

Former Windsor Bridge Demolition

Photographic Archival Recording

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DOCUMENT CONTROLS

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1 Introduction

1.1 Project description

A Photographic Archival Recording has been prepared for the Windsor Bridge Demolition, within the context of the Windsor Bridge Replacement Project (WBRP). The purpose of the report is to photographically record key methodologies and materials associated with the removal of the former bridge. Specifically, this document is in fulfilment of a required during-works archival recording, outlined as per the following Ministers Conditions of Approval (relevant section underlined):

- B2. Prior to the commencement of pre-construction works on the southern side of the Hawkesbury River, The applicant shall complete a detailed **Archival Recording** of all historic heritage sites within the Strategic Conservation Management Plan study area in accordance with the Guidelines issued by the NSW Heritage Council and to the satisfaction of the Director-General issued by the Heritage NSW Council and o the satisfaction of the Director General and in consultation with the NSW Heritage Council. The recording shall include, but not be limited to:
 - (a) Detailed survey and analysis of Thompson Square Conservation Area, Windsor bridge and the immediate surrounds using 3ED laser scanning; and
 - (b) Photographic and archival recording of all affecting heritage sites, as identified in the specialist reports prepared as part of the Environmental Impact Statement for the Project. Recording is to be completed.

Copies of these recordings should be made available to the Director-General, the NSW Heritage Council, the Local Studies Library and the Local Historical Society in Windsor.

In accordance with the above underlined condition, it is noted that within the Windsor Bridge Replacement Environmental Impact Statement (EIS), under *Section 7.1.5 Environmental management measures*, the following procedures apply:

The 1874 bridge will be dismantled in a manner that allows its construction methods and evolution to be appropriately documented as an archival record prior to, and during its demolition.

This report, in conjunction with the existing Detailed Photographic Archival Recording, provides an appropriate documentation of the former Windsor Bridge prior to and during its demolition. Together, these reports capture the construction methods of the structure and identify fabric from the evolution of the bridge. This satisfies both the Minsters Conditions of Approval and the environmental management measures of the Windsor Bridge Replacement EIS.

1.2 Location

The former Windsor Bridge is located on the Hawkesbury River, norther of the town of Windsor. It was formally access from the south by Bridge Street, through Thompson Square, and accessed from the north by Wilberforce Road and Freeman' Reach Road. The former Windsor Bridge is located upstream of the New Windsor Bridge and is intended to be partially retained on the southern embankment to serve as an observation deck.

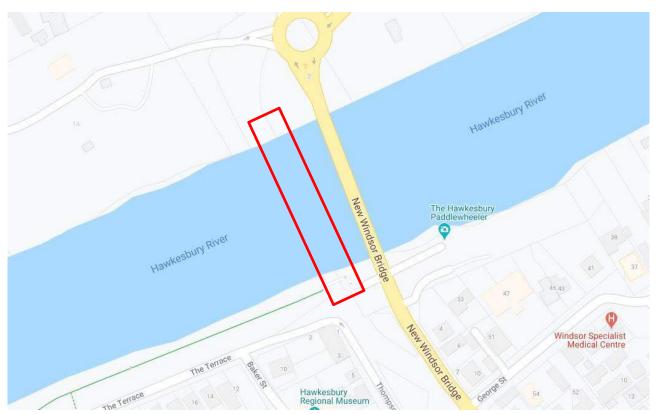


Figure 1. Roadmap indicating the location of the former Windsor Bridge (marked in red) in relation to the New Windsor Bridge (source: Google maps, overlay by Extent Heritage).

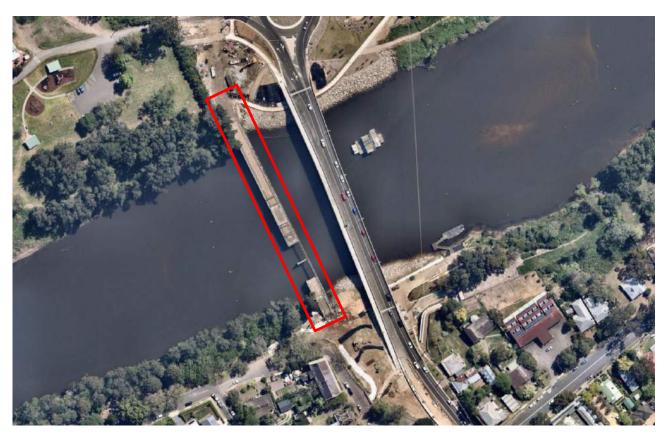


Figure 1. Satellite image showing the location of the former Windsor Bridge (marked in red) in relation to the New Windsor Bridge (source: Nearmap, overlay by Extent Heritage).

1.3 Approach and methodology

The methodology used in the preparation of this Photographic Archival Recording is in accordance with the principles and definitions as set out in *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, 2013 (Burra Charter) (Australia ICOMOS 2013) and the latest version of the NSW Heritage Branch's Photographic Archival Recording guidelines.

Table 1: Requirements under the "Heritage Information Series: Photographic Recording of Heritage Items Using Film or Digital Capture" report.

Requirement	Compliance
Is there a hard copy report?	Yes.
Does the hard copy report contain:	
a) A thumbnail proof sheet	Yes.
b) Proof sheet properly sleeved in archival protective pages	Yes.
c) Inclusion of electronic storage media with report and images	Yes. A DVD Rom (Archival Gold Disc) has been provided which contains all the images (TIFF and JPGs), a soft copy of the proof sheets, all the measured drawings and a soft copy of this report.
d) Camera, lenses and accessories details	Yes. Cannon AOE D5 and D7 with was used with 10-20mm and 24-80mm lenses. This is referenced in section 3.
e) Archival processing details	In accordance with the guidelines.
f) List of all images, correctly numbered and described	Yes. See section 3.
Is there an electronic report?	Yes. A DVD Rom (Archival Gold Disc) has been provided which contains a soft copy of this report.

How is the information stored?	A DVD Rom (Archival Gold Disc) has been provided which contains all the images (TIFF and JPGs), a soft copy of the proof sheets, all the measured drawings and a soft copy of this report.	
Can the storage media be opened?	Yes.	
Is the information the same as that contained in the hardcopy report?	Yes.	
Are the images saved as RAW or TIFF files, contain metadata and follow guidelines?	Images have been provided in three formats: - TIFF - High resolution JPG - Low resolution JPG All images contain metadata, have been appropriately organised and named.	
Is the storage media filed in an acceptable container?	The DVD Rom has been provided in a plastic cover within a certified archival folder.	
Is there a full set of 10.5 x 14.8 images processed with archivally stable inks and paper?	Yes. See hard copy report.	
Does the report include a brief historical overview of the study area?	a brief al overview	
Have measured drawings been provided?	Yes. See Section 6.	

1.4 Authorship

This Archival Recording has been prepared by the Austral AHMS Joint Venture (AAJV) Austral AHMS Joint Venture (AAJV) is an unincorporated joint venture of Austral Archaeology Pty Itd and Extent Heritage Pty Ltd (a merger of Archaeological and Heritage Management Solutions Pty Ltd and Futurepast Heritage Consulting Pty Ltd).

following staff members at Extent Heritage have prepared this Photographic Archival Recording:

- Dr MacLaren North, Managing Director; and
- Ben Calvert, Heritage Advisor.

Historical information in this report was sourced from:

 Austral AHMS Joint Venture (2016). Thompson Square Strategic Conservation Management Plan, prepared for Roads and Maritime Services (RMS).

1.5 Ownership

The road reserves, former Windsor Bridge, New Windsor bridge and the areas for the new planned bridge approaches are owned by the Roads and Maritime Services branch of Transport for NSW (TfNSW). The Public Domain land of Thompson Square is owned and managed by Hawkesbury City Council.

1.6 Heritage Status

1.6.1 Listings

The former Windsor Bridge is the subject of two statutory heritage listings. These are outlined in the following table:

Figure 2. Table showing heritage listings for the place.

Register/listing	Item listed (Y/N)	Item name	Item number
Statutory listings			
National Heritage List	N	-	-
Commonwealth Heritage List	N	-	-
State Heritage Register	N	-	-
RMS Heritage and Conservation Register (S170 Register)	Y	Hawkesbury River Bridge, Windsor	5067620
Hawkesbury Local Environmental Plan 2012, Schedule 5	Y	Windsor Bridge	I276

Register/listing	Item listed (Y/N)	Item name	Item number
Non-statutory listings			
Register of the National Trust (NSW)	N	-	-
Australian Institute of Architects Register of Significant Architecture	N	-	-
Engineering Heritage Register	N	-	-
DOCOMOMO Australia Register	N	-	-

1.6.2 Statement of significance

Hawkesbury River Bridge, Windsor

This statement of significance has been extracted from the S.170 RMS Heritage and Conservation Register Inventory Sheet for item *Hawkesbury River Bridge, Windsor* (Item No. 5067620):

The remaining section of the former Windsor Bridge has historic, technical and social significance as important historical and physical fabric in one of the State's pre-eminent historic towns and in the wider Sydney region. It served as a crossing of the Hawkesbury River for 146 years and was twice a major engineering project in the State. In each design, it was specially adapted to the difficulties of crossing of this major waterway, with its frequent floods. The pre-cast reinforced-concrete beam and slab deck erected in the 1920s was an early and innovative use of this technology.

The design of the bridge, in its various forms, engaged significant individuals in the history of engineering in NSW, including William Bennett, Commissioner and Engineer-in-Chief for Roads and Bridges from 1863 to 1889, Percy Allan, a distinguished bridge engineer in the Department of Public Works for thirty years, eventually becoming the Chief Engineer, National and Local Government Works in 1918, and Gerald Wilkinson Mitchell, long-serving Manager and Engineer for the State Monier Pipe and Reinforced Concrete Works, who also became Director of the NSW Department of Public Works and General Manager of State Industrial Undertakings in 1930.

The former Windsor Bridge played a major role in shaping the history of the Hawkesbury area, as an important link between the communities on either side of the River and as an essential element in an important road route in the development of the Sydney region. In the town with a history stretching back to the earliest days of European settlement, the remaining part of the bridge is an important part of the historic fabric of Windsor and a key element of Windsor's history and identity.

2 Historical context

the following historical context has been extracted from the Windsor *Bridge Strategic Conservation Management Plan Volume 1* (2018), prepared for Roads and Maritime Services (RMS).

2.1 Windsor Bridge

For the first twenty years of European settlement in the Windsor area, the crossing of the Hawkesbury River occurred only infrequently. A small population and no settlement on the western side meant that there was initially little motivation to cross the river. Over the ensuing decades, expansion of the settlement, particularly after Governor Macquarie's approval of the township of Windsor and the founding of the town of Wilberforce on the northern side of the river in 1810, led to increasing cross-river traffic. A permanent crossing was established in 1814 with the commencement of Howe's Ferry and this service operated under various ownerships for the next sixty years.

2.1.1 A government bridge

During the 1840s and early 1850s in NSW, government buildings and public works were the responsibility of the Colonial Architect's Office and the Colonial Public Works department under the Colonial Engineer. However, subsequent to the establishment of democratic selfgovernment in 1855 and the state's population explosion following the discovery of gold (coinciding with wars and famines in Europe), the demand for public works exceeded the capacity of the Colonial Architect's Office and a new government agency, the Public Works Department (PWD), was established in 1859. There was, naturally, an intention to minimise demands upon the public purse and, typically, the government encouraged private enterprise to provide items of infrastructure such as bridges, except on a small number of designated government roads. The first Pyrmont Bridge, in 1858, and Glebe Island Bridge, in 1860, for example, were built by private companies and their crossing required payment of a toll. In 1857, the Richmond Bridge Company was formed to replace the existing ferry over the Hawkesbury River at North Richmond, and a wooden bridge was built across the river in 1860. It was designed and its construction supervised by E. O. Moriarty, the company's Engineer-in-Chief (also, at that time, Engineer-in-Chief for harbours and river navigation in the NSW Department of Works).

At Windsor, the road to Sydney was one of the 'public roads' of the colony and was administered by a Road Trust. To enter Windsor, a bridge over South Creek was necessary and there had been various structures since the 1820s. In the late 1850s, as the bridge at Richmond was nearing completion, there were several proposals for the formation of a similar company to erect a bridge at Windsor but, as reported in 1864:

A public meeting, convened by a requisition signed by a number of the leading inhabitants of Windsor, and advertised in Saturday's Herald, took place at the School of Arts on the afternoon of Monday last, for the purpose of considering the propriety of petitioning the Government and Legislature to erect a bridge across the Hawkesbury at Windsor. There was a large attendance, principally of the residents of Wilberforce ... At North Richmond, a most excellent bridge had been erected by a company but it was well known that that company had great difficulties to contend with – that in fact some three or four thousand pounds had been frittered away in its erection at the commencement, and that it had cost nearly double what its projectors originally intended. Up to the present time the proprietors had not received any return, but he was glad to learn that they were now in a fair way of getting interest for their money. The present meeting they would observe had been called to consider the propriety of petitioning the Government to erect a bridge. It would, therefore, be for them to determine whether they would do so or not. In this opinion there would be insurmountable difficulties, in the present depressed state of the

district, in the way of getting up any company, and great delay would arise in making the attempt. As to the Government, it seemed they had erected bridges in other parts of the colony – at the Paterson, for instance where they were much less required than at Windsor.¹

By October 1864, a petition had been presented to the NSW Parliament by the local Member of the Legislative Assembly, Mr Piddington, and the Under-Secretary for Public Works provided the following reply:

Department of Public Works, Sydney, 8rd October, 1361.

Sir.

In reference to the petition presented by you and Mr. Cunneen, from certain of the inhabitants of Windsor and neighbourhood, praying that a bridge may be erected over the Hawkesbury, at Windsor, I am directed by the Secretary for Public Works to Inform you that the Engineer-inchief for Harbours and Rivers has been instructed to have a survey and soundings made of the river at once, and to submit estimates for an iron and wooden bridge.

2. I am to add that if, when these estimates are received, the proposal to erect the bridge meets with the approval of the Government, a sum of money will be placed on the Additional

Estimates for 1865, for its construction.

I have the honour to be, Sir, your most obedient servant,

(Signed) Gerald Halligan, for the Under-Secretary.2

However, successive governments postponed the budget allocation and it was not until 1871 that the funding was finally provided. Moriarty, Engineer-in-Chief for Harbours and River Navigation, advised that there were:

two sites near the town on either of which the bridge might be erected. Mr. Moriarty said that if the bridge were erected at the site of the present ferry, it would be necessary, on account of the rocky nature of the locale, to construct the bridge of wrought iron piles; but the lower site would only necessitate the use of materials used on ordinary wooden bridges. Some discussion ensued, during which the Engineer-in-Chief stated that the Richmond Bridge cost about £8000; and he had no doubt that a bridge of a similar kind could be constructed at Windsor for £7000. The MINISTER instructed the Engineer-in-Chief to draw up the plans and specifications of both descriptions of bridges, and of the two sites referred to.³

The new bridge opened in 1874 – a timber beam bridge standing on wrought-iron piles. The design was by the Engineer for Roads, W. C. Bennett, and construction was by contractors Messrs Turnbull and Dixon.

The bridge, or rather the superstructure, is supported by ten iron cylindrical piers, each three feet six inches in diameter, filled with concrete and twenty feet apart, held together with diagonal bracing of channel iron. Its length, exclusive of approaches, is 455 feet and the breadth 20 feet clear. The deck is ironbark planking and the handrail of 1 3/4 inch gaspipe, so erected that each section can be disconnected and let down longitudinally, protecting it from floating debris in

¹ Sydney Morning Herald, Wednesday 25 May 1864; via Trove.

² Sydney Morning Herald, Thursday 6 October 1864; via Trove.

³ Empire, Saturday 12 August 1871; via Trove

time of flood. The operations in connection with the building were commenced about two years and a half ago, and the cost, it is understood, is about £10,000 with the approaches.⁴

Ten pairs of cylindrical iron piers of 3 feet 6 inches in diameter, filled with cement, were placed 20 feet apart and sunk into bedrock. The iron superstructure was diagonally braced and the 455-foot length was decked with 5-inch ironbark planking. The handrail was skilfully designed so that it could be let down outside the decking to protect the bridge from debris swept down by floods.⁵

Work was delayed by three floods of over 8 metres and forty lesser floods, but the official opening on 20 August 1874 was 'the greatest gala day' ever witnessed by the Sydney Morning Herald correspondent. In fact, the opening had been pre-empted on 10 July by the need to bury a Wilberforce man at St Matthew's in Windsor while the punt was out of order. However, the procession with two bands across the bridge, the triumphal arch declaring 'WELCOME', the public holiday for everyone in the town and the bullock roasted whole in Thompson Square made Thursday 20 August 1874 'a red-letter day in our history' (Figure 1).⁶

After the opening of the railway to Richmond via Windsor in 1864, Windsor changed from a place where local farmers loaded produce onto boats and ships (for transport to Sydney) to a place to which farmers brought their produce by boat and loaded it onto trains. There was a substantial population in the district by this time and, with ready access to Sydney suppliers, Windsor quickly became the primary commercial and administrative centre in the north-west.

There had been some debate regarding the height of the bridge and the regular flooding of the Hawkesbury River. The Minister for Works, the Honourable John Sutherland, in his speech at the opening, stated:

the facts connected with its erection, and pointed out why a low-level bridge was erected in place of a high-level structure. While the former cost but £10,000, the latter would have cost upwards of £60,000. In regard to levying of tolls, he promised that there would be no charge made for foot passengers, and that the scale of charges for animals and vehicles would be as low as that of any other bridge in the colony ... and would, he thought, bear favourable comparison with the charges levied on the bridge higher up.⁷

The materials and design of the bridge were a reflection of government policy. In 1861, the government had decreed that local materials (stone, brick and timber) must be used in preference to wrought iron for public works, as capital expenditure on imported wrought-iron structures represented a significant burden to government budgets. This directive was largely aimed at John Whitton, Engineer-in-Chief for the railways. Nonetheless, Whitton had convinced the government to finance large wrought-iron bridges at Menangle (1863) and Penrith (1867) for the railway lines west and south, for which the combined completed cost was £194,562 – an enormous sum for the colonial government. Consequently, road bridges in NSW, with slower, lighter traffic, were dominated by cheaper construction in timber.

⁴ Illustrated Australian News for Home Readers; Thurs. 1 Oct 1874; via Trove.

⁵ Sydney Morning Herald, 22 August 1874, p. 7; Bowd, Macquarie Country, pp. 62–3.

⁶ Sydney Morning Herald, 22 August 1874, p. 7; Sydney Mail, 18 July 1874, p. 85; Bowd, Macquarie Country, pp. 62–4; Bowd, Hawkesbury Journey, pp. 95–6; Department of Main Roads, The Roadmakers: A History of Main Roads in New South Wales, Sydney, 1976, pp. 49–50.

⁷ Australian Town and Country Journal, Sat. 22 Aug 1874; via Trove.

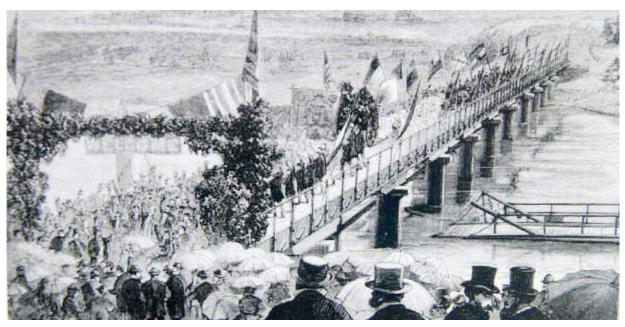


Figure 2. The official opening of Windsor Bridge in 1874. The redundant punt is moored alongside (source: E. and D. Syme, engraving, 'Opening of the New Bridge over the Hawkesbury, Windsor, N.S.W.' State Library of Victoria, reproduced in Windsor Bridge over the Hawkesbury River: preliminary Urban Design and Heritage review of options 1 and 3, RMS, Sydney, August 2011, 19.)

In most circumstances, timber beam bridges offered the cheapest and quickest solution, with simple construction details using local hardwoods. Thousands of these bridges were built, some as independent structures and some as approach spans to major bridges. Where larger spans were needed, laminated timber arches were the usual solution, although these did not have a long service life (a three-span timber laminated arch bridge over South Creek on the eastern side of Windsor only lasted from 1853 to 1881). By the mid-1870s, the PWD engineers were experimenting with timber truss bridges and, by the 1880s, engineers John MacDonald and Percy Allan had developed well engineered timber truss bridges that were economical to erect and maintain, which became the mainstay of bridging in NSW until the 1920s.

The provision of a bridge across the Hawkesbury at Windsor greatly improved the position of those who lived on the farms around Wilberforce and Ebenezer, providing them with ready access to Windsor railway station and its direct links to Parramatta and Sydney. The bridge also joined the Windsor road system to the Putty Road, leading to the Hunter, where many Hawkesbury families had settled since the early nineteenth century and which was developing industrial importance through the coal industry. In contrast, the other road bridge across the Upper Hawkesbury which was opened at North Richmond in 1860, and replaced by the present bridge in 1904, gave access mainly to Kurrajong and Bells Line of Road, which remained primarily a stock route for its first century and more.

The road curving through Thompson Square had a sharp bend onto the new bridge but the exit on the inland side was straight until it turned right into Wilberforce Road.

2.1.2 A higher level

A low-level bridge is usually placed at a certain height above normal water level, sufficient that the bridge is available for traffic in times of small floods, yet low enough to be submerged to a sufficient depth to allow drift timber to pass safely over in a major flood. The original Windsor Bridge was placed at 4.3 metres (14.5 feet) high above the tidal level; at Windsor, floods up to 10.8 metres (35 feet) above normal water level are relatively common and the flood of 1867

reached 20.6 metres (67 feet) above normal tide level.⁸ Consequently, it was relatively common for the Windsor Bridge to be inundated by the many small floods that affected the Hawkesbury River, as well as the larger ones. By the mid-1890s, with the bridge approaching two decades in service and requiring substantial maintenance, the decision was made to raise the deck level of the bridge, to reduce the number of occasions that it was impassable owing to flooding.

The works to raise the bridge were approved in June 1895 and completed in mid-1897 by Mr James McCall. The construction of the temporary bridge alongside the existing bridge, to carry traffic during works, was commenced on 9 September 1896. The temporary bridge was 460 feet long and was completed and opened for traffic in six weeks. The permanent bridge was raised by 2.5 metres (8 feet), by placing iron cylinders on top of the old ones; all corbels and girders were refitted and those that were unfit to be used again were replaced by new ones. The works also required modifications to the abutments, by inserting concrete 'strips' to stabilise the compacted earth on the new elevated approach alignment. At its new height, the bridge was longer by 6.1 metres (20 feet), with a new timber pier and abutment at the Wilberforce end. A new 10-centimetre (4-inch) tallowwood deck was laid diagonally, with new ironbark kerb logs and new iron handrails.⁹ The work was supervised by McCall, who also constructed a temporary bridge alongside it. The approach roads were improved and readjusted and the higher-level bridge was opened in April 1897.¹⁰

⁸ The Sydney Morning Herald, Sat. 22 Aug 1874; via Trove.

⁹ Windsor and Richmond Gazette, Saturday 3 April 1897; via Trove.

¹⁰ Windsor and Richmond Gazette, 3 April 1897, p. 6; Bowd, Macquarie Country, p. 64.

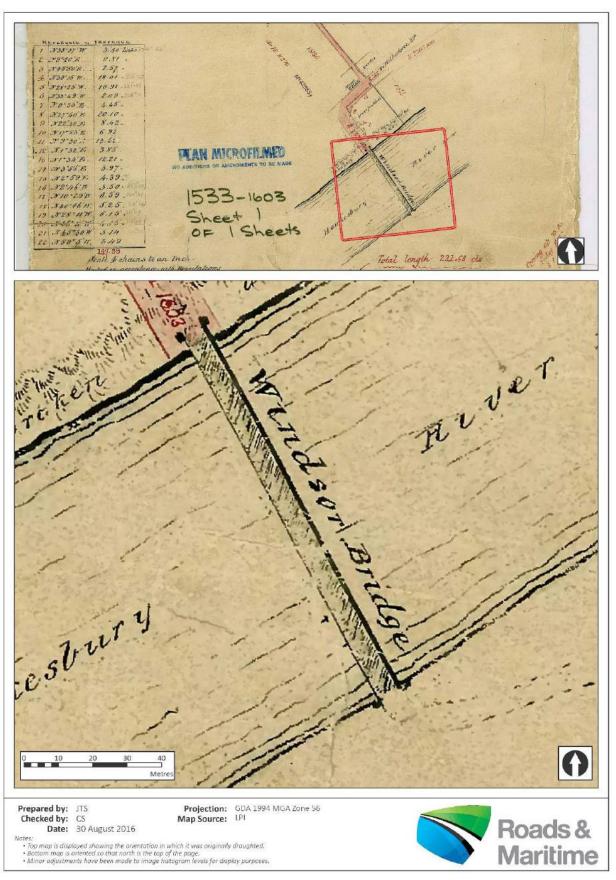


Figure 3. The alignment of Windsor Bridge, opened in 1874 (source: G Matcham Pitt, plan of Freemans Reach Road, 1878, LPI, R 1533.1603 sheet 1).



Figure 4. The low-level Windsor Bridge around 1880, facing north from Windsor (source: State Library of NSW, Mitchell Library, bcp 04404r).

2.1.3 New deck; new technology

By the end of World War 1, some two decades after its reconstruction in 1895, the Windsor Bridge was again in need of extensive renovation. Percy Allan, recently appointed as Chief Engineer, National and Local Government Works, determined that the economical solution was to construct a bridge on the existing piers, utilising the relatively new technology of reinforced concrete. A concrete slab and girder bridge was proposed, of similar profile to the existing timber bridge with respect to floodwaters, but which would be more durable.

Reinforced concrete owes its origins to the intuitive work of a number of French and English builders in the mid-nineteenth century, who used iron rods to stiffen monolithic concrete constructions. In the 1850s, Joseph Monier began using wire mesh in concrete to create a better flowerpot and developed the technique to use metal wire grids in concrete for columns and girders. He was granted a patent in 1873 for the construction of bridges and footbridges made of iron-reinforced cement and, in 1875, he built the world's first reinforced concrete bridge – a four-beam footbridge of 13.8 metre span and 4.25 metre width at the Castle of Chazelet in France.

This work was quickly understood to have important implications for the construction industry and, in 1879, German engineer G. A. Wayss purchased Monier's patents and added a scientific dimension to the manufacture of reinforced concrete over the next decade. The engineering contractors Wayss, Frietag and Schuster built the first commercial reinforced concrete bridges in Europe: the Monierbrau footbridge with a 40-metre span in Bremen, Germany; and the

Wildegg. Bridge in Switzerland, spanning 37 metres. It is reported that they had built 320 concrete arch bridges by 1891.¹¹

In Australia, W. J. Baltzer, a German engineer in the Sewerage Branch of the NSW PWD, became aware of this emerging technology through his brother in Germany. In 1890, he travelled to Germany to gather information but, on his return, was unsuccessful in piquing the interest of the department. Instead, he joined with several businessmen to form a company, Carter Gummow & Co, to obtain licences from Wayss to use the technology in Australia. Notably, Baltzer translated the existing German manuals on the engineering of reinforced concrete, allowing other engineers to grasp the underlying physics of the material, and the firm was subsequently awarded a contract to construct two sewerage aqueducts at Annandale (Whites Creek Aqueduct and Johnsons Creek Aqueduct, both still in service). Subject to potentially punishing contractual guarantees, the work was completed in 1897 and was universally considered a success. It initiated a long period of experimentation in the use of reinforced concrete for a wide range of applications.

By 1899, the first Monier concrete arch bridges had been built in NSW and Victoria (Monash & Anderson, the engineering consultancy of John Monash in Victoria, purchased the rights to use the Monier patents in Victoria and South Australia), and Monier pipes had been developed to a high degree. A reinforced concrete wall was erected at Parramatta Gaol in 1899 and, from 1902, pre-cast concrete panels on pre-cast concrete trestles were being erected as rat-proof seawalls around the waterfrontages of Sydney. In 1904, a new road bridge across the Hawkesbury River at Richmond was erected which used Monier reinforced concrete arches.

The first concrete beam bridge built in NSW was a small bridge over Muddy Creek on the Princes Highway at Rockdale, constructed in 1907, and other beam bridges were erected over American Creek near Figtree in 1914 and Throsby Creek, Wickham, and Shark Creek, Maclean, in 1916. The oldest extant concrete slab bridges in NSW are over Muttama Creek at Cootamundra (RTA Bridge No. 6438) and Surveyors Creek at Walcha (RTA Bridge No. 3485), both built in 1914.¹²

Concrete slab bridges, in this era, were universally cast in place, with timber formwork erected to form the mould around the concrete. The deck slab and the beams below the deck were formed as a single casting, allowing maximum structural capacity to be achieved in a single stage of work. For the Windsor Bridge, however, a new, unique approach was adopted. One criterion for the upgrade of the Windsor Bridge was that it must remain open to traffic throughout the replacement process. In 1895, this was achieved by the use of a temporary bridge but, for unknown reasons, a temporary bridge was not erected in 1920. Instead, the existing bridge was upgraded in two longitudinal half sections, with half the bridge remaining open while the other half was reconstructed. The logistics of this requirement meant that formwork construction was constrained and, for this reason, the concrete structural beams were individually cast in moulds on the riverbank adjacent to the bridge and lifted into place by crane when ready. The deck was then cast in place as a flat slab lying on the beams between piers.

The construction of the reinforced concrete elements of the Windsor Bridge was undertaken by the State Monier Pipe and Reinforced Concrete Works, a state government enterprise formed in 1915 when the NSW Government purchased the operations and intellectual property of Carter Gummow & Co. The bridge extended to 144 metres (468 feet) in length, with an additional (reinforced concrete) pier at the Wilberforce end, and 6.2 metres (20 feet) between kerbs. Its final height was 6.8 metres (22 feet) above normal river level (Figure 7).

¹¹ Historical Overview of Bridge Types in NSW: Extract from Study of Pre-1948 Slab and Concrete Arch Road Bridges; Burns Roe Worley & Heritage Assessment and History; Study for RTA NSW, 2005.

¹² Ibid

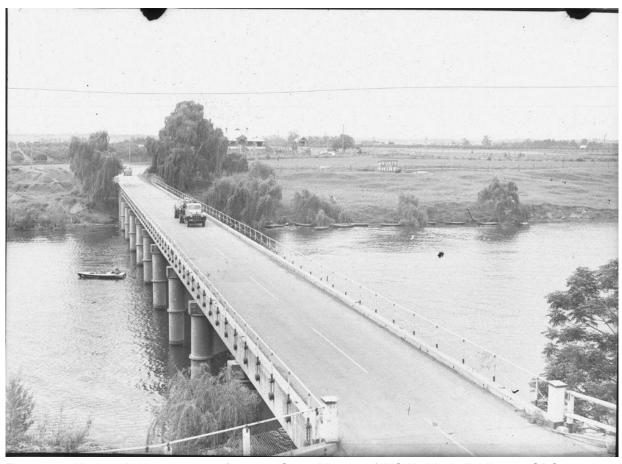


Figure 5. Windsor Bridge in 1947 (source: State Library of NSW, Mitchell Library. GPO 1-40931, 1_40931r).

3 Photographic recording sheets

1 October 2020

Photography of	Photography details				
Photographer:	Ben Calvert				
Date: 1 October 2020					
Camera:	Canon EOS 6D and 7D				
Lens:	16-35mm, 24-105mm				
Comments:	Recording of Windsor Bridge and surroundings. Photos show the deck being cut, lifted, and rolled.				

Image name	Direction	Details	Thumbnail
001_WINDSOR _BRIDGE_DEM OLITION_2020	S	Overview of former Windsor Bridge.	
002_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the northern abutment.	
003_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the southern abutment showing pontoon-mounted hydraulic lift.	
004_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Former Windsor Bridge spans.	

Image name	Direction	Details	Thumbnail
005_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Former Windsor Bridge spans.	
006_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of a span.	
007_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of a span.	
008_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of a span.	
009_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Southern abutment.	
010_WINDSOR _BRIDGE_DEM OLITION_2020	W	Approach to the southern abutment.	
011_WINDSOR _BRIDGE_DEM OLITION_2020	W	Approach to the northern abutment, including new footpath.	

Image name	Direction	Details	Thumbnail
012_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of former Windsor Bridge and northern abutment.	
013_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of former Windsor Bridge and the southern abutment.	
014_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of span, showing air bags.	
015_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of span, showing air bags.	
016_WINDSOR _BRIDGE_DEM OLITION_2020	W	Overview of span, showing air bags.	
017_WINDSOR _BRIDGE_DEM OLITION_2020	W	Overview of the northern abutment showing demolition yard.	
018_WINDSOR _BRIDGE_DEM OLITION_2020	W	Reinforced concrete wingwalls and northern abutment span.	

Image name	Direction	Details	Thumbnail
019_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Concrete saw cutting through a span deck.	
020_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Concrete saw cutting through a span deck.	
021_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of pontoon- mounted hydraulic lift showing generator and scaffolding.	
022_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Walkway girder and chain link fence extant between removed section of span.	
023_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Walkway girder and chain link fence.	
024_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Southern abutment showing reinforced concrete wingwall.	
025_WINDSOR _BRIDGE_DEM OLITION_2020	NB	Overview of span showing air bags on the deck.	

Image name	Direction	Details	Thumbnail
026_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of span showing air bags on the deck.	
027_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Northern abutment.	
028_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Deck cutting in progress. The deck is supported by a hydraulic lift.	
029_WINDSOR _BRIDGE_DEM OLITION_2020	W	Road saw blades and equipment.	
030_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Deck cutting using an oxyacetylene torch. The deck is supported by a hydraulic lift.	
031_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the road saw.	
032_WINDSOR _BRIDGE_DEM OLITION_2020	S	Southern abutment.	

Image name	Direction	Details	Thumbnail
033_WINDSOR _BRIDGE_DEM OLITION_2020	S	Condition of the southern approach.	
034_WINDSOR _BRIDGE_DEM OLITION_2020	S	Condition of the southern approach.	
035_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the southern abutment and access from The Terrace.	
036_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of a southern span.	
037_WINDSOR _BRIDGE_DEM OLITION_2020	SW	A removed deck span, cut by road saw and oxyacetylene torch.	
038_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of exposed deck.	
039_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of walkway girder and chain link fence.	

Image name	Direction	Details	Thumbnail
040_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of walkway girder and chain link fence.	
041_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of walkway girder and crosshead connection point.	
042_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of iron pers and reinforced concrete crosshead.	
043_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of pontoon- mounted hydraulic lift.	
044_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of Windsor Bridge and pontoon.	
045_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Exposed southern abutment concrete wingwalls.	
046_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Southern-most spans showing the condition of the peris and decking.	

Image name	Direction	Details	Thumbnail
047_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of Windsor Bridge during removal.	
048_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of Windsor Bridge during removal.	
049_WINDSOR _BRIDGE_DEM OLITION_2020	N	Condition of the deck during removal.	
050_WINDSOR _BRIDGE_DEM OLITION_2020	N	New Windsor Bridge on the right, former Windsor Bridge on the left.	
051_WINDSOR _BRIDGE_DEM OLITION_2020	N	New Windsor Bridge on the right, former Windsor Bridge on the left.	
052_WINDSOR _BRIDGE_DEM OLITION_2020	N	Overview of the southern abutment and approach.	
053_WINDSOR _BRIDGE_DEM OLITION_2020	N	Condition of the decking during removal.	

Image name	Direction	Details	Thumbnail
054_WINDSOR _BRIDGE_DEM OLITION_2020	N	Condition of the decking during removal.	
055_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the former Windsor bridge.	
056_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Southern-most spans.	
057_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the removal from the southern embankment.	
058_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Removed span of deck.	
059_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Cutting of the deck kerb using powered hand saw.	
060_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Cutting of the deck kerb using powered hand saw.	

Image name	Direction	Details	Thumbnail
061_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Removed span of deck.	
062_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Pontoon-mounted hydraulic lift.	
063_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Pontoon-mounted hydraulic lift.	
064_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of pontoon- mounted hydraulic lift and bridge.	
065_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Preparation of the deck for arranging air bags.	
066_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Condition of the former Windsor bridge deck during Removal.	
067_WINDSOR _BRIDGE_DEM OLITION_2020	S	Condition of the deck showing temporary scaffolding on the western elevation.	

Image name	Direction	Details	Thumbnail
068_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Condition of the deck during removal.	
069_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of air bags used for rolling deck spans.	
070_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of air bag used for rolling deck spans.	
071_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of valve and material.	
072_WINDSOR _BRIDGE_DEM OLITION_2020	S	Condition of the deck showing temporary scaffolding on the western elevation.	
073_WINDSOR _BRIDGE_DEM OLITION_2020	S	Detail of temporary scaffolding.	
074_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of powered boats used to manoeuvre the pontoon.	

Image name	Direction	Details	Thumbnail
075_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of cut through the deck kerbing.	
076_WINDSOR _BRIDGE_DEM OLITION_2020	S	Detail of deck span to be removed.	
077_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of deck span to be removed.	
078_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of kerbing and temporary covers.	
079_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of tools and air hoses.	
080_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Exposed span showing reinforced concrete deck.	
081_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Steel cable hopped with clasps.	

Image name	Direction	Details	Thumbnail
082_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Overview of the deck.	
083_WINDSOR _BRIDGE_DEM OLITION_2020	NE	Reinforcement and other metal stripped from the deck.	
084_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Northern abutment.	
085_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Northern abutment showing preparation of the deck for span removal.	
086_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Preparation of the deck span for lifting.	
087_WINDSOR _BRIDGE_DEM OLITION_2020	S	Positioning of the pontoon- mounted hydraulic lift.	
088_WINDSOR _BRIDGE_DEM OLITION_2020	S	Overview of the lifting operation, showing the deck span lifted above the bridge.	

Image name	Direction	Details	Thumbnail
089_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Windsor Bridge showing the deck span lifted above the bridge.	
090_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the bridge.	
091_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the bridge showing the air bags being prepared for rolling.	
092_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the bridge showing the air bags being prepared for rolling.	
093_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air bags connected to air hose.	
094_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of span removed from the deck.	
095_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the pontoon- mounted hydraulic lift raising the span above the bridge.	

Image name	Direction	Details	Thumbnail
096_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the pontoon- mounted hydraulic lift raising the span above the bridge.	
097_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Forklift manoeuvring air bags into position. Air bags have been skewed to allow for eastward drag.	
098_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Forklift manoeuvring air bags into position. Air bags skewed to allow for eastward drag.	
099_WINDSOR _BRIDGE_DEM OLITION_2020	W	Overview of air bags.	
100_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of demolition yard prepared for deck span removal.	
101_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Additional cutting of impeding section of deck with oxyacetylene torch.	
102_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Additional cutting of impeding section of deck with oxyacetylene torch.	

Image name	Direction	Details	Thumbnail
103_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon-mounted hydraulic lift during raising.	
104_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon-mounted hydraulic lift during raising.	
105_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the scaffolding and operating equipment.	
106_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the deck span raised above the bridge.	
107_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon-mounted hydraulic lift.	
108_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the scaffolding and operating equipment.	
109_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of scaffolding and hydraulic lift.	

Image name	Direction	Details	Thumbnail
110_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of deck span raided above the bridge.	
111_WINDSOR _BRIDGE_DEM OLITION_2020	W	Pontoon-mounted hydraulic lift during raising.	
112_WINDSOR _BRIDGE_DEM OLITION_2020	W	Pontoon-mounted hydraulic lift during raising.	
113_WINDSOR _BRIDGE_DEM OLITION_2020	W	Pontoon-mounted hydraulic lift during raising.	
114_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Pontoon-mounted hydraulic lift during raising.	
115_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Pontoon-mounted hydraulic lift during raising.	
116_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of deck span raised above the bridge.	

Image name	Direction	Details	Thumbnail
117_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of deck span raised above the bridge.	
118_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of suspended girder and fence.	
119_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the pier and detail of pontoon attachment to the pier.	
120_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the pier and detail of pontoon attachment to the pier.	
121_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the raising procedure.	
122_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of a previously removed span of deck.	

Image name	Direction	Details	Thumbnail
123_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the deck span being raised above the bridge.	
124_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the iron piers and reinforced concrete headstock.	
125_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Pontoon-mounted hydraulic lift during raising.	
126_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the pontoon- mounted hydraulic lift during raising.	
127_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of air bags being prepared for rolling.	
128_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the pontoon- mounted hydraulic lift during raising.	
129_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View of the former Windsor Bridge.	

Image name	Direction	Details	Thumbnail
130_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View of the former Windsor Bridge.	
131_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View of the removal works with the former Windsor Bridge to the left and the new Windsor bridge to the right.	
132_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Raised deck span with demolition yard in the background.	
133_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Raised demolition yard in the background.	
134_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon-mounted hydraulic lift during raising.	
135_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Contractors assessing hydraulics.	
136_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of walkway girder and fence.	

Image name	Direction	Details	Thumbnail
137_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Condition of the pier and detail of pontoon attachment to the pier.	
138_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of pontoon.	
139_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Raised deck span, showing airbag ready to be inflated underneath the span.	
140_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of hydraulic operating machinery.	
141_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of contractors arranging hydraulics and airbag.	
142_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Raised deck span, showing airbag ready to be inflated underneath the span.	
143_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air level being adjusted to allow for the weight of the span.	

Image name	Direction	Details	Thumbnail
144_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air level being adjusted to allow for the weight of the span.	
145_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air level being adjusted to allow for the weight of the span.	
146_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of arranging hydraulics and airbags underneath girder being arranged and inflated.	
147_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Raised deck span, showing airbag ready to be inflated underneath the span.	
148_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Airbag being aligned skew to account for drag.	
149_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of contractors arranging hydraulics and airbag.	
150_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of hydraulic operating machinery.	

Image name	Direction	Details	Thumbnail
151_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Southern span bridge section, cut with road saw and power hand saw.	
152_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Airbags underneath the deck span being inflated to allow for rolling.	
153_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Airbag being aligned skew to account for drag.	
154_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Spectators watching the bridge removal from the southern bank.	
155_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of connection point between the headstock and the girders.	
156_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the girders and the headstock.	
157_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of conduit and water services cut with oxyacetylene torch.	

Image name	Direction	Details	Thumbnail
158_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Airbags underneath the deck span being inflated to allow for rolling.	
159_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the cross bracing under the piers.	
160_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of connection point between the headstock and the girders.	
161_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the former Windsor Bridge.	
162_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the air bags showing excavator with steel cable attached.	
163_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Demolition yard showing excavator with steel cable attached.	
164_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Deck span pulled onto air bag. Air bag is being observed for obstructions and tears.	

Image name	Direction	Details	Thumbnail
165_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the cable looping and D-ring.	
166_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the cable looping and D-ring.	
167_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the rolling process.	
168_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the rolling process.	
169_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the cable looping and D-ring.	
170_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the cable looping and D-ring.	
171_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the excavator pulling the deck span.	

Image name	Direction	Details	Thumbnail
172_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the D-ring and connection to the excavator.	
173_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the D-ring and connection to the excavator.	
174_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the excavator pulling the deck span.	
175_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air bags ready to be inflated under the span.	
176_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the rolling process.	
177_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Assessing movement of the deck span.	TY THE
178_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the rolling process.	

Image name	Direction	Details	Thumbnail
179_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air bags ready to be inflated under the span.	
180_WINDSOR _BRIDGE_DEM OLITION_2020	W	Air bags ready to be inflated under the span.	
181_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Assessing movement of the deck span.	
182_WINDSOR _BRIDGE_DEM OLITION_2020	W	Assessing movement of the deck span.	
183_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the rolling process.	
184_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Air bags arranged skew to account for drag.	
185_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Excavator pulling the deck span.	

Image name	Direction	Details	Thumbnail
186_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Span deck rolling off hydraulic platform showing airbags underneath.	
187_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the hydraulic lift showing the platform raised.	
188_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the rolling process.	
189_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the deck span being rolled off the platform, also showing the camber of the deck.	
190_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the excavator pulling the deck.	
191_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Deck span showing the camber of the deck.	
192_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Deck span being rolled across the bridge.	

6 October 2020

Photography Details		
Photographer:	Ben Calvert	
Date:	6 October 2020	
Camera:	Canon EOS 5D and 7D	
Lens:	16-35mm, 24-105mm,	
Comments:	Preparation of the northern and southern embankments and removal of the land-based reinforced concrete pier. Detailed condition of a removed deck span included.	

Image name	Direction	Details	Thumbnail
193_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Earthworks around the northern embankment.	
194_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Earthworks around the northern embankment.	
195_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Condition of the northern embankment.	
196_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Earthworks around the northern embankment.	
197_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the northern embankment showing the deck removed from the former Windsor bridge.	

Image name	Direction	Details	Thumbnail
198_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the northern Windsor bridge showing the deck removed.	
199_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Assessing earthworks around the northern embankment.	
200_WINDSOR _BRIDGE_DEM OLITION_2020	W	Remove deck spans ready to be crushed and have their reinforcement stripped.	
201_WINDSOR _BRIDGE_DEM OLITION_2020	W	Detail of the condition of the reinforcement.	
202_WINDSOR _BRIDGE_DEM OLITION_2020	W	Detail of the condition of the concrete.	
203_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Sections of the deck to be crushed.	
204_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Earthworks around the northern embankment.	

Image name	Direction	Details	Thumbnail
205_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Earthworks around the northern embankment.	
206_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Earthworks around the northern embankment.	
207_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Condition of the reinforced concrete piers and headstock.	
208_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Sediment control in place around the embankment earth works.	
209_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Sediment control in place around the embankment earth works.	
210_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Iron and concrete pies with deck removed.	
211_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Iron and concrete pies with deck removed.	

Image name	Direction	Details	Thumbnail
212_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Iron and concrete pies with deck removed.	
213_WINDSOR _BRIDGE_DEM OLITION_2020	S	View toward "The Doctor's House" at 1 Thompson Square showing the former Windsor Bridge piers in the foreground.	
214_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of iron and concrete pies with deck removed.	
215_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the northern embankment.	
216_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the northern embankment showing earthworks.	
217_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the northern embankment showing earthworks.	FI FI
218_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the southern embankment showing the hydraulic lift and a removed deck span.	

Image name	Direction	Details	Thumbnail
219_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Span showing walkway girder and fence still connected to the headstock.	
220_WINDSOR _BRIDGE_DEM OLITION_2020	W	Condition of the southern embankment showing the retained bridge span to be used as an observation deck.	
221_WINDSOR _BRIDGE_DEM OLITION_2020	W	Retained bridge span to be used as an observation deck.	
222_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the southern embankment showing earthworks and the removed span.	
223_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the southern embankment showing earthworks and the removed span.	
224_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of bridge without decking, including hydraulic lift.	
225_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the northern abutment showing sandbags placed around concrete footings.	

Image name	Direction	Details	Thumbnail
226_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Powered boat used to manoeuvre sediment control.	
227_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Water-based iron and reinforced concrete piers shown in the foreground and completely reinforced concrete piers show in the background.	
228_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Lowering of sawing equipment onto a step in the embankment.	
229_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Preparation of sediment control around the concrete footing.	
230_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Removal of vegetation around the footings.	
231_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Arrangement of sawing equipment.	
232_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Preparation of sediment control.	

Image name	Direction	Details	Thumbnail
233_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Preparation of sediment control.	
234_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Manoeuvring pontoon into position allowing generator to power diamond tipped wire saw.	
235_WINDSOR _BRIDGE_DEM OLITION_2020	W	Manoeuvring pontoon into position allowing generator to power diamond tipped wire saw.	
236_WINDSOR _BRIDGE_DEM OLITION_2020	W	Pontoon in relation to piers.	
237_WINDSOR _BRIDGE_DEM OLITION_2020	W	Manoeuvring pontoon into position allowing generator to power diamond tipped wire saw.	
238_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Preparation of site for removal of piers.	
239_WINDSOR _BRIDGE_DEM OLITION_2020	W	Securing pontoon to adjacent piers.	

Image name	Direction	Details	Thumbnail
240_WINDSOR _BRIDGE_DEM OLITION_2020	W	Detail of securing pontoon to adjacent piers.	
241_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of securing pontoon to adjacent piers.	
242_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Removal of embankment vegetation complete.	
243_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Securing ropes and cables around headstock.	
244_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Securing ropes and cables.	
245_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Placing sandbags around the pies to prevent sediment leakage. Cutting works to be undertaken at low tide.	
246_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Placing sandbags around the pies to prevent sediment leakage.	

Image name	Direction	Details	Thumbnail
247_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Placing sandbags around the pies to prevent sediment leakage.	
248_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of cutting works.	
249_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Placing sandbags around the pies to prevent sediment leakage.	
250_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Site preparation.	
251_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Site preparation.	
252_WINDSOR _BRIDGE_DEM OLITION_2020	NW	placing geofabric around sandbags and set up for diamond tipped wire saw.	
253_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Set up for diamond tipped wire saw.	

Image name	Direction	Details	Thumbnail
254_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Diamond tipped wire saw being used to cut through the western pier.	
255_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Dimond tipped wire saw being used to cut though the eastern pier.	
256_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Dimond tipped wire saw being used to cut though the eastern pier.	
257_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Pontoon being manoeuvred away from the northern abutment.	
258_WINDSOR _BRIDGE_DEM OLITION_2020	S	Overview of the former Windsor bridge (right) and the New Windsor Bridge (left).	
259_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable being hooked around the headstock.	
260_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Condition of the pier before removal.	

Image name	Direction	Details	Thumbnail
261_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tide rising over sediment controls.	
262_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the land-based pier before removal.	
263_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Connecting cable to the excavator.	
264_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of cable being connected to the excavation with a D-ring.	
265_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of cable being connected to the excavation with a D-ring.	
266_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of cable being connected to the excavation with a D-ring.	
267_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable being pulled taut.	

Image name	Direction	Details	Thumbnail
268_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of cable being pulled taut.	
269_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Excavator pulling pier.	
270_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Excavator pulling pier.	
271_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Excavator pulling pier.	
272_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier leaning toward northern embankment.	
273_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier leaning toward northern embankment.	
274_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier leaning toward northern embankment.	

Image name	Direction	Details	Thumbnail
275_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier leaning toward northern embankment.	
276_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing.	
277_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing.	
278_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier removed from footings.	
279_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Assessing the point cut between the footings and the piers.	
280_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Boat crew assessing condition of the pier.	
281_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier as removed on the bank.	

Image name	Direction	Details	Thumbnail
282_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Excavator removing cable.	
283_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Excavator removing cable.	

2 December 2020

Photographic Details			
Photographer:	Ben Calvert		
Date:	2 December 2020		
Camera:	Canon EOS 5D and 7D		
Lens:	16-35mm, 24-105mm		
Comments:	Overview of materials stripped and removed from the deck and piers, including brickwork. Removal of water-based piers using inflatable pontoon.		

Image name	Direction	Details	Thumbnail
284_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the demolition yard showing crushed sections of deck and extracted reinforcement.	
285_WINDSOR _BRIDGE_DEM OLITION_2020	W	Detail of decking reinforcement.	
286_WINDSOR _BRIDGE_DEM OLITION_2020	W	Removed walkway girders.	
287_WINDSOR _BRIDGE_DEM OLITION_2020	N	Reinforcement stripped from the deck.	
288_WINDSOR _BRIDGE_DEM OLITION_2020	NE	Metal stripped from the deck.	

Image name	Direction	Details	Thumbnail
289_WINDSOR _BRIDGE_DEM OLITION_2020	NE	Metal stripped from the deck.	
290_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Formed bricks extracted from removed the iron piers and reconstructed. Bricks come in two forms.	
291_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of bricks arranged as they were inside the pier.	
292_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Detail of bricks arranged as they were inside the pier.	
293_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Interior view of the bricks.	
294_WINDSOR _BRIDGE_DEM OLITION_2020	NE	Detail showing the brick frog and ironstone inclusions.	
295_WINDSOR _BRIDGE_DEM OLITION_2020	NE	Details of brick frogs.	

Image name	Direction	Details	Thumbnail
296_WINDSOR _BRIDGE_DEM OLITION_2020	E	Broken brick fragments extracted from the pier.	
297_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air-filled pontoon manoeuvring to be attached to a water-based pier.	
298_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the pontoon showing it to be made up of polls fixed to a metal frame, supported underneath by airbags. The pontoon can be fixed parallel to the piers.	
299_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon being stabilised against the pier.	
300_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Excavator stabilising embankment.	
301_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Metal salvaged from the bridge used in stabilisation.	
302_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Makeshift frame used to stabilise bank.	

Image name	Direction	Details	Thumbnail
303_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver preparing to secure pontoon to the pier.	
304_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the securing process.	
305_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Ropes and cables being secured to the pontoon.	
306_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Condition of the southern abutment following earthworks. The southernmost span is to be retained as an observation deck.	
307_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the former Windsor Bridge (left) and the new Windsor bridge (right).	
308_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View of the demolition yard form the southern embankment.	
309_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Overview of the former Windsor bridge showing a remaining deck span.	

Image name	Direction	Details	Thumbnail
310_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View toward the former Windsor Bridge.	
311_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the remaining deck span.	
312_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View along the former Windsor Bridge showing concrete headstocks.	
313_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View of the northern embankment and demolition yard.	
314_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Condition of the remaining deck span.	
315_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Cross section of the deck, showing the density of aggregate and reinforcement.	
316_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Separating layer between the decking and girders.	

Image name	Direction	Details	Thumbnail
317_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Girder showing exposed reinforcement and condition, following removal.	
318_WINDSOR _BRIDGE_DEM OLITION_2020	NW	View of the water-based piers.	
319_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Inflatable pontoon secured to the pier at the cross bracing.	
320_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Securing ropes to the inflatable pontoon.	
321_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Securing ropes around the pier.	
322_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver securing ropes around the pier.	
323_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver securing ropes around the pier.	

Image name	Direction	Details	Thumbnail
324_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of ropes secured around the pier.	
325_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Deflating air bags to raise the inflatable pontoon parallel to the pier.	
326_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver assisting in deflation.	
327_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of raising process.	
328_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Secured end of the pontoon sinking.	
329_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Secured end of the pontoon sinking.	
330_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Secured end of the pontoon sinking.	

Image name	Direction	Details	Thumbnail
331_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Secured end of the pontoon sinking.	
332_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Secured end of the pontoon sinking.	
333_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Secured end of the pontoon sinking.	
334_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of rope secured to the pier.	
335_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of rope secured to the pier.	
336_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the metal frame.	
337_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the pontoon.	

Image name	Direction	Details	Thumbnail
338_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Assessing connection to the pier.	
339_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of pier condition.	
340_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of pier condition.	
341_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon manoeuvring to assist.	
342_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pontoon manoeuvring to assist raising the inflatable pontoon.	
343_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Securing the pontoon to adjacent piers.	
344_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of securing the pontoon to adjacent piers.	

Image name	Direction	Details	Thumbnail
345_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Inflatable pontoon positioned parallel to the pier.	
346_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the former Windsor Bridge and raising procedure.	
347_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Inflatable pontoon positioned parallel to the pier.	
348_WINDSOR _BRIDGE_DEM OLITION_2020		Cutting connecting girders with oxyacetylene torch.	
349_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of pontoon assisting with pier removal, including scaffolding, excavator and generator.	
350_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cutting of girder with oxyacetylene torch.	
351_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of cutting.	

Image name	Direction	Details	Thumbnail
352_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cutting girder with oxyacetylene torch.	
353_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of cutting.	
354_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cutting girder with oxyacetylene torch.	
355_WINDSOR _BRIDGE_DEM OLITION_2020		Positioning sediment control, assisted by diver.	
356_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Details of girder with cut.	
357_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Raising inflatable pontoon with excavator.	
358_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diving crew assisting with raising inflatable pontoon.	

Image name	Direction	Details	Thumbnail
359_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Raising inflatable pontoon.	
360_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of raising process.	
361_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of excavator.	
362_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Inflation of lower air bags on the pontoon.	

3 December 2020

Photographic of	Photographic details		
Photographer:	Ben Calvert		
Date:	3 December 2020		
Camera:	Canon EOS 5D and 7D		
Lens:	16-35mm, 24-105mm,		
Comments:	Connecting additional airbags and preparing the northern embankment for removal of the pier		

Image name	Direction	Details	Thumbnail
363_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of air bag connections to the inflatable pontoon.	
364_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of pontoon secured to the pier.	
365_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Additional air bags being secured to the inflatable pontoon.	
366_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of securing using straps and ropes.	
367_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail inflatable pontoon against the pier.	

Image name	Direction	Details	Thumbnail
368_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tension held by boat crew.	
369_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver securing airbags with straps and ropes.	
370_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of preparation.	
371_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the northern embankment showing geofabric.	
372_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Preparing cables to be connected between the pier and excavator.	
373_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Excavator with D-ring attached.	
374_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Inflatable pontoon being prepared for removal.	

4 December 2020

Photographic Details			
Photographer:	Ben Calvert		
Date:	December 4 2020		
Camera:	Canon EOS 5D and 7D		
Lens:	16-35mm, 24-105mm,		
Comments:	Collapse of pier into the water and removal of the girder		

Image name	Direction	Details	Thumbnail
375_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the pier and inflatable pontoon.	
376_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of the air bag arrangement.	
377_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cutting additional sections of girder.	
378_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Additional air bags added to the pier and girder.	

Image name	Direction	Details	Thumbnail
379_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of air bag connection.	
380_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of removal.	
381_WINDSOR _BRIDGE_DEM OLITION_2020	W	Directing the removal of the pier.	
382_WINDSOR _BRIDGE_DEM OLITION_2020	W	Detail of the cable connection to the excavator.	
383_WINDSOR _BRIDGE_DEM OLITION_2020	W	Preparation for removal of the pier.	
384_WINDSOR _BRIDGE_DEM OLITION_2020	W	Detail of D-ring connection.	

Image name	Direction	Details	Thumbnail
385_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tautening the cable.	
386_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Sediment control around the removal.	
387_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tension being applied to the pier.	
388_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of tension applied to the pier.	
389_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of tension applied to the pier.	
390_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable clamps securing the loop break.	

Image name	Direction	Details	Thumbnail
391_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tension is lost on the pier.	
392_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of clamp break.	
393_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of inflatable pontoon parallel to the pier.	
394_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Clamp reattached and cable secured.	
395_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tension applied to piers.	
396_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Tension applied to piers.	

Image name	Direction	Details	Thumbnail
397_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder giving away.	
398_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder sinking into water.	
399_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder supported by air bag.	
400_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder supported by air bag and pier giving way.	
401_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	
402_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	

Image name	Direction	Details	Thumbnail
403_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	
404_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	
405_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	
406_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	
407_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto air bags.	
408_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Pier collapsing onto airbags.	

Image name	Direction	Details	Thumbnail
409_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air bag connections failing and pier sinking to riverbed.	
410_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air bag connections failing and pier sinking to riverbed.	
411_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air bag connections failing and pier sinking to riverbed. Girder remains supported by airbag.	
412_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Crew filling airbag to keep it supported after suspected tear.	
413_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable being connected to the girder to retrieve it from the water.	
414_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable connected to girder, retrieving it from the water.	

Image name	Direction	Details	Thumbnail
415_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable connected to girder, retrieving it from the water.	
416_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable connected to girder, retrieving it from the water.	
417_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable connected to girder, retrieving it from the water.	
418_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Cable connected to girder, retrieving it from the water.	
419_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder resting on the northern embankment.	
420_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Excavator moving the girder onto land.	

Image name	Direction	Details	Thumbnail
421_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Detail of condition of girder and fence.	
422_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder being moved up the embankment.	
423_WINDSOR _BRIDGE_DEM OLITION_2020	W	Excavator applying tension to the girder.	
424_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder being moved up the embankment, using air bag to roll it.	
425_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder being moved up the embankment, using air bag to roll it.	
426_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder being moved up the embankment, using air bag to roll it.	

Image name	Direction	Details	Thumbnail
427_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder raised up the embankment.	
428_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder raised up the embankment.	
429_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Girder raised up the embankment.	
430_WINDSOR _BRIDGE_DEM OLITION_2020	W	Moving the girder up the embankment.	
431_WINDSOR _BRIDGE_DEM OLITION_2020	W	Moving the girder up the embankment.	

8 December 2020

Photographic of	Photographic details		
Photographer:	Ben Calvert		
Date:	8 December 2020		
Camera:	Canon EOS 5D and 7D		
Lens:	16-35mm, 24-105mm,		
Comments:	Preparation for the recovery of the pier		

Image name	Direction	Details	Thumbnail
432_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Overview of the location of the submerged pier.	
433_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Submerged pier marked by yellow buoys.	
434_WINDSOR _BRIDGE_DEM OLITION_2020	SE	Pontoon being moved into place to assist removing pier from the riverbed.	
435_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver assessing the condition of the inflatable pontoon.	TILL !

Image name	Direction	Details	Thumbnail
436_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Support crews located on the northern embankment.	
437_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Support crews located on the northern embankment.	
438_WINDSOR _BRIDGE_DEM OLITION_2020	S	Overview of the former Windsor Bridge, noting the demolition.	
439_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Sediment controls being moved around the pier.	
440_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Diver assessing the condition of the inflatable pontoon.	
441_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Air hose being attached to air bags underneath the inflatable pontoon.	

Image name	Direction	Details	Thumbnail
442_WINDSOR _BRIDGE_DEM OLITION_2020	SW	hose being attached to air bags underneath the inflatable pontoon.	
443_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Cable being tied to the excavator.	
444_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of cable being taken to the submerged pier.	
445_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of the cable connection to the survey mark.	
446_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Detail of excavator.	
447_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Removal of part of the pier.	9

Image name	Direction	Details	Thumbnail
448_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Removal of part of the pier.	2
449_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Removal of part of the pier.	
450_WINDSOR _BRIDGE_DEM OLITION_2020	NW	Excavator putting cable in tension.	
451_WINDSOR _BRIDGE_DEM OLITION_2020	SW	Removal of part of the pier aborted after it was found to be catching.	

13 January 2021

Photographic details			
Photographer:	Ben Calvert		
Date:	13 January 2021		
Camera:	Canon EOS 5D and 7D		
Lens:	16-35mm, 24-105mm,		
Comments:	Condition of an iron pier, as removed from the river-bed		

Image name	Direction	Details	Thumbnail
452_WINDSOR _BRIDGE_DEM OLITION_2021	S	Detail of the head of an iron pier. The pier is infilled with large aggregate concrete.	
453_WINDSOR _BRIDGE_DEM OLITION_2021	W	Detail of the pier head showing the flange and ribbing.	
454_WINDSOR _BRIDGE_DEM OLITION_2021	W	Detail of the flange and ribbing showing the condition to be poor.	
455_WINDSOR _BRIDGE_DEM OLITION_2021	W	Condition of the rim.	

Image name	Direction	Details	Thumbnail
456_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Pier rim showing bolt holes used to connect to the headstock.	
457_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Condition of bolt holes.	
458_WINDSOR _BRIDGE_DEM OLITION_2021	S	Detail of concrete inside the pier, showing modern sharp angled aggregate associated with the headstocks.	
459_WINDSOR _BRIDGE_DEM OLITION_2021	S	Detail of concrete inside the pier, showing modern sharp angled aggregate associated with the headstocks.	
460_WINDSOR _BRIDGE_DEM OLITION_2021	S	Detail of bolt still attached through the pier rim.	
461_WINDSOR _BRIDGE_DEM OLITION_2021	W	Base of the pile, showing internal ribbing and flanges.	

Image name	Direction	Details	Thumbnail
462_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Interior of the pier, showing older river pebble aggregate, associated with the construction of the piers.	
463_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Detail of bolts in the flange. The break in the pier shows oxidation through the iron.	
464_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Break in the pier showing oxidation through the iron.	
465_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Aggregate shown to be large river stones.	
466_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Overview of the bottom of the pier.	
467_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Condition of the pier as removed from the water.	

Image name	Direction	Details	Thumbnail
468_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Condition of the pier showing an accretion on the exterior. The accretion may be one of several substances, including natural oxidisation mixed with algae or hydraulic cement render.	
469_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Coating shown to extend partway up the pier.	
470_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Condition of pier.	
471_WINDSOR _BRIDGE_DEM OLITION_2021	NE	Detail of oxidisation through the pier, showing it to be extensive.	
472_WINDSOR _BRIDGE_DEM OLITION_2021	E	Overview of oxidisation.	
473_WINDSOR _BRIDGE_DEM OLITION_2021	E	Detail of coating, showing it to have been partially removed when extracted from the riverbed.	

Image name	Direction	Details	Thumbnail
474_WINDSOR _BRIDGE_DEM OLITION_2021	E	Underside of the coating shown to be moist.	
475_WINDSOR _BRIDGE_DEM OLITION_2021	E	Pier seam shown to be covered by the coating.	
476_WINDSOR _BRIDGE_DEM OLITION_2021	NW	Overview of the pier.	
477_WINDSOR _BRIDGE_DEM OLITION_2021	NW	Overview of the pier.	
478_WINDSOR _BRIDGE_DEM OLITION_2021	NW	Scale of pier shown at human height.	
479_WINDSOR _BRIDGE_DEM OLITION_2021	NW	Overview of pier.	

Image name	Direction	Details	Thumbnail
480_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Overview of pier.	
481_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Pier set against the embankment.	
482_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Overview of the pier.	
483_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Pier along the embankment.	
484_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Pier set against the embankment.	
485_WINDSOR _BRIDGE_DEM OLITION_2021	SW	Overview of the pier.	

3 February 2021

Photographic details		
Photographer:	Dominic Callaghan	
Date:	3 February 2021	
Camera:	iPhone	
Lens:		
Comment	Additional photography captured onsite identifying headstock numbers and a Lewis Bolt	

Image name	Direction	Details	Thumbnail
486_WINDSOR _BRIDGE_DEM OLITION_2021	N	Pier showing exposed section of a Lewis Bolt in the centre.	
487_WINDSOR _BRIDGE_DEM OLITION_2021	N	Removed headstock showing a construction number.	
488_WINDSOR _BRIDGE_DEM OLITION_2021	S	Removed headstock showing a construction number.	
489_WINDSOR _BRIDGE_DEM OLITION_2021	S	Removed headstock showing a construction number.	

Image name	Direction	Details	Thumbnail
490_WINDSOR _BRIDGE_DEM OLITION_2021	NW	Exposed Lewis bolt found in the centre of the pier.	

March 2021

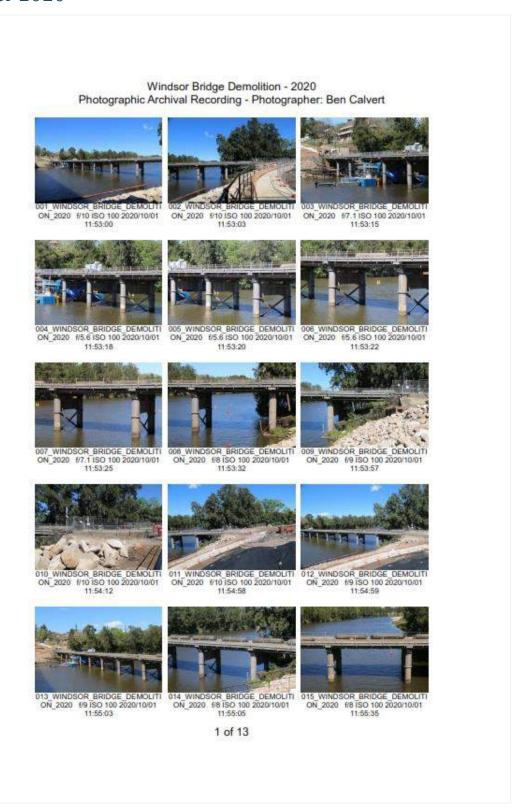
Photographic details			
Photographer:	Dominic Callaghan		
Date:	1 March 2021 and 2 March 2021		
Camera:	iPhone		
Lens:			
Comment	Additional photography identifying the 1922 bridge corner post and a rope ladder found inside the pier.		

Image name	Direction	Details	Thumbnail
491_WINDSOR _BRIDGE_DEM OLITION_2021	NE	1922 bridge corner post	

Image name	Direction	Details	Thumbnail
492_WINDSOR _BRIDGE_DEM OLITION_2021	E	Rope ladder embedded in concrete fill within bridge caisson.	
493_WINDSOR _BRIDGE_DEM OLITION_2021	E	Rope ladder embedded in concrete fill within bridge caisson.	
494_WINDSOR _BRIDGE_DEM OLITION_2021	S	Length of the 1922 bridge corner measuring 870mm	
495_WINDSOR _BRIDGE_DEM OLITION_2021	S	Width of the 1922 bridge corner measuring 450mm	

4 Photographic proof sheets

1 October 2020





ON_2020 f/7.1 ISO 100 2020/10/01 11:56:37



ON_2020 69 ISO 100 2020/10/01 11:55:41



ON 2020 f/8 ISO 100 2020/10/01 11:55:43



019 WINDSOR BRIDGE DEMOLITI ON 2020 #7.1 ISO 100 2020/10/01



020 WINDSOR BRIDGE DEMOLITI ON_2020 #8 ISO 100 2020/10/01 11:56:27



021_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/9 ISO 100 2020/10/01 11:56;31



022 WINDSOR BRIDGE DEMOLITI ON 2020 17.1 ISO 100 2020/10/01 11:56:34



023 WINDSOR BRIDGE DEMOLITI ON 2020 f/6.3 ISO 100 2020/10/01 11:56:36



024 WINDSOR BRIDGE DEMOLITI ON 2020 67:1 ISO 100 2020/10/01 11:56:38



025_WINDSOR_BRIDGE_DEMOLITI ON_2020_67.1 ISO 100 2020/10/01 11:56:42



026 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/10/01 11:56:46



027 WINDSOR BRIDGE DEMOLITI ON 2020 17.1 ISO 100 2020/10/01 11:58:48



028 WINDSOR BRIDGE DEMOLITI ON 2020 69 ISO 100 2020/10/01 11:57:17



029 WINDSOR BRIDGE DEMOLITI ON 2020 1/10 ISO 100 2020/10/01 11:57:19



030 WINDSOR BRIDGE DEMOLITI ON 2020 fi9 ISO 100 2020/10/01 11:57:23

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ON 2020 1/8 ISO 100 2020/10/01 11:57:26



ON 2020 6/9 ISO 100 2020/10/01 11:57:43



ON 2020 f/8 ISO 100 2020/10/01 11:57:45



034 WINDSOR BRIDGE DEMOLITI ON 2020 6/9 ISO 100 2020/10/01 11:57:48



035 WINDSOR BRIDGE DEMOLITI ON 2020 1/9 ISO 100 2020/10/01 11:57:50



72.0 036_WINDSOR_BRIDGE_DEMOLITI ON_2020_67.1 ISO 100 2020/10/01 ++-57.62 11:57:52



037 WINDSOR BRIDGE DEMOLITI ON 2020 69 ISO 100 2020/10/01 11:58:00



038 WINDSOR BRIDGE DEMOLITI 039 WINDSOR BRIDGE DEMOLITI ON 2020 67.1 ISO 100 2020/10/01 ON 2020 67.1 ISO 100 2020/10/01 11:58:02





040 WINDSOR BRIDGE DEMOLITI ON 2020 67.1 ISO 100 2020/10/01 11:58:05



041 WINDSOR BRIDGE DEMOLITI ON 2020 (6.3 ISO 100 2020/10/01 11:58:08



042 WINDSOR BRIDGE DEMOLIT ON 2020 1/8 ISO 100 2020/10/01 11:58:19



043 WINDSOR BRIDGE DEMOLITI ON 2020 69 ISO 100 2020/10/01 11:58:22



044 WINDSOR BRIDGE DEMOLITI ON_2020 (99 ISO 100 2020/10/01 ON_2020 (99 ISO 100 2020/10/01 11:58:27 11:58:55





046 WINDSOR BRIDGE DEMOLITE ON 2020 1/9 ISO 100 2020/10/01 11:59:06



047_WINDSOR_BRIDGE_DEMOLITI ON_2020_69 ISO 100 2020/10/01 11:59:08



ON 2020 f/9 ISO 100 2020/10/01 11:59:28



049 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/10/01 12:00:44



050 WINDSOR BRIDGE DEMOLITI ON 2020 1/10 ISO 100 2020/10/01 12:00:48



051 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/10/01 12:00:51



052 WINDSOR BRIDGE DEMOLITI ON 2020 (/8 ISO 100 2020/10/01 12:01:05



053 WINDSOR BRIDGE DEMOLITI ON 2020 98 ISO 100 2020/10/01 12:01:11



054 WINDSOR BRIDGE DEMOLITI ON 2020 67 1 ISO 100 2020/10/01



055 WINDSOR BRIDGE DEMOLIT ON 2020 1/8 ISO 100 2020/10/01 12:02:22



056 WINDSOR BRIDGE DEMOLITI ON_2020 f/5.6 ISO 100 2020/10/01 12:02:26



057 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.8 ISO 100 2020/16/01



12:02:59



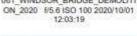
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060_WINDSOR_BRIDGE_DEMOLITI ON_2020_65.6 ISO 100 2020/10/01 12:03:17









ON 2020 f/9 ISO 100 2020/10/01 12:05:41



10:08:14







085 WINDSOR BRIDGE DEMOLITI ON 2020 f/7.1 ISO 100 2020/10/02 10:13:28

068 WINDSOR BRIDGE DEMOLITI ON 2020 f/9 ISO 100 2020/10/02 10:15:52



067 WINDSOR BRIDGE DEMOLITI ON 2020 69 ISO 100 2020/10/02



068_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/10 ISO 100 2020/10/02 10:16:15



069 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/10/02



070 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/10/02 10:18:31



071 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/10/02 10:16:36



072 WINDSOR BRIDGE DEMOLITI ON 2020 17.1 ISO 100 2020/10/02 10:16:46



10:16:48



073 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/10/02 ON 2020 6/5 6 ISO 100 2020/10/02 10:17:33



075 WINDSOR BRIDGE DEMOLITI ON 2020 f/8 ISO 100 2020/10/02 10:19:01

5 of 13



ON 2020 #9 ISO 100 2020/10/02 10:19:04



077 WINDSOR BRIDGE DENIGE... ON 2020 1/10 ISO 100 2020/10/02 10:19:09



ON 2020 f/9 ISO 100 2020/10/02 10:19:12



079 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/10/02 10:19:14



080 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/10/02 10:19:19



081 WINDSOR BRIDGE DEMOLITI ON 2020 1/10 ISO 100 2020/10/02 10:20:26



082 WINDSOR BRIDGE DEMOLITI ON 2020 #9 ISO 100 2020/10/02 10:20:37



083 WINDSOR BRIDGE DEMOLITI ON 2020 17.1 ISO 100 2020/10/02



084 WINDSOR BRIDGE DEMOLIT ON 2020 1/8 ISO 100 2020/10/02



085 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/10/02 10:44:52



086 WINDSOR BRIDGE DEMOLITI ON 2020 fr6.3 ISO 100 2020/10/02 11:48:32



087_WINDSOR_BRIDGE_DEMOLITI ON_2020_67.1 ISO 180 2020/16/02 12:09:47



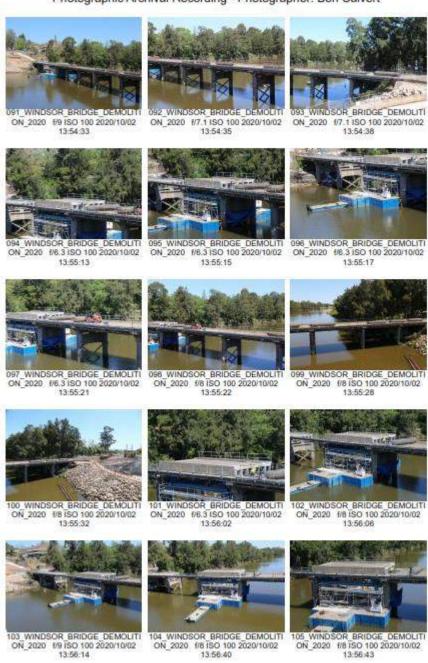
088 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/10/02 13:53:20



089 WINDSOR BRIDGE DEMOLITI ON 2020 1/9 ISO 100 2020/10/02 13:53:22 13:54:30



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13:56:14



ON_2020 f/7.1 ISO 100 2020/10/02 13:56:48



107_WINDSOR_BRIDGE_DEMOLITI ON_2020 #8 ISO 100 2020/10/02 13:57:14



ON 2020 f/8 ISO 100 2020/10/02 13:57:17



09 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/10/02 13:57:20



110_WINDSOR_BRIDGE_DEMOLITI ON_2020: 6/8 ISO 100 2020/10/02 13:57:26



111 WINDSOR BRIDGE DEMOLITI ON 2020 1/9 ISO 100 2020/10/02 13:57:44



112 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/10/02



113 WINDSOR BRIDGE DEMOLITI ON 2020 68 ISO 100 2020/10/02 13:57:57



114 WINDSOR BRIDGE DEMOLITI ON_2020 69 ISO 100 2020/10/02 13:58:16



115_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/7.1 ISO 100 2020/10/02 13:58:22



116 WINDSOR BRIDGE DEMOLITI ON_2020 1/7.1 ISO 100 2020/10/02 ON_2020 (6.3 ISO 100 2020/10/02 13:58:26 13:58:30





118 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/10/02



119 WINDSOR BRIDGE DEMOLITI ON_2020 f/7.1 ISO 100 2020/10/02 13:58:36



120 WINDSOR BRIDGE DEMOLITI ON 2020 68.3 ISO 100 2020/10/02



ON 2020 1/8 ISO 100 2020/10/02 13:59:08



122 WINDSOR BRIDGE DEMOLITI 123 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/10/02 ON 2020 1/5.6 ISO 100 2020/10/02 13:59:14





124 WINDSOR BRIDGE DEMOLITI ON 2020 6/5 ISO 100 2020/10/02 13:59:15



125 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/10/02 13:59:17



128 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/10/02 13:59:20





127 WINDSOR BRIDGE DEMOLITI 128 WINDSOR BRIDGE DEMOLITI 129 WINDSOR BRIDGE DEMOLITI ON 2020 #6.3 ISO 100 2020/10/02 ON 2020 #5.6 ISO 100 2020/10/02 ON 2020 #5.6 ISO 100 2020/10/02 13:59:47





130 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/10/02 14:00:36



131 WINDSOR BRIDGE DEMOLITI ON 2020 99 ISO 100 2020/10/02 14:00:43



132 WINDSOR BRIDGE DEMOLITI ON 2020 15.6 ISO 100 2020/16/02 14:01:23



14:01:27



133 WINDSOR BRIDGE DEMOLITI 134 WINDSOR BRIDGE DEMOLITI 135 WINDSOR BRIDGE DEMOLITI 0N 2020 fr7.1 ISO 100 2020/10/02 ON 2020 fr8.3 ISO 100 2020/10/02 ON 2020 fr8.3 ISO 160 2020/10/02 15:12:25





ON_2020 f/6.3 ISO 160 2020/10/02 15:12:32



137 WINDSOR BRIDGE DEMOLITI 138 WINDSOR BRIDGE DEMOLITI ON 2020 66.3 ISO 400 2020/10/02 ON 2020 66.3 ISO 100 2020/10/02 15:12:34 15:12:38





139 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/10/02 15:14:19



140_WINDSOR_BRIDGE_DEMOLITI ON_2020_656.6SO_100.2020/10/02 15:14:22



141 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 160 2020/10/02 15:14:28



142 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/10/02



143 WINDSOR BRIDGE DEMOLITI 144 WINDSOR BRIDGE DEMOLITI ON 2020 f/8.3 ISO 100 2020/10/02 ON 2020 f/7.1 ISO 100 2020/10/02 15:14:35



15:14:37



145 WINDSOR BRIDGE DEMOLITI ON 2020 #6.3 ISO 100 2020/10/02 15:14:41



146 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/10/02 15:15:24



147 WINDSOR BRIDGE DEMOLITI ON 2020 06.3 ISO 100 2020/16/02 15:15:26





148 WINDSOR BRIDGE DEMOLITI ON 2020 #6.3 ISO 100 2020/10/02 15:15:28



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ON 2020 6/5.6 ISO 640 2020/10/02 16:22:04



ON 2020 f/5.6 ISO 100 2020/10/02 16:22:12



ON_2020 65.6 ISO 100 2020/10/02 16:22:14



169 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/10/02 16:22:16



170 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/10/02 16:22:17



171 WINDSOR BRIDGE DEMOLIT ON 2020 f/5 ISO 100 2020/10/02 16:22:25



172 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 250 2020/10/02



173 WINDSOR BRIDGE DEMOLITI 174 WINDSOR BRIDGE DEMOLITI ON 2020 6/5.6 ISO 250 2020/10/02 ON 2020 6/6.3 ISO 160 2020/10/02



16:22:33



175 WINDSOR BRIDGE DEMOLITI ON 2020 #5.6 ISO 100 2020/10/02 16:22:37



176 WINDSOR BRIDGE DEMOLITI ON 2020 #6.3 ISO 100 2020/10/02 16:22:40



177 WINDSOR BRIDGE DEMOLITI ON 2020 15.6 ISO 100 2020/16/02 16:23:09





178 WINDSOR BRIDGE DEMOLITI ON 2020 fr6.3 ISO 100 2020/10/02 ON 2020 fr7.1 ISO 100 2020/10/02



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16:26:43

Windsor Bridge Demolition - 2020 Photographic Archival Recording - Photographer: Ben Calvert 194_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/8 ISO 100 2020/11/06 10:06:06 195_WINDSOR_BRIDGE_DEMOLITI ON_2020 | f/5.6 ISO 100 2020/11/08 10:06:07 DEMOLITI ON 2020 1/8 ISO 100 2020/11/06 10:06:03 198 WINDSOR BRIDGE DEMOLIT ON 2020 f/9 ISO 100 2020/11/06 96 WINDSOR BRIDGE DEMOLITI ON 2020 f/9 ISO 100 2020/11/06 197 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/11/08 199 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/11/06 200 WINDSOR BRIDGE DEMOLITI 201 WINDSOR BRIDGE DEMOLITI ON 2020 #10 SO 100 2020/11/06 ON 2020 #8 SO 100 2020/11/06 10:07:25 10:07:55 10:07:57 202 WINDSOR BRIDGE DEMOLITI ON 2020 67.1 ISO 100 2020/11/06 203 WINDSOR BRIDGE DEMOLITI ON 2020 1/9 ISO 100 2020/11/06 204 WINDSOR BRIDGE DEMOLITI ON 2020 1/10 ISO 100 2020/11/06 10:15:08 206 WINDSOR BRIDGE DEMOLITI 207 WINDSOR BRIDGE DEMOLITI ON 2020 f/8 ISO 100 2020/11/06 ON 2020 f/8 ISO 100 2020/11/06 ON 2020 f/8 ISO 100 2020/11/08 10:15:10 10:15:15 10:15:18 1 of 7



ON 2020 1/8 ISO 100 2020/11/06 10:15:19



209 WINDSOR BRIDGE DEMOLITI ON 2020 f/8 ISO 100 2020/11/06 10:15:22



ON 2020 f/7.1 ISO 100 2020/11/06 10:15:24



211_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/6.3 ISO 100 2020/11/06 10:15:26



212 WINDSOR BRIDGE DEMOLITI 213 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/11/06 ON 2020 1/8 ISO 100 2020/11/06 10:15:28



10:15:33



214 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/11/06



215 WINDSOR BRIDGE DEMOLITI ON 2020 1/9 ISO 100 2020/11/08 10:15:40



216 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/11/06 10:16:15



217 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/11/06 10:16:20



218 WINDSOR BRIDGE DEMOLITI ON 2020 f/9 ISO 100 2020/11/06 10:17:18



219 WINDSOR BRIDGE DEMOLITI ON 2020 177.1 ISO 100 2020/11/08 10:17:21



220_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/10 ISO 100 2020/11/06



221 WINDSOR BRIDGE DEMOLITI ON 2020 f/8 ISO 100 2020/11/06 10:18:11



222 WINDSOR BRIDGE DEMOLIT ON_2020 f/10 ISO 100 2020/11/06 10:45:10

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236 WINDSOR BRIDGE DEMOLITI ON 2020 f/9 ISO 100 2020/11/06 10:55:56

237 WINDSOR BRIDGE DEMOLITI ON_2020 f/10 ISO 100 2020/11/06 10:57:50

235 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/11/08 10:55:52



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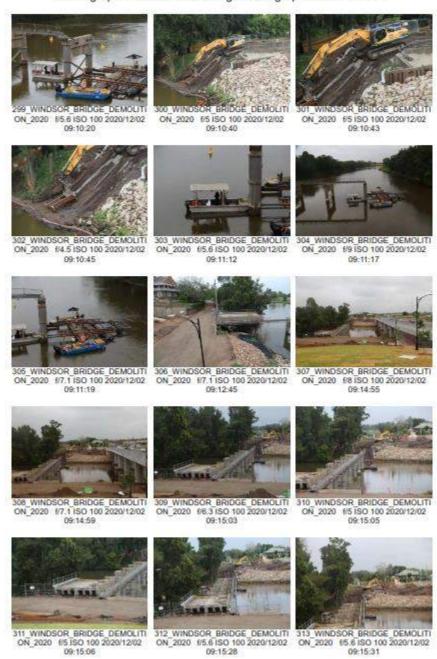
Windsor Bridge Demolition - 2020 Photographic Archival Recording - Photographer: Ben Calvert 284_WINDSOR_BRIDGE_DEMOLITI ON_2020_f/8 ISO 100 2020/12/02 265 WINDSOR BRIDGE DEMOLITI ON 2020 f/6.3 ISO 100 2020/12/02 09:04:45 288 WINDSOR BRIDGE DEMOLITI ON 2020 67.1 ISO 100 2020/12/02 09:05:23 287 WINDSOR BRIDGE DEMOLITI 288 WINDSOR BRIDGE DEMOLITI 289 WINDSOR BRIDGE DEMOLITI ON 2020 #7.1 ISO 100 2020/12/02 ON 2020 #7.1 ISO 100 2020/12/02 ON 2020 #7.1 ISO 100 2020/12/02 09:06:17 290 WINDSOR BRIDGE DEMOLITI 291 WINDSOR BRIDGE DEMOLITI 292 WINDSOR BRIDGE DEMOLITI ON 2020 6/6.3 ISO 100 2020/12/02 ON 2020 6/6.3 ISO 100 2020/12/02 ON 2020 6/7.1 ISO 100 2020/12/02 09:07:32 09:07:35 09:07:45 293 WINDSOR BRIDGE DEMOLITI ON 2020 f/7.1 ISO 100 2020/12/02 294 WINDSOR BRIDGE DEMOLITI 295 WINDSOR BRIDGE DEMOLITI ON 2020 1/8.3 ISO 100 2020/12/02 ON 2020 1/7.1 ISO 100 2020/12/02 09:07:51 09:08:14

09:10:14 1 of 6

286 WINDSOR BRIDGE DEMOLITI 297 WINDSOR BRIDGE DEMOLITI 298 WINDSOR BRIDGE DEMOLITI ON 2020 (16.3 ISO 100 2020/12/02 ON 2020 (17.1 ISO 100 2020/12/02 ON 2020 (15.6 ISO 100 2020/12/02

09:10:17

09:08:48



09:15:28 2 of 6





314 WINDSOR BRIDGE DEMOLITI 315 WINDSOR BRIDGE DEMOLITI 316 WINDSOR BRIDGE DEMOLITI ON 2020 6/5.6 ISO 100 2020/12/02 ON 2020 6/5.3 ISO 100 2020/12/02 O9:15:58 09:16:38 09:16:42





09:16:51



317 WINDSOR BRIDGE DEMOLITI 318 WINDSOR BRIDGE DEMOLITI 319 WINDSOR BRIDGE DEMOLITI ON 2020 #5.6 ISO 100 2020/12/02 ON 2020 #5.6 ISO 100 2020/12/02 09:17:18



09:31:52



320 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/12/02



321 WINDSOR BRIDGE DEMOLITI ON 2020 67.1 ISO 100 2020/12/02 ON 2020 68.3 ISO 100 2020/12/02 09:42:38



09:44:16



323 WINDSOR BRIDGE DEMOLITI ON 2020 1/6.3 ISO 100 2020/12/02 09:45:05



324 WINDSOR BRIDGE DEMOLITI ON 2020 (/6.3 ISO 100 2020/12/02 10:08:28



325 WINDSOR BRIDGE DEMOLITI ON 2020 f/8 ISO 100 2020/12/02 10:08:33





326 WINDSOR BRIDGE DEMOLITI 327 WINDSOR BRIDGE DEMOLITI 328 WINDSOR BRIDGE DEMOLITI ON 2020 #5.6 ISO 100 2020/12/02 ON 2020 #10 ISO 100 2020/12/02 ON 2020 #7.1 ISO 100 2020/12/02 10:16:17 10:18:20 10:17:32





ON_2020 f/7.1 ISO 100 2020/12/02 10:22:33



330_WINDSOR_BRIDGE_DEMOLITI ON_2020_6/8 ISO 100 2020/12/02 10:22:37



331 WINDSOR BRIDGE DEMOLITI ON 2020 (68.3 ISO 100 2020/12/02 10:24-58



332 WINDSOR BRIDGE DEMOLITI ON 2020 #7.1 ISO 100 2020/12/02 10:25:02



333 WINDSOR BRIDGE DEMOLITI 334 WINDSOR BRIDGE DEMOLITI ON 2020 #5 ISO 100 2020/12/02 ON 2020 #5.6 ISO 125 2020/12/02 10:27:58



10:38:10





335 WINDSOR BRIDGE DEMOLITI ON 2020 #5.6 ISO 125 2020/12/02 ON 2020 #5.6 ISO 100 2020/12/02 ON 2020 #5.6 ISO 100 2020/12/02 ON 2020 #7.1 ISO 100 2020/12/02 10:38:17 10:41:34





338 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/12/02



339 WINDSOR BRIDGE DEMOLITI 340 WINDSOR BRIDGE DEMOLITI ON_2020 f/5.6 ISO 180 2020/12/02 ON_2020 f/5.6 ISO 125 2020/12/02 10:41:40 10:41:42





341 WINDSOR BRIDGE DEMOLITI ON 2020 f/6.3 ISO 100 2020/12/02



342 WINDSOR BRIDGE DEMOLITI ON 2020 68 ISO 100 2020/12/02 10:49:58



343_WINDSOR_BRIDGE_DEMOLITI ON_2020_66.3 ISO 100 2020/12/02



13:42:54 5 of 6

14:01:32



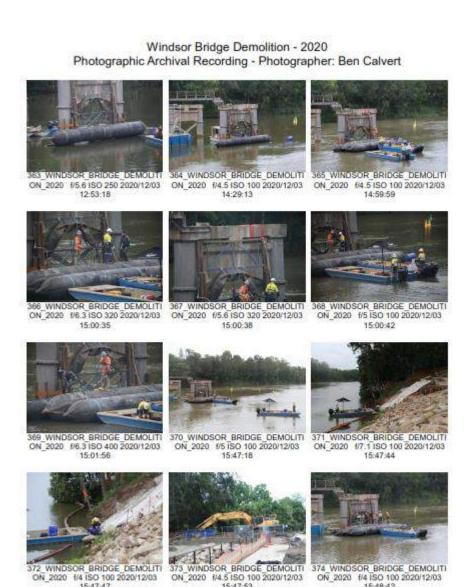


359 WINDSOR BRIDGE DEMOLITI 360 WINDSOR BRIDGE DEMOLITI 361 WINDSOR BRIDGE DEMOLITI ON 2020 6/5.6 ISO 100 2020/12/02 ON 2020 6/5.6 ISO 100 2020/12/02 ON 2020 6/5.6 ISO 100 2020/12/02 14:08:36





362 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/12/02 14:08:41



1 of 1

15:47:53

15:48:42

15:47:47

Windsor Bridge Demolition - 2020



11:35:42 1 of 4

11:35:50

11:35:20

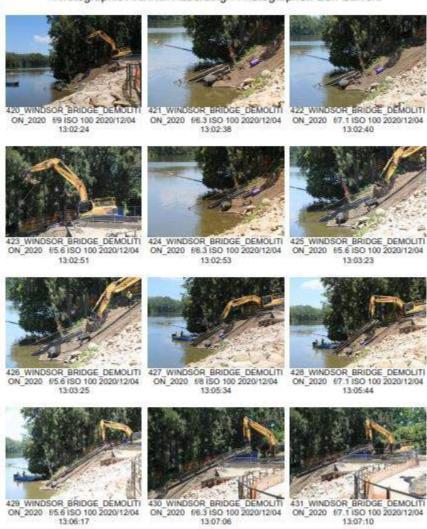


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417 WINDSOR BRIDGE DEMOLITI 418 WINDSOR BRIDGE DEMOLITI 419 WINDSOR BRIDGE DEMOLITI ON 2020 f/7.1 ISO 100 2020/12/04 ON 2020 f/7.1 ISO 100 2020/12/04 ON 2020 f/7.1 ISO 100 2020/12/04 12:55:21 13:02:13



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Windsor Bridge Demolition - 2020 Photographic Archival Recording - Photographer: Ben Calvert 132_WINDSOR_BRIDGE_DEMOLITI ON_2020 #9 ISO 100 2020/12/08 13:11:27 433 WINDSOR BRIDGE DEMOLITI ON 2020 1/7.1 ISO 100 2020/12/08 13:12:01 434 WINDSOR BRIDGE DEMOLIT ON 2020 fi9 ISO 100 2020/12/08 13:12:03 436 WINDSOR BRIDGE DEMOLITI ON 2020 1/10 ISO 100 2020/12/08 437 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/12/08 435 WINDSOR BRIDGE DEMOLITI ON 2020 f/7.1 ISO 100 2020/12/08 13:12:07 13:12:15 439 WINDSOR BRIDGE DEMOLITI ON 2020 67.1 ISO 100 2020/12/08 ON 2020 65.6 ISO 100 2020/12/08 438 WINDSOR BRIDGE DEMOLITI ON 2020 f/10 ISO 100 2020/12/08 14:41:16 15:55:00 15:55:01 442 WINDSOR BRIDGE DEMOLITI ON 2020 98 ISO 100 2020/12/08 443 WINDSOR BRIDGE DEMOLIT ON 2020 1/8 ISO 100 2020/12/08 441 WINDSOR BRIDGE DEMOLITI ON 2020 1/9 ISO 100 2020/12/08 16:22:23 444 WINDSOR BRIDGE DEMOLITI ON 2020 1/5.6 ISO 100 2020/12/08 445 WINDSOR BRIDGE DEMOLITI ON 2020 1/5 ISO 100 2020/12/08 146 WINDSOR BRIDGE DEMOLIT ON 2020 f/5 ISO 100 2020/12/08 16:22:31 16:22:37 16:22:38 1 of 2



447 WINDSOR BRIDGE DEMOLITI ON 2020 #9 ISO 100 2020/12/08 16:42:23



448 WINDSOR BRIDGE DEMOLITI ON 2020 6/8 ISO 100 2020/12/08 16:42:24



449 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/12/08 16:42-26



450 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/12/08 16:42:31



451 WINDSOR BRIDGE DEMOLITI ON 2020 1/8 ISO 100 2020/12/08 16:42:35





2 of 3





482 WINDSOR BRIDGE DEMOLITI 483 WINDSOR BRIDGE DEMOLITI 484 WINDSOR BRIDGE DEMOLITI ON 2021 67.1 ISO 100 2021/01/13 ON 2021 67.1 ISO 100 2021/01/13 ON 2021 67.1 ISO 100 2021/01/13 ON 2021 69 ISO 100 2021/01/13 OR:10:51





65 WINDSOR BRIDGE DEMOC. ON 2021 68 ISO 100 2021/01/13 08:10:54

3 February 2021

Windsor Bridge Demolition - 2021 Photographic Archival Recording - Photographer. Dominic Callaghan







486 WINDSOR BRIDGE DEMOLITI 487 WINDSOR BRIDGE DEMOLITI ON 2021 6/2.4 ISO 25 2021/02/03 ON 2021 6/2.4 ISO 25 2021/02/03 11:20:11 14:03:24



ON_2021 f2.4 ISO 25 2021/02/03 14:04:40





489 WINDSOR BRIDGE DEMOLITI 490 WINDSOR BRIDGE DEMOLITI ON 2021 ft2.4 ISO 25 2021/02/03 ON 2021 ft1.8 ISO 20 2021/02/04 14:05:58 08:38:34

March 2021

Windsor Bridge Demolition - 2021 Photographic Archival Recording - Photographer: Dominic Callaghan



491_WINDSOR_BRIDGE_DEMOLITI ON_2021_f/5.6 ISO 25 2021/03/01 9:34:40



492 WINDSOR BRIDGE DEMOLITI ON_2021 ft7.1 ISO 25 2021/03/01 ON_2021 ft7.1 ISO 25 2021/03/01 8:21:55





494 WINDSOR BRIDGE DEMOLITI ON_2021 f/2.4 ISO 25 2021/03/02 ON_2021 f/2.4 ISO 25 2021/03/02 10:23:30 10:23:46



5 Direction plans

1 October 2020



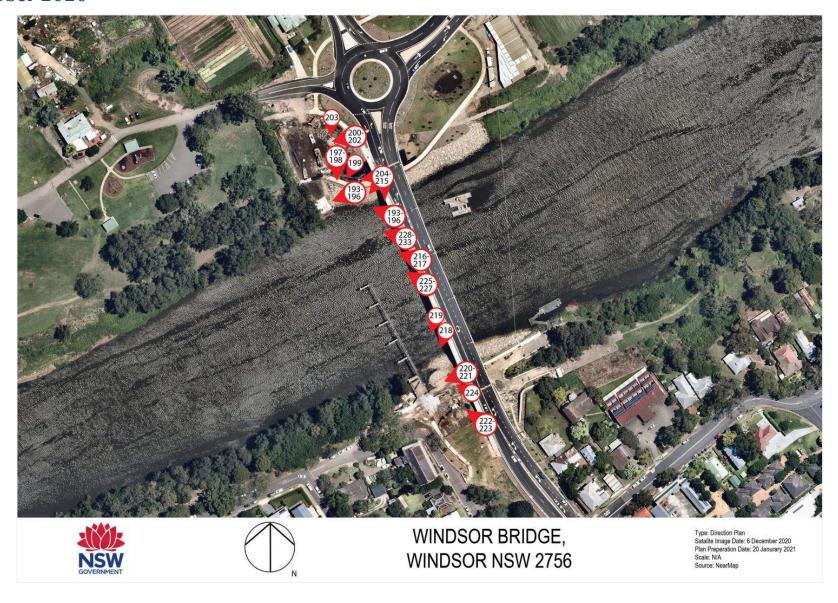




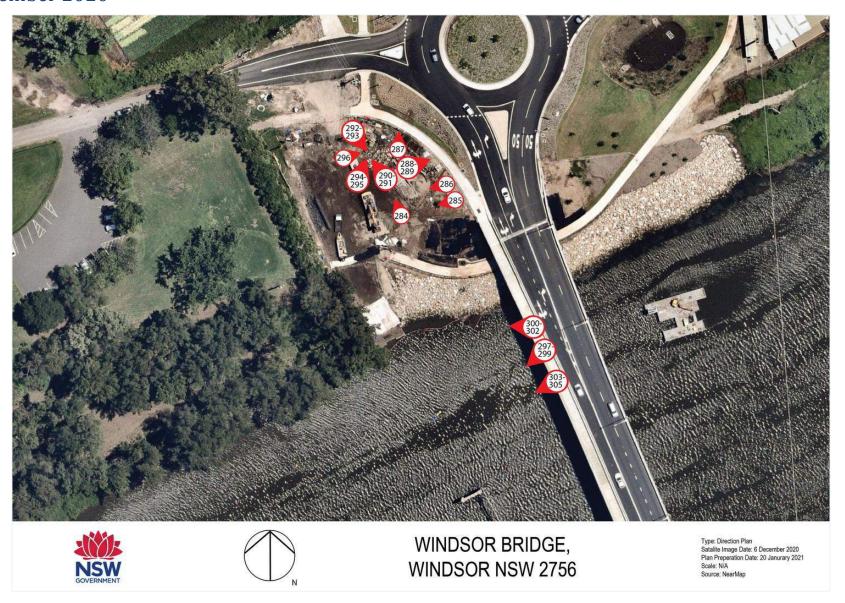




6 October 2020

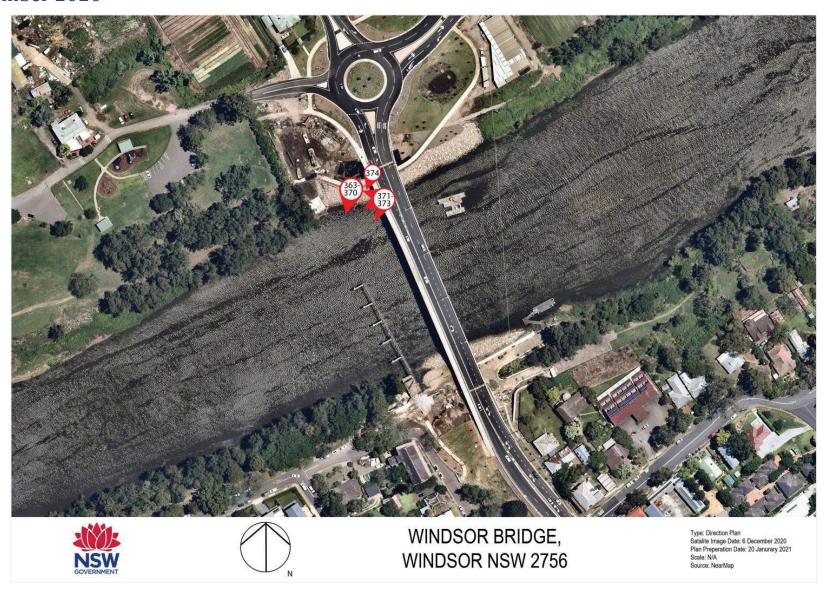


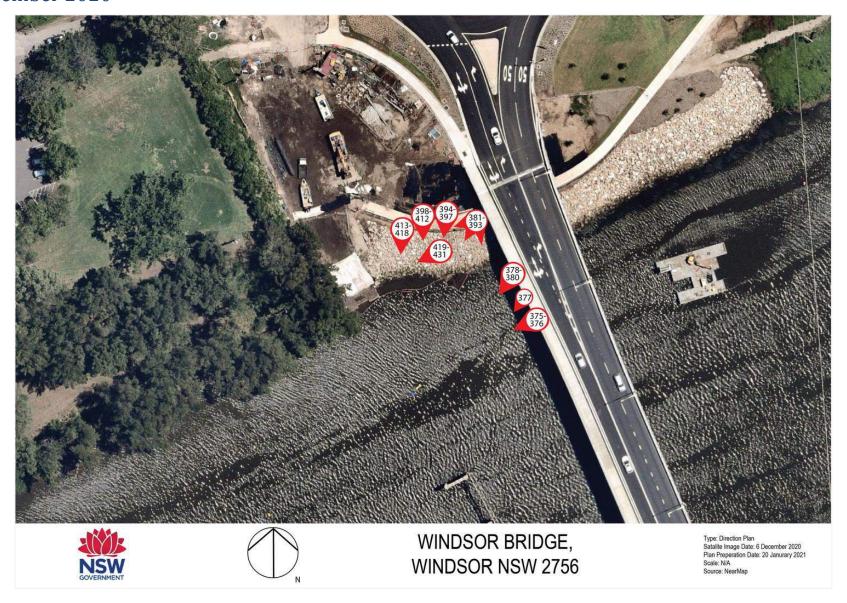


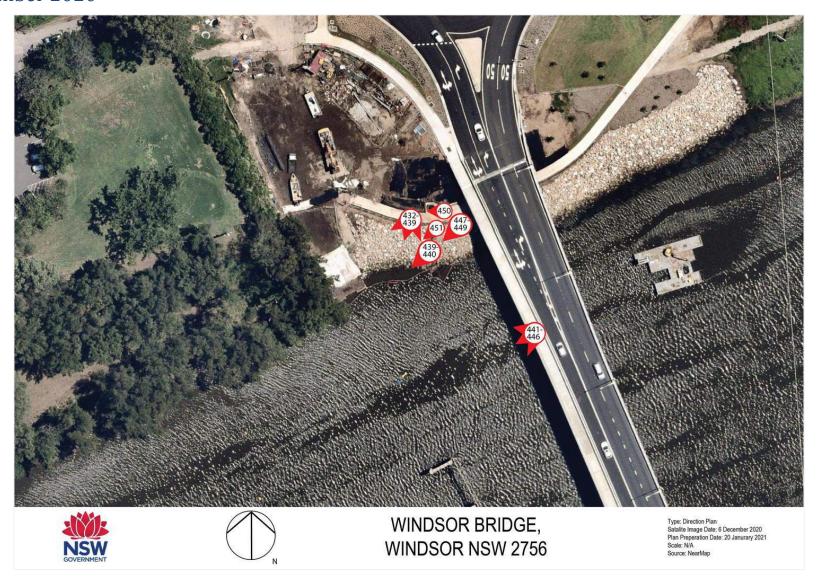












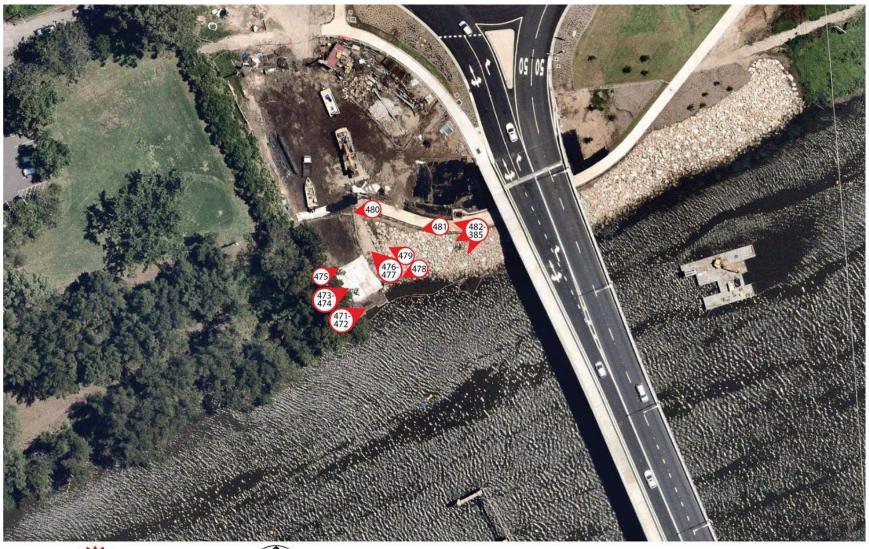
13 January 2021







WINDSOR BRIDGE, WINDSOR NSW 2756 Type: Direction Plan Satalite Image Date: 6 December 2020 Plan Preperation Date: 20 Janurary 2021 Scalie: NIA Source: NearMap







WINDSOR BRIDGE, WINDSOR NSW 2756

Type: Direction Plan Satalite Image Date: 6 December 2020 Plan Preperation Date: 20 Janurary 2021 Scale: NIA Source: NearMap

3 February 2021



March 2021



6 Bibliography

Australian Town and Country Journal

Bowd, D. G., Hawkesbury journey: up the Windsor Road from Baulkham Hills, Library of Australian History, Sydney, 1986.

Bowd, D. G., Macquarie country: a history of the Hawkesbury, NSW, 1973.

Department of Main Roads, The roadmakers: a history of main roads in New South Wales, Sydney, 1976.

Empire

Historical Overview of Bridge Types in NSW: Extract from Study of Pre-1948 Slab and Concrete Arch Road Bridges; Burns Roe Worley & Heritage Assessment and History; Study for RTA NSW, 2005.

Illustrated Australian News for Home Readers

Sydney Morning Herald

Windsor and Richmond Gazette