ITP No. W001	INSPECTION AND TEST PLAN
Revision: 0.0	Reticulation Networks Water Mains & Connections

Location:		**Activity:**		**References:**	
Lot Number:		**Process:**		**Prepared by:**	
Date:		**Description:**		**Approved by:**	

SYMBOLS AND ABBREVATIONS:								**INSPECTION CODES:**		**INSPECTION CODES DEFINITION:**
SAW	CSTO	**PL**	Pipe Layer	**PW**	Authorised PE Butt Welder			**(H)**	Hold Point	Mandatory verification point where work cannot proceed without the designated authority's approval.
PM	Project Manager	**SE**	Site Engineer	**S**	Surveyor			**(W)**	Witness Point	Verification point where the designated authority may inspect or witness the works.
SPE	Senior Project Engineer	**SF**	Supervisor/Foreman	**C**	Contractor			**(S)**	Surveillance Point	Random site attendance where designated authority may inspect or witness works.
QM	Quality Manager	**SR**	Superintendent's Representative	**LA**	Local Authority			**(R)**	Review Point	Specific documentation is evidenced to verify requirements met in accordance with specifications and technical standards.

ITEM NO	**OPERATIONAL ACTVITIES**	**VERIFICATION**		**TESTING**		**INSPECTION**				**RECORDS & COMMENTS**
		Specification Reference	**Acceptance Criteria**	**Test/Inspection Method**	**Test/Inspection Frequency**	**Codes**	**Sign & Date**	**Codes**	**Sign & Date**	
1.0	**PRELIMINARIES**									
1.1	Preliminary Work	Management Plans (QA, ENV, WHS) IFC Drawings Temporary Authorisation ITPs Program Schedule	DAFI contract payment Contractor site possession Documentation approval by Superintendent and SA Water	Start Up Meeting	Each Lot	**SE (W)**		**SR (H) SAW (H)**		
1.2	Safety in Design	Safety Deign Report Hazard Register TS 0101 TG 110	Documentation received and reviewed Construction hazard controls implemented to reduce hazards so far as reasonably practicable	Review of documentation	Each Lot	**SE (W)**		**SR (H) SAW (R)**		
1.3	Traffic Management	SA Standards for Work zone Traffic Management	Work traffic management plan is implemented and permits approved	Visual Inspection	Each Lot	**SE (H)**		**SR (W) SAW (S)**		
1.4	Preliminary Survey	IFC Drawings DBYD TS 0103 TS 0136 TS 0632	Service records obtained Mark out service alignment Potholing service location verification Service clearance verification	Survey Visual Inspection, measurements & photographic record	Each Lot	**SE (W) S (H)**		**SR (R) SAW (S)**		

1.5	Material Compliance	TS 0503 TS 0800 AS/NZS 4020 WSA03-2011 V3.2	Check delivery for conformance of all materials including sealing rings, quantity and quality	Visual Inspection	Each Occurrence	**SE (W)**		**SR (R) SAW (H)**		
1.6	Material Storage	WSCM 4005-30002 WSA03-2011 V3.2	The inside of pipes shall be kept clean and dry during storage and construction. Pipe ends shall be sealed when stored outside and when unattended once installed in trench.	Visual Inspection	Each Lot	**SE (H)**		**SR (W) SAW (S)**		
1.7	Pipe Layer	RIICPL303D Master Plumber	On-site during activity Certificate of Licence	Visual Inspection	Each Lot	**SE (H)**		**SR (W) SAW (S)**		
2.0	**EXCAVATION, BEDDING AND BACKFILL**									
2.1	Trench Excavation	WSCM 4005-30002 WSCM 4005-30003 WSCM WSAA Code Supplement Pt 2	Trench dimensions in accordance with IFC drawings & specification reference	Visual Inspection, measurement & photographic record	Each Line	**SE (W)**		**SAW (S)**		
2.2	Trench Floor Preparation	IFC Drawings WSCM 4005-30003	Trench floor inspected Debris and water to be removed prior to placement of bedding	Visual Inspection & photographic record	Each Line	**SE (W)**		**SAW (S)**		
2.3	Bedding & Embedment Materials	TS 0631a AS1141 WSCM WSAA Code Supplement Pt 2	NATA accredited test report start of project and for each 500 tonnes of supply. Supplier to provide Product Certificate with each delivery.	Nata test report/s Product Certificate for Each delivery	Each Delivery	**SE (H)**		**SR (R) SAW (R)**		
2.4	Bedding Placement	WSCM 4005-30003	Min 100mm and Max 150mm Clean, level and free of debris	Visual Inspection & photographic record	Each Line	**SE (W)**		**SAW (S)**		
2.5	Embedment and Backfill	WSCM 4005-30002 WSCM 4005-30003	Maintain side support & cover of 300mm on top of pipe. Fill material placed in layers in accordance with specification reference	Visual Inspection & photographic record Compaction test report	Each Line	**SE (W)**		**SAW (S)**		
2.6	Compaction	WSCM 4005-30002 WSCM 4005-30003 WSCM WSAA Code Supplement Pt 2	PM2/20 or SA-C Sand compacted to 95% MMDD NATA certified testing frequency every 50 metres	Compaction test plan Compaction test certificates	Each Line	**SE (W)**		**SR (R) SAW (S)**		
2.7	Surface Zone	WSCM 4005-30002 WSCM 4005-30003	In accordance with WSCM 4005-30003-03 Reinstate to match existing surface to minimum depth of 350mm	Visual Inspection, measurement & photographic record	Each Line	**SE (W)**		**SR (R) SAW (S)**		
3.0	**INSTALL PVC MAINS & PIPEWORK**									
3.1	Ambient Temperature	WSCM WSAA Code Supplement Pt 2	PVC pipework shall not be laid and backfilled while ambient temperature is more than 35 degrees Celsius	Review	Each Lot	**SE (H)**		**SAW (S)**		
3.2	Pipe Installation	IFC Drawings WSCM 4005-30002 WSCM 4005-30005 WSA03-2011 V3.2	Pipework laid centrally in trench on authorised bedding material in accordance with IFC drawings and specification references	Visual Inspection, measurements & photographic record	First 50m of installation (H) Every 100m of each line (W) of Each Lot thereafter	**SE (W)**		**SR (S) SAW (H)**		

3.3	Pipe jointing	IFC Drawings WSCM 4005-30002 WSCM 4005-30005 WSA03-2011 V3.2	Pipes measured and marked with witness lines to ensure correct depth of pipes inserted into sockets	Visual Inspection	Each Joint	**SE (W) PL (W)**		**SR (S) SAW (S)**		
3.3	Doglegs	IFC Drawings WSCM 4005-30002 WSCM 4005-30005-08 WSCM 4005-30005-09	Installation inspection In accordance with IFC drawings & specification reference requirements	PE Weld Certificates Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W) PL (S)**		**SR (R) SAW (H)**		
3.4	Survey Pipework	IFC Drawings TS 0103 TS 0130	Qualified Surveyor completes as installed survey in accordance with IFC drawings specification reference requirements	Survey Inspection	Each Lot	**SE (W) S (H)**		**SR (R) SAW (S)**		
3.5	Pipe Cover	WSCM 4005-30002-01	In accordance with specification reference Table 2 Pipe Cover Min 750mm - Max 1200mm	Visual Inspection, measurement & photographic record	Prior to trench backfill	**SE (W) PL (S)**		**SR (S) SAW (S)**		
3.6	Service Crossing and Clearance	TS 0136 WSCM 4005-30002	Vertical and horizontal clearance is to be maintained from all services as per relevant authorities	Visual Inspection, measurement & photographic record	Prior to trench backfill	**SE (W) PL (S)**		**SR (R) SAW (S)**		
4.0	**FLANGED CONNECTIONS**									
4.1	Flanges	IFC Drawings AS 4087 TS 59 WSCM 4005-30005	Flange dimensions in accordance with AS 4087 Min. Class 16 unless specified or shown otherwise	Visual Inspection & photographic record	Each Occurrence	**SE (W)**		**SR (R) SAW (S)**		
4.2	Gaskets	TS 0503 TS 0800 TS 59	Gaskets conform to specification reference requirements	Visual inspection & delivery dockets	Each Occurrence	**SE (W)**		**SR (R) SAW (S)**		
4.3	Bolting Valves & Flanges	TS 27 WSCM WSAA Code Supplement Pt 2 WSCM 4005-30005	Bolts and nut threads lubricated and tightened to torque in accordance with TS27 or manufacturers recommendation	Calibrated torque device certificate Evidence of manufacturers specification for blots and torque Bolt tightening checklist	Each Occurrence	**SE (H)**		**SR (R) SAW (W)**		
4.4	Denso Wrapping	TS18 TS 0503 WSCM WSAA Code Supplement Pt 2 WSCM 4005-30002	All below ground flanges, bolts & nuts, bare steel fittings and brass components shall be protected No air pockets, or gaps in overwrap or petroleum tape.	Visual Inspection & photographic record	Each Occurrence	**SE (W)**		**SAW (S)**		
5.0	**THRUST / ANCHOR BLOCKS**									
5.1	Thrust / Anchor Block	IFC Drawings WSCM 4005-30003	All thrust & anchor blocks shall be provided at pipe bend, tee and in-line restraint and be located in accordance with IFC drawings & WSCM	Visual Inspection, measurements, photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (H)**		
5.2	Membrane Placement	WSCM 4055-3003	All thrust & anchor blocks require a membrane to be placed between concrete and the pipe, bend, tee	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (H)**		
5.3	Bearing Area	IFC Drawings WSCM 4005-30003	The minimum bearing area shall be taken from the 'minimum thrust area' section of table, based upon the soil properties and bend angle	Prepour visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (H)**		

5.4	Bearing Surface	IFC Drawings WSCM 4005-30003	N25 concrete shall be poured against a sound face of excavation. If the excavation is unstable, formwork may be required and battering shall be used and backfill around the block shall be CLSM or engineered fill	Prepour visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (H)**		
5..5	Reinforcement	WSCM 4005-30003	SL81 Mesh & N10 bars in accordance with WSCM and secured in correct position with wire ties of annealed steel. Sized in accordance with pipe diameter and positioned centrally over puddle flange.	Prepour visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (H)**		
5.6	Reinforcement Cover	WSCM 4005-30003	75mm cover shall be provided for all reinforcement with the horizontal bars on the outside face	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (H)**		
5.7	Concrete Curing	TS 0710	All concrete thrust and anchor blocks shall be cured for at least seven days prior to hydrostatically testing pipework	Program schedule	Each Lot	**SE (W)**		**SR (R) SAW (S)**		
6.0	**INSTALL WATER CONNECTIONS & METERS**									
6.1	Connection Locations	IFC Drawings WSCM 4005-30004	Water connection location is in accordance with IFC drawing and specification reference requirements	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (R) SAW (S)**		
6.2	Connection Excavation	WSCM 4005-30002 WSCM 4005-30006	Trench to be perpendicular to the water main. Trench width shall be 300mm - 600mm. Trench depth minimum cover over pipe 750mm at main and 450mm behind kerb.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.3	Bedding & Embedment	WSCM 4005-30002 WSCM 4005-30006 WSCM WSAA Code Supplement Pt 2	TS4 sand bedding depth of 75mm - 150mm shall be placed prior to pipe installation TS4 embedment depth of 150mm minimum shall be place on the pipe post installation.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.4	Connection to New Water Main	IFC Drawings WSCM 4005-30006-03	Connection pipe shall connect to water main in accordance with approved connection / tapping methods. Main cocks isolation valves to be installed in accordance with specification reference.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.5	Pipe Installation	IFC Drawings WSCM 4005-30006-03	Connection pipe shall be laid centre of trench and perpendicular to the water main within tolerance +/- 5 degrees. PE connection pipes are to be snaked within trench.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.6	Service Crossing and Clearance	IFC Drawings TS 0136 WSCM 4005-30004	Water connection pipe maintains minimum vertical and horizontal clearances for common service utilities.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.7	Compaction	WSCM 4005-30002 WSCM-30006 WSCM WSAA Code Supplement Pt 2	NATA certified testing frequency 1 in every 5 water connections or part thereof	Compaction test plan Compaction test certificates	Each Lot	**SE (W)**		**SR (R) SAW (S)**		
6.8	Inlet Riser & Meter Assembly	IFC Drawings WSCM 4005-30006-03 WSCM 4005-30008	All inlet riser fittings and components shall be installed in accordance with specification reference requirements prior to hydrostatic pressure testing.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.9	Water meters	TS 0503 TS 0800 WSCM 4005-30008	DN20 & DN25 below ground water meters shall be installed within CI Box prior to water main commissioning.	Meter allocation form completed	Each Occurrence	**SE (H)**		**SR (R) SAW (W)**		

7.0	**CI BOXES, ACCESS CHAMBERS AND MARKING POSTS**									
7.1	CI Boxes for below ground meters	IFC Drawings TS 0503 WSCM 4005-30008 WSCM 4005-30004	CI Boxes lids marked drinking water and shall be installed in accordance with specification reference requirements.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
7.2	Chambers	IFC Drawings WSCM 4005-30007	All isolation, hydrant & scour valves shall be provided with a valve chambers and finished at ground surface level in accordance with specification reference requirements	Visual Inspection, measurement & photographic record	Each Lot	**SE (W)**		**SR (S) SAW (S)**		
7.3	Spindle extensions	IFC Drawings TS 0503 WSCM 4005-3007	All valve and hydrant spindle shall be finished 150mm - 300mm below finished casting lid. Spindle extensions shall be sleeved in 200mm dia pipe.	Visual Inspection, measurement & photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
7.4	Location Markers	IFC Drawings TS 0503 WSCM WSAA Code Supplement Pt 2 WSCM 4005-30007	Each hydrant casting lid shall be two piece type lid with 100mm dia removable centre painted yellow. Blue reflective cats eye markers shall be installed adjacent hydrants with yellow line marking provided along kerbing.	Visual Inspection & photographic record	Each Lot	**SE (W)**		**SR (S) SAW (S)**		
8.0	**TESTING**									
8.1	Hydrostatic Testing	TS 0900 WSCM WSAA Code Supplement Pt 2 WSA03-2011 V3.2	All pipework up to and including new inlet risers shall be hydrostatically tested in sections not exceeding 1000 metres Testing in accordance with TS 0900	Contractor pre test report Gauge calibration certificates & SAW audit report	Each Lot	**SE (H)**		**SR (R) SAW (H)**		
8.2	Water connection flow testing	WSCM WSAA Code Supplement Pt 2 WSA03-2011 V3.2	After permanent connection of to active mains and completion of all trench work, 1 in 5 water connections will be flow tested.	Visual Inspection & Test Report	Each Lot	**SE (W)**		**SAW (H)**		
8.3	Cross connection test	OTR Recycled water standard WAS03-2011 V3.2	Dual supply areas require a dinking water cross connection test in accordance with specification reference requirements	Visual Inspection & Test Report	Each Lot	**SE (W)**		**SR (R) SAW (H)**		
9.0	**LINK IN / TIE IN**									
9.1	Notifications	Mains shut off & Disinfection Request WSCM WSAA Code Supplement Pt 2	Contractor to request network operator to shut down existing mains to enable link-in of new pipework and/or paddle pull and to perform flushing and disinfection chlorination of new mains.	Confirmation of mains shutdown request Chlorination / Disinfection certificate	Each Link In	**SE (W)**		**SAW (H)**		
9.2	Live tapping	IFC Drawings TS 0503	Undertaken by authorised contractor. SA Water CSTO to be notified of planned activity 48 hours prior to works commencing.	Review	Each Link In	**SE (W)**		**SAW (H)**		
10.0	**POST CONSTRUCTION FINAL DOCUMENTATION (as required)**									
10.1	Testing documents	Quality Management Plan	Signed ITP's, test reports, checklists and photographic records in electronic format.	Submitted for review	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
10.2	Backfill Compaction	TS 0632	Backfilling shall be uniformly compacted and tested in horizontal layers not exceeding 200mm to the following; TS4 Sand - 95% MMDD PM2/20 - 95% MMDD	NATA certified test certificates submitted	Each Lot Per 50m of trench	**SE (H)**		**SR (W) SAW (R)**		

10.3	HDPE specials (doglegs	TS 0503	Manufacturers weld certifications	Submitted for review	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
10.4	Materials Certifications	TS 0630 TS 0631 TS 0710	NATA accredited and certified testing documents are provided for TS4 sand and PM2/20 in accordance with specification reference documents Concrete delivery dockets & testing certificates	Submitted for review	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
10.5	Hydrostatic Test Record	TS 0900	Hydrostatic testing report	Submitted for review	Each Lot	**SE (W)**		**SR (R) SAW (H)**		
10.6	As Built Survey Information	TS 0100 TS 0130	As built survey information is updated within IFC drawings for As constructed revision issue	Submitted for review	Each Lot	**S (W) SE (R)**		**SR (W) SAW (H)**		
10.7	Water meter allocation sheet	SAW Meter at CPC	Water meters installed in CI Boxes to be recorded on SAW water meter allocation sheet	Review	Each Lot	**SE (W)**		**SR (R) SAW (H)**		
10.8	Hazard Register Close Out	TS 0101	SiD 3 conducted and hazard register and safety in design report updated	Review	Each Lot	**SE (W)**		**SR (R) SAW (H)**		
11.0	**LOT COMPLETION**									
11.1	Constructor Pre-Practical Completion Walkover	Developer Agreement Formal Instrument	All Lots and infrastructure inspected to confirm constructed in accordance with specification references within tolerance.	Pre PC walkover visual inspection and photographic records	Each Lot	**SE (H)**		**SR (R) SAW (R)**		
11.2	Practical Completion Walkover	Developer Agreement Formal Instrument	All Lots are released with no outstanding defects	Contractor Pre PC walkover passed Superintendent & SA Water PC walkover passed Visual Inspection & audit report	Each Lot	**SE (H)**		**SR (H) SAW (H)**		
11.3	Final Completion Walkover	Developer Agreement Formal Instrument	12 month defect liability inspection released with no outstanding defects	Visual Inspection & audit report	Each Lot	**SE (R)**		**SR (R) SAW (H)**		

ITP No. S001	INSPECTION AND TEST PLAN
Revision: 0.0	Sewer Gravity Mains & Connections

Location:		**Activity:**		**References:**	
Lot Number:		**Process:**		**Prepared by:**	
Date:		**Description:**		**Approved by:**	

SYMBOLS AND ABBREVATIONS:								**INSPECTION CODES:**		**INSPECTION CODES DEFINITION:**
SAW	CSTO	**PL**	Pipe Layer	**PW**	Authorised PE Butt Welder			**(H)**	Hold Point	Mandatory verification point where work cannot proceed without the designated authority's approval.
PM	Project Manager	**SE**	Site Engineer	**S**	Surveyor			**(W)**	Witness Point	Verification point where the designated authority may inspect or witness the works.
SPE	Senior Project Engineer	**SF**	Supervisor/Foreman	**C**	Contractor			**(S)**	Surveillance Point	Random site attendance where designated authority may inspect or witness works.
QM	Quality Manager	**SR**	Superintendent's Representative	**LA**	Local Authority			**(R)**	Review Point	Specific documentation is evidenced to verify requirements met in accordance with specifications and technical standards.

ITEM NO	**OPERATIONAL ACTVITIES**	**VERIFICATION**		**TESTING**		**INSPECTION**				**RECORDS & COMMENTS**
		Specification Reference	**Acceptance Criteria**	**Test/Inspection/Evidence**	**Test/Inspection Frequency**	**Codes**	**Sign & Date**	**Codes**	**Sign & Date**	
1.0	**PRELIMINARIES**									
1.1	Preliminary Work	DAFI IFC Drawings TS 0104 TS 0105	DAFI contract payment Contractor site possession Documentation approval of Management Plans (QA, ENV, WHS), Temporary Authorisation, ITPs, Program Schedule	Start Up Meeting	Each Lot	**SE (W)**		**SR (H) SAW (H)**		
1.2	Geotechnical Investigation	TS 0632 SCM 4005-20003-04 SCM WSAA Code Supplement Pt 3	Geotechnical investigation is performed in accordance with specification references when sewer construction may encounter ground water conditions	Report provided by engineer to specify excavation and ground water control methodology	Each Project	**SE (H)**		**SR (W) SAW (S)**		
1.3	Safety in Design	Safety Deign Report Hazard Register TS 0101 TG 110	Documentation received and reviewed Construction hazard controls implemented to reduce hazards so far as reasonably practicable	SWMS / Hazard register updated	Each Lot	**SE (W)**		**SR (H) SAW (R)**		

1.4	Traffic Management	SA Standards for Work zone Traffic Management	Work traffic management plan is implemented and permits approved	Visual Inspection & photographic records of traffic management plan & set up	Each Occurrence	**SE (H)**		**SR (W) SAW (S)**		
1.5	Preliminary Survey	IFC Drawings DBYD TS 0103 TS 0136	Service records obtained Mark out service alignment Potholing service location verification Service clearance verification	Survey Visual Inspection, measurements & photographic record	Each Lot	**SE (H) S (W)**		**SR (R) SAW (S)**		
1.6	Material Compliance	TS 0502 IFC Drawings WSA02-2014 V3.3 SCM WSAA Code Supplement Pt 3	Check delivery dkt and inspect the materials supplied for conformance including, quantity and quality	Visual Inspection & photographic records	Each Occurrence	**SE (W)**		**SR (R) SAW (H)**		
1.7	Bedding & Embedment Materials	TS 0631 AS1141 SCM WSAA Code Supplement Pt 3	NATA accredited test report start of project and for each 500 tonnes of supply. Supplier to provide Product Certificate with each delivery.	Nata test report/s Product Certificate for each delivery	Each Delivery	**SE (H) PL (W)**		**SR (R) SAW (R)**		
1.8	Pipe Layer	RIICPL303D RIICCM210D RIIWHS302D SCM WSAA Code Supplement Pt 3	On-site during activity Certificate or Licence	Sign ITP	Each Lot	**SE (H)**		**SR (W) SAW (S)**		
2.0	**EXCAVATION, BEDDING AND BACKFILL**									
2.1	Trench Excavation & Shoring	SCM 4005-20002 SCM 4005-20003 SCM WSAA Code Supplement Pt 3 Geotechnical report Excavation work - Code of Practice	Trench width and depth dimensions in accordance with IFC drawings & specification reference Shoring installation Ground water controls provided in accordance with engineering report	Visual Inspection, measurement & photographic record	Each Line	**PL (H) SE (W)**		**SR (S) SAW (S)**		
2.2	Trench Floor Preparation	IFC Drawings SCM 4005-20002 SCM 4005-20003 Geotechnical report	Trench floor prepared in accordance with geotechnical report (if provided) & inspected every 50 metres Debris and water to be removed prior to placement of bedding	Visual Inspection & photographic record	Each Line	**PL (S) SE (W)**		**SR (S) SAW (S)**		
2.3	Bedding Placement	SCM 4005-20003	Min 100mm and Max 150mm Clean, level and free of debris	Visual Inspection, measurement & photographic record every 50 metres	Each Line	**PL (S) SE (W)**		**SR (S) SAW (S)**		
2.4	Ambient Temperature	SCM WSAA Code Supplement Pt 3	Embedment material **shall not** be placed around pipe when ambient temperature is more than 27 degrees Celsius	Temperature record log during embedment activity	Each Occurrence	**PL (H) SE (W)**		**SR (S) SAW (S)**		
2.5	Embedment and Backfill Placement	SCM 4005-20002 SCM 4005-20003 SCM WSAA Code Supplement Pt 3	Maintain side support & cover of 300mm on top of pipe. Trench fill material placed and compacted in layers in accordance with specification reference	Visual Inspection, measurement & photographic record every 50 metres Compaction test report	Each Line	**PL (S) SE (W)**		**SR (S) SAW (S)**		
2.6	Compaction Testing	SCM 4005-20002 SCM 4005-20003 SCM WSAA Code Supplement Pt 3 AS1289	PM2/20 or SA-C Sand compacted to 95% MMDD NATA certified testing frequency every 50 metres & 20% of connections	Compaction test plan, Compaction test certificates	Each Line	**SE (W)**		**SR (R) SAW (S)**		
2.7	Surface Zone	SCM 4005-20002 SCM 4005-20003	In accordance with DPTI / Council road requirements Reinstate to match existing surface to minimum depth of	Visual Inspection, measurement &	Each Line	**SE**		**SR (R)**		

2.7	Surface zone	DIT Master Specification Austroads Specification	Reinstate to match existing surface to minimum depth of 350mm	photographic record	Each Line	**(W)**		**SAW (S)**		
3.0	**INSTALL PVC PIPEWORK & MAINTENANCE STRUCTURES**									
3.1	Pipework & Maintenance structure installation	IFC Drawings SCM 4005-20002 SCM 4005-20005 WSA02-2014 V3.3 SCM WSAA Code Supplement Pt 3	Pipework / structure laid at correct grade & centrally in trench on authorised bedding material in accordance with IFC drawings and specification reference requirements	Visual Inspection & photographic record every 50 metres of pipe / structure	First 50m of installation (H) Every 50m of each line (W) of Each Lot	**SE (W) PL (S)**		**SR (S) SAW (H)**		
3.2	Pipe jointing	PIPA POP 102 WSA02-2014 V3.3 SCM WSAA Code Supplement Pt 3	Joints prepared with marked witness lines to ensure correct depth of pipes inserted into sockets Solvent cement joints prepared in accordance with specification reference & free of excessive priming fluid / solvent cement	Visual Inspection	Each Occurrence	**SE (S) PL (W)**		**SR (S) SAW (S)**		
3.3	Pipe bending / horizontal & vertical curves	IFC Drawings SCM 4005-20002 WSA02-2014 V3.3 SCM WSAA Code Supplement Pt 3	Pipes curves shall be constructed at the location and to geometry as specified in IFC Drawings Cold bending within deflection tolerance and minimum curve length	Visual Inspection, photographic record & survey	Each Occurrence	**SE (S) PL (W)**		**SR (S) SAW (S)**		
3.4	Clearance Requirements	IFC Drawings TS 0136 SCM 4005-20002 SCM 4005-20004 WSA02-2014 V3.3	Vertical and horizontal clearance is to be maintained from all other services as per relevant authorities	Visual Inspection, measurement & photographic record	Prior to trench backfill	**SE (S) PL (W)**		**SR (S) SAW (S)**		
3.5	Sewer connections	IFC Drawings SCM 4005-20006	Constructed in accordance with IFC connection table and position, size and gradient in accordance with design and specification reference	Visual Inspection & photographic record	Each Occurrence	**SE (S) PL (W)**		**SAW (S)**		
3.6	Sewer connection concrete support	IFC SCM 4005-20006 TS 0710	Provide concrete support beneath all Inspection Points and Y connection 45 degree junctions	Visual Inspection & photographic record	Each Occurrence	**SE (S) PL (W)**		**SR (S) SAW (S)**		
3.7	Survey Pipework & Structures	IFC Drawings TS 0103 TS 0130	Qualified Surveyor completes survey of installation in accordance with specification reference requirements	Survey Inspection to record position and gradient of pipe and structures for As Constructed Drawings	Each Lot	**SE (H) S (W)**		**SR (R) SAW (S)**		
4.0	**INSTALL MAINTENANCE HOLE**									
4.1	Pre-cast base - Non Pre-benched	IFC Drawings SCM 4005-20002 SCM 4005-20005 WSA02-2014 V3.3 SCM WSAA Code Supplement Pt 3 TS 0710	Approved bonding agent to be used. Thoroughly roughen and clean base, brush on suitable bonding agent. Benching and gullet shall be formed as per drawings and SCM.	Visual Inspection, measurement & photographic record	Each Occurrence	**PL (S) SE (W)**		**SR (S) SAW (H)**		
4.2	Pre-pour inspection of insitu base	IFC Drawings SCM 4005-20002 SCM 4005-20005 WSA02-2014 V3.3 SCM WSAA Code Supplement Pt 3	Pre-pour inspection of maintenance hole excavation, materials and increment support, in accordance with specification references	Visual Inspection, measurement & photographic record	Each Occurrence	**PL (S) SE (W)**		**SR (S) SAW (H)**		
4.3	Concrete placement & gullet forming	SCM 4005-20002 SCM 4005-20005 TS 0710	N40 grade concrete placed & gullets formed in accordance with specifications references	Concrete delivery dockets, Visual Inspection, measurement & photographic record	Each Occurrence	**PL (S) SE (W)**		**SR (S) SAW (H)**		
4.4	Increment placement	SCM 4005-20005	Inspection of first segment to be completed by Superintendent if backfilling prior to testing, requirements	Test report issued by Superintendent	Each Occurrence	**SE**		**SR (H)**		

4.4	Increment placement	TS 0600	as per section 5.3 - Backfilling All joints are sealed using authorised joint sealant.	Test report issued by Superintendent	Each Occurrence	**(H)**		**SAW (S)**		
5.0	**CASTINGS**									
5.1	Inspection Openings	SCM 4005-20005	Sewer cover and frame set on concrete IP block and hardwood bearers	Visual Inspection and photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
5.2	Maintenance Hole	SCM 4005-20005	Casting Iron cover & frame, spacers, conversion slab. adjustment rings, joint sealant and renderroc constructed in accordance with specification reference	Visual Inspection and photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
5.3	Maintenance Shaft	SCM 4005-20005	Street box half height one part lid marked sewer placed on rectangular support slab in accordance with specification reference	Visual Inspection and photographic record	Each Occurrence	**SE (W)**		**SR (S) SAW (S)**		
6.0	**TESTING**									
6.1	Air testing	TS 0900	Testing to be carried out as per section 7.2.2 Low Pressure Air Testing Method. Slowly apply pressure to 27 kPa. Close air pump outlet valve, allow pressure to stabilise for at least 3 minutes. Drop pressure to 24 kPa and commence the test. Gauges used shall be independently checked and dated certificates of calibration provided. Repair procedure to be provided prior to works commencing. If pressure drops >7 kPa with minimum test duration, re-apply test pressure to identify leaks.	Test report issued by Superintend Gauge calibration certificate	Each Lot	**SE (W)**		**SR (H) SAW (R)**		
6.2	CCTV preliminary	TS 0524 SCM WSAA Code Supplement Pt 3	SA Water to be notified 15 working days for the actual CCTV inspection Contractor to pressure wash all pipework within 24 hours of CCTV	Notification email to SA Water CSTO Precleaning invoice & photographic records	Each Lot	**SE (H)**		**SAW (W)**		
6.3	CCTV Water placement	TS 0524 SCM WSAA Code Supplement Pt 3	15 minutes prior to CCTV the mains are to be flushed with amount of water in accordance with specification reference	SA Water audit report	Each Line	**SE (W)**		**SAW (H)**		
6.4	CCTV Acceptance Test Report	TS 0524 SCM WSAA Code Supplement Pt 3	CCTV attributes to be provided to superintendent in accordance with the specification references Reviewed attributes to be forwarded to SA Water CSTO	Win Cam report, CCTV footage, Acceptance Test Report	Each Lot	**SE (R)**		**SR (H) SAW (R)**		
6.5	Hydrostatic Maintenance Hole	TS 0600	Structure filled and held for 2 hrs prior to commencing start of test. Minimum test duration of 24 hrs. Water loss criteria as per section C. Repair procedure to be provided prior to works commencing.	Test report issued by Superintend	Each Occurrence	**SE (H)**		**SR (H) SAW (S)**		
7.0	**POST CONSTRUCTION FINAL DOCUMENTATION (as required)**									
7.1	Testing documents	Quality Management Plan	Signed ITP's, test reports, checklists and photographic	Submitted to superintendent for review & acceptance prior to providing to SA Water	Each Lot	**SE**		**SR (W)**		

7.1	Testing documents	Quality Management Plan	records in electronic format.	acceptance prior to providing to SA Water CSTO for final review & acceptance	Each Lot	**(H)**		**SAW (R)**		
7.2	Backfill Compaction	SCM 4005-20002 SCM 4005-20003 SCM WSAA Code Supplement Pt 3 AS1289	Backfilling shall be uniformly compacted and tested in horizontal layers not exceeding 200mm to the following; TS4 Sand - 95% MMDD PM2/20 - 95% MMDD	Compaction test plan, Compaction test certificates	Each Lot Per 50m of trench & 20% of connections	**SE (H)**		**SR (W) SAW (R)**		
7.3	Materials Certifications	TS 0630 TS 0631 TS 0710	NATA accredited and certified testing documents are provided for TS4 sand and PM2/20 in accordance with specification reference documents Concrete delivery dockets & testing certificates	Submitted for review	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
7.4	Testing Records	Quality Management Plan	Air testing, Hydrostatic testing, CCTV acceptance test reports	Reports submitted for review	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
7.5	As Built Survey Information	TS 0100 TS 0130 TS 0134	As built survey information is updated in drawings for As constructed revision	Submitted for automated assessment and copies provided to superintendent and SA Water CSTO	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
7.6	Hazard Register Close Out	TS 0101	SiD 3 conducted and hazard register and safety in design report updated	Review	Each Lot	**SE (H)**		**SR (W) SAW (R)**		
8.0	**LOT COMPLETION**									
8.1	Constructor Pre-Practical Completion Walkover	Developer Agreement Formal Instrument	All Lots and infrastructure inspected to confirm constructed in accordance with specification references within tolerance.	Pre PC walkover visual inspection and photographic records	Each Lot	**SE (H)**		**SR (W)**		
8.2	SAW Practical Completion Walkover	Developer Agreement Formal Instrument	All Lots and infrastructure inspected to confirm constructed in accordance with specification references within tolerance.	SA Water Practical Completion audit report	Each Lot	**SE (W)**		**SR (H) SAW (H)**		
8.2	SAW Final Completion Walkover	Developer Agreement Formal Instrument	12 month defect liability inspection released with no outstanding defects	SA Water Final Completion audit report	Each Lot	**SE (R)**		**SR (R) SAW (H)**		