**Inspection and Test Plan – Permanent Signage Installation**

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| **Project no.** | | **CC-0374** | **Project name** | Pakenham Roads Upgrade | | **Date** |  | | **Approved by** | Mitchell Hose |
| **ITP no.** | SYM-ITP-0044 | | **Revision date** | 13/12/2023 | **Plant and equipment used** | | |  | | |
| **Lot no.** |  | | **Location (chainages, detailed description or marked up plan)** | | | | |  | | |

Attach Dockets, Certificates and QA Documents to ITP

|  |  |  |  |  | **Verification of acceptance by** | | | | | **Remarks/record (eg. Test frequency reports, certificates, checklist etc)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **Symal** | | | **Superintendent** | |
| **Item no.** | **Activity** | **Ref docs** | **Acceptance criteria** | **Freq** | **Key** | **Resp** | **Initial/ date** | **Key** | **Sign/ date** |
| **1.0 Pre-start activities** | | | | | | | | | | |
| **1.1** | **Safety**  Ensure that the following items have been actioned:  - SWMS if applicable  - Plant Pre-start Inspection  - Service locations identified  - Traffic Management Plans (if required)  - All staff inducted | SMP | SWMS/WMS submitted reviewed and accepted if required.  Plant inspections completed and entered.  TSA training completed. Pre-work briefings completed.  Service Diagrams available and services located.  **Has all of the above been completed?**  **Yes □ No □** | Once  (Pre-Start) | **H** | SE |  |  |  |  |
| **1.2** | Relevant Permits Acquired | SMP | * BYDA / Excavation permit * Penetration Permit * Working at Heights * Lifting Permit * Hot works Permit   **Has all of the above been completed?**  **Yes □ No □** | Prior to start of works | **H** | SE |  |  |  |  |
| **1.3** | Check Survey Set-out | IFC Drawings | Check survey set out is in line with IFC drawings.  **Has all of the above been completed?**  **Yes □ No □** | Prior to start of works | **H** | SE |  |  |  |  |
| **1.4** | Sign Face Manufacture | VicRoads Clause  860.02  DoT | Sign Face manufactured in accordance with VicRoads Standard Specifications for Roadworks Section 860 – Manufacture of Road Signs  **Does the sign designed meet minimum specifications set out by VicRoads?**  **Yes □ No □** | Prior to starting works | H | SE |  |  |  | Certificate of compliance from Manufacturer  **Yes □ No □**  VicRoads Pre-qualification  **Yes □ No □** |
| **1.5** | Supply and Storage of signs | VicRoads Clause  714.03  860.06  DoT | Packaging and Storage of Sign to be in accordance with Specification 860.06.  Sign and sign components to be collected from the specified storage location and prevented from damage and deterioration during transportation.  Signs shall be handled and transported so as to prevent damage to the sign face or other components.  Signs shall be stored vertically in such a manner to prevent damage to the sign face, edges, or components, taking into account any recommendations of the sheeting manufacturer.  **Has all of the above been completed correctly?**  **Yes □ No □** | Prior to works start  &  each lot | W | SE |  |  |  |  |
| **1.6** | Post Details | VicRoads Clause  714.06  IFC Drawings  Sign and Post Schedule  RDN 06-09  TEM Vol 2.02 | Post details shall be as shown on the Sign and Post Schedule from IFC Drawings and be in accordance with the VicRoads Traffic Engineering Manual Volume 2.  Refer to VicRoads Road Design Note RDN 06‑09 for a list of VicRoads accepted frangible post systems. (If applicable)  **Does the post meet minimum structural design requirements?**  **Yes □ No □** | Prior to works start  &  each lot | H | SE |  |  |  |  |
| **1.7** | Alternative method of installation  (If applicable or necessary) | VicRoads Clause  714.04 | If the Contractor proposes to use an alternative method of installation, the Contractor shall submit full details to the Superintendent for approval not later than four weeks before the commencement of sign installation. | Each relevant lot | R | SE |  | **H** |  | Alternative method approved  **Yes □ No □** |
| **Posts and Foundations** | | | | | | | | | | |
| **2.1** | Location of posts | VicRoads Clause  714.06 | The required positions of all posts and signs shall be as directed by the Superintendent who shall confirm the positions before the erection of posts commences.  **Has all of the above been completed?**  **Yes □ No □** | Each Post | **H** | SE |  | **H** |  |  |
| **2.2** | Post Foundations – Hole diameter | VR Clause  714.06 (c)  Signfix specs | Refer table below for minimum diameter of foundation holes:   |  |  | | --- | --- | | **Post size and type (mm)** | **Diameter (mm)** | | 32 mm and 50 mm nominal bore steel | 225 | | 80 mm to 150 mm nominal bore steel | 300 | | All Signfix frangible posts– MASH approved | 400 |   **Does the foundation hole meet minimum requirements?**  **Yes □ No □** | Each lot | **H** | SE |  |  |  |  |
| **2.3** | Post Foundations - Dimensions | IFC Drawings  DoT 714.06(c) | Concrete footings depth and dimensions to be as per IFC Drawings. Refer following drawings for post and footing schedule:   * 1630-P200-SYM-CVR-DRG-2001 * 1630-P200-SYM-CVR-DRG-2002 * 1630-P200-SYM-CVR-DRG-2003 * 1630-P200-SYM-CVR-DRG-2004 | Each Lot | **R** | SE |  |  |  |  |
| **2.4** | Post Foundation – Concrete Supply | VicRoads document 703  VicRoads Clause 714.06 (c)  VicRoads Document 610  IFC Drawings | Concrete used in foundations shall be 20 MPa, 20mm aggregate, 80mm slump complying with the requirements of Section 703. | Each Lot | **R** | SE |  |  |  | Delivery Dockets  **Yes □ No □** |
| **2.5** | Post Foundations - Concrete Testing (If Applicable) | VicRoads document 703  VicRoads Clause 714.06 (c)  IFC Drawings | Sampling and testing of the strength of concrete shall be carried out in accordance with Clause 6.2 of AS 1379.  Frequency of testing:   * At least one sample per day/lot; * Every 50m3 thereafter.   Compressive strength testing and slump testing shall not be required for concrete used in extruded kerbs and channels and other edgings.  **Has concrete testing been completed?**  **Yes □ No □ N/A □** | Each lot  Every 50m3 of concrete | **R** | SE |  |  |  | Concrete Test Report: Compressive strength test results  **Yes □ No □**  **N/A □** |
| **2.6** | Post Foundations – Concrete foundation Tolerances | VicRoads Clause 714.05 (a) | The finished surface of concrete foundations shall be between 50 mm and 100 mm above the finished surface at the base of the sign and shall be shaped to ensure free drainage of water away from the base of the post. | Each Post | **R** | SE |  |  |  |  |
| **2.7** | Install of steel posts | VicRoads Clause 714.06 (a) | Installation as per post schedule and IFC drawings.  **Sockets**  Where posts are to be mounted in sockets, the post shall be securely fixed into the socket by an approved vandal-proof method.  **Two or more posts**  Signs to be mounted on two or more posts shall have posts positioned such that the sign face is rotated away from the approaching traffic to avoid direct reflection. Posts shall be positioned such that the sign is rotated away from the cross section by an amount equal to one tenth of the width of the sign (approximately 5º). | Each Lot | **R** | SE |  |  |  |  |
| **2.8** | Posts in sockets | VicRoads Clause 714.06 (d) | If a sign is located in a paved area or in a location where the sign may be struck by a vehicle, e.g. at the end of an urban median or where it may be necessary to remove the sign to accommodate the swept path of over-dimensional vehicles, the post should be inserted into a socket cast into concrete foundation.  **Suitable socket sizes for posts are as follows:**   |  |  | | --- | --- | | **Post Size (mm)** | **Socket Size (mm)** | | 32mm Nominal Bore tube | 50 mm nominal bore tube | | 50mm Nominal Bore tube | 65 mm nominal bore tube |   The socket install shall adhere to the following:   * The socket should protrude 50 mm above an earth surface or 25 mm above a paved surface. * The sign post must penetrate a minimum 450 mm into the socket. * The sign post should be securely fixed into the socket by an approved vandal-proof method. | Each lot | **R** | SE |  |  |  |  |
| **2.9** | Steel Sign Supports - Coatings | VicRoads Clause 714.06 (b) | **Steel posts shall be either:**   * Hot dipped galvanised in accordance with AS/NZS 4680;   or   * Pre-galvanised prior to forming in accordance with Z275 coating class to AS 1397 (total minimum coating mass on both surfaces of 275 g/m2). The finished tube must be equivalent to AS/NZS 4792 ZB135/135. The weld seam made during forming of pre-galvanised steel post sections shall be repaired in accordance with AS/NZS 4792, Section 3, by applying a coating using a metal spraying system employing a suitable zinc or zinc-alloy wire/powder. | Each lot | **R** | SE |  |  |  |  |
| **2.10** | Other support systems - VicRoads Approved Sign Support Systems | VicRoads Clause 714.06 (f) | Other VicRoads approved proprietary supports systems may be used and shall be installed in accordance with the manufacturer’s specifications.  **Proprietary support system is VicRoads approved?**  **Yes □ No □ N/A □**  **Manufacturers Specifications available?**  **Yes □ No □ N/A □** | Each lot | **R** | SE |  |  |  | Manufacturers Specifications  **Yes □ No □** |
| **2.11** | Backfilling of post holes | VicRoads Clause 714.06 (e) | **32mm and 50mm Nominal Bore Steel Posts**   * Posts holes shall be back-filled with concrete with a nominal strength of 10 MPa, where ground sleeve is used. | Each lot | **R** | SE |  |  |  |  |
| **3.0 Install of Signs** | | | | | | | | | | |
| **3.1** | Fixings and Fittings | VicRoads Clause 714.07 (a) | Install of signs to be as per sign and post schedule in IFC Drawings.  Signs shall be attached to the posts or structures using the type and number of fittings specified in the schedule in the IFC drawings;  Or  As per following table:   |  |  | | --- | --- | | **Size of Sign** | **Number of Fittings per Post** | | Up to 200 mm in depth | One | | 201 to 900 mm in depth | Two | | =901 to 1200 mm in depth | Three | | *One extra fitting shall be provided per post for each 400 mm increment or part thereof above 1200 mm.* | | | Each lot | W | SE |  |  |  |  |
| **3.2** | Braced Signs | VicRoads Clause 714.07 (b) | Braced signs For braced signs, the sign shall be attached to the post at every intersection point between the sign bracing member and the post. | Each lot | W | SE |  |  |  |  |
| **3.3** | Sign assembly – two or more signs | VicRoads Clause 714.07 (c) | Where a sign assembly consists of two or more signs, the signs shall be mounted in accordance with the sign assembly drawings. | Each lot | W | SE |  |  |  |  |
| **3.4** | Signs Mounted on fragile posts | VicRoads Clause 714.07 (e) | When a sign is to be mounted on frangible posts on a cut batter having a slope steeper than or equal to 2:1, the mounting height at the shorter post may be reduced providing that:   * the uphill corner of the sign is a minimum of 800 mm above the ground; * the sign at the longer post is 2200 mm minimum above the ground. | Each lot | W | SE |  |  |  |  |
| **3.5** | Signs Mounted on existing poles – Proposal (If Applicable) | VicRoads Clause 714.07 (f) | When proposing to mount a sign to an existing pole:  **Obtain permission shall for use of structures which are not VicRoads property?**  **Yes □ No □ N/A □**  **Strength of the pole and any other effects of mounting the sign in this way such as fatigue and durability checked by an experienced structural engineer?**  **Yes □ No □ N/A □**  **Evidence of the structural checking shall be submitted to the Superintendent for review?**  **Yes □ No □ N/A □** | Each lot | **H** | SE |  | **H** |  | Structural Engineer report  **Yes □ No □** |
| **3.6** | Signs Mounted on existing poles – Install (If Applicable) | VicRoads Clause 714.07 (f) | **Has section 3.5 been completed?**  **Yes □ No □ N/A □**  Signs to be installed on existing poles as per the IFC drawings.  **Mounted with stainless steel strap**   * the brackets shall be attached to the pole using stainless steel straps of 12 mm minimum width and a minimum tensile strength 6.5 kN.   **Small signs (area NOT exceeding 0.3 m2)**   * shall be attached to steel or concrete electricity distribution poles, tramway poles, lighting columns and signal pedestals or mast arms by banding or other proprietary fittings.   **Large signs (area exceeding 0.3 m2)**   * attached to existing poles (other than electricity distribution poles) provided that the pole has sufficient strength to support the additional loading due to the sign and that special joint-use supports are used. | Each lot | W | SE |  |  |  |  |
| **3.7** | Signs facing oncoming traffic | VicRoads Clause 714.07 (g) | Where the drawings indicate that a sign is to face oncoming traffic, it shall be mounted on posts which have been rotated in accordance with the requirements of clause 714.06(a), with the exception of signs mounted on structures over traffic lanes. | Each lot | W | SE |  |  |  |  |
| **3.8** | Relocation of signs (If applicable) | VicRoads Clause 714.07 (h) | Where signs are to be removed or relocated:   * dismantle and transport the signs, posts and fittings to the specified new location or as directed by the Superintendent; * Post holes shall be backfilled and compacted to the finished surface; * Relocated signs shall be erected in their new position as specified. |  |  |  |  |  |  |  |
| **3.9** | Stiffening Bars | VicRoads Clause 714.07 (i) | Stiffening bars to be removed after erection of signs. | Each lot | W | SE |  |  |  |  |
| **3.10** | Single post mounting | VicRoads Clause 714.07 (j) | Single post mounting for large signs shall be provided if required on the drawings and the schedule. Single post mountings shall be designed in accordance with the VicRoads Traffic Engineering Manual Volume 2. | Each lot | W | SE |  |  |  |  |
| **3.11** | Proprietary sign install (If Applicable) | VicRoads Clause 714.07 (k) | Installation of proprietary signs approved by VicRoads shall be in accordance with the supplier’s recommendations as modified by VicRoads conditions of approval.  **Suppliers recommendations available?**  **Yes □ No □ N/A □** | Each lot | R | SE |  |  |  | Supplier Recommendation  **Yes □ No □** |
| **4.0 Completion** | | | | | | | | | | |
| **4.1** | Tolerances | VicRoads Clause 714.05 (b) | Posts are positioned in accordance with the following tolerances:   * Posts are straight. * Posts are vertical with a maximum deviation of 1 in 100. * Post tops are 50 mm ± 10 below the top edge of the sign   Signs are positioned in accordance with the following tolerances:   * ± 40 mm of the height specified in the Sign and Post Schedule measured from the bottom of the sign or sign assembly to the lip of the kerb or edge of shoulder nearest the sign; * ± 100 mm of the pegged sign location or specified location. * Signs are mounted level with a maximum deviation of 1 in 100.   **Tolerances checked?**  **Yes □ No □ N/A □** | Each lot | R | SE |  |  |  |  |
| **4.2** | Conformance to Drawings | IFC Drawings | Installed signs are installed correctly and checked against IFC documentation.  **Yes □ No □ N/A □** | Each lot | R | SE |  |  |  |  |
| **4.3** | Supply of signs – Warranty | VicRoads 860.07 | Warranties for the Signboard and Components, Sign Face Material, Giving of the Warranty, and warranty Claims to be in accordance with Specification 860.07.  Provide Warranties in accordance with Table 860.071. See Page 8 Fig #1 |  |  |  |  |  |  | Warranties for signboard and components (e.g., Retro-reflective, florescent, and non -reflective materials)  **Yes □ No □** |
| **5.0 Work Lot Close out** | | | | | | | | | | |
| **5.1** | Product Non-Conformance | CQMP | All Product Non-Conformance(s) recorded and closed (if applicable) | Each lot | R | SE |  |  |  | NCR No\_\_\_\_\_\_\_\_\_\_\_ |
| **5**.2 | Quality Representative to check the above criteria and records to confirm | CQMP  Lot Records | All above criteria met, and records identified attached. | Each lot | R | SE |  |  |  | Completed Checklist (if applicable) and reports and other compliance records attached. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Works complete (signer SS)** | |  | | | **Date works complete** | |  | | | |
| **Lot conforms (signer PE)** |  | | **Date lot closed** |  | | **NCR/s no. raised** | |  | **Date NCR closed for this lot** |  |

**Responsibility (Resp.) Key**: **PM**-Project Manager, **PE**-Project Engineer, **SE**- Site Engineer, **CS**-Civil Superintendent, **SS**-Site Supervisor, S**V**-Surveyor, **CR**-Client Representative,

**NA –** Nominated Authority

**Inspection Key: W –** Witness, **H –** Hold Point, **S –** Surveillance, **I –** Inspection, **R –** Review Point