Fulton Hogan	**Inspection and Test Plan – Stormwater Drainage**	**Doc ID:** FH-ZU2-QU-ITP005 **Rev: 1**

Client: Melbourne Airport (APAM)	**Contract No:** CP14038-01	**Prepared By:** John Kakoliris
Project: Taxiway Zulu 2.0 Project	**Reviewed By:** Cristin Swar	**Date:** 11/07/2024
Construction Process: Installation of Stormwater Drainage	**Approved By:** Jordan Nicolaou	**Date:** 11/07/2024
Specifications: Taxiway Zulu 2.0 Program – Works Specification ZULU-BECA-SPC-00002[C03]		
Structure / Component: Stormwater Drainage		

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

Item No.	Task/Activity Description	Inspection/Test					HP/ WP/ AP/ IP/ TP/ SCP	Responsibility Project / Site Engineer Beca Surveyor Foreman	Checked by:			
		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 commencement 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 commencement of works	Pipe to sit on firm foundation with pipe support cradles.	Cl16.5.6.1	Document Review	Aconex	HP*	Project/ Site Engineer				

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			Material submission/ Shop drawing submission.									
2.3	Encasement Material	Prior to commencement 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 Clarifications #36	Document Review	Aconex	**HP**	Project/ Site Engineer Beca				
2.4	Backfill Material	Prior to commencement of works	Backfill material to be 6% cement stabilised sand to pavement formation level or approved otherwise. Material submission approval.	Cl16.5.6, 16.5.6.3 (a)(i) & 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.	Cl16.7.1	Survey	ITP Signed	**HP**	Project/ Site Engineer Beca				

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			This constitutes a **Hold Point.**									
4.2	Excavation	Each Lot	All excavation to be performed to the minimum depths, widths and batter 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.**	Cl16.8.1 & Cl16.6.2.2	Verify	ITP Signed	**HP**	Project/ Site Engineer 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	Cl16.8.4	Site Inspection	Aconex Ref	**HP**	Project/ Site Engineer Beca				

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			constitutes a **Hold Point.**									
4.4	Confirm Ground Conditions	Each Drainage Line	Min. 1 x DCP test to be undertaken per drainage line / structure to confirm ground conditions. If the first DCP is inconclusive or fails, additional DCP to be taken as needed based on on-site assessment of the ground. 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 Clarification 179	Site Inspection	DCP, Test Results	TP	Project/ Site Engineer/ Beca				

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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				
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				

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4.8	Survey	Each Lot	The alignment, level and grade to be checked on the obvert of every third concrete pipe unit. Pipes shall be laid to the lines, grades and invert levels shown on the Drawings. No deviation shall be made without the prior approval of the Contract Administrator. **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	Cl.16.7 & 16.9.1.6	Survey	Survey Report	SCP	Project/ Site Engineer				

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			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 pavement formation level or approved otherwise. **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) or 6% stabilised sand to pavement formation level or approved otherwise.	Cl.16.5.6 & IFC Drawings & Tender Clarification #164	Verify and Site Inspection	Delivery Docket and ITP Signed	IP	Project/ Site Engineer				
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 50m^3 of backfill	Cl.16.5.6.3 (c), Cl.16.9.6 &	Site Inspection	Test Records	TP	Project/ Site Engineer				

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			Concrete Backfill Outside Runway and Taxiway Graded Strip 1 compressive strength test for each 100m^3 of backfill **Backfill Zone - Outside the Runway and Taxiway Graded Strip (for site won material)** Minimum RD of 95% SMDD (1 lot consists of every 50m^3 for concrete backfill and every 2nd layer of backfill zone material every 40m.)	AS3798.1 Table 8.1								
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:

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			

Notes	