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| Client: Metro Trains Melbourne Project: Cremorne Rail Bridge Project No: 8B5200 Structure / Component: Bridge Super-structure Location: Pier | Specifications & Standards: DTP 630 - Fabrication of Steelwork (2023) DTP 631 - Protective Coating of Steelwork (2017) AS/NZS 5131 Structural steelwork - Fabrication & Erection (2016) AS 2312.1 Protective Coatings, Part 1 - Paint Coatings (2014) | Prepared by: Name: Leo Watson Signed:  Date: 26.11.2024 | Reviewed by: Name: Mike Freeman Signed:  Date: 26.11.2024 | Approved by: Name: Mike Freeman Signed:  Date: 26.11.2024 |
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| Lot No: | Lot Details: | Bearing No. | Lot Size / Quantity: 1 no. Bearing |
|----------------|---------------------|------------------|---|

| Item | Task/Activity Description | Inspection / Controls & Verification Detail | | | | | HP/ WP/ AP/ IP/ TP/ SCP | Responsibility | Checked by: | | | |
|------|---|--|---|---|-------------------------------|----------------------|-------------------------|--|-------------|--------------|---------------------|------|
| No. | | Frequency | Acceptance Criteria | Reference Documents | Inspection / Test Method | Record of conformity | | Project Engineer Site Engineer Superintendent Surveyor Foreman | Client | Fulton Hogan | FH's Sub-contractor | Date |
| 1.0 | Preliminaries | | | | | | | | | | | |
| 1.1 | Check for Correct Documentation | Prior to starting Works and at regular intervals | Ensure that all employees and subcontractors are: i. using the correct and complete set of drawings ii. all drawings are the latest revision | IFC Drawings Drawing Register | Document Review | This ITP | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 1.2 | Structural Steel Components | Where applicable, once, for each component | Fabricator is required to provide the Manufacturer's Data Record (MDR) for each component. This consists of, but is not limited to: i. Certificate of Compliance ii. Material Certificates and traceability iii. Quality Assurance check sheets iv. Coating certificate(s) v. As-built Drawings to demonstrate compliance with dimensional tolerances of AS5131, Appendix F2 Collate: Structural Steel Quality Assurance Documentation so it can be uploaded as a separate attachment (<u>do not</u> attach it here) | IFC Drawings Shop Drawings | Document Review | This ITP | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 1.3 | Bearing Plate Epoxy Grout / Mortar or Resin Product Selection | Where applicable, once, for each product, prior to use | Product to be selected based on the following criteria: i. Have a minimum compressive strength equal to or greater than substrate (if unknown use 40MPa) ii. Thickness constraints suitable to the end use iii. Compressive strength gain suitable to the end use Either, Attach: TDS & Approval, or Enter: RFI No. | IFC Drawings RFIs Product TDS | Document Review | This ITP | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 1.4 | Bearing Plate Pin Epoxy Grout / Mortar or Resin Product Selection | Where applicable, once, for each product, prior to use | Product to be selected based on the following criteria: i. Have a minimum bond strength equal to or greater than substrate's (if unknown use 1.5MPa) ii. Compressive strength gain suitable to the end use Either, Attach: TDS & Approval, or Enter: RFI No. | IFC Drawings RFIs Product TDS | Document Review | This ITP | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 2.0 | Pre-replacement | | | | | | | | | | | |
| 2.1 | Indentification of Defective Bearings | Each replacement bearing location, when accessible | Ensure that the correct bearings are clearly identified and named using the Temporary Works Design Drawings. | Temporary Works Design | Document Review Visual | This ITP | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 2.2 | Survey of Existing Bearing Plate Heights | Each replacement bearing location, when accessible | Survey the existing bearings in reference to each other using an arbitrary datum on each pier. Note: a minumum of 2 points to determine RLs. | Detailed Works Methodology | Measure | This ITP | SCP HP* | Fulton Hogan Engineer | N/A | | N/A | |

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| | | Frequency | Acceptance Criteria | Reference Documents | Inspection / Test Method | Record of conformity | | | Project Engineer Site Engineer Superintendent Surveyor Foreman | Client | Fulton Hogan | FH's Sub-contractor | Date |
| 2.0 | Pre-replacement (Continued) | | | | | | | | | | | | |
| 2.3 | Existing Conditions for Temporary Works | Each replacement bearing location, when accessible | Supervisor to inspect of the area where the Temporary Works will be located to ensure that it meets or exceeds the conditions defined in the Temporary Works Design. Photograph/Record: The existing conditions, noting any damage to the piers, including coatings Complete: Temporary Works Permit to Construct | Temporary Works Design Permit to Construct, Apply Load & Remove | Visual Measure | This ITP | | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 2.4 | Establishment of Temporary Works | Each pair of steel girders at each replacement bearing location | All structural steel packers, shims, supports and hydraulic cylinders / jacks are the correct size, grade and locational tolerance nominated on the Temporary Works Design and fixed accordingly. Complete: Temporary Works Permit to Apply Load | Temporary Works Design Permit to Construct, Apply Load & Remove | Visual Measure | This ITP | | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 2.5 | Survey of Existing Track Heights | Prior to Jacking Operations | Measure both track heights at 5m intervals, staggered 2.5m above all planned the bearing replacement locations. Record: Pre-lift Track Heights | Detailed Work Methodology | Verify | This ITP | | SCP HP* | Surveyor Fulton Hogan Engineer | N/A | | N/A | |
| 3.0 | Replacement | | | | | | | | | | | | |
| 3.1 | Jacking Operations - Raising | Each pair of jacking points | Hydraulic jacks to be raised <u>simultaneously</u> in a steady, controlled manner until the maximum height of 25mm is reached. Locking collars to be engaged and hydraulic lines to be disconnected and capped with dust caps. Record: Maximum height and pressure gauge readings for information Record: Any movement or damage to the crossheads Attach: Shore Hire's Jacking Operations ITP | Shorehire ITP Detailed Work Methodology | Visual Measure | This ITP | | IP | Shore Hire Fulton Hogan Engineer | N/A | | | |
| 3.2 | Survey of Existing Track Heights | Post-jacking Operations, Occupation #1 Only | Measure both track heights at 5m intervals, staggered 2.5m above all planned the bearing replacement locations. Record: Post-lift Track Heights Check: The readings are within 25mm from initial survey | Detailed Work Methodology | Measure | This ITP | | SCP HP* | Surveyor Fulton Hogan Engineer | N/A | | N/A | |
| 3.3 | Removal of Existing Bearing Componentry | Each defective bearing | Disassemble bearing componetry and safely relocate outside of the immediate Work area. Bearings on concrete piers: bearing plate pins to be removed by prizing, levering or other suitable means to minimise damage to the crosshead. Bearings on steel piers: bearing plate bolts to be loosened with lubricant or heat and worked free, ensuring that the bolt does not shear. Clean the newly exposed area to remove any loose particles, dust, rust and contaminants. Note: Bearing plates may need to be flame-cut to reduce size and weight. | Detailed Work Methodology | Visual | This ITP | | IP | Fulton Hogan Engineer | N/A | | N/A | |

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| 3.0 | Replacement (Continued) | | | | | | | | | | | |
| 3.4 | Existing Bearing Plate Pin or Bolt Holes | Each bearing plate pin or bolt location | <p>Inspect the existing hole depth and locations to ensure compliance with the IFC Drawings.</p> <p>Bearings on concrete piers: dry-fitting the replacement pin (M30 threaded rod) is recommended. Where necessary, drill or core holes to achieve the required depth. Flush the hole and surrounding area to remove newly created contaminants.</p> <p>Bearings on steel piers: clean and lubricate the threads for ease of inserting the replacement bolts.</p> | Detailed Work Methodology | Visual Measure | This ITP | IP | Fulton Hogan Engineer | N/A | | N/A | |
| 3.5 | Placement of New Bearing Componentry | Each bearing | <p>Manoeuvre new bearings to be within ± 3mm.</p> <p>Bearings on concrete piers: measuring location, height and level against pre-determined survey marks using shims for height where necessary.</p> <p>Bearings on steel piers: insert replacement bolts and tighten to snug tight condition.</p> <p>If bearing components require assembly, place link bars and tighten bolts to snug tight condition.</p> | <p>Detailed Work Methodology</p> <p>Product TDS</p> | Visual Measure | This ITP | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 3.6 | Epoxy Grout / Mortar Mixing | Each bearing on concrete | <p>Size of mixer should match the application.</p> <p>Volume of components accurately measured (if in parts), matching the required amount for the required consistency and accurately measured. Product poured into the mixer slowly. Mixing time as per TDS so that a smooth, even consistency is obtained.</p> | <p>Detailed Work Methodology</p> <p>Product TDS</p> | Visual Measure | This ITP | IP | Fulton Hogan Engineer | N/A | | N/A | |
| 3.7 | Epoxy Grout / Mortar Testing - Compressive Strength Cubes | Each bearing | <p>Cube moulds to be 75mm x 75mm maximum. Where shrinkage compensating products are used, moulds shall be made from rigid steel and require lids due to the product's expansive nature.</p> <p>Testing is to be in accordance with the following frequencies:</p> <p>First batch = 1 no. 28 day strength per bearing Every 100kg of product thereafter = 1 no. 28 day strength per bearing.</p> | <p>Detailed Work Methodology</p> <p>Product TDS</p> | Test | This ITP | IP | Fulton Hogan Engineer | N/A | | N/A | |
| 3.8 | Epoxy Grout / Mortar Placement | Each bearing & pin | <p>Baseplate Pin Product: pour the product into the awaiting prepared holes. Insert the new M30 pins until the nut is directly resting on the baseplate, agitating the pin as it is inserted to allow any entrapped air to escape.</p> <p>Allow to harden before proceeding to the second product.</p> <p>Baseplate Product: where required, seal the perimeter of the new baseplate with a silicon sealant to create a bund for the product to stand while it sets. Pour the product within the bund, topping up as necessary.</p> <p>Allow to set for the longer of; a minimum of 4 hours at 20°C to achieve 25MPa or the strength gain over time table on the TDS.</p> | <p>Detailed Work Methodology</p> <p>Product TDS</p> <p>RFIs</p> | Visual | This ITP | IP | Fulton Hogan Engineer | N/A | | N/A | |

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| 4.0 | Post-replacement | | | | | | | | | | | | |
| 4.1 | Removal of Temporary Works | Each pair of steel girders at each replacement bearing location | Inspect any epoxy bedding mortar to determine if sufficient time has elapsed for it to have achieve the same strength of the crosshead (if unknown, use 40MPa). Where a skim coat for levelling purposes has been applied, check that it has hardened. Complete: Temporary Works Permit to Remove | Temporary Works Design Permit to Construct, Apply Load & Remove | Visual | This ITP | | HP* | Fulton Hogan Engineer | N/A | | N/A | |
| 4.2 | Jacking Operations - Releasing | Each pair of jacking points | Hydraulic jacks to be lowered simultaneoulsy in a steady, controlled manner until the new bearings are supporting the super-structure and the pressure gauges read 0MPa. Complete: Shore Hire's Jacking Operations ITP Photograph/Record: The new conditions, noting any damage to the piers, including coatings | Shorehire ITP Detailed Work Methodology | Visual Measure | This ITP | | IP | Shore Hire Fulton Hogan Engineer | N/A | | | |
| 4.3 | Survey of Existing Track Heights | Post-bearing replacement | Measure both track heights at 5m intervals, staggered 2.5m above all planned the bearing replacement locations. Record: Post-bearing Replacement Track Heights Check: The readings are within 25mm from initial survey. | Detailed Work Methodology | Measure | This ITP | | SCP HP* | Surveyor Fulton Hogan Engineer | N/A | | N/A | |
| 4.4 | Protective Coating Touch-up | Where required | Where required, apply a tocuh-up to the bearing's protective coating following the coating specification. | Coating Specification | Visual | This ITP | | IP | Fulton Hogan | N/A | | N/A | |
| 4.5 | Client Inspection | Before the end of the occupation | Prior to the occupation being closed, a joint inspection is to occur with the Client to ensure that the replacement bearings are fit for purpose and any damage to the crossheads of coatings is complete. | Detailed Work Methodology | Visual | ConQA Hold Point Release | | HP | Client | | N/A | N/A | |
| 4.6 | Compressive Strength Test Results | Each cube | 28 day compressive strength per sample comply with the design strength. Attach: Compressive Strength Test Results | IFC Drawings Product TDS | Document Review | This ITP | | IP | Fulton Hogan | N/A | | N/A | |
| Final Inspection The signature below verifies that this ITP has been completed in accordance with Fulton Hogan's Quality Management Plan and verifies lot compliance with the IFC Drawings, nominated specifications & standards. Name: _____ Position: _____ Signature: _____ Date: ____ / ____ / ____ | | | | | | | | | | | | | |

| Legend | | | | | |
|--------|----------------|---|--|-----|--------------------------|
| HP | Hold Point | Work shall not proceed past the HP until released by the Superintendent | | IP | Inspection point |
| HP* | FH Hold Point | Work shall not proceed past the HP* until released by FH | | TP | Test Point |
| WP | Witness Point | An inspection which must be witnessed by the Superintendent | | SCP | Survey conformance point |
| AP | Approval Point | Written or verbal approval given by the Superintendent | | | |