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| --- | --- | --- | --- |
| Lot No: | Lot Details: | Lot size/Quantity: | Date: |

| **Item**  **No.** | **Task/Activity Description** | **Inspection/Test** | | | | | **HP/ WP/ AP/IP/ TP/ SCP** | **Responsibility**  Project Engineer  Superintendent  Surveyor  Foreman | **Checked by:** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **AECOM** | **FH** | **Date** |
| **1.0** | **Preliminary Activities** | | | | | | | | | | |
| 1.1 | Submission of Production Plan | Prior to each work shift | The production plan shall demonstrate that the production capacity and the hot storage capacity of the mixing plant is sufficient to supply asphalt to complete the work undertaken within each shift.  It will ensure that there will be no interruption to the placement of asphalt. | AECOM – MAP MP Spec. Cl 12.4.15.1 | Verify | Approved production plan  Aconex Correspondence | **HP** | Project Engineer / Contract Administrator |  |  |  |
| 1.2 | Checking of Weighting Devices and Certificates | Prior to commencing works | The Contractor shall supply details of current certification of weighing equipment including belt weighers and weighbridges to the Contract Administrator. | AECOM – MAP MP Spec. Cl 12.4.15.6 | Verify | Aconex Correspondence | **WP** | Project Engineer / Contract Administrator |  |  |  |
| 1.3 | Calibration of the mixing plant | Prior to commencing works | Calibrating all necessary devices and parameters at the mixing plant to achieve the “Job Mix”.  Established plants shall provide historical records of the asphalt production over the previous one (1) month to verify consistency. | AECOM – MAP MP Spec. Cl 12.4.15.11 | Verify | Historical records of asphalt production  This ITP signed | **WP** | Project Engineer / Contract Administrator |  |  |  |
| 1.4 | Material Submission (Coarse and Fine Aggregates and Added Filler) | Prior to commencing works | Submission of a report which contains:   * Details about the source of the material. * Summary of recent test results indicating compliance with the specification requirements. | AECOM – MAP MP Spec. Cl 12.5.2.2 12.5.2.3 12.5.2.4 12.5.2.5 12.5.2.6 | Verify | Aconex Correspondence | **HP** | Project Engineer / Contract Administrator |  |  |  |
| **2.0** | **Production Conditions** | | | | | | | | | | |
| 2.1 | Asphalt mix temperature | Once per 200 tonnes of asphalt produced | The temperature of the mix immediately following discharge from the mixer shall be within 10ºC of that nominated by the Contractor but shall not be greater than 175ºC (for polymer modified bitumen). | AECOM – MAP MP Spec. Cl 12.8.1 | Inspection | Delivery Dockets | **TP** | Laboratory Technician / Plant Operator |  |  |  |
| **3.0** | **Coarse Aggregates Material Properties** | | | | | | | | | | |
| 3.1 | Particle Density Coarse | 1 per 2000 tonnes aggregate | Not less than 2300 kg/m3 | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.6.1 /6.2 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.2 | Water Absorption | 1 per 1000 tonnes aggregate | Not more than 2.0%  (Asphalt mix designed to meet performance criteria with current aggregate source rock producing water absorption >2.0% - In accordance with Taxiway Zulu Project - No objection by AECOM) | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.6.1 /6.2 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.3 | Particle Size Distribution | 1 per 500 tonnes aggregate | PSD to FH Internal Limits | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS1141.11.1 (washed) | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.4 | Material Finer than 0.075mm in Aggregates (by washing) | 1 per 500 tonnes aggregate | Not more than 2.0% | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS1141.11.1 (washed) | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.5 | Flakiness Index (nominal 10 mm and larger aggregate) | 1 per 1000 tonnes aggregate | Maximum 25%  (Flakiness Index used in place of particle shape test - In accordance with Taxiway Zulu Project - No objection by AECOM) | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.15 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.6 | Weak particles | 1 per 1000 tonnes aggregate | Not more than 0.2% | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.32 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.7 | Soundness (using Sodium Sulphate) | Initial | Not more than 3% weighted loss | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.24 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.8 | Wet Strength | 1 per 2500 tonnes aggregate | ~~Not less than 180kN~~  Not less than 150kN - In accordance with Taxiway Zulu Project - No objection by AECOM | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.22 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.9 | Wet / Dry Strength Variation | Initial | ~~Not more than 25%~~  Not more than 30% - In accordance with Taxiway Zulu Project - No objection by AECOM | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.22 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.10 | Los Angeles Abrasion | Initial | Not more than 25% loss (B or K Test Grading) | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | AS 1141.23 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 3.11 | Secondary Mineral Content | Initial | Not more than 20% (Basic rock types only) | AECOM – MAP MP Spec. Cl 12.5.2.3, 12.5.2.7, Table 12-1 Table 12-5 | Petrographic Analysis | Test Report | **TP** | Laboratory Technician |  |  |  |
| **4.0** | **Fine Aggregates Material Properties** | | | | | | | | | | |
| 4.1 | Particle Size Distribution | 1 per 500 tonnes aggregate | PSD to FH Internal Limits | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS1141.11.1 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 4.2 | Particle Density Fine | 1 per 1000 tonnes aggregate | Not less than 2300kg/m3 | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS 1141.5 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 4.3 | Water absorption – crushed aggregate | 1 per 1000 tonnes aggregate | Not more than 2.5% | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS 1141.5 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 4.4 | Water absorption – uncrushed aggregate | 1 per 1000 tonnes aggregate | Not more than 2.0% | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS 1141.5 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 4.5 | Plasticity Index | 1 per 1000 tonnes aggregate | Non Plastic (Plastic Index must equal 0.0%) | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS 1289.3.3.1 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 4.6 | Linear Shrinkage | 1 per 500 tonnes aggregate | Not more than 1% | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS 1289.3.4.1 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 4.7 | Soundness (using Sodium Sulphate) | Initial | Not more than 3% weighted loss | AECOM – MAP MP Spec. Cl 12.5.2.4, 12.5.2.7, Table 12-3 Table 12-6 | AS 1141.24 | Test Report | **TP** | Laboratory Technician |  |  |  |
| **5.0** | **Binder Testing** | | | | | | | | | | |
| 5.1 | Bituminous Binder Sampling and Submission | Prior to commencing each production shift | All samples of bitumen must be obtained in accordance with AS 2008.  Samples of bitumen shall be taken during construction at the rate of one (1) sample from each separate delivery vessel delivered to the mixing plant.  The samples shall consist of two (2) 0.5 litre (minimum) sealed containers labelled appropriately identifying the relevant lot and traceability to the source.  These samples to be submitted to the Contract Administrator. | AECOM – MAP MP Spec. Cl 12.5.3.2 12.5.3.6 | AS 2008  Verify | This ITP signed | **HP** | Laboratory Technician  Project Engineer / Contract Administrator |  |  |  |
| 5.2 | Bituminous Binder Testing | Prior to commencing each production shift | Bitumen is to be tested at the point of delivery. The sample is to be tested for the following:   * Viscosity at 165°C according to AG:PT/T111. * Torsional recovery at 25°C, 30 s according to AG:PT/T122 * Softening Point according to AG:PT/T131 | AECOM – MAP MP Spec. Cl 12.5.3.2 | AG:PT/T1 11  AG:PT/T1 22  AG:PT/T1 31 | Test Certificates | **HP** | Laboratory Technician  Project Engineer / Contract Administrator |  |  |  |
| **6.0** | **Asphalt Production Testing** | | | | | | | | | | |
| 6.1 | Sampling | Once per 200t asphalt produced or 1 test per shift (whichever is greater) | Mix to be sampled from asphalt delivery trucks. | AECOM – MAP MP Spec. Cl 12.10.2 | AS 2891.1.1 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.2 | Checking of Bitumen Usage | At the end of each production shift | The Contractor shall determine the average bitumen content of each size of asphalt produced during each continuous mixing period or shift based on the total quantity of bitumen used and total asphalt produced. | AECOM – MAP MP Spec. Cl 12.4.15.7 | Verify | Records of bitumen usage | **HP** | Project Engineer / Contract Administrator |  |  |  |
| 6.3 | Moisture content | Once per sample obtained as per Item 6.1 of this document | Moisture content of asphalt to be <0.5%. | FH Internal | RC 211.011 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.4 | Combined aggregate grading | Once per sample obtained as per Item 6.1 of this document | Grading to be within the following tolerances of the “job mix” target grading:   |  |  | | --- | --- | | Sieve Size (mm) | Tolerance % passing | | 13.2 | ± 4 | | 9.5 | ± 4 | | 6.7 | ± 4 | | 4.75 | ± 3 | | 2.36 | ± 3 | | 1.18 | ± 3 | | 0.600 | ± 3 | | 0.300 | ± 2 | | 0.150 | ± 2 | | 0.075 | ± 1 | | AECOM – MAP MP Spec. Cl 12.10.3 | AS 2891.3.3 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.5 | Binder content | Once per sample obtained as per Item 6.1 of this document | Bitumen content to be within -0.3% and +0.3% of the “job bitumen content” target. | AECOM – MAP MP Spec. Cl 12.10.3 | AS 2891.3.3 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.6 | Maximum density | Once per sample obtained as per Item 6.1 of this document | Average maximum density for each production shift to be reported. | AECOM – MAP MP Spec. Cl 12.10.2 | AS 2891.7.1 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.7 | Bulk density | Once per sample obtained as per Item 6.1 of this document | Two Marshall blocks to be produced using automatic hammers (75 blow compaction) and the results averaged.  Compaction temperature is to be within the range of 165oC to 175oC.  Result to be reported. | AECOM – MAP MP Spec. Cl 12.10.2 | AAA MT 001-2007 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.8 | Voids in mineral filler (VMA) | Once per sample obtained as per Item 6.1 of this document | 14% minimum | AECOM – MAP MP Spec. Cl 12.6.3 Table 12-8 | AAA MT 001-2007 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.9 | Voids filled with binder (VFB) | Once per sample obtained as per Item 6.1 of this document | 70% minimum to 80% maximum | AECOM – MAP MP Spec. Cl 12.6.3, 12.10.3 Table 12-8 | AAA MT 001-2007 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.10 | Air voids | Once per sample obtained as per Item 6.1 of this document | Two Marshall blocks to be produced using automatic hammers (75 blow compaction) and the results averaged.  Compaction temperature is to be within the range of 165oC to 175oC.  ~~Air voids to be 4% ± 1%~~  Air voids to be ± 1.5% of design air voids - In accordance with Taxiway Zulu Project - No objection by AECOM | AECOM – MAP MP Spec. Cl 12.6.3, 12.10.3 Table 12-8 | AAA MT 001-2007 | Test Report | **TP** | Laboratory Technician |  |  |  |
| 6.11 | Marshall stability | Once per sample obtained as per Item 6.1 of this document | Two Marshall blocks to be produced using automatic hammers (75 blow compaction) and the results averaged. Compaction temperature is to be within the range of 165oC to 175oC.  Minimum Marshall stability to be 12kN. | AECOM – MAP MP Spec. Cl 12.6.3, 12.10.3 Table 12-8 | AAA MT 001-2007 |  | **TP** | Laboratory Technician |  |  |  |
| 6.12 | Marshall flow | Once per sample obtained as per Item 6.1 of this document | Two Marshall blocks to be produced using automatic hammers (75 blow compaction) and the results averaged. Compaction temperature is to be within the range of 165oC to 175oC.  Report flow result. Report stability vs flow chart. | AECOM – MAP MP Spec. Cl 12.6.3, 12.10.3 Table 12-8 | AAA MT 001-2007 |  | **TP** | Laboratory Technician |  |  |  |

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| **Final Inspection** The signature below verifies that this ITP has been completed in accordance with the Fulton Hogan’s Quality \System Procedures and verifies lot compliance with specifications.  **Print Name: Position: Signature: Date: / /** |

**Legend:**

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| **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\*** | Fulton Hogan Hold Point | Work shall not proceed past the HP\* until released by Fulton Hogan | **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 |  |  | |

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| **Notes** |