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| Logo Fulton Hogan AUS_CMYK_150dpi | **Inspection and Test Plan - Control and Supervision of the Works** | **FHC-ITP-008** | |
| Revision : 1 | Date : 23/01/2024 |

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| **Client:** | **MRPA** | **Construction Process:** | Prepared by: | Reviewed by :  Name: Justin Sciacca  Signed :  Date : 25/01/24 | Approved by : Name:  Signed : Date : |
| **Project:** | **FITZGERALD ROAD CARPARK** | ***Stormwater Drainage*** | Name: **Fynn Riddick** |
| **Job No:** |  | **Specifications:** VicRoads Specification Section 701, 705 and Drawings |  |
|  |  | **Structure / Component:** Drainage | Signed : |
|  |  | **Location: Fitzgerald Road Level Crossing Removal Project** | Date : 23/01/2024 |

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

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| **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** | **Preliminary Works** | | | | | | | | | | | |
| 1.1 | Check for correct documentation | Prior to commencing any activity | Ensure that all employees and subcontractors are:  - using the correct and complete set of drawings  -all drawings are the latest revision | Drawings and drawing registers | Visual inspection | This ITP signed off | **HP\*** | Site Engineer / Site Foreman | N/A |  |  |  |
| 1.2 | Implementation of all measures and controls | Prior to commencing any activity | All necessary measures and controls are being implemented, that is: PSP, EMP, TMP, JSEA, SWMS & WP | PSP, EMP, TMP, JSEA, SWMS, WP | Visual Inspection | This ITP signed off | **HP\*** | Site Engineer / Site Foreman | N/A |  |  |  |
| 1.3 | Precast Concrete Pipes acceptance | Each Delivery | Precast reinforced concrete pipes shall be accepted on the basis of full compliance with the requirements of this section and AS/NZS 4058. | Cl. 701.05e | Visual Inspection | This ITP signed Receival and Inspection Checklist | **IP** | Site Engineer | N/A |  |  |  |
| 1.4 | Precast Drainage Pit Compliance | Prior to Commencing | All concrete shall be manufactured to the concrete mix design registered by VicRoads and comply with the requirements of Section 610. | VicRoads Spec.  Cl.610 Cl. 705.04 AS5100 | Document Review | Receival & Inspection Checklist  Manufacturer cetificate or accreditation | **IP** | Site Engineer | N/A |  |  |  |
| 1.5 | Bedding material classification | Prior to start | Materials used for bedding and selected backfill shall be free from perishable matter and lumps and shall conform with the requirements of Table 701.091 and Table 701.092. | 701.09(d)  701.091  701.092 | Verify | Test Reports from supplier | **TP** | Site Engineer | N/A |  |  |  |
| 1.7 | Backfill material Classification | Prior to start | Ordinary backfill shall be free from perishable matter and shall conform with the requirements of Table 701.091. | 701.09(d)  701.091 | Verify | Test Reports from supplier | **TP** | Site Engineer | N/A |  |  |  |
| 1.8 | Mortar material classification | Prior to start | Cementituous grouts shall be minimum Type C class dual shinkage  compensating, with a minimum 28 day compressive strength of 40 Mpa | 610.33 | Verify | Test Reports from  supplier | **TP** | Site Engineer | N/A |  |  |  |

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| **2** | **Construction Works** | | | | | | | | | | | |
| 2.1 | Excavation Permit | Each lot | An excavation permit must be issued prior to any excavation commencing. Plant and equipment shall be appropriate for the task.  Excavation operations shall not disturb areas outside the limit of excavation | Excavation permit | Verify | ITP Signed | **HP\*** | Site Engineer | N/A |  |  |  |
| 2.2 | Set out drainage | Prior to backfilling | The position of all drainage lines are to be confirmed with the superintendent | Drawings  701.10 | Visual Inspection | ITP Signed | **HP** | Site Engineer/ Superintendent |  |  |  |  |
| 2.3 | Excacation (pipes) | Each Trench | Horizontal clearance ( between the walls of trench to the side of pipe shall be 300mm – 600mm for pipes, and 0.5 to 1 times the overall height of the culvert for box culverts. Trench walls to be vertical where practical  Depth of trench:   * > 100mm below underside of pipe (for pipe width < 1500 mm) * > 200mm below underside of pipe (for pipe width > 1500 mm) | 701.151  701.15 | Visual Inspection | ITP Signed | **IP** | Site Foreman | N/A |  |  |  |
| 2.4 | Excacation (pits) | Each Pit | A minimum clearance of 400mm is required around the external faces of  precast pits. | 705.05b | Visual Inspection | ITP Signed | **IP** | Site Foreman | N/A |  |  |  |
| 2.5 | Compact base of trench | Each Trench | Compacted to refusal using mechanical plant. | 701.15 | Visual Inspection | ITP Signed | **IP** | Site Engineer | N/A |  |  |  |
| 2.6 | Place bedding material & compact | Each Trench | Bedding and backfill materials shall be placed and compacted in layers not exceeding 150 mm loose thickness. Bedding shall be compacted to refusal using hand held mechanical equipment. Bedding material which has a swell equal to or greater than 2.5% shall be maintained at a mean moisture ratio of 92% between the completion of rolling and the placement of the overlying layer. | 701.20  701.20a | Visual Inspection | ITP Signed | **IP** | Site Engineer | N/A |  |  |  |
| 2.7 | Place pipes & precast pits | Each Line/Pit | Pipes & pits placed as shown on the drawings. No laying to occur until bedding lines and levels and compaction requirements have been satisfied | Drawings | Visual Inspection | ITP Signed | **IP** | Site Engineer / Site Foreman | N/A |  |  |  |
| 2.8 | Jointing pipe sections | Each Line | All interlocking (flush) joint reinforced concrete pipes shall be mortar jointed, or wrapped with a 200 mm wide external joint rubber band. | 701.18 | Visual Inspection | ITP Signed | **IP** | Site Engineer / Site Foreman | N/A |  |  |  |
| 2.9 | Sealing - for joining culvert sections and pipe penetrations in pits | Each Pit | Contact areas between top and bottom sections of box culverts to be mortared. The joints between various components such as drainage pits, access chambers and pipes shall be made watertight using a cementitious mortar in accordance with the requirements of Clause 610.32. | 610.32  701.17c | Visual Inspection | ITP Signed | **WP** | Site Engineer / Site Foreman | N/A |  |  |  |

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| 2.10 | Survey of laid pipe or pit | Prior to backfilling | The location of each run of drainage has been verified prior to backfilling and conforms to the following tolerances: (a) offset of entry pits required to match lines of kerbs or barriers ±20 mm   1. plan location of pits other than offsets to kerb lines or barriers ±100 mm 2. invert level of pipes at pits ±50 mm 3. departure from design grade of pipe runs ±10 mm in 10 m provided minimum grade is not less than 1:250 | 701.10 | Survey Conformance Point | ITP Signed | **SCP** | Site Engineer/ Surveyor | N/A |  |  |  |
| 2.11 | Haunching & compaction of bedding material | each lot | Height of additional bedding material = 30% of nominal pipe diameter or culvert height.  Loose layer thickness <=150mm  Compacted to refusal using hand held mechanical equipment. 1 lot = 150mm layer | 701.16  701.20 | Visual Inspection | ITP Signed | **WP** | Site Engineer / Site Foreman | N/A |  |  |  |
| 2.12 | Place & compact backfill material over pipes | each lot | **Backfill under paved area:** fill  trench with selected back fill material to subgrade level  **Backfill under area not paved:** Back  fill trench with selected back fill to a level 0.3 m above the top of pipe or culvert, and ordinary back fill above that level  Loose layer thickness <= 150mm. 1 lot = 150mm layer | 701.19  701.20 | Visual Inspection | ITP Signed | **IP** | Site Engineer / Site Foreman | N/A |  |  |  |
| 2.13 | Place & compact backfill material around pits | Each Pit | Loose layer thickness <= 300mm.  Compacted to refusal using hand held mechanical equipment. | 705.18 | Visual Inspection | ITP Signed | **IP** | Site Enginer | N/A |  |  |  |
| 2.14 | Backfilling with cement stabilised sand | Each culvert | Where approval is given from superintendent, culverts in trenches may be backfilled to half the pipe diameter or box culvert height with 3% stabilised sand with a water content sufficient to ensure penetration beneath the pipe or  box culvert invert without leaving free surface water. | VicRoads Spec. Cl. 701.19(a) | Site Inspection | Superintendent approval  ITP signed | **AP** | Project Engineer / Superintendent | N/A |  |  |  |
| 2.15 | Install step irons | Each Pit | For pits > 1m deep. | 705.12 | Visual Inspection | ITP Signed | **IP** | Site Enginer | N/A |  |  |  |
| 2.16 | Pit base shaped with concrete to match pipe invert | Each Pit | As shown on Standard VicRoads drawing - Pit & Pipe Invert levels SD 1002 | Standard VicRoads drawing SD 1002 | Visual Inspection | ITP Signed | **IP** | Site Enginer | N/A |  |  |  |
| 2.17 | Place pit covers | Each Pit | Covers must be set to within ±10mm of the design levels shown on the  drawings | 705.17 | Visual  Inspection | ITP Signed | **IP** | Site Engineer /  Site Foreman | N/A |  |  |  |
| 2.18 | Repairs to damaged pipes and box culverts | Each damaged pipe or culvert | No repairs shall be undertaken without the superintendents approval of the repair materials and procedures All  repair procedures undertaken in accordance with Cl 701.25 | 701.31a | Verify | ITP Signed | **HP** | Site Engineer/ Superintendent |  |  |  |  |
| **3** | **Testing & Completion** | | | | | | | | | | | |
| 3.1 | Compaction and moisture content of backfill & bedding material | at least 20% of all lots | Backfill material shall be compactied to a mean density ratio of 97% using standard compactive effort.  Bedding shall be compacted to refusal using hand held mechanical equipment. Bedding material which has a swell equal to or greater than 2.5% shall be maintained at a mean moisture ratio of 92% between the completion  of rolling and the placement of the overlying layer. | 701.20a  701.20b | Verify | Test Reports | **TP** | Site Engineer | N/A |  |  |  |
| 3.2 | CCTV inspection | each lot | All drainage lines constructed shall be inspected, after completion of  earthworks to subgrade level and prior to construction of pavement layers, by an independent testing organisation using closed circuit television (CCTV) to verify that the flow of water is not obstructed by waste construction material left inside and to check for visible signs of defects. | 701.30 | Visual inspection | CCTV Report | **HP** | Site Engineer/ Superintendent |  |  |  |  |

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| 3.3 | Flushing of pipes | Each line | All pipes to be flushed clean upon completion | 701.28 | Verify | ITP Signed | **IP** | Site Engineer | N/A |  |  |  |

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| **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: / / |

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| ***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 |  | | |