CFA ARCHAEOLOGY
Professional cultural heritage consultants - branches nationwide
enquiries@cfa-archaeology.co.uk

Kendoon to Tongland 132kV Reinforcement Project
A713 Old Polharrow Bridge, Dumfries & Galloway

Photographic Survey and Watching Brief
Report No. 3892

Author(s):
Graeme Carruthers MA MCIfA

CFA ARCHAEOLOGY LTD

Old Engine House
Eskmills Park
Musselburgh
East Lothian
EH21 7PQ

Tel: 0131 273 4380
Fax: 0131 273 4381
email: Edinburgh@cfa-archaeology.co.uk
web: www.cfa-archaeology.co.uk

Author	Graeme Carruthers MA MCIfA
Illustrator	Shelly Werner BA MPhil PhD MCIfA
Approver	Melanie Johnson MA PhD FSA Scot MCIfA
Commissioned by	Land Use Consultants
Date issued	August 2019
Version	1
OASIS No.	Cfaarcha1-365380
Planning Application No.	-
Grid Ref	NX 6032 8435

This document has been prepared in accordance with CFA Archaeology Ltd standard operating procedures.

Kendoon to Tongland 132kV Reinforcement Project, A713 Old Polharrow Bridge, Dumfries and Galloway

Photographic Survey and Watching Brief

Data Structure Report No. 3892

CONTENTS

Appendices

Illustrations (bound at rear)

1. INTRODUCTION

1.1 General

This report presents the results of an archaeological photographic survey and watching brief carried out by CFA Archaeology Ltd (CFA) in July 2019 at the A713 Old Polharrow Bridge, north of St John's Town of Dalry, Dumfries and Galloway (NGR: NX 6032 8435, Fig 1).

A Written Scheme of Investigation (WSI) was prepared for Land Use Consultants (LUC) by CFA and was designed to meet the requirements for archaeological mitigation works as specified by the Dumfries and Galloway Council Archaeology Service (DGCAS).

1.2 Background

The bridge is B-Listed (LB No. 9750) and consists of a stone, two-arch (plus subsidiary flood arch) bridge spanning the Polharrow Burn. It was built in the early 18th century. It was previously the only bridge spanning the burn but has since been bypassed by the modern bridge on the A713 to its immediate east. The bridge is currently disused and closed to vehicles.

As part of the works relating to the development of the Kendoon to Tongland 132kV Reinforcement Project, it has been proposed that the A713 Old Polharrow Bridge could be used as an access route for construction traffic. To determine the load carrying capacity of the bridge, and hence its suitability as a route for construction traffic, an assessment of the structure was required. The site works involved a visual inspection and topographical survey of the structure along with trial pitting, in order to gather information for the structural assessment.

1.2 Objectives

The objectives were:

- To carry out a photographic survey of the bridge prior to any intrusive works being undertaken.
- To undertake a watching brief during excavation of test pits along the bridge's carriageway.
- To provide a report on the works.

2. WORKING METHODS

2.1 General

All work was complied with the requirements of DGCAS. CFA followed the Chartered Institute for Archaeologists' Code of Conduct, Standards and Guidelines as appropriate. Recording of all elements was done following established methods.

2.2 Photographic Survey

The bridge was photographed from suitable vantage points. CFA used a Nikon D300 with 70-200mm Nikkor lens to take high resolution photographs of architectural features. Detailed and general photos were taken, including photos to place the structure in its topographical setting.

Detailed written records were compiled on CFA pro forma building record forms. These recorded architectural details; construction structural fabric details and measurements.

2.3 Watching Brief

The trial pitting involved the excavation of 6 trial pits, measuring 500mm x 500mm, in the carriageway of the bridge to determine the depth of the surfacing and the level and nature of the fill and backing to the arches. The trial pits were located as follows: 1no. over each abutment; 1no. over the south arch crown; 1no. over the middle arch crown; and 1no. over each pier

All ground-breaking works were carried out under constant archaeological supervision.

All excavation and on-site recording was carried out according to standard CFA procedures and by completing standard CFA record forms.

3. ARCHAEOLOGICAL RESULTS

3.1 Building Recording

The HES Statutory List holds the following record:

> The bridge is a category B-Listed (LB No. 9750). Stone built bridge spanning Polharrow burn, built early 18th century by donation of Quentin Maclurg. 2 depressed arches with subsidiary flood arch to N over land; total span 50 ft approximately. Roughly squared voussoirs and springers small V-cutwater buttresses between main spans. Spandrels, soffit, abutments and parapets all of rubble. Parapet with granite coping; slightly splayed embrasures.

The results of the survey of the bridge are now described.

The A713 Old Polharrow Bridge was a three-span random masonry arched structure with dressed masonry voussoirs consisting of both sandstone and basalt (whinstone) supported on squared stone masonry abutments and piers (Fig 2). The wingwalls and headwalls were constructed from randomly coursed masonry and the parapets comprised of snecked masonry which ran the full length of the structure on both sides. The V cutwater buttress between the main arches was about 2m high rising to just above the springer level of the arches (Fig 3). The spandrels comprised a combination of snecked and coursed whinstone (Fig 4). The deck had been surfaced with tarmac and loose chippings.

The deck measured 37m long and 6.8m wide at its centre. The parapet walls stood to a height of 0.85m and were topped with rough-dressed granite copings with ribbon jointing.

From north to south the clear span length of the masonry arches were as follows:
Span 1, 4.90m (flood relief arch)
Span 2, 7.08m (main arch
Span 3, 7.10m. (main arch)

The span width of each arch is 6.20m. The minimum width between parapet faces was approximately 6.47m.

Below both arches there is a distinct vertical break delineated by a mortared band running round the vault. This parallel-widening connection-line marks the position between two distinct phases of construction (Fig 5 and Fig 6). The earliest is associated with a much narrower bridge (Phase 1) that was added to later (Phase 2) on its east or downstream side. The foundation stones for this narrower bridge were more randomly laid and built directly on to patches of exposed bedrock in contrast to the more coursed and dressed blocks used on the wider addition. The Phase 2 estrados were less carbonate encrusted than the earlier arch and contained more sandstone.

A stone inscribed *q-Mc Clirlk S A B M* (Fig 7) was found at the base of the inner parapet on the earlier western side and another was inscribed *Built by S Arnot AD 1841* (Fig 8) on the base of the inner parapet on the later eastern side.

There is a service cable of unknown designation attached to the downstream (east) elevation of the structure. In addition, there were two further service cables of unknown designation running across the structure at the base of the of the upstream (west) parapet wall at carriageway level.

3.3 Watching Brief

The excavation of 6 test pits was monitored. The results are summarised in Table 1 below.

The test pits were intended to record the depth of overlying surfacing deposits, the depth and nature of the fill, and to visually inspect the arch masonry material. The masonry located at the base of each trial pit was left in situ, and no intrusive works were undertaken on it.

The test pits were located as follows: 1 over each abutment (TP2, TP6); 1 over the south arch crown (TP5); 1 over the middle arch crown (TP1); and 1 over each pier (TP3, TP4).

Table 1. Summary of test pit results.

Test Pit No.	Size (m)	Depth of Pit (m)	Description
1 (Fig 9)	0.5 x 0.6	0.25	Located over arch 2. 0.1m of tarmac (001) over 0.1m of hardcore (002), over 0.05m of concrete (003), over stone blocks (004). Total depth of deposits over the top of the stone blocks is 0.25m.
2 (Fig 10)	0.75 x 0.6	0.55	Located over abutment. 0.15m of tarmac (001), over 0.1m of hardcore (002), over 0.1m of tarmac (005), over 0.2m of hardcore (006), over boulders with voids (007). Total depth of deposits over the top of the stone is 0.55m.
3 (Fig 11)	0.7 x 0.5	0.4	Located over pier. 0.17m of tarmac (001) over 0.23m of hardcore (002), over boulders with voids (008). Total depth of deposits over the top of the stone is 0.4m.
4 (Fig 12)	0.55 x 0.5	0.6	Located over pier. 0.1m of tarmac (001) over 0.2m of hardcore (002), over 0.3m of coarse sand and stones (009), over boulders (010). Total depth of deposits over the top of the stone is 0.6m.
5 (Fig 13)	0.65 x 0.6	0.4	Located over arch 1. 0.15m of tarmac (001) over 0.15m of hardcore (002), over 0.1m of concrete (011).
6 (Fig 14)	0.6 x 0.55	0.6	Located over abutment. 0.15m of tarmac (001) over 0.15m of hardcore (002), over 0.3m of coarse sand and stones (012), over boulders (013). Total depth of deposits over the top of the stone is 0.6m.

4. CONCLUSION

The survey results confirm that the Phase 1 Bridge was of 18th century date and it was enlarged in the early 19th century. The character and fabric of the bridge has also been recorded. The two phases of construction evident below the vaulted arches appears to have been overlooked and is not mentioned within the statutory designation description.

The watching brief recorded the material used to create the bridge deck and this comprised of rubble overlain by hardcore material which was in turn covered with tarmac.

The survey and watching brief have recorded the architectural character of the bridge and no further recording work is required, although it is recognised the decision for any further work rests with Dumfries and Galloway Council.

A summary statement of the results of the survey, to be submitted for publication in *Discovery and Excavation in Scotland* and OASIS, will be sufficient to disseminate the results of the survey and watching brief. Copies of this report will be lodged with the Dumfries and Galloway Sites and Monuments Record and the National Record of the Historic Environment.

APPENDIX 1: Photographic Register

Shot No.	Summary description of subject	Facing
1	Approach to bridge from the S	N
2	Approach to bridge from the S	N
3	Overgrown N end of bridge (no access)	N
4	Overgrown N end of bridge (no access)	N
5	General view of east facing elevation from modern bridge	W
6	General view of east facing elevation from modern bridge	SW
7	General view of east facing elevation from modern bridge	SW
8	General view of east facing elevation from river	W
9	General view of east facing elevation from modern bridge	W
10	General view of east facing elevation from modern bridge	W
11	Buttress on east elevation	NW
12	Buttress on east elevation	NW
13	Southern arch, east elevation, general	W
14	Southern arch, east elevation, general	W
15	Southern arch, east elevation, barrel	NW
16	Southern arch, east elevation, barrel	NW
17	Southern arch, east elevation, barrel	NW
18	Southern arch, south face of band showing join of bridges	S
19	Southern arch, south face of band showing join of bridges	S
20	Southern arch, south face of band showing join of bridges	S
21	Southern arch, south face of band showing join of bridges	S
22	General view of west elevation, southern arch	NE
23	General view of west elevation, southern arch	NE
24	General view of west elevation, southern arch	NE
25	General view of west elevation, northern arch	SE
26	General view of west elevation, northern arch	SE
27	General view of overflow arch, west elevation (no access)	NE
28	General view of overflow arch, west elevation (no access)	NE
29	Southern arch barrel, general view showing join	S
30	Southern arch barrel, general view showing join	S
31	Southern arch barrel, general view showing join	S
32	Southern arch barrel, general view showing join	SW
33	Southern arch barrel, general view showing join	SW
34	Southern arch barrel, general view showing join	SW
35	Southern arch barrel, general view showing join	SW
36	Southern arch, general view of barrel showing join	N
37	Southern arch, general view of barrel showing join	N
38	Southern arch, general view of barrel showing join	N
39	Southern arch, general view of barrel, detail of joint	N
40	Southern arch, general view of barrel, detail of joint	N
41	Northern arch, general view of barrel showing join	NW
42	South-eastern end of parapet	E
43	South-eastern end of parapet showing curve	N
44	Modern stone bollard	N
45	Modern stone bollard	N
46	South-western end of parapet showing no curve	N
47	South-western end of parapet showing no curve	N
48	General view of parapet and capstones in middle of bridge	E
49	General view of parapet and capstones in middle of bridge	E
50	General view of tarmac roadway	S
51	General view of tarmac roadway	S
52	General view of roadway looking south	S
53	General view of roadway looking south	S

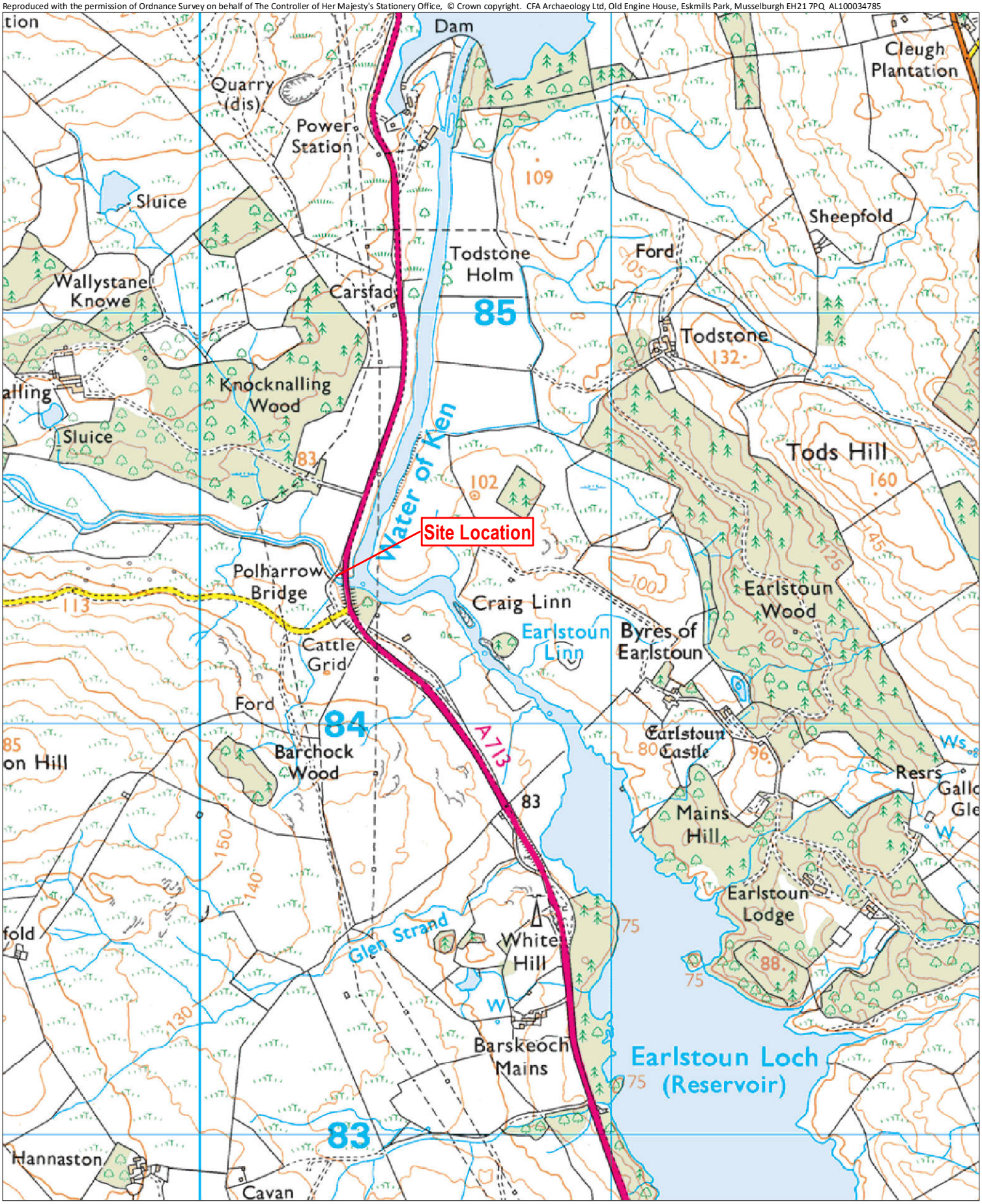
Shot No.	Summary description of subject	Facing
54	TP1 Pre excavation	S
55	TP1 Post excavation	S
56	TP1 Post excavation	S
57	TP2 Pre excavation (moss+ leaf litter removed)	N
58	TP2 Post excavation with lower tarmac layer surface	N
59	TP2 Post excavation showing 2 tarmac layers in section	W
60	TP2 Post excavation showing 2 tarmac layers in section	W
61	TP2 Post excavation showing lower tarmac surface	E
62	TP3 Post excavation	S
63	TP3 Post excavation	S
64	TP3 Post excavation	E
65	TP3 Post excavation	E
66	TP4 Pre excavation	W
67	TP5 Pre excavation	W
68	TP4 Post excavation	S
69	TP4 Post excavation	S
70	TP4 Post excavation showing roots in section	N
71	TP5 Post excavation showing concrete	N
72	TP5 Post excavation	N
73	TP6 Pre excavation	S
74	TP6 Post excavation	S
75	TP6 Post excavation	S
76	Tr6 Post excavation	E
77	Carved stone on W-side of bridge inner face	W
78	Date stone ‘1841' on E side of inner face	E

APPENDIX 2: Context Register

Context no.	Fill of	Type	Description
001			Tarmac road surface
002			Hardcore under 001
003			Concrete
004			Stone blocks (top side visible)
005			Buried tarmac layer
006			Hardcore under buried
007			Boulders
008			Boulders
009			Coarse sand with stones
010			Boulders (top of)
011			Concrete (top of)
012			Coarse sand with stones
013			Boulders (top of)

APPENDIX 3: Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	Dumfries and Galloway
PROJECT TITLE/SITE NAME:	Kendoon to Tongland 132kV Reinforcement Project: A713 Old Polharrow Bridge
PROJECT CODE:	KENT
PARISH:	Kells
NAME OF CONTRIBUTOR:	Mike Cressey
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Photographic Survey and archaeological watching brief
NMRS NO(S):	NX68SW 33
SITE/MONUMENT TYPE(S):	Bridge
SIGNIFICANT FINDS:	None
NGR (2 letters, 10 figures)	NX 6032 8435
START DATE (this season)	July2019
END DATE (this season)	July 2019
PREVIOUS WORK (incl. *DES* ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	The Polharrow Bridge was a tripple arch bridge with two main arches and a smaller flood relief arch on its north end. The bridge was constructed of basalt and sandstone rubble with dressed stone parapets topped with granite copings. The estrados and the main arches have a distinct butting joint running the full length of both barrel vaults. A carved stone commemorates the funding of the first bridge by a Quintin Maclurg, tailor. Its successor is also evidenced by a date stone of 1841 that was funded by S Arnot that year.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Land Use Consultants
ADDRESS OF MAIN CONTRIBUTOR:	CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ.
EMAIL ADDRESS:	cfa@cfa-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Historic Environment Scotland



Title:	Client:
Location plan	LUC

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Project: A713 Old Polharrow Bridge

Scale at A4:	Drawn by:	Checked:	Date:	Report No:	Fig. No:
1:12,000	SW	MC	07/08/2019	3892	1

Fig. 2: The bridge in its topographical setting, east-facing elevation

Fig. 3: Buttress detail between the two main arches on the east-facing elevation

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19
Report No:		Fig. No:
3892		2 - 3

Fig. 4: South spandrel arch seen from the west

Fig. 5: Interior view of the arch showing two phases of construction

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19
Report No:		Fig. No:
3892		4 - 5

Fig. 6: Construction line running round the barrel vault marking the junction between the early and later construction

Fig. 7: 18th century commemorative stone inscribed *q-Mc Clirlk S A B M*

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19
Report No: 3892		Fig. No: 6 - 7

Fig. 8: Date stone inscribed *Built by S Arnot AD 1841*

Fig. 9: Trial Pit 1

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19
Report No:		Fig. No:
3892		8 - 9

Fig. 10: Trial Pit 2

Fig. 11: Trial Pit 3

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19

Report No:	Fig. No:
3892	10 - 11

Fig. 12: Trial Pit 4

Fig. 13: Trial Pit 5

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19

Report No:	Fig. No:
3892	12 - 13

Fig. 14: Trial Pit 6

Project:
A713 Old Polharrow Bridge

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Park
Musselburgh
East Lothian, EH21 7PQ
T: 0131 273 4380
F: 0131 273 4381
info@cfa-archaeology.co.uk
www.cfa-archaeology.co.uk

Client:
LUC

Drawn by:	Checked:	Date:
SW	MC	31/08/19

Report No:	Fig. No:
3892	14

CFA ARCHAEOLOGY
www.cfa-archaeology.co.uk

HEAD OFFICE - Musselburgh
Old Engine House
Eskmills Park, Musselburgh
East Lothian, EH21 7PQ

t: +44 (0) 131 273 4380
e: enquiries@cfa-archaeology.co.uk

Carlisle
Warwick Mill Business Village
Warwick Bridge, Carlisle
Cumbria, CA4 8RR

t: +44 (0) 1228 564 531
e: cumbria@cfa-archaeology.co.uk

Leeds
Clayton Works Business Centre
Midland Road
Leeds, LS10 2RJ

t: +44 (0) 113 271 6060
e: yorkshire@cfa-archaeology.co.uk

Sheffield
Office 5, Ecclesfield Business Centre
46 Stocks Hill, Ecclesfield
Sheffield, S35 9YT

t: +44 (0) 114 327 1108
e: sheffield@cfa-archaeology.co.uk

Manchester
44G9, Europa Business Park
Bird Hall Lane, Cheadle Heath
Manchester, SK3 0XA

t: +44 (0) 161 428 8224
e: manchester@cfa-archaeology.co.uk

Leicester
Business Box
3 Oswin Road, Brailsford Industrial Estate
Leicester, LE3 1HR

t: +44 (0) 116 279 5156
e: leicestershire@cfa-archaeology.co.uk

Milton Keynes
Suite 11, Letchworth House
Chesney Wold, Bleak Hall
Milton Keynes, MK6 1NE

t: +44 (0) 1908 226 124
e: miltonkeynes@cfa-archaeology.co.uk

Hertfordshire
Amwell House
9 Amwell Street, Hoddesdon
Hertfordshire, EN11 8TS

t: +44 (0) 845 017 9847
e: herts@cfa-archaeology.co.uk