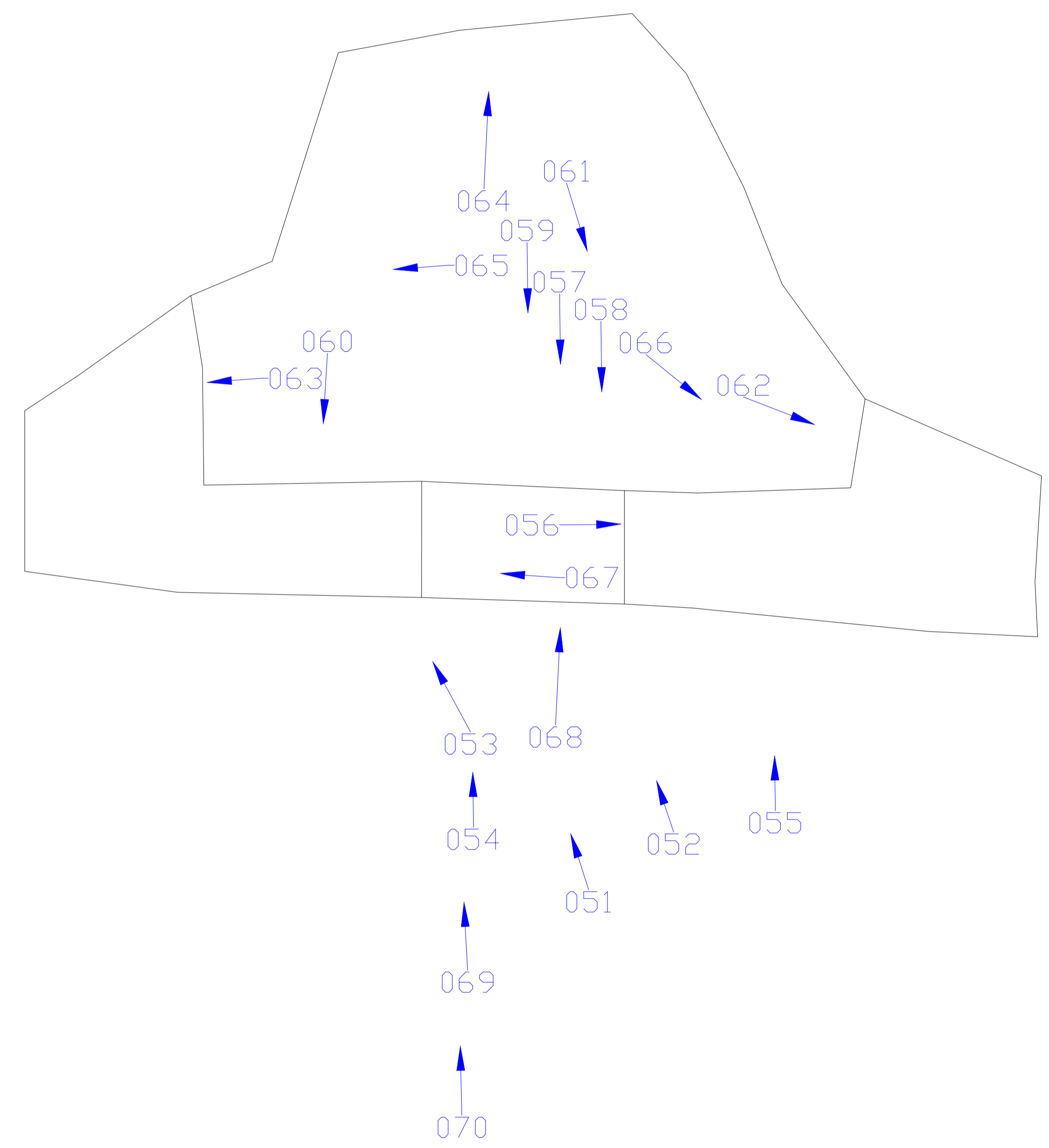


Fig. 6d Photograph location plan



Plate 1: Mill Weir bridge east-facing elevation taken during the winter (source NTS)

Plate 2: Mill Weir bridge east-facing elevation taken during the early Autumn



Plate 3: South-facing abutment showing erosion and stone displacement

Plate 4: East-facing elevation, showing the spandrel above the arch



Plate 5: East-facing elevation, detail of the segmented arch voussoirs

Plate 6: North abutment, south-facing ashlar stonework below the bridge and soffit stonework above

Plates. 1-6		Revision: A	Project: Mill of Weir Bridge and General Tam's Smokehouse
Drawn by: GC	Checked: LW	Report No: 2133	Client: National Trust for Scotland
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Plate 7: South abutment, north-facing ashlar stonework below the bridge and soffit stonework above



Plate 8: Overflow weir stonework on the east side of the bridge



Plate 9: Overflow weir stonework on the west side of the bridge



Plate 10: Mill Weir Bridge west-facing elevation



Plate 11: West-facing elevation, north side, spandrel fabric detail



Plate 12: North abutment, west side showing tree root impact

Plates: 6-12		Revision: A	Project: Mill of Weir Bridge and General Tam's Smokehouse			<b>CFA ARCHAEOLOGY LTD</b> The Old Engine House Eskmills Park, Musselburgh East Lothian, EH21 7PQ T: 0131 273 4380 F: 0131 273 4381 e: info@cfa-archaeology.co.uk w: www.cfa-archaeology.co.uk
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Plate 13: General view of the bridge deck looking south



Plate 14: Kerb stones on top of the east-facing elevation, north end



Plate 15: Kerb stones on top of the east-facing elevation, south end



Plate 16: A droved sandstone marker stone displaced by a fallen tree at the south end of the deck



Plate 17: General Tam's Smokehouse south-facing elevation



Plate 18: General view of the door surrounds and segmented arch

Plates: 13-18		Revision: A	Project: Mill of Weir Bridge and General Tam's Smokehouse
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Plate 19: General view of the wall on the west side of the doorway

Plate 20: General view of the wall on the east side of the doorway



Plate 21: Wall core seen within the east side of the doorway

Plate 22: Wall core seen within the west side of the doorway



Plate 23: Interior north-facing elevation

Plate 24: Close up of the interior segmented arch



Plates. 19-24		Revision: A	Project: Mill of Weir Bridge and General Tam's Smokehouse
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Plate 25: Interior wall fabric on the east side of the doorway



Plate 26: Interior wall fabric on the west side of the doorway



Plate 27: Infilling wall between the main interior elevation and natural rock (east side)



Plate 28: Infilling wall between the main interior elevation and natural rock (west side)



Plate 29: Interior rear natural rock wall

Plates. <b>25-29</b>		Revision: <b>A</b>	Project: Mill of Weir Bridge and General Tam's Smokehouse
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 The Old Engine House  
 Eskmills Park, Musselburgh  
 East Lothian, EH21 7PQ  
 T: 0131 273 4380  
 F: 0131 273 4381  
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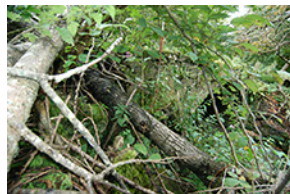
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