Fulton Hogan	**Inspection and Test Plan - Control and Supervision of the Works**	**Doc ID:** FH-ZU2-QU-ITP027 **REV:** 0

Client: Melbourne Airport	**Contract No:** CP14038-01	**Prepared By:** Patrick Croagh
Project: Taxiway Zulu Program	**Reviewed By:** Giuliano Follacchio	**Date:** 7/5/24
Construction Process: AGL Cabling	**Approved By:** Giuliano Follacchio	**Date:** 8/5/24
Specifications: ZULU-BECA-001-SPC-00003		
Structure / Component: AGL		

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

Item No.	Task/Activity Description	Inspection/Test					HP/ WP/ AP/ IP/ TP/ SCP	Responsibility Project Engineer Principal's Representative Surveyor Foreman	Checked by:			
		Frequency	Acceptance Criteria	Reference Documents	Inspection/ Test Method	Record of conformity			Subcontractor	Beca	FH	Date
1.0	**Preliminary Works**											
1.1	Check for correct documentation	Prior to commencing any activity	Ensure that all employees and subcontractors are using the latest and complete set of drawings	IFC Drawings	Verify	Drawings	IP	Project Engineer				
1.2	Implementation of all measures and controls	Prior to commencing any activities	All necessary measures and controls are being implemented, that is PSP, EMP, TMP, SWMS & WP.	PSP, EMP, TMP, JSEA, SWMS, WP	Verify	Site and office inspection	HP*	Project Engineer / Site Supervisor				
1.3	Existing service location	Prior to Start	Prior to installing any fittings, location of all existing services to be identified and marked onsite. Services located in the works area to be proven.	SWMS	Verify	APAM Excavation Permit	HP*	Project Engineer/ Site Supervisor				
1.4	Cable route	Each Lot	**HOLD POINT** Primary cabling route installed as per path shown in construction drawings (and/or approved markup). See relevant lot from ITP 025 – AGL Conduit Installation for cable route.	ZULU-BECA-001-SPC-00003 cl. 5.5.1 ITP025 – AGL	Verify	This ITP signed Aconex reference	**HP**	Project Engineer / **Beca**				

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				Conduit Installation								
2.0	**Material / Equipment Approvals**											
2.1	Primary cable	Prior to Start	Primary cables shall be: - 6mm^2 cable with black polyethylene jacket and copper tape screen - Rated for 5000V - 7 Strands or approved alternative.	ZULU-BECA-001-SPC-00003 cl. 4.2.1	Aconex	Datasheet	HP*	Project Engineer				
2.2	Secondary cable	Prior to Start	Secondary cables shall be: - Min 4mm^2 cable with black nylon jacket. - Rated for 600V - 56 strands or approved alternative.	ZULU-BECA-001-SPC-00003 cl. 4.2.2	Aconex	Datasheet	HP*	Project Engineer				
2.3	Cable connectors	Prior to Start	Plug and sockets shall be further sealed by the application of double lapped layer of self-amalgamating tape protected with a double layer of PVC insulation tape. Field attached plug and socket connections shall be constructed in accordance with the manufacturer's instructions.	ZULU-BECA-001-SPC-00003 cl. 4.3.3	Aconex	Datasheet	HP*	Project Engineer				

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2.4	Series isolation transformers	Prior to Start	New SITS shall be: - Fully encapsulated synthetic rubber watertight (IP68) - 6.6 Amps rating - Minimum 600 mm long primary tail/1200mm long secondary tail	ZULU-BECA-001-SPC-00003 cl. 4.3	Aconex	Datasheet	HP*	Project Engineer				
3.0	**Cable Installation**											
3.1	Primary cabling connections	Each Lot	Underground primary cable joints are only to be made where the cable length exceeds the maximum cable drum length or jointed to existing cabling. These joints shall only be made in pits. The joint shall be waterproof and shall allow the jointed cable to be installed within the pits without causing damage or undue strain on the joint. Use only approved plug and sockets for joints in primary cables. Primary cable must be jointed to the primary cable tails of SITs using approved cable jointing kits. Plug and socket connections shall be constructed in accordance with the manufacturer's instructions paying	ZULU-BECA-001-SPC-00003 cl. 5.5.1	Verify	This ITP signed	IP	Project Engineer / Site Supervisor				

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		Frequency	Acceptance Criteria	Reference Documents	Inspection/ Test Method	Record of conformity			Subcontractor	Beca	FH	Date
			particular attention to the screen continuity joint and ensuring the rubber housing and insulating silicone remains free from moisture, dirt and debris.									
3.2	Secondary cabling connections	Each Lot	Individual secondary cables shall be provided for each lamp contained within individual lights. The secondary cable shall be installed in a single, unjointed length from the SIT to the AGL light. A secondary cable that shares a common slot shall not be installed under any light base. Any joints within the slot shall be made utilising crimped links "staggered" and be installed external to the light base.	ZULU-BECA-001-SPC-00003 cl. 5.5.3	Verify	This ITP signed	IP	Project Engineer/ Site Supervisor				
3.3	Secondary slotting	Each Lot	Pavement shall be saw-cut to specified depth and thickness and slots cleaned/free from debris.	ZULU-BECA-001-SPC-00003 cl. 4.5	Verify	This ITP signed Avionics Secondary Slotting and Sealing checklist	IP	Project Engineer / Site Supervisor				

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3.4	Max conduit capacity	Each Lot	If APAM approve three or more cables enclosed in conduits and/or ducts, the total cross sectional area of the conductors must not exceed 40% of the internal area of the respective conduit and/or wiring duct as recommended in AS/NZS 3000 for short distances without bends. No more than 10 primary cables shall be installed in a conduit	ZULU-BECA-001-SPC-00003 cl. 4.2.3	Verify	This ITP signed	IP	Project Engineer / Site Supervisor				
3.5	Secondary sealing	Each Lot	Backing rod shall be installed on top of the secondary cable, followed by flexible sealant: - Dowsil 888 to be used in concrete expansion joints. - Dowsil 890SL to be used in asphalt slots.	ZULU-BECA-001-SPC-00003 cl. 4.5	Verify	This ITP signed Avionics Secondary Slotting and Sealing checklist	IP	Project Engineer / Site Supervisor				
4.0	**General Works**											
4.1	Protection of existing cabling	Each Lot	Where the crossing of existing secondary cables cannot be avoided, the existing secondary cables shall be reinstated and made good.	ZULU-BECA-001-SPC-00003 cl. 5.5.3	Verify	This ITP signed	IP	Project Engineer / Site Supervisor				

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		Frequency	Acceptance Criteria	Reference Documents	Inspection/ Test Method	Record of conformity			Subcontractor	Beca	FH	Date
4.2	Slack	Each Lot	Primary Cabling – a single minimum 500mm diameter loop shall be made in each primary cable where they pass through a pit other than a SIT pit.	ZULU-BECA-001-SPC-00003 cl. 5.5	Verify	This ITP signed ADBSG Installation of Primary Cable checklist	IP	Project Engineer / Site Supervisor				
4.3	SIT pit earthing rod	Each Lot	Earthing inspection pits shall be provided with earth electrodes of sufficient length to achieve the required resistivity of less than 6 ohms. Earthing electrodes shall be copped clad stainless-steel rods of minimum size 13mm diameter. The earth wire size shall be 16 mm^2 PVC insulated copper, other than where equipment is wired in PVC/PVC cable in which case the earth continuity conductor may be enclosed within the PVC/PVC sheath.	ZULU-BECA-001-SPC-00003 cl. 6	Verify	This ITP signed	IP	Project Engineer / Site Supervisor				
4.5	Identification of configuration	Each Lot	Label all cables for new and existing circuits remaining in service at every access location such as pits, duct crossings, and ALER. Position the labels such that they can be read without displacement of the cables.	ZULU-BECA-001-SPC-00003 cl. 7.2	Visual	This ITP signed	IP	Project Engineer				

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			In transformer pits serving multiple taxiway lights, the Contractor shall label each secondary cable at the transformer connection to indicate the designation of the associated light connected.									
5.0	**Post Construction**											
5.1	As-built Documentation	Prior to practical Completion	Submission of as built report showing cabling route submitted to the Principal's Representative prior to practical completion.	FH QMP	Verify	As-built survey report	SCP	Project Engineer				

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:

HP	Hold Point	Work shall not proceed past the HP until released by the Principal's Representative	**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 Principal's Representative	**SCP**	Survey conformance point	A qualified surveyor to check product/section/structure and report
AP	Approval Point	Written or verbal approval given by the Principal's Representative			

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Notes	

Secondary Slotting and Sealing

Conduit ID:	
Starting asset:	
finishing asset:	

Task Details	Signature:	Date:	Name:	Status:
Task number 1: PRE-WORKS - Ensure isolation of all services in area (if required). - Ensuring Slot routes are marked out (By Fulton Hogan). - Permit to slotting, reviewed and approved for works (By Fulton Hogan).				
Task number 2: CIVIL-WORKS - Saw-cut through pavement to specified depth and thickness as per requirment. - Clean slots with high pressure hose and ensure that slot and surrounding pavement is clear from debris. - Clean area, FOD Check and demobilize.				
Task number 3: PRE-WORKS - BEFORE SEALING: - Ensure cables are all installed correctly and all joints complete (By ADB Safegate).				
Task number 4: SEALING WORKS - Install new backing rod foam on top of the secondary cable. Ensure correct size is used for the size of the slot.				
Task number 5: SEALING WORKS - Install silicone joint sealant as outlined in the IFC drawings. Dowsil 888 to be used for expansion joints in concrete and SL980 to be used for asphalt slots. Ensure that the sealant has been installed in a consistent fashion along the slot and at an adequate height in relation to the top of the slot.				
Task number 6: SEALING WORKS - Clean pavement area. - Pack all equipment away. - Demobilize - FOD Check				

Asset:

ADB SAFEGATE	INSPECTION AND TEST PLAN Installation of Primary Cable & Draw Rope	Page	1 of 2
		Issue Date	30/03/2024
		Revision	1

REPORT DETAILS				
	Date Completed		Drawing References	ZULU-BECA-024-DWG
	Project	Taxiway Zulu 2.0	Sheet Completed by	
	Location on Site			

WORK DETAILS	Legend	✓ yes ✗ no NA not applicable

Installation of Primary Cable								Earth Cable		
Circuit Number	From Pit No / Light No.	to Pit No / Light No.	Cable Drum ID	Check Draw Rope Installed Prior	Qty of Cables Installed	Meterage	500mm Spare Cable at each Change of Direction	10mm Earth Cable Installed to each Deep Base Can	Cable Ends Taped Up (If Applic.)	NOTES (Include pits where service loops have been installed)

ADB SAFEGATE	INSPECTION AND TEST PLAN Installation of Primary Cable & Draw Rope	Page	2 of 2
		Issue Date	30/03/2024
		Revision	1

WORK DETAILS	Legend	✓ yes ✗ no NA not applicable

PRIMARY CABLE INSTALLATION							DRAW ROPE			NOTES
Circuit Number	From Pit No / Light No.	to Pit No / Light No.	Cable Drum ID	Check Draw Rope Installed Prior	Qty of Cables Installed	Meterage	500mm Spare Cable at each Change of Direction	10mm Earth Cable Installed to each Deep Base Can	Cable Ends Taped Up (If Applic.)	

ADB SAFEGATE	INSPECTION AND TEST PLAN - 107 Installation of Secondary Cable	Page	1 of 2
		Issue Date	10/05/2024
		Revision	2

REPORT DETAILS	Date Completed		Drawing References	ZULU-BECA-024-DWG
	Project	Taxiway Zulu 2.0	Sheet Completed by	
	Location on Site			

WORK DETAILS	Legend	✓ yes ✗ no NA not applicable

INSTALLATION OF SECONDARY CABLE

From Pit No	to Light No / MAG No.	Cable Drum ID	Length of Cable Installed (Total)	Min. 2000mm Secondary Cable in SIT Pit	Min. 300mm Secondary Cable within shallow base	Secondary Cable Terminated External to the Base	Secondary Cable Terminated in Pit (If Applic.)	NOTES

ADB SAFEGATE	INSPECTION AND TEST PLAN Installation of Secondary Cable	Page	2 of 2
		Issue Date	10/05/2024
		Revision	2

WORK DETAILS CONTINUED	Legend	✓ yes ✗ no **NA** not applicable

INSTALLATION OF SECONDARY CABLE								NOTES
From Pit No	to Light No / MAG No.	Cable Drum ID	Length of Cable Installed (Total)	Min. 2000mm Secondary Cable in SIT Pit	Min. 300mm Secondary Cable within shallow base	Secondary Cable Terminated External to the Base	Secondary Cable Terminated in Pit (If Applic.)	

ADB SAFEGATE	INSPECTION AND TEST PLAN Installation of Secondary Cable (Saw Cuts) (Existing Pavements)	Page	1 of 2
		Issue Date	30/03/2024
		Revision	1

REPORT DETAILS	Date Completed		Drawing References	ZULU-BECA-024-DWG
	Project	Taxiway Zulu 2.0	Sheet Completed by	
	Location on Site			

WORK DETAILS	Legend	✓ yes X no NA not applicable

INSTALLATION OF SECONDARY CABLE									NOTES
Pit No	Light No	Cable Drum ID	Depth of slots checked	Length of Cable Installed (Total)	Min. 2000mm Sec. Cable in Prim. Pit	Min. 300mm Sec. Cable within base	Secondary Cable Terminated In Base	Secondary Cable Terminated in Pit (If Applic.)	

ADB SAFEGATE	INSPECTION AND TEST PLAN Installation of Secondary Cable (Saw Cuts) (Existing Pavements)	Page	2 of 2
		Issue Date	30/03/2024
		Revision	1

WORK DETAILS CONTINUED		

INSTALLATION OF SECONDARY CABLE									NOTES
Pit No	Light No	Cable Drum ID	Depth of slots checked	Length of Cable Installed (Total)	Min. 2000mm Sec. Cable in Prim. Pit	Min. 300mm Sec. Cable within base	Secondary Cable Terminated In Base	Secondary Cable Terminated in Pit (If Applic.)	