

TRANSPORT FOR NSW (TfNSW)

QA SPECIFICATION M788

BRIDGE DECK JOINT REPAIRS – CONSTRUCTION

NOTICE

This document is a Transport for NSW QA Specification. It has been developed for use with roadworks and bridgeworks contracts let by Transport for NSW or by local councils in NSW. It is not suitable for any other purpose and must not be used for any other purpose or in any other context.

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REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
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Ed 1/Rev 1	3.2.3 Annex M	References to “B240” and “B241” replaced by “B201”. Retitled. M.1 – Referenced Documents updated. M.2 – “Abbreviations” changed to “Acronyms”. M.4 – Definition of “Engineer” updated.	DCS	27.10.17
Ed 1/Rev 2	Global	References to “Roads and Maritime Services” or “RMS” changed to “Transport for NSW” or “TfNSW” respectively.	DCS	22.06.20

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GUIDE NOTES

The following guide notes on the Specification are provided for use by TfNSW personnel. They do not form part of the Specification, Contract or Agreement.

USING TfNSW M788

This Specification has been specifically developed for TfNSW maintenance works. It must not be used without a review of its suitability for the application and in the contractual environment.

M788 is a QA specification. The use of QA specifications requires the implementation of a quality system by the service provider which meets the quality system requirements specified in TfNSW Q4M.

EDITION 1

This is the first issue of the Specification. Suggestions for improvement and amendments on technical issues following use of the Specification in the field should be directed to the Supervising Bridge Engineer (Rehabilitation Design), Bridge & Structural Engineering. Any other comments or suggestions should be forwarded to the Manager, Contracts Quality, Infrastructure Contracts Branch.

OUTLINE OF M788

M788 covers the repairs of deteriorated bridge deck joints, either by rehabilitation or replacement. The contents of this specification should be taken into account during the design of repairs under joint repair design specification M787.

M787 is used to provide the Repair Design, Repair Drawings and Repair Specification for the contract documents. The repairs must be carried out in conformity to the contract documents.

Repairs of deteriorated bridge deck joints are required because they are damaged, distressed or displaced, etc. as the result of factors that may include the original joint design and installation, and effects related to the related bridge members, the traffic on the bridge and the environment.

Main Activities to be executed in M788

- Traffic management;
- Survey set out, control and verification;
- Provision and installation of temporary works as required;
- Removal of existing joint components and nosings as required;
- Preparation of joint recess, including new drainage system and anchorages as required;
- Installation of joint; and
- Tensioning of anchor bolts and installation of seals as required.

SECTION 2 PLANNING

Review the Project Quality Plan (PQP) and request further clarification if necessary.

Where hazardous materials are identified in the Work, the Contractor's WHS Management Plan must be provided in accordance with TfNSW G22.

Provide the Contractor with all available information on the bridge. The Contractor must examine the information to verify that all information critical to the Work has been provided.

SECTION 3 RESOURCES

All components and materials for the Work must conform to the Repair Specification.

Use all equipment for the repair work within the specified working ranges.

Use only experienced personnel to supervise and certify the Work, install temporary works, remove/recover parts or whole of faulty joints, and install replacement or rehabilitated joints.

Use Surveyors to verify the location and level of joints and related bridge members.

SECTION 4 EXECUTION

General

The Contractor is responsible for the integrity and safe use of the bridge during joint repairs and may propose changes to existing bridge load and speed limits, or may propose traffic diversions.

The Repair Drawings must not be changed unless the design is deficient or the proposed improvements are significantly better. Any changes must be approved by the Principal.

The Contractor should submit full details of its procedures for carrying out the repairs, including temporary works, storage of new components, jacking where required, removal of the existing joint, joint recess preparation, joint installation, tensioning of anchor bolts, installation of drainage and seals and reinstatement of bridge members.

Dismantling

All bridge members subject to damage by joint repair operations should be dismantled, loosened or protected prior to repairs using a defined procedure and/or dismantling sequence. Where the dismantling sequence is not shown on the Repair Drawings or the Repair Specification and before commencing the work, the Contractor must submit its own procedure for approval

Temporary Works

Design temporary works to avoid permanent modifications to the bridge. Where modifications are necessary, provide details on marked up copies of the Repair Drawings

Unless shown on the Repair Drawings, cutting, breaking out, drilling holes or other activities that affect the bridge members should not be approved without careful assessment by a bridge design engineer of impacts on the bridge's structural capacity and durability.

Bridge Jacking

The need for safety during bridge jacking cannot be over-emphasised.

Carry out any bridge jacking in accordance with the relevant clauses of bearing repair construction specification TfNSW M783.

SECTION 5 CONFORMITY

A conformity summary report must be submitted by the Contractor that addresses Clause 5 of the Specification.

ANNEXURES

Complete Annexures A.1, A.2 and A.3 to outline the nature of the Work and to specify the information supplied by the Principal and the specified Loading Regime for the repairs. The Loading Regime must be based on the Repair Design, the Repair Drawings, the Repair Specification and the Project Brief and be approved by the Principal.



BRIDGE DECK JOINT REPAIRS - CONSTRUCTION

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VERSION FOR: DATE:

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FOREWORD

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REVISIONS TO EDITION 1

This document has been revised from Specification TfNSW M788 Edition 1 Revision 1.

All revisions to the previous version (other than minor editorial and project specific changes) are indicated by a vertical line in the margin as shown here, except when it is a new edition and the text has been extensively rewritten.

PROJECT SPECIFIC CHANGES

Any project specific changes have been indicated in the following manner:-

- (a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. *Additional Text*.
- (b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

TRANSPORT FOR NSW (TfNSW)
QA SPECIFICATION M788
BRIDGE DECK JOINT REPAIRS – CONSTRUCTION

1 GENERAL

- | | | | | | | | | |
|-----------------|---|-----------------------------------|--------|--------------|---------------|-----------------|--------------|----------------------|
| 1.1 | This Specification sets out the requirements for the rehabilitation or replacement of deteriorated bridge deck joints and the repairs of related bridge members and public utilities. | Scope | | | | | | |
| 1.2 | Details of Work to be carried out under this Specification are described in ANNEXURE A.1 and where applicable in the Repair Drawings and Repair Specification. | Details of Work | | | | | | |
| 1.3 | Payment for the activities associated with completing the Work detailed in this Specification must be made using the Pay Items in ANNEXURE B. | Measurement and payment | | | | | | |
| 1.4 | Provide the Identified Records (refer to TfNSW Q4M) summarised in Annexure C.2. | Records | | | | | | |
| 1.5 | The standards, specifications and test methods referred to by this Specification are referenced using an abbreviated form (eg AS 1234). The titles are given in ANNEXURE M.1. | Reference documents | | | | | | |
| 1.6 | Some words and phrases have special meanings in this Specification. In some cases, the defined meaning is different from the meaning that the word or phrase might have in ordinary use. In order to understand the Specification, You need to take these special meanings into account.

Defined terms have the special meanings set out in ANNEXURE M.3. All defined terms are indicated by using small capitals (e.g. DEFINED TERM) unless they are one of the following basic terms, which appear too often for small capitals to be used:

<table border="0" style="margin-left: 40px;"><tr><td>- Principal</td><td>- Work</td></tr><tr><td>- You / Your</td><td>- Bridge Site</td></tr><tr><td>- Specification</td><td>- Contractor</td></tr></table> | - Principal | - Work | - You / Your | - Bridge Site | - Specification | - Contractor | Defined terms |
| - Principal | - Work | | | | | | | |
| - You / Your | - Bridge Site | | | | | | | |
| - Specification | - Contractor | | | | | | | |
| 1.7 | Some technical words or abbreviations have a special meaning in this Specification as defined in ANNEXURE M.4. | Definitions/ abbreviations | | | | | | |
| 1.8 | Unless otherwise specified, the issue of an Australian Standard or TfNSW Test Method to be used is the issue current one week before closing date for tenders. The TfNSW specification to be used is the issue contained in the Contract documentation. | Applicable issue | | | | | | |

- | | | |
|-----|--|-----------------------|
| 1.9 | <p>You are responsible for all activities, actions, works and supply of materials, unless specifically stated otherwise. Accordingly, this Specification does not generally use wording such as "You shall ..." or "You must ..." because this is the underlying requirement. However, such wording is used where actions in a clause involve both You and the Principal and the roles need to be unambiguous.</p> | Interpretation |
|-----|--|-----------------------|

2 PLANNING

2.1 PROJECT QUALITY PLAN

- | | | |
|-------|---|--|
| 2.1.1 | <p>The requirements of the PROJECT QUALITY PLAN are defined in TfNSW Q4M.</p> <p>In addition, address the HOLD and WITNESS POINTS in this Specification, as summarised in ANNEXURE C.1. The Principal will consider the submitted documents prior to releasing the HOLD POINT.</p> <p>Address each item of the PROJECT QUALITY PLAN listed in ANNEXURE D.1 including full details, as required, of:</p> <ul style="list-style-type: none"> .1 Proposed replacement joints. .2 Temporary works. .3 Storage of new joint components. .4 Joint removal and installation procedures. .5 Survey systems and procedures. .6 Your supervisory, structural engineering, and survey personnel's qualifications and experience. .7 The routine submission of data and documents certifying the conformity of all work and materials. | <p>PROJECT QUALITY PLAN</p> <p>HOLD and WITNESS POINTS</p> <p>Address PQP items</p> |
|-------|---|--|

Process Held: Commencement of Work.	HOLD POINT
Submission: Submit the Project Quality Plan including repair procedures conforming to Clause 4.2, at least 5 BUSINESS DAYS prior to commencing Work.	

2.2 OTHER PLANS

- | | | |
|-------|---|--------------------|
| 2.2.1 | <p>Develop for the Principal's approval the TRAFFIC CONTROL PLAN (TCP) for the Work in accordance with:</p> <ul style="list-style-type: none"> .1 TfNSW's Traffic Control at Work Sites Manual; and .2 The Approved Loading Regime in conformity to Clause 4.6.1. | Develop TCP |
| 2.2.2 | <p>Provide the WORK HEALTH AND SAFETY (WHS) MANAGEMENT PLAN for the Works in accordance with TfNSW G22.</p> | WHS |

2.3 DOCUMENTS

- | | | |
|-------|--|---------------------------|
| 2.3.1 | Details of the Work are provided in ANNEXURE A.1. | Work details |
| 2.3.2 | The Principal will provide the information listed in ANNEXURE A.2. | Information |
| 2.3.3 | Do not assume the information supplied by the Principal is correct. Assess the accuracy of the information supplied by the Principal before commencing the Work. | Verify information |

3 RESOURCES

3.1 PERSONNEL

- | | | |
|-------|--|--------------------------------------|
| 3.1.1 | Manage the Work using an Engineer with an understanding of the factors governing the design of bridge deck joints and least 1 year's experience managing bridge deck joint repair projects. | Project Engineer |
| 3.1.2 | Designers and design checkers must be Engineers with:
<ul style="list-style-type: none">.1 At least 2 years experience in the structural analysis and design of bridges..2 A detailed understanding of bridge deck joint repair methods..3 Experience on at least 3 bridge deck joint repair projects. | Designers and design checkers |
| 3.1.3 | Draftspersons must be competent and have relevant structural drafting qualifications and experience. | Drafting |
| 3.1.4 | Surveyors must have qualifications conforming to TfNSW Q4M. You may propose Surveyors with suitable experience for assessment of compliance with the requirements. | Surveyors |
| 3.1.5 | Supervise the Work on-site using a Site Supervisor with at least 3 years supervisory experience, and at least 5 years of relevant experience, including repair of bridge deck joints. | Site Supervisor |
| 3.1.6 | Provide as a minimum the following on-site personnel, each with at least 5 years experience in the rehabilitation and repair of bridges including joint repairs:
<ul style="list-style-type: none">.1 One team leader with delegated authority..2 One trade-qualified bridge and wharf or civil construction carpenter, with the capability to be the team leader..3 One additional person. | Bridge site personnel |
| 3.1.7 | Document Your personnel's names, qualifications, experience and role in the PROJECT QUALITY PLAN. | Personnel list in PQP |

3.2 MATERIALS AND COMPONENTS

- | | | |
|-------|--|---------------------------------|
| 3.2.1 | New joints and components must conform to the Repair Drawings, Repair Specification and/or the TfNSW QA Bridgeworks specification applicable to the type of joint used. | Joints |
| 3.2.2 | Bolts, nuts, screws and washers must conform to TfNSW B240. | Fasteners |
| 3.2.3 | Protective treatments must conform to the Repair Drawings, the Repair Specification or as approved by the Principal. | Protective treatments |
| | Unless otherwise specified, all protective treatments for steel joint components and fasteners must conform to TfNSW B201. | |
| 3.2.4 | Apply a skid-resistant treatment to the top surfaces of steel joint components as required by BTD2011/03. | Skid-resistant treatment |
| 3.2.5 | Materials for joint nosings, transition strips or repair of damaged areas of deck must conform to the Repair Drawings and the Repair Specification unless otherwise approved by the Principal. | Materials |
| 3.2.6 | Where bonded chemical anchors are specified for the joint repair, use the specified proprietary anchor system or, before use, submit full details of any proposed alternative system for approval. | Anchoring dowels |

Process Held: Supply of replacement joints, components and materials.

HOLD POINT

Submission: Provide details specified in Clause 3.2 at least 10 BUSINESS DAYS before commencing the Work.

3.3 EQUIPMENT

- | | | |
|-------|--|----------------------|
| 3.3.1 | Carry out any jacking of the bridge in accordance with the relevant clauses of Specification TfNSW M783. | Jacking |
| 3.3.2 | Submit details of equipment to be used for concrete removal, reinforcement cleaning and tensioning of bolts. | Equipment |
| 3.3.3 | Use all equipment within its specified working range. | Working range |
| 3.3.4 | Use of equipment must conform to TfNSW G22. | Compliance |
| 3.3.5 | Torque wrenches and other equipment used for bolt tensioning must have calibration certificates not less than 6 months old. Any equipment that has been dropped or is otherwise suspected of being out of calibration must be calibrated again before use. | Calibration |

4 EXECUTION

4.1 GENERAL

- | | | |
|--------|--|--|
| 4.1.1 | Carry out all joint repairs in conformity to the Joint Repair Drawings and the Joint Repair Specification.

Submit proposals for variations to the Joint Repair Drawings to the Principal and do not implement the changes until approved. | Repairs according to design |
| 4.1.2 | You are responsible for all structural engineering tasks relating to the Work such as the design of temporary road plates and other temporary works and the Engineer's certification. | Structural engineering responsibilities |
| 4.1.3 | Keep the bridge and temporary works suitable for the APPROVED LOADING REGIME during the Work (refer to ANNEXURE A.3). | Bridge safety |
| 4.1.4 | When any part of the bridge is open to traffic when repairs are carried out, control traffic in accordance with the TRAFFIC CONTROL PLAN. | Repairs under traffic |
| 4.1.5 | Certify that the Principal's APPROVED LOADING REGIME is appropriate, or propose with justification an alternative Loading Regime. | Certify Loading Regime |
| 4.1.6 | Do not damage protective coatings. Repair any damage at Your expense. | Damaged coatings |
| 4.1.7 | On completion of repairs reinstate any damaged or disturbed bridge members, fasteners and utilities. | Reinstatement at completion |
| 4.1.8 | Remove all spare and loose materials from the site and restore work areas to their original condition, including grass, bushes, gravel, etc. | Original condition |
| 4.1.9 | Replace all loose, disconnected or missing bolts, nuts, screws and washers with new ones. | New for old fasteners |
| 4.1.10 | Establish and submit the BRIDGE SURVEY CONTROL for setting out and for verification of joint positions and levels. | Bridge Survey Control |

4.2 REPAIR PROCEDURES

- | | | |
|-------|---|--------------------------|
| 4.2.1 | Prior to commencing the Work, submit the proposed repair procedure(s) including, as required:

.1 Work program.
.2 Jacking.
.3 Removal of the existing joint.
.4 Joint recess preparation.
.5 New joint installation.
.6 Tensioning of anchor bolts.
.7 Installation of drainage and seals. | Repair procedures |
|-------|---|--------------------------|

.8	Reinstatement of damaged bridge members.	
.9	Survey systems and procedures.	
4.2.2	Nominate the dimensions to be monitored during repairs, and the required frequency and accuracy of measurements.	Monitoring dimensions
4.2.3	Nominate the bridge components to be protected and the utilities to be dismantled or left in place.	Protection of components
4.2.4	Nominate the other bridge components and elements to be repaired.	Other components
4.2.5	Provide details of all temporary works including temporary road plates and provision of access.	Temporary works

4.3 TRAFFIC CONTROL

4.3.1	Manage traffic in accordance with the TRAFFIC CONTROL PLAN and the Joint Repair Drawings.	Traffic control
-------	---	------------------------

Where the joint has not yet been fixed in its final position or is covered by temporary road plates outside working hours, use variable message signs and/or signage with barriers as appropriate to control traffic speed on the bridge.

4.4 CERTIFICATION

4.4.1	Provide an ENGINEER'S certification for the structural adequacy of:	Engineer's certification
.1	Temporary road plates.	
.2	Other temporary works.	
.3	The joint installation.	

4.5 DISMANTLING COMPONENTS

4.5.1	Loosen, dismantle and/or remove all bridge components which could be damaged the repairs including traffic barriers, railings and utilities.	Protection
4.5.2	Dismantle bridge components in the sequence specified on the Joint Repair Drawings. Identify components with suitable markings and document their removal to enable correct re-assembly.	Systematic dismantling
4.5.3	Do not dismantle any more of the bridge than specified unless otherwise approved by the Principal.	Limit to dismantling
4.5.4	Store with care all dismantled and/or removed components until reinstatement.	Storage

4.6 TEMPORARY WORKS

4.6.1 Approved Loading Regime

- | | | |
|---------|--|--|
| 4.6.1.1 | The APPROVED LOADING REGIME for the repairs is specified in ANNEXURE A.3. | Approved Loading Regime |
| 4.6.1.2 | Review the APPROVED LOADING REGIME for the Work specified in ANNEXURE A.3 for its appropriateness for the repair. | Review Approved Loading Regime |
| 4.6.1.3 | The TRAFFIC CONTROL PLAN (TCP) must be consistent with the APPROVED LOADING REGIME and the Joint Repair Drawings. Include the limits on loads and dimensions and the restrictions on traffic and pedestrians on the TCP. Address in the TCP encroachments by temporary works that may affect safety.

The TCP must be approved by the Principal. | TCP consistent with Approved Loading Regime |
| 4.6.1.4 | Maintain the:

.1 Structural integrity of temporary works and bridge members.
.2 Bridge condition no worse than at the start of the Works.
.3 Bridge deck condition suitable for vehicle and pedestrian use. | Maintain bridge safety |

4.6.2 Variations to Approved Loading Regime

- | | | |
|---------|---|--|
| 4.6.2.1 | Immediately advise the Principal of structural damage or deficiency. | Advise damage |
| 4.6.2.2 | Immediately or when directed by the Principal implement load limits, closures or other measures to minimise hazards to traffic. | Additional measures |
| 4.6.2.3 | The Principal may vary the APPROVED LOADING REGIME at any time.

If you consider that the APPROVED LOADING REGIME is inadequate, submit to the Principal a revised Loading Regime with justification. | Varying Approved Loading Regime |

4.6.3 Temporary Road Plates

- | | | |
|---------|--|--------------------|
| 4.6.3.1 | Provide all temporary road plates in accordance with the temporary works design. | Road plates |
|---------|--|--------------------|

4.6.4 Access and Bridge Modifications

- | | | |
|---------|--|---|
| 4.6.4.1 | Provide sufficient access for the repairs. | Repair access |
| 4.6.4.2 | Do not permanently alter the bridge except as specified on the Joint Repair Drawings or as approved by the Principal. | Permanent bridge modifications |
| 4.6.4.3 | Do not remove, demolish, dismantle, cut, drill or otherwise disturb existing bridge members except as detailed on the Joint Repair Drawings or as approved by the Principal. | Disturbance to existing bridge members |

4.7 JOINT REPAIRS

	<p>Process Held: Removal of existing joint.</p> <p>Submission Details: Submit certificates verifying conformity of the replacement joints at least 5 BUSINESS DAYS prior to installation, including the ENGINEER'S certification verifying that the proposed installation methods conform to this Specification and the 2011 NSW Work Health and Safety Act and Regulations.</p>	HOLD POINT
4.7.1	Install joints and all components and seals in conformity to the PROJECT QUALITY PLAN, the Joint Repair Drawings and the Joint Repair Specification and/or the TfNSW QA Bridgeworks specification applicable to the type of joint used.	Joint repairs
4.7.2	Ensure that the opening width of the joint to be installed corresponds to the bridge temperature at the time of installation, refer to BTD2008/10.	Width of joint opening
4.7.3	Keep areas of concrete to be broken out to a minimum. Use covermeters to locate reinforcement prior to cutting. Sawcut the perimeter of areas to be broken out to a minimum depth of 20 mm but not more than half the nominal cover. Stop cutting and adjust the cutting depth if reinforcement is encountered.	Breaking out concrete
	Use hand held equipment only to remove concrete.	
4.7.4	Use only diamond coring for drilling into concrete elements. Use only annular cutters for drilling steel elements.	Drilling holes
4.7.5	When cutting steel using angle grinders or oxyacetylene torches observe all applicable safety precautions.	Cutting steel
4.7.6	Supply and fixing of reinforcement and preparation and concreting of joint blockouts must conform to TfNSW B80.	Concrete works
4.7.7	Mix and apply polymer concretes, epoxies and other proprietary repair materials strictly in accordance with the applicable material data sheets and the supplier's instructions.	Proprietary repair materials
4.7.8	Repair other bridge members or components as specified in the Joint Repair Drawings and Joint Repair Specification.	Other repairs
	Where other repairs are required, submit Your proposals for these repairs but do not commence work without the Principal's approval.	
4.7.9	Tensioning of anchor bolts, through bolts and high tensile cap screws shall conform to the relevant TfNSW Position Papers, refer to ANNEXURE M.1. Install other types of anchors in accordance with the supplier's instructions.	Tensioning of anchors

- 4.7.10 On completion of the Work: **Completion of Work**
- .1 Remove all temporary works.
 - .2 Verify and document all control dimensions.
 - .3 Prepare Work-As-Executed Drawings showing all changes to the bridge, including Joints, using the original bridge design Drawings and the Joint Repair Drawings as appropriate.

4.8 WARRANTY PERIOD

- 4.8.1 Provide a minimum 5 year guarantee or warranty from the DATE OF COMPLETION on the durability and serviceability of the repairs. **Warranty**
 Rectify all defects within this period at no cost to the Principal.
- Transfer all guarantees or warranties to the Principal in accordance with TfNSW G2.

4.9 CONFORMITY

- 4.9.1 Certify in a summary report that all the Work conforms to the Joint Repair Drawings and Joint Repair Specification, with supporting documentation as required. Include the following in the summary report: **Conformity summary report**

Item	Reference	Conformity
Joint repair conformity	Clause 3.2.1 & 4.9.1	Certificate of conformity
Survey control	Clauses 2.1.1.5, 4.1.10 & 4.2.1.9	Surveyor's report
Work-As-Executed Drawings	Clause 4.7.10.3	WAE Drawings
Nonconformities	TfNSW Q4M	List of NCRs issued and dispositions

ANNEXURE A - DETAILS OF WORK

A.1 WORK SUMMARY – JOINTS COVERED BY THE REPAIRS

Bridge Name and Location			
TfNSW Bridge No		Year Built	
Joint Location	Rehabilitate (R) or Replace (N)	Proprietary name of new joint	Related bridge members to be repaired
Abutment A Approach Slab			
Abutment A Deck			
Pier 1			
Pier 2			
Pier 3			
Pier ...			
Abutment B Deck			
Abutment B Approach Slab			

NOTE: This Table is based on the Joint Repair Design unless otherwise indicated.

A.2 INFORMATION SUPPLIED BY THE PRINCIPAL

Documentation	Paper copy(*)	Electro copy(*)	Document Reference and Date (dd-mm-yyyy)
1. Joint repair brief	YES / NO	YES / NO	
2. Assessment report produced under M787	YES / NO	YES / NO	
3. Original design drawings of the bridge.	YES / NO	YES / NO	
4. Most recent Works-As-Executed bridge drawings.	YES / NO	YES / NO	
5. Most recent construction drawings.	YES / NO	YES / NO	
6. Repair drawings of the bridge.	YES / NO	YES / NO	
7. Drawings of past modifications to the joints.	YES / NO	YES / NO	
8. Repair specification for the bridge.	YES / NO	YES / NO	
9. BIS bridge condition inspection reports.	YES / NO	YES / NO	
10. Structural assessments and reports relating to the joints, superstructure, substructure and foundations.	YES / NO	YES / NO	
11. Bridge Survey Control.	YES / NO	YES / NO	
12. Records of application or presence of toxic or hazardous chemicals on, or in vicinity of, the bridge.	YES / NO	YES / NO	
13. Other documentation: Future utilisation of bridge, forward planning etc. _____	YES / NO	YES / NO	

(*) Delete one option

A.3 APPROVED LOADING REGIME

Design live load capacity or load limit (#)	
Traffic and pedestrian restrictions (#)	
Other loading constraints	
Staged construction sequence (#)	
Scope of temporary works (#)	

(#) To comply with the Joint Repair Drawings and Joint Repair Specification.

ANNEXURE B - MEASUREMENT AND PAYMENT

B.1 GENERAL

B.1.1	Pay items are identified in ANNEXURE B.2.	Pay Items to be used
B.1.2	Pay items with a quantity of work in the schedule must be priced making due allowance for the cost of the activity. Include the cost of any pay item with a quantity of work that is not priced in the priced pay items.	Prices
B.1.3	Distribute overheads between the priced pay items.	Overheads
B.1.4	Pay items with a quantity of work specified must not be tendered as a lump sum price.	No Lump Sum
B.1.5	You will not be paid for work that does not conform to the Specification. You will not be paid for events that include: .1 Removing and replacing nonconforming material. .2 Rework to achieve conformity. .3 Warranty repairs.	No payment

B.2 SCHEDULE OF PAY ITEMS

Pay Item	Item Name and Description	Unit
788	Bridge Joint Repairs - Construction Executing a deck joint repair design produced under M787.	
788.01	Reset joint Resetting misaligned or dislodged joint to the original position, including all temporary works.	Each
788.02	Rehabilitate joint Restoring a deteriorated joint to its original condition, including all temporary works.	Each
788.03	Replace joint Replacing a deteriorated joint with a new joint, including all temporary works.	Each
788.04	Joint, other specific maintenance All other works associated with the joint repairs, including temporary repairs, traffic control, etc.	Each

ANNEXURE C – SCHEDULES OF HOLD AND WITNESS POINTS AND IDENTIFIED RECORDS

C.1 SCHEDULE OF HOLD AND WITNESS POINTS

Clause	Type	Process Held or Witnessed
2.1.1	Hold	Commencement of Work.
3.2.6	Hold	Supply of replacement joints, components and materials.
4.7	Hold	Removal of existing joint.

C.2 SCHEDULE OF IDENTIFIED RECORDS

Clause	Description of Identified Record
2.1	PROJECT QUALITY PLAN.
2.2.1	Traffic Control Plan.
2.2.2	Work Health and Safety Plan.
3.1.7	Personnel's names, qualifications and experience.
3.2.1	Details of supplier, type and size of proprietary joint and of joint components.
3.2.4	Details of skid-resistant treatment to joint.
3.2.5	Details of repair materials.
3.2.6	Full anchor details.
3.3.5	Calibration certificates.
4.2.1	Repair procedure.
4.2.5	Details of all temporary works.
4.4.1	Engineering certification.
4.5.2	Dismantling sequence and records.
4.7.9	Anchorage tensioning records.
4.7.10.3	Work-As-Executed Drawings.
4.8.1	Warranty.

ANNEXURE D - PLANNING DOCUMENTS

D.1 INFORMATION TO BE INCLUDED IN THE PROJECT QUALITY PLAN

The information to be supplied in the PROJECT QUALITY PLAN must include, but not be limited to the following:

Clause	Process	Details
4.1.3	Safety and integrity of bridge	Maintain integrity of bridge and user safety under specified loads.
4.1.10	BRIDGE SURVEY CONTROL	Verification of joint position, set out and control measurements.
4.2.1	Repair procedures	Removing and replacing joint.
4.3.1	Traffic control	Where temporary road plates are used.
4.4.1	Engineer's Certification	Temporary road plates and other temporary works and joint installation methods.
4.6.4	Making permanent modifications	Proceed only when approved by the Principal.
4.7.3	Breaking out concrete	Details of areas to be broken out.
4.7.6	Concreting of blockout	Concreting procedures to conform to TfNSW B80.
4.7.9	Tensioning of anchors	Anchor tensioning procedure to conform to TfNSW position papers.

ANNEXURES E TO L - (NOT USED)

ANNEXURE M - REFERENCED DOCUMENTS, ACRONYMS AND DEFINITIONS

M.1 REFERENCED DOCUMENTS

TfNSW Specifications

TfNSW B80	Concrete Work for Bridges
TfNSW B201	Steelwork for Bridges
TfNSW B240	Steel Fasteners
TfNSW G2	General Requirements
TfNSW G22	Work Health and Safety (Construction Work)
TfNSW G71	Construction Surveys
TfNSW Q4M	Quality Management System (Type 4)
TfNSW M783	Bridge Bearing Repairs - Construction
TfNSW M787	Bridge Deck Joint Repairs – Design

TfNSW References

TfNSW Traffic Control at Work Sites Manual

TfNSW Bridge Technical Directions

BTD2008/10	Bridge Deck Joints
BTD2011/03	Skid-Resistant Treatments for Bridge Deck Joints

TfNSW Position Papers

Design and Installation of Socket Head Cap Screws and Bolts for Expansion Joint Anchorages

Design of Fingerplate Joints

Design of Through-Bolts for Anchoring Expansion Joints to Concrete Bridge Decks

Locking Devices For Stressbar Nuts and Cap Screws

NSW Legislation

Work Health and Safety Act 2011

Work Health and Safety Regulation 2011

M.2 ACRONYMS

BTD	TfNSW Bridge Technical Direction
PQP	PROJECT QUALITY PLAN
TfNSW	Transport for NSW
TCP	TRAFFIC CONTROL PLAN

M.3 DEFINED TERMS

APPROVED LOADING REGIME	The live loads that will apply during the Work, including the following: Design live loads or load limit; Traffic and pedestrian restrictions, including lateral lane positions on deck; Other loads applied during the Work; Construction sequence.
BRIDGE SURVEY CONTROL	The survey control for the bridge and the Joint repairs (refer TfNSW G71). Where appropriate, adapt the control shown on the original design drawings.
BUSINESS DAY	Any day other than a Saturday, Sunday or public holiday in NSW or 27, 28, 29, 30 or 31 December.
HOLD POINT	A point beyond which a work process must not proceed without the Principal's express written authorisation (refer TfNSW Q4M).
Principal	Means Transport for NSW.
PROJECT QUALITY PLAN	Refer to Clause 2.1.
Specification	Means M788.
Structural Engineer	Engineer with experience in the design of bridges and other structures.
TRAFFIC CONTROL PLAN	Refer to Clause 2.2.1.
Work	The scope of work covered by the Specification under the Contract (refer to Clause 1, Annexure A and TfNSW Q4M).
WORK-AS-EXECUTED DRAWINGS	Drawings submitted on completion of the Work that record the changes made from the Joint Repair Drawings.
You	Means the Contractor, including subcontractors, employees and agents of the contractor.

M.4 DEFINITIONS

Bridge Information System (BIS)	The TfNSW bridge inspection and condition rating system and database.
Engineer	Chartered Engineer with membership of Engineers Australia practising in the field of civil or structural engineering (or equivalent). An equivalent to membership of Engineers Australia would be an Engineer registered on the National Engineering Register (NER) in the general area of practice of Civil or Structural Engineering.
Installation	Fixing of a joint at the specified location and level.
Joint Repair Design	Joint Repair Drawings, Joint Repair Design Report and Joint Repair Specification for the repair of bridge Joints and related bridge members, including public utilities.
Joint Repair Drawings	Design drawings detailing repairs of bridge joints and associated members.
Joint Repair Specification	Contract documents applying to the Joint repairs detailed on the Joint Repair Drawings.

Original Drawings	The original bridge design drawings or original bridge Work-As-Executed Drawings.
Temporary works	All work not part of the permanent repair required before or during completion of joint repairs, including temporary road plates and interim repairs.