BUILT HERITAGE RECORDING OF A PANEL OF THE PARAPET OF CHISWICK BRIDGE, GREAT CHERTSEY ROAD, LONDON BOROUGH OF HOUNSLOW

PCA

PCA REPORT NO. R11474

JULY 2013

PRE-CONSTRUCT ARCHAEOLOGY

Built Heritage Recording of a panel of the parapet of Chiswick Bridge, Great Chertsey Road, London Borough of Hounslow

Written by Paul McGarrity

Site Code: CIS13

Project Manager: Charlotte Matthews

Commissioning Client: Ramboll UK Limited on behalf of TfL

Central National Grid Reference: TQ 20297 76389

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July 2013

PCA Report Number: R11474

DOCUMENT VERIFICATION

PANEL OF THE PARAPET OF CHISWICK BRIDGE, GREAT CHERTSEY ROAD, LONDON BOROUGH OF HOUNSLOW

BUILT HERITAGE RECORDING

Quality Control

Pre-Construct Archaeology Limited	
Project Number	K3170
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1 NON-TECHNICAL SUMMARY

1.1 Pre-Construct Archaeology Limited was commissioned by Ramboll UK Limited on behalf of TfL (Transport for London) to undertake built heritage recording of a panel of the parapet of Chiswick Bridge, Great Chertsey Road, London Borough of Hounslow. The bridge crosses the Thames between Chiswick on the north bank and Mortlake on the south bank. The recorded panel of the parapet is centred on Ordnance Survey National Grid Reference TQ 20297 76389.

1.2 The bridge and attached balustrades are a Grade II listed structure. In its listing citation it is described as 'Arched road bridge, 1930-33. Engineer Alfred Dryland with Herbert Baker as consulting architect, giving the bridge its distinctly Georgian character. Mass concrete footings and abutments; reinforced concrete arches of cellular construction; cladding of Portland stone....'.

1.3 Investigations are currently being undertaken in order to inform design and construction decisions in relation to the upgrading of the parapets of Chiswick Bridge. The bridge carries the A316, a dual carriageway, across the River Thames. The parapets to the bridge are original and comprise die stones with balusters between plinth stones and coping stones. All the parapet elements are Portland stone and previous inspections and studies have shown that they have insufficient capacity to provide full vehicle containment or to withstand pedestrian crowd loading. In addition, a significant number of the balusters have suffered severe weathering, causing pieces to fracture off and fall into the river, posing a risk to river users below and jeopardising the longevity of the parapet.

1.4 Upgrading the parapets to provide appropriate vehicle containment and to prevent further pieces of stone falling into the river is essential to ensure the long term safety of road and river users and to retain the architectural definition of the parapet. The recording of a panel of the parapet of Chiswick Bridge was undertaken in order to create a sample record of the original parapet before elements were replaced as part of the upgrading and to inform the design of the main phase of works.

1.5 The built heritage recording was carried out broadly in accordance with English Heritage Level 2 and a Brief (Ramboll/Parsons Brincherhoff 2013 Appendix 2). The recording was undertaken in July 2013 both before and during the dismantling of the panel of the parapet. It provided an insight into the process of construction of Chiswick Bridge. The Portland stone blocks were fixed to each other by means of carved joggles and dowels in a variety of materials. Numbers found on the coping stones suggest that these had been cut to fit at pre-specified locations within the parapet.

1.6 The current condition of the coping, plinth and cornice within the recorded parapet panel is reasonably good. Some minor damage caused by weathering and chipping was present, but on the whole only one stone (plinth stone 20) showed any evidence of major structural failures.

1.7 The balusters within the recorded parapet panel, on the other hand, show far more evidence of weathering, possibly caused by wind, road salts and stone variation and of cracking at the weakest and thinnest part (neck) of the balusters. Of the eleven balusters recorded, only three were recovered whole. Away from the recorded parapet panel, weathering was even more pronounced amongst balusters towards the centre of the bridge. These appear to have suffered from wind erosion as well as showing signs of failure at the neck.

1.8 The larger horizontal joints between the plinth stones and the cornice stones below appeared to be in good condition, to the point where often the joints were stronger than the stones above and below them. The vertical joints appear to have fared worse with some having separated, possibly due to movement and settling of the bridge over time.

2 INTRODUCTION

2.1 Background

2.1.1 Pre-Construct Archaeology Limited was commissioned by Ramboll UK on behalf of Transport for London (TfL) to undertake built heritage recording of a panel of the parapet of Chiswick Bridge, Great Chertsey Road, London Borough of Hounslow. The bridge crosses the Thames between Chiswick on the north bank in the London Borough of Hounslow and Mortlake on the south bank in the London Borough of Richmond on Thames (**Figures 1** and **2**). The recorded panel is centred on Ordnance Survey National Grid Reference TQ 20297 76389.

2.1.2 The bridge and attached balustrades are a Grade II listed structure. In its listing citation it is described as 'Arched road bridge, 1930-33. Engineer Alfred Dryland with Herbert Baker as consulting architect, giving the bridge its distinctly Georgian character. Mass concrete footings and abutments; reinforced concrete arches of cellular construction; cladding of Portland stone. Like Twickenham Bridge it is 70 ft wide between the parapets; three spans, the centre being 150 ft and the shore arches 125 ft; one *c.*60 ft roadway arch on each bank. Pedestrian access to broad pavement by handsome brick stairs; riverside walkway spanned by arches which on the Hounslow side provide storage for boat club. On line of piers a polygonal viewing platform has been provided to each side. The centre span is the longest concrete arch of any bridge spanning the Thames'.

2.1.3 Investigations are currently being undertaken in order to inform design and construction decisions in relation to the upgrading of the parapets of Chiswick Bridge. The bridge carries the A316, a 40mph speed limit dual carriageway, across the River Thames. The parapets to the bridge are original and comprise die stones typically spaced at 3.85m or 5.5m centres with balusters between plinth stones and coping stones. All the parapet elements are Portland stone and previous inspections and studies have shown that they have insufficient capacity to provide full vehicle containment or to withstand pedestrian crowd loading. In addition, a significant number of the balusters have suffered severe weathering, causing pieces to fracture off and fall into the river, posing a risk to river users below and jeopardising the longevity of the parapet. As an interim measure, steel mesh has been attached to the faces of the parapets to eliminate the risks from falling masonry.

2.1.4 Upgrading the parapets to provide appropriate vehicle containment and to prevent further pieces of stone falling into the river is essential to ensure the long term safety of road and river users and to retain the architectural definition of the parapet. The built heritage recording of a panel of the parapet of Chiswick Bridge was undertaken in order to create a sample record of the original parapet before elements are replaced as part of the upgrading and to inform the design of the main phase of works.

2.1.5 The built heritage recording was carried out broadly in accordance with a *Brief for the Archaeological Recording of the Test Panel* (Ramboll/Parsons/Brincherhoff 2013 Appendix 2). It was undertaken in accordance with that defined by Level 2 of English Heritage 2006 *Understanding Historic Buildings: A guide to good recording practice*. The recording was undertaken on 4th to 11th and 16th July 2013 both before and during the dismantling of the panel of the parapet.

2.2 Site Location

2.2.1 The recorded panel was a length of the west parapet on the north side of the bridge (**Figures 1** and **2**). It lay immediately to the south of the staircase which leads down to the river bank (**Figures 2** and **3**).

3 PLANNING BACKGROUND

3.1 Introduction

3.1.1 National legislation and guidance relating to the protection of historic buildings and structures within planning regulations are defined by the provisions of the *Town and Country Planning Act 1990*. In addition, local planning authorities are responsible for the protection of the historic environment within the planning system and policies for the historic environment are included in relevant regional and local plans.

3.2 Legislation and Planning Guidance

3.2.1 Statutory protection for historically important buildings and structures is derived from the *Planning (Listed and Conservation Areas) Act* 1990. Guidance on the approach of the planning authorities to development and historic buildings, conservation areas, historic parks and gardens and other elements of the historic environment is provided by the National Planning Policy Framework (NPPF), which was adopted on 27 March 2012 and which supersedes all previous Planning Policy Statements (PPSs). The conservation of heritage assets in a manner appropriate to their significance is one of the Core Principles underlying the NPPF.

3.2.2 Historic buildings are protected through the statutory systems for listing historic buildings and designating conservation areas. Listing is undertaken by the Secretary of State; designation of conservation areas is the responsibility of local planning authorities. The historic environment is protected through the development control system and, in the case of historic buildings and conservation areas, through the complementary systems of listed building and conservation area control.

4 METHODOLOGY

4.1 Aims and Objectives

4.1.1 The aim of the built heritage recording of this parapet panel, undertaken prior to and during its dismantling by the structural engineers and stone masons as part of their investigative works, was to provide a sample record of the parapet. The purpose of the project was to understand its current level of preservation, record evidence for construction techniques and to inform design of the main phase of works. This record was to be broadly in accordance with that defined by English Heritage's Level 2. The objectives were to: provide a better understanding of the parapet of Chiswick Bridge, compile a lasting record, analyse the results and disseminate the results.

4.2 Documentary Research

4.2.1 Limited historical background research was carried out online and at The National Archives (TNA) at Kew.

4.3 Drawn Record

3.1.1 The following plans, sections and elevations as listed in the Brief (Ramboll/ Parsons Brincherhoff 2013 Appendix 2) were drawn to scale of 1:10 on site on polyester based drawing film:

Exterior (west) elevation

Exterior (east) elevation

Plan of the parapet coping

Plan of the plinth

Section through a die stone

Section through a baluster

3.1.2 The drawings were made by hand with measurements using hand tapes and a Disto, an electronic distance measurer. A profile comb was used to construct the profile of one of the balusters and this profile was used as an outline for the rest.

3.1.3 Additional information, such as stone joint, cracks and defects, was added to these drawings. Scaffolding had been erected against the external (west) elevation. Each stone within the parapet panel was assigned a unique number.

3.1.4 For ease of description, site north instead of actual north-east has been used in this report.

4.4 Photographic Survey

4.4.1 A photographic survey of the parapet panel was carried out on 4th to 11th and 16th July 2013 before and during its dismantling. High quality digital images were taken of the external (west) and internal (east) sides of the parapet, details of the various stones and features (cracks and defects). A selection of photographs is included in this report (**Plates 3** to **28**).

4.5 Project Archive

4.5.1 The project archive is currently held at the offices of Pre-Construct Archaeology Limited in Brockley, London, under the site code CIS13. It is anticipated that the archive (copies of the report, drawings and photographs) will be lodged with the London Archaeological Archive and Research Centre (LAARC) in due course. Copies of the report will be sent to Ramboll UK Limited for onward distribution to the Client and others.

4.6 Guidance

4.6.1 All works were undertaken in accordance with standards set out in:

- Association of Local Government Archaeological Officers (1997) *Analysis and Recording for the Conservation and control of works to historic buildings*
- British Archaeologists and Developers Liaison Group (1986) *Code of Practice*
- British Standards Institution (1998) *Guide to the Principals of the Conservation of Historic Buildings (BS 7913)*
- English Heritage (Clark, K.) (2001) *Understanding historic buildings and their landscapes for conservation*,
- English Heritage Greater London Archaeological Advisory Service (2009) *Standards for Archaeological Work*. External Consultation Draft
- English Heritage (Clark K) (2001) *Informed Conservation*
- English Heritage (2000) *The presentation of historic building survey in CAD*
- IFA (1996, revised 2001 and 2008) *Standards and guidance for the archaeological investigation and recording of standing buildings or structures*
- English Heritage (2006) *Understanding Historic Buildings: A Guide to Good Recording Practice*

5 HISTORICAL BACKGROUND

5.1.1 Prior to the construction of Chiswick Bridge the site was the location of a ferry crossing which provided the only direct link between Mortlake and Chiswick. A ferry is known in this location since the 17th century. At that time both areas were sparsely populated.

5.1.2 During the 19th century the populations of Chiswick and Mortlake grew rapidly with the arrival of the railways and the London Underground. In 1909 the Great Chertsey Road was proposed to link Hammersmith, then on the outskirts of London, with Chertsey, bypassing the towns of Richmond and Kingston. The scheme was abandoned due to costs and arguments about the route it should take.

5.1.3 After the First World War the populations of the West London suburbs continued to grow. In 1925, the Ministry of Transport organised a conference with Surrey and Middlesex County Councils with the aim of resolving the congestion problem and the Great Chertsey Road scheme was revived. In 1927, the Royal Commission on Cross-River Traffic approved the scheme in order to relieve the severe congestion on the existing bridges at Richmond, Kew and Hammersmith. A new road (now the A316) was given Royal Assent on 3rd August 1928, and construction began in 1930. The construction of the road required another bridge to be built at Twickenham. Chiswick Bridge, Twickenham Bridge and the rebuilt Hampton Court Bridge were opened by Edward, Prince of Wales on the 3rd July 1933. A photograph taken of the west side of the bridge from the south bank shortly after its construction is shown in **Plate 1**.

5.1.4 Chiswick Bridge was designed in reinforced concrete by architect Sir Herbert Baker and engineer Alfred Dryland, with additional input from Considere Constructions, at the time Britain's leading specialist in reinforced concrete construction.

5.1.5 The bridge had concrete foundations supporting a five-arch cellular reinforced concrete superstructure. The deck is supported by a concealed lattice of columns and beams rising from the arched superstructure. The structure is faced with 3,400 tons of Portland stone, except for underneath the arches. The bridge is 606 feet (185m) long, and carries two 15-foot (4.6m) wide walkways, and a 40-foot (12m) wide road. At the time it was built, the 150-foot (46m) central span was the longest concrete span over the Thames. Only three of Chiswick Bridge's five spans cross the river; the shorter spans at each end of the bridge cross the former towpaths (**Plate 2**).

5.1.6 The bridge was built by the Cleveland Bridge & Engineering Company at a cost of £208,284. This company is a renowned bridge building and structural engineering company based in Darlington, County Durham.

5.1.7 Details of a conversation between the Royal Fine Art Commission and Sir Herbert Baker are held by The National Archives (TNA BP 2/21 1928-55). The conversation took place on 21st May 1928. The Commission raised concerns that the design of the new bridge appeared to have been 'somewhat hastily prepared, and that it could not reflect the mature opinions of so distinguished an architect as himself'. Sir Herbert responded by saying that he had in fact 'given much thought to the scheme' and that his main objective had 'been to produce something English in character - a bridge of extreme simplicity; and where embellishments are so few, he thinks it justifiable to face concrete with Portland stone'.

5.1.8 The conversation continued with a discussion of the design of the arches and staircases. It concluded with 'as regards the other details (balusters, lamps, the conjunctions of masonry, and so forth), these in his (Sir Herbert's) opinion will be rectified when the necessary details are being prepared'.

6 DESCRIPTION

6.1 Parapet panel before dismantling

6.1.1 The parapet panel that was recorded included eleven balusters (5 to 8, 11 to 13, 16 to 19 on **Figures 4** and **5**; **Plates 3** to **8**), four coping stones (4, 10, 15 and 21 on **Figures 4**, **5** and **7**), four plinth stones (9, 14, 20 and 25 on **Figures 4** to **6**), five cornice stones (27 to 31 on **Figures 4** and **6**) and two half balusters (22 and 26 on **Figures 4** and **5**).

6.1.2 All of the stones within the recorded parapet panel exhibited varying levels of weathering. This variety in degradation is due to the composition of the shale bed Portland stone. The large concentration of shell fragments within the stone creates natural weaknesses and voids that breakdown at different rates. An example of this weathering was visible towards the base of baluster 17 (**Figure 5**; **Plate 9**).

6.1.3 Many of the coping stones and balusters have received small chips from accidental impact damage (**Figures 4** and **5**). This type of damage was evident at the base of baluster 7 (**Plate 10**).

6.1.4 Most of the joints between the coping stones appeared to be in fairly good condition (**Plate 11**). Each joint had a diamond shaped pouring point which had been filled with cementitous mortar (**Figure 7**; **Plate 11**). The joint between coping stones 4 and 10 (**Plate 12**) had moved slightly due to local settling within the bridge structure. This movement was also possibly the cause of the cracking which was visible in most of the necks of the balusters and in plinth stone 20 (**Figures 4** and **5**; **Plate 9**).

6.1.5 Several of the balusters showed signs of repair (**Figures 4** and **5**; **Plate 13**). These repairs, using a yellowish grey sandy cementitious mortar, appeared to be little more than cosmetic with the mortar smeared around the crack. The extent of the damage to the balusters was most clearly demonstrated during the lifting of coping stone 4 (**Plate 14**). Of the 11 balusters recorded in the area of investigation only three (balusters 7, 13 and 19) were not cracked at the neck (**Figures 4** and **5**).

6.1.6 The cornice stones that were recorded as part of the external (west) elevation were generally in a good condition. There were considerably fewer chips, probably reflecting the fact that the stones were not directly exposed to use of the public right of way. Some areas were weathered (**Figure 4**; **Plate 15**), which is once again probably due to the inherent weaknesses in the material used.

6.2 Parapet panel during dismantling

6.2.1 Lifting of the coping stones showed that the joints between these stones consisted of a carved notch or joggle in the end of each stone into which a large cuboid slate dowel had been inserted (**Figures 8** and **10**; **Plates 16** and **17**). The joints were filled with bluish grey cementitious mortar, which had been poured in from the top.

6.2.2 The dowel between coping stones 10 and 15 had some string tied around it (Ben from Stonewest pers. comm.). This suggests that the dowels were set using a technique known as mousing. This is where an extra deep joggle is cut into one of the stones to be connected. The dowel is then set into this recess with a string tied in the middle. Finally the mortar is poured into the joint and the string is pulled gently up through the pouring hole, thus pulling the dowel into a central position.

6.2.3 The balusters were fixed between the coping stones and the plinth with a small single central slate dowel set into a shallow joggle at each end (**Figure 10**; **Plates 18** to **20**). The modest length of these dowels suggests that they were used as guiding stones rather than for structural purposes. During the process of dismantling it was noted that many of the dowels had failed or sheared, this is possibly due to movement within the structure of the bridge. Under half-baluster stone 22 a piece of slate was uncovered which appears to have been used as a levelling wedge (**Plate 21**).

6.2.4 Removal of plinth stone 9 showed that it was joined to the cornice stones below by two small slate dowels as well as being set on a base of poured grey cementitious mortar (**Plate 22**). The joint between the plinth stones is similar to those between the

coping stones, however instead of using a slate dowel to reinforce the joint, flint aggregate has been added to the mortar (**Figure 8**; **Plate 23**). When plinth stone 9 was lifted it was possible to see the rear (east side) of the upper surface of the cornice stone 30 and its abutting join with the concrete which forms the main part of the bridge structure (**Plate 22**)

6.2.5 The joint between half baluster 22 and die stones 23 and 24 (**Figure 10**; **Plate 24**) again uses a joggle with poured cementitious mortar which contains aggregate with the slight difference that half baluster 22 appears to have been set and rendered prior to the pouring of the aggregate filled cementitious mortar, presumably in order to create a suitable cavity. Although half balusters 22 and 26 each appear to comprise two stones (the half baluster and the stone behind), these two elements are one stone.

6.2.6 At least two of the coping stones have, what appear to be, unique numbers carved into their north ends (**Plates 25** and **26**). This is presumably related to the original construction of the bridge. As coping stones 10 and 21 were numbered 556 and 558 respectively, coping stones 4 and 15 were presumably 555 and 557 respectively. No numbers were observed on any of the balusters, which would seem to suggest that the balusters were fairly uniform and as such had no specific locations, whereas the coping stones had been cut to fit at pre-specified locations within the parapet.

6.3 Other observations away from the recorded parapet panel

6.3.1 Towards the centre of the bridge several coping stones had been altered to include a butterfly joint and a new dowel, which appears to be metal (**Plate 27**). These repairs may have been an attempt to reduce the amount of movement within the bridge structure or simply to reinforce the coping along the parapet.

6.3.2 Just below the recorded parapet panel, part of an ashlar block was removed from the external (west) elevation of the bridge by the stone masons at Stonewest (**Plate 28**). This exposed a fixing, possibly bronze, between it and the ashlar block above.

7 DISCUSSION AND CONCLUSIONS

7.1.1 The built heritage recording provided an insight into the process of construction of Chiswick Bridge. The Portland stone blocks were fixed to each other by means of carved joggles and dowels in a variety of materials. Numbers found on the coping stones suggest that these had been cut to fit at pre-specified locations within the parapet.

7.1.2 The current condition of the coping, plinth and cornice within the recorded parapet panel was reasonably good. Some minor damage caused by weathering and chipping was present, but on the whole only one stone (plinth stone 20) showed any evidence of significant damage.

7.1.3 The balusters within the recorded parapet panel on the other hand show far more evidence of weathering and cracking. Of the eleven balusters recorded, only three were recovered whole. Away from the recorded parapet panel, weathering was even more pronounced amongst balusters towards the centre of the bridge. These appear to have suffered from wind erosion as well as showing signs of failure at the neck.

7.1.4 The larger horizontal joints between the plinth stones and the cornice stones below appeared to be in good condition, to the point where often the joints appeared to be stronger than the stones above and below them. The vertical joints appear to have fared worse with some having separated, possibly due to movement and settling within the bridge.

8 ACKNOWLEDGEMENTS

8.1 Pre-Construct Archaeology Limited would like to thank Ramboll UK Limited for commissioning the project on behalf of TfL. Phil Emery and Andy Shelley of Ramboll UK Limited are thanked for their assistance. Ben and Phil of Stonewest and the staff of BAM Nuttall are also thanked for their help on site.

8.2 The project was managed for Pre-Construct Archaeology Limited by Charlotte Matthews. Paul McGarrity, assisted by Clare Jackson, carried out the hand drawn and photographic survey. Limited documentary research was undertaken by Guy Thompson. This report was written by Paul McGarrity. Hayley Baxter and Paul McGarrity prepared the illustrations.

9 BIBLIOGRAPHY

The National Archives (TNA)

TNA BP 2/21 Royal Fine Art Commission New Chiswick Bridge, 1928-1955

Secondary Sources

Ramboll/Parsons Brincherhoff 2013 'Specification for parapet stone investigation' (0069-CHB-0000-RPB-CC-MIS), July 2013

APPENDIX 1: OASIS FORM

OASIS ID: preconst1-155288

Project details

Project name	Recording of a panel of the parapet of Chiswick Bridge
Short description of the project	Pre-Construct Archaeology Limited was commissioned by Ramboll UK Limited on behalf of TfL (Transport for London) to undertake built heritage recording of a panel of the parapet of Chiswick Bridge, London Borough of Hounslow, centred on OS NGR TQ 20297 76389. The bridge crosses the Thames between Chiswick and Mortlake. The bridge is a Grade II listed structure and is described as 'Arched road bridge, 1930-33. Engineer Alfred Dryland with Herbert Baker... Mass concrete footings and abutments; reinforced concrete arches ...; cladding of Portland stone....'. Upgrading is proposed because the original Portland stone parapets have insufficient capacity to provide full vehicle containment or to withstand pedestrian crowd loading. In addition, many of the balusters have suffered severe weathering, causing pieces to fall off. The recording of the panel was undertaken in order to create a record before elements were replaced as part of the upgrading. It was carried out in July 2013 in accordance with English Heritage Level 2 both before and during the dismantling of the panel as part of investigations to inform the upgrade design. The recording showed that the Portland stone blocks were fixed to each other by means of carved joggles and dowels. Numbers found on the coping stones suggest that these had been cut to fit pre-designated areas of the bridge. The balusters showed considerable evidence of weathering and cracking. Of the eleven balusters recorded, only three were recovered whole.
Project dates	Start: 05-07-2013 End: 16-07-2013
Previous/future work	No / No
Any associated project reference codes	CIS13 - Sitecode
Type of project	Building Recording
Site status	Listed Building
Current Land use	Other 11 - Thoroughfare
Monument type	BRIDGE Modern
Significant Finds	NONE None

Project location

Country	England
Site location	GREATER LONDON HOUNSLOW CHISWICK Chiswick Bridge
Postcode	W4 3UJ
Study area	0 Square metres
Site coordinates	TQ 20297 76389 51 0 51 28 23 N 000 16 03 W Point

Height OD / Depth	Min: 11.00m Max: 12.00m

Project creators

Name of Organisation	Pre-Construct Archaeology Ltd.
Project brief originator	Ramboll UK
Project design originator	Charlotte Matthews
Project director/manager	Charlotte Matthews
Project supervisor	Paul McGarrity
Type of sponsor/funding body	Transport Company
Name of sponsor/funding body	TfL

Project archives

Physical Archive recipient	LAARC
Physical Archive ID	CIS13
Digital Archive recipient	LAARC
Digital Archive ID	CIS13
Digital Contents	"none"
Digital Media available	"Spreadsheets", "Survey", "Text", "Images raster / digital photography"
Paper Archive recipient	LAARC
Paper Archive ID	CIS13
Paper Contents	"none"
Paper Media available	"Photograph", "Plan", "Report"," 'Section"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Built Heritage Recording of a panel of the parapet of Chiswick Bridge, Great Chertsey Road, London Borough of Hounslow

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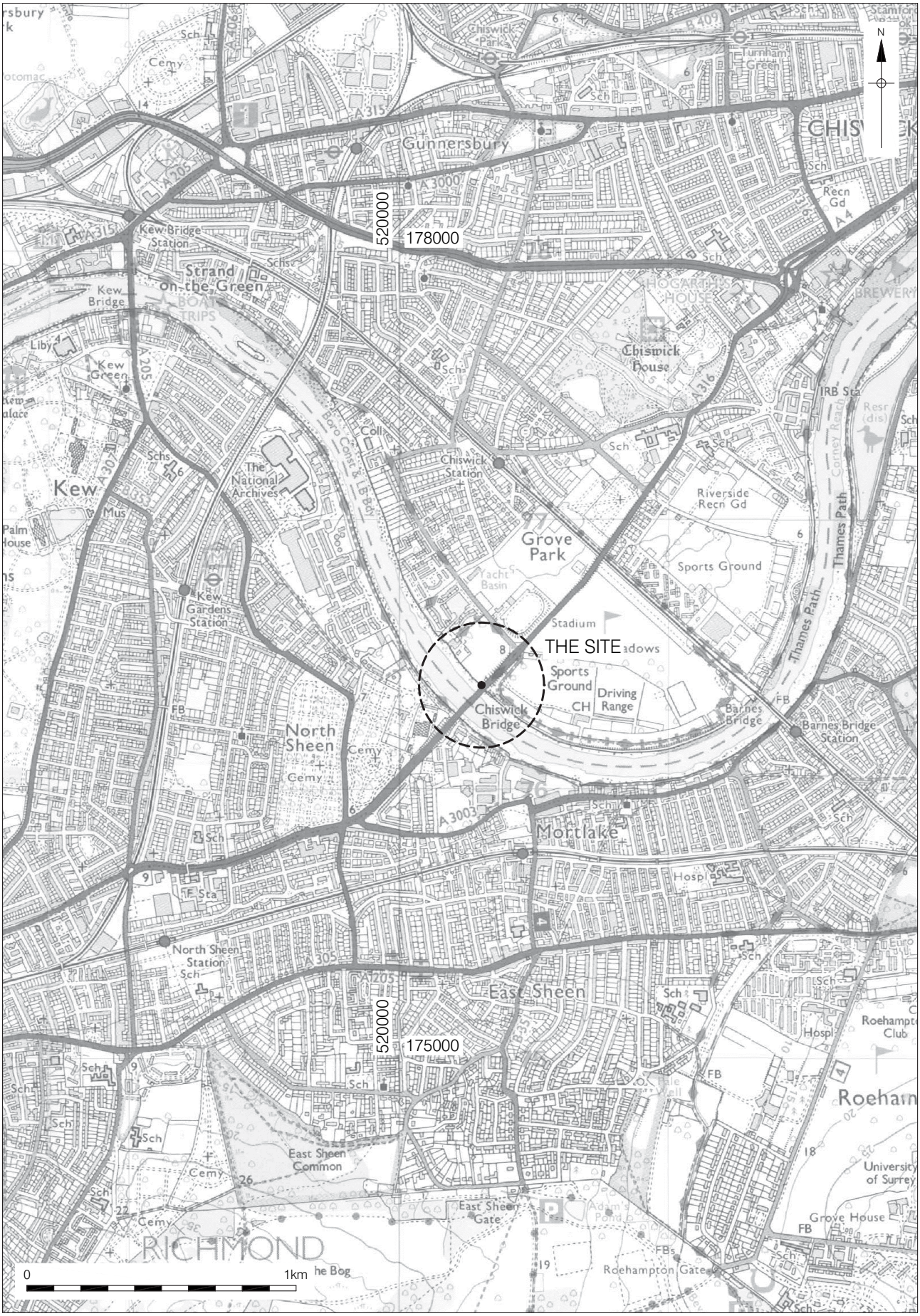

18/07/13 HB

Figure 1
Site Location
1:20,000 at A4

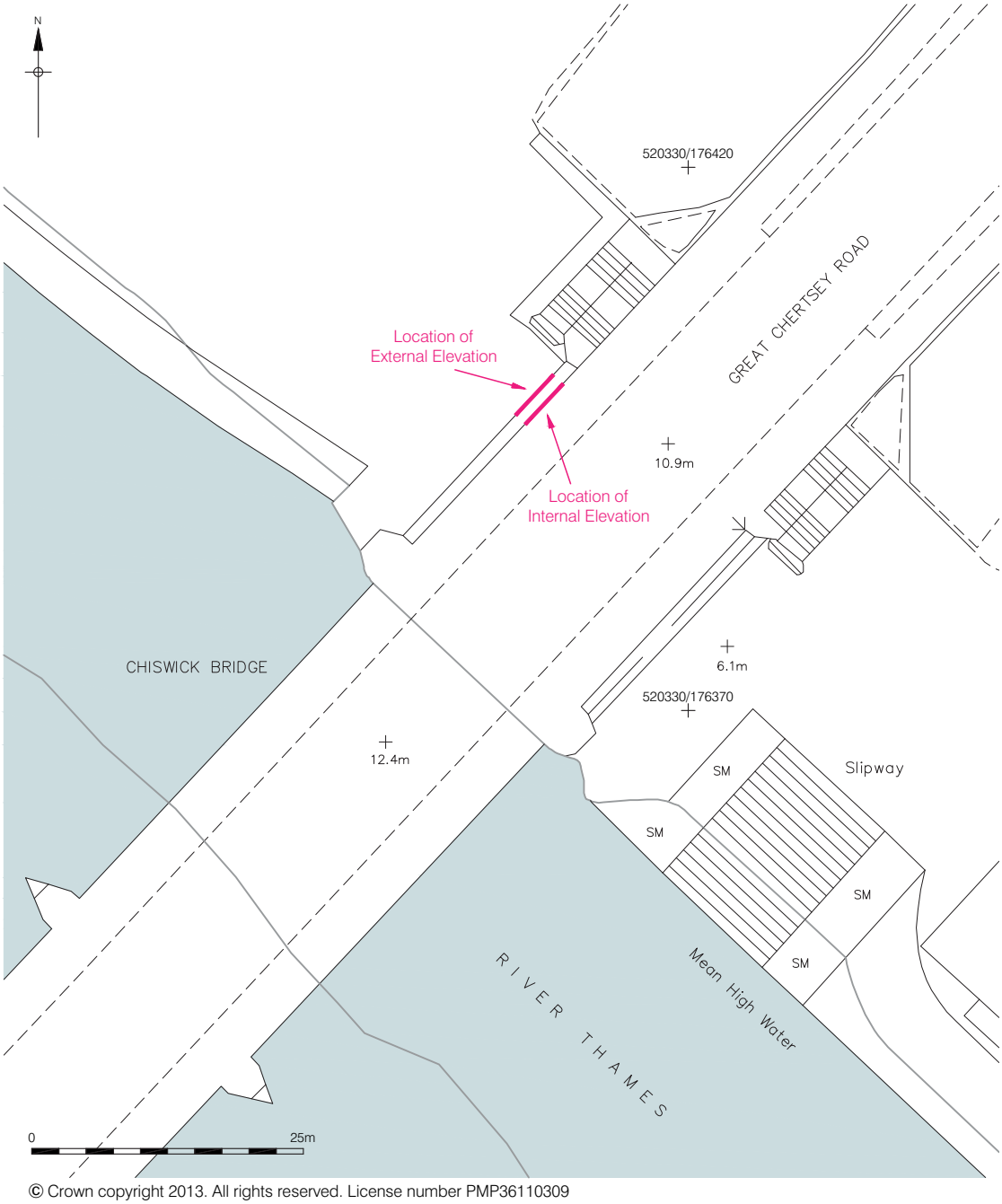

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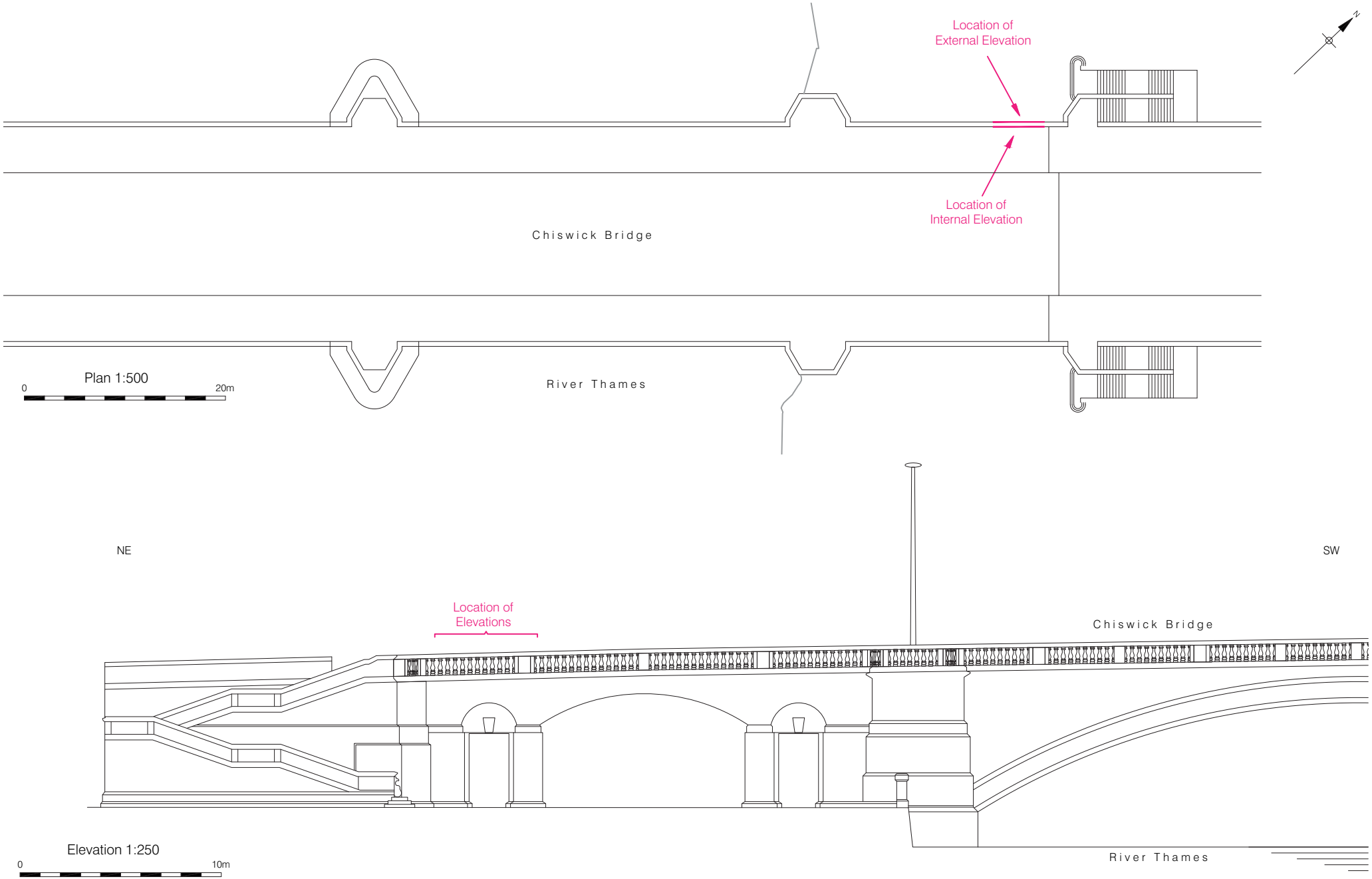
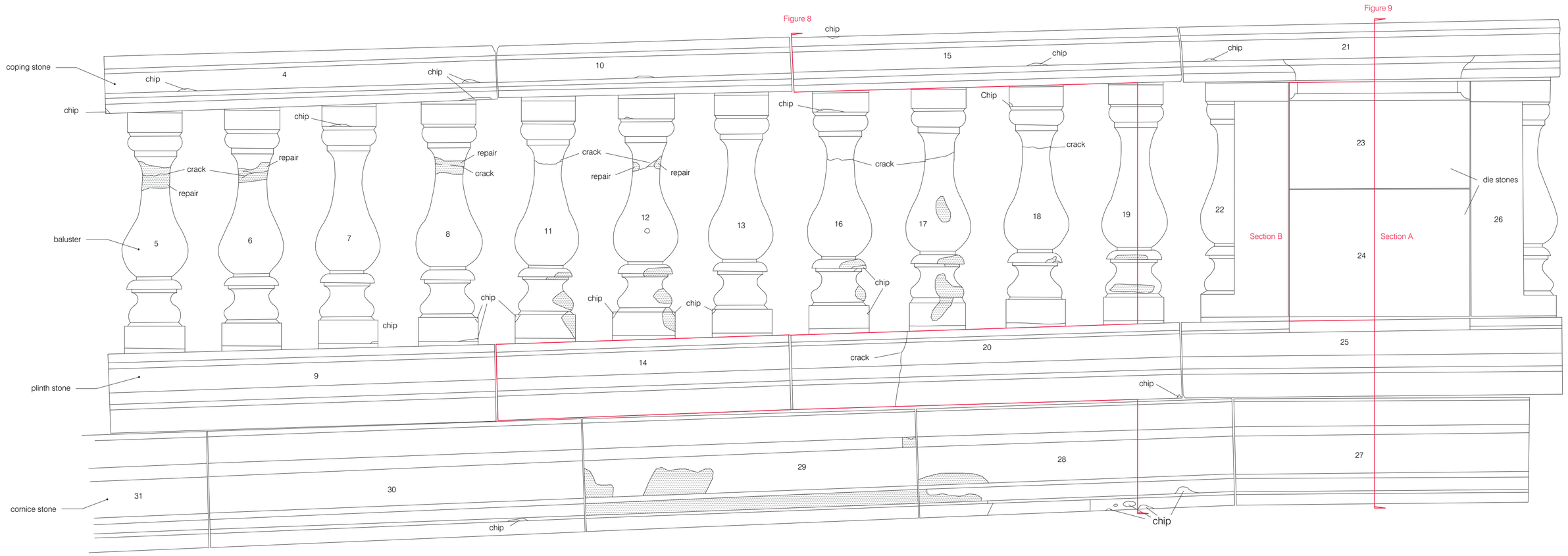
Figure 2
Detailed Site Location
1:625 at A4



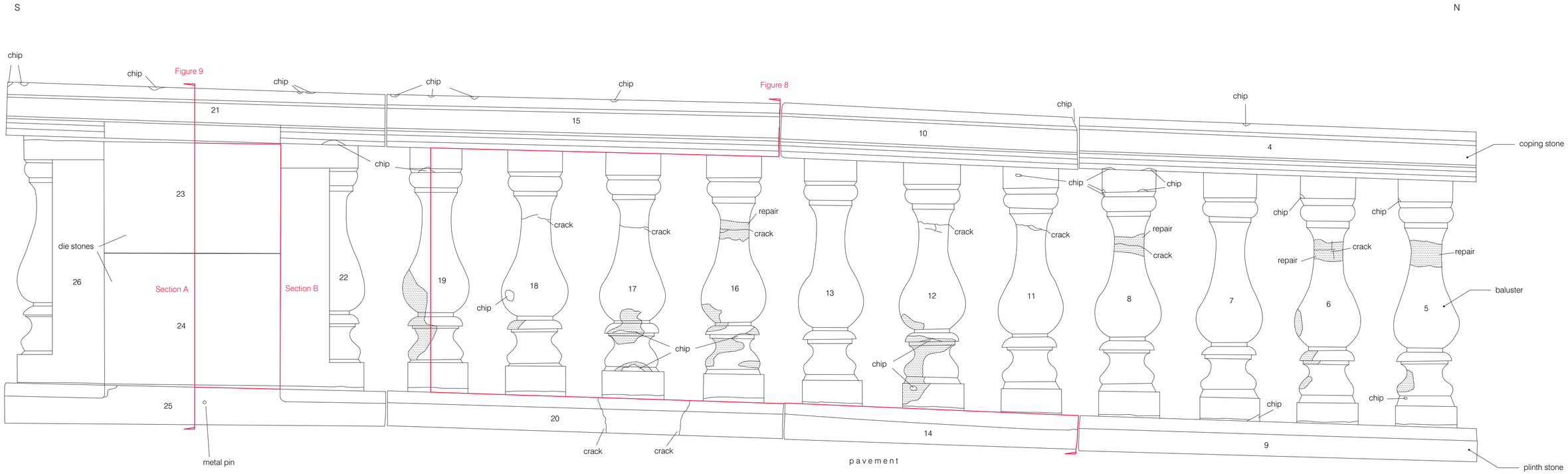
19/07/13 HB

Figure 3
Elevation Locations
Plan 1:500 & Elevation 1:250 at A4



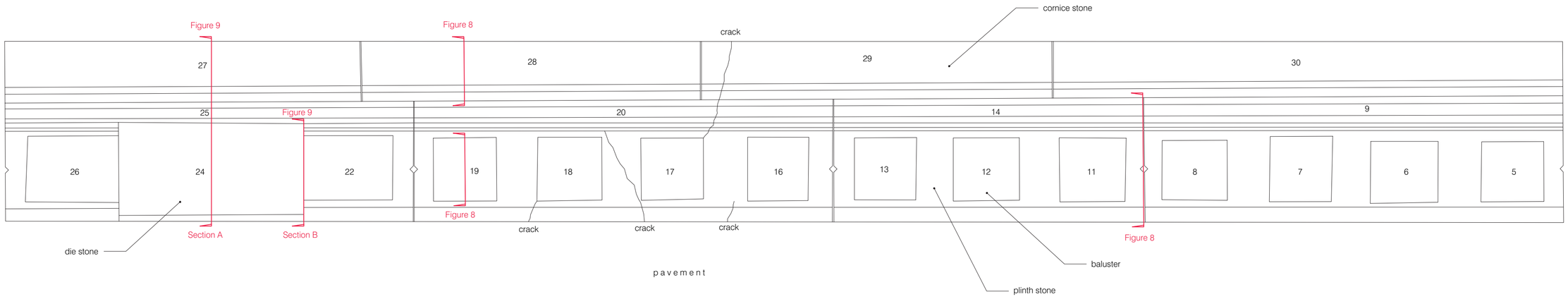
16/07/13 PDM: updated 05/09/13 MR

Figure 4
External elevation, looking East
CIS13 Chiswick Bridge
1:10 at A2



16/07/13 PDM: updated 05/09/13 MR

Figure 5
Internal elevation, looking West
CIS13 Chiswick Bridge
1:10 at A2



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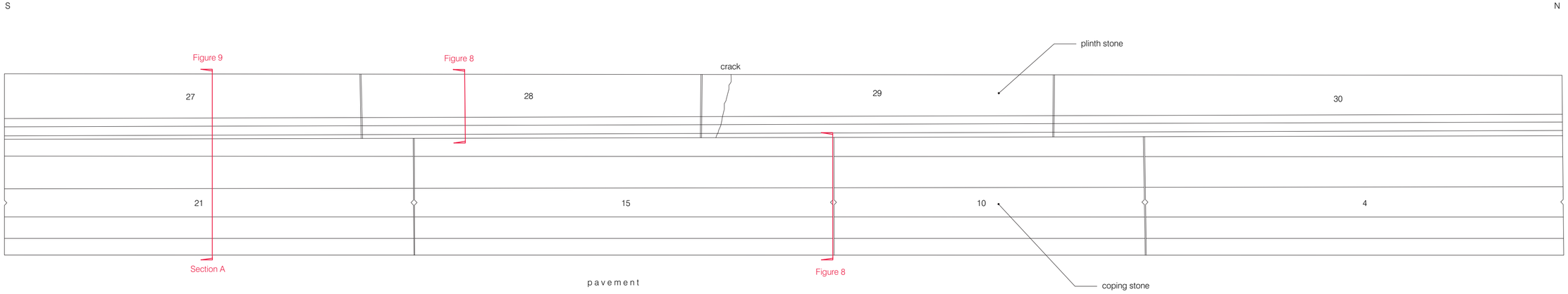
16/07/13 PDM: updated 31/07/13 HB

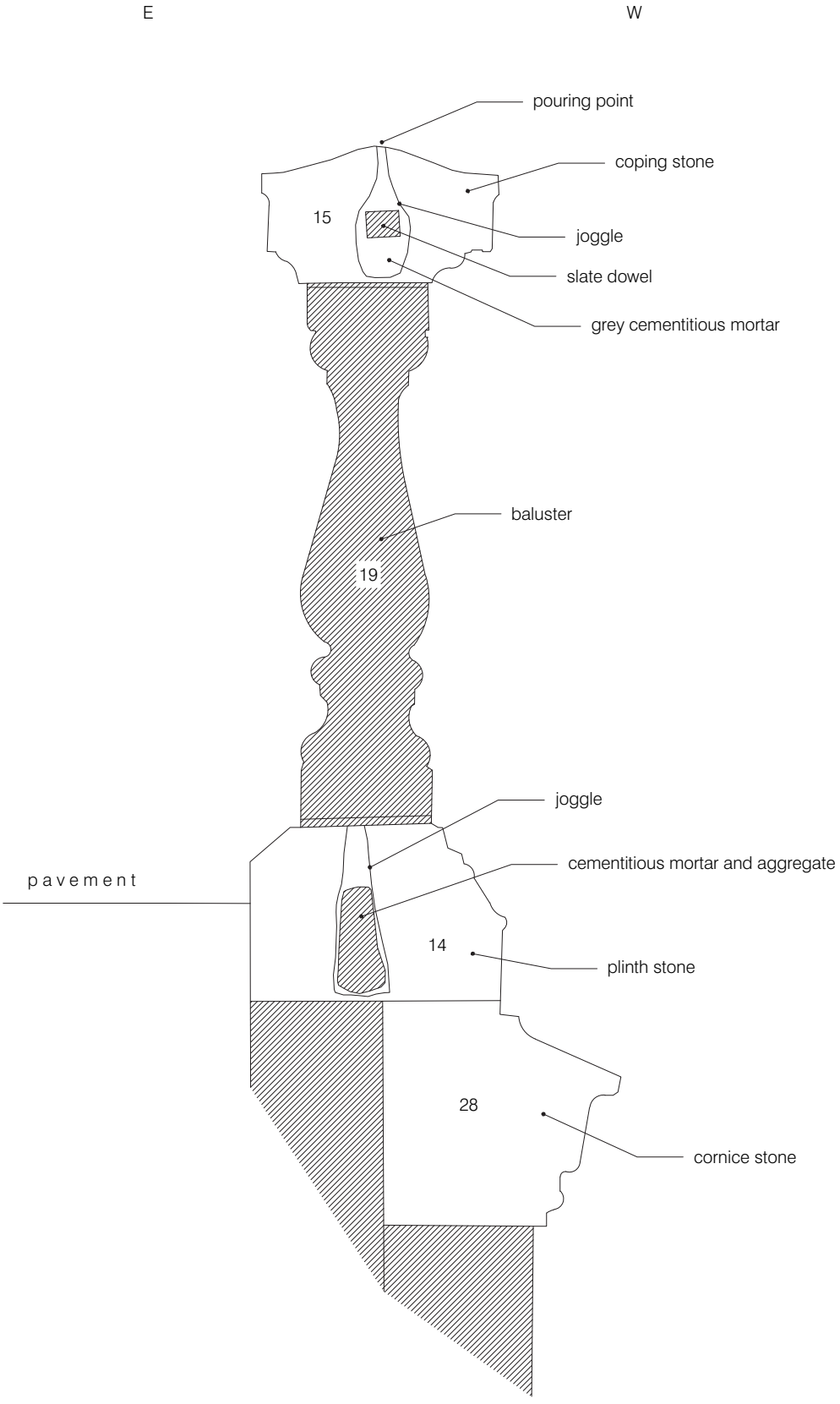
Figure 6
Plan of plinth
CIS13 Chiswick Bridge
1:10 at A2



0 200mm 400mm

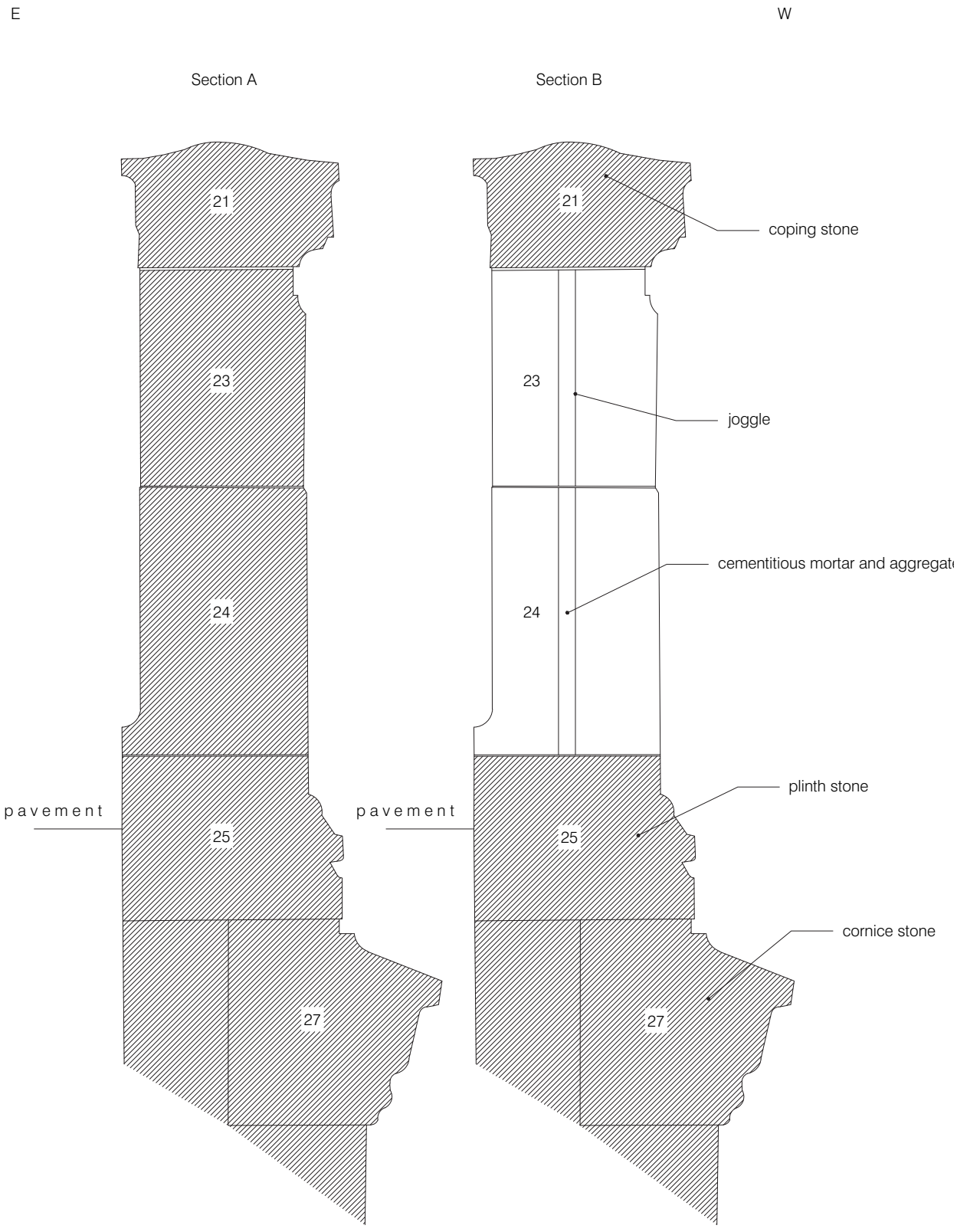
16/07/13 PDM: updated 31/07/13 HB

Figure 7
Plan of coping stone
CIS13 Chiswick Bridge
1:10 at A2



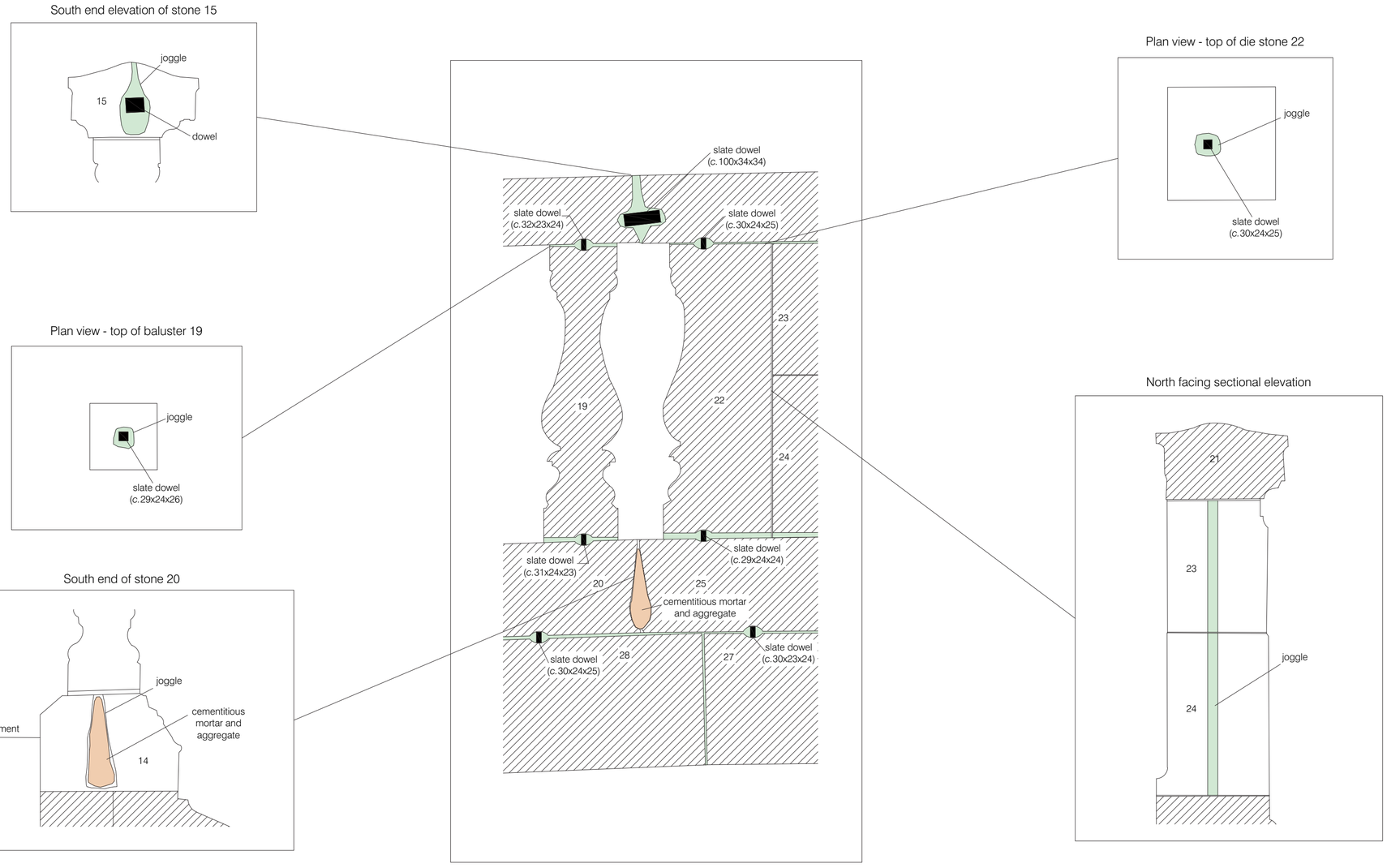
16/07/13 PDM: updated 31/07/13 HB

Figure 8
Section through Baluster 19, looking South
CIS13 Chiswick Bridge
1:10 at A4



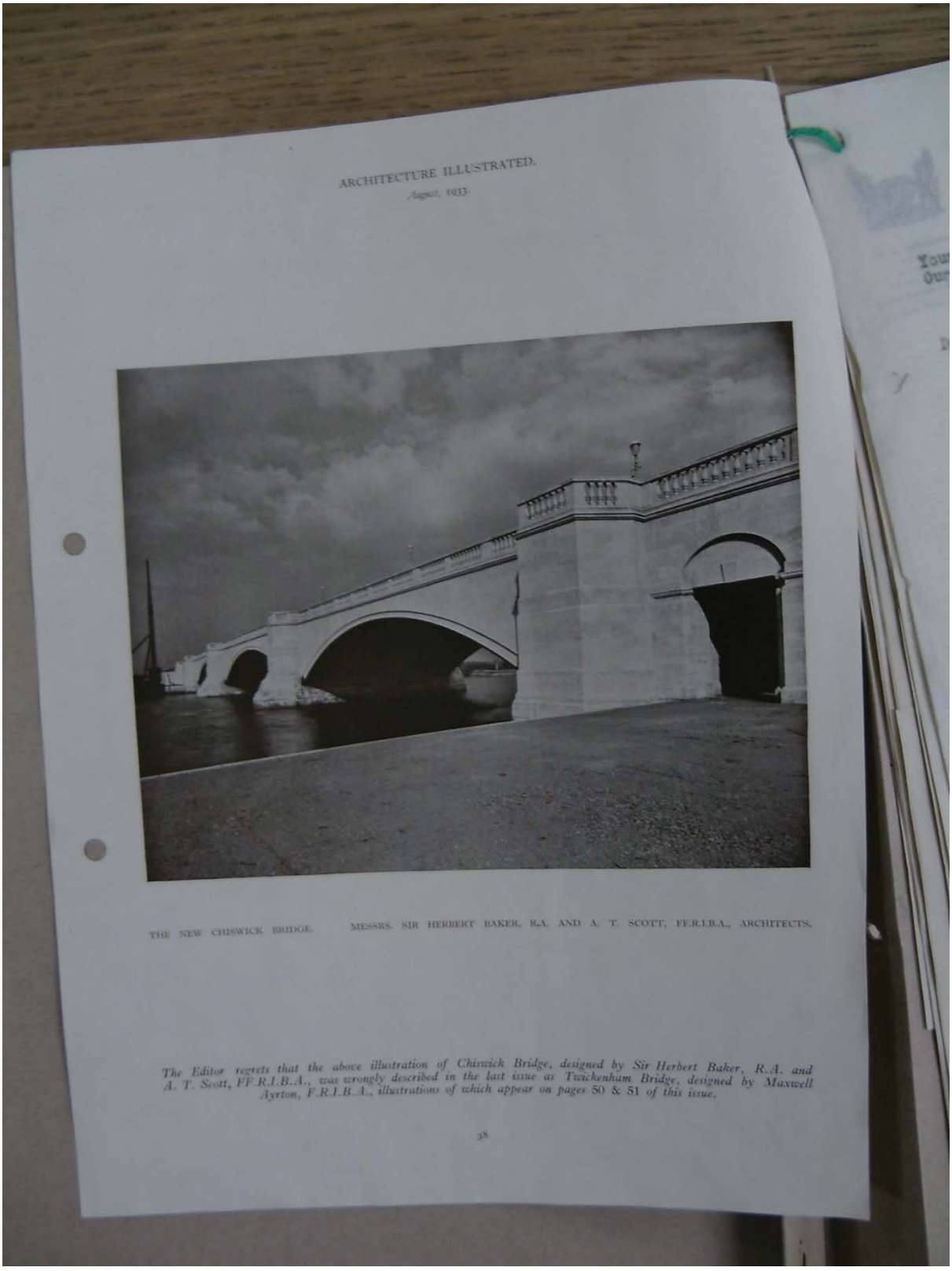
17/07/13 PDM: updated 31/07/13 HB

Figure 9
Section through die stone 23/24
and end view showing joggle, looking South
CIS13 Chiswick Bridge
1:10 at A4



03/09/13 PDM Revised 05/09/13 MR

Figure 10
Longitudinal Section through baluster 19 and half baluster 22
(all dimensions in mm)
1:10 at A2



ARCHITECTURE ILLUSTRATED.

August, 1933.

THE NEW CHISWICK BRIDGE. MESSRS. SIR HERBERT BAKER, R.A. AND A. T. SCOTT, FF.R.I.B.A., ARCHITECTS.

The Editor regrets that the above illustration of Chiswick Bridge, designed by Sir Herbert Baker, R.A. and A. T. Scott, FF.R.I.B.A., was wrongly described in the last issue as Twickenham Bridge, designed by Maxwell Ayrton, F.R.I.B.A., illustrations of which appear on pages 50 & 51 of this issue.

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Plate 1 Photograph of Chiswick Bridge in ‘Architecture Illustrated’ August 1933, looking north-east

Plate 2 Chiswick Bridge, looking north-west (CIS13 D1 3248)

Plate 3 Internal (east) side of the recorded panel of the parapet, looking south-west (CIS13 D1 3137)

Plate 4 Internal (east) side of the recorded panel of the parapet, looking north-west (CIS13 D1 3133)

Plate 5 Internal (east) side of the die stone at the south end of the recorded panel of the parapet, looking west (CIS13 D1 3131)

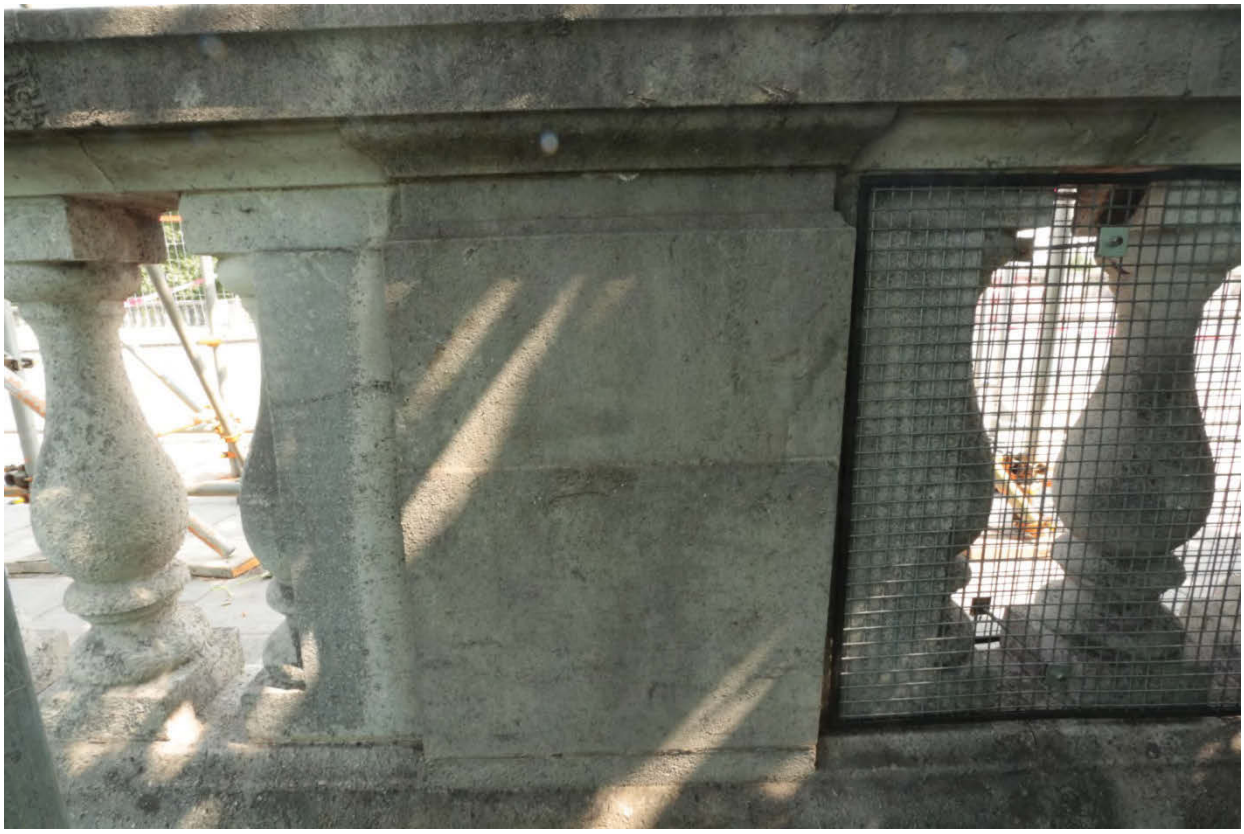

Plate 6 External (west) side of the die stone at the south end of the recorded panel of the parapet, looking east (CIS13 D1 3125)

Plate 7 External (west) side of the recorded panel of the parapet, looking east (CIS13 D1 3124)

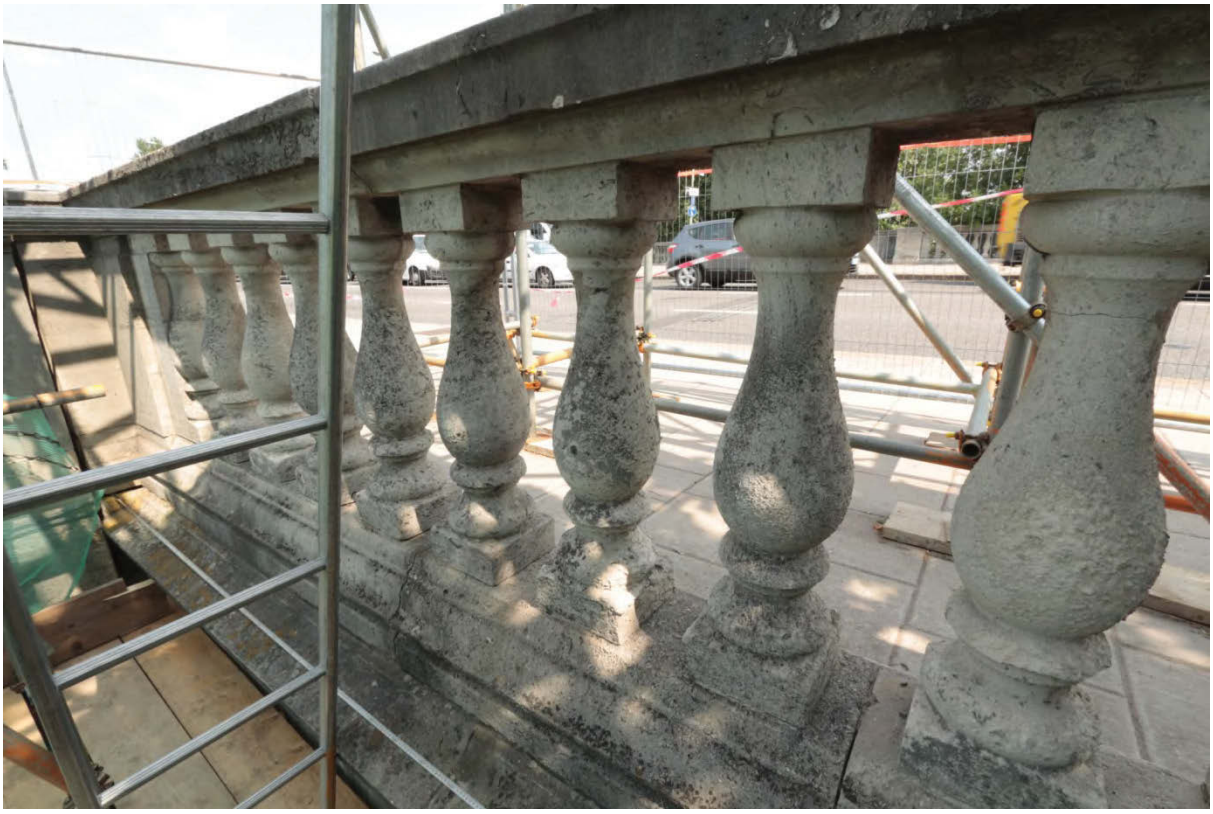

Plate 8 External (west) side of the recorded panel of the parapet, looking east (CIS13 D1 3122)

Plate 9 Cracks in plinth stone 20 and weathering on baluster 17, looking west (CIS13 D1 3217)

Plate 10 Detail of chip at base of baluster 7, interior (east) elevation, looking west (CIS13 D1 3201)

Plate 11 Joint between two coping stones by the staircase near but outside the recorded parapet panel, looking south-west (CIS13 D1 3254)

Plate 12 Differential height between coping stones 4 and 10, interior (east) elevation, looking west (CIS13 D1 3205)

Plate 13 Repair of baluster 6, external (west) elevation, looking east (CIS13 D1 3240)

Plate 14 Lifting of coping stone 4, internal (east) elevation, looking west (CIS13 D1 3205)

Plate 15 Exterior (west) elevation of cornice stone 28, looking south-east (CIS13 D1 3128)

Plate 16 North end of coping stone 4, looking south (CIS13 D1 3263)

Plate 17 Ex-situ slate dowel, looking west (CIS13 D1 3275)

Plate 18 Top of plinth stone 9, looking south-west (CIS13 D1 3272)

Plate 19 Underside of coping stone 4 with slate dowels, looking east (CIS13 D1 3273)

Plate 20 Top of baluster 5, looking east

Plate 21 Underside of ex situ half baluster stone 22 (far left), upper surface of plinth stone 25 (centre) and north elevation of die stone 24 (right), looking east (CIS13 D1 3296)

Plate 22 Removal of plinth stone 9 exposing upper surface of cornice stones 31 (left) and 30 (centre) and north end of plinth stone 14 (right), looking east (CIS13 D1 3297)

Plate 23 Joggle and poured cementitious mortar with aggregate in the north end of plinth stone 14, looking south-east (CIS13 D1 3279)

Plate 24 Removal of half baluster 22 exposing the upper surface of plinth stone 25 (left) and the north end of die stones 23 and 24 (right), looking south-east (CIS13 D1 3293)

Plate 25 Lifting of coping stone 4 exposing the number on the north end of coping stone 10, looking south-west (CIS13 D1 3267)

Plate 26 Number on north end of coping stone 21, looking south (CIS13 D1 3291)

Plate 27 Butterfly repair, near the centre of the west side of the bridge, looking south (CIS13 D1 3257)

Plate 28 Metal fixing behind ashlar block, looking east (CIS13 D1 3294)

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