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| Client | Transport for New South Wales | INSPECTION AND TEST PLAN FOR: R33 Trench Drains (Pavement Subsoils) | Work Area: |
| Contract No.# | | | |
| Contract | | | Inspection and Test Plan Number / Lot No: |
| Workplace Name | A183 - New Dubbo Bridge | | ITC-09 R33 Trench Drains |

| Legend: | | W = Witness | H = Hold | S = Surveillance | ACPL = Abergeldie | | | | S/C = Subcontractor |
|------------------------|---|---|--|--|--------------------------|------|--------|------|--|
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| | | | | | S/C | ACPL | Client | Date | |
| 1. Preliminary Works | | | | | | | | | |
| 1.1 | IFC Drawings are Current | Pavement IFC Drawings | Use of latest revision of approved Issued for Construction (IFC) Drawings. Any changes in design, RFI was raised and approved: RFI_____ | Once / Prior to Construction | | S | S | | Pavements IFC Drawing |
| 1.2 | Underlying lot conforming | Survey Report | Underlying/Preceding lot is conforming prior to commencement including survey levels of underlying lot | Once / Prior to Construction | | S | S | | Test Results / Survey Report |
| 2. Material Compliance | | | | | | | | | |
| 2.1 | Corrugated Drainage Pipe and Rigid Strip Filter Drain | R33 CI 2.1 | Corrugated plastic drainage pipe (both perforated and non-perforated) must comply with Specification TfNSW 3552. Caps and other fittings must be in accordance with the manufacturer’s recommendations. Seamless tubular filter fabric for use with corrugated perforated plastic drainage pipe must comply with Specification TfNSW 3553. Rigid strip filter drain must comply with Specification TfNSW 3556. | Once / Submitted to principal 7 prior to use | | S | S | | Compliance Records |
| 2.2 | Geotextile | R33 CI 2.2 | Geotextile must comply with specification TfNSW R63. Geotextile for wrapping around rigid strip filter drain must be non-woven geotextile of Strength Class A | Once / Submitted to principal 7 prior to use | | S | S | | Compliance Records |
| 2.3 | No Fines Concrete and Aggregate Filter Material | R33 CI 2.3 TfNSW 3580 D&C 3222 CI 6 | No fines concrete must be Grade NFC SD complying with Specification TfNSW 3222 Aggregate filter material must comply with Specification TfNSW 3580 and the Drawings for the aggregate type. Detail the mixing plant and delivery vehicles | Once / Submitted to principal 7 prior to use | | H | H | | Mix Design & delivery methodology / Compliance Records |
| 2.4 | Selected Material | R33 CI2.4 | Select Material must meet the requirements of Specification TfNSW R44. Select material at batter outlet and at the transverse outlets of pavements interface drains must, in addition, have a maximum particle size not exceeding 50mm. | Once / Submitted to principal 7 prior to use | | S | S | | Compliance Records |

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| | | | Selected fill material for the plug used in staged construction must have a maximum particle size not exceeding 20mm and PI not exceeding 12. | | | | | | |
| 3. Construction | | | | | | | | | |
| 3.1 | Order of Construction | R33 CI 3.1 | <p>Where trench drains are to be installed in embankment foundations, construct the trench drains after completion of clearing, stripping and general excavation operations, but preceding the commencement of embankment construction adjacent to the trench drain.</p> <p>If trench drains are required in cuttings, construct the trench drains as soon as practicable following completion of earthworks.</p> <p>Where the top of earthworks is to be stabilised, construct the trench drains after completion of stabilisation.</p> <p>Where excessive ground water is encountered, trench drains may be installed prior to stabilisation if approved by the principal.</p> | During construction | | S | S | | N/A |
| 3.2 | Excavation | R33 CI 3.2 | <p>Unless otherwise specified, the bottom of the trench must be at the same grade as the roadway. Where the grade of the roadway is less than 0.5%, provide minimum grade of 0.5% by increasing the depth of the trench.</p> <p>Excavated material must either be stockpile or incorporated in the works or disposed of in accordance with R44.</p> | During construction | | S | S | | Survey Report |
| 3.3 | Geotextile Installation | R33 CI 3.3 | <p>When installing geotextile, do not allow loose material from the trench walls or outside the trench to enter the excavation.</p> <p>Keep all geotextiles clean and secure the geotextile to ensure that they are located as shown on the drawings on completion of backfill.</p> | During construction | | S | S | | Visual Inspection |
| 3.4 | Laying of Pipe | R33 CI 3.4 | <p>Lay the pipe in the centre of the trench on a bed of filter material 100mm thick to the required line and grade as shown on the drawing.</p> <p>Keep the number of joints in the pipeline to the minimum and connect the pipes using coupling complying with the manufacturers recommendations.</p> <p>Where an inlet into the trench drain is provided at a stormwater pit, the invert level of the inlet must be above the hydraulic grade line of the pit and as close to the underside of the pavement layer as possible.</p> <p>Cap the upstream end of buried pipes where the upstream end of the pipe is enclosed within filter material and is not connected to a stormwater pit.</p> <p>Where the filter material around the pipe is Grade F5 or F7 aggregate filter material (refer TfNSW 3580), (a) for corrugated perforated plastic drainage pipe, install a seamless tubular filter fabric around the pipe;</p> | During Construction | | S | S | | Visual Inspection |

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| | | | (b) for rigid strip filter drain, wrap the strip filter drain with non-woven geotextile of Strength Class A. The geotextile must encapsulate the rigid strip filter and be joined by heat or an electrically generated welding process. | | | | | | |
| 3.5 | Backfilling | R33 CI 3.5 TfNSW 3222 CI 7.1 | <p>Compact the filter material to its full depth to avoid post-construction consolidation and to provide an even surface at the same level as the adjacent material.</p> <p>Verification that pipe laying, jointing and bedding are complete and conforming.</p> <p>At the end of each days production, total up the individual masses of cement and aggregates using in the days production of no fines concrete, and provide these details to the principal</p> | Backfilling | | H | H | | Visual Inspection |
| 4. Outlets and Marking | | | | | | | | | |
| 4.1 | Outlets at Stormwater Drainage Structures | R33 CI 4.2 | <p>Where the outlet of the trench drain is at a stormwater pit or other stormwater drainage structure, the height of the pipe invert above the base of the trench drain must taper from 100 mm to zero within the end 5 metres from the outlet.</p> <p>Where a trench drain is one without a pipe, provide 10 m of corrugated perforated plastic pipe immediately upstream of the outlet and taper the height of the pipe invert as described above to facilitate discharge of water. Fit the upstream end of the pipe with a suitable cap to prevent entry of material.</p> | Installation of Outlets at Stormwater Drainage Structures | | S | S | | Visual Inspection |
| 4.2 | Outlets at Batters | R33 CI 4.3 | <p>Where it is not possible to connect the trench drain to a stormwater pit or other stormwater drainage structure, construct an outlet at the batter to discharge water beyond the edge of the road shoulder.</p> <p>The outlet pipe must be of the same type and size as those in the trench drain but must be non-perforated for the length extending beyond the edge of the pavement.</p> <p>Lay the non-perforated section of pipe at the base of the trench. Taper the height above the base of the trench of the connecting section of perforated pipe, from zero to 100 mm, over a 2 m length. Backfill the trench along this section of pipe with Selected Material of maximum particle size of 50 mm, and compacted to a relative compaction of 95% as determined by Test Method TfNSW T166.</p> <p>Construct a batter outlet structure at the discharge end in accordance with the Drawings. Locate the outlet so that erosion of the adjacent area does not occur or protect the outlet by placing selected stone in the splash zone.</p> | Installation of Outlets at Batters | | S | S | | Visual Inspection |

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| 4.3 | Marking | R33 Cl 6 | During construction, physically mark out on site the inlets and outlets of the subsurface drains, to avoid damage to them during construction. | Marking of Outlets and Inlets | | S | S | | Project Quality Plan |

| REVIEW BY PROJECT MANAGER | | | | | | | | | |
|---|--|------------------------------|------------------------------|-----------|-----------------------------|------------|--|------------------------------|-----------------------------|
| Any non-conformances? | | <input type="checkbox"/> YES | <input type="checkbox"/> NO | Nos: | | Closed Out | | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| All work has been satisfactorily completed. | | | <input type="checkbox"/> YES | | <input type="checkbox"/> NO | | | | |
| Name | | | | Signature | | Date | | | |