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|  | **Inspection and Test Plan – Stormwater Drainage** | | | | **Doc ID:** FH-ZU2-QU-ITP005 | |
| **Client:** Melbourne Airport (APAM) | | **Contract No:** CP14038-01 | | **Prepared By:** John Kakoliris | | |
| **Project:** Taxiway Zulu 2.0 Project | | | **Reviewed By:** Cristin Swar | | | **Date:** 19/04/2024 |
| **Construction Process:** Installation of Stormwater Drainage | | | **Approved By:** Jordan Nicolaou | | | **Date:** 30/04/2024 |
| **Specifications:** Taxiway Zulu 2.0 Program – Works Specification ZULU-BECA-SPC-00002[C03] | | | | | | |
| **Structure / Component:** Stormwater Drainage | | | | | | |

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

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
| **1.0** | **Preliminary Activities** | | | | | | | | | | | |
| 1.1 | Check for correct documentation | Prior to commencing activity | Ensure that all employees and subcontractors are:   * using the correct and complete set of drawings * all drawings are the latest revision. | Drawings and Aconex Register | Visual Inspection | Up to date drawing sets & ITP | HP\* | Project / Site Engineer |  |  |  |  |
| 1.2 | Implementation of all measures and controls | Prior to commencing activity | All necessary measures and controls are being implemented, that is: CEMP, TMP, SWMS & WP. | CEMP, TMP, SWMS & WP | Verify | Site and Office Inspection | HP\* | Project/ Site Engineer/ Supervisor |  |  |  |  |
| 1.3 | Excavation Permit | Prior to commencing activity | Excavation Permit issued by APAM obtained prior to any excavation on site. | Excavation Permit | Verify | Proof of signed  permit | HP\* | Project/ Site Engineer |  |  |  |  |
| **2.0** | **Stormwater Products and Materials** | | | | | | | | | | | |
| 2.1 | Drainage Pipes (RCPs) | Prior to commencem ent of works | Drainage pipes supplied in accordance with AS4058.  Material submission approval. | CL16.6.1 | Document Review | Aconex | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| 2.2 | Pipe Support Cradles | Prior to commencem ent of works | Pipe to sit on firm foundation with pipe support cradles.  Material submission/ Shop drawing | Cl16.5.6.1 | Document Review | Aconex | HP\* | Project/ Site Engineer |  |  |  |  |

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
|  |  |  | submission. |  |  |  |  |  |  |  |  |  |
| 2.3 | Encasement Material | Prior to commencem ent of works | Encasement Material to be 5Mpa lean mix concrete for all RCP’s.  Material submission approval. | Cl16.5.6.1 & 16.6.2.2  & Tender Clarificatio ns #36 | Document Review | Aconex | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| 2.4 | Backfill Material | Prior to commencem ent of works | Backfill material to be 6% cement stabilised sand to pavement formation level.  Material submission approval. | Cl16.5.6 & 16.6.2.2 | Document Review | Aconex Ref | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| **3.0** | **Stormwater Delivery** | | | | | | | | | | | |
| 3.1 | RCP Delivery | Each Delivery | Drainage pipes supplied and delivered as per approved Material submission.  Manufacturer’s conformance report. | CL16.6.1 & AS4058 | Verify | Order Acceptance Form | **IP** | Project/ Site Engineer |  |  |  |  |
| **4.0** | **Construction Activities** | | | | | | | | | | | |
| 4.1 | Survey Setout | Prior to construction and each lot | Set out the stormwater drainage as shown on the Drawings to identify the locations, lengths and levels at outlets and inlets of pipes.  This constitutes a **Hold Point.** | Cl16.7.1 | Survey | ITP Signed | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| 4.2 | Excavation | Each Lot | All excavation to be performed to the minimum depths, widths and batter | Cl16.8.1 & Cl16.6.2.2 | Verify | ITP Signed | **HP** | Project/ Site Engineer |  |  |  |  |

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
|  |  |  | slopes as shown on the Drawings, regardless of the type of material.  Trench excavation is to commence at the downstream end, where practical.  The width of trench to be such that the horizontal clearance from the outside of the pipe to wall of the trench to be minimum 300mm when under the runway and taxiway graded strip. Trench width outside of the runway and taxiway graded strip to be the greater of 150mm and D/6.  Subgrade Inspection to constitute a  **Hold Point.** |  |  |  |  | Beca |  |  |  |  |
| 4.3 | Site Dewatering | Each Lot | Excavations are to be kept free from water during construction and backfilling and provide pumps, well- points or other equipment as necessary.  Any temporary works to be designed such that flooding upstream of the diversion does not occur. This constitutes a **Hold Point.** | Cl16.8.4 | Site Inspection | Aconex Ref | **HP** | Project/ Site Engineer  Beca |  |  |  |  |

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
| 4.4 | Confirm Ground Conditions | Each Drainage Line | 1 x DCP test to be undertaken per drainage line to confirm ground conditions.  Contractor to notify the Contract Administrator of any area of the foundation which contains material that is inadequate to support the proposed drainage structure.  Inadequate material is deemed to have a bearing pressure less than 130kPa, equivalent to 4 DCP blows per 100mm, per note 4 on drawing ZULU-BECA-012-DWG-07102.  Inadequate foundation material is to be replaced with a layer of coarse crushed aggregate compacted to 95% relative standard compaction to AS1289 Section 5.5.1 over a geotextile Bidim A29 or approved equivalent. | Cl16.8.2  & Tender Clarificatio n 179 | Site Inspection | DCP, Test Results | TP | Project/ Site Engineer/ Beca |  |  |  |  |
| 4.5 | Bedding | Each Lot | Bedding material/ subgrade to be prepared for laying the pipes. Pipe support cradles to be placed on firm bedding. **This constitutes a Witness Point.** | Cl.16.6.2.1 | Visual Inspection | ITP Signed | **WP** | Project/ Site Engineer  Beca |  |  |  |  |

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| 4.6 | Laying of Pipes (Sample) | First Lot | Initial sample 20m length of concrete pipeline to be laid and approved by the Contract Administrator for line and level before continuing construction of pipe network, **Hold Point**. | Cl.16.9.1.6 | Verify & Visual Inspection | ITP Signed | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| 4.7 | Laying and Jointing of Pipes | Each Lot | Concrete Pipes to be rigidly supported by approved steel pipe cradle during laying.  Pipes to be placed with spigot end facing downstream.  Pipes to be laid with the word ‘TOP’ and or lifting holes uppermost. Lifting holes to be plugged after installation.  All Concrete Pipes to be checked and subject to the approval of the Contract Administrator prior to commencement of backfilling, **Hold Point**. | Cl.16.9.1.6 | Verify & Visual Inspection | ITP Signed | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| 4.8 | Survey | Each Lot | The alignment, level and grade to be checked on the obvert of every third concrete pipe unit.  Invert levels at the upstream and downstream ends to be submitted to the Contract Administrator for | Cl.16.7 & 16.9.1.6 | Survey | Survey Report | SCP | Project/ Site Engineer |  |  |  |  |

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|  |  |  | review.  **Deviation from Invert Level**   * Maximum deviation from design invert level to not exceed 20mm and not result in zero grade or reversal of grade in any length of concrete pipe. * Where the design pipe grade is less than 1%, maximum deviation from pipe socket to pipe socket does not exceed 20 mm. * Maximum deviation from design invert level between upstream and downstream structures to not exceed 20mm and not result in zero grade or reversal of grade in any length of concrete pipe.   **Deviation from Alignment**   * Maximum deviation of the concrete pipe from the alignment shown on the Drawings to not exceed 25mm. |  |  |  |  |  |  |  |  |  |
| 4.9 | Backfill Materials | Each Lot | **RCP’s under Runway and Taxiway Graded Strip**   * 5MPa wet lean mix to 200mm above pipe obvert * 6% Cement Stabilised Sand to | Cl.16.5.6 & IFC  Drawings & Tender Clarificatio n #164 | Verify and Site Inspection | Delivery Docket and ITP Signed | IP | Project/ Site Engineer |  |  |  |  |

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|  |  |  | pavement formation level  **RCP’s outside Runway and Taxiway Graded Strip**   * 5MPa wet lean mix 150mm above pipe overt completed in stages * Site won material completed in 200mm loose layer thickness (maximum) to pavement formation level or 6% stabilised sand |  |  |  |  |  |  |  |  |  |
| **5.0** | **Testing and Inspection** | | | | | | | | | | | |
| 5.1 | Compaction Requirements (RCPs) | 1 test per lot. | **Concrete Backfill Under Runway and Taxiway Graded Strip**  1 compressive strength test for each 50m3 of backfill  **Concrete Backfill Outside Runway and Taxiway Graded Strip**  1 compressive strength test for each 100m3 of backfill  **Backfill Zone - Outside the Runway and Taxiway Graded Strip**  Minimum RD of 95% SMDD  (1 lot consists of every 50m3 for | Cl.16.5.6.3  (c) & Cl.16.9.6 | Site Inspection | Test Records | TP | Project/ Site Engineer |  |  |  |  |

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|  |  |  | concrete backfill and every 2nd layer of backfill zone material.) |  |  |  |  |  |  |  |  |  |
| 5.2 | Inspection of drainage lines | Prior to constructing pavement | CCTV inspection of RCPs required at the completion of the works.  Submission of CCTV footage to the Contract Administrator for review is a **Hold Point.** | Cl.16.10.1 | Verify | Aconex Ref | **HP** | Project/ Site Engineer  Beca |  |  |  |  |

**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:**

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**Legend:**

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| **HP** | Hold Point | Work to 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 to 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**