




TEES




Tee
(SOC/SOC/SOC)




Tee
(FL/FL/FL)




Tee
(SOC/SOC/FL)



Tee
(SOC/SP/FL)




Tee
(SP/SP/SP)




Tee
(SP/SP/FL)


TAPERS




Taper
(SOC/SOC)




Taper
(concentric)
(FL/FL)



Taper
(eccentric)
(FL/FL)




Taper
(SP/FL)




Taper
(SP/SP)

BENDS

11¼




11¼° Bend
(SOC/SOC)




11¼° Bend
(FL/FL)

22½




22½° Bend
(SOC/SOC)




22½° Bend
(FL/FL)

45




45° Bend
(SOC/SOC)




45° Bend
(FL/FL)

90




90° Bend
(SOC/SOC)




90° Bend
(FL/FL)


CONNECTORS



Connector
(SOC/SOC)




Connector
(FL/SOC)




Connector
(FL/SP)

END CAPS




End Cap




Blank Flange

RISER/
SPACER




Riser
(FL/FL)

FITTINGS

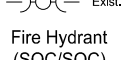


Gibault

FH

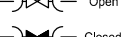


Prop.
Fire Hydrant
(SOC/SOC)




Exist.
Fire Hydrant
(SOC/SOC)


SV




Open
Sluice Valve
(SOC/SOC)



Open
Sluice Valve
(FL/FL)




Closed
Sluice Valve
(SOC/SOC)




Closed
Sluice Valve
(FL/FL)


ScV




Open
Scour Valve
(SOC/SOC)



Open
Scour Valve
(FL/FL)




Closed
Scour Valve
(SOC/SOC)




Closed
Scour Valve
(FL/FL)

AV



Air Valve
(SOC/SOC)



Air Valve
(FL/FL)

RECYCLED EFFLUENT MAIN CONSTRUCTION NOTES

1. All recycled water mains to be on 1.8m alignment unless otherwise noted.

2. Recycled water mains shall be RRJ to AS1477 Series 2 (lilac colour) Material Class 400. uPVC Class 12, mPVC Class 16 or oPVC Class 16.

3. Minimum cover to recycled water mains to be 900mm for road pavements and 600mm elsewhere.

4. Sluice Valves are to be clockwise closing.

5. Place detectable marker tape in trench approx. 300 mm above pipe.

WATER CONSTRUCTION NOTES

1. All water mains to be on 2.5m alignment unless otherwise noted.

2. Water mains shall be RRJ to AS1477 Series 2 (blue colour) uPVC Class 12, mPVC Class 16 or oPVC Class 16. Material Class 400.

3. Minimum cover to Water mains shall be 900mm for road pavements and 600mm elsewhere.

4. Concrete thrust blocks to be constructed in accordance with Std. Dwg. CMDG-W-041.

5. Water Sluice Valves are to be anti-clockwise closing.

6. Hydrant box as per Std. Dwg. CMDG-W-061 to be provided with 0.6m turf surround. Hydrant markers to be blue rrpm's (stimsonite or equiv) positioned offset on crown of road & fixed in accordance with manufacturers recommendations. Refer Std. Dwg. CMDG-W-062.

7. Hydrants & valves to be installed in accordance with Std. Dwg. CMDG-W-060.

8. Place detectable marker tape in trench approx. 300 mm above pipe.

SEWER RISING MAIN CONSTRUCTION NOTES

1. All sewer rising mains to be on 1.8m alignment unless otherwise noted.

2. Sewer rising mains shall be RRJ to AS1477 Series 2 (cream or grey colour) Material Class 400. uPVC Class 12, mPVC Class 16 or oPVC Class 16.

3. Minimum cover to rising main to be 900mm for road pavements and 600mm elsewhere.

4. Concrete thrust blocks to be constructed in accordance with Std. Dwg. CMDG-W-041.

5. Scour Valves to be installed in accordance with Std. Dwg. CMDG-S-073.

6. Air Valves to be installed in accordance with Std. Dwg. CMDG-S-072.

7. Valves to be installed in accordance with Std. Dwg. CMDG-W-060 and provided with 600mm turf surround.

8. Valves to be fitted with a concrete surround 50mm above natural surface level.

9. Backfilling of all driveway and road crossings to be cement stabilised.

10. Sluice Valves are to be clockwise closing.

11. Place detectable marker tape in trench approx. 300 mm above pipe.

SEWER GRAVITY MAIN CONSTRUCTION NOTES

1. All sewers to be on 1.5m alignment from front and back boundaries or 1.0m from side boundaries, unless noted otherwise.

2. All 150 diam. sewer pipes shall be uPVC Class SN8 up to 3m deep (cream or grey colour) to AS1260. Refer to sewerage longitudinal sections for sewer diameters.

3. Manhole locations shall be pegged by surveyor prior to construction.

4. Finished manhole top levels to be confirmed on site. Generally top of finished MH should be 75mm above surrounding finished surface levels.

5. Manhole lids to be Class C or D.

6. Provide a 1.5m long star picket driven 0.5m into the ground within 200mm of the ends of each house connection.

7. Plastic warning tape 0.3mm thick x 50mm wide shall be attached to the top of the jump-up and wired to the base of the star picket.

8. Sewer manholes to be precast and minimum 1050Ø. Concrete manholes to be in accordance with Std. Dwg. CMDG-S-021.

9. Lamphole to be constructed in accordance with Std. Dwg. CMDG-S-026.

10. Bases to be fibreglass compлас type.

11. House connections to be constructed in accordance with Std. Dwg. CMDG-S-030.

12. Provide concrete stops in accordance with Std. Dwg. CMDG-S-090 on slopes greater than 1 on 6.

13. Maximum manhole spacing to be 90m. Maximum lamphole segment to be 40m.

14. Place detectable marker tape in trench approx. 300 mm above pipe.

15. Trench compaction to be 85%.

FITTINGS SCHEDULE

DETAIL ID	SIZE	DESCRIPTION	QTY	
①	100 Ø	Tee (FI/FI/FI)	3	
②		Gibault	2	
N/A		11¼° Bend (Soc/Soc)	7	
③		11¼° Bend (FI/FI)	1	
N/A		22½° Bend (Soc/Soc)	2	
N/A		45° Bend (Soc/Soc)	1	
N/A		90° Bend (Soc/Soc)	1	
N/A		Connector (Soc/Soc)	2	
④	150 Ø	Connector (FI/Soc)	7	
⑤		Connector (FI/Spig)	3	
⑥		Sluice Valve (FI/FI)	7	
N/A		Scour Valve (Soc/Soc)	2	
N/A		Air Valve (Soc/Soc)	2	
⑦		End Cap	2	
⑧		Misc.	375 x 300 Taper	1

SEWER RISING MAINS (PRESSURE)

DIRECTION	MIN GRADIENT
Up	0.200% (1 in 500)
Down	0.400% (1 in 250)






HORIZONTAL BENDS

CHANGE OF ANGLE	STD FITTINGS
78.75°	45° + 22.5° + 11.25° Bend
67.5°	45° + 22.5° Bend
56.25°	45° + 11.25° Bend
45°	45° Bend
33.75°	22.5° Bend + 11.25° Bend
22.5°	22.5° Bend
11.25°	11.25° Bend
6°	Connector
1°	Pipe Joint


SEWER GRAVITY MAINS (NON PRESSURE)

PIPE DIA	MIN GRADIENT
150	0.667% (1 in 150)
225	0.345% (1 in 290)
300	0.238% (1 in 420)
375	0.175% (1 in 570)
450	0.133% (1 in 750)

FALL THROUGH MANHOLE (FIBREGLASS BASE)

MANHOLE DESC.	DIAGRAM	MIN. DROP (mm)
Straight through		20
Deflection up to 40°		30
Deflection 40°-90°		40
Branch <40Ø		30
Branch 40° - 90°		40

MAIN AND BRANCH VARY IN DIA.

MAIN DIA.	BRANCH DIA		MIN DROP (mm)
300	225		80
300	150		150
300	100		200
225	150		80
225	100		130
150	100		50

NOTE:

For House Drains & Concrete Manhole Bases refer CMDG Std Dwg SD-S-027A

VERTICAL BENDS

ANGLE	CHANGE OF GRADIENT	FITTING
45°	100.00%	Std Bend
22.5°	41.40%	Std Bend
11.25°	19.90%	Std Bend
6°	10.50%	Std Connector
3°	5.20%	All M&F Joints

REVISIONS

		DATE
D	IRC ADDED	11/2016
C	GRC AND LSC ADDED	09/2014
B	FALL THROUGH MANHOLE TABLE AMENDED	02/2013
A	POST AMALGAMATION REVIEW	

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Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)

Central Highlands Regional Council (CHRC)

Gladstone Regional Council (GRC)

Isaac Regional Council (IRC)

Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)

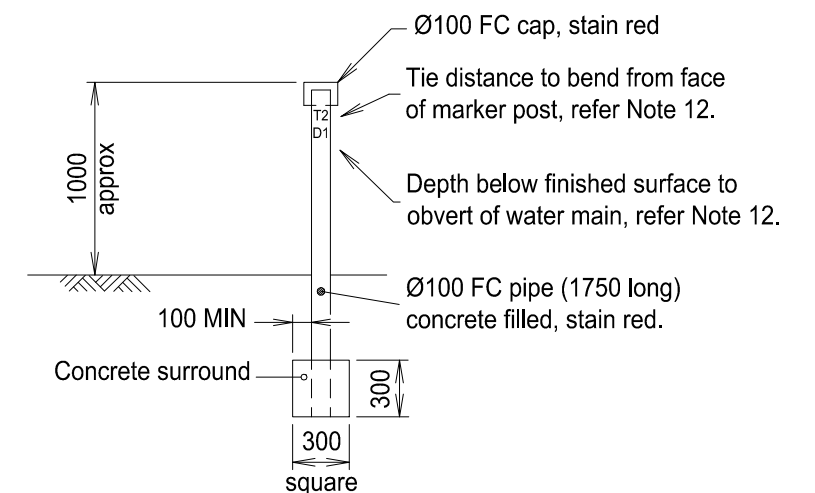
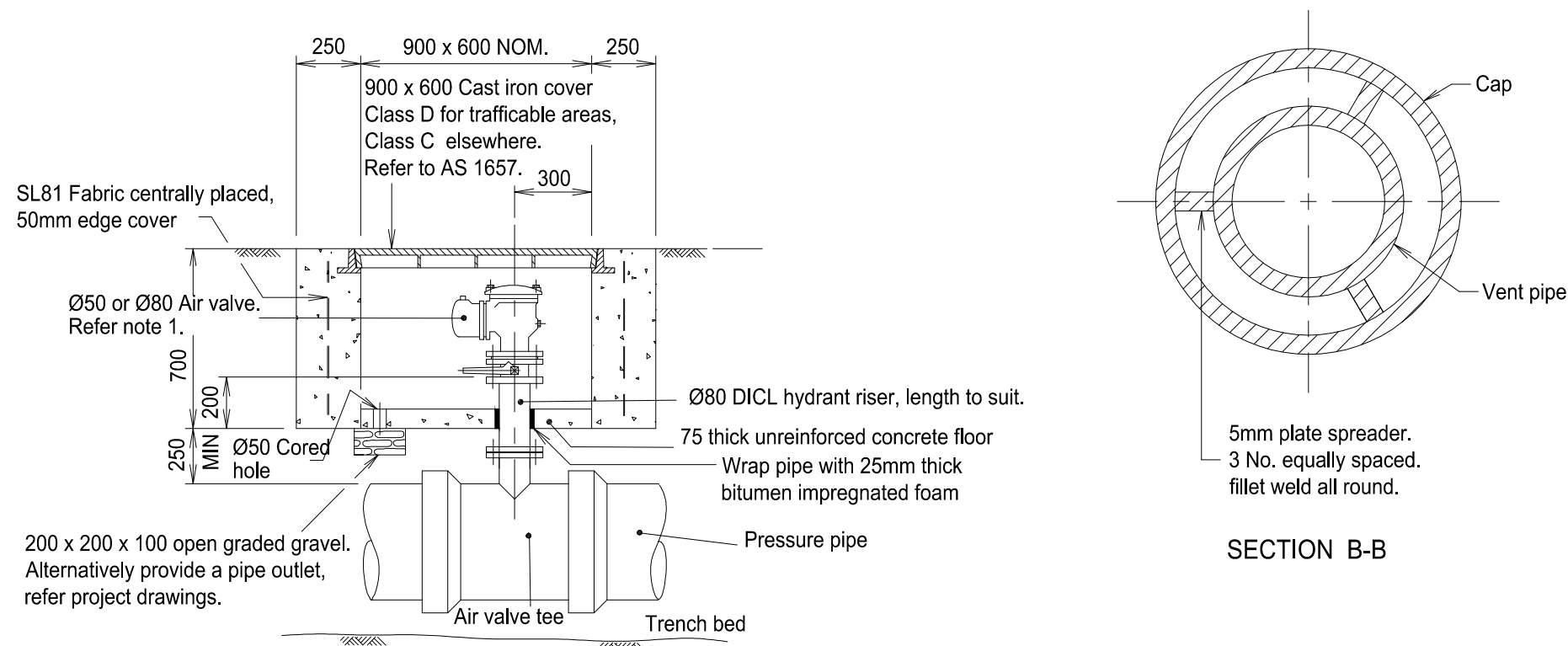
Rockhampton Regional Council (RRC)

SEWER/WATERMAIN INFORMATION
FITTING AND BEND SYMBOLS, PIPE
INFORMATION AND GENERAL NOTES

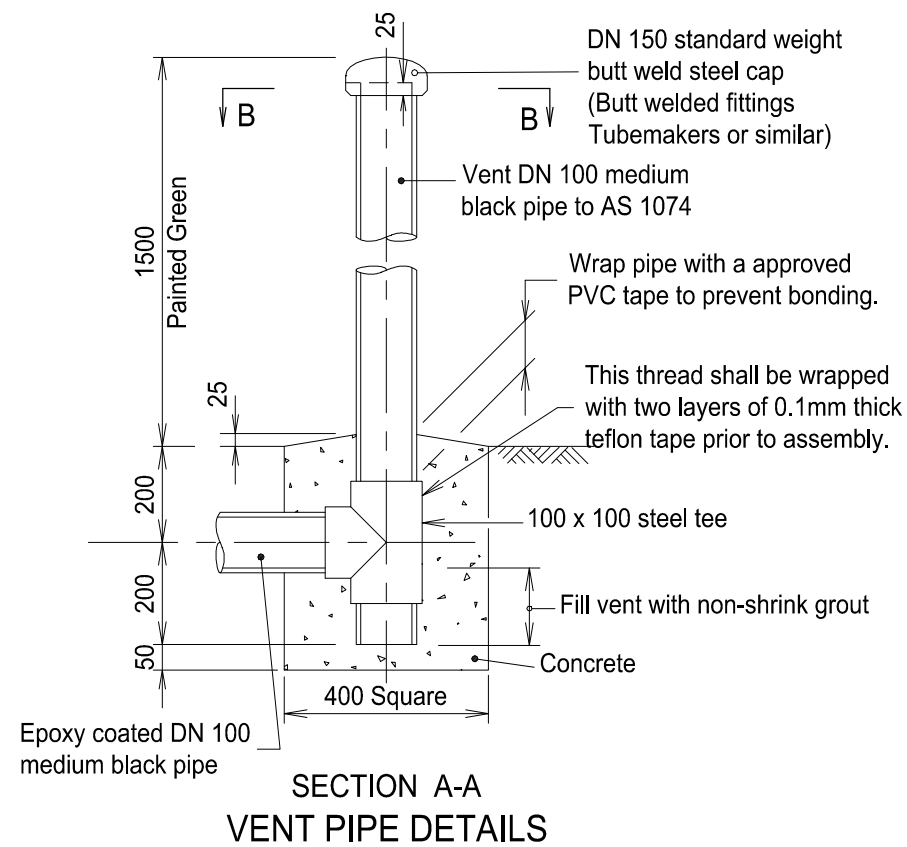
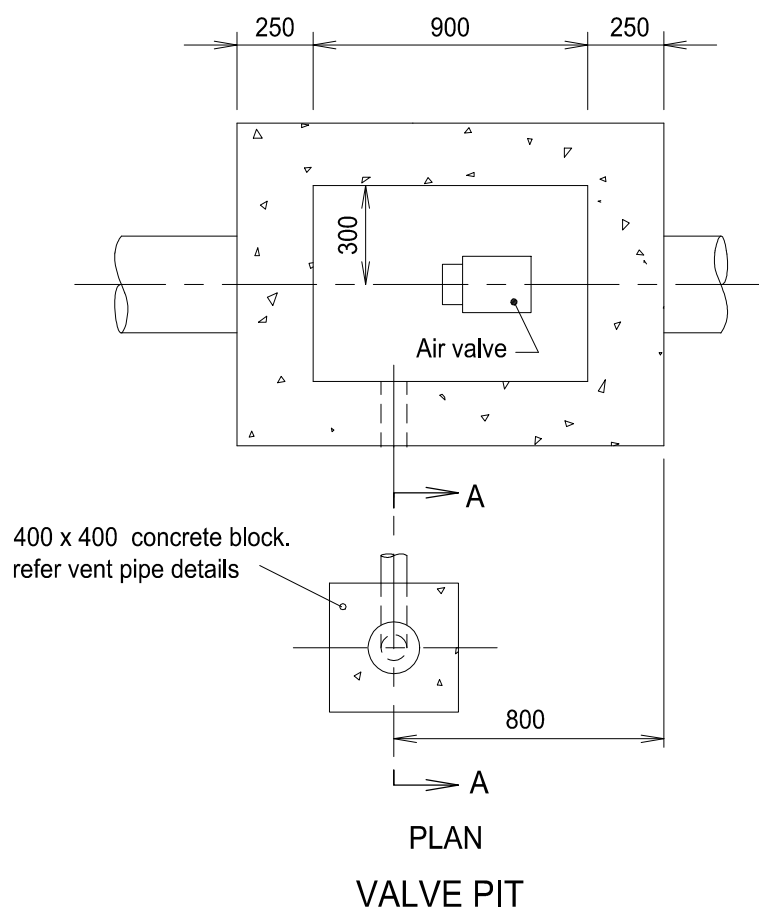
STANDARD
STANDARD
DRAWING
CMDG-W-005

REV.

A	B	C	D		
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ELEVATION
AIR VALVE MARKER DETAIL



If specified in project documentation

NOTES

- Approved Ø50 and Ø80 Air Valves, fitted with Ø80 butterfly valves for isolation purposes. The installation shall be such that the air valve can be removed while the butterfly valve remains in place.
- Ø50 Air Valves shall be supplied with adaptor flange suitable for connection to the Ø80 DICL riser.
- The full length of the DICL riser pipe including underground flanges shall be epoxy coated or wrapped with 'Denso' protective coating applied in accordance with the manufacturer's instructions.
(a) Denso 360 primer to clean metal;
(b) Wrap of cold applied Denso 760 tape;
(c) Wrap of Denso 931 self adhesive PVC tape.
- Water mains Ø250 and smaller:-
Walls of pit to extend below pipe, provide 200mm space between water main and floor of pit.
- Concrete N25 in accordance with AS 1379 and AS 3600.
- Provide a fine non-slip surface with a wood float to the top surface of all walls.
- Refer project drawing for Vent pipe location. Vent steelwork shall be painted with System Reference LP2-A to AS/NZS 2312:2002 / Amdt 1:2004.
- Compacted sand backfill shall be brought up to the underside of the air valve pit.
- Air valves shall be placed on the high point of all trunk mains.
- All flanges shall be in accordance with AS 2129-2000 - Table C unless noted otherwise on project drawings.
- Position markers at changes of direction and all fence lines.
- Lettering on side of marker shall be positioned directly on line between marker and water main bend. All lettering shall be painted yellow and shall be minimum 30 high x 20 wide.
- All dimensions in millimetres.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS	DATE
E REINFORCING DETAILS AMENDED	12/2017
D IRC ADDED	11/2016
C GRC AND LSC ADDED	09/2014
B RRC AMENDMENTS	24-05-11
A ORIGINAL ISSUE	01/2010

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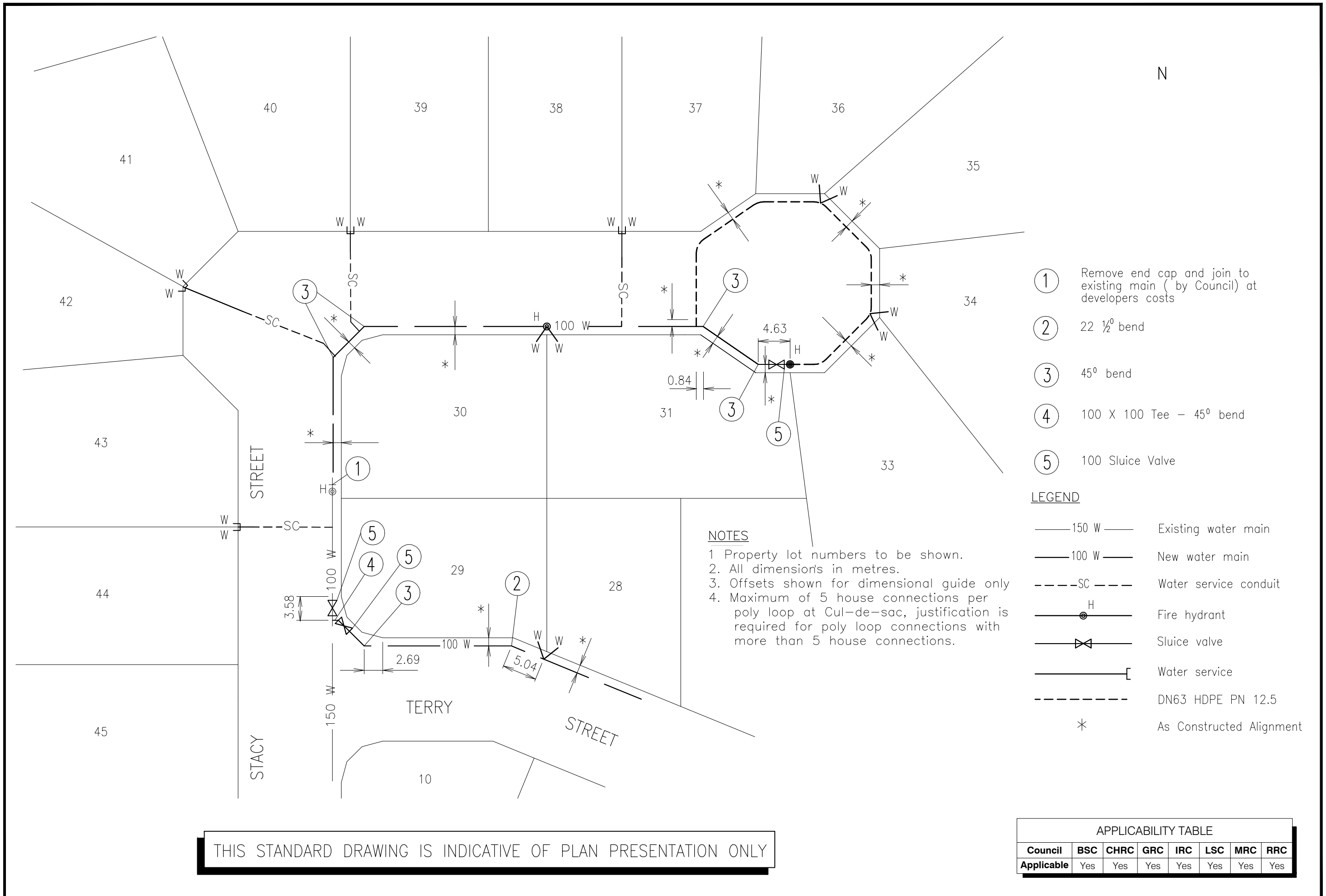
Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)	Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC)	Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC)	Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)	

AIR VALVE PIT 50Ø AND 80Ø AIR VALVES

ROADS
STANDARD DRAWING CMDG-W-010
REV. A B C D E



THIS STANDARD DRAWING IS INDICATIVE OF PLAN PRESENTATION ONLY

- ① Remove end cap and join to existing main (by Council) at developers costs
- ② 22 ½° bend
- ③ 45° bend
- ④ 100 X 100 Tee – 45° bend
- ⑤ 100 Sluice Valve

LEGEND

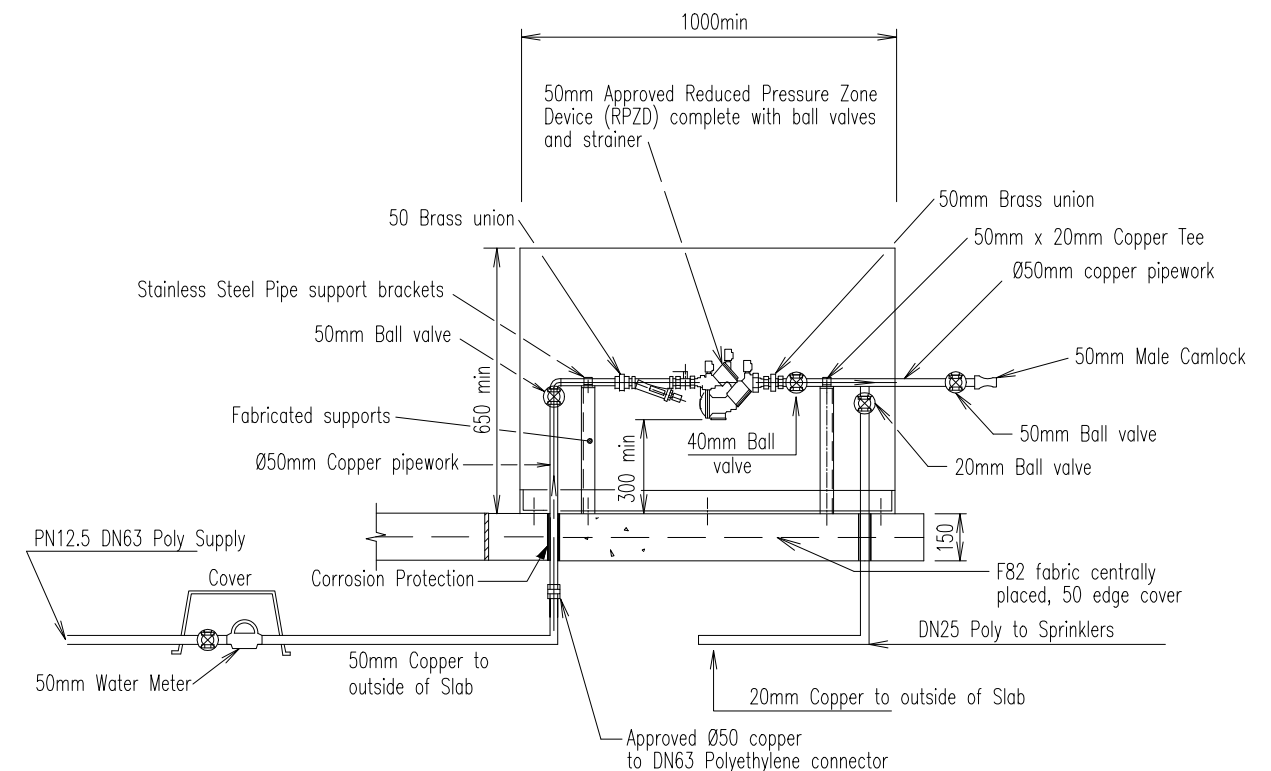
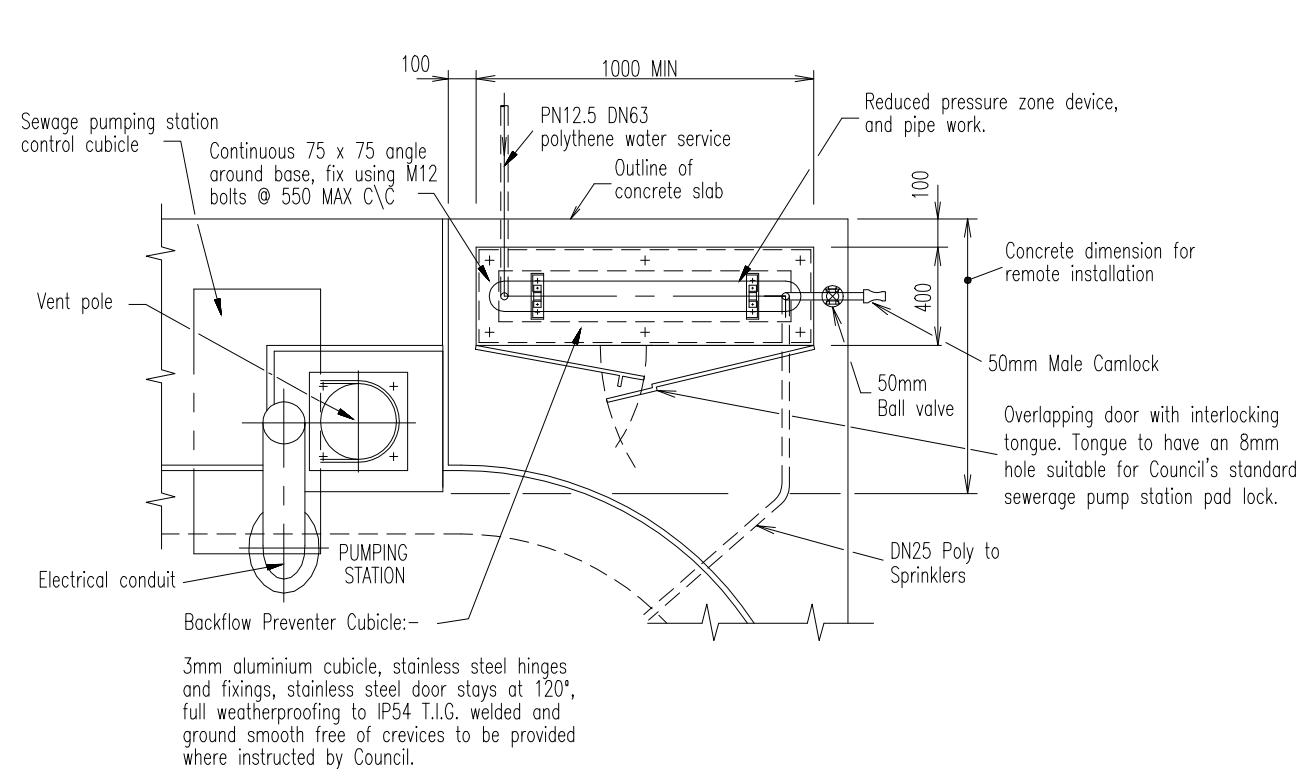
- 150 W Existing water main
- 100 W New water main
- SC- Water service conduit
- H Fire hydrant
- Sluice valve
- Water service
- DN63 HDPE PN 12.5
- * As Constructed Alignment

NOTES

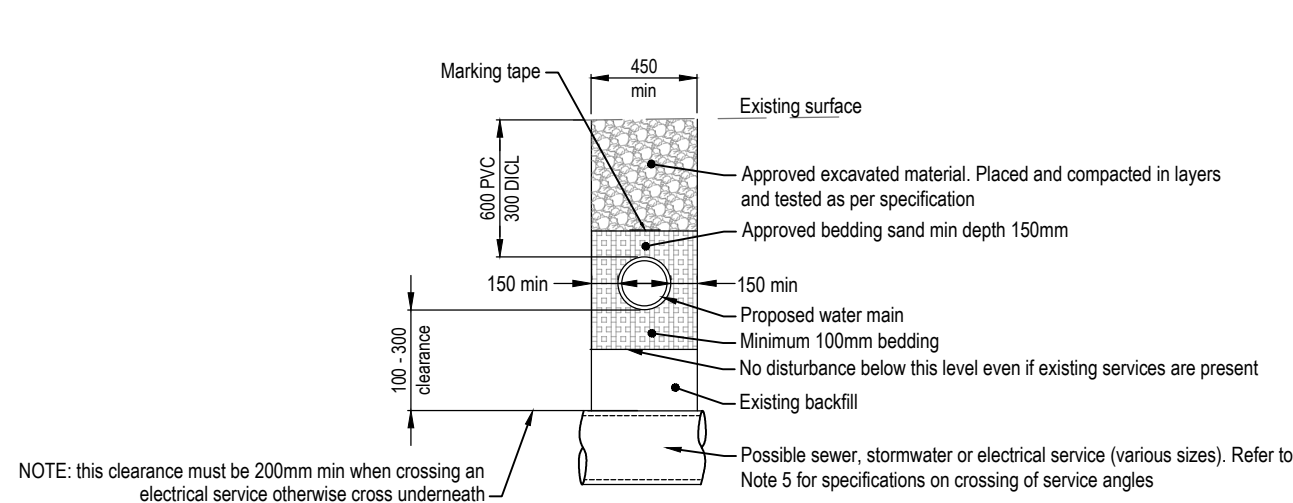
- 1. Property lot numbers to be shown.
- 2. All dimension's in metres.
- 3. Offsets shown for dimensional guide only
- 4. Maximum of 5 house connections per poly loop at Cul-de-sac, justification is required for poly loop connections with more than 5 house connections.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

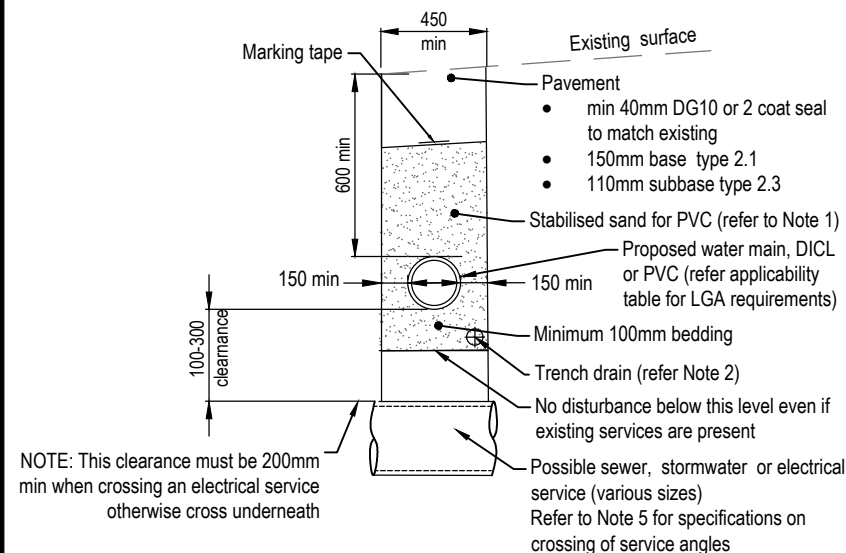
REVISIONS			DATE	<div>DISCLAIMER. The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</div>	Capricorn Municipal Development Guidelines				WATER RETICULATION SAMPLE AS-CONSTRUCTED PLAN				ROADS				
					Incorporating: <div>Banana Shire Council (BSC) Central Highlands Regional Council (CHRC) Gladstone Regional Council (GRC) Isaac Regional Council (IRC)</div> <div>Livingstone Shire Council (LSC) Maranoa Regional Council (MRC) Rockhampton Regional Council (RRC)</div>								STANDARD DRAWING				
													CMDG-W-020				
E	IRC ADDED		11/2016														
D	GRC AND LSC ADDED		09/2014														
C	SERVICES ALTERED AND IS. SHOWN		28/02/13														
B	RRC AMENDMENTS		24/05/11														
A	ORIGINAL ISSUE		01/2010														
				REV. A B C D E													



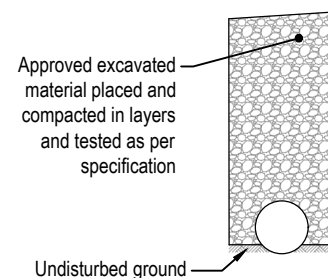
REV.	A	B	C	D	E
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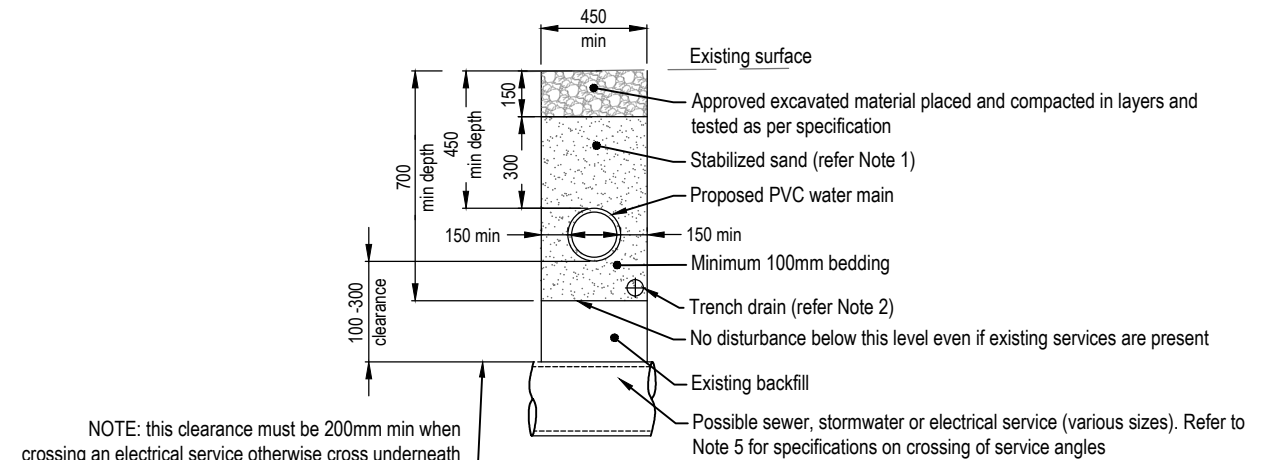
TYPE A - NON TRAFFICABLE ROAD VERGE
Scale NTS



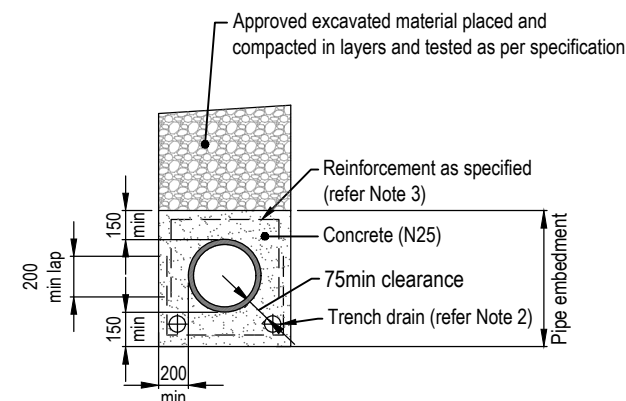
TYPE C - UNDER CARRIAGEWAY (SEALED)
Scale NTS



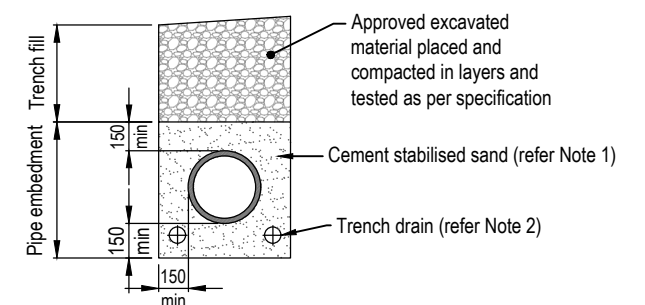
TYPE D - APPROVED NATURAL BEDDING
FOR USE IN SANDY GROUND
(SPECIFIC LGA APPROVAL REQUIRED)



TYPE B - NON TRAFFICABLE ROAD VERGE FOR PVC
(USE ONLY FOR SHORT LENGTHS WHEN 600mm COVER CANNOT BE ACHIEVED AND WITH SPECIFIC LGA APPROVAL)
450mm to 600mm COVER
Scale NTS



TYPE E - UTILISING CONCRETE
EMBEDMENT UTILISE IN LOW BEARING CAPACITY
GROUND AS DIRECTED BY DESIGNER
(RIGID & FLEXIBLE PIPES)
Scale NTS



TYPE F - UTILISING CEMENT STABILISED EMBEDMENT
UTILISE IN LOW BEARING CAPACITY
GROUND AS DIRECTED BY DESIGNER
(RIGID & FLEXIBLE PIPES)

NOTES:

- Cement stabilised sand (3% by weight) or well graded crushed rock to be 25:1 sand: cement (placed dry).
- The trench drain shall be min DN 100 slotted pipe with filter sock or sleeve. Use where trenches require continuous drainage.
- Reinforcement to be specified in design drawings. Minimum reinforcement to be 0.4% of concrete cross section placed centrally with 65mm minimum cover.
- Geotextile wrapping of bedding sand may be ordered in silt or clay environments.
- Refer to D11 water supply network design guidelines for crossing of service angles.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DICL for road crossing	Yes	Yes	Yes	Yes	No	No	No

REVISIONS	DATE
G RWORK OF TRENCH PROFILES	05/2022
F IRC ADDED	11/2016
E GRC AND LSC ADDED	09/2014
D APPLICATION AMMENDED	01/2013
C BSC ADDED	09/2007
B CMDG REVIEW CHANGES	04/2007

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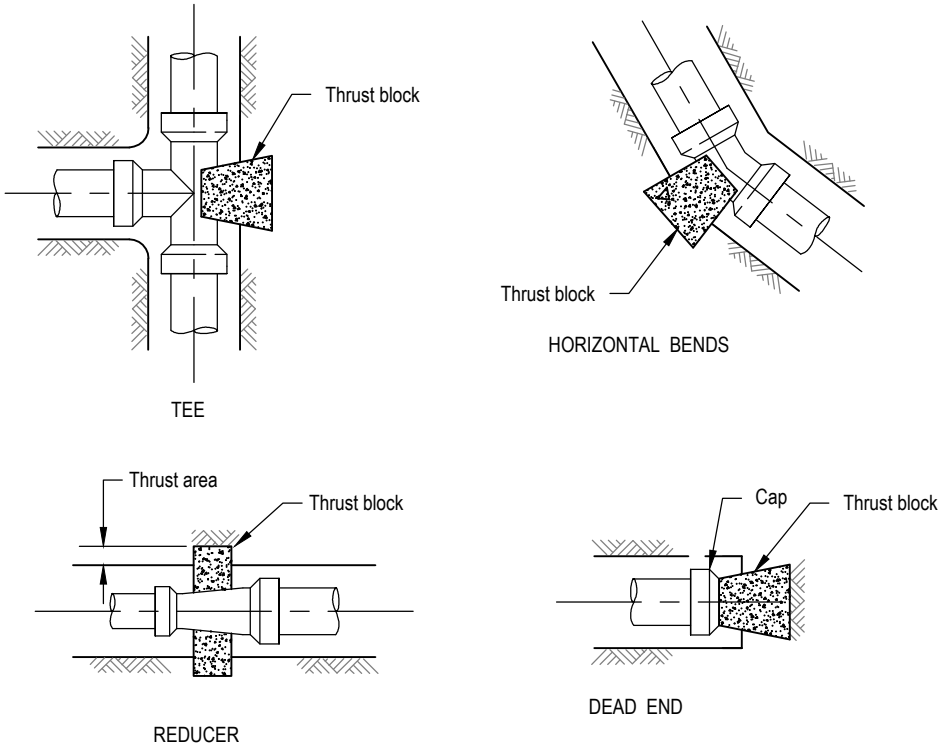
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BEDDING AND BACKFILL FOR WATER MAIN CONSTRUCTION

WATER	
STANDARD DRAWING	A3
CMDG-W-040	
REV.	B C D E F G

MINIMUM THRUST AREA FOR ANCHORAGE IN SQUARE METRES WITH
TEST PRESSURE 1300 kPa (NOM. 130m - HEAD) - GUIDE ONLY



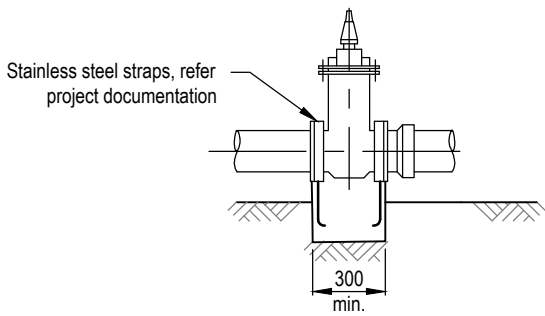
PLAN AT FITTINGS
Scale NTS

	90° & 60° HORIZ. BENDS				45° & 30° HORIZ. BENDS				22 1/2° HORIZ. BENDS				11 1/4° HORIZ. BENDS				TEES & DEAD ENDS			
	50 kPa	100 kPa	150 kPa	200 kPa	50 kPa	100 kPa	150 kPa	200 kPa	50 kPa	100 kPa	150 kPa	200 kPa	50 kPa	100 kPa	150 kPa	200 kPa	50 kPa	100 kPa	150 kPa	200 kPa
100	0.44	0.22	0.15	0.11	0.23	0.12	N	N	0.13	N	N	N	N	N	N	N	0.31	0.16	0.11	N
150	0.91	0.46	0.30	0.23	0.49	0.25	0.16	0.12	0.26	0.13	0.09	N	0.13	N	N	N	0.65	0.33	0.22	0.16
200	1.56	0.78	0.52	0.39	0.83	0.42	0.28	0.21	0.44	0.22	0.15	0.11	0.21	0.10	N	N	1.09	0.55	0.36	0.27
250	2.37	1.18	0.79	0.59	1.27	0.64	0.42	0.32	0.65	0.33	0.22	0.16	0.34	0.17	0.11	N	1.66	0.83	0.55	0.42
300	3.46	1.73	1.15	0.86	1.87	0.94	0.62	0.47	0.96	0.48	0.32	0.24	0.47	0.23	0.16	0.12	2.44	1.22	0.81	0.61
375	5.25	2.63	1.75	1.31	2.83	1.42	0.94	0.71	1.46	0.73	0.49	0.36	0.73	0.36	0.24	0.18	3.72	1.86	1.24	0.93
450	7.44	3.72	2.48	1.86	4.03	2.02	1.34	1.01	2.05	1.03	0.68	0.51	1.04	0.52	0.35	0.26	5.25	2.63	1.75	1.31

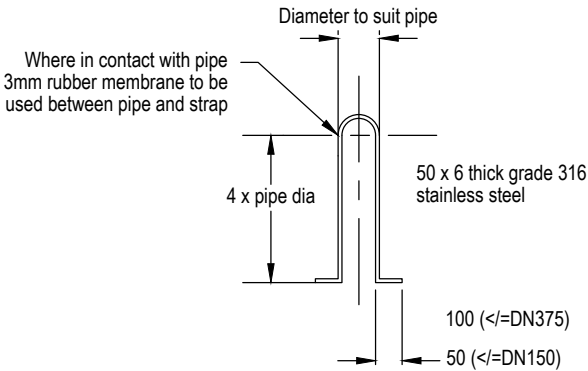
'N' Denotes nominal thrust area (Refer Note 5)

SAFE HORIZONTAL BEARING CAPACITY OF GROUND
For horizontal thrusts, the safe bearing load values for soils in trenches, where the cover over pipes is 450mm or greater.

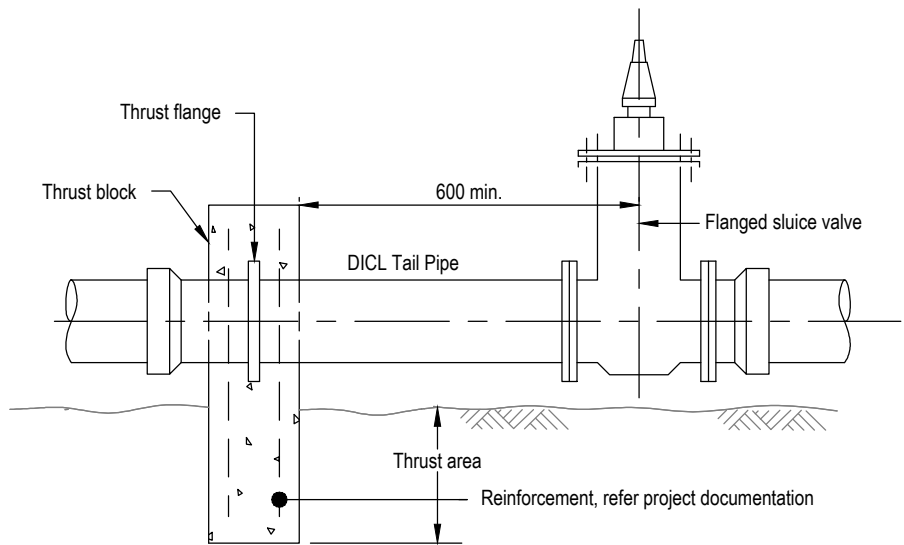
DIAMETER OF FITTING



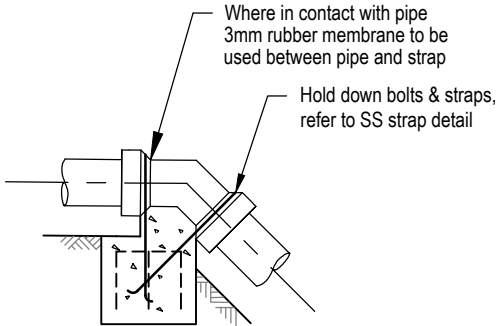
ELEVATION VALVES
Scale NTS



TYPICAL SS STRAP
Scale NTS



SLUICE VALVE (Ø300 OR LESS - SOFT CLAY)
(REFER NOTE 8)
Scale NTS



ELEVATION
Scale NTS

Concrete volume m ³						
DIA.	90°	60°	45°	30°	22½°	11¼°
100	0.50	0.40	0.30	0.20	0.15	0.10
150	1.25	0.90	0.70	0.50	0.35	0.20
200	2.25	1.70	1.25	0.80	0.65	0.35
250	3.50	2.50	1.90	1.30	1.00	0.50
300	4.90	3.50	2.70	1.80	1.40	0.70

VERTICAL BENDS, CRESTS

NOTES

- All fittings shall be provided with thrust blocks formed against solid ground to transfer unbalanced forces from fitting to solid ground.
- Concrete N25 in accordance with AS 1379 and AS 3600.
- Nominal thrust area 'N' shall be effected by Class N25 concrete over full length of fitting, and extending in depth from the bottom of the trench to 65mm above the top of the fitting.
- Minimum area of blocks for reducers shall be equal to the difference in corresponding area for dead ends of each end diameter of reducer.
- Tabulated "minimum thrust area for anchorage" apply for test pressure of 1300 kPa. Areas shall be adjusted pro rata for other specified test pressures except that nominal thrust areas 'N' shall have to be re-calculated for test pressures over 1300 kPa.
- Shape and dimensions of concrete blocks shown are diagrammatic only.
- For vertical thrust acting downwards, the safe bearing loads of the various soils may be taken as twice those for horizontal thrusts.
- Sluice valves Ø375 or larger shall be installed in valve pits.
- When placing the concrete on a PVC pipe, care shall be taken to avoid encasing the pipe completely. The maximum encasement shall be 180°.
- Where PVC rubber ring jointed pipes are used, the normal practice of anchoring of bends tees, dead ends and reducers shall be followed.
- When setting PVC pipes in concrete a membrane of polythene, PVC or felt shall surround the pipe and fitting to permit pipe movement in the concrete.
- Unless otherwise specified, concrete anchorages are required for all valves Ø200 and above. Thrust area shall be as for dead ends.
- Reducers to have a minimum area for anchors equal to difference in corresponding area for dead ends of each diameter of reducer.
- Minimum cover to pipe shall be 600mm.
- All dimensions in millimetres.
- All thrust blocks to be keyed in 50mm into natural or equivalent ground.
- If solid natural ground does not exist then RPEQ Engineer is to design and identify options.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
F	VERTICAL HOLD DOWN AMENDED	05/2022
E	IRC ADDED	11/2016
D	GRC AND LSC ADDED	09/2014
C	NOTE 2 AMENDED	02/2013
B	RRC AMMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2010

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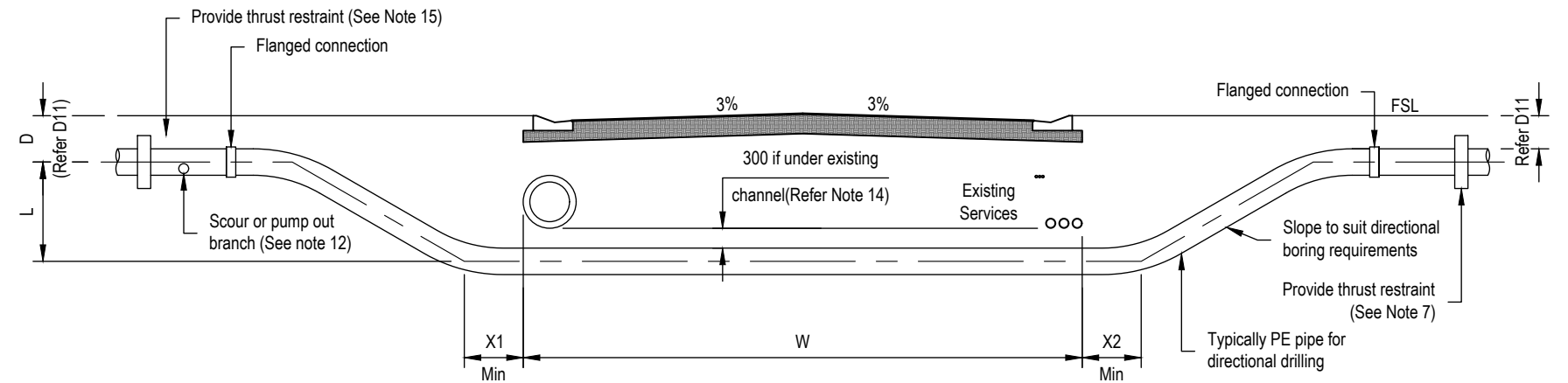
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Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
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Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

WATER MAIN
THRUST BLOCK DETAILS

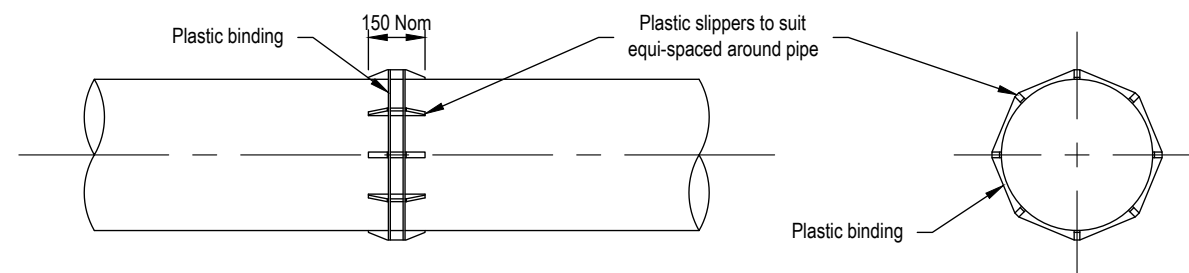
WATER	
STANDARD DRAWING	A3
CMDG-W-041	
REV.	A B C D E F

1. All dimensions in millimeters
2. Details shown are typical. The designer shall provide a specific design for the installation and obtain approval from the relevant authority for the design. prior to construction, the contractor must obtain approval from the relevant authority to access the site.
3. Bored and jacked encasing pipe method.
 - Encasing pipe
 - Reinforced concrete class 4 butt joined with steel locating bands, or welded mild steel jacking pipe.
 - Water main
 - Steel cement lined with fusion bonded PE coating
 - DICL flange class
 - PE (See note 15 & 16)
4. Steel pipe joints to be either plain ends with welded collar, butt welded or slip-in type welded joints
5. Dimensions "W", "L", "X1" & "X2" and location of bulkheads & reinforcing to be shown in design drawings. "W" shall be ultimate road, creek, culvert or services width.
6. Fill voids outside encasing pipe with grout during installation.
7. Install air relief and isolation valves where shown in design drawings.
8. Construction to be in accordance with design drawings.
9. PE acceptable if not boring or jacking
10. Plastic pipe materials where approved shall be managed for floatation and thermal reversion during the grouting process.
11. For underboring in state controlled roads refer to TMR specifications MRTS140, 141 and 142 as well as Technical Note TN163
12. Where required provide scour or pump-out branch as detailed in design drawings.
13. 300 min cover to apply except for major stream crossings or where conditions such as dredging or navigation requirements might apply. for such applications increased depth of cover to be decided after consultation with authority responsible for waterway.
14. No joins permitted in the pipe section under the obstruction.
15. Provide thrust restraints where PE pipework is connected to RRRJ pipework.
16. Transition may be on sloped pipe lengths
17. Bored hole to encasing pipe grout mix by weight is 0.67 water : 1.0 cement : 1.0 sand with the sand to be well rounded sand and approved plasticisers may be used.
18. Encasing pipe to water pipe grout mix is a flowable 1mpa minimum grout with a low heat of hydration with aggregate being a fine well rounded sand and plasticisers may be used. the mix design shall be appropriate for the specific pipe materials and site conditions and shall be approved by the superintendent. Considering the impact of future water main maintenance or replacement, the annulus grouting may not be always required. Contact LGA for grouting requirement.



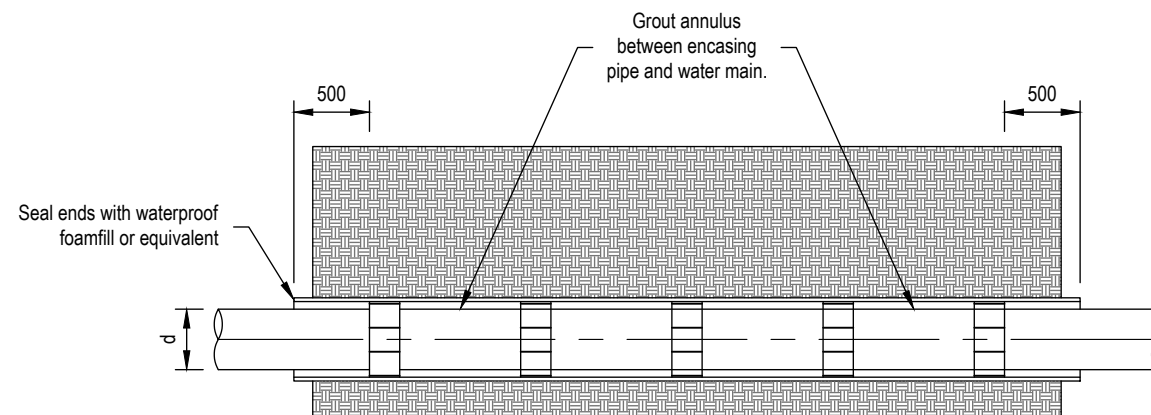
Directional Drilling Method Caps < DN450

Scale: 1:100



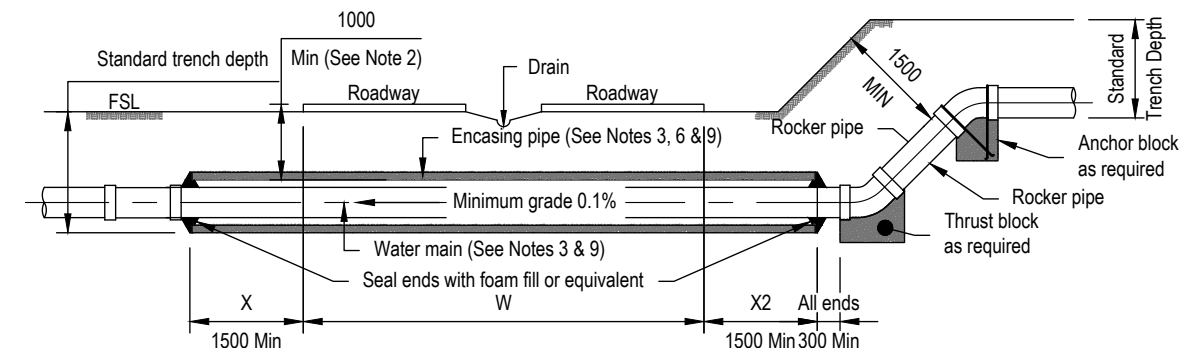
WATER MAIN SUPPORTS DETAIL

Scale: 1:50



TYPICAL FINISHED INSTALLATION

Scale: 1:50



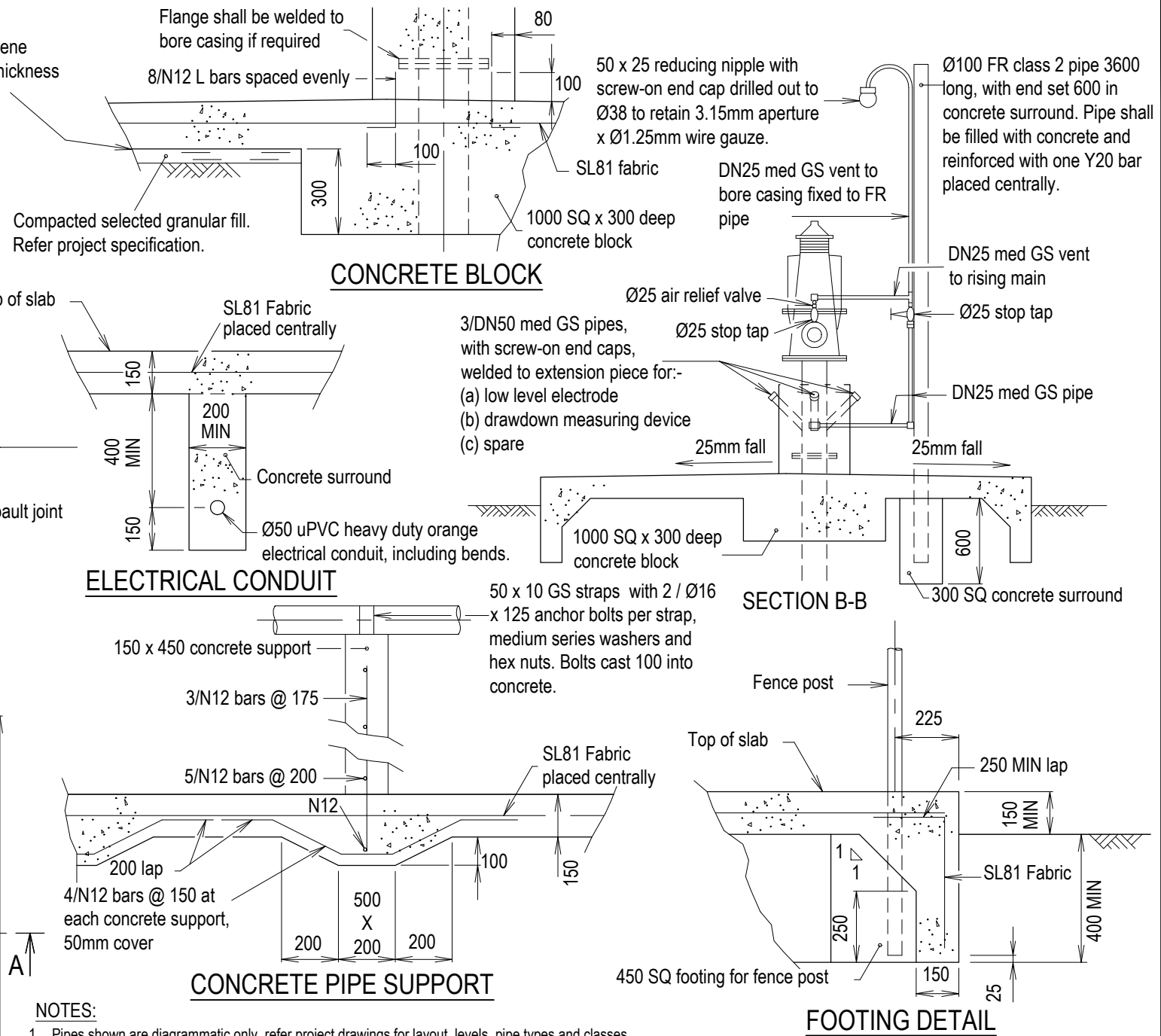
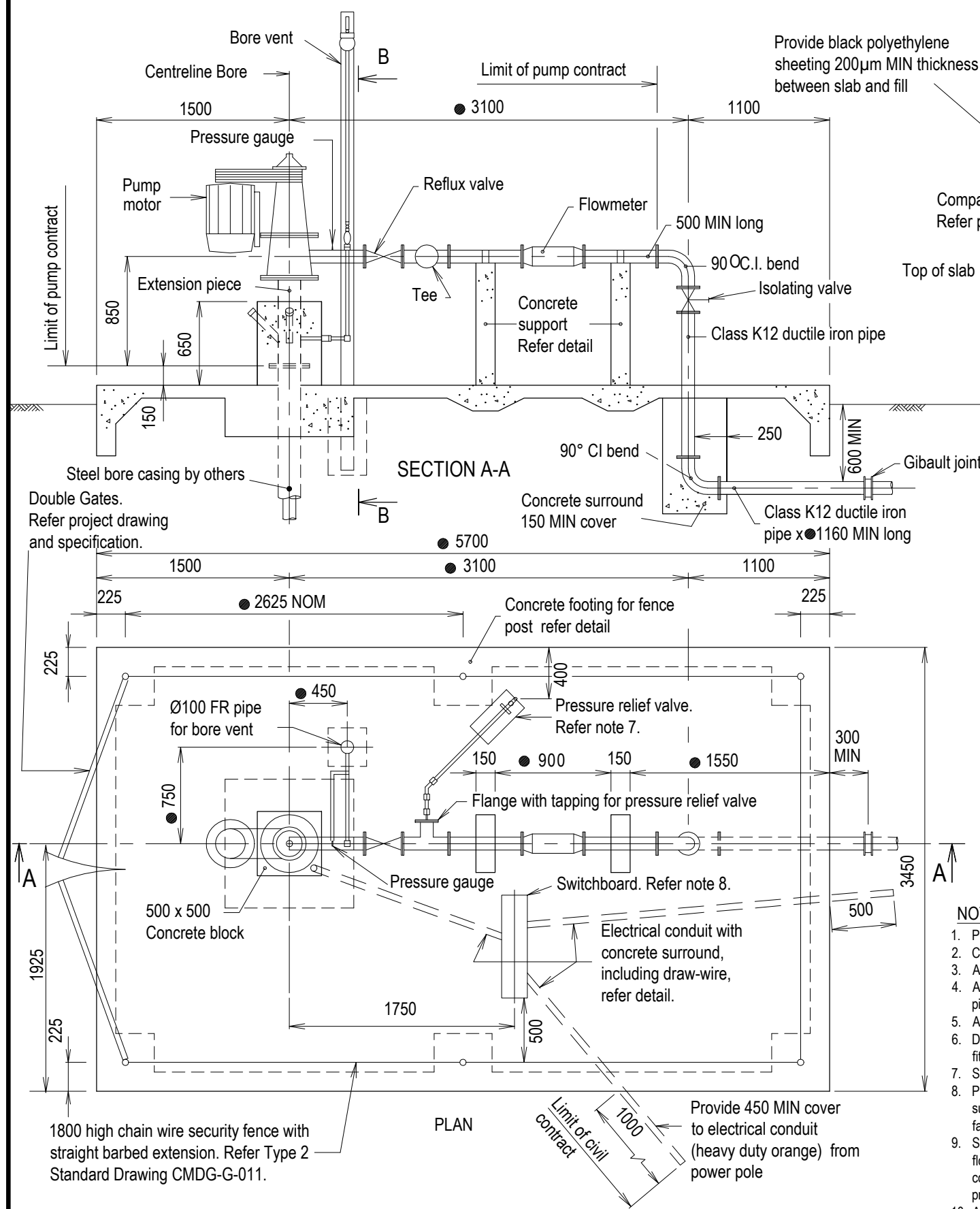
BORED AND JACKED ENCASING PIPE METHOD - MAJOR ROADWAYS & > DN450

Scale: 1:100

ENCASING PIPE DIAMETERS										
Diameter of pipe	100	150	200	250	300	400	500	550	650	800
Steel encasing pipe Diameter	300	375	375	450	525	600	700	750	825	1000

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE	<p>DISCLAIMER.</p> <p>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</p>	<p>Capricorn Municipal Development Guidelines</p> <p>Incorporating:</p> <div><div>Banana Shire Council (BSC)</div><div>Central Highlands Regional Council (CHRC)</div><div>Gladstone Regional Council (GRC)</div><div>Livingstone Shire Council (LSC)</div></div> <div><div>Maranoa Regional Council (MRC)</div><div>Rockhampton Regional Council (RRC)</div><div>Isaac Regional Council (IRC)</div></div>		<p>WATERMAIN UNDERBORE DETAILS</p>		WATER						
		STANDARD DRAWING						A3						
A	NEW DRAWING	11/2022				CMDG-W-045		REV.	A					



- NOTES:**
- Pipes shown are diagrammatic only, refer project drawings for layout, levels, pipe types and classes.
 - Concrete N25 in accordance with AS 1379 and AS 3600.
 - All steelwork hot dip galvanized after fabrication to AS 1650.
 - All bars Grade 400 to AS 1302. Fabric to AS 1304. Reinforcement bars shall be cut or displaced around pipes.
 - All bolts and washers Grade AS 2837/316 stainless steel. All nuts Grade AS 2837/304 stainless steel.
 - Ductile Iron Pipes, Valves & fittings, Class K12 to AS/NZS 2280. All underground ductile iron pipes and fittings shall be wrapped in polyethylene sleeving to AS 3680.
 - Steel tube to AS 1074.
 - Pressure relief valve with outlet pipe to discharge vertically onto floor slab. Outlet pipe shall be rigidly supported on a reinforced concrete column (200 x 400) and terminate 50 above slab. Reinforce with SL81 fabric placed centrally, folded and tied to floor reinforcement (250 MIN lap), 50mm edge cover.
 - Switchboard shall sit on 300 high plinth. Plinth reinforced with SL81 fabric placed centrally, folded and tied to floor reinforcement (250 MIN lap), 50 edge cover, & shall be constructed to dimensions supplied by pump contractor. Electrical conduits to project 100 beyond top of the concrete plinth. For conduit layout, refer project drawing.
 - All dimensions in millimetres.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	Yes	Yes	Yes	No	Yes	No
Applicable DWG							

REVISIONS	DATE
F IRC ADDED	11/2016
E GRC AND LSC ADDED	09/2014
D POST ALMALGAMATION REVIEW	01/2013
C BSC ADDED	09/2007
B CMDG REVIEW CHANGES	04/2007
A ORIGINAL ISSUE	10/2003

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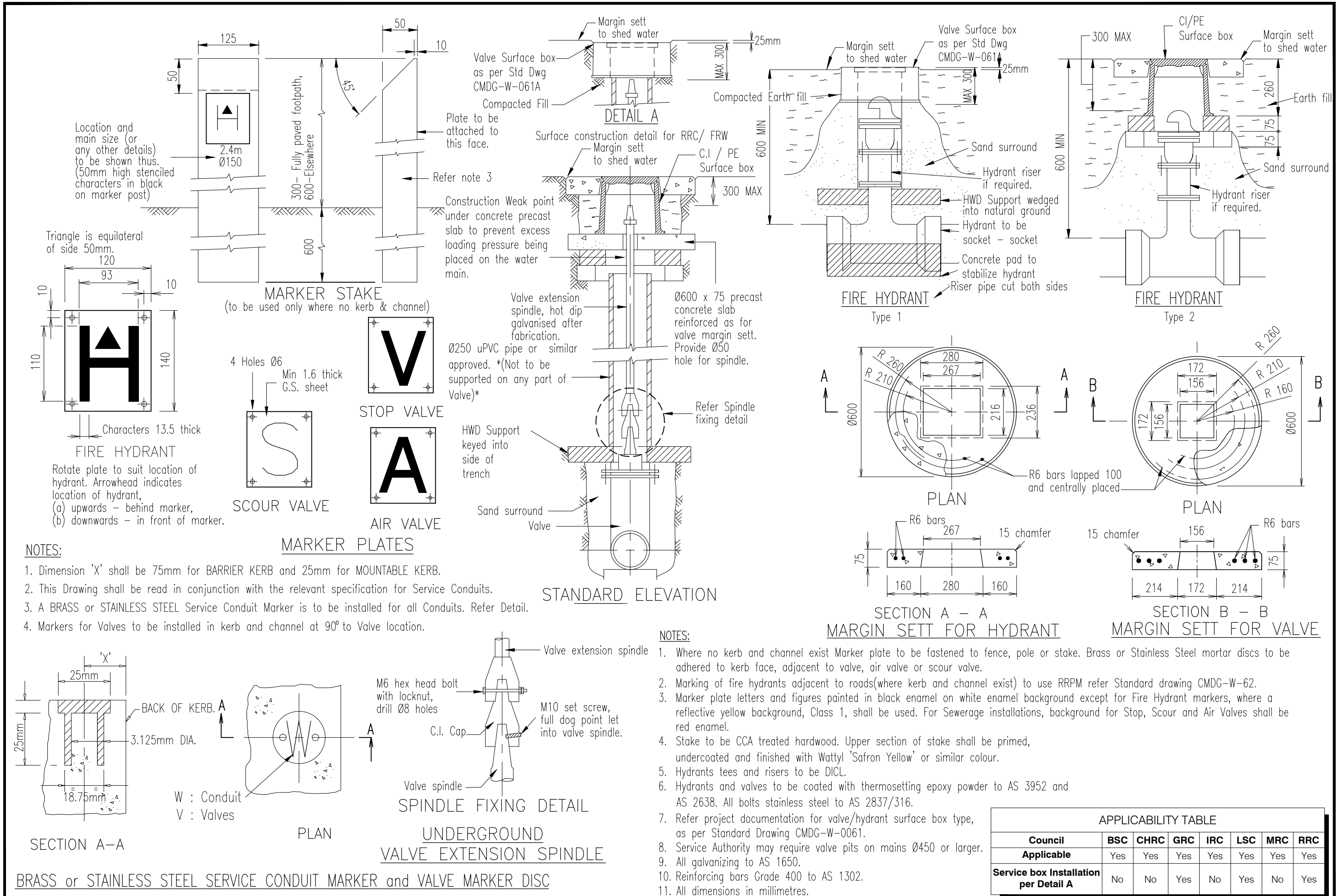
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HEADWORKS AT BORES

WATER						
STANDARD DRAWING						
CMDG-W-050						
REV.	A	B	C	D	E	F
REV.	G					



REVISIONS	DATE
E IRC ADDED	11/2016
D GRC AND LSC ADDED	09/2014
C APPLICABILITY CHANGES	01/2013
B RRC AMENDMENTS	05/2011
A ORIGINAL ISSUE	01/2010

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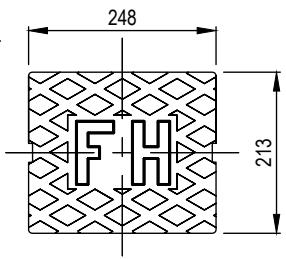
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HYDRANT AND VALVE INSTALLATION

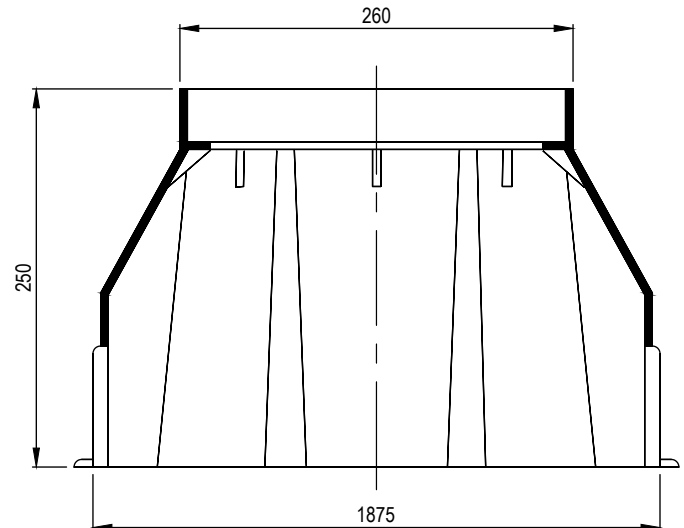
ROADS
STANDARD DRAWING
CMDG-W-060
REV. A B C D E

PE SURFACE BOX - OPTION 1 NOTES:

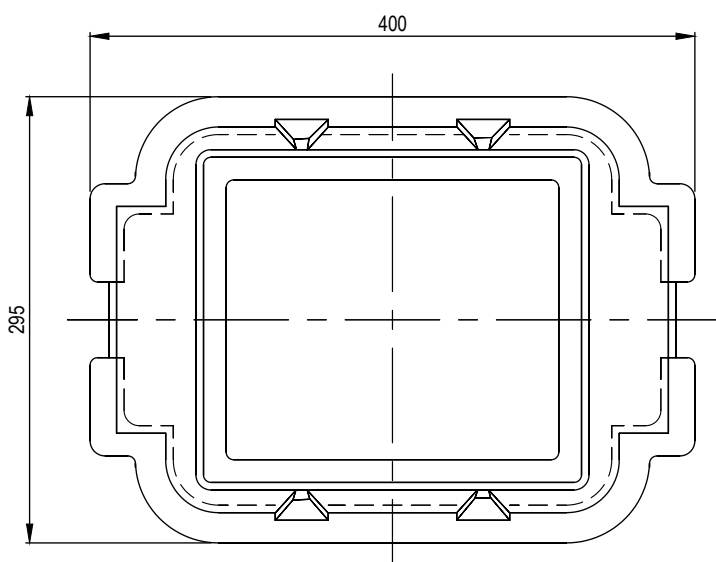
- 1. The lid is secured to the body by a galvanised chain with stainless steel nuts and bolts.
- 2. Boxes made from UV resistant,high impact,high density Polyethylene or heavy duty glass filled nylon.
- 3. Aluminum pins are attached to the underside of the lid for location purposes.
- 4. Tapered with stacking lugs makes storage and carriage easier.
- 5. Alternative valve boxes may be adopted where approved by the Service Authority.
- 5. All dimensions in millimetres.



COVER PLAN
Scale: 1:10



SECTIONAL VIEW
Scale: 1:5

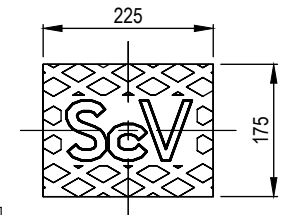


PLAN
Scale: 1:5

POLYETHYLENE SURFACE BOX (OPTION 1)
(FOR USE IN NON TRAFFIC AREAS ONLY)

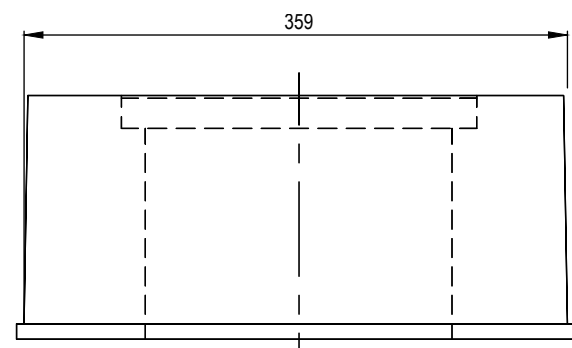
PE SURFACE BOX - OPTION 2 NOTES:

- 1. Mass of base & lid = 17kg approx.
- 2. Grey cast Iron, grade ≥ T180 to AS 1830.
- 3. Alternative valve boxes may be adopted where approved by the Service Authority.
- 4. All dimensions in millimetres.

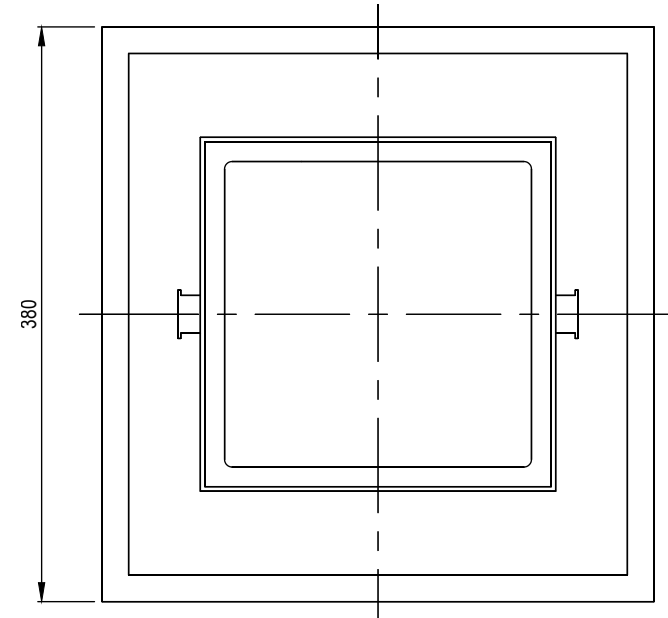


COVER PLAN
Scale: 1:10

SURFACE BOX COVER REQUIREMENTS		
COVER TYPE	LABEL	COLOUR (POWDER COATED)
SLUICE VALVE	V	Refer applicability table
FIRE HYDRANT	FH	YELLOW
SCOUR VALVE	ScV	Refer applicability table



ELEVATION
Scale: 1:5

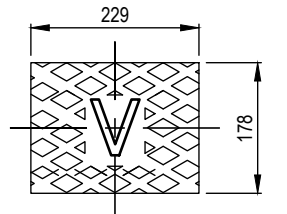


PLAN
Scale: 1:5

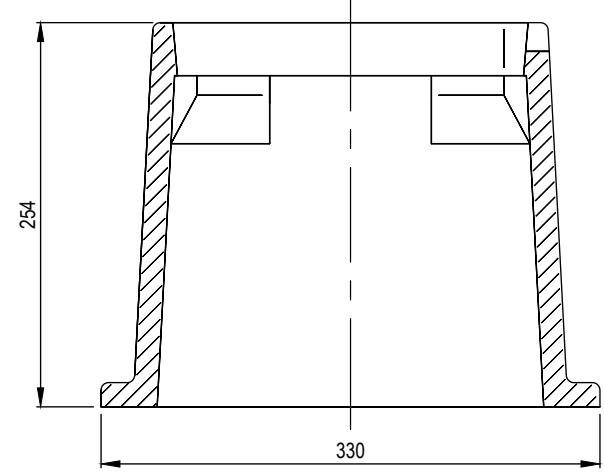
POLYETHYLENE SURFACE BOX (OPTION 2)
(FOR USE IN NON TRAFFIC AREAS ONLY)

CAST IRON SURFACE BOX NOTES:

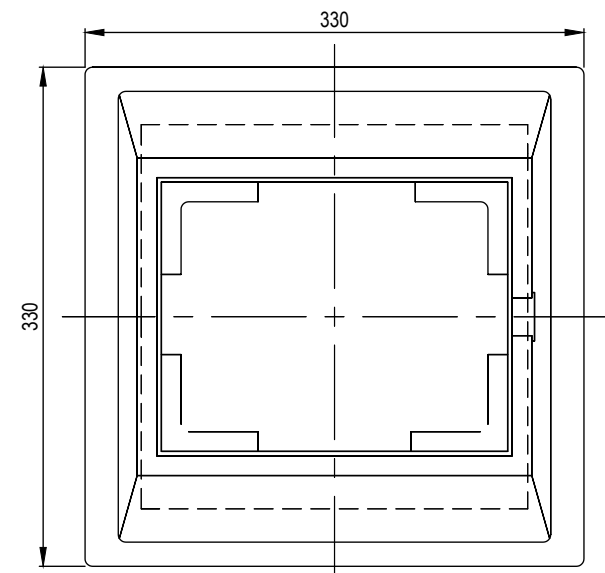
- 1. Mass of body = 37kg approx.
- 2. Mass of cover = 14kg approx.
- 3. Rounding of 5mm NOM. RAD. at all corners.
- 4. Grey Cast Iron, grade ≥ T180 to AS 1830.
- 5. Alternative valve boxes may be adopted where approved by the Service Authority.
- 6. All dimensions in millimetres.



COVER PLAN
Scale: 1:10



ELEVATION
Scale: 1:5



PLAN
Scale: 1:5

CAST IRON SURFACE BOX
(SUITABLE FOR USE IN TRAFFIC AREAS)

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Option 1	Yes	Yes	Yes	Yes	No	No	No
Option 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Valve Lid Colour	Blue	Blue	White	Blue	Blue	Blue	Blue

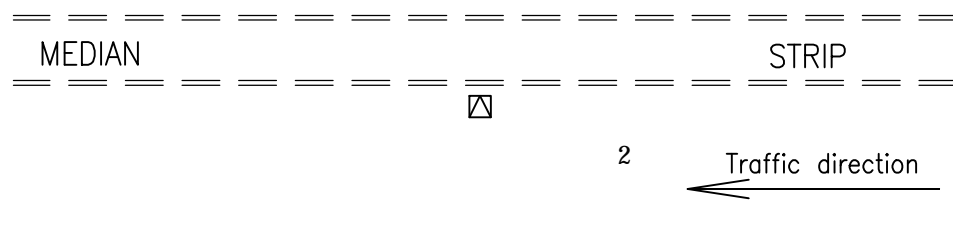
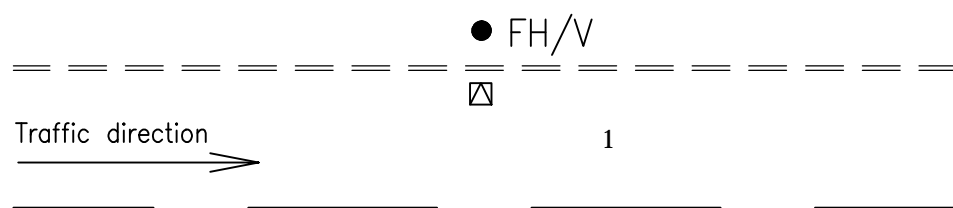
REVISIONS		DATE
E	DETAILS FROM DRAWING W-061A INCLUDED	04/2023
D	IRC ADDED	11/2016
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2010

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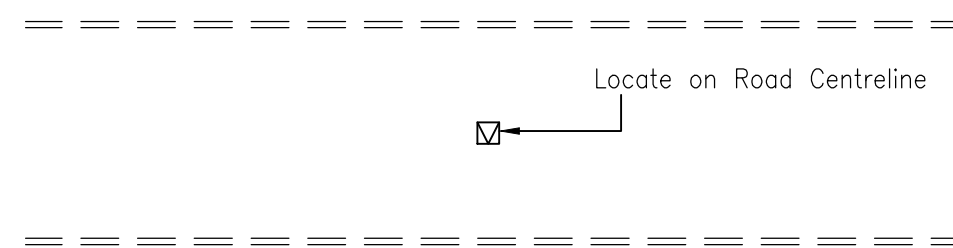
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HYDRANT AND VALVE SURFACE BOXES

WATER	
STANDARD DRAWING	A3
CMDG-W-061	
REV.	A B C D E

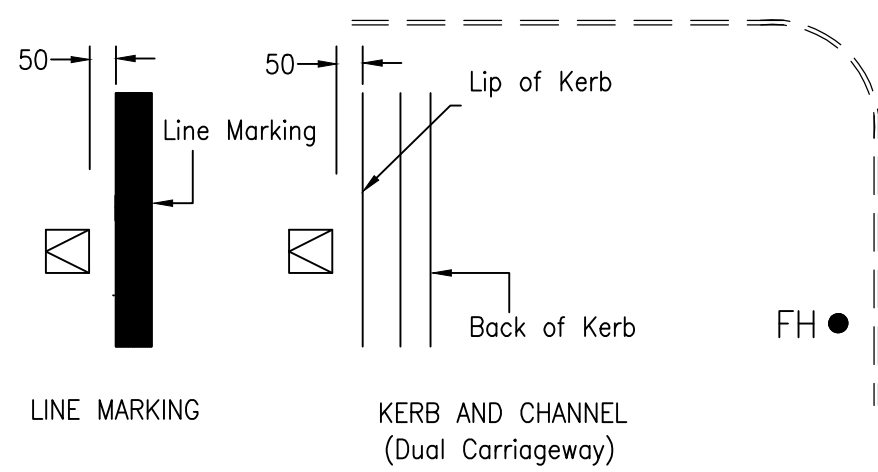


DUAL CARRIAGEWAY



UNMARKED CARRIAGEWAY

Marked Carriageways



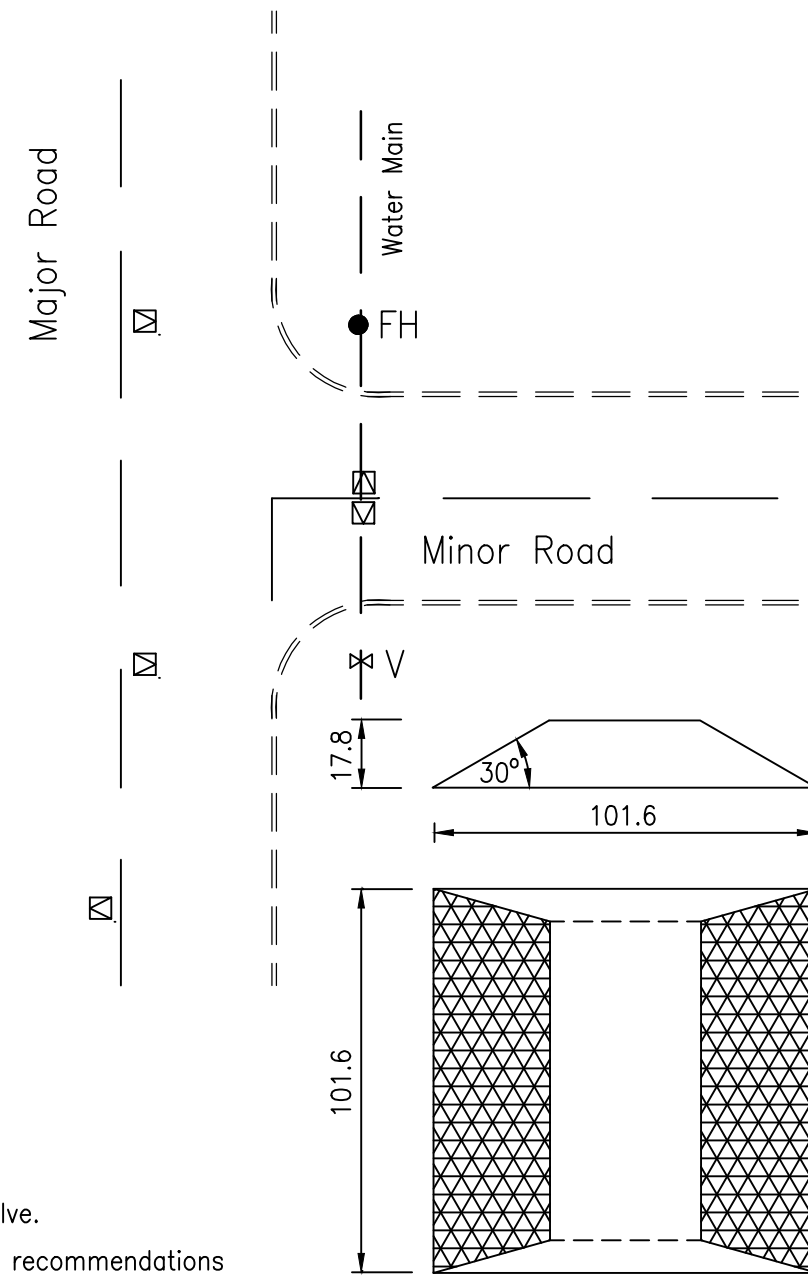
MARKER OFFSET DETAILS

NOTES:

1. Directional arrow on Marker MUST point to the hydrant or valve.
2. Fixing of markers shall be in accordance with manufacturers recommendations
3. For Urban Areas, hydrant posts (if in position) to be removed when marker is positioned
4. Pavement markers to be blue in colour for hydrants and yellow in colour for valves and constructed to AS 1906.3 (1992)
5. For GRC, the kerb is to be painted (White – Valves, Yellow – Hydrants) perpendicular to the asset and 300mm wide
6. For IRC, the kerb is to be painted (Blue – Valves, Yellow – Hydrants) perpendicular to the asset and 300mm wide

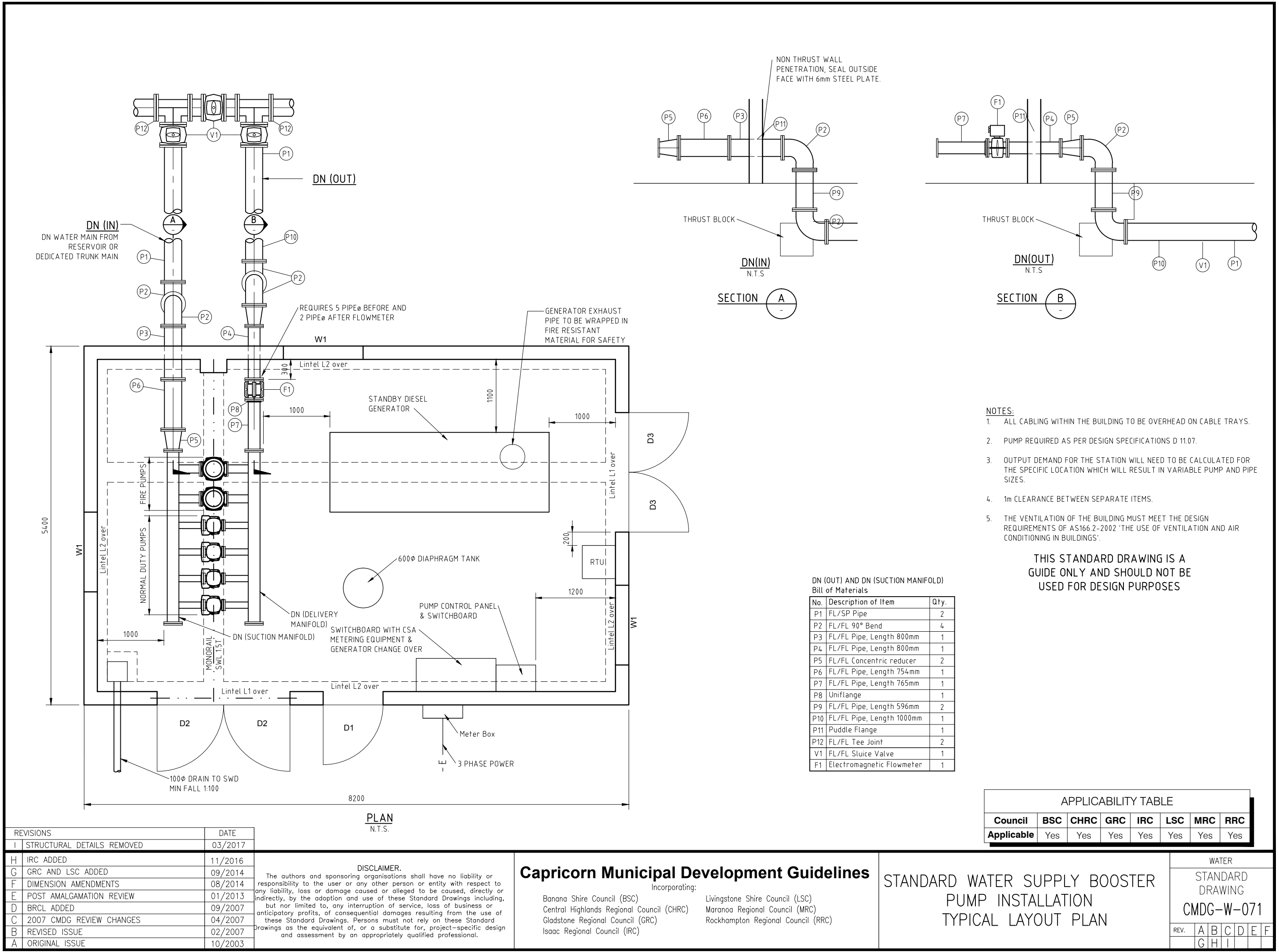
LEGEND:

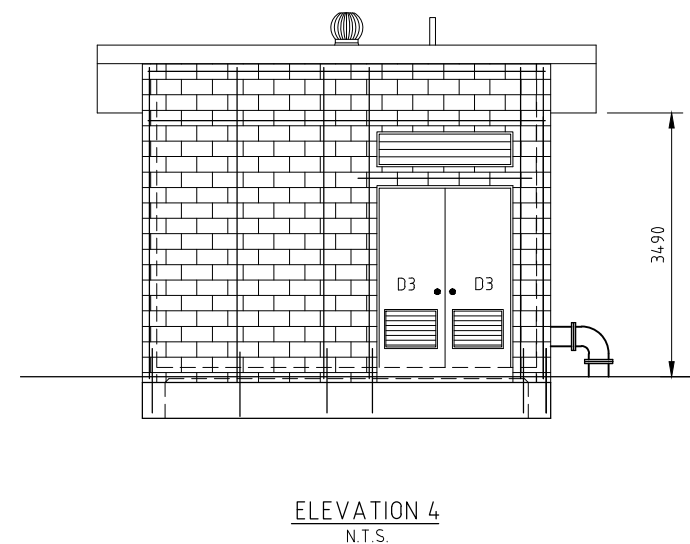
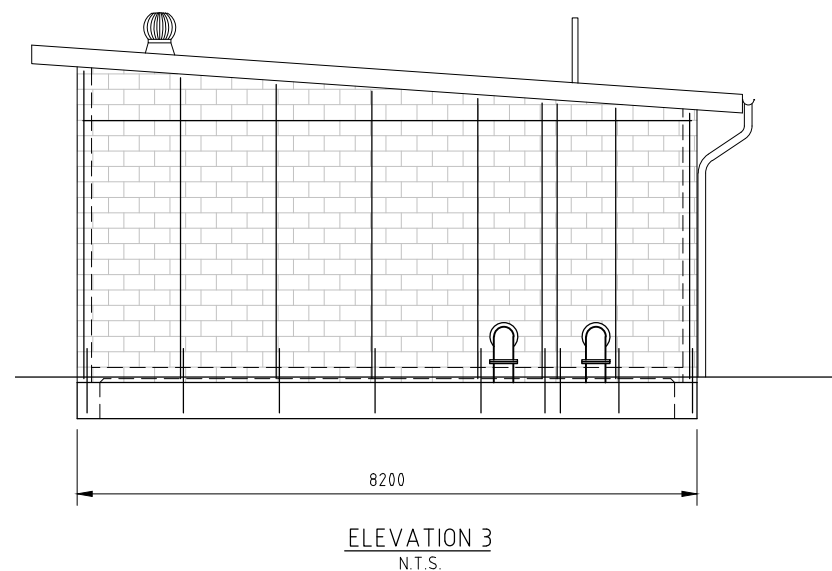
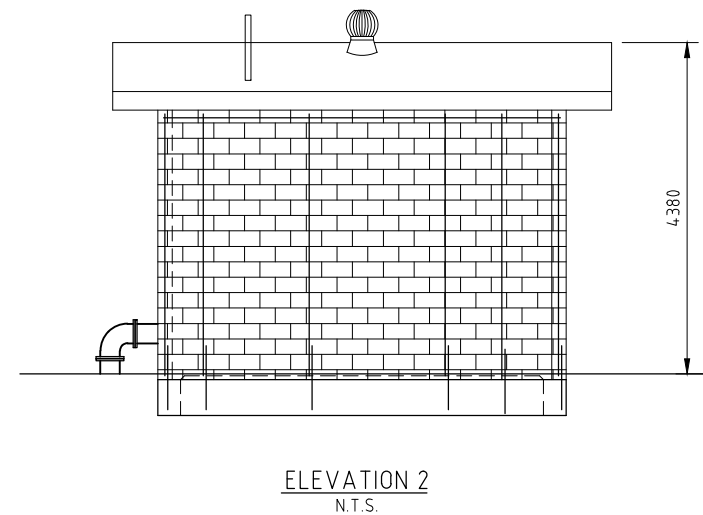
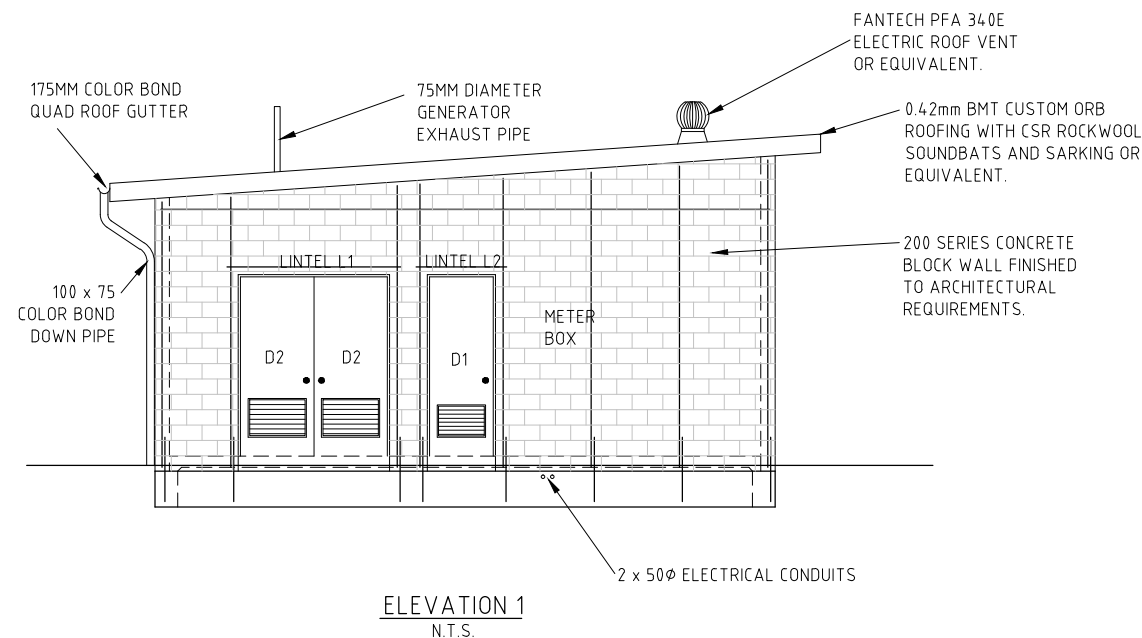
- PM (Retroreflective Pavement Marker) with visible directional marking.
- FH Fire Hydrant
- V Valve



TYPICAL RETROREFLECTIVE PAVEMENT MARKER

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerb Painting (See Note 5)	No	No	Yes (Note 5)	Yes (Note 6)	No	No	No





NOTES:

- BUILDING FORM MAY VARY ACCORDING TO THE LOCATION AND SURROUNDING ENVIRONMENT.
- FOOTINGS MUST BE DESIGNED TO SUIT BUILDING DESIGN AND FOUNDATION CONDITIONS.
- DUE TO A POSSIBILITY OF CHANGES TO THE SIZE OF THE PUMPS AND PIPES THE BUILDING MAY CHANGE.

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APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISION	DATE
H	STRUCTURAL DETAILS REMOVED
G	IRC ADDED
F	GRC AND LSC ADDED
E	DIMENSION AMENDMENTS
D	POST AMALGAMATION REVIEW
C	BANANA SHIRE COUNCIL ADDED
B	CMDG REVIEW CHANGES
A	ORIGINAL ISSUE

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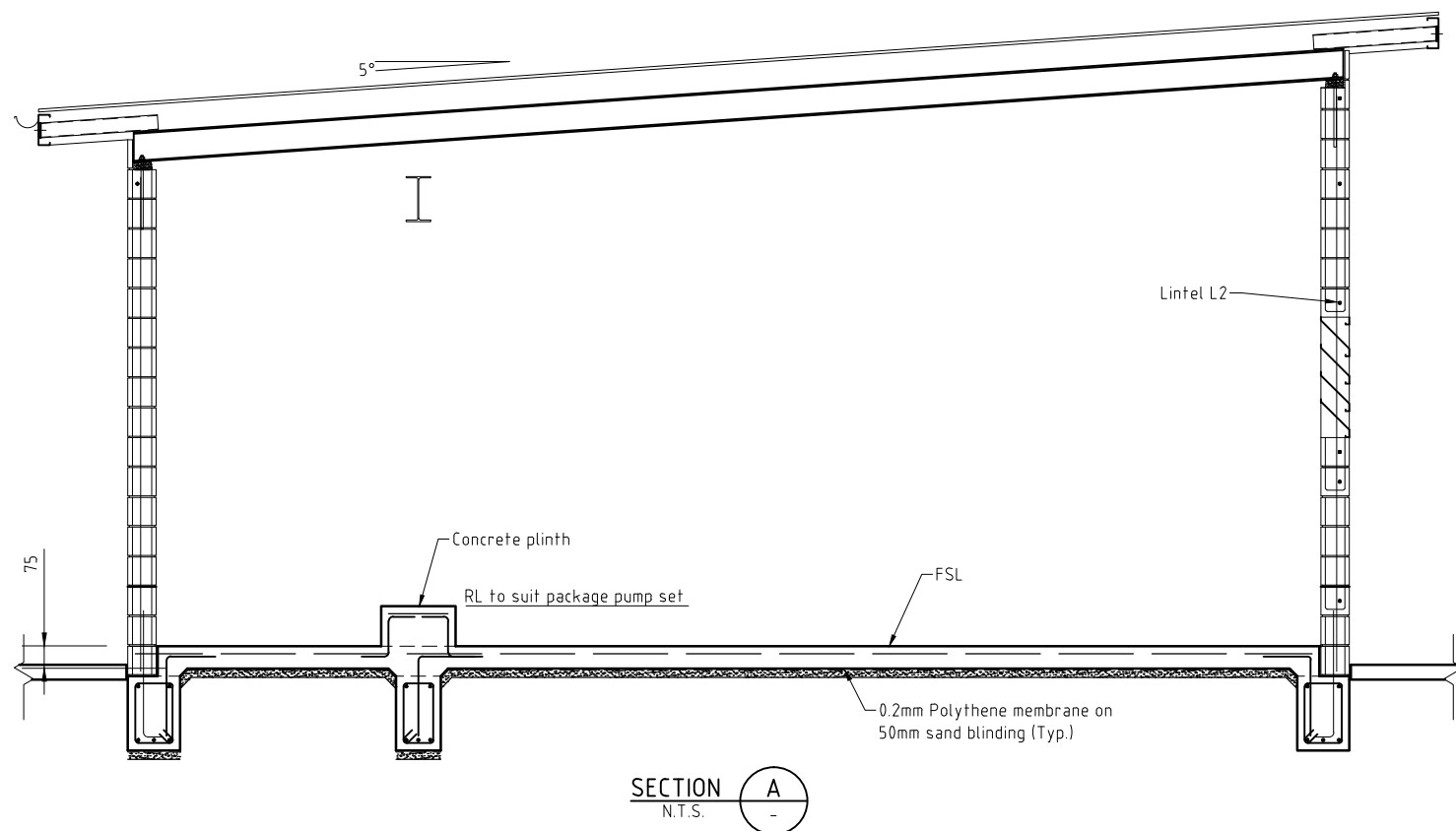
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Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

STANDARD WATER SUPPLY BOOSTER PUMP INSTALLATION ELEVATIONS

WATER						
STANDARD DRAWING						
CMDG-W-072						
REV.	A	B	C	D	E	F
REV.	G	H				



ITEM	DESCRIPTION	No. of
D1	Nominal 2200 high x 900 wide acoustic door externally faced with 1.6mm galvanised steel sheet metal, with 1.6mm thick pressed galvanised steel welded door frame, three 100mm heavy duty stainless steel hinges and "Lockwood - 303" single cylinder dead lock. Provide internal and external door handles. Door and frame is to be painted with an approved gloss enamel paint system. Colour is to be advised.	1
D2	Nominal 2200 high x 2000 wide 2 leaf factory hung acoustic door with suitably designed heavy duty galvanised steel frame with stainless steel sill, and purpose designed adjustable heavy duty ball bearing hinges. Doors shall be externally faced with 1.6mm galvanised steel sheet. Both leaves to be fitted with satin chrome shoot bolts top and bottom. Top shoot bolts shall extend down to 1800 above floor level. Provide internal and external door handles. Door and frame is to be painted with an approved gloss enamel paint system. Colour is to be advised.	1
D3	Nominal 2200 high x 1800 wide 2 leaf factory hung acoustic door with suitably designed heavy duty galvanised steel frame with stainless steel sill, and purpose designed adjustable heavy duty ball bearing hinges. Doors shall be externally faced with 1.6mm galvanised steel sheet. Both leaves to be fitted with satin chrome shoot bolts top and bottom. Top shoot bolts shall extend down to 1800 above floor level. Provide internal and external door handles. Door and frame is to be painted with an approved gloss enamel paint system. Colour is to be advised.	1
W1	Nominal 800 high x 1200 wide powder coated aluminium weather/insect-proof acoustic louvres. Colour is to be anodized bronze. (ACRAN 200 Series or equivalent)	3

THIS STANDARD DRAWING IS
A GUIDE ONLY AND SHOULD
NOT BE USED FOR DESIGN
PURPOSES

NOTES:

- NOTES:
1. ALL CABLING WITHIN THE BUILDING TO BE OVERHEAD ON CABLE TRAYS.
 2. REDESIGN OF STRUCTURAL COMPONENTS WILL BE REQUIRED FOR EACH SPECIFIC LOCATION.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
I	STRUCTURAL DETAILS REMOVED	03/2017
H	IRC ADDED	11/2016
G	GRC AND LSC ADDED	09/2014
F	DIMENSION AMENDMENTS	08/2014
E	POST AMALGAMATION REVIEW	01/2013
D	BANANA SHIRE COUNCIL ADDED	09/2007
C	CMDG REVIEW CHANGES	04/2007
B	REVISED ISSUE	02/2007
A	ORIGINAL ISSUE	10/2003

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Rockhampton Regional Council (RRC)

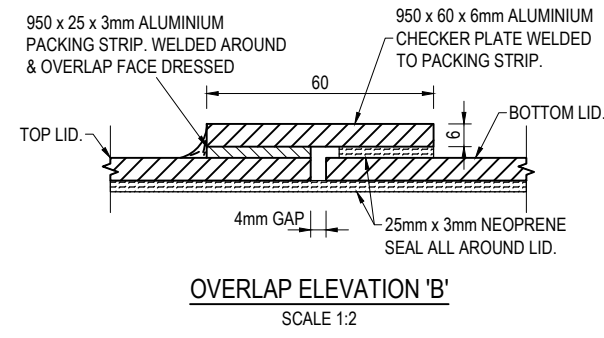
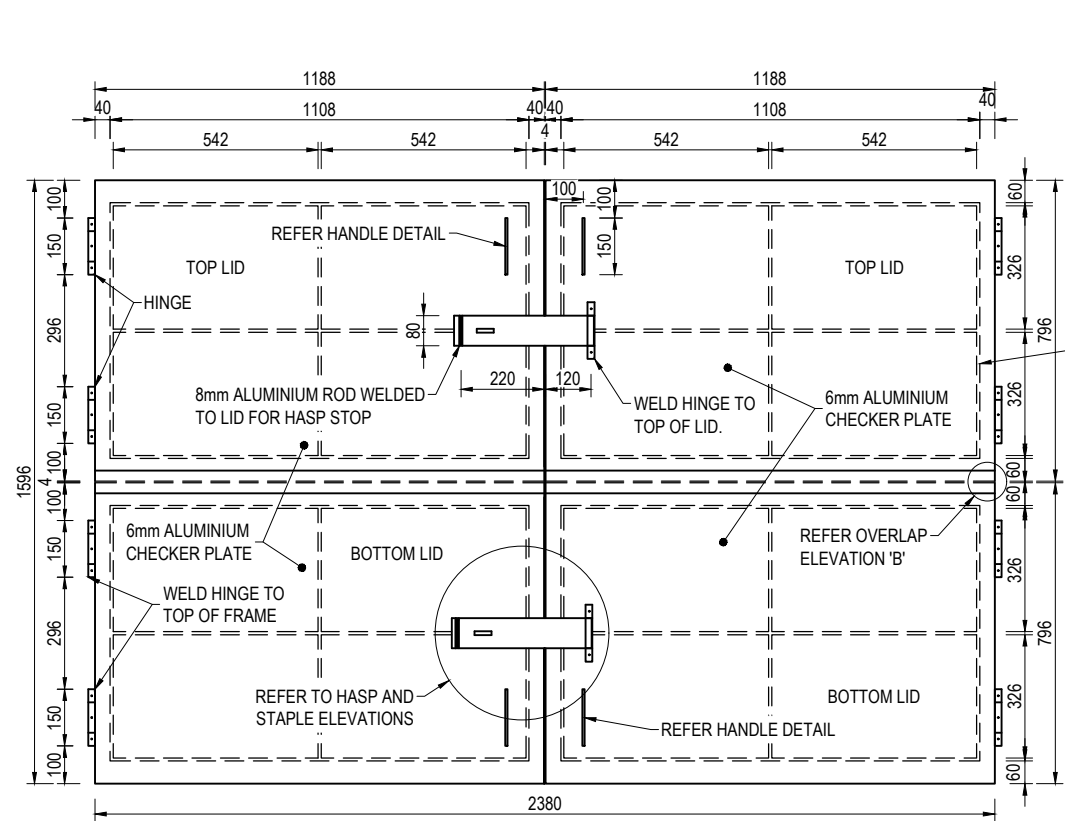
STANDARD WATER SUPPLY BOOSTER PUMP INSTALLATION ELEVATION

WATER

STANDARD
DRAWING

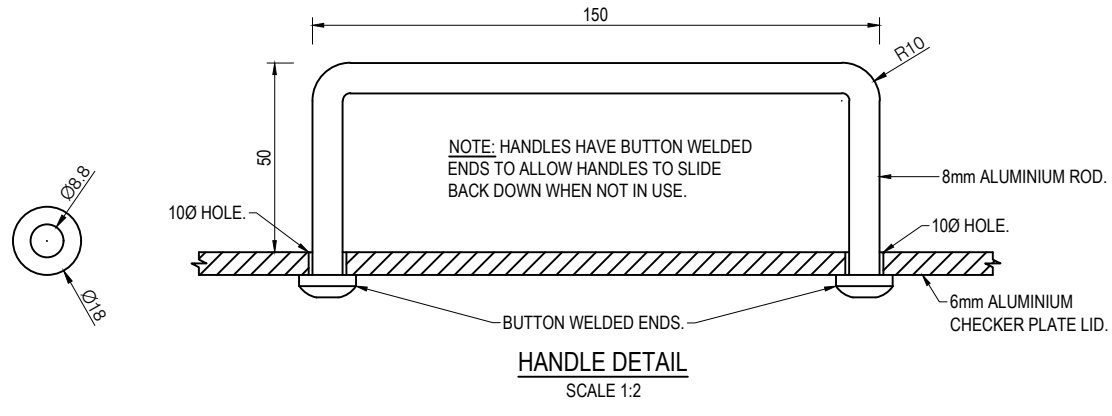
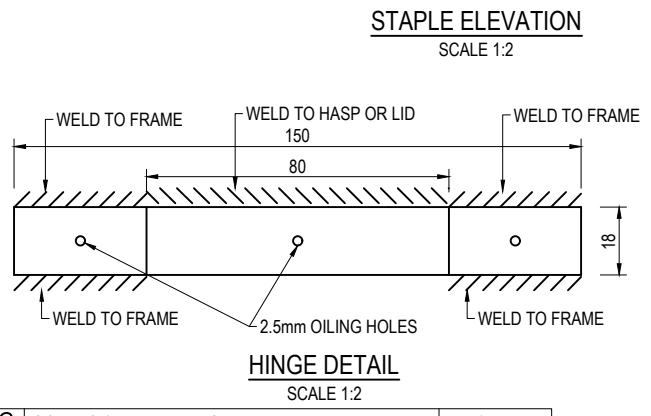
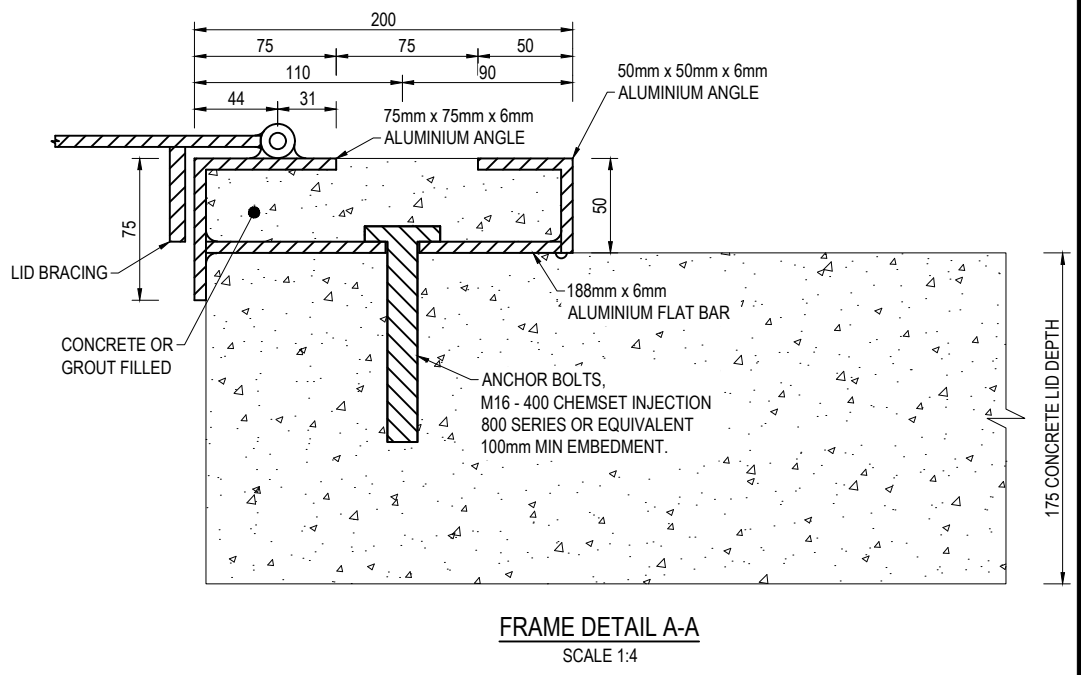
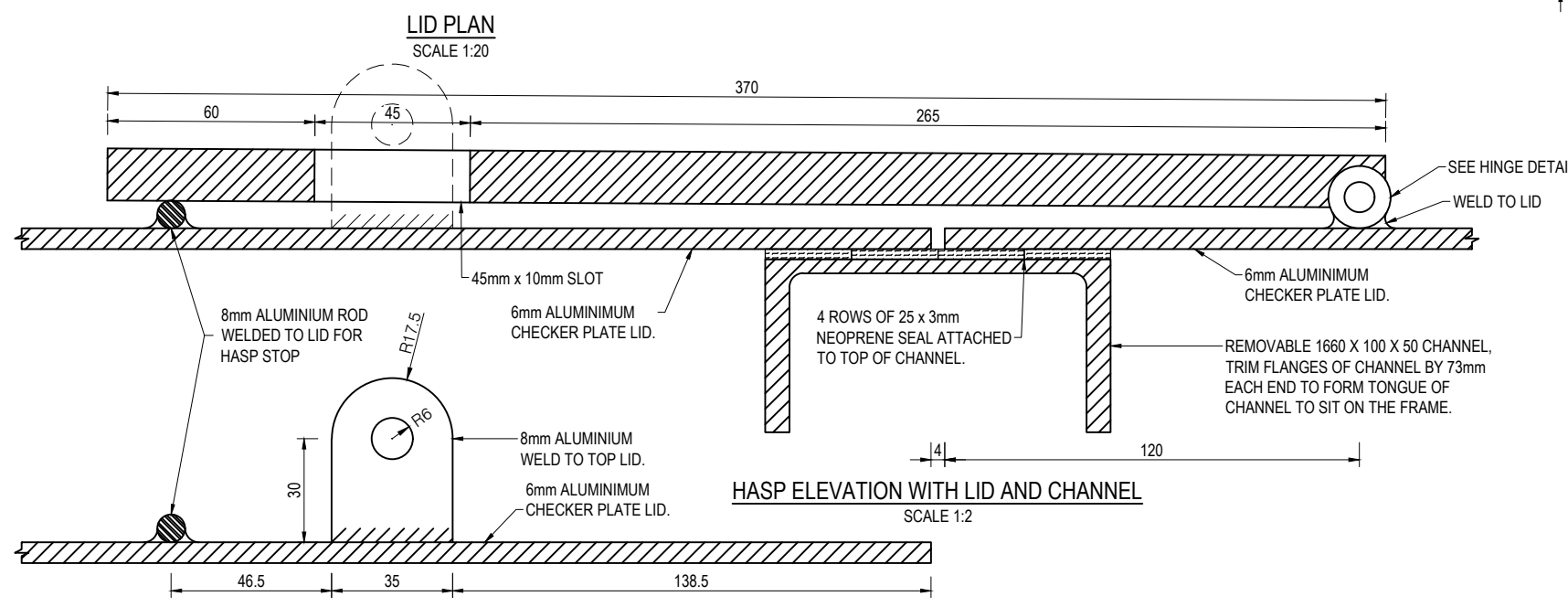
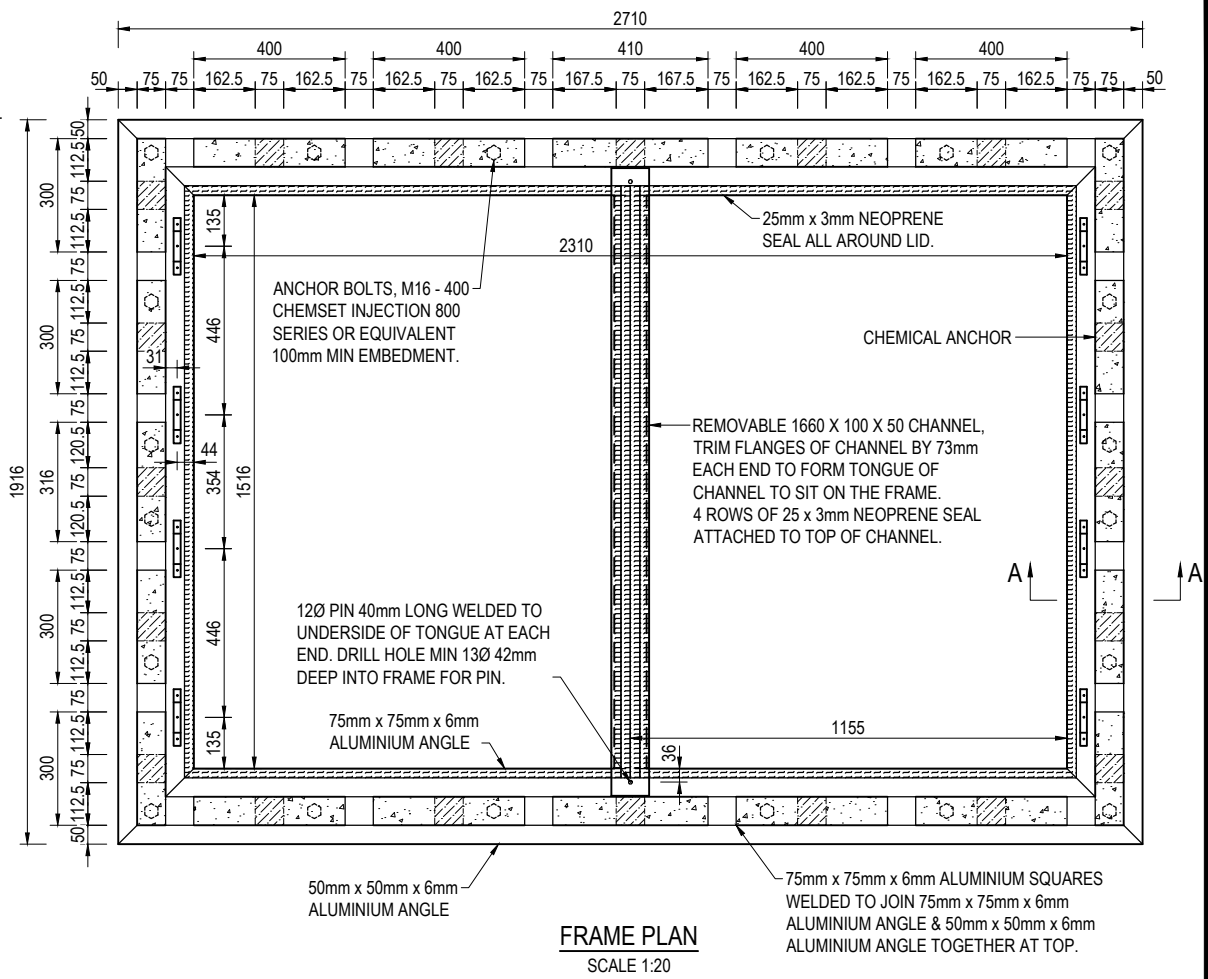
CMDG-W-073

REV.	A	B	C	D	E	F
	G	H	I			



NOTE:
 1. DESIGN SAFE LIVE LOAD = 2.5kpa
 2. MATERIAL GRADE:
 A. 6mm ALUMINIUM CHECKER PLATE = 5251-P5
 B. ALUMINIUM FLAT BAR = 6082-T6
 C. ALUMINIUM ANGLE = 6082-T5
 3. ALL WELDS TO AS1665

200 100 0 200 400 600 800 mm
1:20 (A3)



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	Yes	Yes	No	Yes
Applicable DWG							

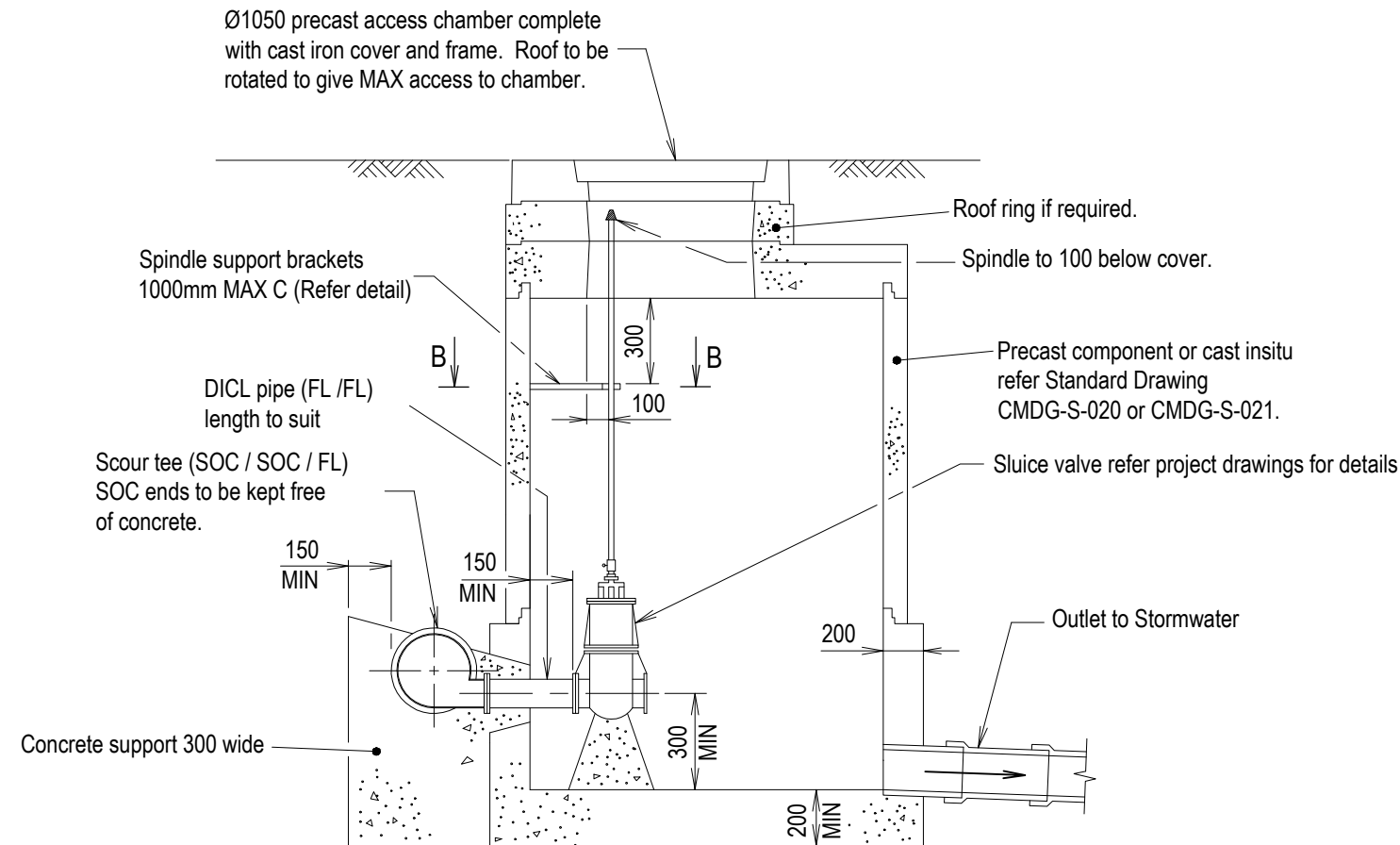
REVISIONS	DATE
G SCALES & LID ARRANGEMENT AMENDED	01/2018
F IRC ADDED	11/2016
E GRC AND LSC ADDED	09/2014
D DIMENSION AMENDMENTS	08/2014
C APPLICABILITY CHANGES	01/2013
B RRC AMENDMENTS	05/2011
A ORIGINAL ISSUE	01/2010

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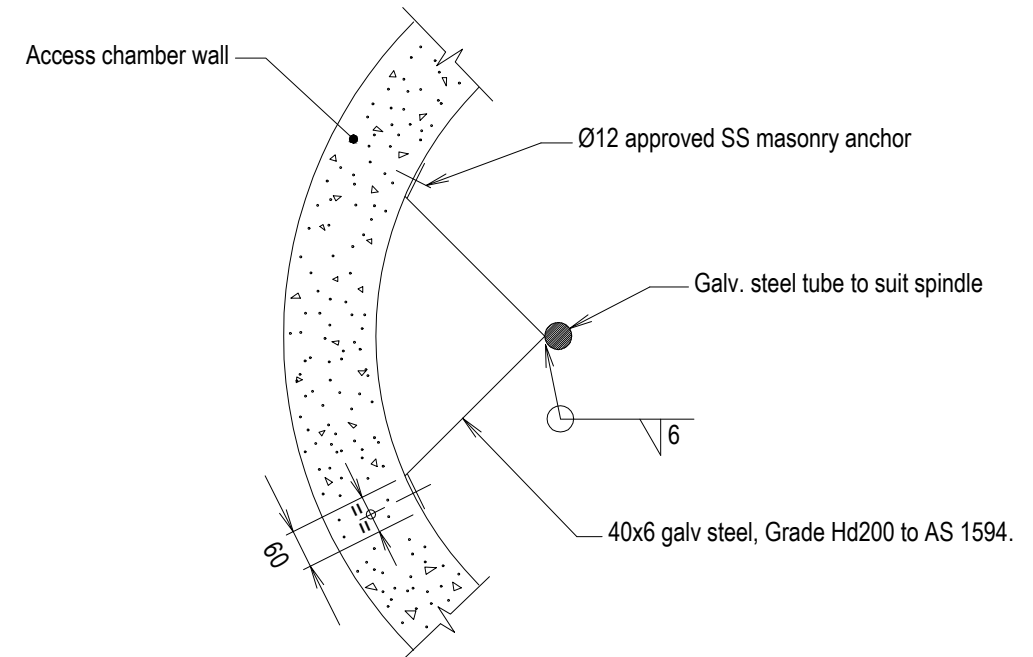
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 Gladstone Regional Council (GRC)
 Isaac Regional Council (IRC)
 Livingstone Shire Council (LSC)
 Maranoa Regional Council (MRC)
 Rockhampton Regional Council (RRC)

**STANDARD WATER SUPPLY BOOSTER
 PUMP INSTALLATION
 FLOWMETER PIT LID DETAILS**

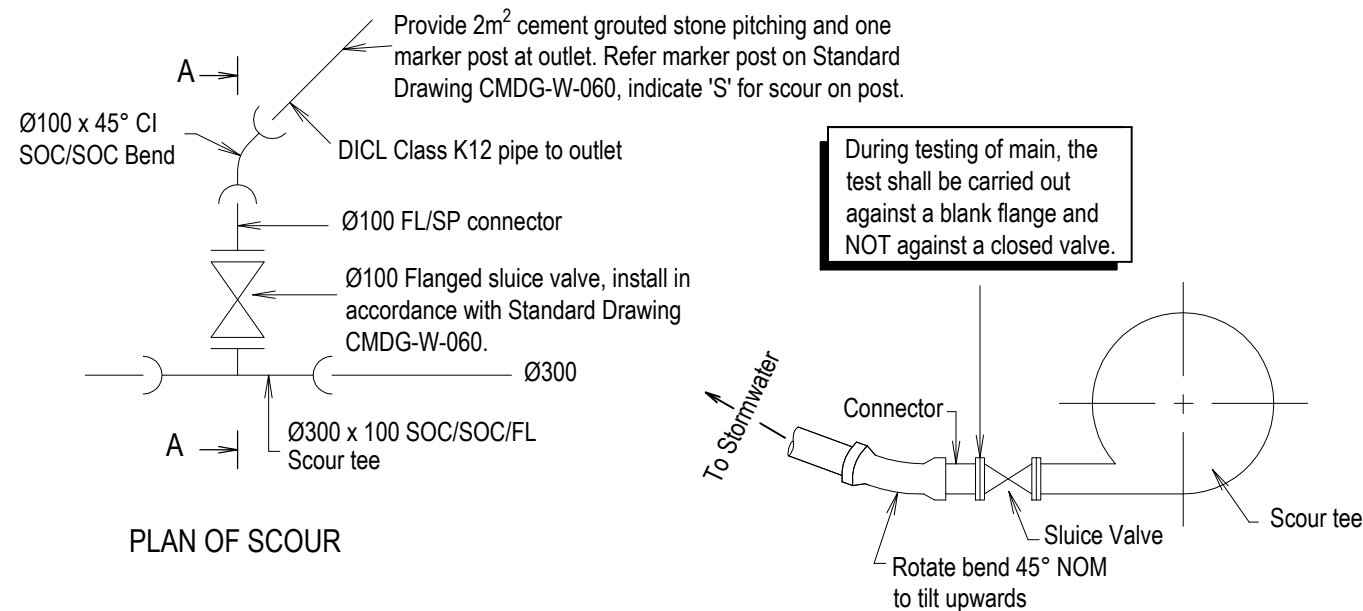
ROADS							
STANDARD DRAWING							
CMDG-W-074							
REV.	B	C	D	E	F	G	



ELEVATION
SCOUR DETAIL AT ACCESS CHAMBER
(Where Specified by Council)



SECTION B-B
BRACKET DETAIL



PLAN OF SCOUR

SECTIONAL ELEVATION OF
SCOUR TEE AT A-A

NOTES

1. Refer Standard Drawings CMDG-S-020 and CMDG-S-025 for details of access chambers and covers.
2. Where foundation bearing pressure is less than 50kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Superintendent.
3. Concrete N25 in accordance with AS 1379 Supp 1-1997/Amdt 1-2000 and AS 3600-2001/Amdt 2-2004.
4. All welds to AS 1554. All welding symbols to AS 1101.3.-2005.
5. The location of the scour valve and extent of scour discharge pipe are indicated on project drawings.
6. All dimensions in millimetres.
7. The purpose of the scour system is to release water and remove any sedimentation that maybe in the water reticulation network.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS	DATE
F DRAWING REFERENCES AMENDED	12/2017
E IRC ADDED	11/2016
D GRC AND LSC ADDED	09/2014
C NOTE 2 AMENDED	02/2014
B RRC AMENDMENTS	05/2011
A ORIGINAL ISSUE	01/2010

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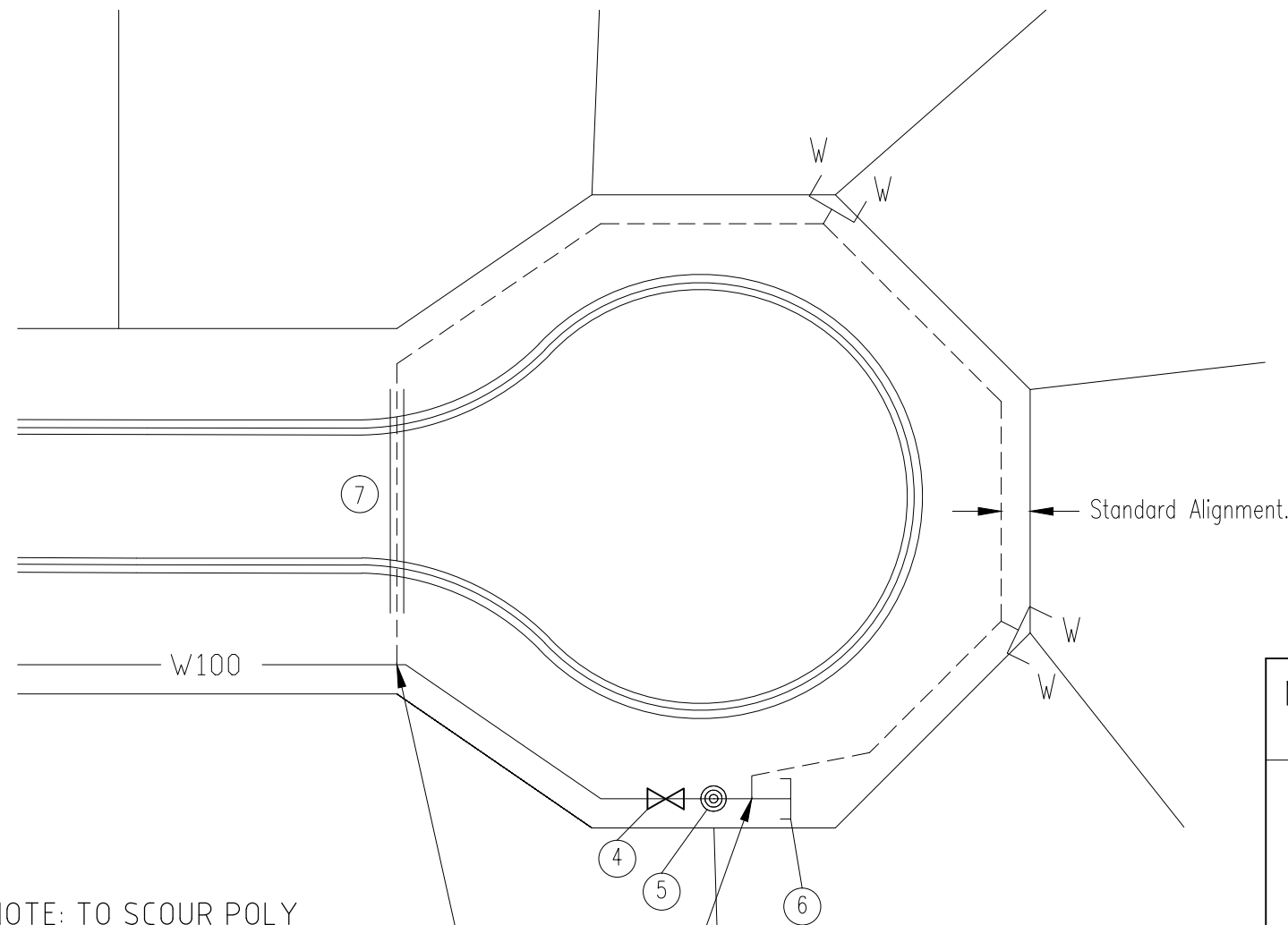
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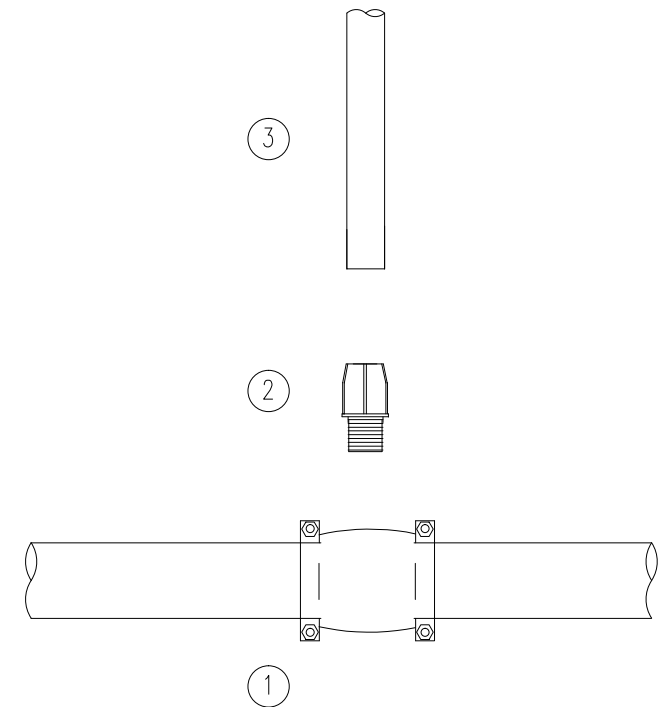
SCOUR DETAILS

ROADS
STANDARD DRAWING CMDG-W-080
REV. A B C D E F



NOTE: TO SCOUR POLY LOOP, CLOSE VALVE AND OPEN HYDRANT

TYPICAL CUL-DE-SAC
WATER PLAN



DETAIL A (PLAN)

MARK NO	DESCRIPTION
1	Elongated Tapping Band – Tapped to 50mmØ BSPT
2	50mmØ MI 63mmØ Poly End Connector
3	DN63 HDPE PN 12.5
4	100 Sluice Valve
5	100 Hydrant, Tee and Riser
6	End Cap and Thrust Block
7	100mm PVC Service Conduit

FITTINGS DETAIL

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
D	IRC ADDED	11/2016
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2010

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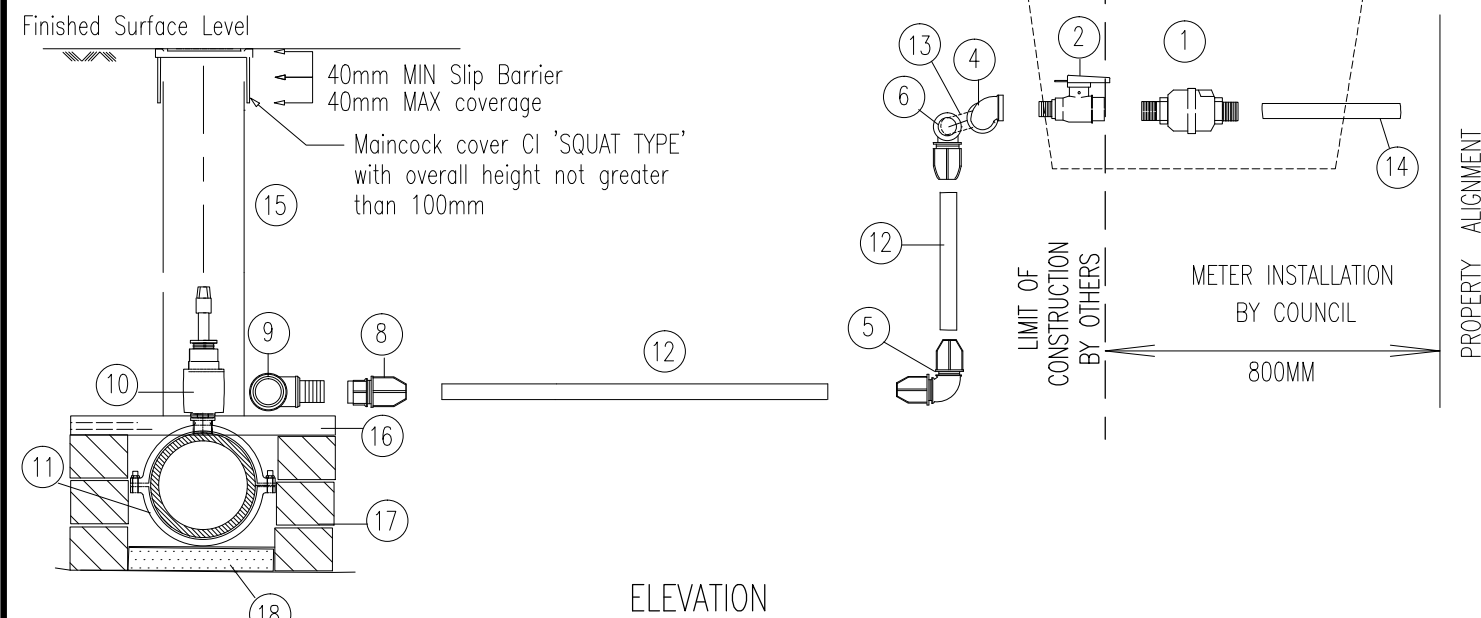
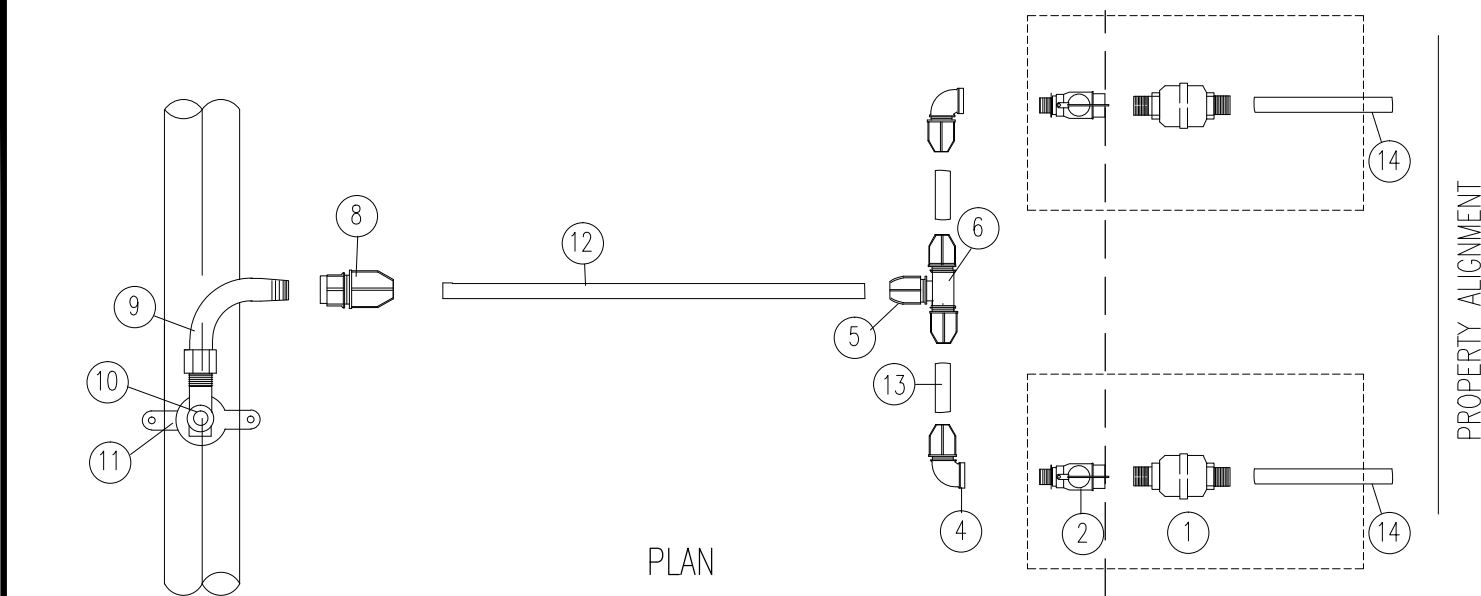
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Rockhampton Regional Council (RRC)

CUL-DE-SAC SCOUR DETAILS

ROADS							
STANDARD DRAWING							
CMDG-W-081							
REV.	A	B	C	D			



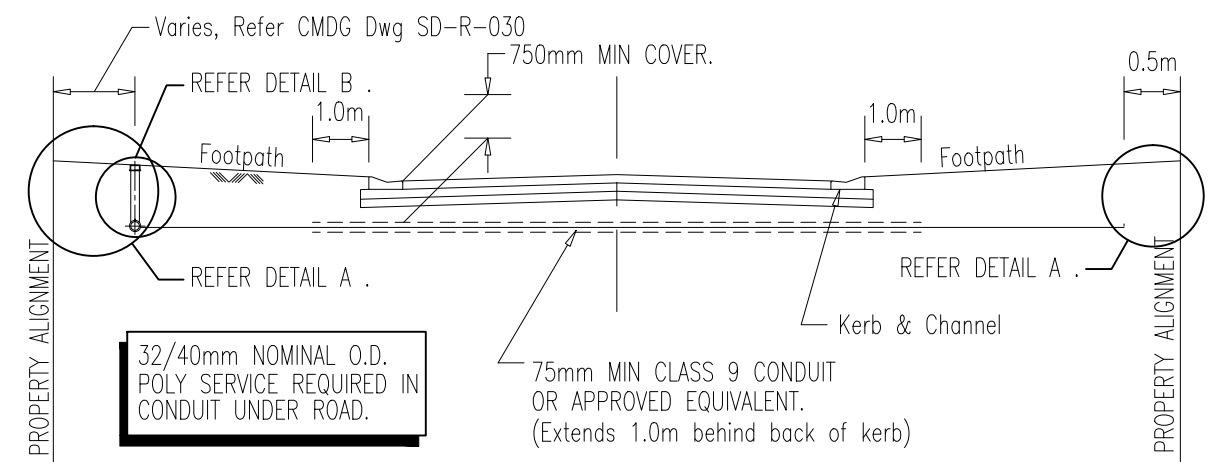
WATER MAIN CONNECTION
DETAIL: B

WATER SERVICE CONNECTION
DETAIL: A

MARK NO	DESCRIPTION	MARK NO	DESCRIPTION
1	Approved 20mm Water Meter	10	32mm TPFNR with Spindle Top
2	20mm Ball Cock	11	Approved Tapping Band – Tapped 25/32mm DIA..
4	20mm F.I. x 25 OD Poly Connector Elbow	12	32/40mm OD Nominal
5	32/40mm OD x 90 Poly Bend	13	25mm Nominal OD Poly
6	25P x 25Px32/40P Nominal OD Poly Tee (or equivalent)	14	20mm x 150 threaded Poly
8	25/32mm F.I. x 32/40 mm Poly Connector	15	100mm o UPVC Sewer Class SEH Riser
9	M.I Ferrule Bend	16	30 x 75 x 350 HWD Support
		17	3 Brick Support
		18	50mm MIN Sand Bedding

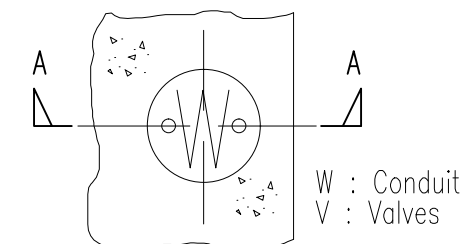
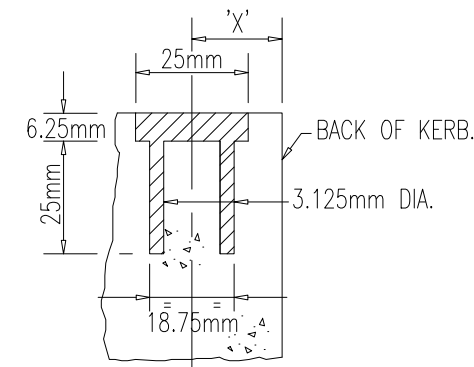
NOTES :

1. No galvanized fittings to be used.
2. Check applicability box for service requirements for different councils



NOTES:

1. Dimension 'X' shall be 75mm for BARRIER KERB and 25mm for MOUNTABLE KERB.
2. This Drawing shall be read in conjunction with the relevant specification for Service Conduits.
3. A BRASS or STAINLESS STEEL Service Conduit Marker is to be installed for all Conduits. Refer Detail.
4. Markers for Valves to be installed in kerb and channel at 90° to Valve location.



SECTION A-A

PLAN

BRASS or STAINLESS STEEL SERVICE CONDUIT MARKER and VALVE MARKER DISC

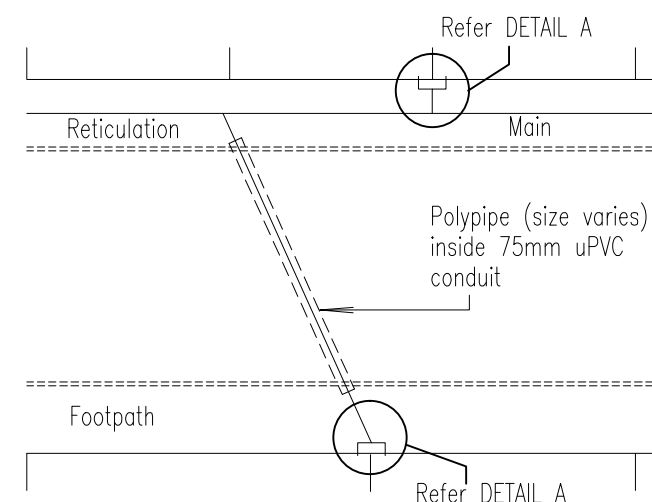
MINIMUM COVER IN PUBLIC AREAS

Location	Minimum Cover Measure below ground surface level in mm
Unpaved	450
Paved or Road Surface	450
Solid Rock	300

Table 5.3 as given in
A.S.3500.1.2 of 1998

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Short / long dual and short long single size (OD)	32	32		32	40	32	40
Service box Installation	No	No		No	Yes	No	Yes
Applicable DWG	CMDG-W-090A						



N.T.S

REVISIONS	DATE
F IRC ADDED	11/2016
E AMMEND TPFNR TO 32mm	04/2016
D GRC AND LSC ADDED, DOUBLE SERVICE SIZE 40mm. AMENDED TPFNR REFERENCE	01/2015
C APPLICABILITY CHANGES	01/2013
B RRC AMENDMENTS	05/2011
A ORIGINAL ISSUE	

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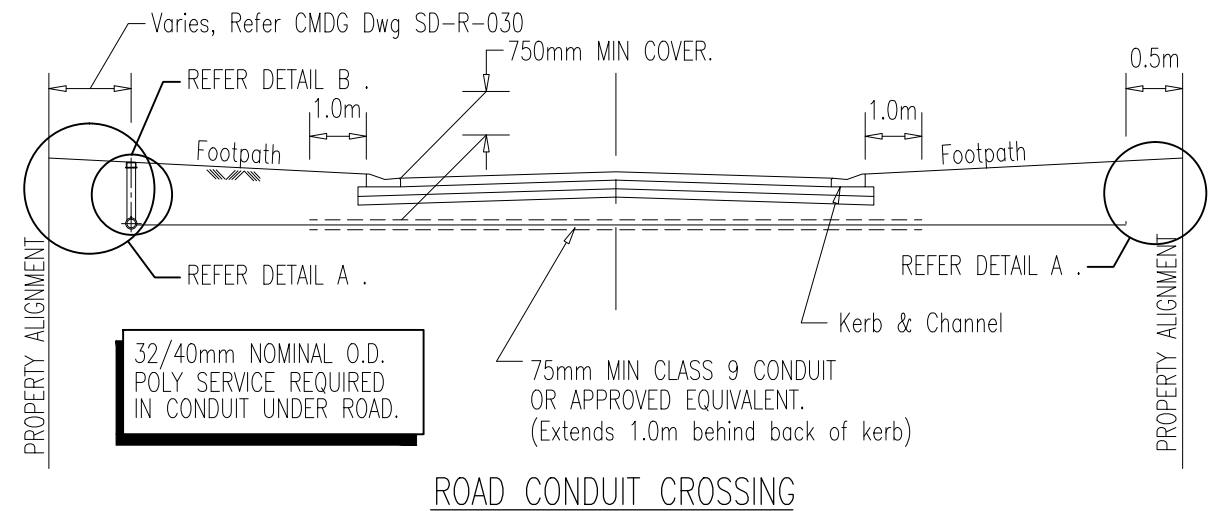
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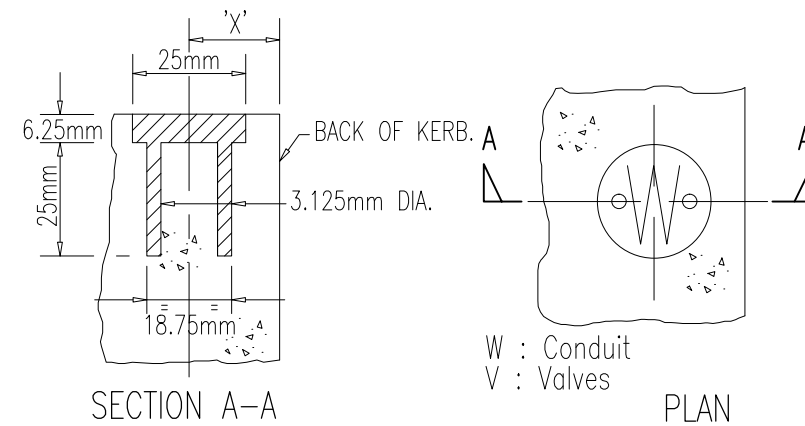
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Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
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20 & 25mm SERVICE AND
WATER METER CONNECTIONS

ROADS
STANDARD DRAWING CMDG-W-090
REV. A B C D E F



1. Dimension 'X' shall be 75mm for BARRIER KERB and 25mm for MOUNTABLE KERB.
2. This Drawing shall be read in conjunction with the relevant specification for Service Conduits.
3. A BRASS or STAINLESS STEEL Service Conduit Marker is to be installed for all Conduits. Refer Detail.
4. Markers for Valves to be installed in kerb and channel at 90° to Valve location.



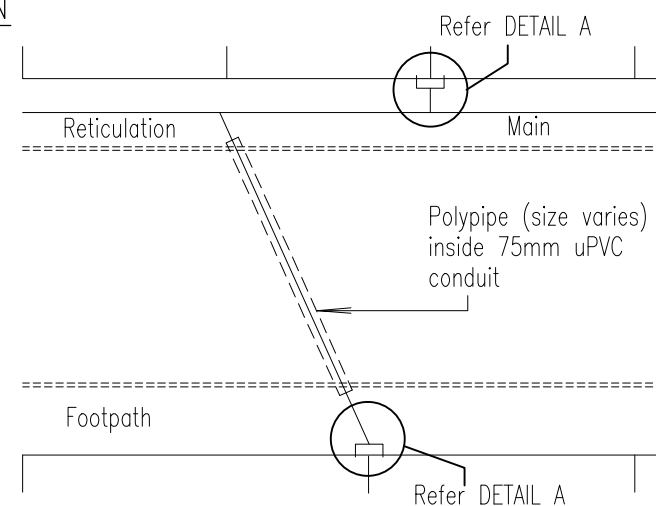
SECTION A-A PLAN
BRASS or STAINLESS STEEL SERVICE CONDUIT MARKER and VALVE MARKER DISC

Location	Minimum Cover Measured below ground surface level in mm
Unpaved	450
Paved or Road Surface	450
Solid Rock	300

Table 5.3 as given in
A.S.3500.1.2 of 1998

MARK NO	DESCRIPTION	MARK NO	DESCRIPTION
1	Approved 20mm Water Meter	10	25/32mm TPFNR with Spindle Top
2	20mm Ball Cock	11	Approved Tapping Band – Tapped 25/32mm OD Poly.
		12	32/40mm OD Poly
		13	25mm OD Poly
4	20mm F.I. x 25 OD Poly Connector Elbow	14	20mm x 150 threaded OD Poly
5	32/40mm OD x 90 Poly Bend	15	100mm o UPVC Sewer Class SEH Riser
6	25P x 25P x 32/40P OD Poly Tee (or equivalent)	16	30 x 75 x 350 HWD Support
8	25/32mm F.I. x 40 mm OD Poly Connector	17	3 Brick Support
9	M.I Ferrule Bend	18	50mm MIN Sand Bedding

1. No galvanized fittings to be used.
2. Check applicability box for service requirements for different councils



TYPICAL WATER MAIN CONNECTIONS

N.T.S

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Short Single			25mm TPFNR 32 OD Poly				
Short dual, long single & long dual			32mm TPFNR 40 OD Poly				
Service box Installation			Yes				
Applicable DWG	CMDG-W-090						

REVISIONS		DATE
F	IRC ADDED	11/2016
E	POLY PIPE DIAMETER CHANGES	03/2015
D	GRC AND LSC ADDED, DOUBLE SERVICE SIZE	01/2015
	40mm. AMENDED TPFNR REFERENCE	
C	APPLICABILITY CHANGES	01/2013
B	RRC AMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2010

DISCLAIMER.

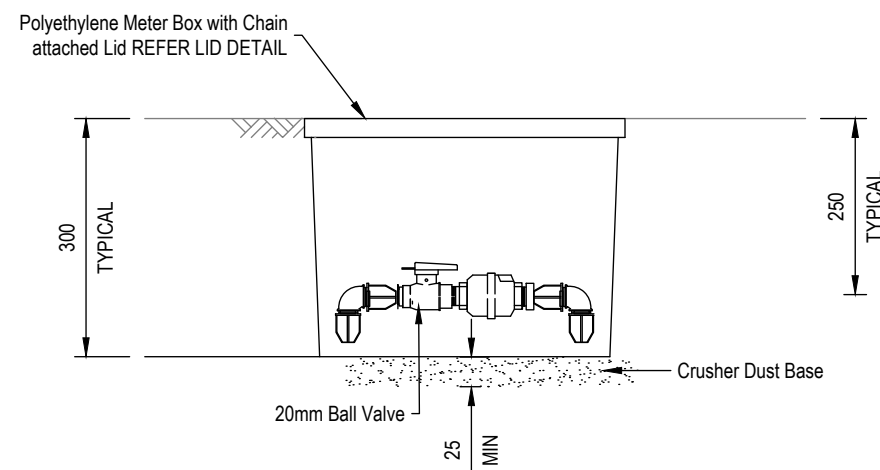
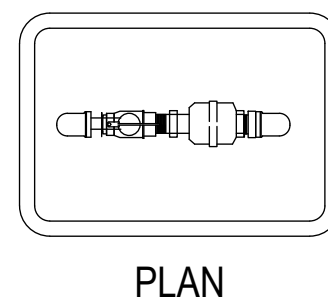
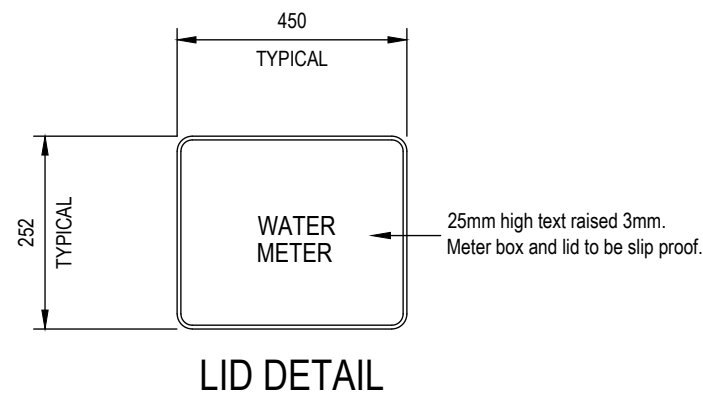
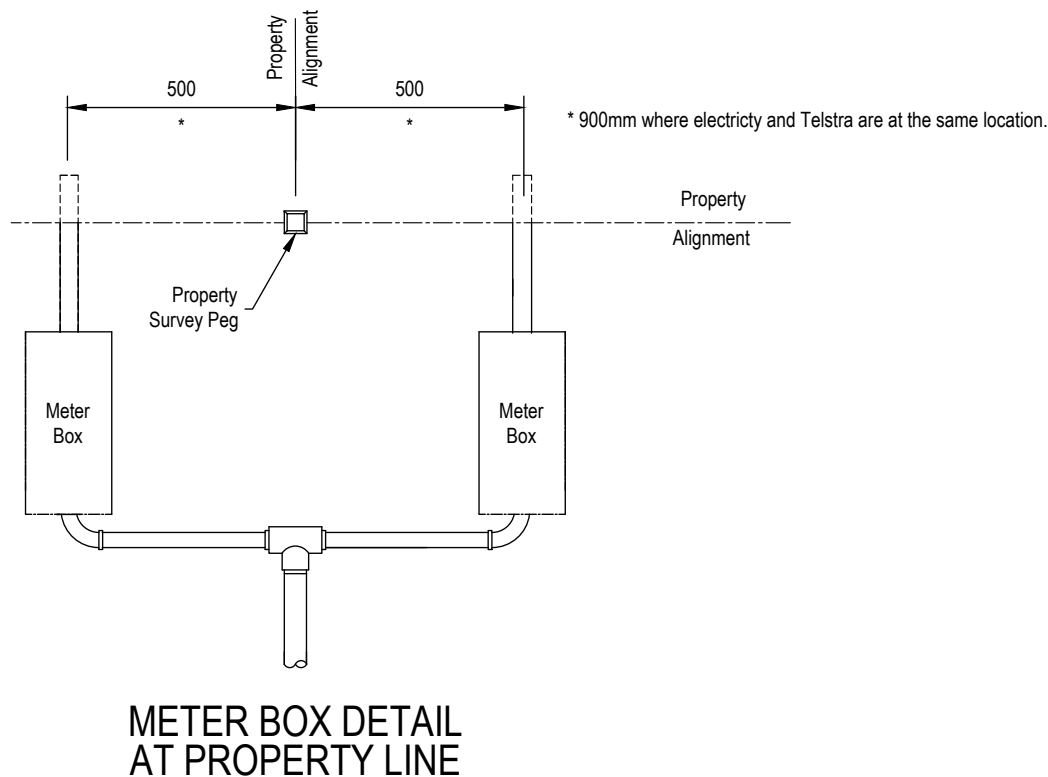
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Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

20 & 25mm SERVICE AND WATER METER CONNECTIONS

ROADS						
STANDARD DRAWING						
CMDG-W-090A						
REV.	A	B	C	D	E	F



METER BOX
N.T.S.

NOTES:

1. Ball valves must be Water Mark Approved.
2. Ball valves shall be made from brass or gunmetal and shall have a chrome plated ball.
3. 20mm I.D. Ball Valves shall have BSP threaded male and female ends.
4. All Polyethylene Pipes and Fittings shall be CLASS PN 12.5 or PN16 in Accordance with AS/NZS 4130 and AS/NZS 4129 respectively.
5. 20mm Ball valves to be fixed in place 250mm below finished surface level.
6. Watermeters shall comply with AS 3565.1 which incorporates a dual check valve.
7. * Alignment for existing connections will vary according to the area. Replacement connections and meters will align with existing property line connection.
8. NO GALVANISED FITTINGS TO BE USED.
9. All dimensions in millimetres.
10. Meter box to be provided by Council.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	No	Yes	Yes	Yes	No	Yes
Poly Pipe and Class	PN12.5		PN12.5	PN12.5	PN16		PN12.5
Applicable DWG	CMDG-W-093						

REVISIONS		DATE
I	POLY PIPE CLASS AMENDED FOR LSC	04/2023
H	32 & 40mm ADDED + POLY CLASS FOR GRC	01/2022
G	GRC AND LSC ADDED	11/2016
F	GRC APPLICABILITY CHANGES	09/2015
E	RRC AMENDMENTS	09/2014
D	IRC ADDED	09/2014

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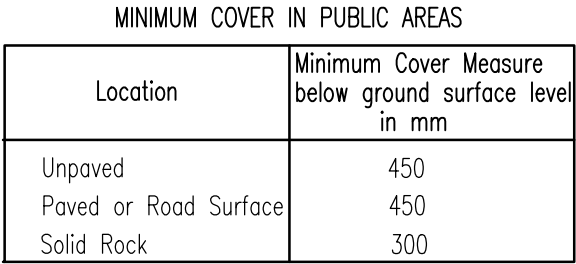
Incorporating:

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Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

20, 25, 32, 40mm WATER METER DETAILS BELOW GROUND

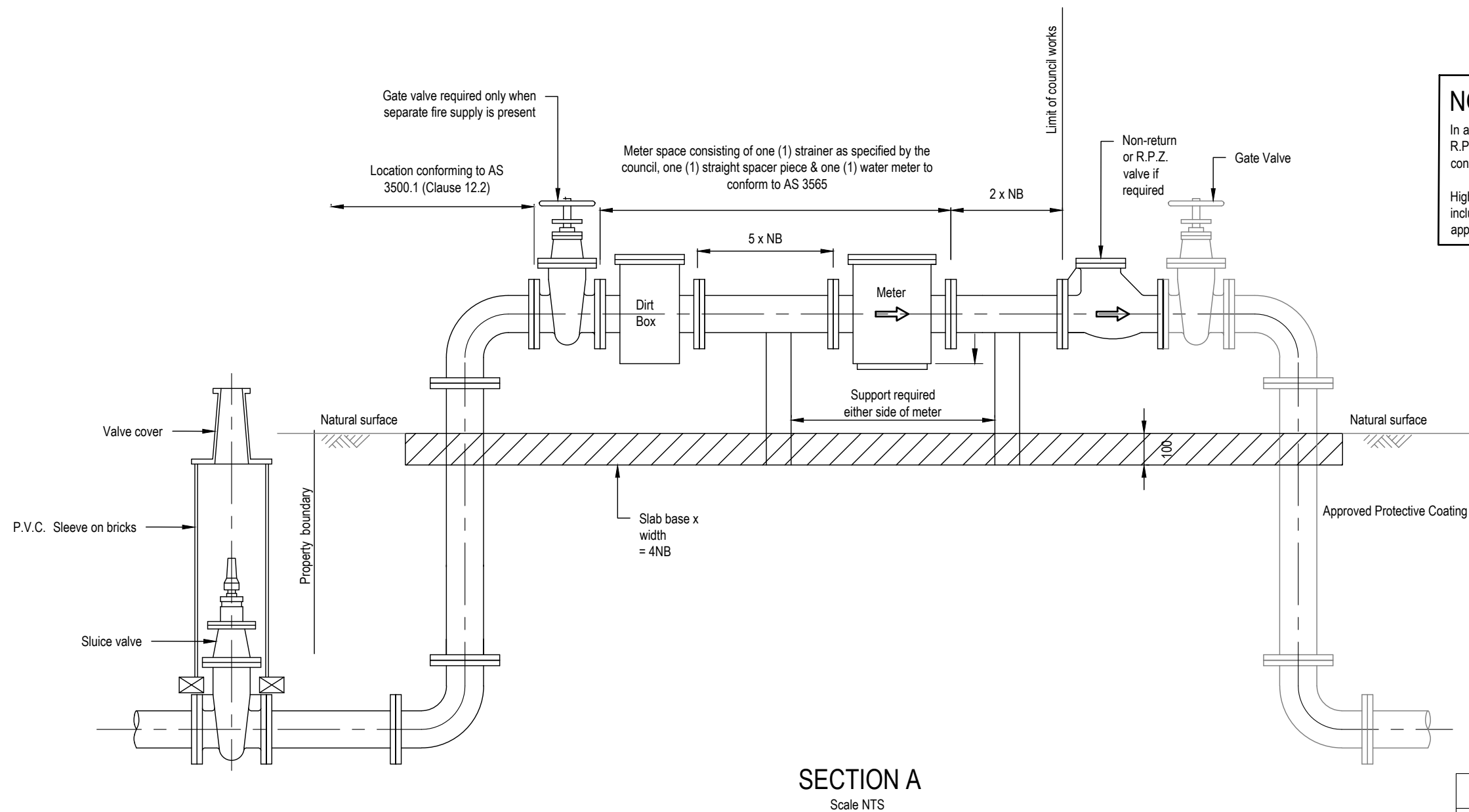
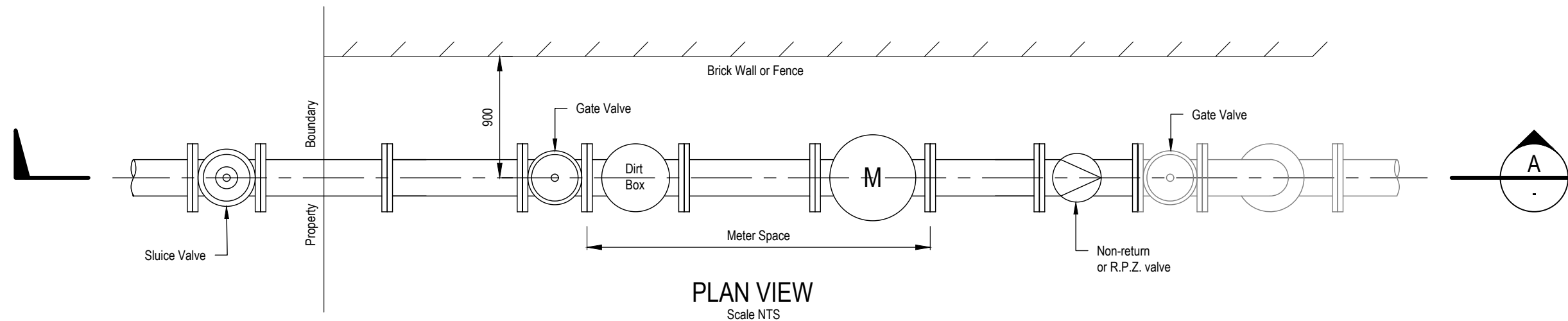
WATER	
STANDARD DRAWING	A3
CMDG-W-091	
REV.	D E F G H I



NOTES:

- | APPLICABILITY TABLE | | | | | | | |
|-----------------------|------------|------|-----|-----|-----|-----|-----|
| Council | BSC | CHRC | GRC | IRC | LSC | MRC | RRC |
| Applicable | Yes | Yes | No | Yes | No | Yes | No |
| Applicable DWG | CMDG-W-091 | | | | | | |

REVISIONS		DATE	<p align="center">DISCLAIMER.</p> <p>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</p>	<p align="center">Capricorn Municipal Development Guidelines</p> <p align="center">Incorporating:</p> <div>Banana Shire Council (BSC) Central Highlands Regional Council (CHRC) Gladstone Regional Council (GRC) Isaac Regional Council (IRC)</div> <div>Livingstone Shire Council (LSC) Maranoa Regional Council (MRC) Rockhampton Regional Council (RRC)</div>		<p align="center">20, 25, 32 & 40MM WATER METER DETAILS ABOVE GROUND</p>		WATER	
I	32/40MM ADDED & GRC APPLICABILITY CHANGE	01/2022						STANDARD DRAWING	
H	IRC ADDED	11/2016						CMDG-W-093	
G	GRC APPLICABILITY CHANGE	03/2015							
F	GRC AND LCS ADDED	09/2014							
E	RRC AMENDMENTS	09/2014							
D	APPLICABILITY CHANGES	01/2013							
REV.			D	E	F	G	H	I	



NOTES

In accordance with AS 3500-1 Section 4 Back-Flow Prevention Device (i.e. R.P.Z. Valves) are required to be installed in high risk areas to prevent contamination of potable water supply.

High risk areas are defined in Section 4 of the Australian Standard and include industrial, commercial, agricultural, horticultural and irrigation applications.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	No	No	Yes	Yes	Yes	Yes
Applicable DWG	W-094A or W-094B						

REVISIONS		DATE
H	INCLUDED 50 & 80MM WM DETAILS IN TBLK	05/2022
G	IRC ADDED	11/2016
F	AMEND RRC APPLICABILITY	03/2015
E	GRC AND LSC ADDED	09/2014
D	MRC APPLICABILITY - YES	04/2013
C	SLAB DETAILS INCLUDED	01/2013

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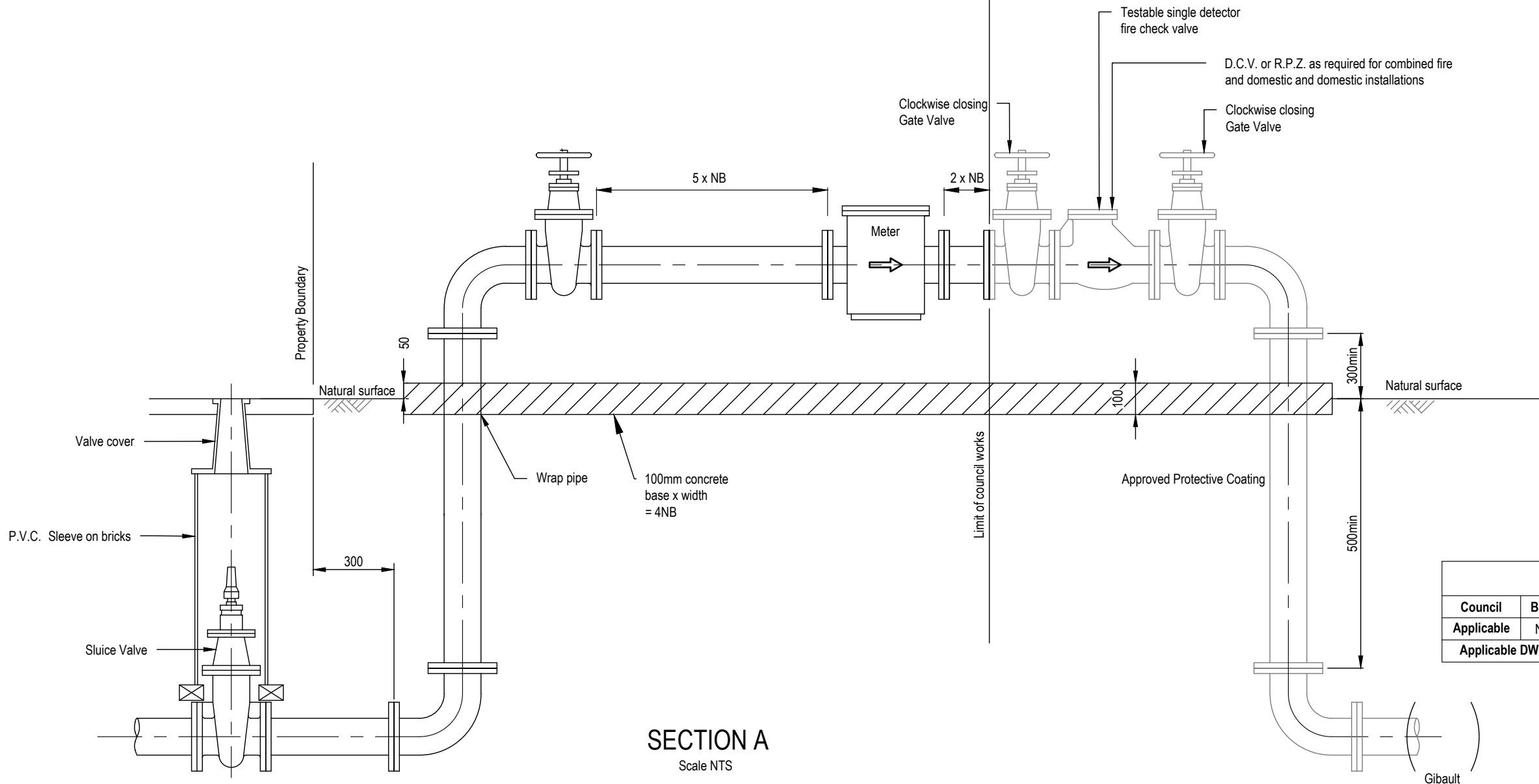
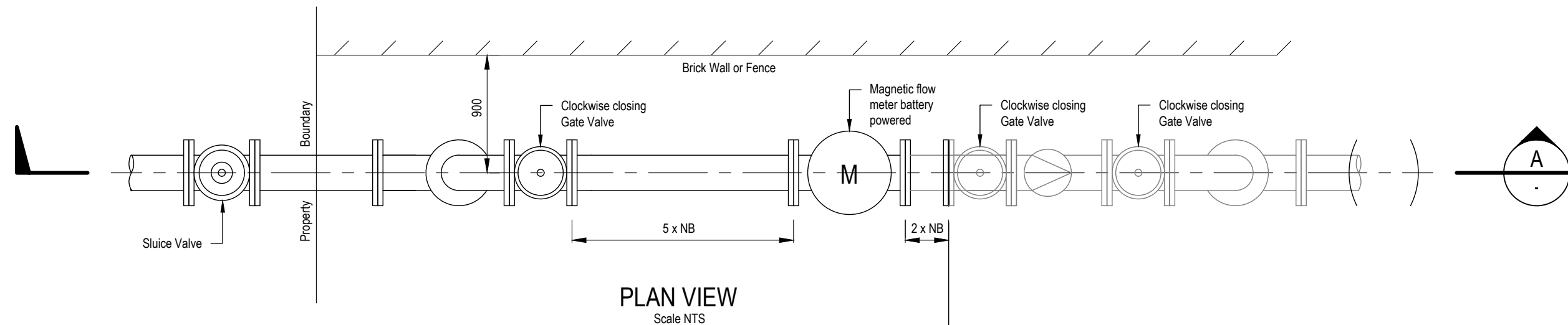
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50, 80, 100, 150 & 200MM
WATER METER CONNECTIONS

WATER	
STANDARD DRAWING	A3
CMDG-W-094	
REV.	C D E F G H



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	No	No	No	No	Yes
Applicable DWG	W-094 or W-094B						

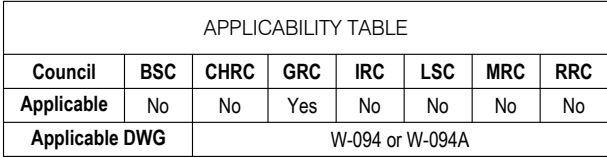
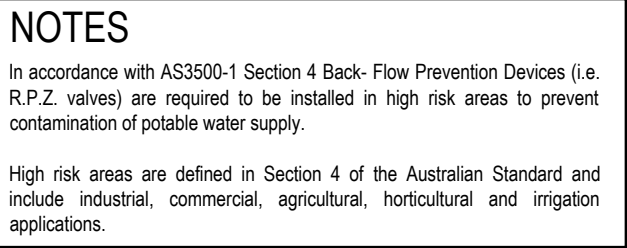
REVISIONS		DATE
C	INCLUDED 50 & 80MM WM DETAILS IN TBLK	05/2022
B	IRC ADDED	11/2016
A	ORIGINAL ISSUE - RRC ONLY	03/2015

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**50, 80, 100 & 200mm
WATER METER CONNECTIONS
FIRE LINE ONLY**

ROADS	
STANDARD DRAWING	A3
CMDG-W-094A	
REV.	A B C



REVISIONS		DATE
C	INCLUDED 50 & 80MM WM DETAILS IN TBLK	05/2022
B	IRC ADDED	11/2016
A	ORIGINAL ISSUE - GRC DRAWING	03/2015

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<h2 style="text-align: center;">Capricorn Municipal Development Guidelines</h2> <p style="text-align: center;">Incorporating:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Banana Shire Council (BSC)</p> <p>Central Highlands Regional Council (CHRC)</p> <p>Gladstone Regional Council (GRC)</p> <p>Livingstone Shire Council (LSC)</p> </div> <div style="width: 45%;"> <p>Maranoa Regional Council (MRC)</p> <p>Rockhampton Regional Council (RRC)</p> <p>Isaac Regional Council (IRC)</p> </div> </div>	
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50, 80, 100, 150 & 200mm
WATER METER CONNECTIONS

ROADS						
STANDARD DRAWING					A3	
CMDG-W-094B						
REV.	A	B	C			