Inspection and Test Plan

ITP No: HA0423- CIV-007-A

Client: AIAL	Subcontractor: TBC	Work Area: SCH, HOSR
Project Name: Domestic Jet Terminal	Job No: HA0423	Subcontractor Representative: TBC

1. ITP Element: Utility Services Ducting – High Voltage, Low Voltage and Communication systems

2. Revision Records

Rev No.	Revision Description	Name of Author	Authorized by:	Date
A	For Approval	Rohit Sen	Matt Cheyne	
B				
C				
0				
1				

3. Relevant Documents

Doc No.	Specification/ Drwgs/ Standards	Additional Info	Document No.	Specification/ Drwgs/ Standards	Additional Info
1	DP001-MMD-SPC-CV-Z-Z-0001	Rev 02	6		
2	DP001-MMD-DRW-UT-B-Z-3031 - 3055	Rev 01, 02 & 03	7		
3	DP001-MMD-DRW-UT-B-Z-3071 - 3091	Rev 01, 02 & 03	8		
4	DP001-MMD-DRW-UT-B-Z-3137 - 3139	Rev 01	9		
5	DP001-MMD-DRW-UT-B-Z-3010-3018	Rev 02 & 03	10		

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HAWKINS

4. Process

No.	Description Inspection / test	Frequency	Spec/standard	Acceptance Criteria	Measuring Devices	Reporting Format	Inspected by*			Hold Points Sign off	*Remarks*
							HCL	SC	Consult		
1	**Material Compliance**										
1.1	**Fill Materials**										
1.1.1	Bedding material PAP 7 for PE pipes AP40 for Chambers	Per Batch	CIV Spec - S12.3.4	Accept/ Reject	N/A	Dockets / Material Data Sheets	R	SUB	R	Hold Point	
1.1.1	Backfill Material GAP65 or TNZ M/4 AP40	Per Batch	CIV Spec - S12.3.5 CIV Spec - S4.4.5	Accept / Reject	N/A	Dockets / Material Data Sheets	R	SUB	R	Hold Point	
1.2	**Pipes**										
1.2.1	Pipes: 110 OD PE SDR 17 160 OD PE SDR 17	Each Pipe	CIV Spec - S12.3.3	Accept/Reject	N/A	Dockets / Technical Data Sheets	R	SUB	R	Hold Point	All the PE pipe colors must comply with the respective service as mentioned in S12.3.3
1.2.2	Bends: Pre-Fabricated HDPE bends	Each Bend	CIV Spec - S12.4.5	Accept/Reject	N/A	Dockets / Technical Data Sheets	R	SUB	R	Hold Point	
1.2.3	Electrofusion Couplers	Each coupler	CIV Spec – S12.4.6	Accept/Reject	N/A	Dockets / Technical Data Sheets	R	SUB	R	Hold Point	
2	Construction										
2.1	**Pre-Condition Assessments**										
2.1.1	Existing ducts/chambers to be removed	Each pipe	CIV Spec - S12.4.1	Removed and disposed	N/A	Photos / Asbuilts	I	SUB	R		Once removed, all trenches to be backfilled to Subgrade level

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2.1.2	Survey Setout Pipe alignments, Position, Heights	Each Pipes/trench	CAD Models	Survey Setout Pipe alignments, Position, Manholes Position and Heights	GPS, Total Station	Setout CSV file, Photos/Visual					Setout model and CSV provided by HCL
2.2	**Ducting**										
2.2.1	Excavation Extents	Each element installed	CIV Spec - S12.4.2 CIV Spec - S4.5.9 (earthworks section)	N/A	Rotating level and GPS	N/A	M			Witness Point	
2.2.2	HDPE Ground Mat	Each Unit	Note 10 – DP0001-MMD-DRW-UT-F-Z-3137 - 3139	Accept/Reject	Photos, Dockets	N/A	I	SUB	R		HDPE ground protection Mat will be installed only in areas shown in the drawings.
2.2.2	Bedding, surround	Per installation	As per drwgs min/ max fill	N/A	Rotating level / tape / staff	Photos, QVC	M	SUB	R		PAP7 for PE
2.2.3	Pipe installation, Connection and jointing Electrofusion weld	Each pipe	CIV Spec - S12.4.5 CIV Spec - S12.4.6	N/A	Observation	QVC, As-Builts	I	SUB	R	Witness Point	Caps to be used if lines not complete, All Welding to be performed under controlled Environmental conditions.
2.2.4	Weld Testing	All welding Joints	CIV Spec - S12.5.2	N/A	Visual Checks for each Weld and Peel Decohesion Testing for one in every 20 welds or Min 2 welds per line	QVC, Photos, Test Results	R	SUB	R	Witness Point	

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2.2.5	Tracer Wires	Comms duct	CIV Spec - S12.4.9 DP001-MMD-DRW-UT-F-Z-3137 - 3139	Tracer Wire to 4mm^2 multi-Strand Accept/Reject	Continuity Test (electronically generated tone and detector probe)	Photos, Test results, QC	I	SUB	R		
2.2.6	Inspection for Duct size, color, spacing,	All ducts	CIV Spec - S12.4.5 DP001-MMD-DRW-UT-F-Z-3137 - 3139	N/A	N/A	Photos, QVC	M	SUB	I	Witness Point	Engineer to inspect before backfilling
2.2.7	Warning Tapes/ marker tapes	Each Pipe	CIV Spec - S12.3.9 DP001-MMD-DRW-UT-F-Z-3137 - 3139	Warning Tapes must refer to respective Services. Installation heights must follow the typical trench details.	N/A	Photos	I	SUB	R		
2.2.8	Mag Slabs/Polymeric Slabs	HV and LV ducts	CIV Spec - S12.3.10 DP001-MMD-DRW-UT-F-Z-3137 - 3139	Installation heights must follow the typical trench details.	N/A	Photos	I	SUB	R		
2.2.9	Draw Cord	Each pipe	CIV Spec - S12.3.8 S12.4.8 DP001-MMD-DRW-UT-F-Z-3137 - 3139	Continuous draw cord and excess to be left at the ends of each duct	N/A	Photos	I	SUB	R		
2.2.10	Pipe Cover and Backfilling	Each Pipe	CIV Spec - S4.4.5 Table 4.3 (Earthworks Section) DP001-MMD-DRW-UT-F-Z-3137 - 3139	Backfilling CIV > 25 Bedding CIV to be confirmed	Clegg Hammer	Photos, QVC, Clegg Sheets	M	SUB	I		

2.2.11	3m Marker Balls	Each Item	CIV Spec – S12.4.5	Installed above the HV ducts at each side of the point of crossing	Physical Product confirmation	Photos	I	SUB	R		Programmed 3m marker balls to be supplied by principal/client.
3	Post Construction										
3.1	**As-Builts**										
3.1.1	As built Works	Each pipe	N/A	N/A	Surveyor Equipment, Total Station	Certified As-built PDF and DWG file	R	Sub	R		
3.2	**Duct Condition**										
3.2.1	Duct Cleaning and Proving	Each Duct	N/A	N/A	Brush and Mandrill	Photos/Videos	M	SUB	R	Witness Point	

5. Document Deliverables *(The documents listed below shall be completed and compiled during the course of the construction)*

6. Distribution Records

Name	Position	Company	Date
TBA		Mott McDonalds	
TBA		BECA	
TBA		AIAL	

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- Inspect (I) – To visually examine or measure an item or contracted work operation to verify its conformance to predetermined quality requirements
- Review (R) – To examine any form of documentation to establish its acceptability against specified requirements
- Surveillance (S) – To observe in-process activities to the degree necessary to be assured that they comply with the established criteria
- Test (T) – To subject a component, structure, or system to a controlled set of physical, chemical, environmental or operational conditions to determine or verify its capability to meet specified requirements
- Witness (W) – To watch over, observe or visually examine a specific work operation or test performed by others under Contractor supervision
- Monitor (M) – General oversight of work in progress with no need to document formally.
- Submission (Sub) – Submission of a document

Note: The Engineer shall be provided a minimum of two (2) working days' notice ahead of a requested inspection