Fulton Hogan	Inspection and Test Plan - Control and Supervision of the Works	Document # ITP-006 Revision : 3 Date : 21/03/2024

Client:	**Yarra Trams**	**Construction Process:**	Prepared by:	Reviewed by :	Approved by :
Project:	**Victoria Street - Elizabeth to Swanston**	***Track Placement***	Name: **Cedric Guico**	Name: **Rocky Sam**	Name: **Shaun Kent**
Contract No:	**8B5000**	**Specifications: Yarra Trams Infrastructure - Tram Track Construction Standard (CE-019-ST-0033), Design Drawings, Code of Practise SkV Elite Welding Procedure**			
		Structure / Component: Tram Tracks	Signed :	Signed :	Signed :
		Location:	Date : 17/07/2024	Date : 17/07/2024	Date : 17/07/2024

Lot No:	**Lot Details:**	**Lot Size/ Quantity:**

Item No.	Task/Activity Description	Inspection / Controls and Verification Detail					HP/ WP/ AP/ IP/ TP/ SCP	Responsibility Project Engineer Site Engineer Superintendent Surveyor Foreman	Checked by:			
		Frequency	Acceptance Criteria	Reference Documents	Inspection / Test Method	Record of conformity			Client	Fulton Hogan	FH's Sub-contractor	Date
1	**Preliminary Works**											
1.1	Check for Correct Documentation	Prior to Commencing Works	•Ensure that all employees and contractors are using the most current and complete set of drawings	Design Drawings and Register	Visual Inspection	This ITP Signed Off	**HP***	Fulton Hogan Engineer	N/A		N/A	
1.2	Check Materials	Prior to Commencing Works	•Check rail surface is free from any profile deformation and is straight, no crippled or deformed rail is to be used •Check condition of rail sleepers •Ensure rail jewellery is of sound condition	AS 1085	Visual Inspection	This ITP Signed Off	**HP***	Client, Fulton Hogan Engineer			N/A	
1.3	Check Special Works Components	Prior to Commencing Works	Special Works is any trackwork which must be pre-fabricated (ie bent or assembled) before it can be installed on site. This includes all switches, crossings and any trackwork which needs pre-bending. Ensure that all rails for crossing work is head hardened, and the appropriate weld kits and welding methods are adopted for welding modules and seperate rails. Superintendent to visit yard from intial inspection of the rail and fabrication plans.	CE-019-ST-0033 cl 4.6.2	Verify	This ITP Signed Off	**IP**	Fulton Hogan Engineer	N/A		N/A	
1.4	Check Curved rail	Prior to Commencing Works	Rails for curved trackwork, i.e. radius less than 150 m, shall be head hardened and pre-bent. Additional 25 mm diameter tie bar holes may need to be drilled or cut into the web of the rails. This is to allow installation of additional tie bars between the rails to ensure correct gauge can be maintained during concreting.	CE-019-ST-0033 cl 4.6.3	Verify	This ITP Signed Off	**HP***	Fulton Hogan Engineer	N/A		N/A	

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1.5	Welders Qualifications	Prior to Commencing Works	Welders shall be trained and compliant in Aluminothermic Welding Requirements; TLIW2012 Grind Rails TLIW3015 Weld Rails using Aluminothermic welding process TLIW3035 Heat & cut materials using oxy-LPG equipment for the rail industry	CE-019-ST-0033 Appendix C	Verify	This ITP Signed Off	**HP***	Fulton Hogan Engineer	N/A		N/A	
1.6	Ultrasonic Testers Qualifications	Prior to Commencing Works	Ultrasonic testers shall be trained and qualified to AINDT Technician level and shall be experienced in rail weld testing. Certification shall be provided to and approved by the Superintendent prior to commencement of testing.	CE-019-ST-0033 Appendix C	Verify	This ITP Signed Off	**HP***	Fulton Hogan Engineer	N/A		N/A	
2	**Construction Works**											
2.1	Installation of Sleeper	Each Lot	•Dual block sleepers shall be installed at 700mm intervals, toelrance of +/- 50mm in placement •Dual block sleepers shall also comply with the design offsets at each chainage	CE-019-ST-0033 cl 4.7.1	Visual Inspection	This ITP Signed Off	**IP**	Fulton Hogan Engineer	N/A		N/A	
2.2	Placement of Rail	Each Lot	•Ensure rail strings conform to rail plan •All track work, including points and crossings shall confrom to alignment, offset, level and cant as per design drawings and track charts •Bottom of rail and bearing surface shall be clean of foreign materials before laying •Track Gauge shall be calibrated to 1435mm with a tolerance of +3mm , using an approved measuring device •Geometry tolerances as follows: - Centreline location: +/- 3mm - Level: +/- 3mm - Line measured (>10m chord): +/- 3mm - Twist (3.5m chord): +/- 2mm - Cant: +/- 3mm - Gauge (open track): +3mm, -0mm -Gauge,Turnouts (opposite crossings):+2, -0mm -Gauge, Diamonds and 'H' Crossings:+2, -0mm Note: Cant shall be applied uniformly over transitions	CE-019-ST-0033 cl 4.6.10	Visual Inspection	Completion of track charts	**HP***	Fulton Hogan Engineer	N/A		N/A	
2.3	Placement of Jewellery	Each Lot	•Each sleeper shall be fastened to track with approved jewellery and rail clips •Clips shall be installed with panpuller or equivalent •All fasteners shall be sealed as per agreed method with Yarra Trams	CE-019-ST-0033 cl 4.8	Visual Inspection	This ITP Signed Off	**WP**	Fulton Hogan Engineer	N/A		N/A	
2.4	Rail End Preparation	Each Lot	•Rails shall be saw cut or flame cut •Minimum closure length from proximity of welds shall be 2m •Rail end conditions shall match (i.e flame cut - flame cut)	CE-019-ST-0033 cl 4.9 & Appendix C Code of Practise SkV Elite Welding Proc.	Visual Inspection	This ITP Signed Off	**WP**	Fulton Hogan Engineer	N/A		N/A	

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2.5	Welding of Rail	Each Weld	•Joints shall be square across the track •Maximum skew at square joints shall be 65mm •Portions shall match rail type (i.e HHR, Ordinary) •Welds shall not be within: - 3m of another weld - 3m of a rail end - 1.5m of a glued insulation joint assembly •Field welds shall be +/- 50mm from centre of bay between sleepers •Weld Return forms shall be completed by qualified welder •Welds shall be grinded after 1 hour •Welds shall be free of water •Post grinding, welds shall be cleaned for visual inspection	CE-019-ST-0033 cl 4.9. & Appendix C AS1085 Code of Practise SkV Elite Welding Proc.	Visual Inspection	This ITP Signed Off	**TP**	Fulton Hogan Engineer	N/A		N/A	
2.6	Grinding & Cleaning Welds	Each Weld	The weld shall be ground smooth to the exact rail head profile after it has sufficiently cooled (not earlier than one hour after pouring). The grinding stroke should not exceed 500 mm to each side of the weld. Welds shall be cleaned of sand and cast metal residues to permit a thorough visual inspection. The vertical tolerance of the weld (of a 1m straight edge) shall be 0mm for dip and between 0mm and 0.5mm for peak.	CE-019-ST-0033 Appendix C	Visual Inspection	This ITP Signed Off	**IP**	Fulton Hogan Engineer	N/A		N/A	
2.7	Track Adjustment	When required	Allowance must be made for expansion and contraction of rail to control stress. The required adjustment depends on rail temperature at time of laying and/or adjusting the rail lengths,which shall be measured with an approved type of thermometer. In hot weather, it may be necessary to anchor the track temporarily to avoid expansion while the next section is laid or adjusted to avoid creep. Each rail length shall be adjusted in accordance with the rail adjustment table and shall be anchored to standard pattern in accordance with Standard Drawing STD_T9008.	CE-019-ST-0033 Appendix C STD T9008	Visual Inspection	This ITP Signed Off	**IP**	Fulton Hogan Engineer	N/A		N/A	
2.8	Track Bonds	Each Lot	• Positions and configurations shall conform to design drawings and Yarra Trams Standards and Specifications • Ensure bonds are sealed as per agreed method with Yarra Trams	CE-019-ST-0033 cl 4.5.4 Appendix C Design Drawings	Inspection / Test Method	This ITP Signed Off	**IP**	Fulton Hogan Engineer	N/A		N/A	
3	**Testing**											

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3.1	Track Testing	Each Weld	• All welds shall be tested by qualified NDT operator • Failed welds shall be cut out and replaced • Testing documentation shall be recorded and supplied to the superintendent	CE-019-ST-0033 Appendix C	Inspection / Test Method	This ITP Signed Off	**TP**	Fulton Hogan Engineer/NDT			N/A	

Final Inspection

The signature below verifies that this ITP has been completed in accordance with the FH's Quality system Procedures and verifies lot compliance with specifications.

Print Name: Position: Signature: Date: / /

Legend

HP	Hold Point	Work shall not proceed past the HP until released by the Superintendent	**IP**	Inspection point	Formal Inspection to be done and recorded
HP*	FH Hold Point	Work shall not proceed past the HP* until released by FH	**TP**	Test Point	Product compliance test to be undertaken and recorded/reported
WP	Witness Point	An inspection which must be witnessed by the Superintendent	**SCP**	Survey conformance point	A qualified surveyor to check product/section/structure and report
AP	Approval Point	Written or verbal approval given by the Superintendent			