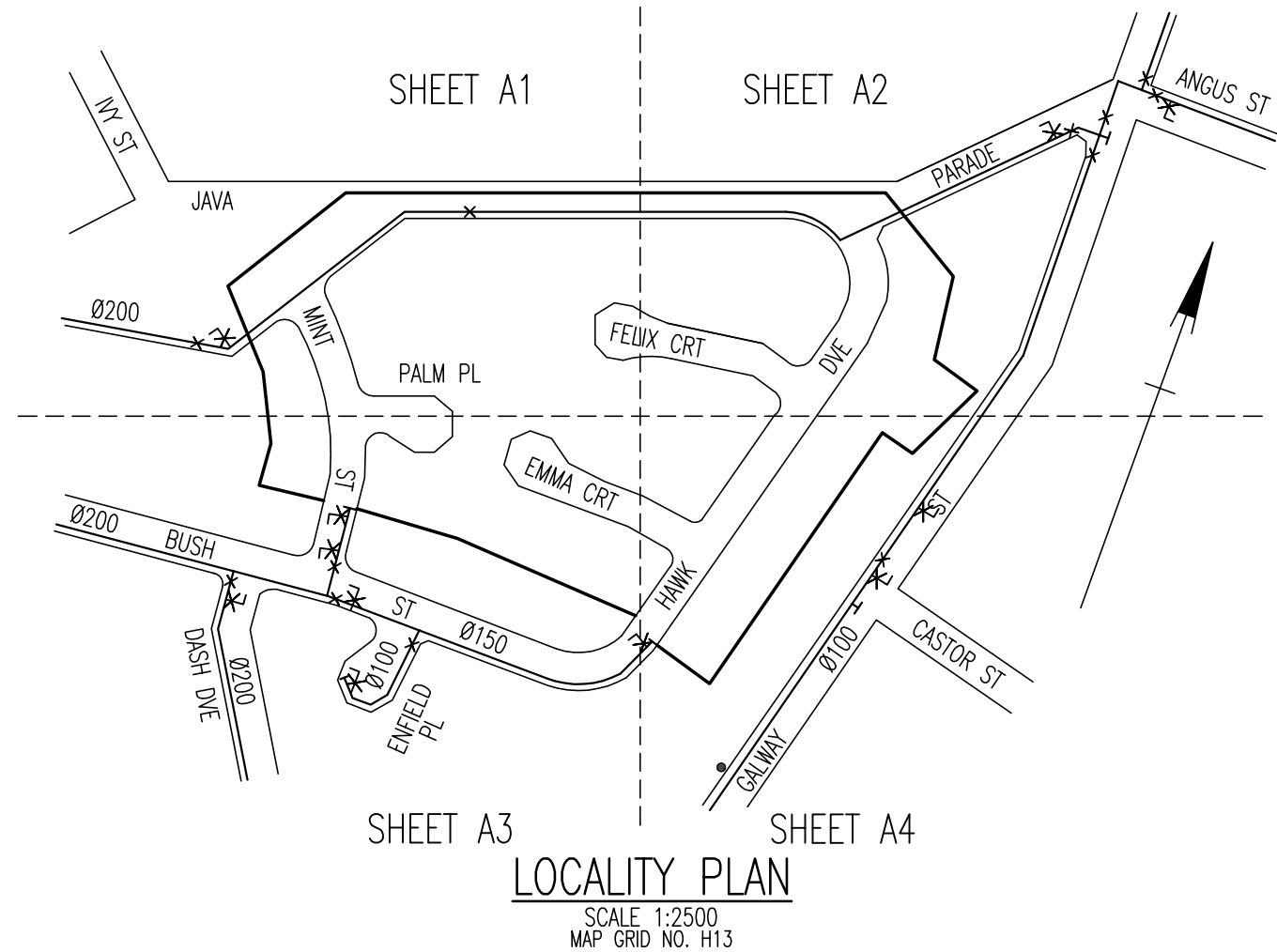


STD. DWG. NO.	DESCRIPTIONS				STD. DWG. NO.	DESCRIPTIONS					
	DESIGN LAYOUTS					W-018	INDUSTRIAL SERVICE CONNECTION				
	W-002	TYPICAL LOCALITY PLAN				W-019	100mm FIRE SERVICE				
	W-003	TYPICAL SITE PLAN				W-020	SUBMETERING				
	W-004	WATER RETICULATION PLAN				W-021	GARDEN BED AND MEDIAN WATER SERVICE BELOW GROUND				
	W-005	AS-CONSTRUCTED WATER RETICULATION PLAN				WATER METER ASSEMBLY					
	TYPICAL MAINS CONSTRUCTION					W-022	20mm – 25mm DUAL CHECK – ABOVE GROUND				
	W-006	CUL-DE-SACS				W-023	20mm – 25mm DUAL CHECK – BELOW GROUND				
	W-007	CONNECTION TO EXISTING MAINS				SOIL CLASSES					
	W-008	RETICULATION MAIN ARRANGEMENTS				SOIL CLASSIFICATION GUIDELINES					
	W-009	TYPICAL TRENCH DETAILS				OTHER					
	VALVES AND HYDRANTS					W-025	BACKFLOW PREVENTION DEVICE WATER SERVICE				
	W-010	HYDRANT AND VALVE ASSEMBLY				W-026	PIPES UNDER RURAL ROADS				
	W-011	AIR, SCOUR AND END VALVE ASSEMBLY									
	W-012	C.I. HYDRANT AND VALVE BOXES									
	W-013	IDENTIFICATION MARKERS AND MARKER POSTS									
	THRUST BLOCKS										
	W-014	CONCRETE THRUST BLOCKS									
	W-015	THRUST AND ANCHOR BLOCKS, SLUICE VALVES AND VERTICAL BENDS									
	WATER SERVICE CONNECTIONS										
W-016	SINGLE SERVICE MAIN TO METER										
W-017	SPLIT SERVICE MAIN TO METER										
Revisions		Drn by	Date	Field Book No.	<div>WESTERN DOWNS REGIONAL COUNCIL</div> <div></div>		Horiz. Section Scale: NTS on A3 Vert. Section Scale: NTS on A3		STANDARD DRAWING – WATER INDEX		
			Level Book No.	DRAWN S. Robertson							
			Datum	DESIGNED L. Cook							
				CHECKED P. Mauch							
				EXAMINED L. Cook							
				RECOMMENDED S. Hegedus RPEQ. 5234							
				TECHNICAL SERVICES MANAGER							
				DATE 15/07/2010							
A Original Issue					Job No./s	Works Order No.	Auxiliary Plan No's.		Plan No. W-001 No. 1 of 26Plans Rev. A		




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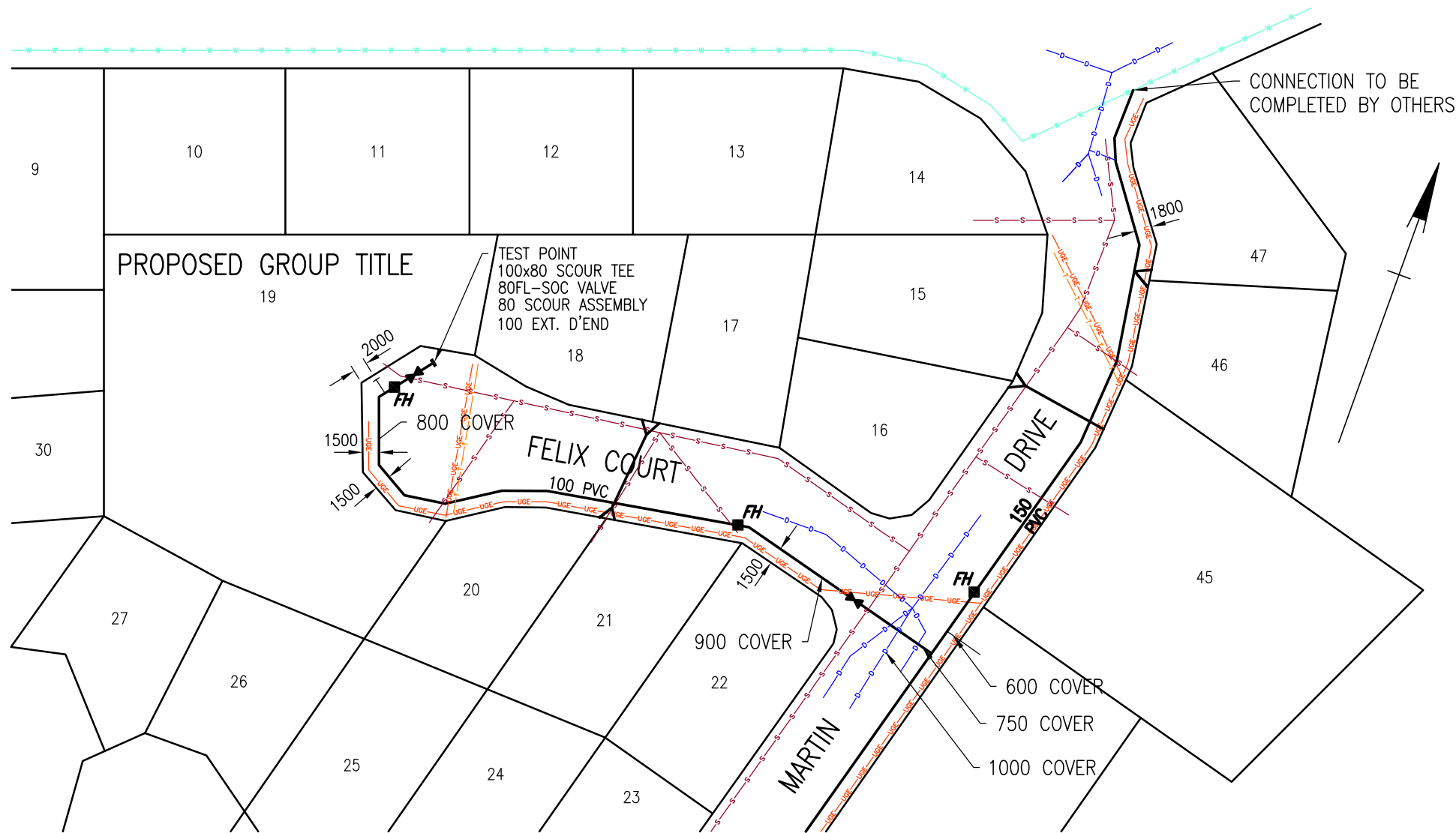


CONNECTIONS & SUBSTITUTIONS
STREET: <u>HAWK PARADE</u> AT <u>JAVA PARADE</u> LENGTH: -- TYPE OF MAIN: <u>DN 150 PVC PN16</u>
STREET: <u>HAWK PARADE</u> AT <u>BUSH STREET</u> LENGTH: <u>5m</u> TYPE OF MAIN: <u>DN 150 PVC PN16</u>
STREET: <u>JAVA PARADE</u> AT <u>MINT STREET</u> SUBSTITUTE: <u>200 DICL</u> FOR: <u>200 AC</u> LENGTH: <u>30m</u> TYPE OF MAIN: <u>DN 200 DICL</u>
STREET: <u>MINT STREET</u> NEAR <u>BUSH STREET</u> LENGTH: <u>5m</u> TYPE OF MAIN: <u>DN 100 PVC PN16</u>

SERVICE CONNECTION DETAILS				
NUMBER OF CONNECTIONS	NOM SIZE DN	LOT NUMBERS		PIPE TYPE
1	32	LOT 31		PE
12	25	LOTS 1-4, 15-18, 23-25, 30.		PE
32	20	LOTS 5-14, 20-22, 26-29, 32-44, 46, 47.		PE
	OTHER	LOT 45 SERVICE SIZE AND POSITION TO BE DETERMINED ON APPLICATION BY INDIVIDUAL OWNER		
		METER TO LOT 19 TO BE SUPPLIED ON APPLICATION (AT APPLICANT'S EXPENSE)		
	32	IRRIGATION SERVICE WITH DN 25 METER IN PARK NEAR LOT 44		
	NOM. SIZE DN	TOTAL LENGTH (m)	PE (m)	
	32	72	72	
	25	65	65	
	20	81	81	

MAINS DETAILS					
ESTATE NAME: UPSON DOWNS					
STREET: JAVA PDE.					
SUBURB: DURACK					
FILE REF.					
DELEGATE					
APPROVAL DATE			DD. MM. YY		
NOM SIZE DN	TOTAL LENGTHS (m)	DICL (m)	PVC (m)	PE (m)	SCL (m)
63	100	0	0	100	0
100	309	5	309	0	0
150	231	0	230	0	1
200	30	30	0	0	0
300	0	0	0	0	0

Revisions		Drn by	Date	Field Book No.	DRAWN L. Porter		<div><div>WESTERN DOWNS REGIONAL COUNCIL</div><div></div></div>		Horiz. Section Scale: NTS on A3		STANDARD DRAWING – WATER DESIGN LAYOUTS – TYPICAL LOCALITY PLAN		
			Level Book No.	DESIGNED L. Cook									
				CHECKED P. Mauch									
			Datum	EXAMINED L. Cook									
				RECOMMENDED S. Hegedus RPEQ. 5234									
				TECHNICAL SERVICES MANAGER				Vert. Section Scale: NTS on A3					
				DATE 14/07/2010									
B	Design Manual	L.C	06/14		Job No./s	Works Order No.	Auxiliary Plan No's.				Plan No. W-002	No. 2 of 26 Plans	Rev. B
A	Original Issue												



LEGEND

EXISTING MAIN



PROPOSED MAIN



STORMWATER



SEWERAGE



UNDERGROUND ELECTRICITY



WATER CROSSING CONDUITS (DN 100
PVC CLASS 16) WITH APPLICABLE SIZE
AND TYPE OF SERVICE SHOWN



TELECOM COMMUNICATION CONDUITS



WATER SERVICE POINT OF ENTRY



GAS



SLUICE VALVE




FIRE HYDRANT

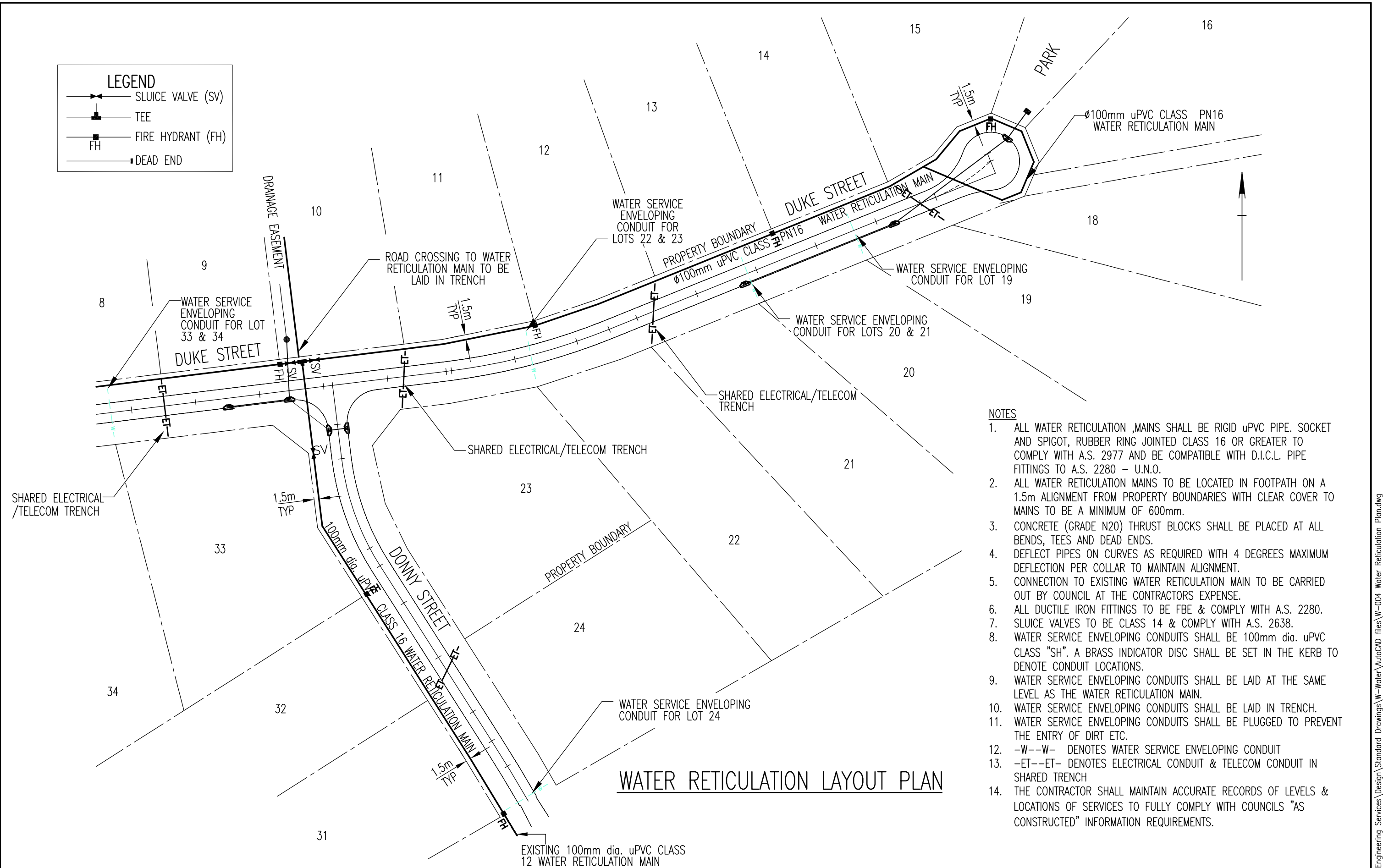


DEAD END




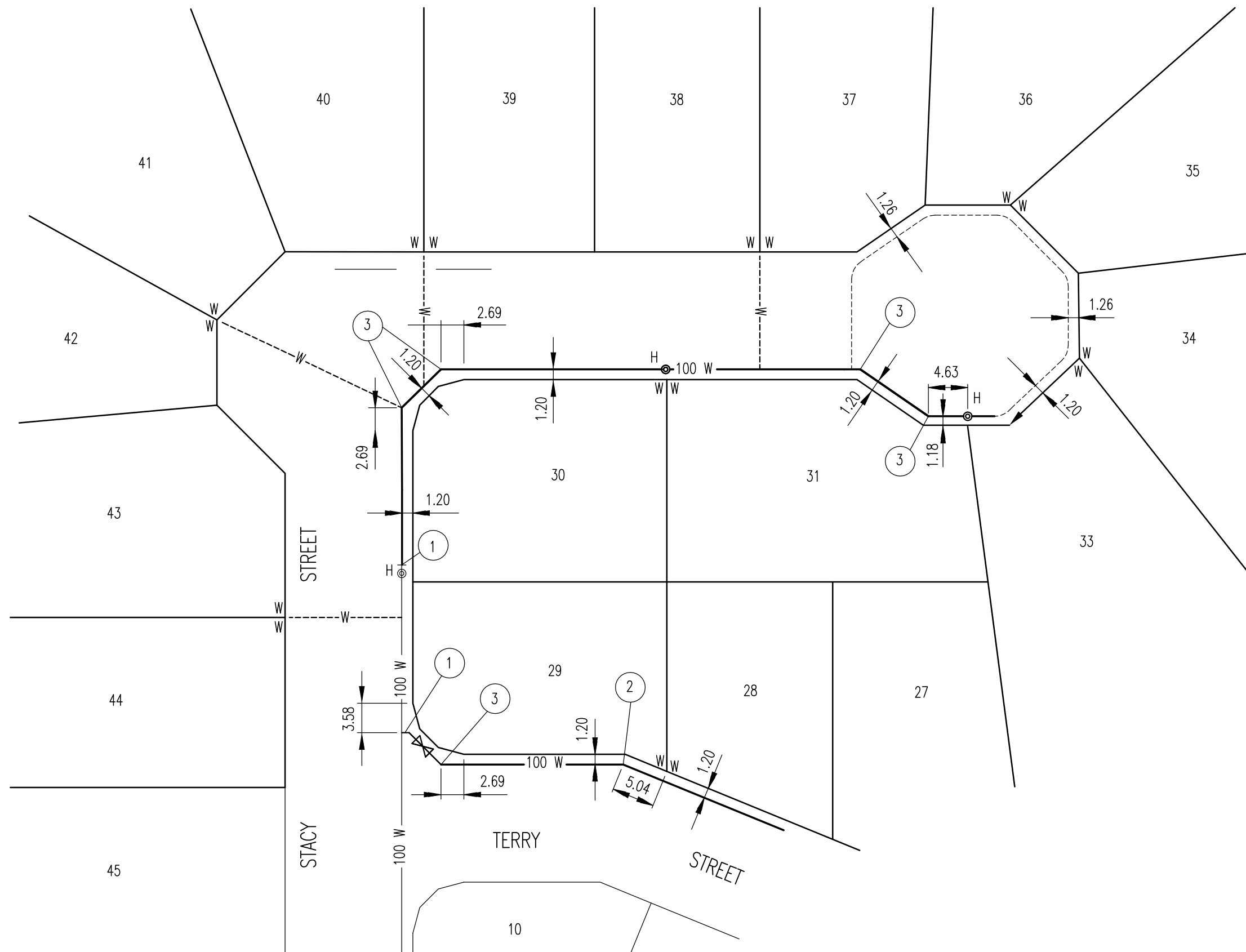
SITE PLAN

				Field Book No.	DRAWN L. Porter	<div>WESTERN DOWNS REGIONAL COUNCIL</div> <div></div>	Horiz. Section	STANDARD DRAWING – WATER DESIGN LAYOUTS – TYPICAL SITE PLAN	
				Level Book No.	DESIGNED L. Cook		NOT TO SCALE		
				Datum	CHECKED P. Mauch		Vert. Section		
					EXAMINED L. Cook				NOT TO SCALE
					RECOMMENDED S. Hegedus RPEQ. 5234				
					TECHNICAL SERVICES MANAGER				
					DATE 24/11/2010				
B	Design Manual	L.C.	06/2014	Job No./s	Works Order No.		Auxiliary Plan No's.		
A	Original Issue								Plan No.W–003 No. 3 of 26Plans Rev. B
Revisions		Drn by	Date						



- NOTES
1. ALL WATER RETICULATION MAINS SHALL BE RIGID uPVC PIPE. SOCKET AND SPIGOT, RUBBER RING JOINTED CLASS 16 OR GREATER TO COMPLY WITH A.S. 2977 AND BE COMPATIBLE WITH D.I.C.L. PIPE FITTINGS TO A.S. 2280 – U.N.O.
 2. ALL WATER RETICULATION MAINS TO BE LOCATED IN FOOTPATH ON A 1.5m ALIGNMENT FROM PROPERTY BOUNDARIES WITH CLEAR COVER TO MAINS TO BE A MINIMUM OF 600mm.
 3. CONCRETE (GRADE N20) THRUST BLOCKS SHALL BE PLACED AT ALL BENDS, TEES AND DEAD ENDS.
 4. DEFLECT PIPES ON CURVES AS REQUIRED WITH 4 DEGREES MAXIMUM DEFLECTION PER COLLAR TO MAINTAIN ALIGNMENT.
 5. CONNECTION TO EXISTING WATER RETICULATION MAIN TO BE CARRIED OUT BY COUNCIL AT THE CONTRACTORS EXPENSE.
 6. ALL DUCTILE IRON FITTINGS TO BE FBE & COMPLY WITH A.S. 2280.
 7. SLUIICE VALVES TO BE CLASS 14 & COMPLY WITH A.S. 2638.
 8. WATER SERVICE ENVELOPING CONDUITS SHALL BE 100mm dia. uPVC CLASS "SH". A BRASS INDICATOR DISC SHALL BE SET IN THE KERB TO DENOTE CONDUIT LOCATIONS.
 9. WATER SERVICE ENVELOPING CONDUITS SHALL BE LAID AT THE SAME LEVEL AS THE WATER RETICULATION MAIN.
 10. WATER SERVICE ENVELOPING CONDUITS SHALL BE LAID IN TRENCH.
 11. WATER SERVICE ENVELOPING CONDUITS SHALL BE PLUGGED TO PREVENT THE ENTRY OF DIRT ETC.
 12. -W--W- DENOTES WATER SERVICE ENVELOPING CONDUIT
 13. -ET--ET- DENOTES ELECTRICAL CONDUIT & TELECOM CONDUIT IN SHARED TRENCH
 14. THE CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF LEVELS & LOCATIONS OF SERVICES TO FULLY COMPLY WITH COUNCILS "AS CONSTRUCTED" INFORMATION REQUIREMENTS.

Revisions		Drn by	Date	Field Book No.	DRAWN S. Robertson	<div>WESTERN DOWNS REGIONAL COUNCIL</div> 		Horiz. Section Scale: NTS on A3	STANDARD DRAWING – WATER DESIGN LAYOUTS – WATER RETICULATION PLAN
				Level Book No.	DESIGNED L. Cook			Vert. Section Scale: NTS on A3	
					CHECKED P. Mauch				
				Datum	EXAMINED L. Cook				
					RECOMMENDED S. Hegedus RPEQ. 5234				
					TECHNICAL SERVICES MANAGER				
						DATE 14/07/2010			
						Job No./s	Works Order No.	Auxiliary Plan No's.	
C	Design Manual	L.C	06/14						
B	Notation Edited	L.T.P	02/12						
A	Original Issue								
									Plan No.W-004 No. 4 of 26Plans Rev. C



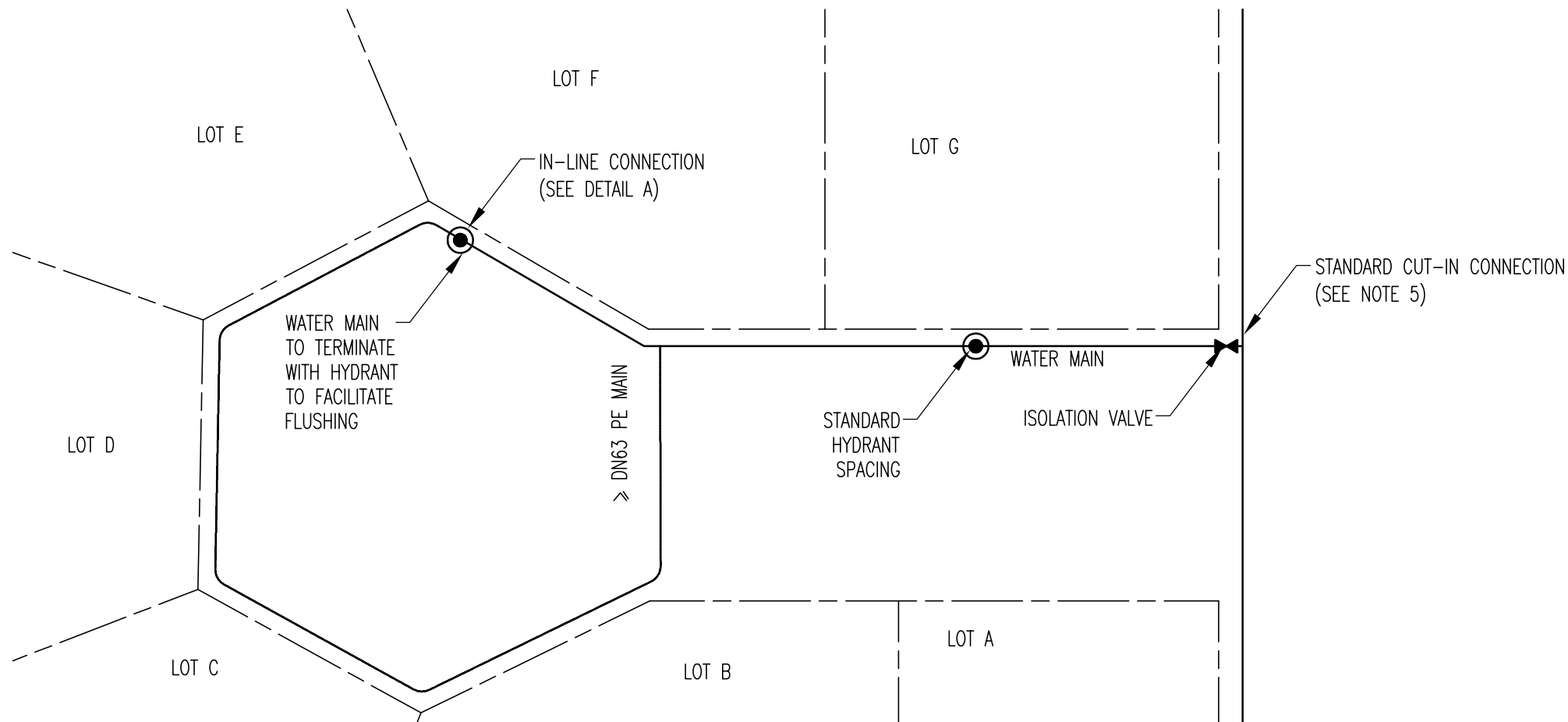
- ① REMOVE END CAP AND JOIN TO EXISTING MAIN
- ② 22.5° SC-SC BEND
- ③ 45° SC-SC BEND

LEGEND	
	EXISTING WATER MAIN U-PVC
	NEW WATER MAIN U-PVC
	WATER SERVICE CONDUIT HDPE
	FIRE HYDRANT
	SLUIICE VALVE
	Ø50 HDPE CLASS 16
	EXISTING PROPERTY BOUNDARY
	NEW PROPERTY BOUNDARY

- NOTES**
- PROPERTY LOT NUMBERS TO BE SHOWN.
 - ALL DIMENSIONS IN METRES.
 - THIS PLAN INDICATES THE MINIMUM REQUIREMENTS FOR AS-CONSTRUCTED DETAILS AND SHOULD NOT BE USED AS A GUIDE FOR CONSTRUCTION REQUIREMENTS.

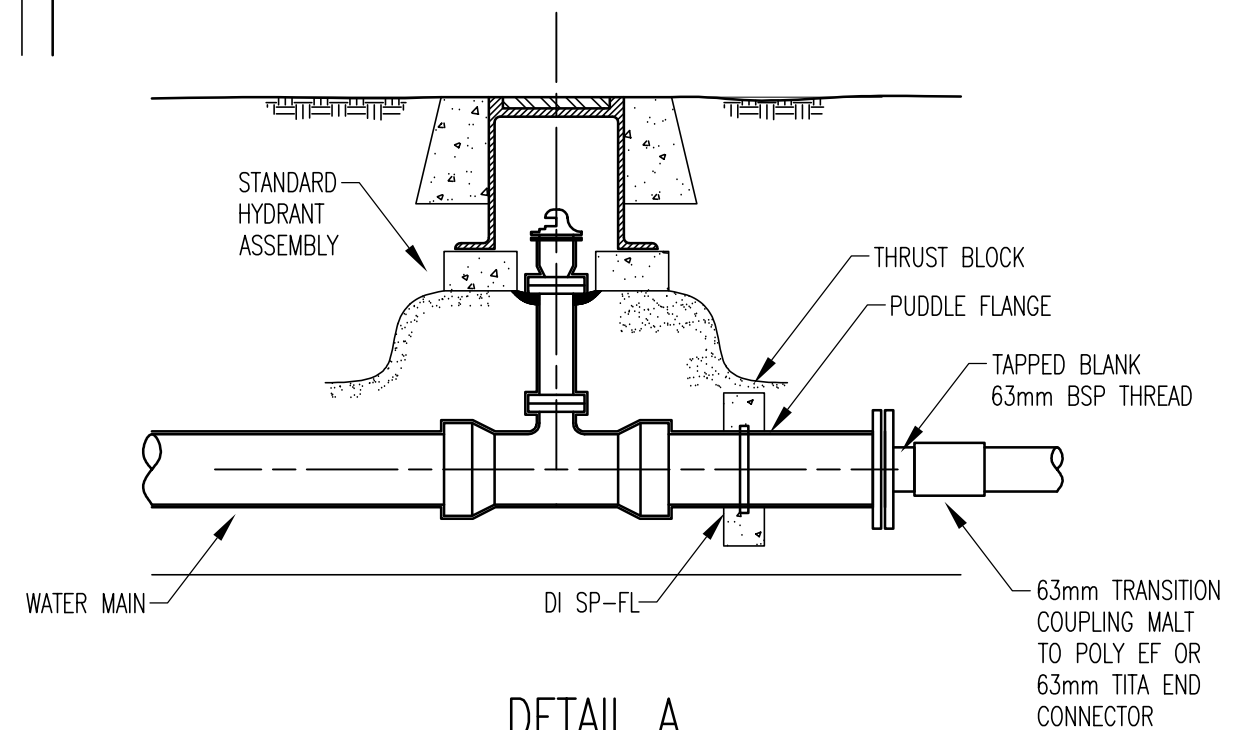
WATER RETICULATION SAMPLE AS CONSTRUCTED PLAN

Revisions			Drn by	Date	Field Book No.	Level Book No.	DRAWN L. Porter DESIGNED L. Cook CHECKED P. Mauch EXAMINED L. Cook RECOMMENDED S. Hegedus RPEQ. 5234 TECHNICAL SERVICES MANAGER			<div style="text-align: center;"> WESTERN DOWNS REGIONAL COUNCIL </div>	Horiz. Section Scale: NTS on A3 Vert. Section Scale: NTS on A3	STANDARD DRAWING – WATER DESIGN LAYOUTS – SAMPLE AS-CONSTRUCTED WATER RETICULATION PLAN
					Datum							
B	Design Manual		L.C	06/14			DATE 14/07/2010					
A	Original Issue						Job No./s	Works Order No.	Auxiliary Plan No's.			Plan No. W-005
										No. 5 of 26 Plans Rev. B		



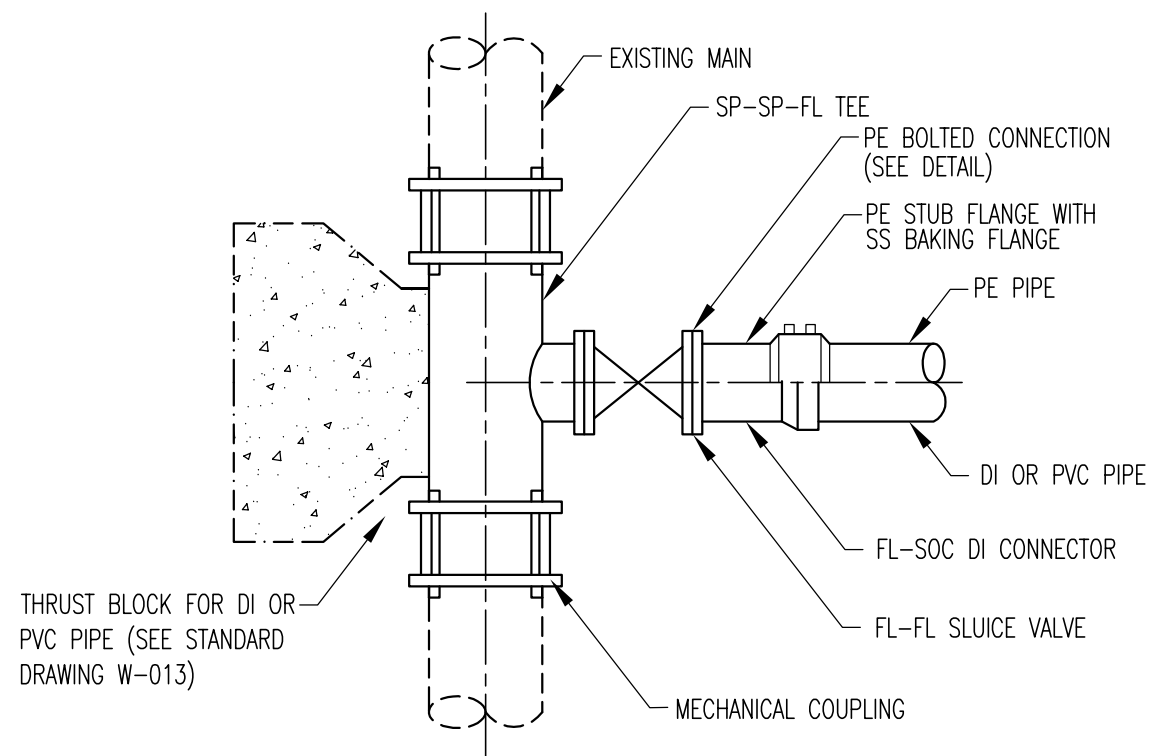
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. PE ELECTROFUSION (EF) FITTINGS TO BE MINIMUM PN12.5 OR SDR11.
3. DO NOT CURVE PE PIPES TO A RADIUS OF LESS THAN 25 TIMES PIPE OD.
4. WHERE POSSIBLE USE A SINGLE LENGTH OF PE PIPE.
5. FOR CONNECTION TO EXISTING MAINS SEE W-007.
6. MAXIMUM NUMBER OF PROPERTY SERVICE CONNECTIONS TO DN63 MAINS IS 10.
7. MAXIMUM LENGTH OF DN63 MAIN IS 100 METRES.
8. HYDRANTS TO BE IDENTIFIED AS PER W-014.
9. LOOP MAINS GREATER THAN 63MM ARE TO BE PVC.

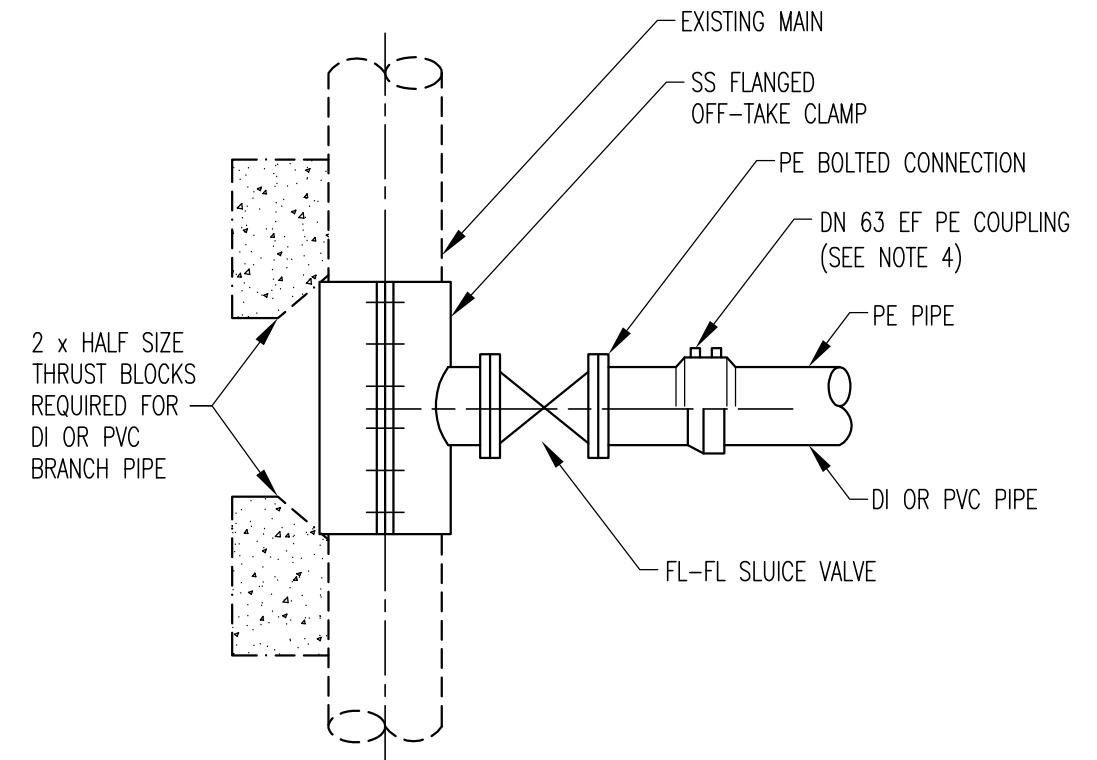


DETAIL A

Revisions		Drn by	Date	Field Book No.	DRAWN S. Robertson		<div>WESTERN DOWNS REGIONAL COUNCIL</div> <div></div>	Horiz. Section Scale: NTS on A3	<div></div> <div>Vert. Section Scale: NTS on A3</div>	STANDARD DRAWING – WATER TYPICAL MAINS CONSTRUCTION – CUL-DE-SACS
				Level Book No.	DESIGNED L. Cook					
				Datum	CHECKED P. Mauch					
					EXAMINED L. Cook					
					RECOMMENDED S. Hegedus RPEQ. 5234					
				TECHNICAL SERVICES MANAGER						
B	Design Manual	L.C	06/14		DATE 14/07/2010					
A	Original Issue				Job No./s	Works Order No.	Auxiliary Plan No's.			
Plan No.W-006 No. 6 of 26Plans Rev. B										

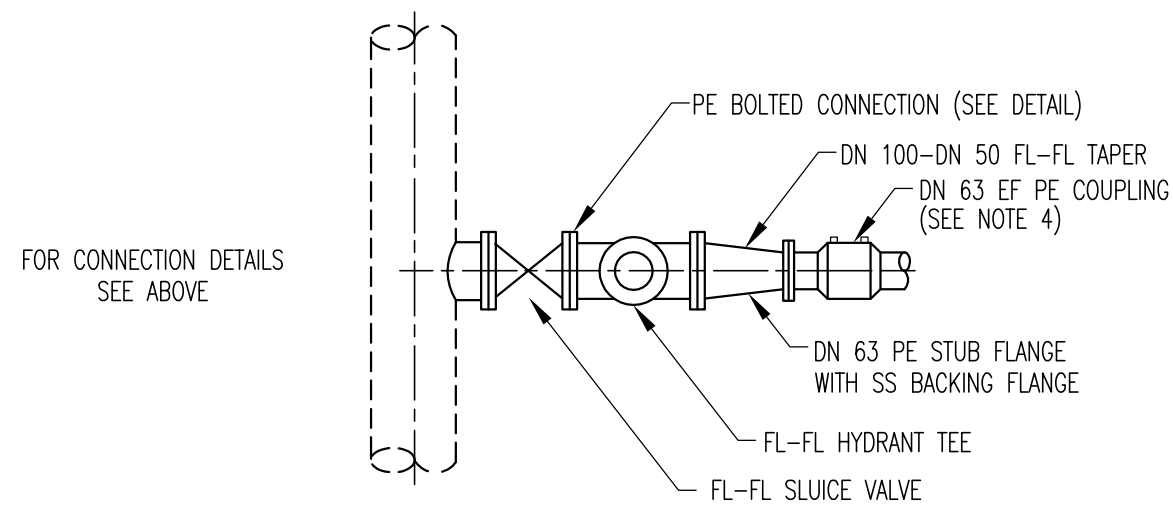


CUT-IN CONNECTION METHOD
(USING MECHANICAL COUPLINGS)

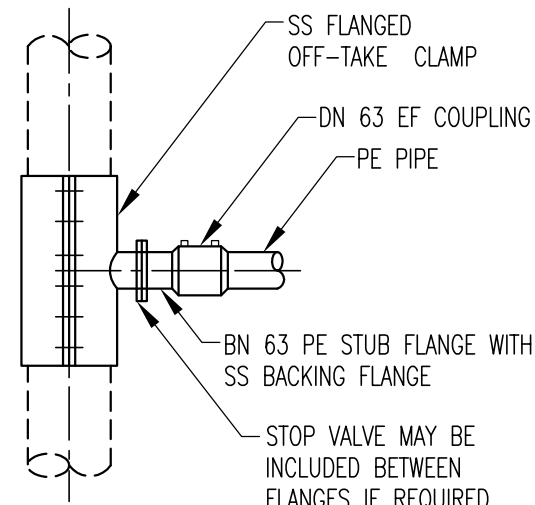


UNDER PRESSURE CONNECTION METHOD
(USING SS FULL WRAP FLANGED OFFTAKE)

CONNECTION METHODS FOR OFFTAKE \leq DN 200 DI, PVC AND PE PIPE



WHERE VALVE & HYDRANT REQUIRED



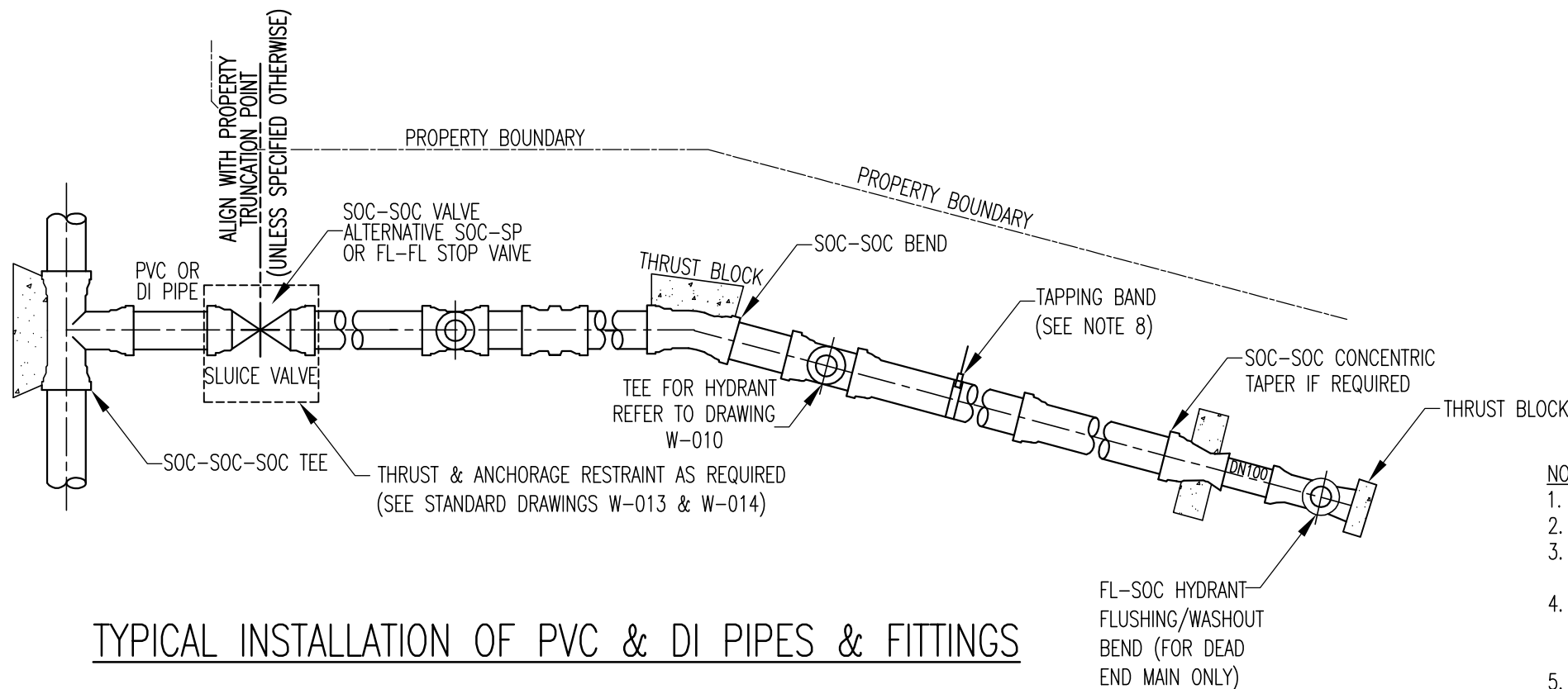
WHERE NO VALVE & HYDRANT REQUIRED

NOTES

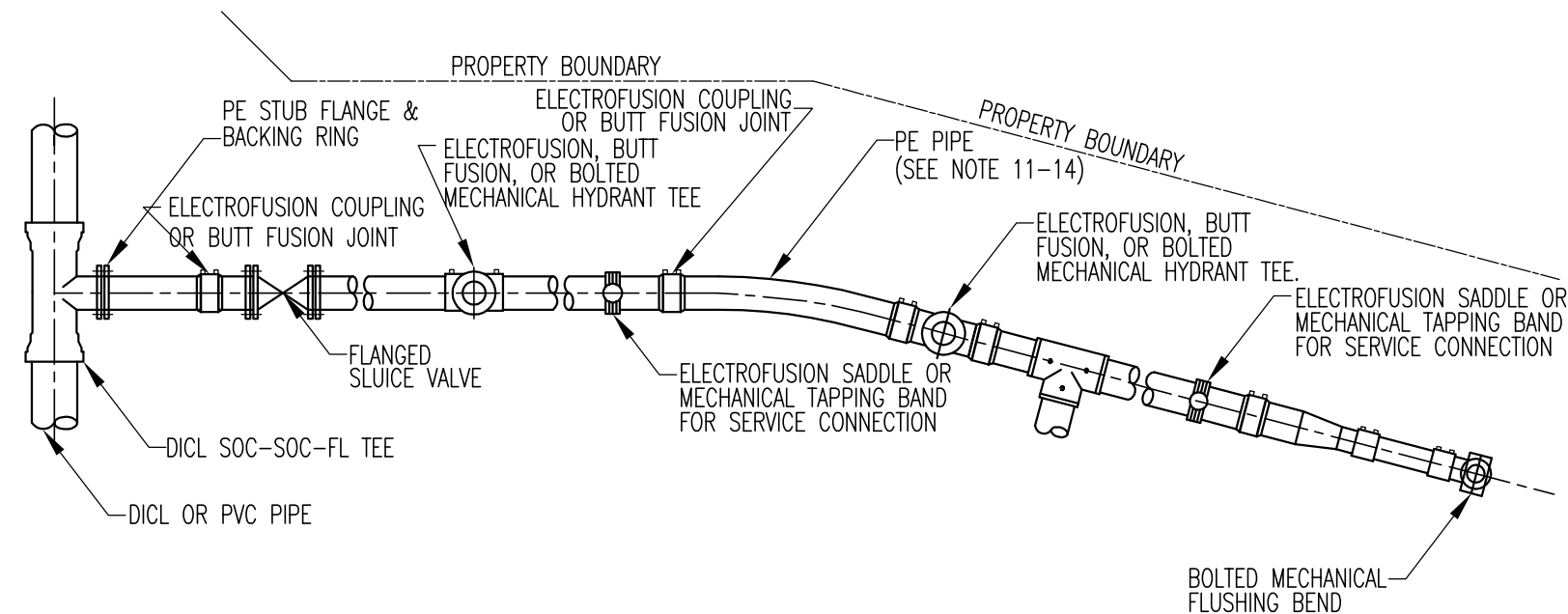
1. ALL DIMENSIONS IN MILLIMETRES.
2. SS OFF-TAKE CLAMP TO BE GRADE 316 SS AND OF FULL WRAP CONFIGURATION.
3. ALL BITUMEN COATED PIPE & FITTINGS DICI TO BE SLEEVED OR RE-SLEEVED WITH POLYETHYLENE SLEEVING OR PETROLATUM TAPE SYSTEM.
4. PE ELECTROFUSION (EF) FITTINGS TO BE CLASS PN 16.
5. BACKING FLANGES FOR PE STUB FLANGES TO BE MANUFACTURED FROM 316 SS.
6. USE GASKETS IN ACCORDANCE WITH WSA 109 FOR ALL FLANGED CONNECTIONS.
7. DO NOT USE UNDER PRESSURE CONNECTIONS ON GRP PIPE WITHOUT WATER AGENCY APPROVAL.

CONNECTION METHOD FOR DN 63 PE PIPE

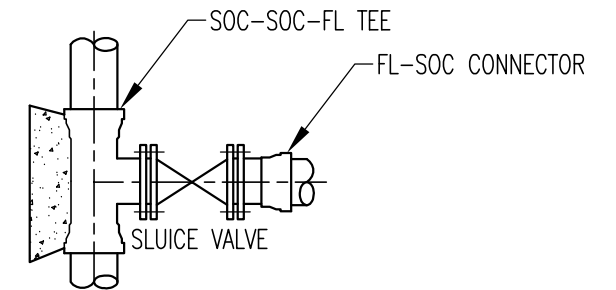
Revisions	Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN L. Porter	DESIGNED L. Cook	CHECKED P. Mauch	EXAMINED L. Cook	RECOMMENDED S. Hegedus RPEQ. 5234	TECHNICAL SERVICES MANAGER	DATE 14/07/2010	Job No./s	Works Order No.	Auxiliary Plan No's.	Horiz. Section Scale: NTS on A3	Vert. Section Scale: NTS on A3	STANDARD DRAWING – WATER TYPICAL MAINS CONSTRUCTION – CONNECTION TO EXISTING MAINS	Plan No. W-007	No. 7 of 26 Plans	Rev. B
B	Design Manual	L.C	06/14																		
A	Original Issue																				



TYPICAL INSTALLATION OF PVC & DI PIPES & FITTINGS



TYPICAL INSTALLATION OF PE PIPES & FITTINGS
(REQUIRES PRIOR APPROVAL FROM WDRC)



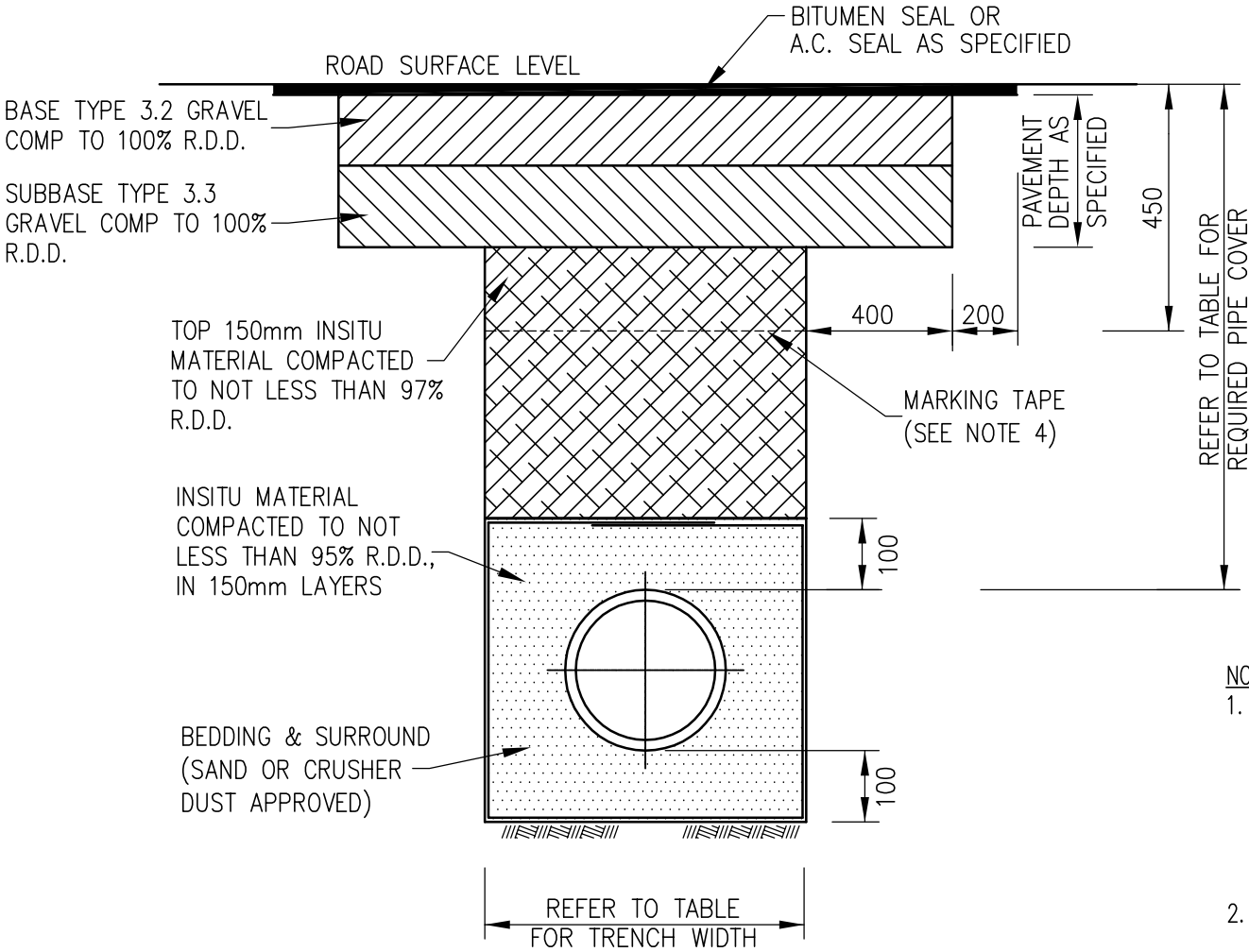
TYPICAL VALVE CONNECTION
DIRECT TO NEW MAIN

NOTES

- ALL DIMENSIONS IN MILLIMETRES.
- INSTALL PIPEWORK PARALLEL TO PROPERTY BOUNDARIES.
- STAINLESS STEEL AND FBE COATED TAPPING BANDS DO NOT REQUIRE ADDITIONAL COROSION PROTECTION.
- WRAP BOLTED CONNECTIONS USING OTHER FBE COATED FITTINGS AND STAINLESS STEEL BOLTS WITH A PETROLATUM TAPE SYSTEM.
- DI & PVC PIPE
- DUCTILE IRON FITTINGS MAY BE USED WITH DI & PVC PIPE. FITTINGS MAY BE FBE COATED AND LINED OR CEMENT LINED WITH A BITUMINOUS EXTERNAL COATING. DO NOT USE PVC FITTINGS WITH DI PIPE.
- PE SLEEVING REQUIRED ON ALL BITUMINOUS COATED DI PIPE AND FITTINGS APPLIED IN ACCORDANCE WITH AS 3681. TWO THICKNESSES REQUIRED BETWEEN FITTINGS AND THRUST BLOCK. REINSTATE ANY DAMAGED SLEEVING AS PER MANUFACTURER'S SPECIFICATIONS.
- ELECTRICALLY ISOLATE COPPER SERVICES FROM DI CL PIPE.
- PVC PIPE
- TAPPING BANDS ON PVC PIPE TO BE FULL CIRCLE CLAMPING.
- MAXIMUM SIZE OF DRILLED HOLES FOR SERVICE CONNECTIONS IN PVC PIPE TO BE 30% DN OR 50 (LOWER VALUE TO BE USED) LARGER HOLES CAN BE USED FOR UNDER PRESSURE TAPPING.
- DI PIPE
- DIRECT TAPPING OF <DN 200 DI CL IS PERMITTED PROVIDED PERMISSION IS SOUGHT FROM WDRC.
- PE PIPE
- PE PIPE MAY BE COLD BENT TO MINIMUM RADIUS OF 25 x (OD), STAKES OR OTHER SOURCES OF POINT LOADS SHALL NOT BE USED TO ASSIST IN BENDING THE PIPE.
- MAKE ALLOWANCE DURING CONSTRUCTION FOR EXPANSION AND CONTRACTION OF PE PIPE DUE TO TEMPERATURE CHANGES.
- BUTT WELDING IN ACCORDANCE WITH WSA-01 (POLYETHYLENE CODE). BUTT WELDING IN TRENCHES IS NOT PERMITTED.
- ALL MECHANICAL COUPLINGS TO BE SELF-RESTRAINING.

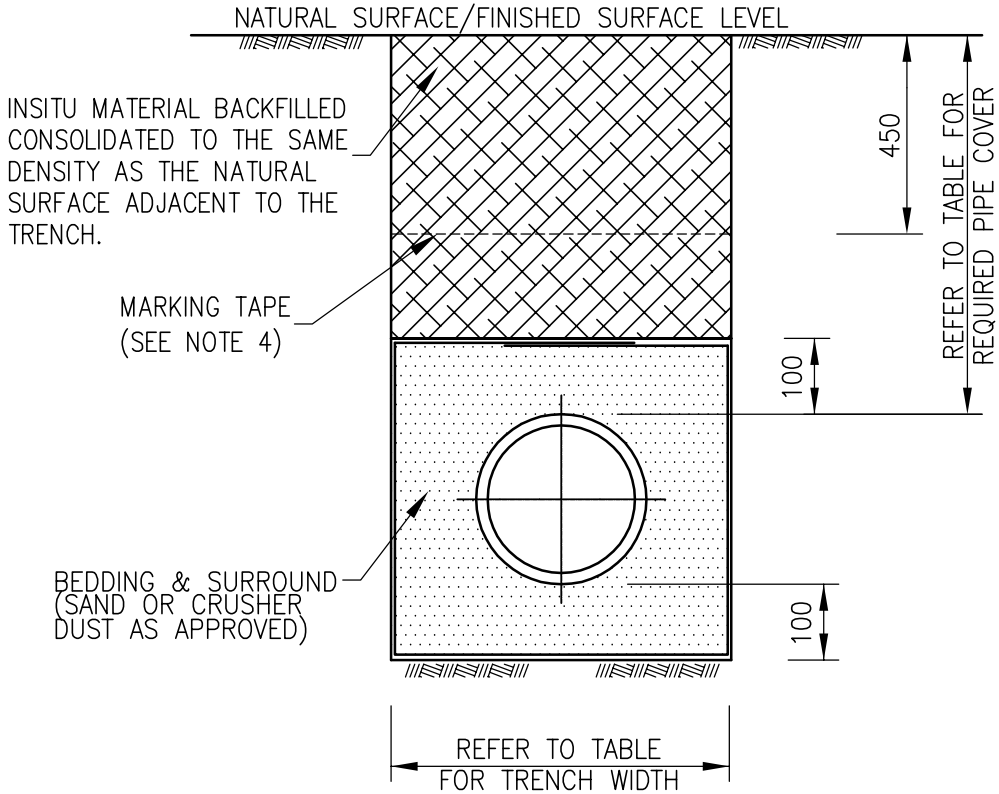
Revisions		Drn by	Date	Field Book No.	Level Book No.	Datum		DRAWN L. Porter DESIGNED L. Cook CHECKED P. Mauch EXAMINED L. Cook RECOMMENDED S. Hegedus RPEQ. 5234 TECHNICAL SERVICES MANAGER DATE 14/07/2010		WESTERN DOWNS REGIONAL COUNCIL		Horiz. Section Scale: NTS on A3		STANDARD DRAWING – WATER TYPICAL MAINS CONSTRUCTION – RETICULATION MAIN ARRANGEMENTS	
B	Design Manual	L.C	06/14												
A	Original Issue														

NOMINAL PIPE SIZE (mm)	75	100	125	150	200	225	250	300
MINIMUM TRENCH WIDTH	300	450	450	450	600	600	600	600
MIN PIPE COVER (PROPERTY & FOOTPATHS)	600	600	600	600	900	900	900	900
MINIMUM PIPE COVER (ROADWAYS & DRIVEWAYS)	900	900	900	900	1200	1200	1200	1200




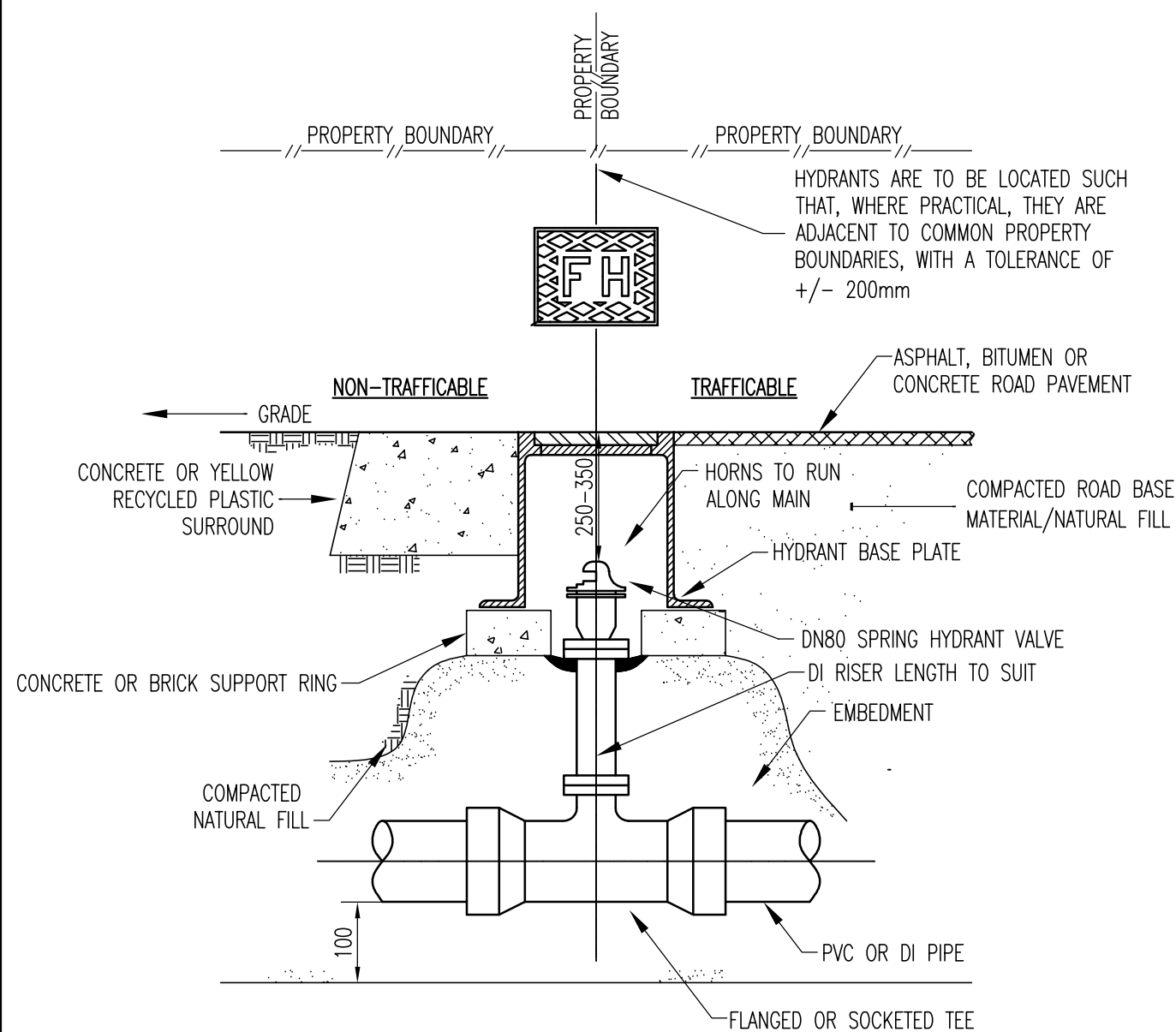
IN ROADWAY OR DRIVEWAY

- NOTES
1. WHERE A WATER RETICULATION MAIN CROSSES A DECLARED ROAD OR RAILWAY UNDER THE JURISDICTION OF MAIN ROADS OR QUEENSLAND RAIL, ANY CONDITIONS OR REQUIREMENTS RELEVANT TO THE ROAD CROSSING CONSTRUCTION SHALL BE OBTAINED FROM THE RELEVANT AUTHORITY.
 2. GRAVEL TYPES AND COMPACTION TESTS AS SPECIFIED MUST BE PROVIDED UNLESS OTHERWISE APPROVED BY COUNCIL.
 3. ALL DIMENSIONS ARE IN MILLIMETRES.
 4. MARKING TAPE IS REQUIRED FOR ALL WATER MAIN & SERVICE INSTALLATIONS.



IN PRIVATE PROPERTY OR FOOTPATH

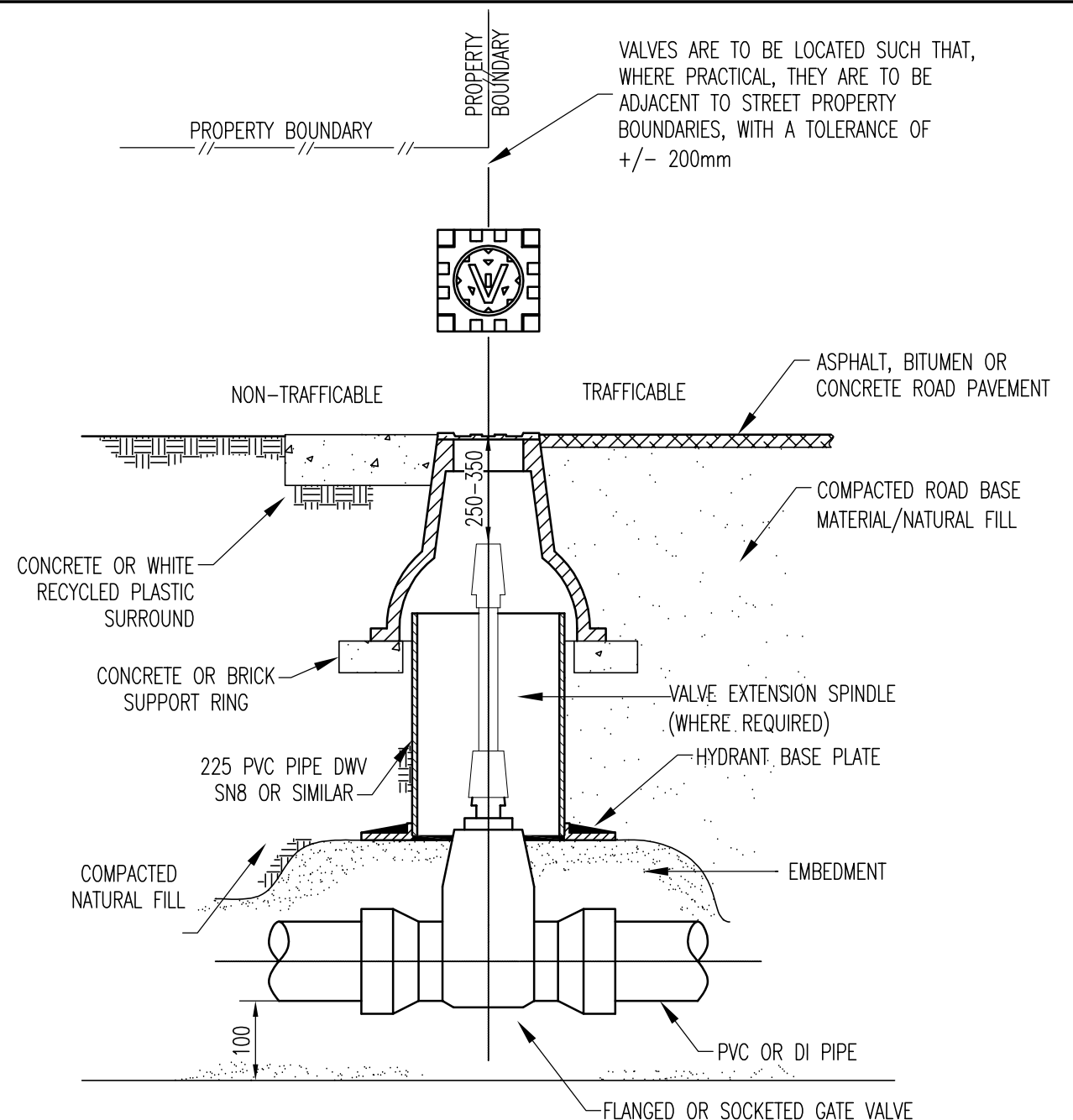
				Field Book No.	DRAWN S. Robertson		<div>WESTERN DOWNS REGIONAL COUNCIL</div> <div></div>	Horiz. Section	STANDARD DRAWING – WATER TYPICAL MAINS CONSTRUCTION – TYPICAL TRENCH DETAILS	
				Level Book No.	DESIGNED L. Cook			NOT TO SCALE		
				Datum	CHECKED P. Mauch			Vert. Section		
					EXAMINED L. Cook					NOT TO SCALE
					RECOMMENDED S. Hegedus RPEQ. 5234					
C	Design Manual	L.C.	06/2014	TECHNICAL SERVICES MANAGER						
B	Notes amended	T.L.	02/2010							
A	Original Issue									
Revisions			Drn by	Date	Job No./s	Works Order No.	Auxiliary Plan No's.	Plan No.W-009	No. 9 of 26 Plans	Rev. C



STANDARD HYDRANT INSTALLATION

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES.
- ALL SURFACE BOX COVERS AND FRAMES TO BE IN ACCORDANCE WITH AS3996
CLASS B LOADING – NON-TRAFFICABLE
CLASS D LOADING – TRAFFICABLE
- COVER, FRAME, SHROUD & SHROUD SUPPORT TO BE INSTALLED SO THAT NO LOADING IS TRANSMITTED TO THE VALVE OR HYDRANT.
- FOR NON-TRAFFICABLE APPLICATIONS ELEVATE COVER UP TO 75 ABOVE FINISHED SURFACE LEVEL AND GRADE SOIL AWAY TO PREVENT WATER ENTRY.
- HYDRANTS ARE TO BE DN80 SPRING HYDRANT VALVES.
- VALVES ARE TO BE RESILIENT SEATED TO GATE AS PER AUSTRALIAN STANDARDS AS 2638.2.



STANDARD VALVE INSTALLATION

- HYDRANTS, VALVES, TEES & RISERS TO BE DI FBE COATED.
- ALL BOLTS STAINLESS STEEL TO AS 2837/316.
- ALL GALVANISING TO AS 1650.
- INSTALL A VALVE EXTENSION SPINDLE WHERE DEPTH FROM SURFACE LEVEL EXCEEDS 350
- HINGED COVERS TO CLOSE IN THE DIRECTION OF FALL OF LAND OR DIRECTION OF ADJACENT ROAD LANE TRAFFIC
- HYDRANT COVER & SURROUND TO BE PAINTED YELLOW WITH AN APPROVED ROAD MARKING PAINT
- VALVE COVER & SURROUND TO BE PAINTED WHITE WITH AN APPROVED ROAD MARKING PAINT
- VALVES ARE TO HAVE COUNTER-CLOCKWISE ROTATING SPINDLES FOR CLOSING

Revisions	Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN S. Robertson
						DESIGNED L. Cook
						CHECKED P. Mauch
						EXAMINED L. Cook
						RECOMMENDED S. Hegedus RPEQ. 5234
						TECHNICAL SERVICES MANAGER
						DATE 14/07/2010
						Job No./s
						Works Order No.
C	Design Manual	L.C	06/14			
B	Notation removed	L.T.P.	02/12			
A	Original Issue					

WESTERN DOWNS REGIONAL COUNCIL

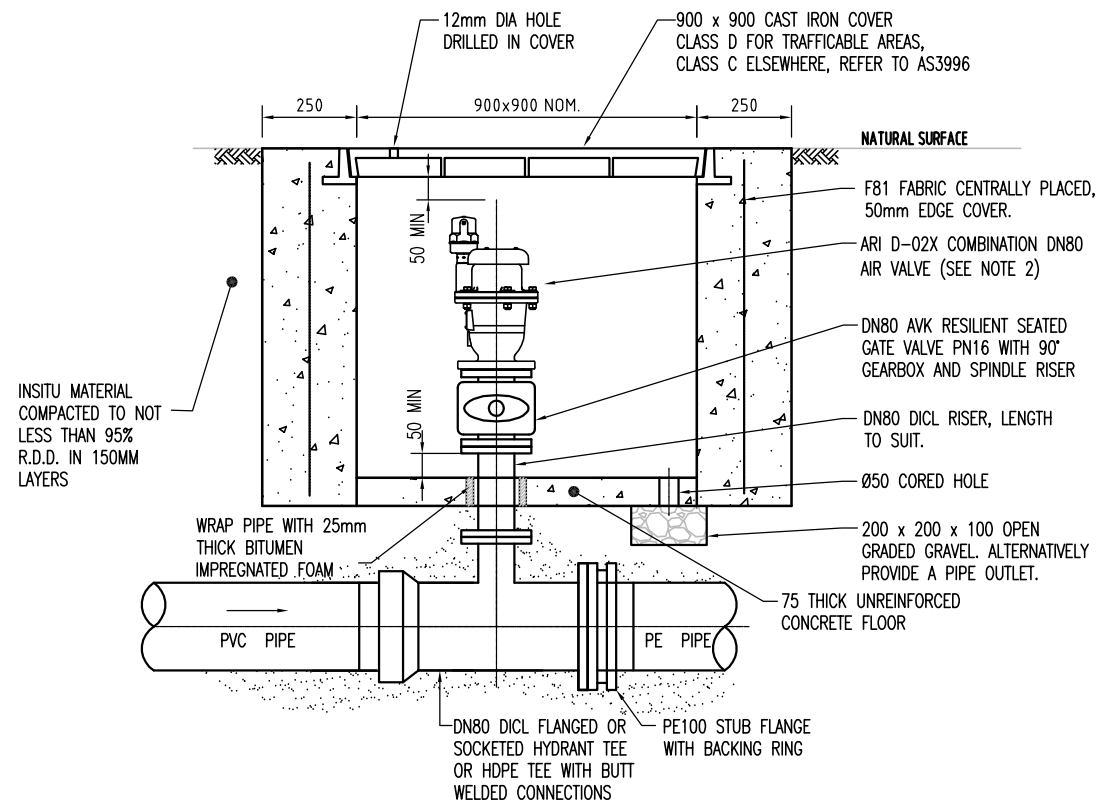


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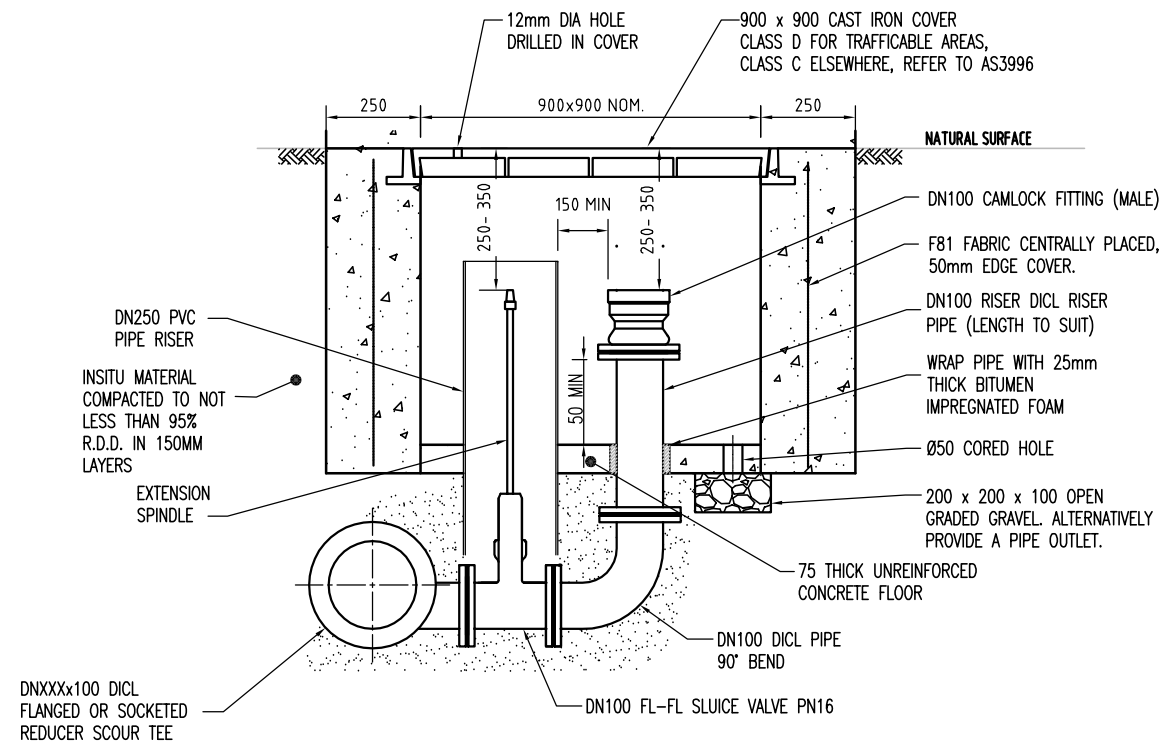
Vert. Section
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STANDARD DRAWING – WATER VALVES AND HYDRANTS – HYDRANT AND VALVE ASSEMBLY

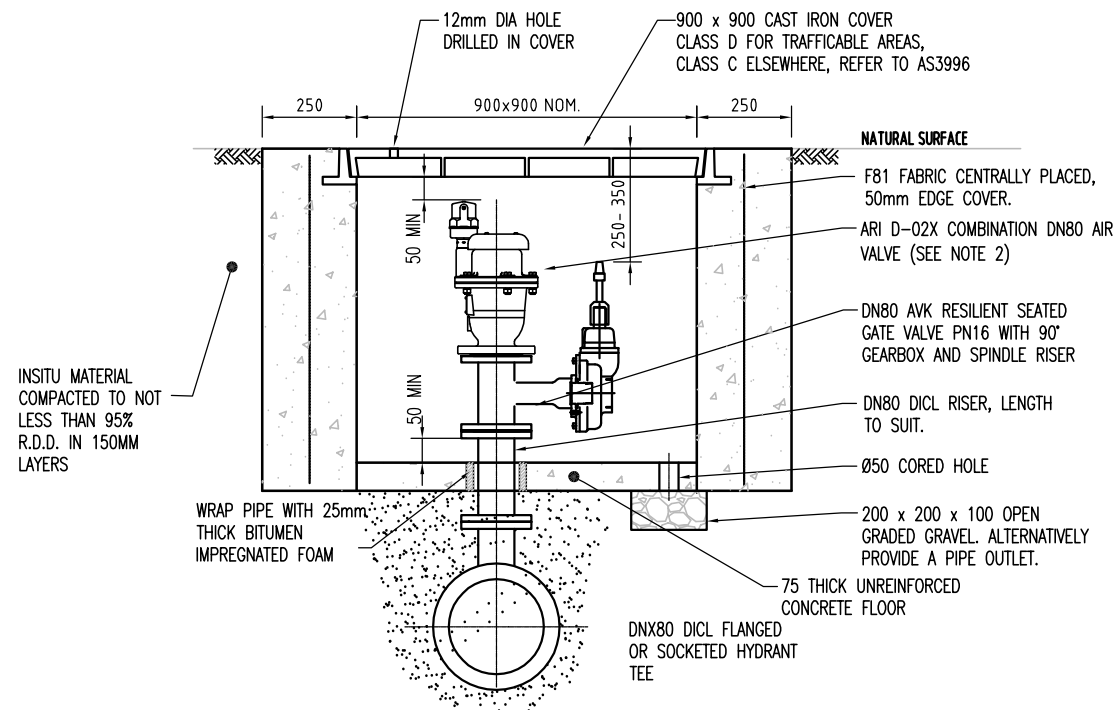
Plan No. **W-010** No. 10 of 26 Plans Rev. **C**



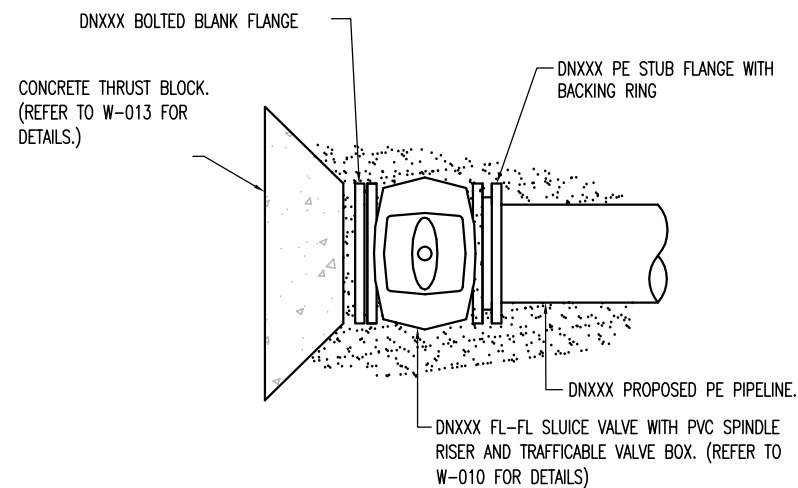
AUTOMATIC AIR VALVE ARRANGEMENT



SCOUR VALVE ARRANGEMENT FOR DISCHARGE TO TRUCK




TYPICAL SECTION THROUGH AIR VALVE DETAIL

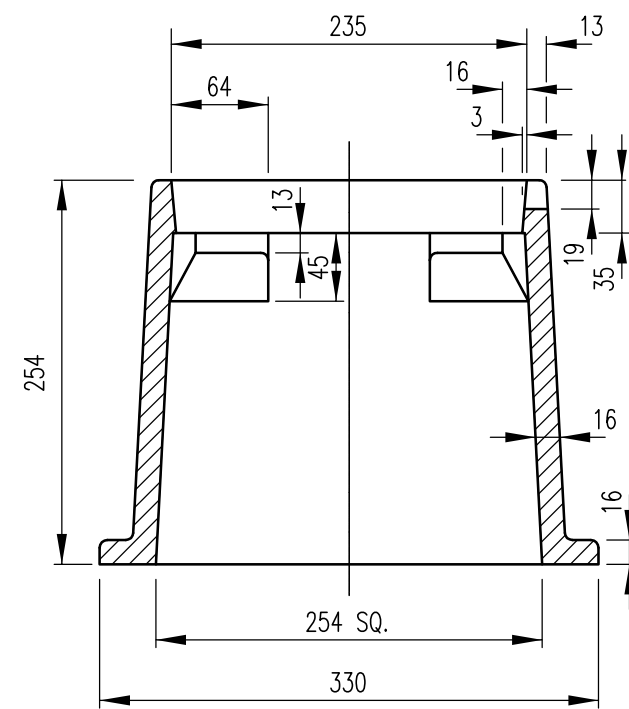


TYPICAL END PLAN DETAIL

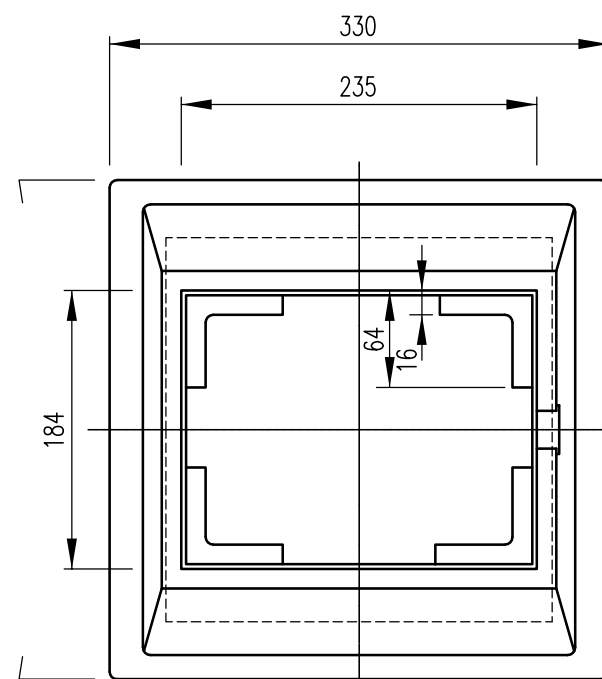
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. WESTERN DOWNS REGIONAL COUNCIL WILL ACCEPT A CAMLOCK FITTING FOR NON-CRITICAL AIR VALVES REQUIRED FOR COMMISSIONING PURPOSES
3. HYDRANT RISERS AND PE100 PIPE FITTINGS TO BE FLANGED
4. VERTICAL ALIGNMENT OF THE PIPE IS TO BE GRADUALLY VARIED TO MEET FINISHED SURFACE LEVEL
5. PRECAST CONCRETE VALVE PITS OF EQUIVALENT DESIGN ARE SUITABLE
6. ENSURE SUFFICIENT CLEARANCE FOR CAMLOCK ACCESS
7. PIPEWORK AND VALVE PIT TO BE SUPPORTED BY APPROVED BEDDING MATERIAL
8. VALVE PIT SURROUND TO BE INSITU MATERIAL BACKFILLED AND CONSOLIDATED TO THE SAME DENSITY AS THE ADJACENT NATURAL SURFACE
9. SOIL TYPES AND COMPACTION TESTS MUST BE PROVIDED UNLESS OTHERWISE APPROVED BY COUNCIL

				Field Book No.	DRAWN S. Robertson		<div><div>WESTERN DOWNS</div><div>REGIONAL COUNCIL</div></div> <div></div>	<div><div>Horiz. Section</div><div>NOT TO SCALE</div></div> <div><div>Vert. Section</div><div>NOT TO SCALE</div></div>	<div>STANDARD DRAWING – WATER MISCELLANEOUS – AIR, SCOUR AND END VALVE ASSEMBLY</div>
			Level Book No.	DESIGNED L. Cook					
			Datum	CHECKED P. Mauch					
				EXAMINED L. Cook					
				RECOMMENDED S. Hegedus RPEQ. 5234					
C	DN100 now DN80 at tee	L.T.P.	09.04.15		TECHNICAL SERVICES MANAGER				
B	Design Manual	L.C.	08/2014						
A	Original Issue								
Revisions		Drn by	Date		Job No./s	Works Order No.	Auxiliary Plan No's.		



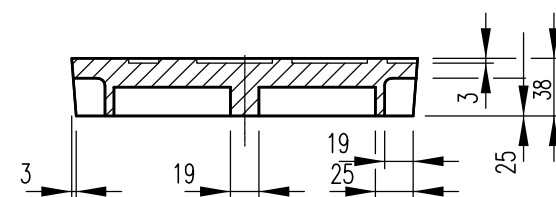
ELEVATION



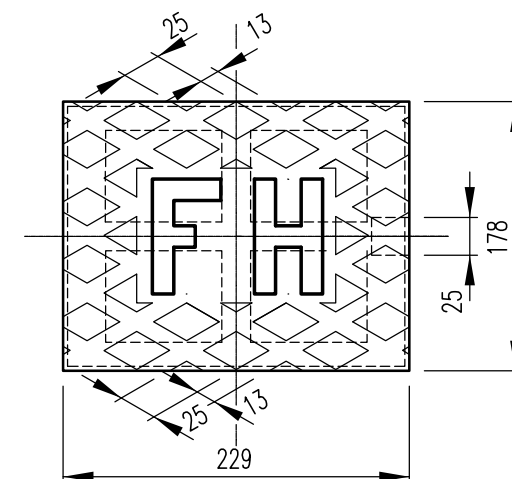
PLAN

INSPECTION BOX – HYDRANT/VALVE

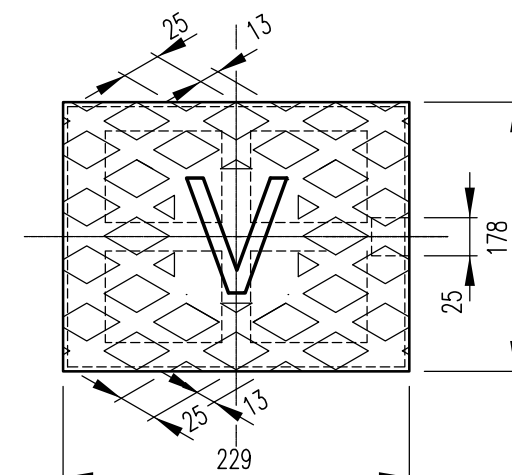
- NOTES
1. MASS OF BODY = 37KG APPROX.
 2. MASS OF COVER = 14KG APPROX.
 3. ROUNDING OF 5mm NOM. RAD. AT ALL CORNERS.
 4. GREY CAST IRON, GRADE \geq T180 TO AS 1830.
 5. ALTERNATIVE VALVE BOXES MAY BE ADOPTED WHERE APPROVED BY THE SERVICE AUTHORITY.
 6. ALL DIMENSIONS IN MILLIMETRES.



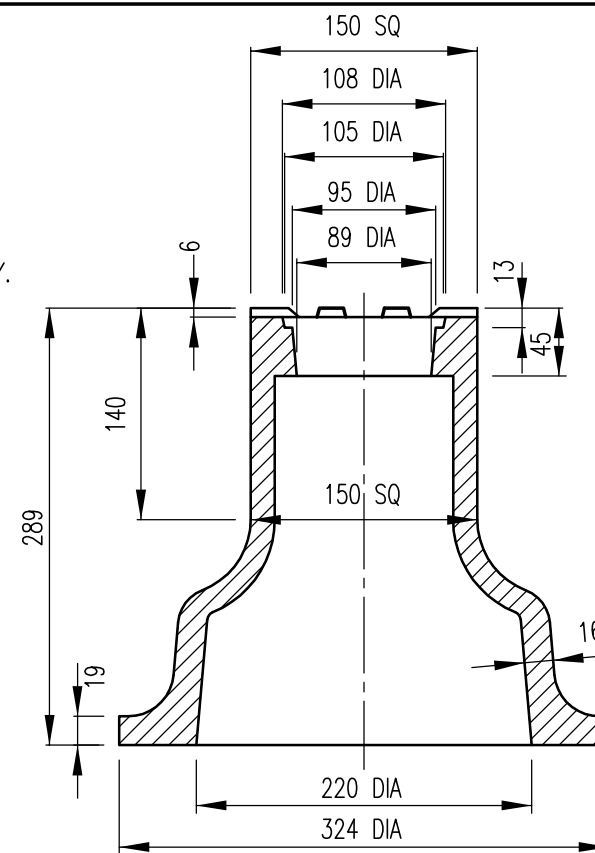
SECTIONAL VIEW



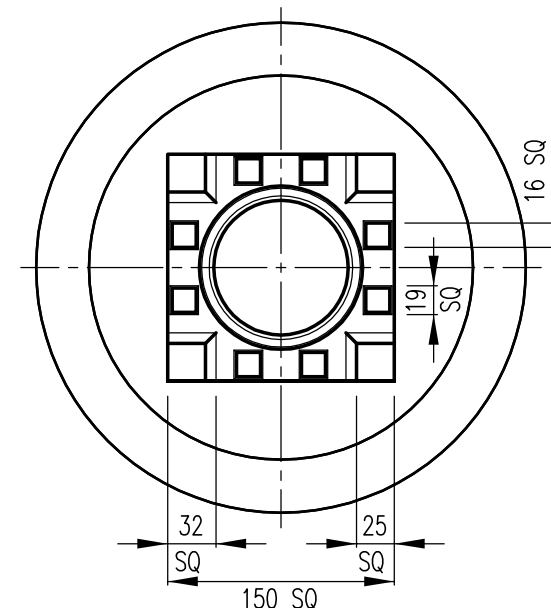
PLAN
HYDRANT COVER



PLAN
VALVE COVER

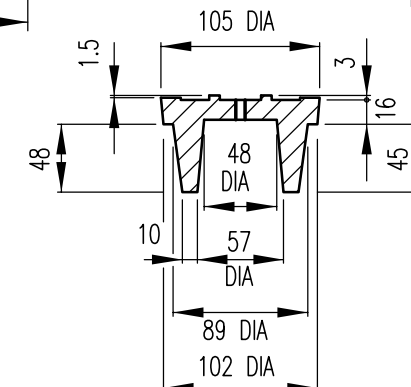


SECTIONAL ELEVATION

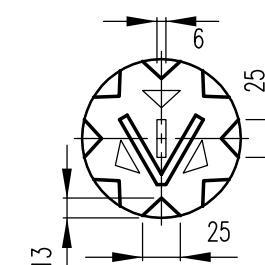


PLAN
TYPE A

- NOTES
1. MASS OF BODY; TYPE A = 26KG APPROX.
 2. MASS OF BODY; TYPE B = 23KG APPROX.
 3. MASS OF COVER = 2KG APPROX.
 4. GREY CAST IRON, GRADE \geq T180 TO AS 1830.
 5. ALTERNATIVE VALVE BOXES MAY BE ADOPTED WHERE APPROVED BY THE SERVICE AUTHORITY.
 6. ALL DIMENSIONS IN MILLIMETRES.

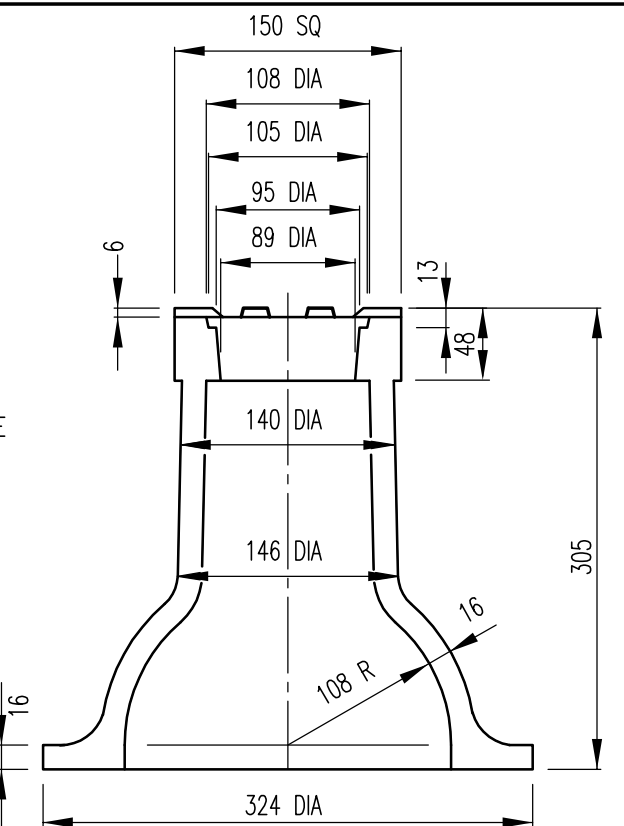


SECTIONAL ELEVATION

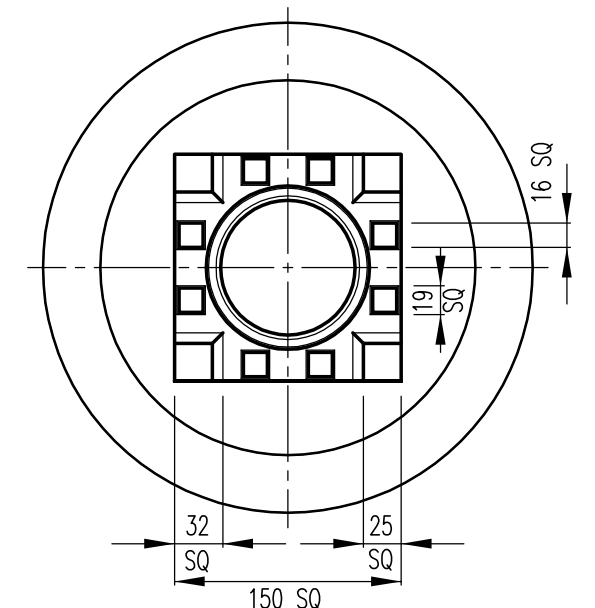


PLAN
COVER

VALVE BOXES

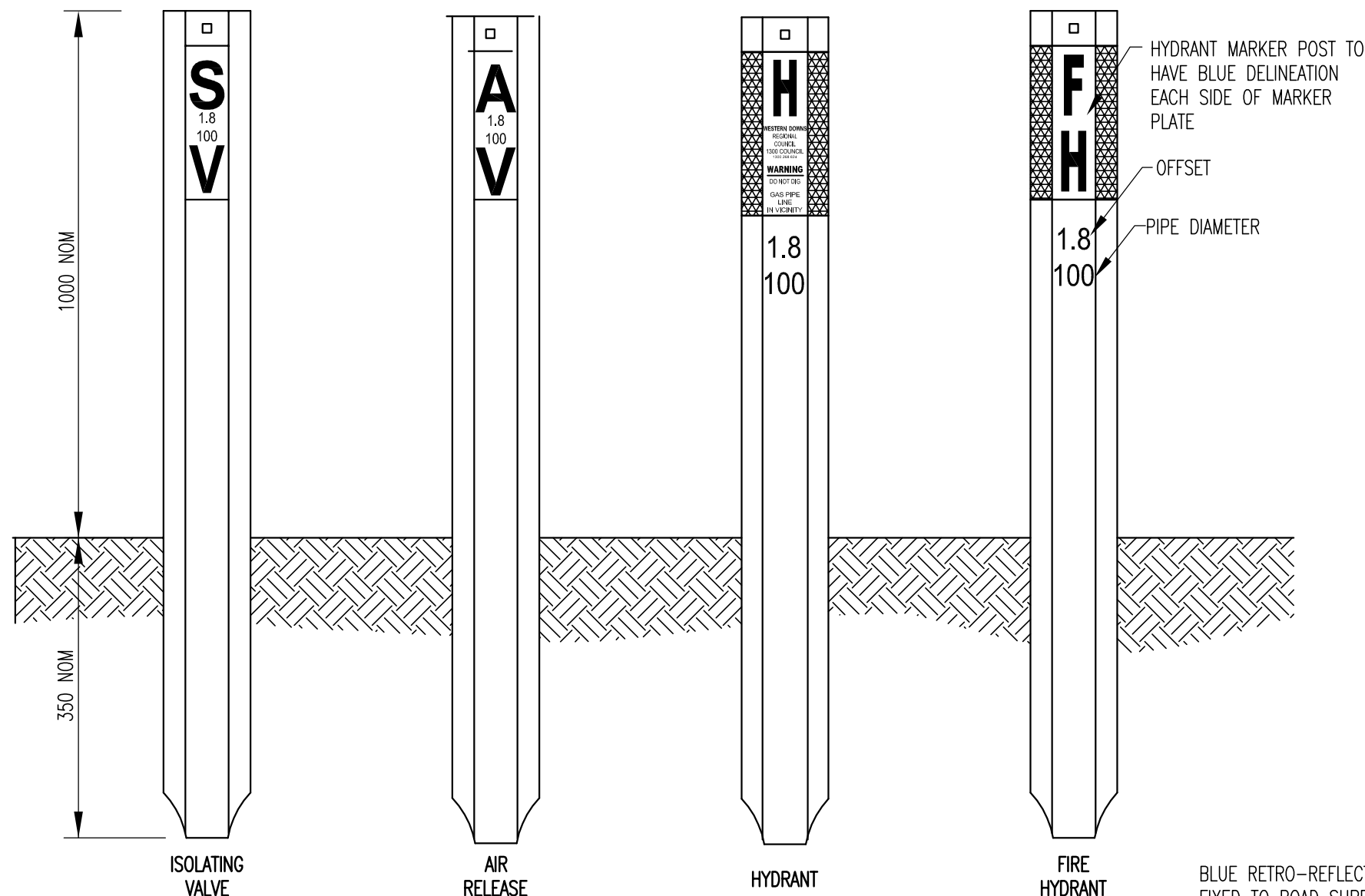


SECTIONAL ELEVATION

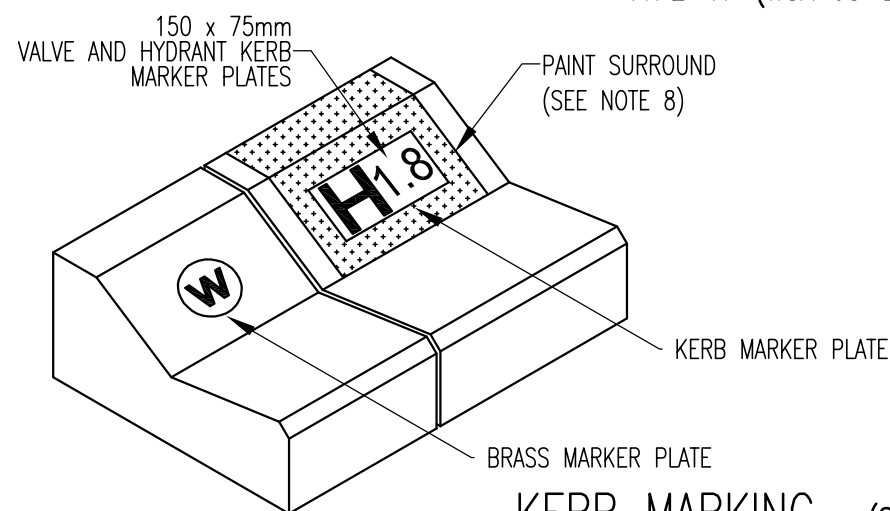


PLAN
TYPE B

Revisions		Drn by	Date	Field Book No.	DRAWN L. Porter	<div>WESTERN DOWNS REGIONAL COUNCIL</div>		Horiz. Section Scale: NTS on A3	<div>STANDARD DRAWING – WATER VALVES AND HYDRANTS – CAST IRON HYDRANT AND VALVE BOXES</div>
				Level Book No.	DESIGNED L. Cook			Vert. Section Scale: NTS on A3	
				Datum	CHECKED P. Mauch				
					EXAMINED L. Cook				
					RECOMMENDED S. Hegedus RPEQ. 5234	<div>DATE 19/07/2010</div>			
					TECHNICAL SERVICES MANAGER				
B	Design Manual	L.C	06/14						
A	Original Issue				Job No./s	Works Order No.	Auxiliary Plan No's.		Plan No. W-012 No. 12 of 26 Plans Rev. B



MARKER POSTS
TYPE "A" (WSA 03-2002)



WATER



RECYCLED
WATER

V1.5

VALVE
(SEE NOTE 9)

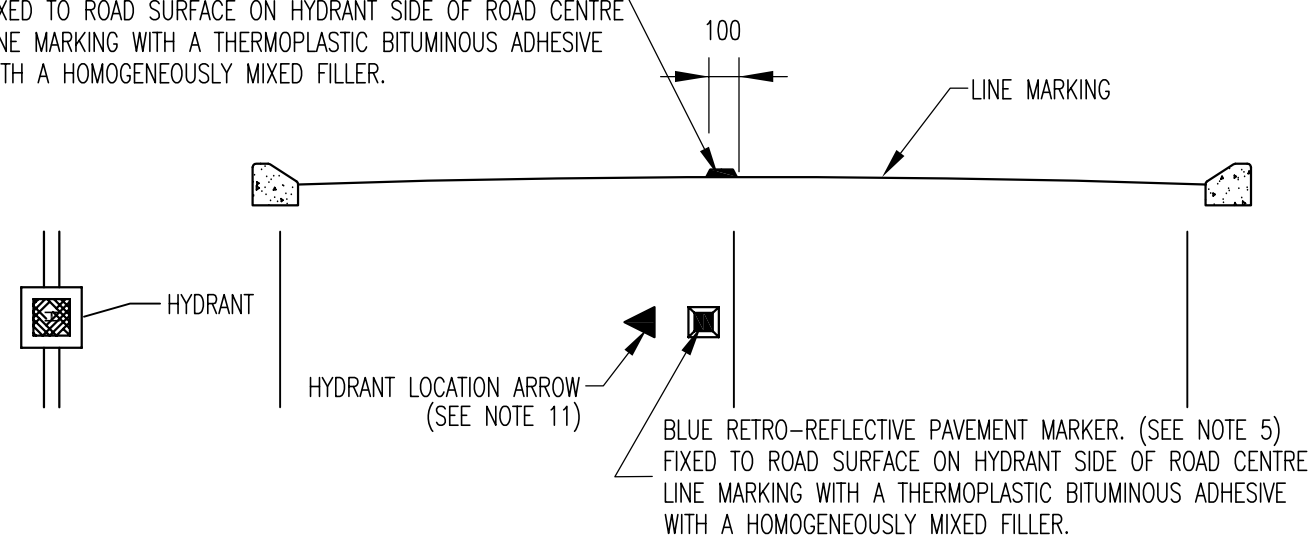
H1.8

HYDRANT
(SEE NOTE 10)

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES
- DISTANCE TO AND SIZE(OPTIONAL) OF MAIN/FITTING TO BE MARKED ON POST OR MARKER PLATE.
 - NUMBERS TO BE 12mm (MIN) HIGH
 - NUMBERS TO BE PAINTED OR PUNCHED TO CREATE A PERMANENT IDENTIFICATION
 - TOP NUMBER TO BE DISTANCE
 - BOTTOM NUMBER TO BE DN OF MAIN
- LOCATE MARKERS AT RIGHT ANGLES TO THE MAIN WITH MARKINGS FACING TOWARDS THE ROAD CENTRE LINE.
- METALLIC MARKER PLATES TO BE REFLECTIVE WHITE WITH NON-REFLECTIVE LETTERING. MARKER PLATE LETTERS TO BE 80 HIGH X 40 WIDE X 10 STROKE WIDTH.
- RAISED PAVEMENT RETRO-REFLECTIVE MARKERS TO COMPLY WITH AS1906.3, ARE TO BE FIXED TO BE FIXED WITH A THERMOPLASTIC BITUMINOUS ADHESIVE WITH A HOMOGENEOUSLY MIXED FILLER.
- KERB MARKERS FOR ENVELOPMENT CONDUITS AND MAIN LOCATION TO BE STANDARD MARKER PLATE LETTERING OR BRASS MARKER PLATES FIXED USING EPOXY ADHESIVE OR PRIOR TO CONCRETE SET.
- KERB MARKERS MAY ONLY BE USED WHEN KERB FACE IS GREATER THAN 30° INCLINATION AND ARE NOT TO BE USED IN SPOON DRAINS.
- A RECTANGLE 300mm WIDE AND THE FULL DEPTH OF KERB IS TO BE PAINTED AROUND HYDRANT AND VALVE KERB MARKER PLATES. PAINT COLOUR IS BLUE FOR SLUICE VALVES, WHITE FOR AIR VALVES, YELLOW FOR HYDRANTS AND PURPLE FOR RECYCLED WATER.
- VALVE KERB MARKER PLATES TO BE REFLECTIVE WHITE WITH NON-REFLECTIVE LETTERING AND INSTALLED ON THE FACE OF THE KERB.
- HYDRANT KERB MARKER TO BE REFLECTIVE YELLOW WITH NON REFLECTIVE LETTERING AND INSTALLED ON THE FACE OF THE KERB.
- A HYDRANT LOCATION ARROW OR TRIANGLE IS TO BE PAINTED YELLOW ON HYDRANT SIDE OF HYDRANT MARKER POINTING TOWARD HYDRANT.
- MARKER POST COLOUR IS WHITE FOR VALVES, YELLOW FOR HYDRANTS AND PURPLE FOR RECYCLED WATER
- HYDRANT REFLECTIVE PAVEMENT MARKERS MUST BE USED AS A MINIMUM IN COMBINATION WITH EITHER MARKER POSTS, KERB MARKING OR BOTH.

BLUE RETRO-REFLECTIVE PAVEMENT MARKER. (SEE NOTE 5)
FIXED TO ROAD SURFACE ON HYDRANT SIDE OF ROAD CENTRE
LINE MARKING WITH A THERMOPLASTIC BITUMINOUS ADHESIVE
WITH A HOMOGENEOUSLY MIXED FILLER.



HYDRANT REFLECTIVE PAVEMENT MARKER

KERB MARKING (SEE NOTES 6-9)

Revisions		Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN S. Robertson	DESIGNED L. Cook	CHECKED P. Mauch	EXAMINED L. Cook	RECOMMENDED S. Hegedus RPEQ. 5234	TECHNICAL SERVICES MANAGER	DATE 14/07/2010	Job No./s	Works Order No.	Auxiliary Plan No's.	Horiz. Section Scale: NTS on A3	Vert. Section Scale: NTS on A3	STANDARD DRAWING – WATER HYDRANTS AND VALVES – IDENTIFICATION MARKERS AND MARKER POSTS	Plan No.W-013	No. 13 of 26Plans	Rev. C
C	Design Manual	L.C	06/14																			
B	Notations added	L.T.P	02/12																			
A	Original Issue																					

SOIL CLASSIFICATION AND ALLOWABLE
HORIZONTAL BEARING PRESSURE OF GROUND.
(SEE NOTE 3)

NOMINAL DIAMETER OF FITTING (DN)

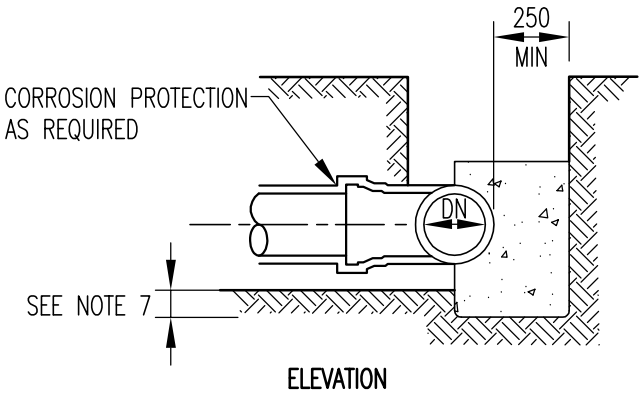
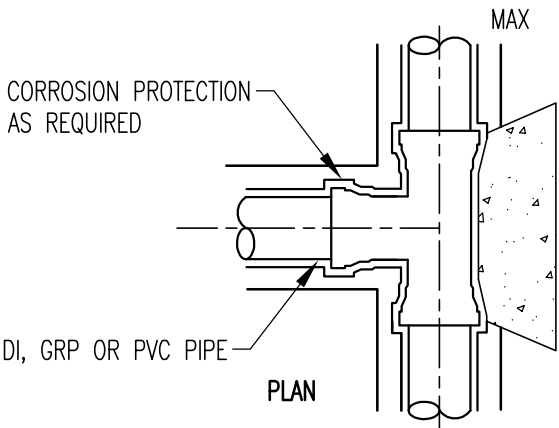
MINIMUM THRUST AREA FOR BLOCKS IN SQUARE METRES (m²)
DESIGN PRESSURE 1000kPa (NOM. 100m HEAD)

FOR HORIZONTAL THRUST ON TRENCH WALLS WHERE THE COVER OVER PIPES IS 450 OR GREATER	90° & 60° HORIZONTAL BENDS			45° & 30° HORIZONTAL BENDS			22.5° HORIZONTAL BENDS			11.25° HORIZONTAL BENDS			TEES AND DEAD ENDS		
	STIFF CLAY MEDIUM-DENSE CLEAN SAND	VERY STIFF CLAY DENSE SAND/GRAVEL DECOMPOSED ROCK	HARD CLAY SOUND ROCK	STIFF CLAY MEDIUM-DENSE CLEAN SAND	VERY STIFF CLAY DENSE SAND/GRAVEL DECOMPOSED ROCK	HARD CLAY SOUND ROCK	STIFF CLAY MEDIUM-DENSE CLEAN SAND	VERY STIFF CLAY DENSE SAND/GRAVEL DECOMPOSED ROCK	HARD CLAY SOUND ROCK	STIFF CLAY MEDIUM-DENSE CLEAN SAND	VERY STIFF CLAY DENSE SAND/GRAVEL DECOMPOSED ROCK	HARD CLAY SOUND ROCK	STIFF CLAY MEDIUM-DENSE CLEAN SAND	VERY STIFF CLAY DENSE SAND/GRAVEL DECOMPOSED ROCK	HARD CLAY SOUND ROCK
PBH kPa	50	100	200	50	100	200	50	100	200	50	100	200	50	100	200
100	0.34	0.17	N	0.18	N	N	N	N	N	N	N	N	0.24	0.12	N
150	0.70	0.35	0.18	0.38	0.19	N	0.20	N	N	N	N	N	0.50	.25	0.12
200	1.20	0.60	0.30	0.64	0.32	0.16	0.34	0.17	N	0.16	N	N	0.84	0.42	0.21
225	1.52	0.75	0.38	0.81	0.41	0.21	0.42	0.22	0.11	0.22	N	N	1.06	0.53	0.27
250	1.80	0.91	0.45	0.98	0.49	0.25	0.50	0.25	0.12	0.26	0.13	N	1.28	0.64	0.32
300	2.66	1.33	0.66	1.44	0.72	0.36	0.75	0.37	0.18	0.36	0.18	N	1.88	0.94	0.47
375	4.04	2.02	1.01	2.18	1.09	0.55	1.12	0.56	0.28	0.56	0.28	1.14	2.86	1.43	0.72
225	5.71	2.86	0.73	3.09	1.55	0.40	1.58	0.79	0.20	1.58	0.79	1.20	4.04	2.02	0.52
250	6.98	3.49	0.89	3.78	1.89	0.49	1.93	0.98	0.25	1.93	0.98	1.25	4.93	2.37	0.63
300	9.89	4.95	1.27	5.36	2.68	0.68	2.73	1.36	0.35	2.73	1.36	1.35	6.90	3.50	0.89
375	15.16	7.58	1.94	8.21	4.10	1.05	4.19	2.10	0.53	4.19	2.10	0.53	10.72	5.36	1.37

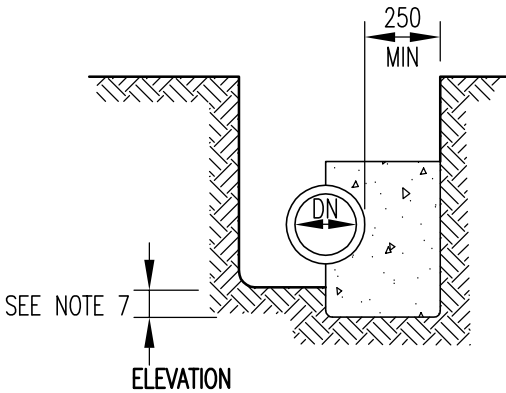
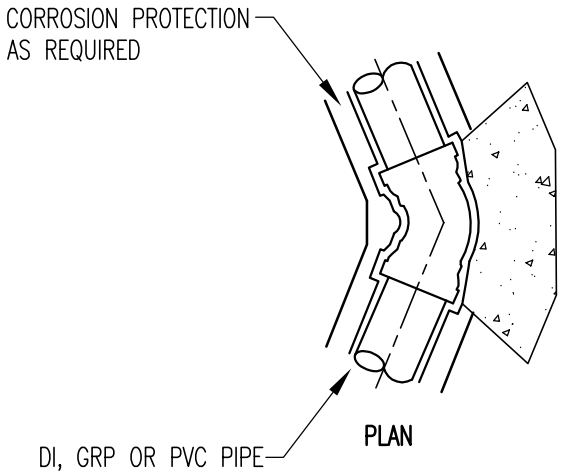
'N' DENOTES NOMINAL THRUST AREA (SEE NOTES 4&5)
PBH – ALLOWABLE HORIZONTAL BEARING PRESSURE

NOTES

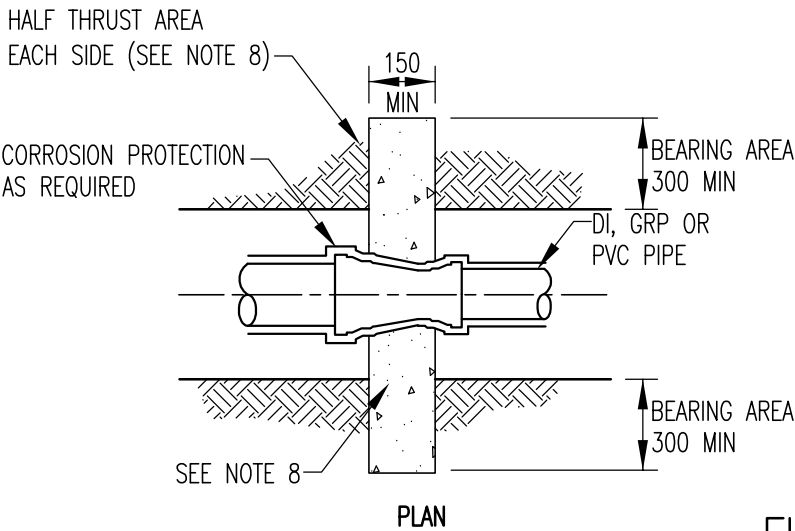
- ALL DIMENSIONS IN MILLIMETRES.
- CAST THE THRUST AREA OF ALL THRUST BLOCKS AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL. THRUST BLOCKS NOT TO INTERFERE WITH OTHER SERVICES.
- SOIL CLASSIFICATIONS USED ON THIS DRAWING ARE EXPLAINED IN STANDARD DRAWING W-024.
- DO NOT USE STANDARD THRUST BLOCKS AS SPECIFIED IN THIS DRAWING IN:
 - VERY SOFT, SOFT OR FIRM CLAY.
 - LOOSE CLEAN SAND.
 - UNCOMPLETED FILL OR REFUSE.A GEOTECHNICAL ASSESSMENT AND INDIVIDUAL DESIGN IS REQUIRED FOR THESE SOILS.
- THE NOMINAL THRUST AREA 'N' TO BE ACHIEVED BY POURING CONCRETE THE FULL LENGTH OF THE FITTING AND EXTENDING FROM THE FLOOR OF THE TRENCH TO ABOVE THE FITTING (SEE ALSO NOTE 7).
- DESIGN PRESSURES OTHER THAN 1000 kPa REDUCE OR INCREASE THE MINIMUM THRUST AREA BY THE RATIO OF THE DESIGN PRESSURES EXCEPT WHERE:
 - MINIMUM THRUST AREA IS <0.1m², AND
 - 'N' APPEARS IN THE TABLE AND DESIGN PRESSURE IS ABOVE 1000 kPa CALCULATE THE AREA.
- FINISH THRUST BLOCKS APPROXIMATELY 100 ABOVE THE TOP OF THE FITTING OR BEARING PAD AND EXTEND TO THE FLOOR OF THE TRENCH OR DEEPER IF NECESSARY TO ACHIEVE THE REQUIRED THRUST AREA. MAXIMUM ENCASEMENT TO BE 180°.
- THE MINIMUM THRUST AREA FOR TAPER THRUST BLOCKS TO BE EQUAL TO THE DIFFERENCE BETWEEN THE THRUST AREAS FOR DEAD ENDS OF EQUIVALENT DIAMETER TO THOSE EACH SIDE OF TAPER.
- FOR DOWNWARD VERTICAL THRUST, THE ALLOWABLE BEARING PRESSURES FOR VARIOUS SOILS MAY BE TAKEN AS TWICE THAT FOR HORIZONTAL THRUST SHOWN.
- WHEN POURING CONCRETE AGAINST FITTINGS PLACE A MEMBRANE OF POLYETHYLENE PVC OR FELT BETWEEN THE FITTING AND CONCRETE TO PREVENT DAMAGE TO THE FITTING. JOINTS TO BE CLEAR OF CONCRETE.
- CONCRETE THRUST BLOCKS AND ANCHORS FOR VALVES TO BE AS DETAILED IN STANDARD DRAWING W-014.



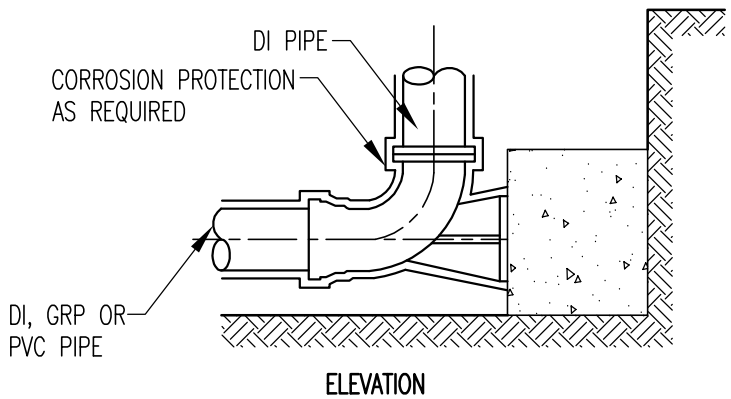
THRUST BLOCK FOR TEES
(FOR HORIZONTAL THRUST)



THRUST BLOCK FOR BENDS
(FOR HORIZONTAL THRUST)

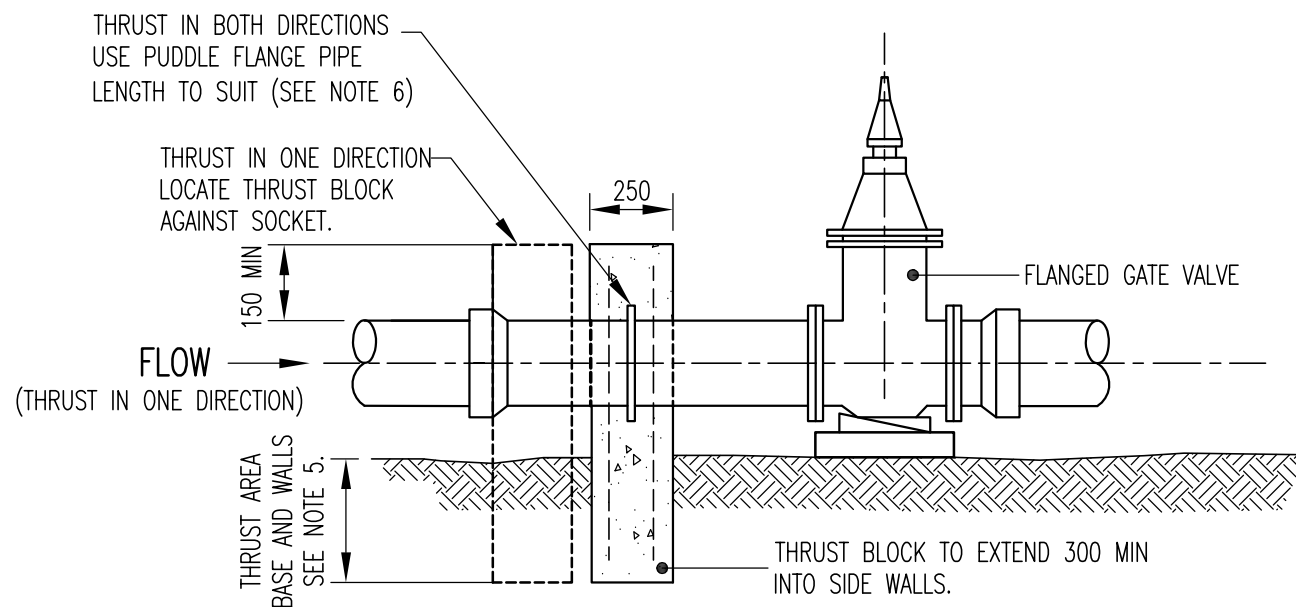


TAPER TRUST BLOCKS
(FOR HORIZONTAL THRUST)

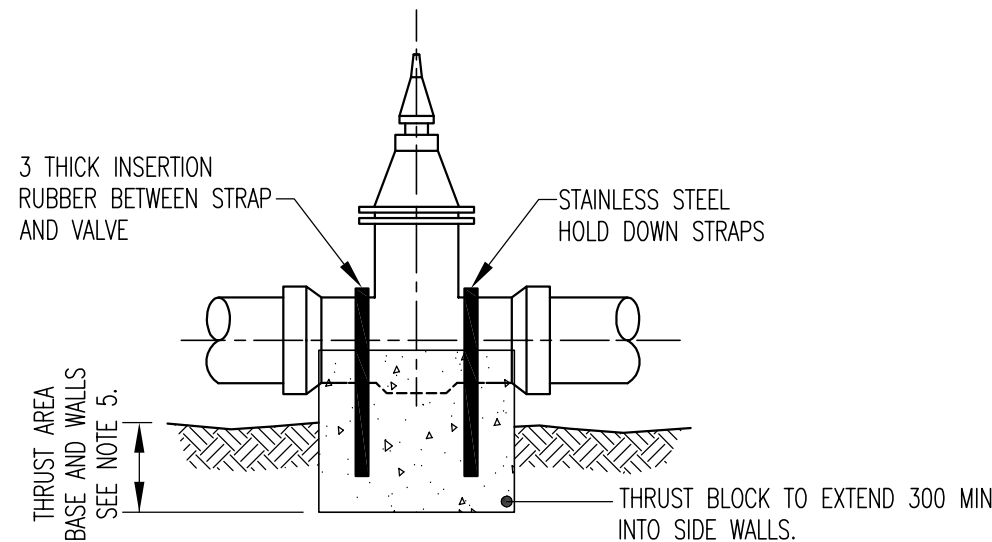


FLUSHING/WASHOUT BEND THRUST BLOCK
(FOR HORIZONTAL THRUST)
(MINIMUM REQUIRED THRUST AREA
AS PER DEAD END)

Revisions	Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN L. Porter DESIGNED L. Cook CHECKED P. Mauch EXAMINED L. Cook RECOMMENDED S. Hegedus RPEQ. 5234 TECHNICAL SERVICES MANAGER	WESTERN DOWNS REGIONAL COUNCIL	Horiz. Section Scale: NTS on A3 Vert. Section Scale: NTS on A3	STANDARD DRAWING WATER THRUST BLOCKS CONCRETE THRUST BLOCKS		
B Design Manual	L.C	06/14				DATE 14/07/2010					
A Original Issue						Job No./s	Works Order No.	Auxiliary Plan No.'s.	Plan No.W-014	No. 14 of 26Plans	Rev. B



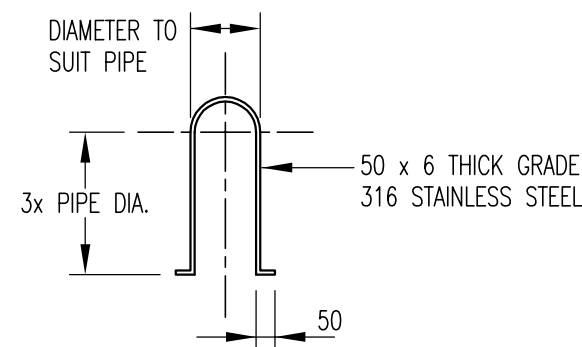
FLANGED VALVES



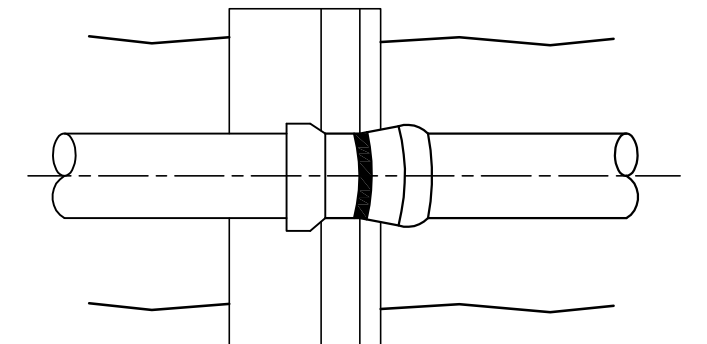
SOCKETED VALVES

MINIMUM BLOCK VOLUME FOR ANCHORAGE			
VERTICAL BENDS FOR TEST PRESURE OF 1000 kPa (SEE NOTE 2)			
PIPE DN	CONCRETE VOLUME		
	11.25° BEND	22.5° BEND	45° BEND
100	N	N	0.3
150	N	0.3	0.6
200	0.2	0.5	1.1
225	0.3	0.6	1.4
250	0.3	0.7	2.5
300	0.4	1.1	3.8
375	0.7	1.8	5.8
450	DETAILED DESIGN REQUIRED (ALTERNATIVE METHODS TO BE CONSIDERED)		
500			
600			
750			

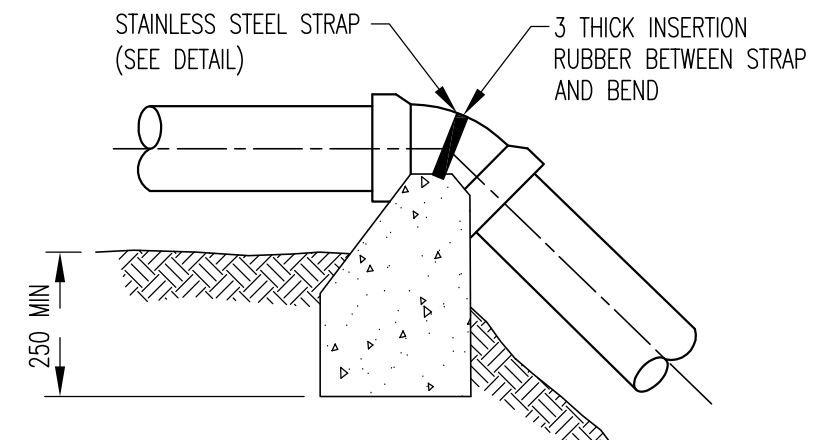
'N' NO ADDITIONAL RESTRAINT REQUIRED (COMPACTED TRENCHFILL SUFFICIENT)



TYPICAL SS STRAP



PLAN



ELEVATION
VERTICAL BENDS

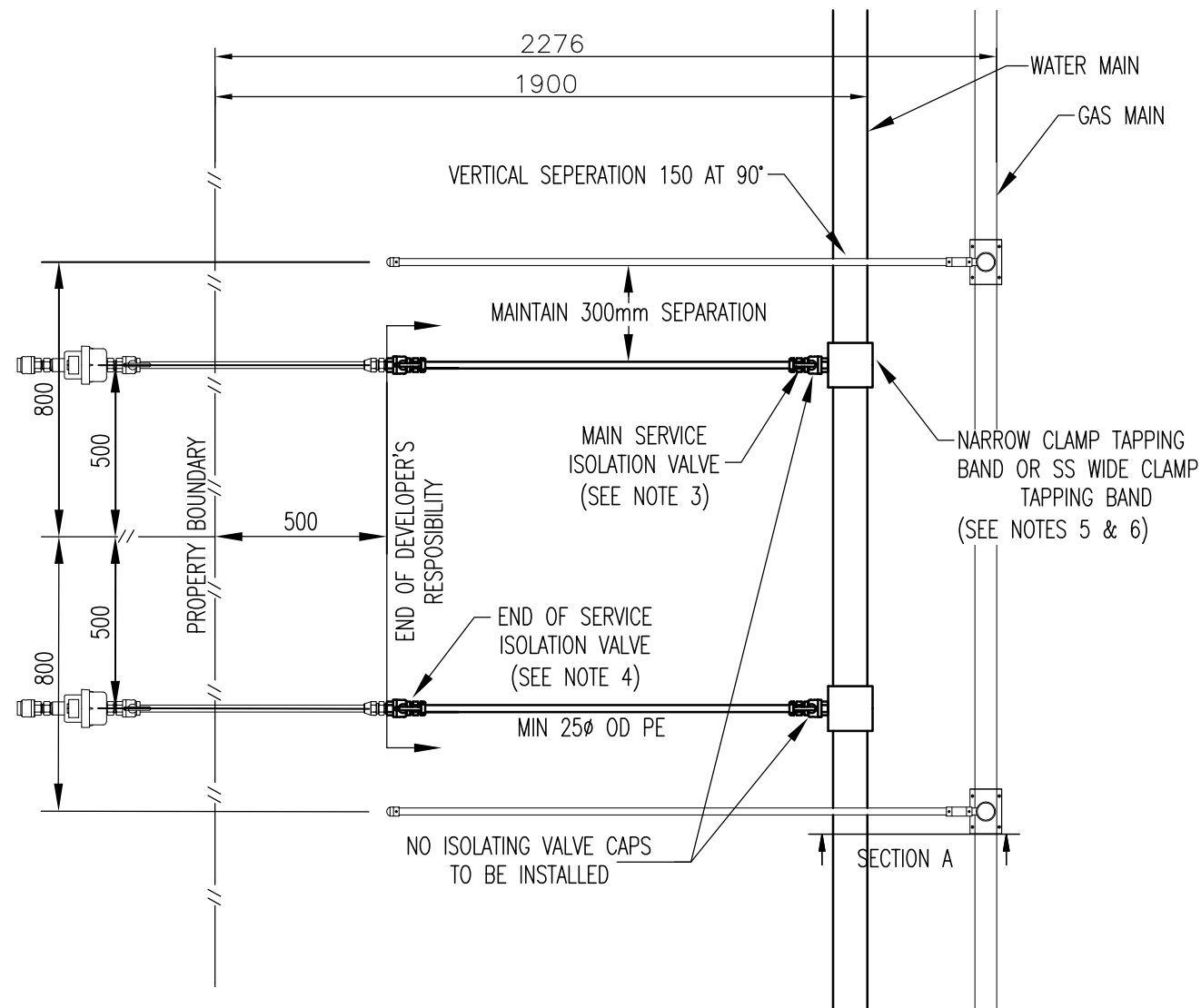
NOTES

- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
- ANCHOR BLOCKS IN THE TABLE ARE DESIGNED FOR A TEST PRESURE OF 1000 kPa (100mm HEAD). ADJUST CONCRETE VOLUME TO SUIT ACTUAL TEST PRESSURE.
- WHERE DI PIPES AND FITTINGS WITH RESTRAINED JOINTS ARE USED THRUST BLOCKS ARE NOT REQUIRED.
- THRUST BLOCK REINFORCEMENT AS SPECIFIED IN DESIGN DRAWINGS.
- WHERE SPECIFIED PROVIDE CONCRETE THRUST BLOCKS FOR SOC-SOC VALVES. THRUST AREA TO BE AS FOR DEAD ENDS AS SHOWN IN STANDARD DRAWING W-016.
- INSTALL PUDDLE FLANGES ON CLASS K12 DI CL PIPE.

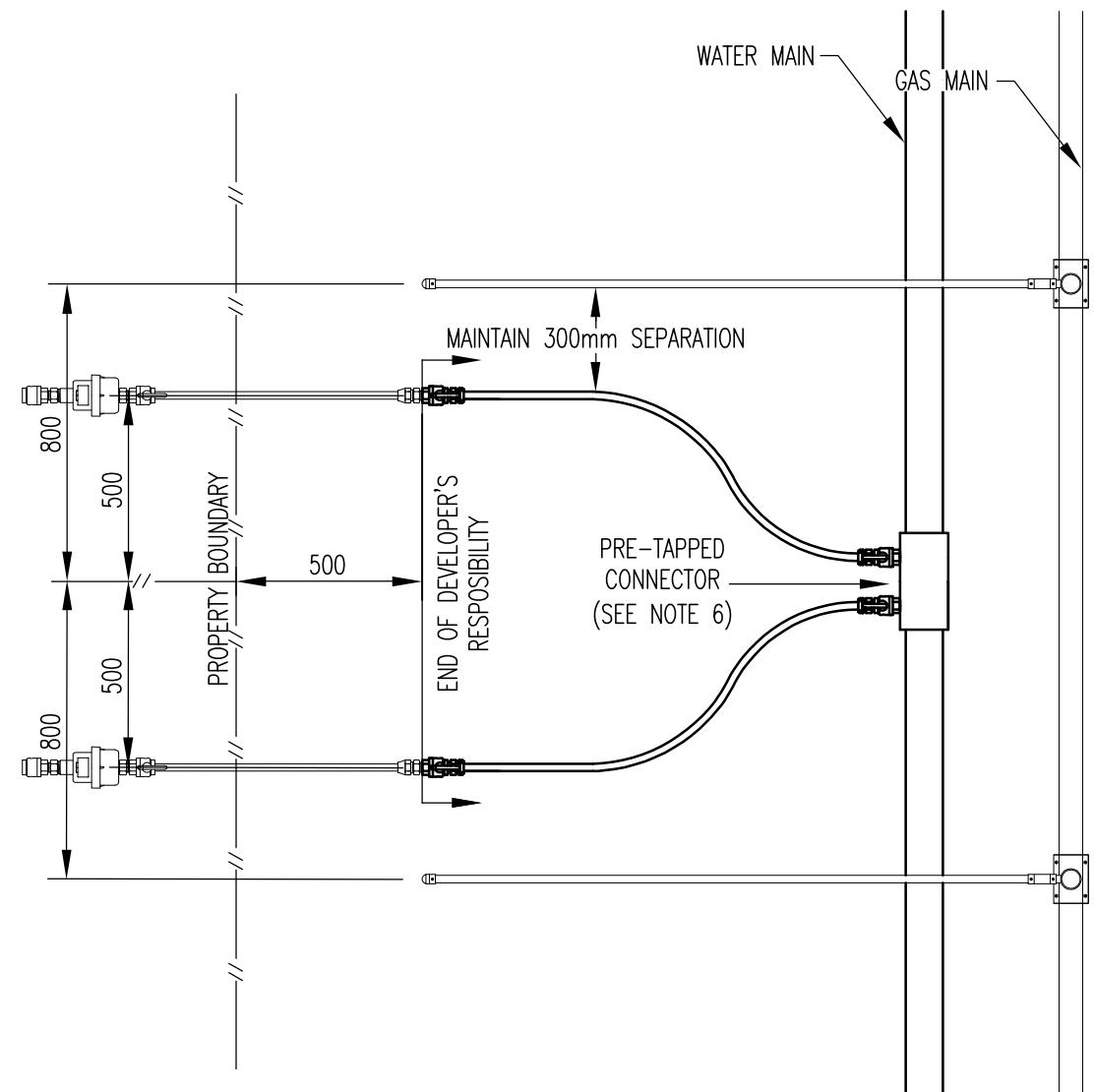
ANCHOR BLOCK CONSTRUCTION NOTES

- LOCATE ANCHOR BLOCK CENTRALLY AROUND BEND.
- KEY ANCHOR BLOCK INTO BASE OF TRENCH A MINIMUM DEPTH OF 250.
- POUR CONCRETE AGAINST A SOLID EXCAVATION FACE.
- USE GRADE N25 CONCRETE.
- KEEP CONCRETE CLEAR OF ALL BOLTS, NUTS AND PIPE JOINTS.

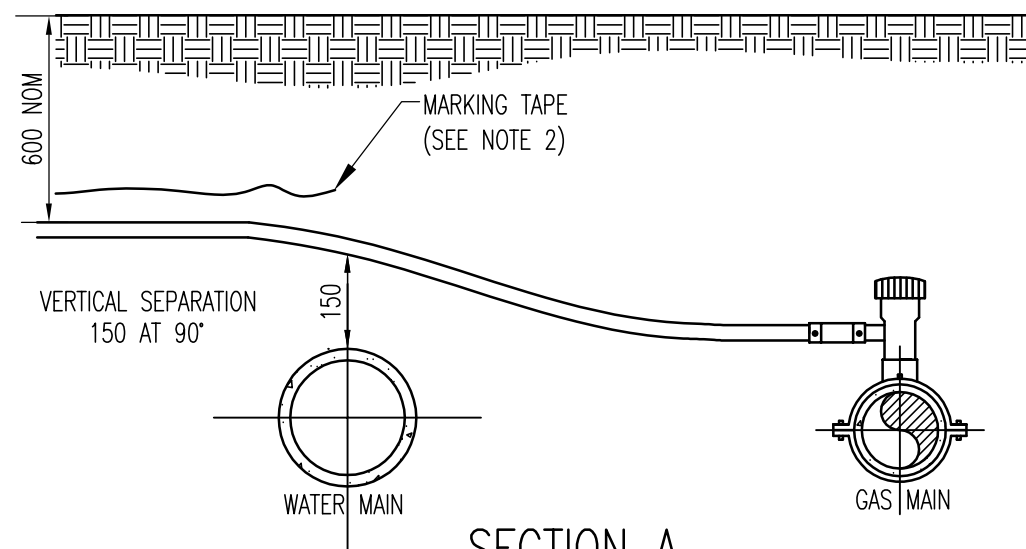
Revisions		Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN L. Porter DESIGNED L. Cook CHECKED P. Mauch EXAMINED L. Cook RECOMMENDED S. Hegedus RPEQ. 5234 TECHNICAL SERVICES MANAGER		WESTERN DOWNS REGIONAL COUNCIL		Horiz. Section Scale: NTS on A3 Vert. Section Scale: NTS on A3		STANDARD DRAWING – WATER THRUST BLOCKS – THRUST AND ANCHOR BLOCKS, SLUICE VALVES AND VERTICAL BENDS			
B	Design Manual	L.C	06/14				DATE 12/11/2010		Job No./s		Works Order No.		Auxiliary Plan No's.		Plan No.W-015 No. 15 of 26Plans Rev. B	
A	Original Issue															



TAPPING BAND CONFIGURATION



PRE-TAPPED CONNECTOR CONFIGURATION

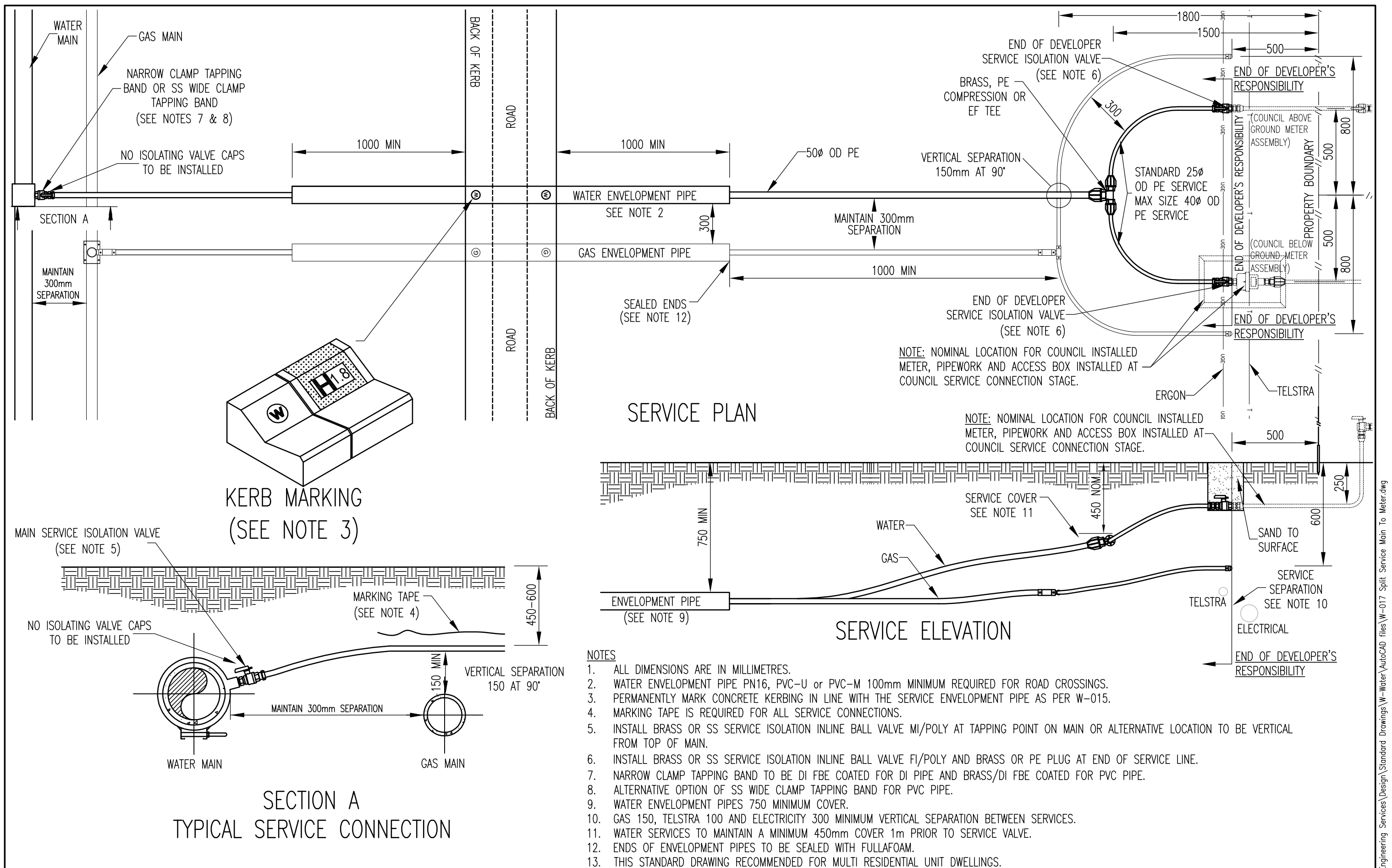


**SECTION A
TYPICAL SERVICE CONNECTION**

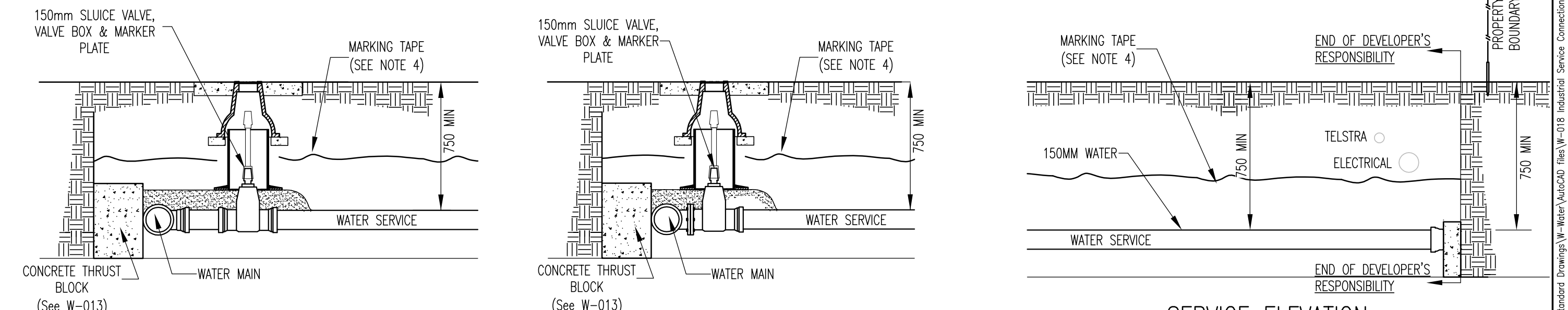
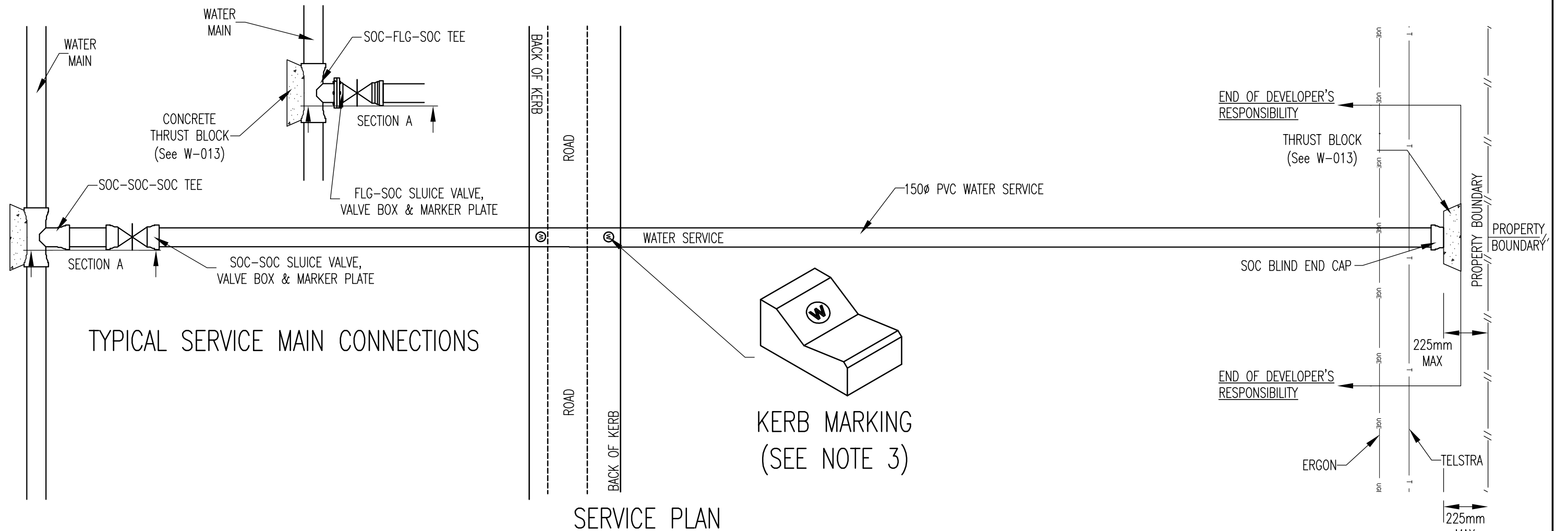
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. MARKING TAPE IS REQUIRED FOR ALL SERVICE CONNECTIONS
3. INSTALL BRASS OR SS SERVICE ISOLATION INLINE BALL VALVE MI/POLY AT TAPPING POINT ON MAIN
4. INSTALL BRASS OR SS SERVICE ISOLATION INLINE BALL VALVE FI/POLY AND BRASS OR PE PLUG AT END OF SERVICE LINE
5. NARROW CLAMP TAPPING BAND TO BE DI FBE COATED FOR DI PIPE AND BRASS/DI FBE COATED FOR PVC PIPE
6. ALTERNATIVE OPTION OF SS WIDE CLAMP TAPPING BAND FOR PVC PIPE
7. PRE-TAPPED CONNECTOR TO BE DI FBE COATED
8. ALL SERVICE PIPES AND FITTINGS TO BE PE 80B PN12.5 OR PN16 (SDR11) TO AS4130 AND AS4129
9. JOINTS AND FITTINGS SHALL BE THE COMPRESSION OR ELECTRO-FUSION TYPE COMPLYING WITH AS 4129
10. SERVICE TAPPING SIZES SHALL BE DN 25, UNLESS OTHERWISE SPECIFIED AND APPROVED
11. ROAD CROSSING REQUIRE ENVELOPMENT CONDUITS. SEE SPLIT SERVICE FOR DETAIL.
12. GAS INSTALLATION AS PER WESTERN DOWNS REGIONAL COUNCIL STANDARD DRAWING **G-003**.
13. CONSIDERATION SHOULD BE GIVEN FOR TAPPING AND SERVICE SIZING FOR MULTI DWELLING UNIT SITES.

Revisions		Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN S. Robertson DESIGNED L. Cook CHECKED P. Mauch EXAMINED L. Cook RECOMMENDED S. Hegedus RPEQ. 5234 TECHNICAL SERVICES MANAGER		WESTERN DOWNS REGIONAL COUNCIL		Horiz. Section Scale: NTS on A3	STANDARD DRAWING – WATER SERVICE CONNECTIONS – SINGLE SERVICE MAIN TO METER	
B	Design Manual	L.C	06/14										
A	Original Issue												



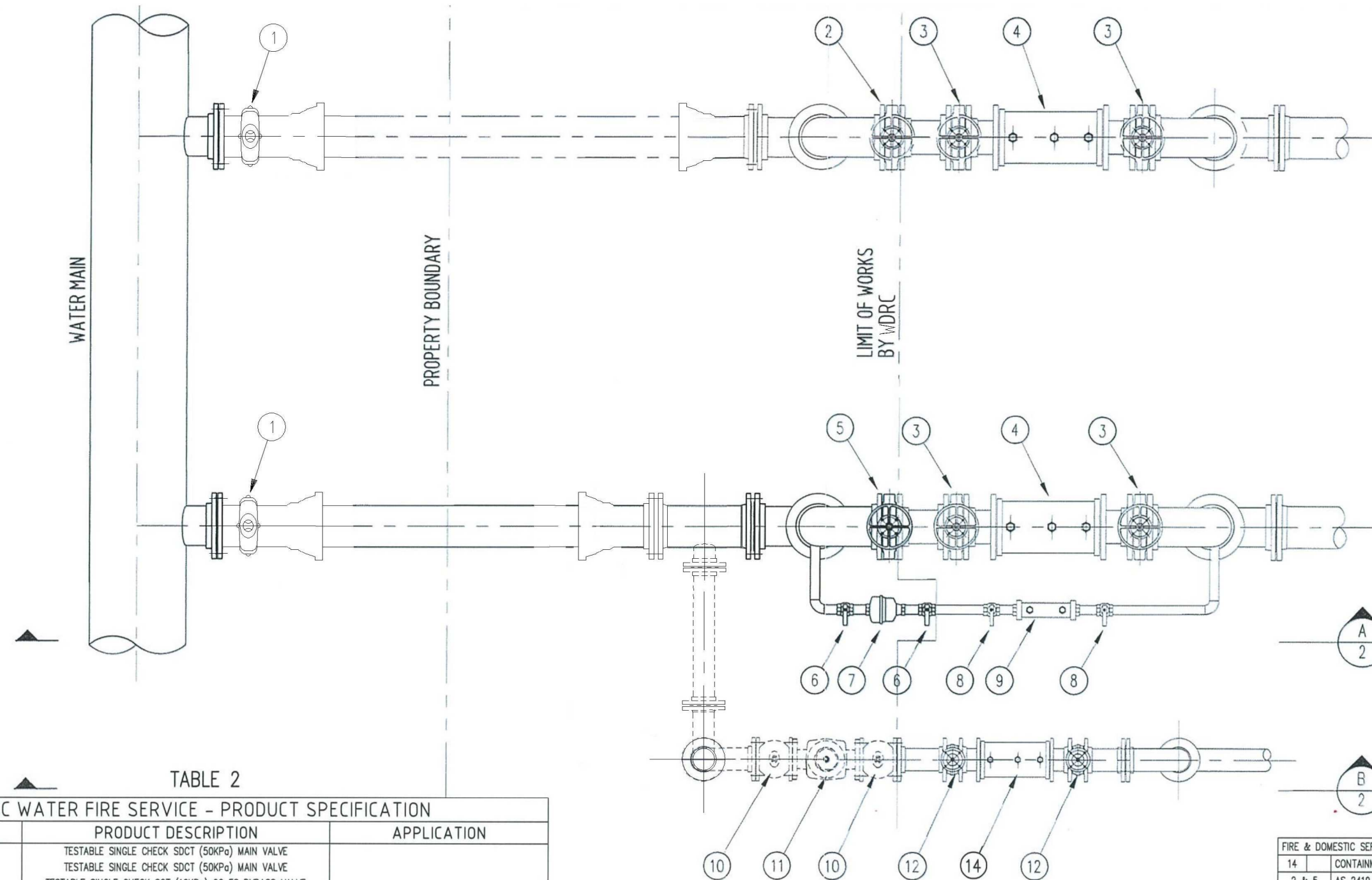
Revisions		Drn by	Date	Field Book No.	Level Book No.	DRAWN S. Robertson		<div>WESTERN DOWNS REGIONAL COUNCIL</div>	<div>Horiz. Section Scale: NTS on A3</div> <div>Vert. Section Scale: NTS on A3</div>	STANDARD DRAWING – WATER SERVICE CONNECTIONS – RESIDENTIAL DEVELOPMENT – SPLIT SERVICE MAIN TO METER
						DESIGNED L. Cook				
						CHECKED P. Mauch				
						EXAMINED L. Cook				
						RECOMMENDED S. Hegedus RPEQ. 5234				
							TECHNICAL SERVICES MANAGER <td></td> <td></td> <td></td>			
								DATE		
							Job No./s	Works Order No.	Auxiliary Plan No's.	
C	Design Manual	L.C	06/14							
B	300mm Separation label added	L.T.P.	28.5.12							
A	Original Issue									



- NOTES**
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. WATER SERVICE PIPES TO BE PN16, PVC-O or PVC-M 150mm MINIMUM REQUIRED FOR ROAD CROSSINGS.
 3. PERMANENTLY MARK CONCRETE KERBING IN LINE WITH THE WATER SERVICE PIPES AS PER W-015.
 4. MARKING TAPE IS REQUIRED FOR ALL WATER SERVICE CONNECTIONS.
 5. GAS 150, TELSTRA 100 AND ELECTRICITY 300 MINIMUM VERTICAL SEPARATION BETWEEN SERVICES.
 6. WATER SERVICES TO MAINTAIN A MINIMUM 750mm COVER THIS STANDARD DRAWING RECOMMENDED FOR INDUSTRIAL DEVELOPMENTS.
- SERVICE ELEVATION**

Revisions			Drn by	Date	Field Book No.	Level Book No.	DRAWN M. Westaway		<div>WESTERN DOWNS REGIONAL COUNCIL</div>	<div>Horiz. Section Scale: NTS on A3</div> <div>Vert. Section Scale: NTS on A3</div>	STANDARD DRAWING – WATER SERVICE CONNECTIONS – INDUSTRIAL DEVELOPMENT SERVICE
							DESIGNED L. Cook				
							CHECKED P. Mauch				
							EXAMINED L. Cook				
							RECOMMENDED S. Hegedus RPEQ. 5234				
							TECHNICAL SERVICES MANAGER				
								DATE			
							Job No./s	Works Order No.	Auxiliary Plan No's.		
B	Design Manual		LC	06/14							Plan No. W-018
A	Original Issue										No. 18 of 26 Plans
											Rev. B

Computer Location S:\Engineering Services\Design\Standard Drawings\W-Water\AutoCAD files\W-018 Industrial Service Connection.dwg



SPRINKLER SERVICE AS REQUIRED

NOTE:-
DOMESTIC FLOWS NOT PERMITTED
FIRE SPRINKLER SYSTEMS ONLY

NOTE:-

1. APPROPRIATE FROST PROTECTION TO BE INSTALLED BY THE APPLICANT TO THE ABOVE GROUND VALVE TRAIN WHERE REQUIRED BY WDRC. THIS MAY BE IN THE FORM OF AN INSULATED BOX/COVER THAT MEETS THE FROST PROTECTION VALUE RATING (R) FOR THIS REGION IN ACCORDANCE WITH AS/NZS 3500.1:2003

FIRE SERVICE & SPRINKLER SYSTEM

NOTE:-

1. STANDARD CONFIGURATION SHOWN
2. FOR VALVES 2, 3 & 5 SEE TABLE 2 NOTE (a)
3. FOR VALVES 6, 8 & 12 SEE TABLE 2 NOTE (b)

FIRE SERVICE MAIN

NOTE:-

DOMESTIC FLOWS NOT PERMITTED
HYDRANT PILLARS AND FIRE HOSE REELS ONLY

BYPASS PIPE SIZE TO BE 25mm, FOR UP TO 3 FIRE HOSE REELS CONNECTED TO SERVICE.
BYPASS PIPE SIZE TO BE 40mm, FOR MORE THAN 3 FIRE HOSE REELS CONNECTED TO SERVICE.
FOR ALTERNATIVE CONFIGURATION, BYPASS PIPE SIZE TO SUIT.

DOMESTIC SERVICE AS REQUIRED

NOTE:-

SIZE TO SUIT.

TABLE 2

WDRC WATER FIRE SERVICE - PRODUCT SPECIFICATION			
HAZARD	SIZE	PRODUCT DESCRIPTION	APPLICATION
LOW	100MM	TESTABLE SINGLE CHECK SDCT (50KPa) MAIN VALVE	x FIRE SERVICE MAIN & BYPASS VALVES FOR LOW HAZARDS.
LOW	150MM	TESTABLE SINGLE CHECK SDCT (50KPa) MAIN VALVE	
LOW	20MM	TESTABLE SINGLE CHECK SCT (16KPa) CO FS BYPASS VALVE	
LOW	25MM	TESTABLE SINGLE CHECK SCT (16KPa) CO FS BYPASS VALVE	
LOW	32MM	TESTABLE SINGLE CHECK SCT (16KPa) CO FS BYPASS VALVE	
LOW	40MM	TESTABLE SINGLE CHECK SCT (16KPa) CO FS BYPASS VALVE	
LOW	50MM	TESTABLE SINGLE CHECK SCT (16KPa) CO FS BYPASS VALVE	
LOW	100MM	TESTABLE SINGLE CHECK SDCT (16KPa) MAIN VALVE	x SPRINKLER SYSTEMS LOW HAZARD
LOW	150MM	TESTABLE SINGLE CHECK SDCT (16KPa) MAIN VALVE	
MEDIUM	100MM	TESTABLE DOUBLE CHECK DDC (50KPa) MAIN VALVE	x FIRE SERVICE MAIN & BYPASS VALVES FOR MEDIUM HAZARDS
MEDIUM	150MM	TESTABLE DOUBLE CHECK DDC (50KPa) MAIN VALVE	
MEDIUM	20MM	TESTABLE DOUBLE CHECK DC CO FS BYPASS VALVE	
MEDIUM	25MM	TESTABLE DOUBLE CHECK DC CO FS BYPASS VALVE	
MEDIUM	32MM	TESTABLE DOUBLE CHECK DC CO FS BYPASS VALVE	
MEDIUM	40MM	TESTABLE DOUBLE CHECK DC CO FS BYPASS VALVE	
MEDIUM	50MM	TESTABLE DOUBLE CHECK DC CO FS BYPASS VALVE	

NOTES:

- IN SIZES 100MM & 150MM ALL VALVES SHOWN ABOVE ARE TO BE SUPPLIED WITH GEAR-OPERATED WATERMARKED ISOLATING VALVES, NUTS, BOLTS AND GASKETS IN ACCORDANCE WITH AS 2419.1 - 8.5.8
- IN SIZES 20MM TO 50MM ALL VALVES SHOWN ABOVE ARE SUPPLIED WITH WATERMARKED BALL VALVES AND UNIONS IN ACCORDANCE WITH AS/NZS 3500.1 - 4.6.1

NOTE:-

1. TESTING OF ALL BACKFLOW PREVENTION DEVICES TO BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON. REFER TEST PROCEDURE APPENDIX F/G/H/I AS 2845.3:2010

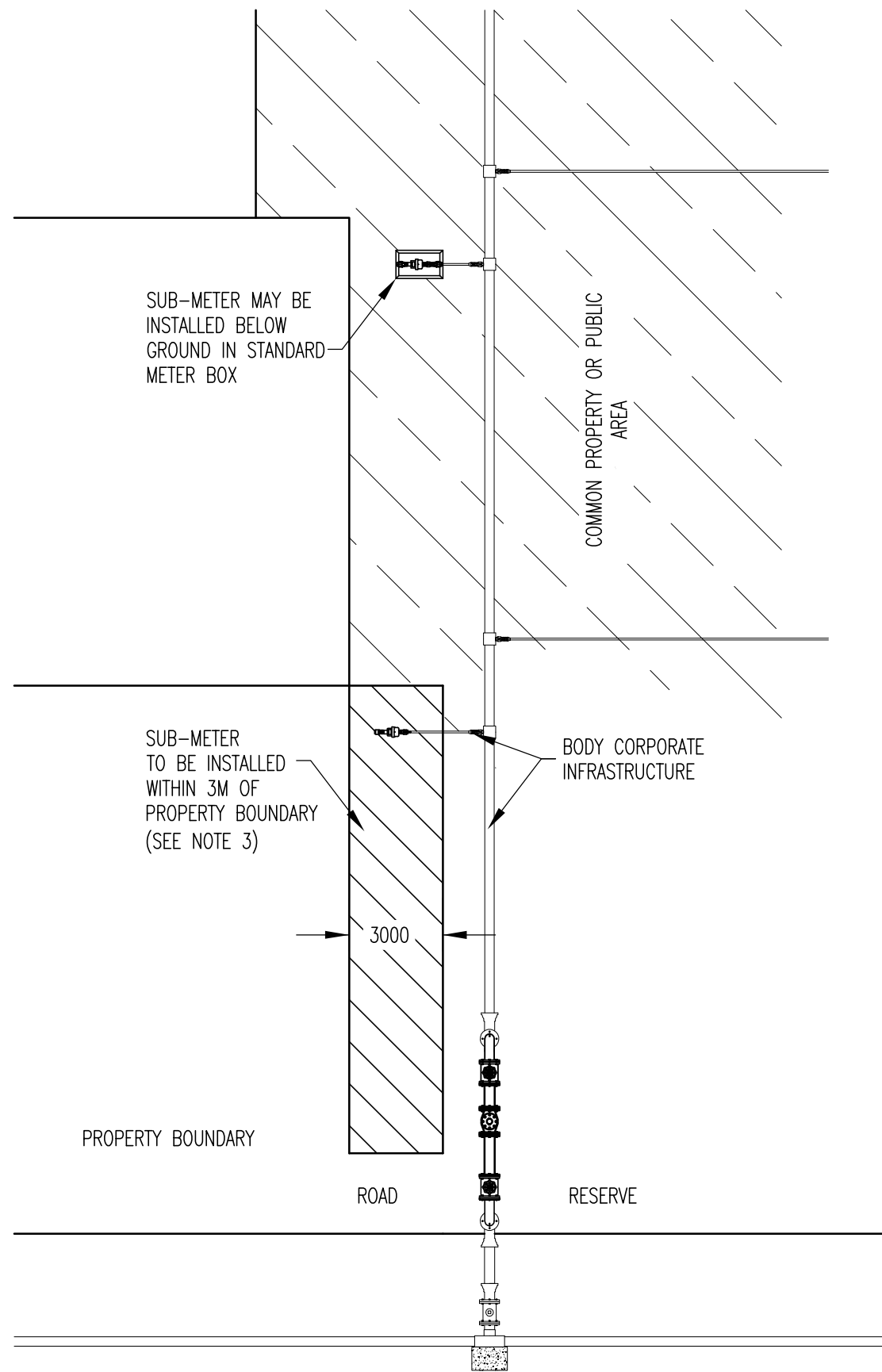
TABLE 1

FIRE & DOMESTIC SERVICE - IDENTIFICATION IN ACCORDANCE WITH AS3500.1			APPLICANT
14	CONTAINMENT TESTABLE DEVICE WITH APPROVED UPSTREAM LINE STRAINER		APPLICANT
2 & 5	AS 2419.1 - 8.5.8		WDRC
3	AS 2419.1 - 8.5.8		APPLICANT
2,3,5,6,8	AS 2419.1 - 8.5.8 (b)		APPLICANT
2,3,5,6,8	LOCKED IN OPEN POSITION		APPLICANT
13	APPROVED TAPPING BAND		WDRC
12	VALVE, BALL / BUTTERFLY, FLANGED / THREADED (TESTABLE DEVICE ISOLATION)		APPLICANT
11	WDRC DOMESTIC METER		WDRC
10	VALVE, BUTTERFLY / BALL, FLANGED / THREADED, (METER ISOLATION)		WDRC
9	CONTAINMENT TESTABLE DEVICE (HAZARD RATED)		APPLICANT
8	VALVE, BUTTERFLY / BALL, FLANGED / THREADED, (TESTABLE DEVICE ISOLATION)		APPLICANT
7	WDRC BY-PASS METER		WDRC
6	VALVE, BALL, THREADED, (METER ISOLATION)		WDRC
5	VALVE, BUTTERFLY, (ISOLATION)		WDRC
4	CONTAINMENT TESTABLE DEVICE (HAZARD RATED)		APPLICANT
3	VALVE, BUTTERFLY, (TESTABLE DEVICE ISOLATION)		APPLICANT
2	VALVE, BUTTERFLY, DIAMETER PER REQUIREMENTS		WDRC
1	VALVE, SLUICE, DNxx WDRC ISOLATION FROM MAIN		WDRC
ITEM	QTY	DESCRIPTION	BY

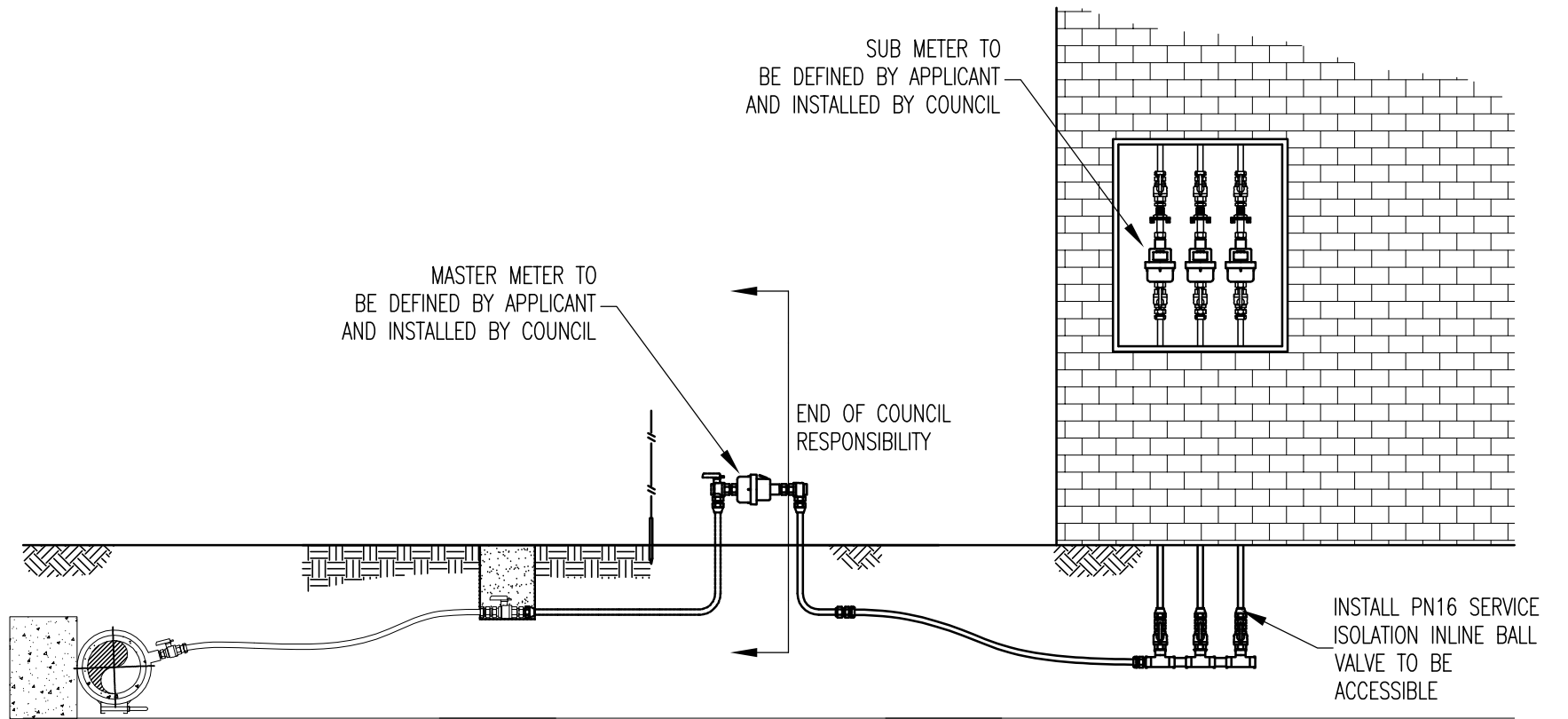
TO BE READ IN CONJUNCTION WITH APPROVED HYDRAULIC DRAWINGS AND AS 2419

Revisions		Drn by	Date	Field Book No.	NO.	DRAWN	B. Fitzsimmons
				Level Book No.	NO.	DESIGNED	P. Mauch
				Datum		CHECKED	P. Mauch
						EXAMINED	L. Cook
						RECOMMENDED	P. Mauch
						DATE DATE	
						Job No./s	Works Order No.
						Auxiliary Plan No's.	
C	Layout Amendment	B.F	01/18	DATUM			
B	Design Manual	L.C	06/14	DATUM			
A	Original Issue			DATUM			

WESTERN DOWNS REGIONAL COUNCIL		Horiz. Section Scale: on A3	NTS	WDRC TYPICAL WATER/FIRE SERVICE DETAIL FOR COMMERCIAL PREMISES & GATED COMMUNITIES	
		Vert. Section Scale: on A3	NTS	LAYOUT PLAN	
				Plan No. W-019	No. 1 of 2 Plans Rev. C



ON GROUND HORIZONTAL DEVELOPMENTS

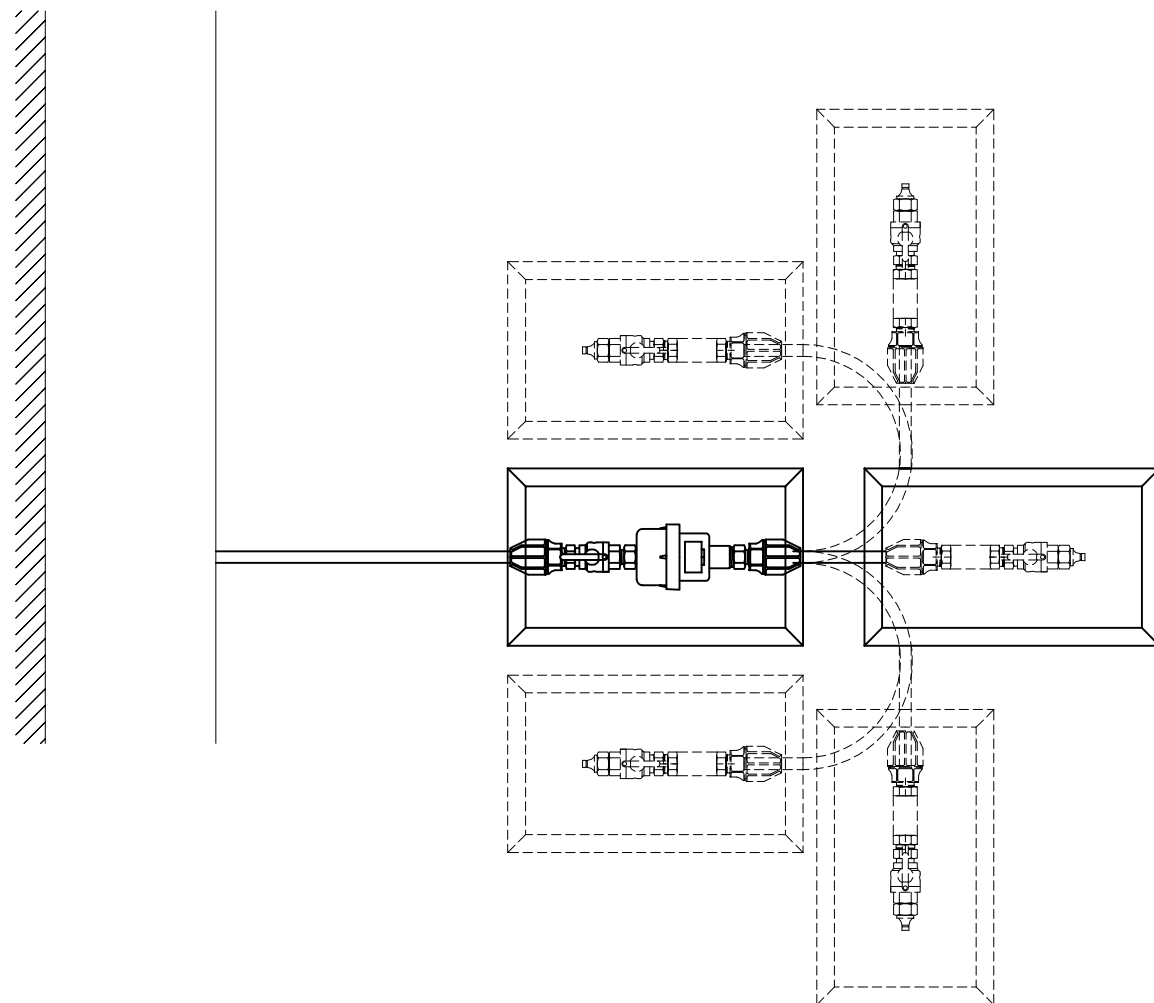


HIGH RISE VERTICAL DEVELOPMENTS

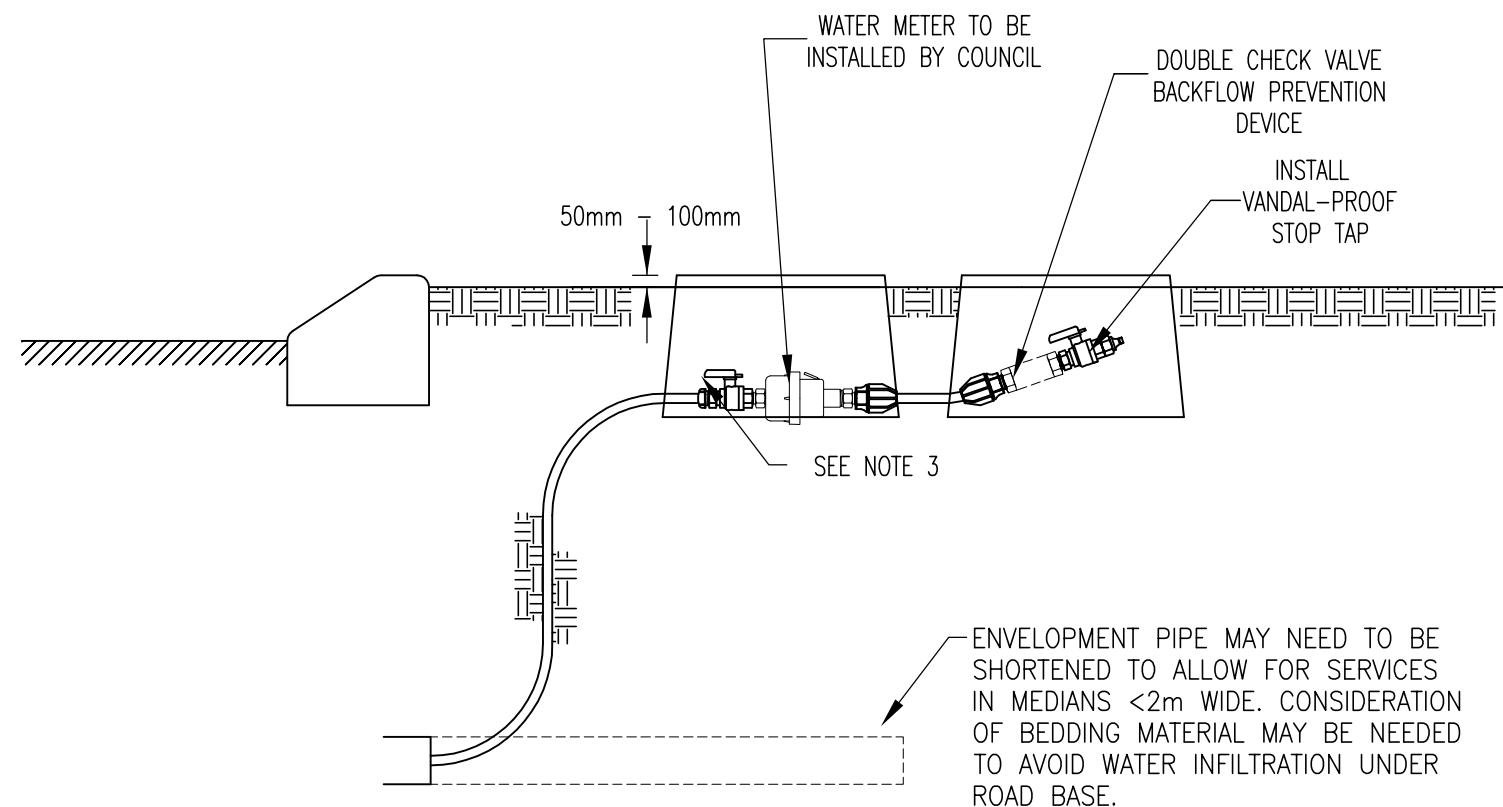
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. INSTALLATION SHALL CONFORM WITH RELEVANT AUSTRALIAN STANDARDS, CODES OF PRACTICE AND PLUMBING REGULATIONS, NOTABLY AS/NZS 3500.
3. IN HORIZONTAL DEVELOPMENTS SUB-METERS SHALL BE INSTALLED IN AN ACCESSIBLE AREA IN THE COMMON AREA, IN COMMON PROPERTY OR IN A PUBLIC AREA. IF LOCATED IN A PUBLIC AREA IT MUST BE INSTALLED WITHIN 3 METRES OF A OF THE PROPERTY BOUNDARY AND PREFERABLY IN THE FOOTPATH TO FACILITATE DIRECT READING, TESTING & REPLACEMENT

Revisions	Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN S. Robertson	DESIGNED L. Cook	CHECKED P. Mauch	EXAMINED L. Cook	RECOMMENDED S. Hegedus RPEQ. 5234	TECHNICAL SERVICES MANAGER	DATE 14/07/2010	Job No./s	Works Order No.	Auxiliary Plan No's.	Horiz. Section Scale: NTS on A3	Vert. Section Scale: NTS on A3	STANDARD DRAWING – WATER SERVICE CONNECTION – SUBMETERING	Plan No. W-020	No. 20 of 26 Plans	Rev. B
B	Design Manual	L.C	06/14																		
A	Original Issue																				



STOP TAP CONFIGURATION OPTIONS AND
SERVICE PLAN

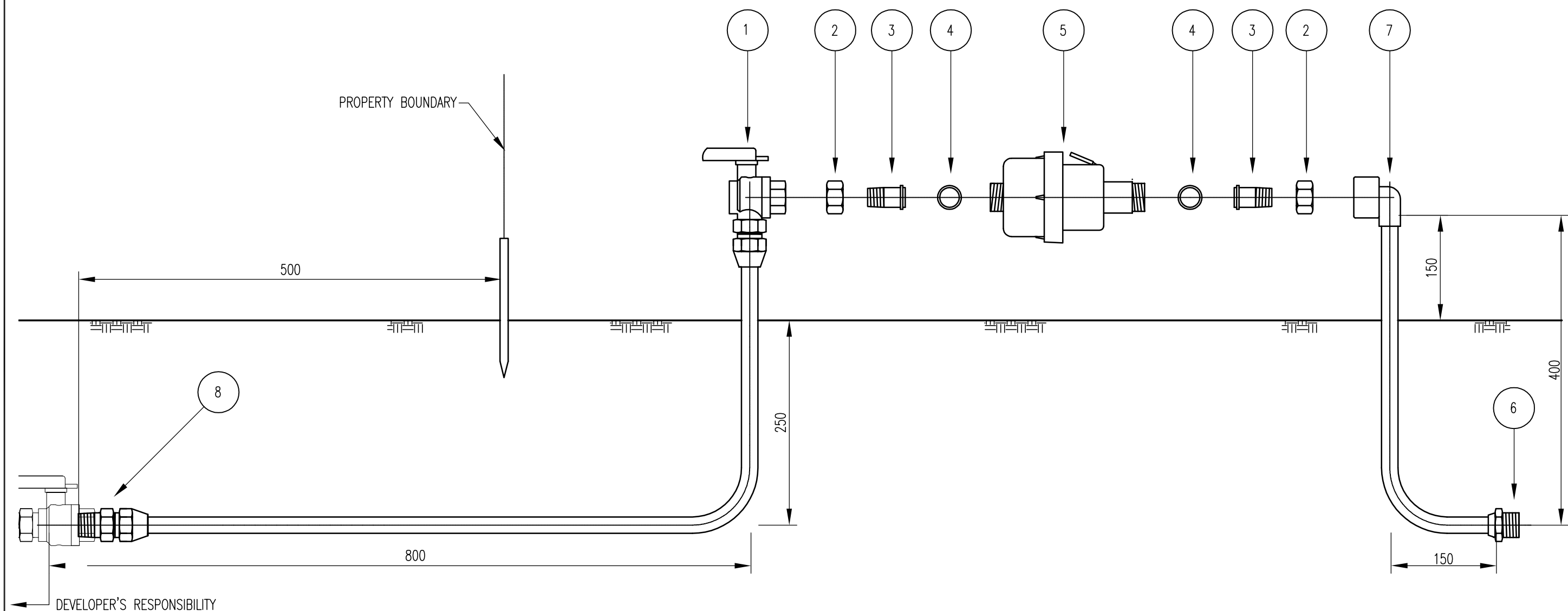


SERVICE ELEVATION

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. MARKING TAPE IS REQUIRED FOR ALL SERVICE CONNECTIONS
3. INSTALL BRASS OR SS SERVICE ISOLATION INLINE BALL VALVE FI/POLY AND BRASS OR PE PLUG AT END OF SERVICE LINE
4. PE FITTINGS TO BE COMPRESSION BRASS OR PE
5. RP2D FOR BELOW GROUND IRRIGATION COMPULSARY

Revisions			Drn by	Date	Field Book No.	DRAWN S. Robertson	
					Level Book No.	DESIGNED L. Cook	<div> <div>WESTERN DOWNS</div> <div>REGIONAL COUNCIL</div> </div>
					Datum	CHECKED P. Mauch	
						EXAMINED L. Cook	
						RECOMMENDED S. Hegedus RPEQ. 5234	
						TECHNICAL SERVICES MANAGER	
						DATE 14/07/2010	
B	Design Manual		L.C	06/14		Job No./s	Works Order No.
A	Original Issue					Auxiliary Plan No's.	
							Horiz. Section Scale: NTS on A3 Vert. Section Scale: NTS on A3
							STANDARD DRAWINGS – WATER SERVICE CONNECTIONS – GARDEN BED AND MEDIAN SERVICE BELOW GROUND
							Plan No. W-021 No. 21 of 26 Plans Rev. B



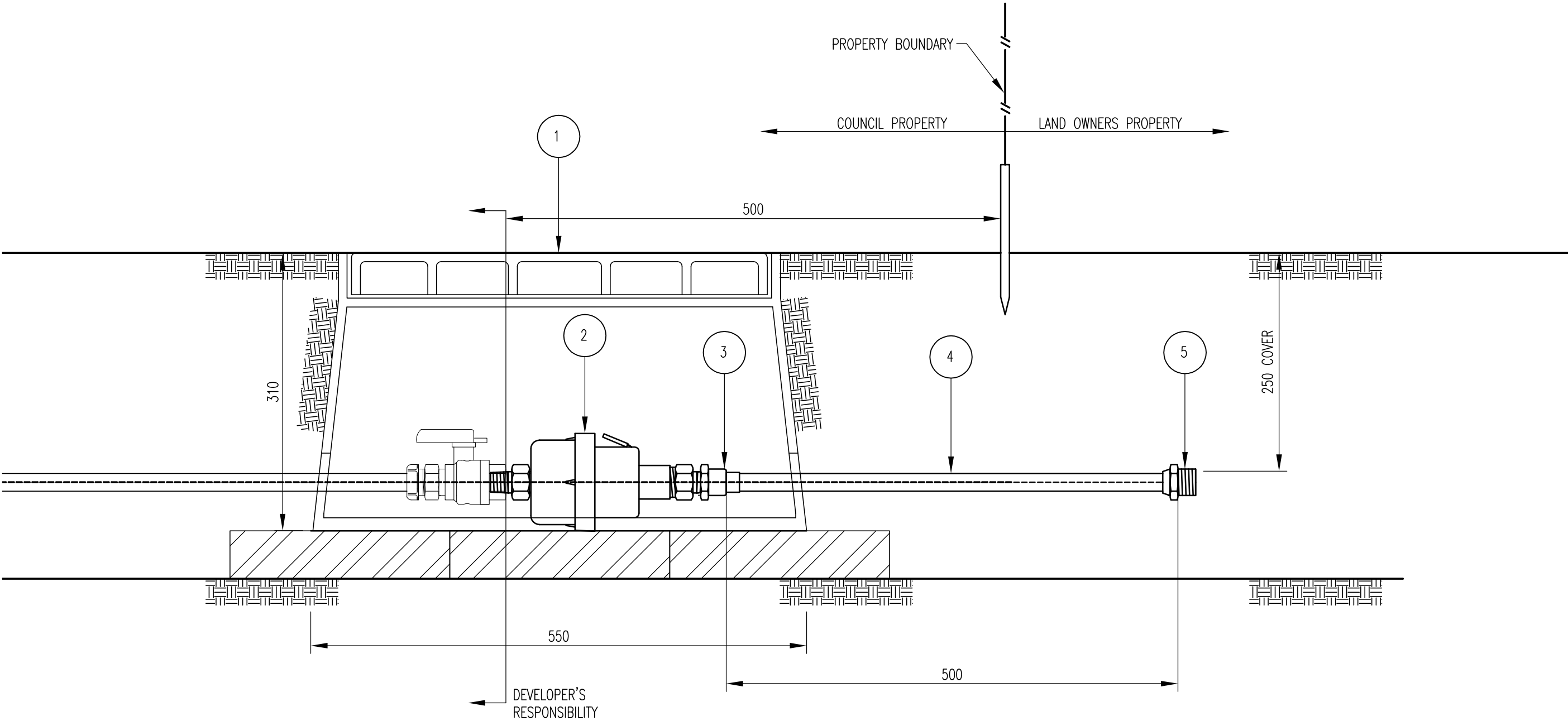
FITTINGS LIST 20mm ABOVE GROUND SERVICE			
ITEM NO.	STOCK NO.	DESCRIPTION	QTY
1	8567	20mm RIGHT ANGLE BALL VALVE POLY/FI (TITA P/N 1143L)	1
2,3,4,5	3695	20mm DOMESTIC WATER METER & CONNECTIONS COMPLETE	1
6	4925	20mm TUBE BUSH C/MI (YORKWAY P/N W134)	1
7	3235	20mm Y/WAY ELBOW C/FI (YORKWAY P/N W314)	1
8	4770	20mm UNION COMP/MI (ALLMAIN P/N B10003; YORKTITE P/N 0270)	1
9	4665	20mm HD COPPER TUBE	1.5m

FITTINGS LIST 25mm ABOVE GROUND SERVICE			
ITEM NO.	STOCK NO.	DESCRIPTION	QTY
1	8569	25mm RIGHT ANGLE BALL VALVE POLY/FI (TITA P/N 42129L)	1
2,3,4,5	3700	25mm DOMESTIC WATER METER & CONNECTIONS COMPLETE	1
6	4930	25mm TUBE BUSH C/MI (YORKWAY P/N W140)	1
7	3240	25mm Y/WAY ELBOW C/FI (YORKWAY P/N W318)	1
8	4775	25mm UNION COMP/MI (ALLMAIN P/N B10004)	1
9	4675	25mm HD COPPER TUBE	1.5m

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL METERING TO BE INSTALLED BY COUNCIL.

Revisions		Drn by	Date	Field Book No.	a	Level Book No.	Datum	DATE 14/07/2010	Job No./s	Works Order No.	Auxiliary Plan No's.	Horiz. Section Scale: NTS on A3	Vert. Section Scale: NTS on A3	STANDARD DRAWING – WATER WATER METER ASSEMBLY – 20mm–25mm DUAL CHECK – ABOVE GROUND	Plan No.W–022	No. 22 of 26Plans	Rev. B
B	Design Manual	L.C	06/14														
A	Original Issue																




WESTERN DOWNS REGIONAL COUNCIL



FITTINGS LIST 20mm BELOW GROUND SERVICE			
ITEM NO.	STOCK NO.	DESCRIPTION	QTY
1		STANDARD METER BOX	1
2	3695	20mm DOMESTIC WATER METER & CONNECTIONS COMPLETE	1
3		20mm UNION C/FI (YORKWAY P/N W088) F/m-m E.C.	1 TITA
4	4665	20mm HD COPPER TUBE. 1.0	0.5m PN16 POLY
5	4925	20mm TUBE BUSH C/MI (YORKWAY P/N W134). N/A	1

FITTINGS LIST 25MM BELOW GROUND SERVICE			
ITEM NO.	STOCK NO.	DESCRIPTION	QTY
1		STANDARD METER BOX	1
2	3700	25mm DOMESTIC WATER METER & CONNECTIONS COMPLETE	1
3		25mm UNION C/FI (YORKWAY P/N W094) F/m-m E.C.	1
4	4675	25mm HD COPPER TUBE. PN16 POLY 1	0.5m
5	4930	25mm TUBE BUSH C/MI (YORKWAY P/N W140) N/A	1

- NOTES
- ALL DIMENSIONS ARE IN MILLIMETRES.
 - ALL METERING TO BE INSTALLED BY COUNCIL.

Revisions		Drn by	Date	Field Book No.	DRAWN S. Robertson		<div><div>WESTERN DOWNS</div><div>REGIONAL COUNCIL</div></div> <div></div>				Horiz. Section	Scale: NTS		STANDARD DRAWING – WATER WATER METER ASSEMBLY 20mm – 25mm DUAL CHECK BELOW GROUND						
				Level Book No.	DESIGNED L. Cook						on A3	Vert. Section	Scale: NTS							
					CHECKED P. Mauch							on A3								
				Datum	EXAMINED L. Cook															
					RECOMMENDED S. Hegedus RPEQ. 5234															
					TECHNICAL SERVICES MANAGER															
					DATE 14/07/2010															
B		Design Manual		L.C	06/14			Job No./s		Works Order No.		Auxiliary Plan No's.		Plan No.W-023			No. 23 of 26 Plans		Rev. B	
A		Original Issue																		

SOIL CLASSIFICATION		FIELD IDENTIFICATION TEST	AHBP kPa
CLAY SOILS	VERY SOFT	EASILY PENETRATED 40mm WITH FIST	<50 *
	SOFT	EASILY PENETRATED 40mm WITH THUMB	<50 *
	FIRM	MODERATE EFFORT NEEDED TO PENETRATE 30mm WITH THUMB	<50 *
	STIFF	READILY INTENDED WITH THUMB BUT PENETRATED ONLY WITH GREAT EFFORT	50
	VERY STIFF	READILY INDENTED WITH THUMBNAIL	100
	HARD	INDENTED WITH DIFFICULTY BY THUMBNAIL	200
SAND & GRAVEL	LOOSE CLEAN SAND	TAKES FOOTPRINT MORE THAN 10mm DEEP	<50 *
	MEDIUM-DENSE CLEAN SAND	TAKES FOOTPRINT 3mm TO 10mm DEEP	50
	DENSE CLEAN SAND OR GRAVEL	TAKES FOOTPRINT LESS THAN 3mm DEEP	100
ROCK	BROKEN OR DECOMPOSED ROCK	DIGGABLE. HAMMER BLOW "THUDS". JOINTS (BREAKS IN ROCK) SPACED AT LESS THAN 300mm APART	100
	SOUND ROCK	DIGGABLE. HAMMER BLOW "THUDS". JOINTS (BREAKS IN ROCK) SPACED AT MORE THAN 300mm APART	200
UNCOMPACTED FILL DOMESTIC REFUSE		OBSERVATION AND KNOWLEDGE OF THE SITE HISTORY	<50 *

PREPARING THE TEST AREA

CONDUCT ALL NATIVE SOIL IDENTIFICATION TESTS ON A FRESHLY EXPOSED, DAMP, HAND TRIMMED AREA OF THE TRENCH WALL IN THE PIPE ZONE. TAKE CARE THAT THE SOIL IN THE EXPOSED TEST AREA IS NOT COMPACTED OR LOOSENED DURING TRENCH EXCAVATION. IF THE SOIL IN THE TRENCH FLOOR AND WALL IS VERY DRY AT THE TIME THE TRENCH IS OPENED THEN FLOOD THE TEST AREA AND ALLOW TIME FOR THE WATER TO BE ABSORBED BY THE SOIL BEFORE IT IS TRIMMED AND TESTED.

IDENTIFYING CLAY SOILS

A LUMP OF CLAY SOIL WILL BE DIFFICULT TO BREAK WHEN DRY. IT WILL BE STICKY AND NEED SOME EFFORT TO MOULD WITH THE FINGERS WHEN WET. CLAY WILL NOT WASH OFF EASILY. INDIVIDUAL CLAY PARTICLES ARE HARD TO SEE.

TESTING CLAY SOILS

CLAY SOILS ARE BEST TESTED IN THE WALL OF THE TRENCH. THE FIST, THE THUMB OR THE THUMBNAIL ARE USED TO DETERMINE THE CONSISTENCY (STRENGTH) OF THE CLAY (SEE TABLE.)

IDENTIFYING CLEAN SAND SOILS

THE INDIVIDUAL GRAINS OF SAND WILL BE VISIBLE TO THE EYE. A LUMP OF CLEAN SAND, IF IT CAN BE PICKED UP AT ALL, WILL CRUMBLE WITHE VERY LITTLE EFFORT. CLEAN SAND WASHES OFF EASILY.

TESTING CLEAN SAND SOILS

CLEAN SAND SOILS ARE BEST TESTED IN THE FLOOR OF THE TRENCH BY PUSHING WITH THE WHOLE BODY WEIGHT ON ONE FOOT. THE DEPTH OF THE DEPRESSION LEFT BY THE BOOT IS RELATED TO THE DENSITY OF THE SAND (SEE TABLE). TAKE CARE TO ENSURE THAT THE SAND IN THE TRENCH FLOOR WAS NOT COMPACTED OR LOOSENED DURING THE EXCAVATION OF THE TRENCH OR THE TRIMMING OF THE TEST AREA.

TESTING ROCK

THE RECOMMENDED FIELD IDENTIFICATION TESTS FOR ROCK RELY ON OBSERVING THE EASE WITH WHICH THE ROCK CAN BE DUG WITH A PICK, AND ESTIMATING THE SPACING OF THE JOINTS IN THE ROCK. (JOINTS ARE COMMONLY CALLED CRACKS OR BREAKS). THE SPACING BETWEEN THE JOINTS IS IMPORTANT BECAUSE THE ALLOWABLE BEARING PRESSURE ON ROCK IS USUALLY CONTROLLED BY THE JOINTS IN IT, RATHER THAN THE INHERENT STRENGTH OF THE BLOCK OF ROCK. JOINTS MAY BE TIGHTLY CLOSED (LIKE HAIRLINE CRACKS), BUT CAN ALSO BE OPEN (FILLED WITH AIR) OR FILLED WITH SOFT CLAY OR OTHER SOIL.

LEGEND

- AHBP ALLOWABLE HORIZONTAL BEARING PRESSURE FOR:
- 10mm MOVEMENT.
 - CENTRE OF THRUST 800mm BELOW THE NATURAL SURFACE LEVEL.
 - HIGH WATER TABLE

* SPECIAL GEOTECHNICAL ASSESSMENT REQUIRED

Revisions

Drn by

Date

B	Design Manual	L.C 06/14
A	Original Issue	

Field Book No.

Level Book No.

Datum

DRAWN L. Porter

DESIGNED L. Cook

CHECKED P. Mauch

EXAMINED L. Cook

RECOMMENDED S. Hegedus RPEQ. 5234

TECHNICAL SERVICES MANAGER

DATE 14/07/2010

Job No./s

Works Order No.

WESTERN DOWNS REGIONAL COUNCIL

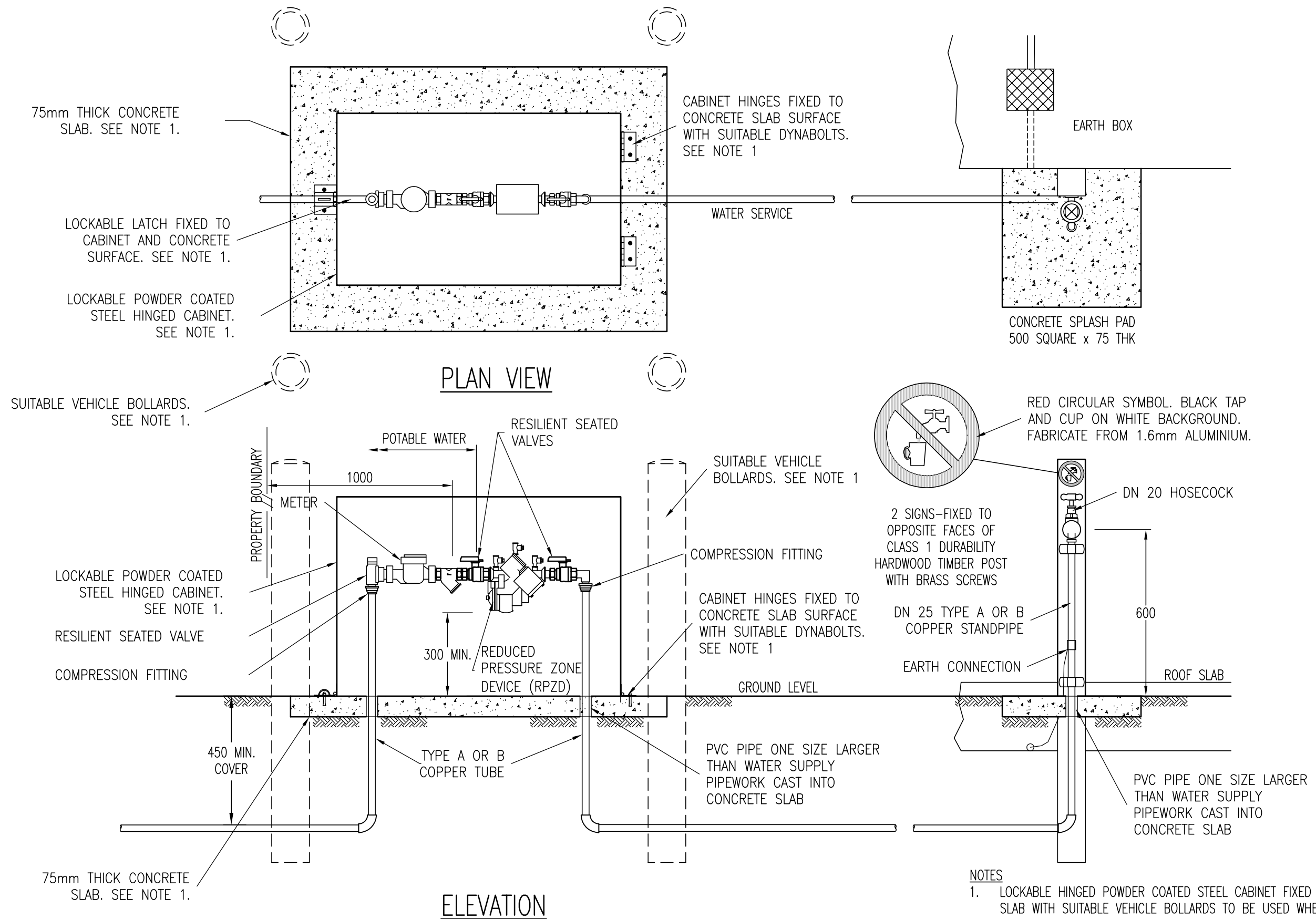
Auxiliary Plan No's.

Horiz. Section Scale: NTS on A3

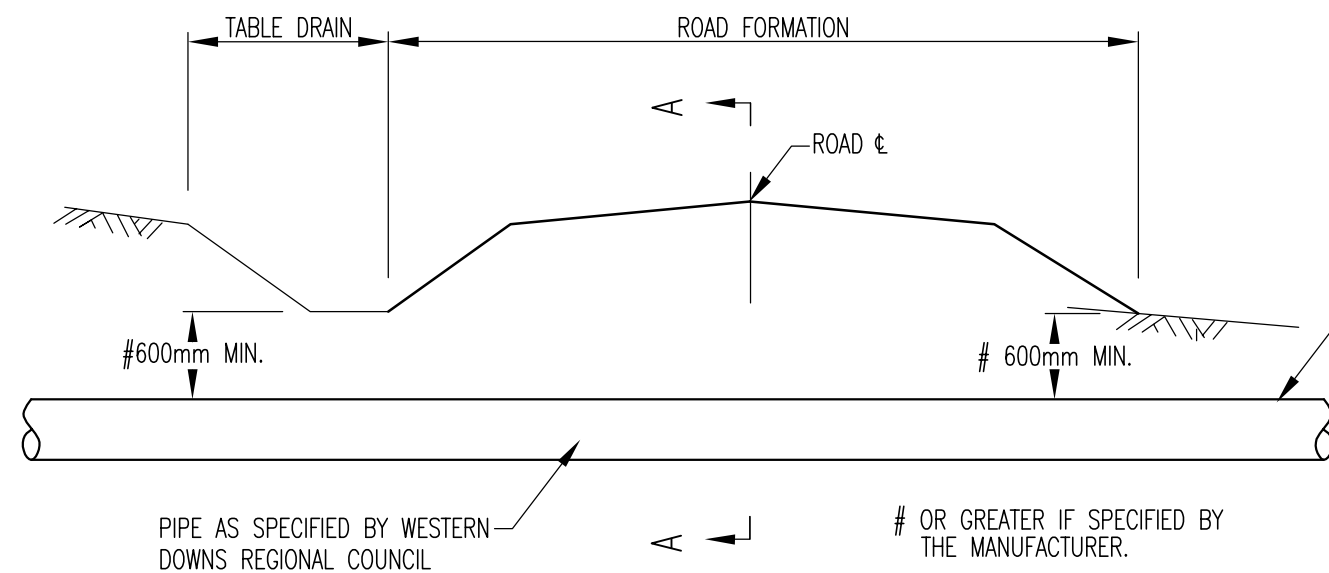
Vert. Section Scale: NTS on A3

STANDARD DRAWING – WATER SOIL CLASSES – SOIL CLASSIFICATION GUIDELINES

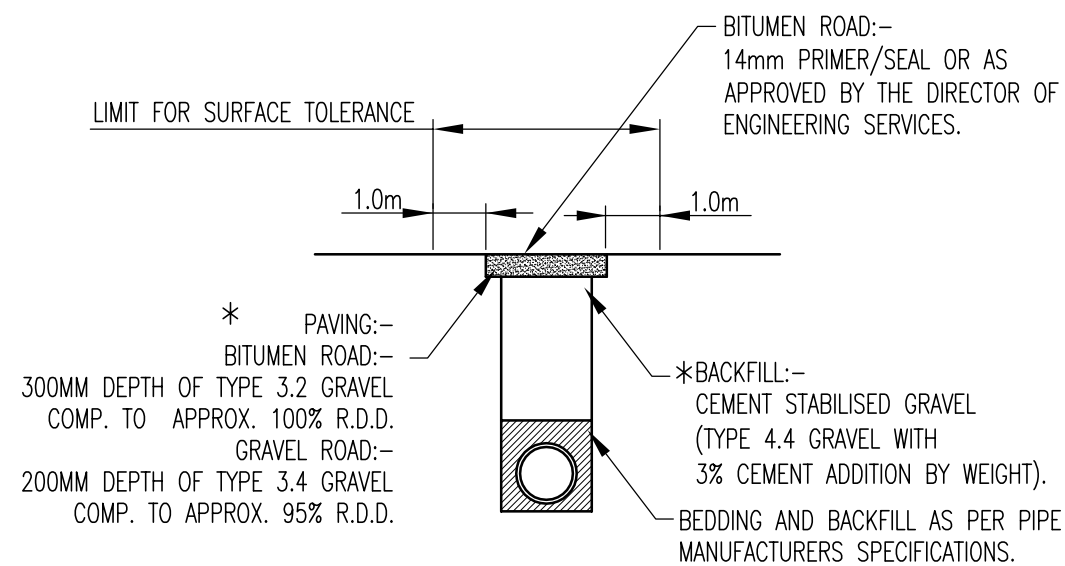
Plan No.W-024 No. 24 of 26Plans Rev. B



Revisions			Drn by	Date	Field Book No.	Level Book No.	DRAWN L. Porter			<div>WESTERN DOWNS REGIONAL COUNCIL</div>	<div>Horiz. Section Scale: NTS on A3</div> <div>Vert. Section Scale: NTS on A3</div>	STANDARD DRAWING – WATER BACKFLOW PREVENTION DEVICE WATER SERVICE
							DESIGNED L. Cook					
							CHECKED P. Mauch					
							EXAMINED L. Cook					
							RECOMMENDED S. Hegedus RPEQ. 5234					
							TECHNICAL SERVICES MANAGER					
							DATE 11/07/2012					
							Job No./s	Works Order No.	Auxiliary Plan No's.			
B	Design Manual		M.T.W	11/13								Plan No.W-025
A	Original Issue											No. 25 of 26 Plans
												Rev. B



TYPE CROSS SECTION



SECTION A

NOTES

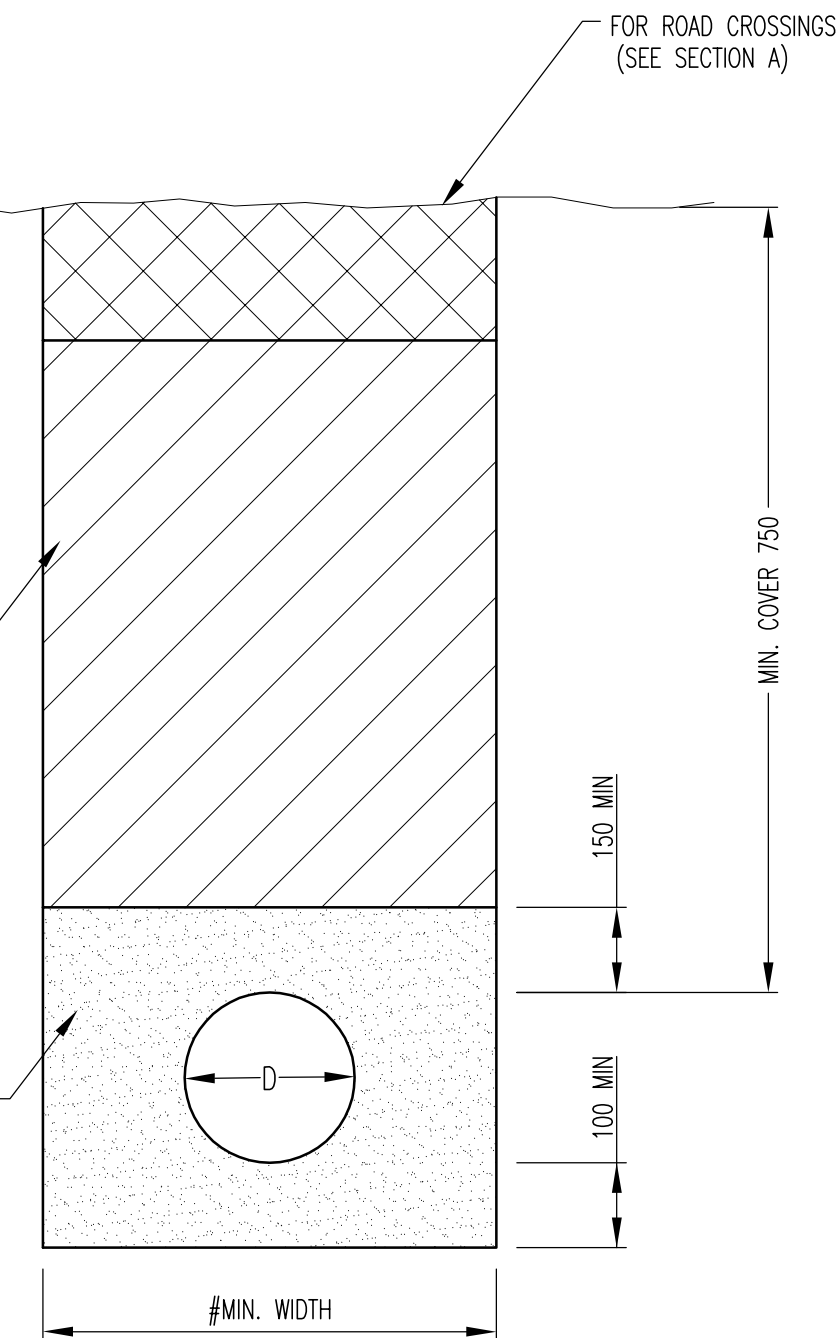
1. SURFACE LEVEL TOLERANCE: THE DEVIATION FROM A STRAIGHT EDGE LAID AT RIGHT ANGLES TO THE TRENCH OF THE EXISTING ROAD AS SHOWN ON THE DRAWING SHALL NOT EXCEED 5MM.
2. THE REINSTATEMENT OF THE PIPE CROSSING IS TO EXTEND OVER THE FULL WIDTH OF THE FORMATION AS SHOWN.
3. REFERENCES TO GRAVEL TYPES AND TEST METHODS IS IN ACCORDANCE WITH QUEENSLAND TRANSPORT SPECIFICATION MRS 11.05 (12/93).

NEEDS MINIMUM SPECIFICATION & PIPE & ENVELOPER UP TO 250Ø.

CONSIDER DI FOR ROAD CROSSINGS WITHOUT ENVELOPE PIPE & BACKFILL WITH NATURAL SOIL.

NATURAL MATERIAL FOR BACKFILL COMPACTED BY TO 95% R.D.D. IN 150mm LAYERS MAX

APPROVED SAND BEDDING



#MINIMUM WIDTH = D+300

TYPE 1 CONSTRUCTION
APPROVED SAND BEDDING

Revisions	Drn by	Date	Field Book No.	Level Book No.	Datum	DRAWN S. Robertson	DESIGNED L. Cook	CHECKED P. Mauch	EXAMINED L. Cook	RECOMMENDED S. Hegedus RPEQ. 5234	TECHNICAL SERVICES MANAGER	DATE 15/07/2010	Job No./s	Works Order No.	Auxiliary Plan No's.	Horiz. Section Scale: NTS on A3	Vert. Section Scale: NTS on A3	STANDARD DRAWING – WATER MISCELLANEOUS – PIPES UNDER RURAL ROADS	Plan No. W-026	No. 26 of 26 Plans	Rev. B
B	Design Manual	L.C	06/14																		
A	Original Issue																				