**Inspection and test plan – Fill Earthworks Type B**

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| **Project no.** | | CC0374 | **Project name** | Pakenham Roads Upgrade | | **Date** |  | | **Approved by** | Damian Hagebols |
| **ITP no.** | 1630-P200-SYM-QAC-ITP-0007 | | **Revision date** | 15/11/2023 | **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)** |
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|  |  | |  |  |  |  | **Symal** | | | **Superintendent** | |
| **Item no.** | **Activity** | | **Ref docs** | **Acceptance criteria** |  | **Freq** | **Key** | **Resp** | **Initial/ date** | **Key** | **Sign/ date** |
|  | | **1.0 Pre-start activities** | | | | | | | | | | |
| **1.1** | Define Work Lot | | 173.02  204.03 (h)  Table 204.142  Quality Management Plan  Lot Diagram | Survey boundaries clearly define the Earthworks Type B Construction works.  Lot diagram to be provided clearly marking up extents of lot area.  Work Lot open on TeamBinder.  Lot size with no more than one day’s production or a maximum of 10000m² for Type B Material.  In case of Random level assessments of the surface measurements, the lot size shall be a maximum of 4000m². |  | Prior to start of works | R  S | SE |  |  |  | Lot Map **□** |
|  | | **2.0 Set Out** | | | | | | | | | | |
| **2.1** | Set Out Survey Completed | | VR Clause 204.03 (a)  IFC Drawings | Set out pegs in place and clearly mark out limits of works as per IFC drawings. |  | Each Lot | R | SE |  |  |  |  |
|  | | **3.0 Placement of Type B Material** | | | | | | | | | | |
| **3.1** | Underlying Layer Conformance | | VR Clause 204.10(b)  Construction Document | No fill to be placed until the area has been reviewed by the Superintendent. |  | Each Lot | **H**  W | SE |  | **H** |  | Ref…………………………………………… |
| **3.2** | Placing Geotextiles  (if applicable) | | VR Clause 210.05  Table PS3020.071  IFC Drawing | The placement of geotextile is not permitted without the written approval of the Superintendent.  Geotextile shall be placed to the limits as shown on drawings or specified. The geotextile shall be placed without punctures or tears and, if these occur, they shall be rectified or the entire roll of geotextile replaced prior to covering. Any rolls with imperfections shall not be used.  All joints shall be overlapped or sewn in accordance with the Geotextile Record.  Geotextiles shall be covered by filling within 48 hours of placement.  **Has all of the above been completed per standard and approved?**  **Yes □ No □** |  | Each Lot | **H**  W | SE |  | **H** |  |  |
| **3.3** | Placing Subsurface Drainage | | 1630-P200-SYM-TPW-RPT-0001  Appendix B – Table 5 | Subsurface drainage mat to be prepared in accordance with drawings.  Superintendent to review and approve prior to placement of any fill on top of subsurface drainage mat.  **Approval to proceed granted?**  **Yes □ No □** |  | Each Lot | **H** | SE |  | **H** |  |  |
| **3.4** | Placing of Fill | | VR Clause 204.10(d) | Spread and compact in layers not exceeding a compacted thickness of 200 mm.  **Where Type B material contains 25% or more of rock by volume, which will not break down during compaction to meet the maximum particle dimension required for a 200 mm thick layer**, the loose thickness of each layer may equal 125% of the typical maximum particle dimension of the rock up to a maximum layer thickness of 500 mm. Any rock with a maximum particle dimension greater than 80% of the loose thickness of the layer shall be removed. The material shall be placed and compacted such that voids are completely filled with fine material.  Type B material containing rock with a particle dimension greater than 150 mm after compaction shall not be placed within 400 mm of the top of Type B and/or Type C material zones.  Material shall be compacted at minimum moisture ratio of 80% |  | Once  Each Lot | W | SE |  |  |  | Verification Records: Layer Thickness at least every three layers  **Yes □ No □**  Material Compliance Certificates  **Yes □ No □**  VicRoads registration of recycled material blend (if applicable)  **Yes □ No □** |
| **3.5** | Keyed Fill Layers | | VR Clause 204.10(c)  204.10(d)  Construction Document | Placement surface textured to ensure layers keyed into each other.  Where a fill is to be constructed on steep sideling ground or against an existing embankment with side slope steeper than 4 horizontally to 1 vertically, benches shall be progressively cut over the full area to be covered by new fill. The width of each bench shall be such as to permit safe and effective operation of plant but shall be not less than 1 m. |  | Once  Each Lot | W | SE |  |  |  |  |
| **3.6** | Test Roll of Type B fill layer | | VR Clause 204.12  173.03  Construction Document  (Test roll Procedure in specification 173.03)  1630-P200-SYM-GEO-DPK-0001  Table 43 | Test Roll in accordance with Section 173.  Surface shall withstand test rolling without visible deformation or springing.  Test roll to be completed using at least a fully loaded water cart with 8 tonne axle load or 20 tonne gross vehicle mass.  Where unstable areas exceed 20% of the area being considered by proof roll the whole area should be ripped and recompacted.  **The Contractor shall provide for the Superintendent to be present during all test rolling.** |  | Each Lot | **H** | SE |  | **H** |  |  |
|  | | **4.0 Geotechnical Analysis** | | | | | | | | | | |
| **4.1** | CBR/Swell – **Initial Testing** | | VR Clause 204.04(c)  PS3020.05 (c)(v) | First lot tested to determine assigned CBR and Swell:  **CBR ≥ 3%**  **Swell < 2.5%**  If swell exceeds 2.5%, the material shall be classified as expansive. Raise RFI and request approval from the Superintendent to use material.  If both assigned CBR and swell meet the requirements and are approved by the Superintendent, the material will be considered conforming and single CBR and single Swell testing can be performed for future lots at reduced frequency. |  | Each Lot | R | SE |  |  |  | NATA Test Report: CBR and Swell **□** |
| **4.2** | Compaction Testing / Moisture Testing | | VR Clause Table 204.131  Table 204.141  Table 204.142  173.04(d)  Table PS3020.072 | **All areas of the job will be considered as scale A.**  **Scale A Testing: HWKR Rd, Princes Freeway, All Freeway Interchange Ramps, All other arterial roads.**  **Scale B Testing: All other local roads, SUP.**  Type B material placed within 400 mm of top of Type B material: **99% (Scale A)**  Type B Material placed more than 400 mm below top of Type B Material: **97% (Scale A)**  Type B material placed within 400 mm of top of Type B material: **98% (Scale B)**  Type B Material placed more than 400 mm below top of Type B Material: **95% (Scale B)**  Type B material is to be tested as per table 201.142. And should meet the moisture content requirements as per VR204.  >70% for any material within 150mm of subgrade.  >80% for all material below cut floor level. |  | Each Lot | R | SE |  |  |  | NATA Test Report: Compaction **□** |
| **4.3** | Material Requirements | | VR Clause Table 204.041 | Maximum Particle Distribution (MPD) ≤ 150 mm within 400 mm of Top of Type B.  or  MPD ≤ 40mm at depths greater than 400 mm below the top of Type B material.  **Have the results been achieved?**  **Yes □ No □** |  | Each Lot | R | SE |  |  |  |  |
| **4.4** | LL and PI Testing | | VR Clause  Table 204.141  Table 204.142  173.04(d) | LL and comparison of PI against LL, (identification of silt) is required for Type B Material.  Initial testing is 1 Test per 2 lots.  **Have the results been achieved?**  **Yes □ No □** |  | Each Lot | R | SE |  |  |  | NATA Test Report: LL, PI  **Yes □ No □** |
| **4.5** | Reduced Frequency  Post compaction testing of initial lots. | | VR Clause 204.14 – Table 204.141  PS3020.07 (f) | Test initial lot for CBR/Swell.  Test initial 3 lots for compaction.  Once material and work have achieved the specified requirements in the first test. And;  Established a compaction procedure to the satisfaction of the Superintendent’s. Symal can reduce the frequency of testing of subsequent lots to the minimum requirements specified in Table 204.142  **If Reduced frequency has been granted, the testing can be conducted at the following frequency.**  1 test per every 8 lots for CBR/Swell  1 every 2 lots OR every 3rd lot if placed >400 mm below top of type B for Compaction Testing.  1 test per 4 lots of LL and comparison of PI against LL.  **Has the criteria been achieved?**  **Yes □ No □** |  | Each Lot | R | SE |  | R |  | NATA Test Report: CBR/Swell, Compaction,  LL, PI  **Yes □ No □** |
|  | | **5.0 Completion** | | | | | | | | | | |
| **5.1** | Conformity with IFC Drawings and Construction Tolerances | | VR Clause 204.03  Table 204.031 | Earthworks shall be finished to conform to the levels, lines, grades and cross-sectional specified or shown on the drawings with the following requirements.  Scale A: 80 measurements per lot  Mean +5 / -15 mm Max Std Dev. 12 mm |  | Each Lot | R | SE |  |  |  | Survey Conformance Report □ |
| **5.2** | Preparation of Final Surface.  (For Underside of Pavement Layers and the surface of the Cut Floor). | | VR Clause 204.15 | Surface is Smooth, Hard, Tightly Bound and Free from Depressions Capable of Holding Water.  Material within 150 mm of subgrade shall be maintained such that its moisture content is not less than 70% of OMC prior to the placement of any pavement layers.  **Does the final product conform to the above criterial?**  **Yes □ No □** |  | Each Lot | R | SE |  |  |  |  |
|  | | **6.0 Work Lot Close Out** | | | | | | | | | | |
| **6.1** | Test Reports | | DoT Specs | All Test reports received and reviewed |  | Each Lot | R | PE |  |  |  | NATA Endorsed Test Reports |
| **6.2** | Product Non-Conformance | | QMP | All Product Non-Conformance(s) recorded and closed (if applicable) |  | Each Lot | R | PE |  |  |  | NCR reports |

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| **Works complete (signer SE)** | |  | | | **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, **SV**-Surveyor, **CR**-Client Representative

**SI** – Superintendent

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