



# Northamptonshire Archaeology

Archaeological building recording of the M1  
Junction 12 Overbridge, Toddington, Bedfordshire  
October 2011



## Northamptonshire Archaeology

2 Bolton House  
Wootton Hall Park  
Northampton NN4 8BE  
t. 01604 700493 f. 01604 702822  
e. [sparry@northamptonshire.gov.uk](mailto:sparry@northamptonshire.gov.uk)  
w. [www.northantsarchaeology.co.uk](http://www.northantsarchaeology.co.uk)



Northamptonshire  
County Council

Tim Upson-Smith

Report 11/229

February 2012



## STAFF

Project Manager: Jim Brown BSc, PG Dip, MfA  
Text: Tim Upson-Smith BA, PG Dip  
Fieldwork: Tim Upson-Smith  
Illustrations: Amir Bassir BSc

## QUALITY CONTROL

	Print name	Signature	Date
Verified by	J Prentice		
Checked by	P Chapman		
Approved by	A Chapman		

## OASIS REPORT FORM

PROJECT DETAILS	
Project title	Archaeological building recording of the M1 Junction 12 Overbridge, Toddington, Bedfordshire
Short description	Northamptonshire Archaeology carried out a buildings recording action of the M1 Junction 12 Overbridge Toddington, Bedfordshire, prior to its proposed demolition. The survey demonstrated that the structure of the bridge had altered little since its initial construction. Patch repairs and the addition of a handrail on the southern parapet were the only changes.
Project type	Building assessment
Previous work	Unknown
Future work	unknown
Monument type and period	M1 motorway over bridge 1958
PROJECT LOCATION	
County	Bedfordshire
Site address	M1 Junction 12 Toddington
Easting	502082,
Northing	229815
Area sq m/ha	1.2ha
PROJECT CREATORS	
Organisation	Northamptonshire Archaeology
Project brief originator	
Project Design originator	Northamptonshire Archaeology
Director/Supervisor	Tim Upson-Smith BA, PGDip
Project Manager	Jim Brown
Sponsor or funding body	Costain Carrilion
PROJECT DATE	
Start date	October 2011
End date	October 2011
BIBLIOGRAPHY	
Title	Archaeological building recording of the M1 Junction 12 Overbridge, Toddington, Bedfordshire
Serial title & volume	Northamptonshire Archaeology Report 11/229
Author(s)	Tim Upson-Smith
Page numbers	18
Date	December 2011

## **Contents**

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2</b>	<b>OBJECTIVES AND METHODOLOGY</b>	<b>3</b>
<b>3</b>	<b>HISTORICAL BACKGROUND</b>	<b>4</b>
<b>4</b>	<b>RESULTS (Figs 4-15)</b>	<b>8</b>
<b>5</b>	<b>DISSCUSION</b>	<b>16</b>
	<b>BIBLIOGRAPHY</b>	<b>17</b>
	<b>APPENDIX 1 PHOTOGRAPHIC INDEX</b>	<b>18</b>

### **Figures**

Fig 1: Site location

Fig 2: Elevation of Standard M1 Overbridge (Sir Owen Williams and partners 1956)

Fig 3: Plan of Standard M1 Overbridge (Sir Owen Williams and partners 1956)

Fig 4: View from the M1 Junction 12 Overbridge looking north-west, showing the construction of the new bridge

Fig 5: M1 Junction 12, building recording area showing position of photographs

Fig 6: North-western elevation looking south-east

Fig 7: South-eastern elevation looking-north

Fig 8: Column capital detail looking south

Fig 9: Detail of the inclined tapering haunches looking north-east

Fig 10: The stencilled bridge number on the south-west side

Fig 11: Parapet handrail fixtures

Fig 12: M1 Junction 12 Overbridge, looking north-west

Fig 13: M1 Junction 12 Overbridge, looking south-east

Fig 14: M1 Junction 12 Overbridge, looking west

Fig 15: M1 Junction 12 Overbridge, column detail, looking north

**ARCHAEOLOGICAL BUILDING RECORDING  
OF THE M1 JUNCTION 12 OVERBRIDGE, TODDINGTON  
BEDFORDSHIRE**

***Abstract***

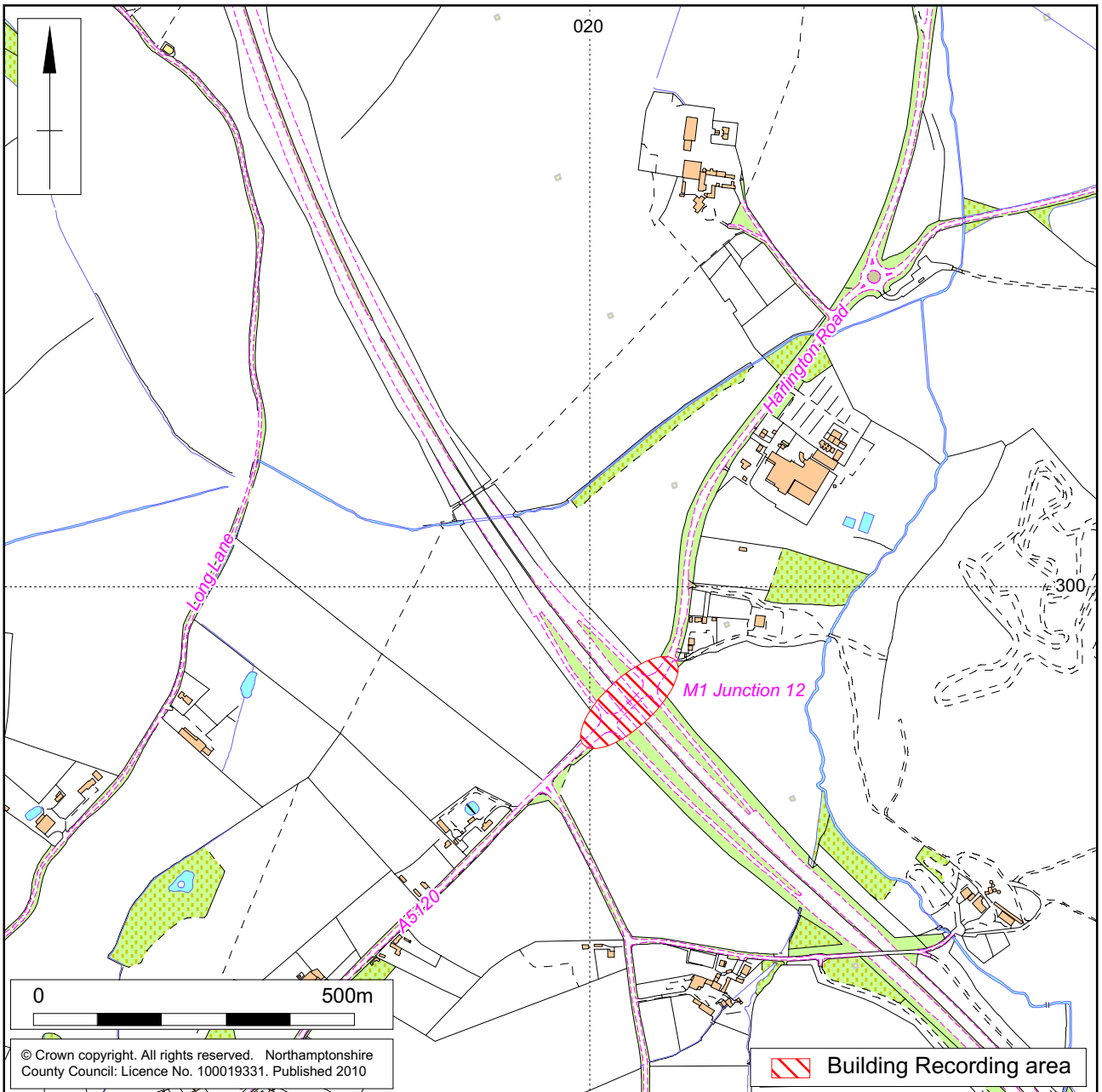
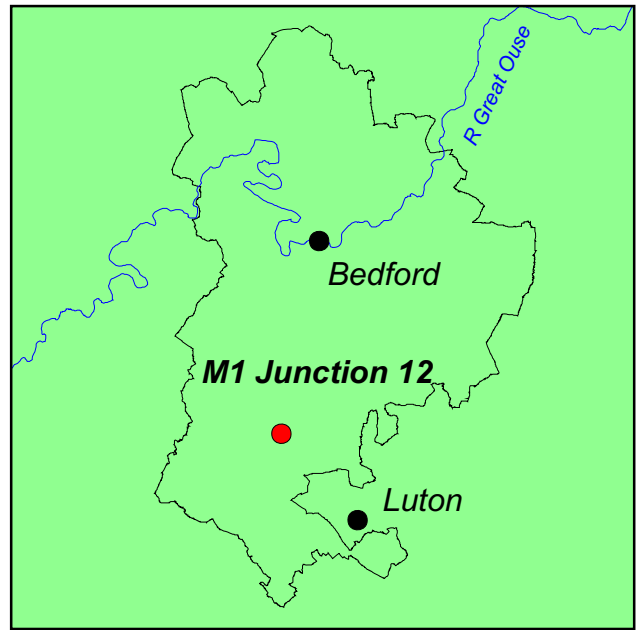
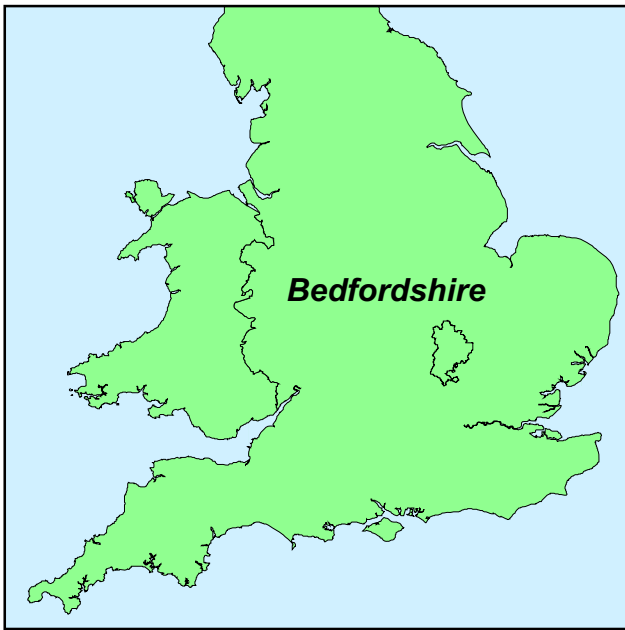
*Northamptonshire Archaeology carried out a buildings recording action of the M1 Junction 12 Overbridge Toddington, Bedfordshire, prior to its proposed demolition. The survey demonstrated that the structure of the bridge had altered little since its initial construction. Patch repairs and the addition of a handrail on the southern parapet were the only changes.*

**1 INTRODUCTION**

Northamptonshire Archaeology was commissioned by Costain Carillion to carry out a historic building survey of the M1 Junction 12 Toddington Interchange Overbridge (NGR TL02082, 29815, Fig 1). The overbridge carries the Harlington Road (A5120) across the M1 at Junction 12.

The bridge is due to be demolished as part of the Junction 12 Improvements scheme. As a result mitigation in the form of a Level 2 historic building recording was required.

Northamptonshire Archaeology is an Institute for Archaeologists (IfA) registered organisation (No.48). This report has been prepared in accordance with current best archaeological practice as defined in the Institute for Archaeologists' *Standard and guidance for the archaeological investigation and recording of standing buildings and structures* (IfA 2008) and *Management of Research Projects in the Historic Environment, The MoRPHE Project Managers' Guide* (EH 2006).



Scale 1:10,000

Site location Fig 1

## 2 OBJECTIVES AND METHODOLOGY

The general aim of the survey was to record the existing bridge as agreed in section 7 of the Cultural Heritage Written Scheme of Investigation (Scott Wilson 2011), equivalent to a Level 2 survey as defined by English Heritage (EH 2006). The record was primarily by photography, complemented with a written description and analysis of phasing.

The specific objectives of the work (Section 7.14, Scott Wilson 2011) were:

- Use of historical survey drawings for comparable investigation relating to building form and function, identification of fixtures and fittings, where visible or accessible;
- Provide detailed accounts of fixtures, fittings and architectural features, where visible or accessible; and
- Provide a photographic record of the structures in context.

### ***Methodology***

After the appropriate Health and Safety induction from Costain Carrilion an initial walk around was made to identify the condition of the structure, estimate angles of views and types of exposures required.

Photographs were taken of the structures external appearance in order to give an overall impression of its size and shape, by a series of oblique views and elevations. 'All photographs will include an appropriate unobtrusive scale, where possible', due to the nature of the survey and that the M1 was still open at the time of the survey it was not possible to include scales in the photographs.

Photographs were also made of structural details relevant to the bridges' design and development.

Photography was primarily by digital SLR camera and 35mm black and white film negative (Appendix 1, Table 1).

The main items of equipment used in the survey were:

Nikon F80 Film SLR

Nikon D200 SLR, 10.2 million pixel sensor

Nikon 18-70mm wide angle lens

Sigma 17-35mm wide angle lens

Sigma 10-20mm wide angle lens

Sigma 100mm telephoto lens

Nikon SB800 Speedlight (digital), Nikon SB28 Speedlight (negative)

Ilford HP5 Black and White Film

Sandisk Extreme III 2Gb Compact flash memory Cards

Manfrotto Neotec tripod and head with quick release

Sekonic 650036 L-308 S Flashmate Handheld Light meter

The archive includes unprocessed digital files (Fine JPEG and RAW format) and film negatives with prints.

### **3 HISTORICAL BACKGROUND**

The existing Toddington Interchange Overbridge forms part of the first long-distance inter-urban motorway in Britain designed by Sir Owen Williams.

During the preparation of the Stage 3 assessment, English Heritage was consulted regarding the status of the original M1 motorway structures and their significance. The decision was taken not to designate the M1 structures; however, the historic importance of the individual elements was acknowledged (Scott Wilson 2011 section 2.13/2.14).

For an in-depth look at the development of the M1 and its associated structures please refer to the Cultural Heritage baseline report:

<http://www.persona.uk.com/A5dunstable/deposit-docs/DD026-DD050/DD-038A.pdf>

The Motorway Archive Trust has also published a series of books on the construction of the countries motorways, the volume for southern and eastern England includes the M1 (Baldwin et al 2007).

The following history of the M1 is a summary of an article by R H Soper, an engineer who worked for Sir Owen Williams and Partners.

<http://www.ciht.org.uk/motorway/m1soper.htm>

The go-ahead from the government for the first stretch of the M1 was given in July 1955. The project went out to tender at the end of 1957, the tenders had to be returned by 6th January 1958, a very quick turn around for such a large project. The successful candidate was John Laing and Son Ltd, who were awarded the contract on the 20th January 1958 with work to start on the 1st April 1958.

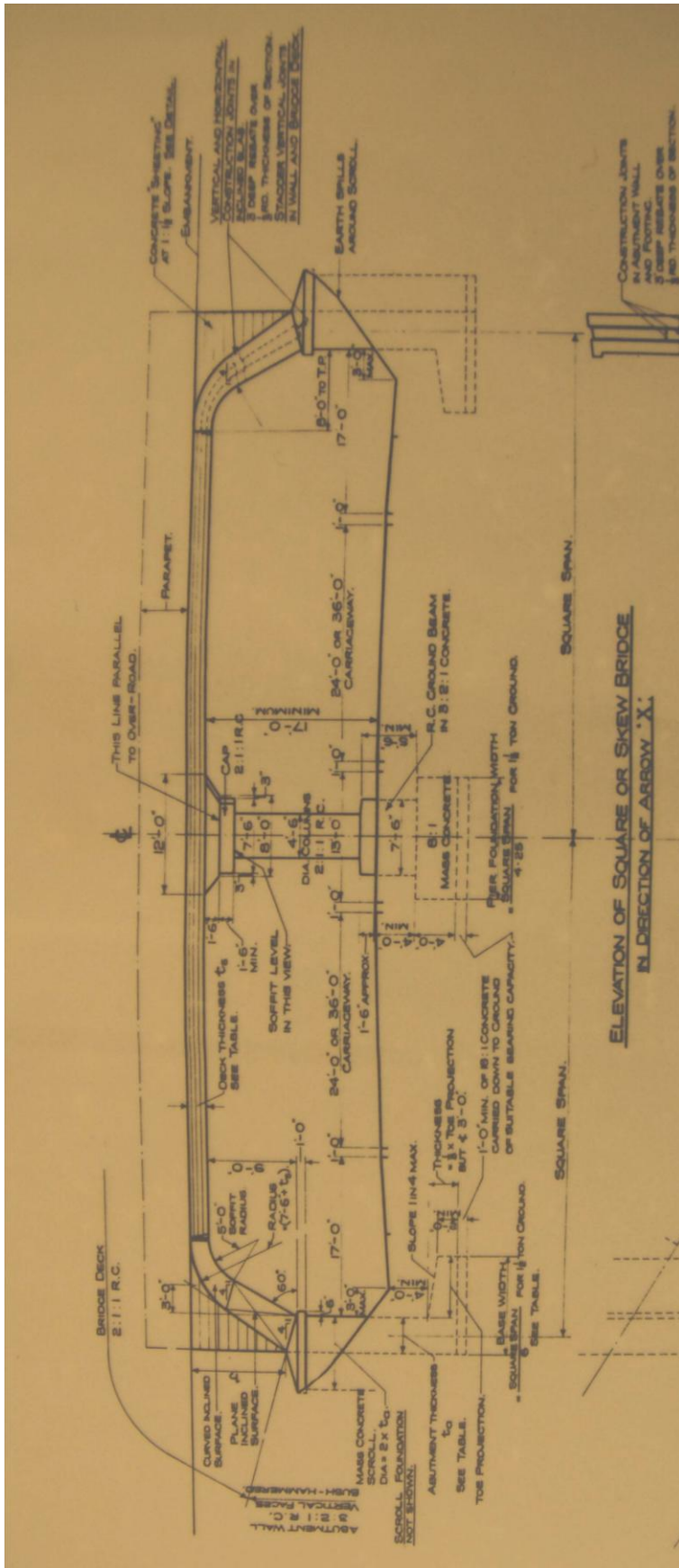
The Junction 12 Overbridge, one of 128 bridges in the first stretch of the M1 motorway between Luton and Crick, was built in 1958/9 to a standardised design (Figs 2-3). The



idea behind the standard design was that the shuttering could be re-used on subsequent bridges to speed construction. However, due to the number of bridges and speed of progress it was often the case that new shuttering had to be made to keep up the rapid progress of the road construction.

The bridges were made from reinforced concrete, as prestressed concrete was still a fairly new innovation at the time and its longevity had not been assessed. Another issue with prestressed concrete beams was the transport of them to each bridge site; whereas the materials needed for a reinforced concrete bridge could be transported down the unfinished road corridor with greater ease, again thus speeding up the construction process.

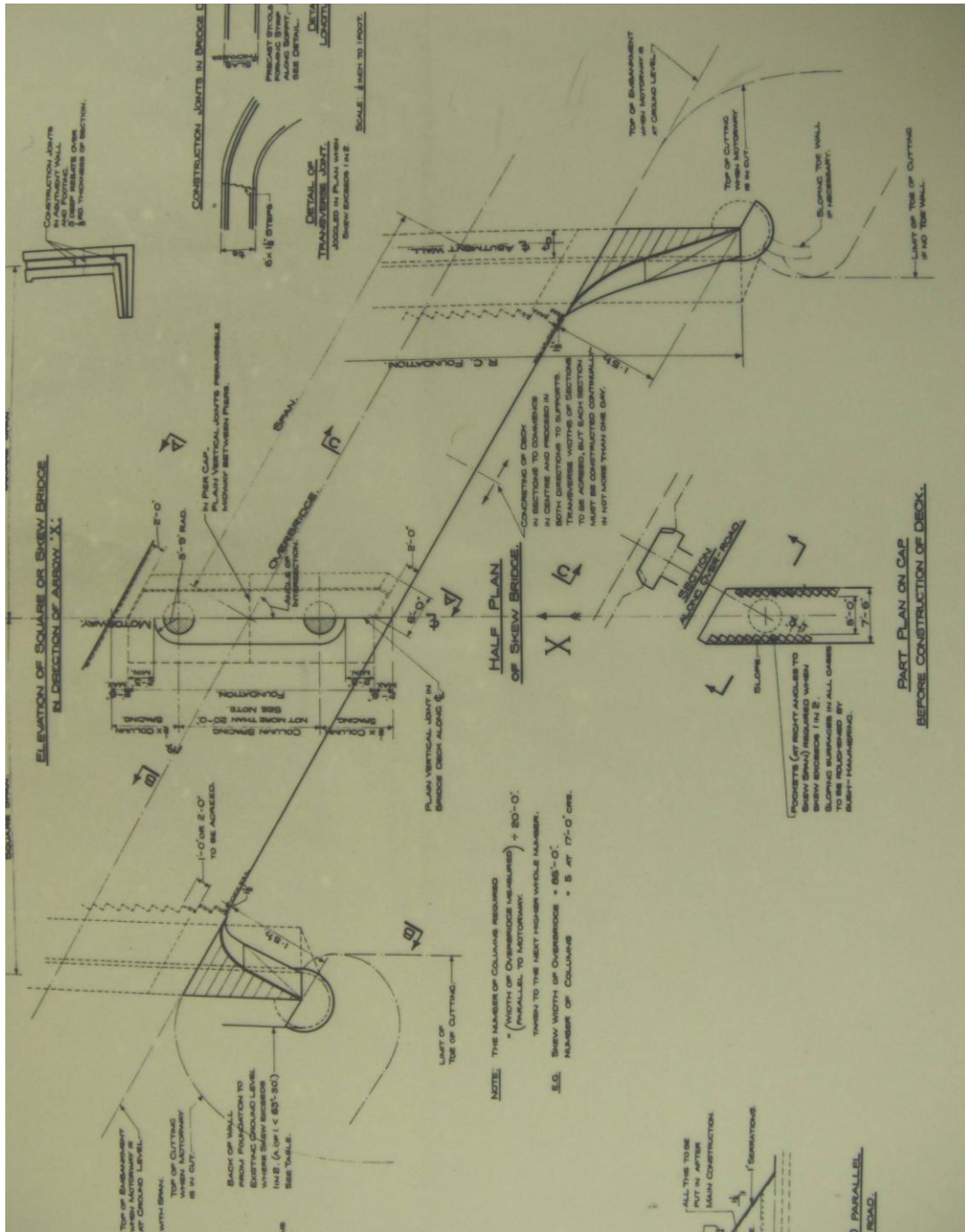
The bridges all followed the same basic design with strong, low, vertical walls surmounted by inclined tapering haunches curving over into the reinforced deck slabs. The middle of the span of the overbridges was supported on large circular columns the number of which varied depending on the width of the bridge.



Elevation of Standard M1 Overbridge (Sir Owen Williams and partners 1956)

Northamptonshire Record Office un-catalogued collection

Fig 2



Plan of Standard M1 Overbridge (Sir Owen Williams and partners 1956)  
 Northamptonshire Record Office un-catalogued collection Fig 3

#### 4 RESULTS (Figs 4-15)

The survey was carried out in bright early sunshine changing to dull overcast conditions by mid morning on the 10th October 2011. Construction work had started on the north-western side of the bridge on the construction of its replacement, limiting the opportunities to take clear unobstructed photographs of this side of the bridge (Fig 4). Another limiting factor was that apart from the outside lanes the M1 was still open. Access to the roadworks in the outside lanes for photography was gained via Costain Carrilion, after receiving the appropriate health and safety inductions.



View from the M1 Junction 12 Overbridge looking north-west, showing the construction of the new bridge

Fig 4

The bridge forms the central element to a diamond interchange (Fig 1), which is considered as the most basic way to connect a road to a motorway, it is easy to use but is only suitable for low capacity use.

The construction and features of the bridge matched those in the historic descriptions available about the construction of the M1 bridges and the original drawings which were viewed in the Northamptonshire Records Office (NRO), (Figs 2-3). The full collection of M1 drawings held by NRO has not yet been catalogued.

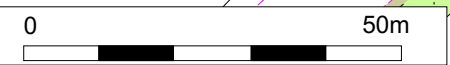
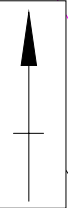
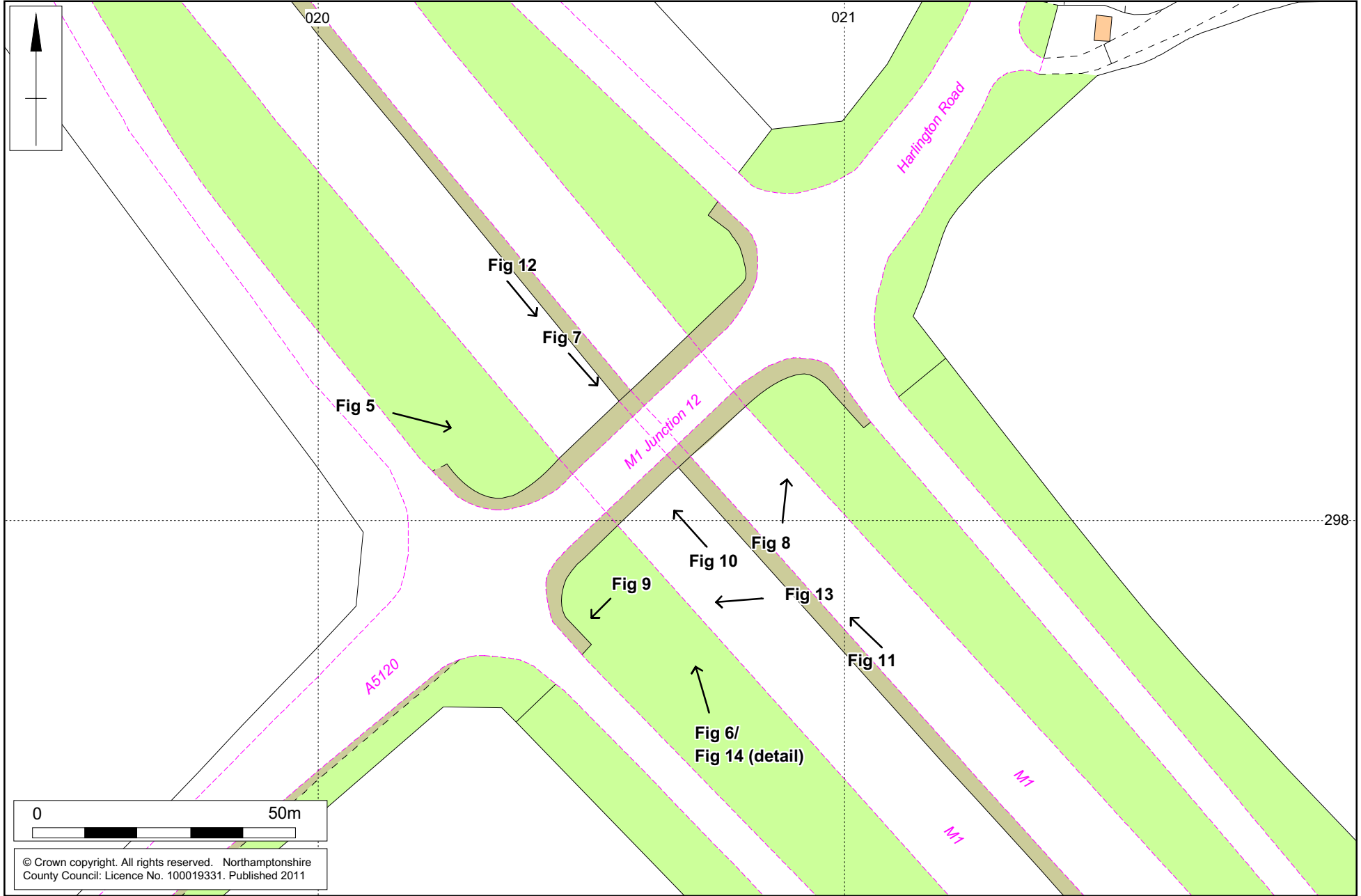
The bridge appears from the survey to be in as near original condition as can be expected for a 53 year old concrete structure. Patching of the concrete structure was evident on all sides of the bridge (Figs 6-15).

Whilst the design of the bridge may not be to everyone's taste, the bridges were designed with aesthetics as well as functionality in mind and reflected the modern thinking of the age. The design of the bridges was approved by the Royal Fine Arts Commission. The bridge, like all the other original bridges on this section of the M1, was built with a three foot (975mm) deep reinforced concrete deck, supported by raking abutments and circular columns (Figs 6-15). The soffit of the deck was corbelled out in a series of steps to meet the parapet, which was finished with a ridged coping (Fig 8).

Scale 1:1000

M1 Junction 12, building recording area showing position of photographs

Fig 5



© Crown copyright. All rights reserved. Northamptonshire County Council: Licence No. 100019331. Published 2011

Due to the width of the carriageway that the bridge carries it has three supporting circular columns in the central reservation (Figs 8 and 15).

The only markings visible on the bridge was a small stencilled panel on the south western side marked with the number, 62 3 (Fig 10). This number relates to the number of the bridge.

The only addition to the structure of the bridge was a galvanised handrail on the top of the southern bridge parapet. The rail was fixed to the parapet with regularly spaced plain inverted U-shaped fixtures which had been drilled and bolted into the concrete of the parapet (Fig 11). There was no evidence that a handrail had ever been fixed to the northern side parapet. No further additions or alterations to the basic bridge structure were observed.



North-western elevation, looking south-east

Fig 6



South-eastern elevation, looking north

Fig 7



Column capital detail, looking south-east, also showing the corbelled soffit

Fig 8





Detail of the inclined tapering haunches, looking north-east

Fig 9



The stencilled bridge number, looking south-west

Fig 10



Parapet handrail fixtures, looking north-west

Fig 11



M1 Junction 12 Overbridge, looking north-west

Fig 12

M1 JUNCTION 12 OVERBRIDGE



M1 Junction 12 Overbridge, looking south-east

Fig 13



M1 Junction 12 Overbridge, looking west

Fig 14



M1 Junction 12 Overbridge, column detail, looking north

Fig 15

## 5 DISCUSSION

The survey recorded the bridge as it was on the 10th October 2011 and demonstrated that the basic structure of the bridge has not altered since it was first built in 1958/9, the only addition being the handrail on the southern parapet. It was evident from the various patches of different colour concrete that the bridge had seen a series of minor repairs in its life.

It is apparent that when driving along the M1 the original 1958/9 stretch of the M1 from St Albans to Crick can be identified by its bridges, which all follow the same basic styles as designed by Sir Owen Williams. In recent years many of these bridges, especially in Northamptonshire have been altered, with the replacement with railings of the original concrete parapets. South of Junction 12 the original character of the M1 has already been altered with the addition of further lanes and the installation of new bridges, which reflect the increased traffic load to which the motorway has been subjected to in recent years. With these alterations in mind, the survey of the Junction 12 Overbridge preserves by record one of the diminishing number of original-unaltered overbridges.

The NRO holds a series of drawings of the standard M1 Overbridge on which all the original bridges were based, in addition it also holds detailed plans of the route and details of land ownership. The bridge plans are part of an, as yet, un-catalogued collection.

## **BIBLIOGRAPHY**

Baldwin, Sir Peter, Baldwin, R, Evans, D I, 2007 *The motorway achievement building the network in southern and eastern England*, Phillimore and Co Ltd

EH 1991 *Management of Archaeological Projects 2nd edition*, English Heritage

English Heritage 2006 *Understanding Historic Buildings: A guide to good recording practise*

English Heritage 2006 *Management of Research Projects in the Historic Environment, The MoRPHE Project Managers' Guide*, English Heritage

IfA 2001, revised 2008 *Standard and guidance for the archaeological investigation and recording of standing buildings and structures*, Institute for Archaeologists

IfA 2010 *Code of Conduct*, Institute for Archaeologists

NA 2010 *Method statement for level 2 building recording of M1 Junction 12/A5120 Overbridge*, Northamptonshire Archaeology

Northamptonshire Records Office Un-catalogued Collection

Scott Wilson 2011 *M1 Junctions 11 and 12 Improvements Junction 12 Written Scheme of Investigation for Detailed Archaeological Excavation, Targeted Watching Brief, Historic Hedgerow Recording and Historic Building Recording*, Report No: **D123846/5/5/04**

## **Websites**

<http://www.ciht.org.uk/motorway/m1soper.htm>

<http://www.engineering-timelines.com/scripts/engineeringItem.asp?id=801>

<http://www.persona.uk.com/A5dunstable/deposit-docs/DD026-DD050/DD-038A.pdf>

**APPENDIX 1 PHOTOGRAPHIC INDEX***Table 1: Photographic index table*

<b>Fig</b>	<b>Description</b>	<b>Direction of view</b>	<b>Location (Fig)</b>	<b>Digital Ref No</b>	<b>Black and white Ref No</b>	<b>Date</b>
4	View from the M1 Junction 12 Overbridge, showing the construction of the new bridge	north-west	5	0167	-	10/10/11
6	North-western elevation	south-east	5	0180	F1/2	10/10/11
7	South-eastern elevation	north	5	0164	F1/11	10/10/11
8	Column capital detail, also showing the corbelled soffit	south-east	5	0204	-	10/10/11
9	Detail of the inclined tapering haunches	north-east	5	0211	F1/10	10/10/11
10	The stencilled bridge number	south-west	5	0191	-	10/10/11
11	Parapet handrail fixtures	north-west	5	0190	F1/6	10/10/11
12	M1 Junction 12 Overbridge	north-west	5	0184	F1/17	10/10/11
13	M1 Junction 12 Overbridge	south-east	5	0201	F1/14	10/10/11
14	M1 Junction 12 Overbridge	west	5	0208	F1/6	10/10/11
15	column detail	north	5	0164	F1/4	10/10/11