STOKE CANON FLOOD DEFENCE SCHEME, EAST DEVON

(NGR SX 93918 97905)

Results of archaeological monitoring and recording

Prepared by:
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On behalf of:
The Environment Agency

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AC archaeology

STOKE CANON FLOOD DEFENCE SCHEME, EAST DEVON

Centred on SX 93918 97905

Results of archaeological monitoring and recording

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Summary

A programme of archaeological monitoring and recording was undertaken by AC archaeology between June 2012 and February 2013 during works associated with the improvements to the Stoke Canon Flood Defence Scheme. A post-medieval section of the Stoke Canon Bridge was recorded, and monitored during subsequent removal. The groundworks associated with the insertion of flood banks and walls were monitored on the east and west sides of Stoke Canon village. Several linear ditches were identified and are considered to be associated with various phases of drainage or cultivation and are likely to range in date from the prehistoric to post-medieval periods. Several modern features were also identified on the east side of the village.

1. INTRODUCTION (Fig. 1)

1.1 A programme of archaeological monitoring and recording was undertaken by AC archaeology during improvements to the Stoke Canon Flood Defence Scheme, (centred on SX 93918 97905) between June 2012 and February 2013. The monitoring was carried out as part of a condition of the grant of planning permission for the scheme. The works were commissioned by the Environment Agency and was undertaken following guidance from English Heritage, and the Devon County Historic Environment Team (DCHET; Reed 2012) who advice East Devon District Council.

1.2 The scheme focused on the following areas (Fig. 1): land to the southeast and northwest of Stoke Canon, adjacent to the River Culm on the southeast side of the village, and the Exeter to Taunton main railway line on the northwest side. The site lies on the flood plains of the Rivers Exe and Culm at a height of between 15m and 20m aOD. The underlying geology consists of Permian sandstone overlain by alluvium deposits of clay, silt, sand and gravel and on higher ground, by river terrace deposits of sand and gravel. The excavation of geotechnical pits in 2011 exposed river gravels, in places overlaid by clay alluvium, at depths of between 1.15m and 1.55m from the surface (Dean 2011).

2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 The flood defence scheme is located within an area of archaeological potential. Prehistoric activity is represented in the wider landscape by the evidence for settlement and funerary monuments to the north and south of the village. Findspots of flint have also been recovered from fields located to the south of Stoke Canon.

2.2 Stoke Canon Bridge is a Scheduled Ancient Monument (National Heritage List for England entry 12253020) and is probably a 15th century rebuild of an earlier medieval bridge. In 1809, the bridge was noted as being in need of ‘considerable repair’ and it is likely that shortly after this date it was widened to the south, incorporating two flood aches and a mill race arch, and generally repaired.

2.3 A series of geotechnical pits, excavated across the area of the scheme in 2011, produced negative results with no archaeological or significant palaeoenvironmental deposits exposed, and no artefacts recovered (Dean 2011).

3. AIMS OF THE WORK

3.1 The investigations had two principle aims. The first aim was to prepare a record of the masonry and associated fixtures of Stoke Canon Bridge prior to, during and after the works. The second aim was to observe, excavate and record any surviving below-ground archaeological artefacts and deposits across the area affected by the development.

4. METHODOLOGY (Fig. 2)

4.1 The fieldwork was undertaken in accordance with a method statement prepared by AC archaeology Ltd (Passmore 2012), submitted to and approved by DCHES prior to commencement on site. It comprised the monitoring of all groundworks and a detailed photographic, drawn and written recording of the parts of Stoke Canon Bridge affected by the development.

4.2 The site was recorded in accordance with the AC archaeology *pro-forma* recording system, comprising written, graphic and photographic records, and with reference to AC archaeology's *General Site Recording Manual, Version 1*. All plans were drawn at a scale of 1:50 and sections at 1:10 or 1:20. All levels have been related to Ordnance Datum.

4.3 The monitoring took place across a number of areas, that, in addition to the bridge, are described below by plot (nos 1-10 on Fig. 2).

5. RESULTS (Figs 3-5; Plates 1-7)

5.1 Stoke Canon Bridge (Fig. 3; Plates 1-3)

As part of the flood defence improvements, a section of the east side of the bridge was removed and replaced with a stone section of wall. At this location, the parapet had been replaced and consisted of granite pillars with iron slats. This and a section at the north end of the west side where the ground level had been reduced adjacent to the bridge were recorded. The results of the archaeological recording of these sections of the bridge is summarised in Table 1.

Context	Description
East side of bridge	
400	Parapet consisting mostly of rectangular or squared blocks of limestone, with sparse blocks of sandstone, Heavitree breccia and volcanic trap. The blocks are generally arranged in courses and average *c.* 0.3m long and 0.2m wide. They are bonded with lime mortar (401) and roughly pointed. Several areas of modern repair are evident.
401	Grey/off-white fine lime mortar used as bonding material for the parapet of the bridge.
402	Parapet capping consisting of limestone rectangular blocks with flat tops and bevelled edges. The blocks average 0.75m long and 0.3m wide. They are coursed in a line along the top of the bridge parapet and are bonded with lime mortar (401). Some have been replaced with concrete replicas.
403	Six granite pillars, rectangular in section with rounded heads, supporting iron railings (404). They stand 0.9m high above the ground surface and 0.3m wide.
404	Three rows of iron railings set into the granite pillars 403. They are cemented into the granite pillars and have a diamond shaped profile. 403 and 404 represent railings infilling a gap in the stone parapet.
405	Modern tarmac road surface.
406	Concrete foundation for granite pillars in place.
407	Dark brown, stony sandy clay, interpreted as modern imported material to make up the

	bank behind the bridge.
West side of bridge	
408	Bridge abutment at the north end of the bridge, constructed from rectangular or squared blocks of limestone, with sparse blocks of sandstone, Heavitree breccia and volcanic trap. Averaging 0.4m long and 0.25m wide, mostly coursed with some randomly laid blocks. Originally bonded with lime mortar which have been repaired with concrete, roughly pointed.
409	Base of bridge abutment of limestone rectangular blocks averaging 0.4m long and 0.25m wide.
410	Central decorative string course along bridge abutment consisting of a single line of rectangular limestone blocks, averaging 0.4m long and 0.25m wide.
411	Parapet on west side, same as 400. Tooling marks visible on some blocks.

Table 1: Summary of results of recording of Stoke Canon Bridge

5.2 Plot 1

This plot was located at the north end of the scheme, to the west of the River Culm. It consisted of an arable field that slopes gently to the southeast.

An area up to *c*. 20m wide was reduced for the construction of a flood bank and for the insertion of the site compound, along the south and west sides of the field adjacent to the A396. The ground level was reduced up to a depth of 0.3m into the dark brown, loose sandy loam topsoil (100). Three fragments of worked flint and one sherd of post-medieval pottery were recovered from the topsoil (100). The groundworks within this plot did not go deep enough to expose any archaeological features or deposits.

5.2 Plot 2

Plot 2 was situated on the east side of the village of Stoke Canon and to the west of the River Culm. This plot was under short grass pasture.

A *c*. 10m wide area was stripped for the insertion of a flood bank along the west side of the field. The corridor was stripped to a maximum depth of 0.3m and the sequence of deposits consisted of 0.16m of dark brown, loose sandy loam topsoil (200), this overlay reddish-brown, silty loam subsoil (201) containing common small-medium sized, rounded gravel inclusions and modern debris including building rubble and modern industrial white ware pottery. No archaeological features or deposits were exposed.

5.3 Plot 3 (Fig. 4; Plates 4-6)

This plot was located on the east side of the village and immediately west of the River Culm. This plot was part of an allotment garden.

An area up to *c*. 10m wide was stripped down the centre of the allotment to a depth of between 0.9m-1m. A narrow trench was excavated along the centre of the strip which was 0.3m wide and took the total depth of excavation to 1.5m. The deposit sequence consisted of 0.3m deep dark brown, sandy loam topsoil (300), with sparse rounded gravel inclusions and very common modern debris. This overlay 0.15m of medium grey-brown sandy loam subsoil (301), with occasional rounded, small-medium sized gravel inclusions. This overlay the natural yellow sandy clay subsoil (302), which had patches of manganese and common small-large sized, rounded gravels inclusions. Several features were exposed within plot 3.

F304 was a 6.75m long ditch that measured 0.2m deep and had rounded terminals and moderately steeply sloping sides with a flat base. It was orientated northeast-southwest, parallel to the excavation, and continued under the eastern edge of the stripped area and was therefore of an unknown width. It contained a light grey-brown, stony, sandy clay fill (303) with iron-panning and common small-large sized rounded gravels, from which a fragment of worked flint was recovered.

F306 was a 2.6m long section of a linear ditch that was 0.85m wide and 0.42m deep. It continued beyond the east and west edges of the excavation. It had moderately steeply-sloping sides and a flat base. It contained a medium brown, stony, sandy clay fill (305), with common small-large sized rounded gravels, from which one fragment of worked flint and a piece of medieval ridge tile or roof furniture were recovered.

F306 was cut by a narrow, very shallow linear feature, F308, which was orientated northwest-southeast. It was 1.25m long, 0.35m wide by 0.05m deep and continued beyond the southeast edge of excavation. It contained a highly root disturbed, light red-brown, compact sandy clay fill (307) that contained common small rounded gravels.

F310 was a 2.5m long section of linear ditch that continued beyond the northwest and southeast edges of the excavation. It had moderately steeply sloping edges and a concave base. It was 1.15m wide by 0.26m deep and contained a medium red-brown, compact, clay loam fill (309), with sparse small sized rounded gravels.

There were several modern features encountered within plot 3. These included several land drains and rubbish pits containing modern debris. On identification none were fully excavated or recorded further.

5.4 Plot 4

An area was located adjacent to the northeast side of Stoke Canon Bridge. An area measuring 5m long by 3m wide was stripped to a depth of up to 0.8m.

The deposit sequence consisted of 0.3m of mid-dark brown silty clay topsoil (412), which overlay 0.2m of mid red-brown sandy, silt clay subsoil (413) and this overlaid light red gravelly sandy clay natural subsoil (414). The removal of the granite pillars (403) of the bridge revealed the dark brown, humic imported soil (407) which extended to a depth of 1m. This overlaid a red-brown, sandy clay deposit (412), which produced a piece of post-medieval glass dating to the 18th century.

5.5 Plot 5 (Fig. 5; Plate 7)

Plot 5 was a short grass pasture field located on the southeast side of Stoke Canon and to the northwest of the River Culm. An area was stripped adjacent to the existing flood bank.

The sequence of deposits consisted of 0.2m of dark brown, friable, sandy loam topsoil with common rounded gravels (500), which overlaid up to 0.36m of light brown, and friable, sandy clay loam subsoil with common rounded gravels (501). The subsoil overlaid the natural subsoil deposit that consisted of alluvial clay with mixed grey and yellow patches (506).

A single linear ditch was encountered within plot 5, F502. This was *c* .3m long, 1.5m wide and 0.91m deep, with moderately steeply-sloping edges and a flat base. The ditch contained a total of three fills: the upper fill (503) consisted of 0.6m of light

brown, firm sandy clay with common small-large rounded gravels, middle fill (504) was a 0.27m thick deposit of light brown, soft sandy clay and contained a single sherd of late medieval-early post-medieval pottery. The basal fill (505) consisted of 0.4m of grey-brown, loose sandy clay.

5.6 Plot 6

This plot was located on the west side of Stoke Canon, adjacent to the existing flood bank and pond. An area was stripped measuring 21m long by 2m wide, to a maximum depth of 1.2m. The sequence of deposits consisted of 0.2m of dark brown, silty clay topsoil (600) that overlaid 0.55m of medium brown, silty clay subsoil (601). This deposit overlay a 0.3m layer of red-brown silty clay (602) which overlaid the natural river gravels (603). Other than a modern drainage ditch (F604), no archaeological features were exposed.

5.7 Plots 7-10

Works in plots 7-10 were due to comprise the stripping of topsoil only (as per plot 1) for the formation of a new flood bank. This was to be undertaken as part of a different planning application (12/1996/MFUL). Following discussions with the HET the area was fieldwalked as part of the existing archaeological investigations and on the basis of the negative results no further monitoring was carried out.

Plot 7

The field adjacent to the former branch railway line was fieldwalked. No pre-modern artefacts were recovered.

Plot 8

Fieldwalking was undertaken along and adjacent to the existing flood bank within plot 8. One fragment of flint blade was recovered from the bank material (800).

Plots 9 and 10

The fields were under long grass pasture and no artefacts were recovered.

6. THE FINDS by Naomi Payne and Kerry Kerr-Peterson

6.1 All finds recovered on site have been retained, cleaned and marked where appropriate. Finds were then quantified according to material type within each context. The assemblage was then scanned by context to extract information regarding the range, nature and date of artefacts represented. This information is briefly discussed below. Finds totals by material type are given in Table 1. The finds range in date from the prehistoric to the modern periods.

6.2 The Pottery

This small assemblage of pottery is mostly post-medieval in date, with two sherds dating to the end of the medieval or the early post-medieval period. There are a total of six sherds weighing 607g and the majority of the pieces are from topsoil contexts. The earliest pieces are a body sherd of an Exeter Fabric 42 jug decorated with a lead glaze and vertical metallic lines from context 504, this dates to around the 15th or 16th century. There is also a rim sherd from a South Somerset lead glazed earthenware bowl of 15th or 16th century date from context 100. The rest of the pottery assemblage consists partly of South Somerset lead-glazed earthenware sherds, including a very large sherd from a deep bowl of 18th century date from context 300. There are also several sherds of transfer-printed and industrial white ware dishes and bowls that date to the 19th or 20th centuries from context 300.

Context	Context Description	Pottery		Clay pipe		Glass		Worked flint		Animal bone		CBM		Mortar	
		No	Wt	N	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt
100	Topsoil plot 1	1	7					3	10						
300	Topsoil plot 3	4	594	1	2	2	17			2	45				
303	Only fill of F304							2	11						
305	Only fill of F306							1	1			1	77		
307	Only fill of F308													1	13
311	Modern pit											1	101		
312	Modern pit									1	78				
412	Topsoil beneath bridge					1	30								
504	Lower fill F502	1	6												
800	Existing flood bank imported material							1	0.7						
Totals		**6**	**607**	**1**	**2**	**3**	**47**	**7**	**22.7**	**3**	**123**	**2**	**178**	**1**	**13**

Table 1: Finds summary. Weights are in grams.

6.3 Worked flint

The worked flint assemblage consists of a total of seven fragments, weighing 22.7g. Most of these fragments were found in topsoil or imported contexts. The majority of the pieces of derived from a dark brown, cherty flint with the rest made from a dark grey mottled flint. The assemblage contains several primary and secondary waste flake fragments, including one very small flake from contexts 100 and 303. Part of a small scraper was recovered from context 100 which has clear retouching along two edges. There are three broken blade pieces present within the assemblage; these consist of the proximal end of a blade from context 800 and two distal end fragments from contexts 303 and 305, although the piece from context 305 is likely to be residual. These pieces of worked flint are likely to date to the Neolithic or Bronze Age.

6.4 Ceramic Building Material

Two fragments of ceramic building material, weighing 178g, were recovered from contexts 305 and 311. The piece from context 311 is a fragment of post-medieval or modern roof tile. However, the fragment from context 305 is a likely to be a piece of medieval ridge tile or roof furniture. It has a micaceous fabric that is reduced on the interior which is likely to be Exeter Fabric 81. It may have been re-used due to several patches of white lime mortar present on the underside. It has traces of a light green lead glaze and is likely to date to 14th or 15th century, and may have derived from high status medieval building in the village.

6.5 The other finds

The other artefacts within the assemblage include three fragments of glass, weighing 47g. These include a piece of post-medieval or modern clear window glass and a base fragment from a white glass cup or bowl that dates to the 19th or 20th centuries. Part of the neck and rim of a probable squat, cylindrical glass bottle with a double string rim was recovered from context 407; it dates to *c.* 1770. This has an area of damage and wear around the interior rim of the bottle. An undiagnostic fragment of buff coloured mortar was recovered from context 307. A fragment of plain clay

tobacco pipe stem was recovered from context 300. A total of three fragments of animal bone were recovered from contexts 300 and 312.

7. DISCUSSION

7.1 The archaeological monitoring has established that few archaeological features were present across the area of the flood defence scheme. The pre-modern features that were encountered consisted entirely of ditches which were most prevalent on the east side of the village of Stoke Canon, in areas adjacent to the River Culm.

7.2 The linear features recorded formed no obvious pattern and are likely to relate to various phases of land drainage and field division, possibly dating from the later prehistoric periods through the 20th century. Other than worked stone and a piece of medieval ridge tile or roof furniture, there was a general paucity of artefacts recovered from these features, so it is difficult to be certain of dates; in some cases diagnostically prehistoric lithics were found in the ditches, but at least in one case this was residual. It is probable, at least in some instances, that the prehistoric lithics became incorporated into features through general silting and cultivation, as there was also a small quantity of this material present within the overlying layers.

7.3 Only three features produced stratified dating evidence: ditches F306, F304 and F502. None contained large quantities of finds but could tentatively be dated to the late medieval period, Bronze Age and post-medieval periods respectively.

7.4 Repairs to the Stoke Canon Bridge were monitored and recorded. The granite pillars that formed part of the bridge parapet had probably been erected sometime during the late 19th or early 20th century, and are associated with the replacement of the earlier stone parapet. From their tooling it is clear that they had been dressed specifically for the bridge and were not reused.

8. OASIS ENTRY AND ARCHIVE

8.1 An entry to the OASIS (Online AccesS to the Index of Archaeological investigationS) database has been assigned, and has the identifying code 152718.

8.2 The paper and digital archive and finds are currently held at the offices of AC archaeology Ltd, in Unit 4 Halthaies Workshops, Bradninch, Nr Exeter, Devon, EX5 4LQ, but will ultimately be deposited under the relevant accession number at the RAMM, Exeter, at the earliest in mid 2014 when it is expected that the current museum non-acceptance policy will be reviewed. A temporary reference number from the museum is RAMM 12/13.

9. ACKNOWLEDGEMENTS

9.1 The project was commissioned by the Environment Agency and managed for AC archaeology by Andrew Passmore. The fieldwork was undertaken by Simon Hughes, Kerry Kerr-Peterson, Stella de-Villiers, Peter Stead, Paul Jones and Chris Caine. The finds were processed and assessed by Naomi Payne and Kerry Kerr-Peterson. The report was written by Kerry Kerr-Peterson and the report illustrations prepared by Sarnia Blackmore.

10. SOURCES CONSULTED

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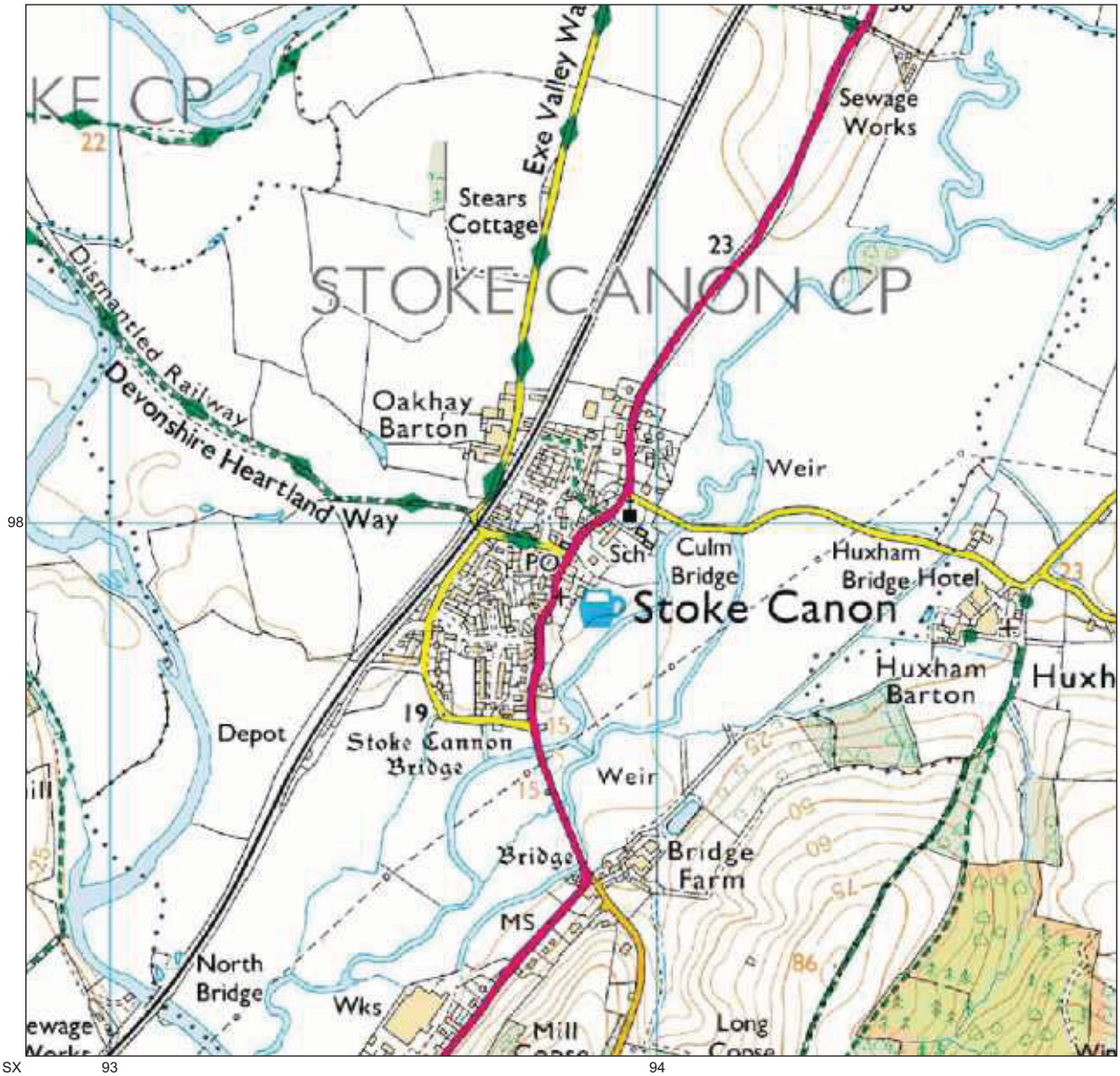
Passmore, A.J., 2012, *Stoke Canon Flood Defence Scheme, Devon, (NGR SX 93918 97905), Written Scheme of Investigation for archaeological monitoring and recording, East Devon District Council planning reference 11/2581/MFUL, Stoke Canon bridge (Scheduled Monument 1004581)*, AC archaeology document no. **ACD470/1/0**.

Reed, S., 2012, *Brief for Archaeological Monitoring and recording: Land surrounding Stoke Canon* (DCHES reference ARCH/DM/ED/18593.



0 500m

PROJECT

Stoke Canon Flood Defence Scheme, East Devon

TITLE

Fig.1: Location of site

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EXE FLOOD PLAIN
CULM FLOOD PLAIN
STOKE CANON
EXETER TO TAUNTON MAINLINE RAILWAY
RIVER CULM
CULM BRIDGE
STOKE CANON BRIDGE
A396 TO EXETER
MAIN COMPOUND
Grass / arable field
SATELLITE COMPOUND
FILL STORAGE
Arable field
Pastureland
F502
250m
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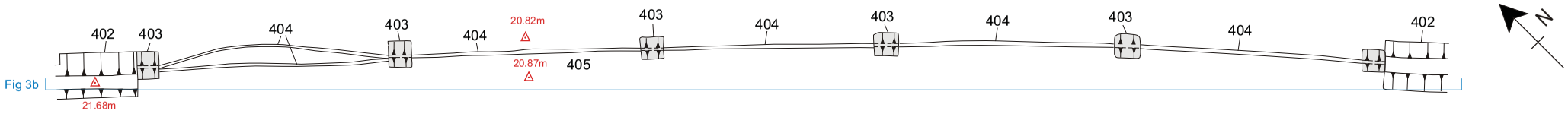
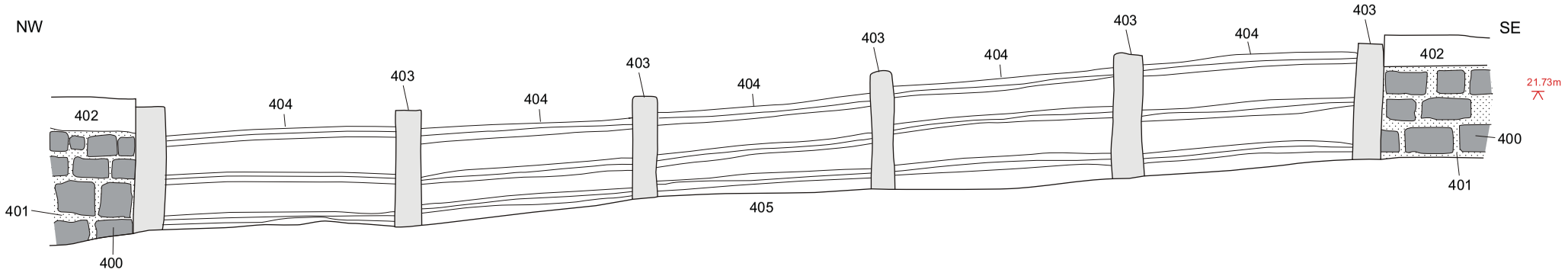
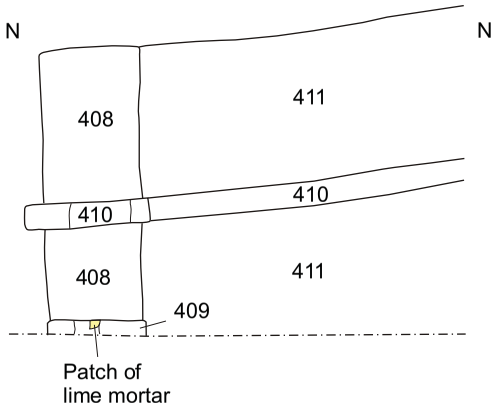
a) Plan of Stoke Canon bridge parapet



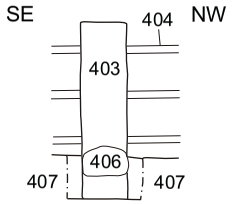
b) Elevation of Stoke Canon bridge parapet



c) Detailed elevation of west parapet



d) Detailed elevation of bridge post



Granite posts

PROJECT

Stoke Canon Flood Defence Scheme

TITLE

Fig. 3: Stoke Canon Bridge,
Plan and elevations

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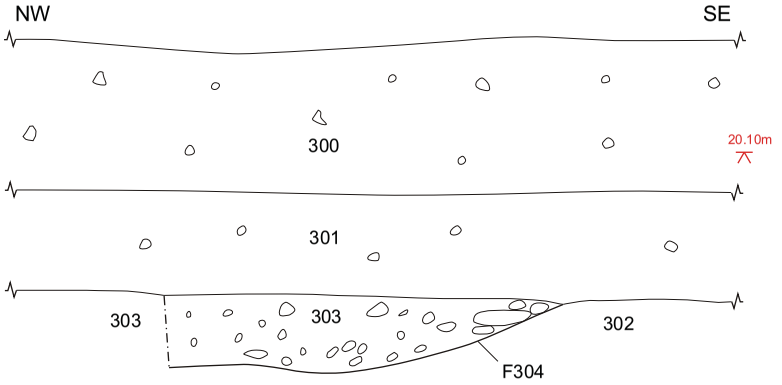
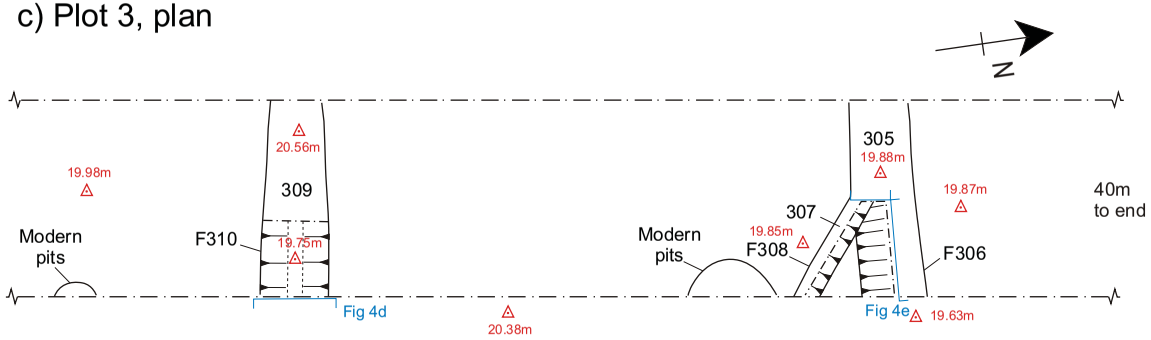
a) Plot 3, plan, northwest end

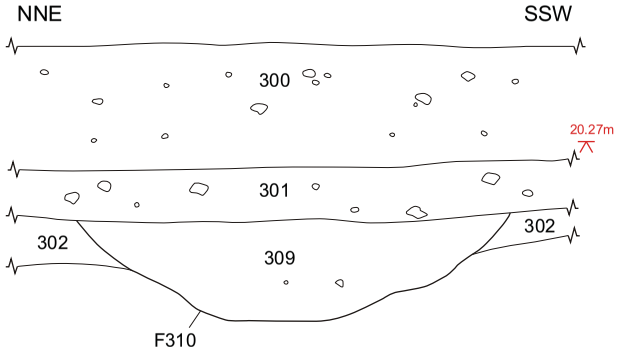
b) Section of F304



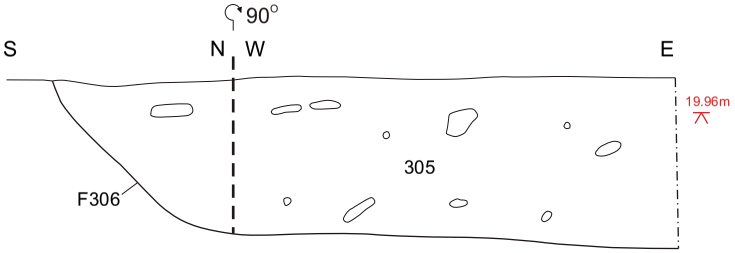
c) Plot 3, plan

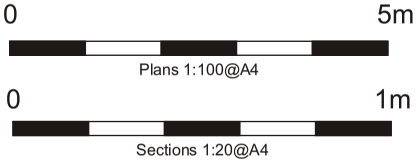


d) Section of F310



e) Section of F306





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Stoke Canon Flood Defence Scheme

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Fig. 4: Plot 3, plans, and sections

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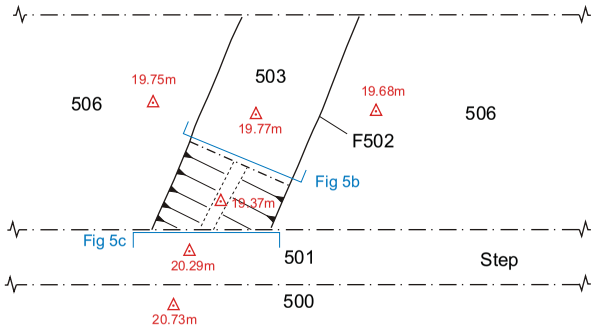
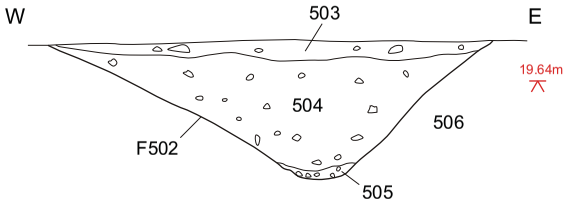
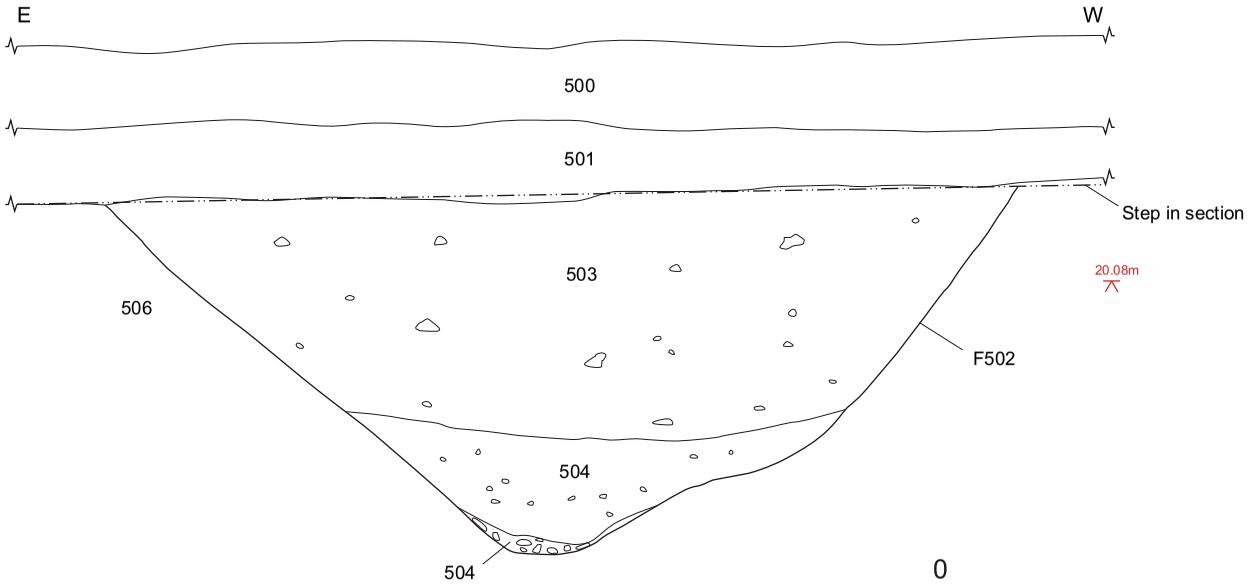
a) Plot 5, plan



b) Section of F502



c) Section of F502



PROJECT

Stoke Canon Flood Defence Scheme

TITLE

Fig. 5: Plot 5, plan, and sections

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Plate 1: Stoke Canon Bridge, west parapet prior to removal of posts, viewed from the northeast

Plate 2: Stoke Canon Bridge, west parapet posts following removal. 1m scale

Plate 3: Stoke Canon Bridge, east parapet and end pier, viewed from the northwest. 1m scale

Plate 4: Plot 3, ditch F304, viewed from the northwest. 1m scale

Plate 5: Plot 3, ditches F306 and F308, viewed from the southwest. 1m scale

Plate 6: Plot 3, ditch F310, viewed from the southwest. 1m scale

Plate 7: Plot 5, ditch F502, viewed from the northeast. 1m scale

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