

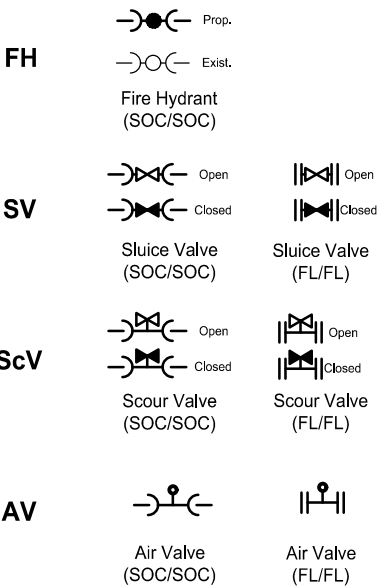
FITTINGS SCHEDULE			
DETAIL ID	SIZE	DESCRIPTION	QTY
①	100 Ø	Tee (FI/FI/FI)	3
②		Gibault	2
N/A		11¼° Bend (Soc/Soc)	7
③		11¼° Bend (FI/FI)	1
N/A		22½° Bend (Soc/Soc)	2
N/A		45° Bend (Soc/Soc)	1
N/A		90° Bend (Soc/Soc)	1
N/A	150 Ø	Connector (Soc/Soc)	2
④		Connector (FI/Soc)	7
⑤		Connector (FI/Spig)	3
⑥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

FITTINGS



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 CMDG-S-020

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

RECYCLED EFFLUENT MAIN CONSTRUCTION NOTES

- All recycled water mains to be on 1.8m alignment unless otherwise noted
- 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.
- Minimum cover to recycled water mains to be 900mm for road pavements and 600mm elsewhere.
- Sluice Valves are to be clockwise closing.
- Place detectable marker tape in trench approx. 300 mm above pipe.

WATER CONSTRUCTION NOTES

- All water mains to be on 2.5m alignment unless otherwise noted.
- Watermains shall be RRJ to AS1477 Series 2 (blue colour) uPVC Class 12, mPVC Class 16 or oPVC Class 16. Material Class 400.
- Minimum cover to Watermains shall be 900mm for road pavements and 600mm elsewhere.
- Concrete thrust blocks to be constructed in accordance with Std. Dwg. CMDG-W-041.
- Water Sluice Valves are to be anti-clockwise closing.
- 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.
- Hydrants & valves to be installed in accordance with Std. Dwg. CMDG-W-060.
- Place detectable marker tape in trench approx. 300 mm above pipe.

SEWER RISING MAIN CONSTRUCTION NOTES

- All sewer rising mains to be on 1.8m alignment unless otherwise noted.
- 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.
- Minimum cover to rising rmain to be 900mm for road pavements and 600mm elsewhere.
- Concrete thrust blocks to be constructed in accordance with CMDG-W-041.
- Scour Valves to be installed in accordance with Std. Dwg. CMDG-S-073.
- Air Valves to be installed in accordance with Std. Dwg. CMDG-S-072.
- Valves to be installed in accordance with Std. Dwg. CMDG-W-060 and provided with 600mm turf surround.
- Valves to be fitted with a concrete surround 50mm above natural surface level.
- Backfilling of all driveway and road crossings to be cement stabilised.
- Sluice Valves are to be clockwise closing.
- Place detectable marker tape in trench approx. 300 mm above pipe.

SEWER GRAVITY MAIN CONSTRUCTION NOTES

- Sewer alignments to be as specified in D12 Sewerage Network - Design and Construction Guideline.
- 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.
- Manhole locations shall be pegged by surveyor prior to construction.
- Finished manhole top levels to be confirmed on site. Generally top of finished MH should be 75mm above surrounding finished surface levels.
- Manhole lids to be Class C or D.
- Provide a 1.5m long star picket driven 0.5m into the ground within 200mm of the ends of each house connection.
- 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.
- Sewer manholes to be precast and minimum 1050Ø. Concrete manholes to be in accordance with Std. Dwg. CMDG-S-021.
- Lamphole to be constructed in accordance with Std. Dwg. CMDG-S-026.
- Bases to be fibreglass compлас type or approved equivalent base.
- House connections to be constructed in accordance with Std. Dwg. CMDG-S-030.
- Provide concrete stops in accordance with Std. Dwg. CMDG-S-091 on slopes greater than 1 on 6.
- Maximum manhole spacing to be 90m. Maximum lamphole segment to be 40m.
- Place detectable marker tape in trench approx. 300 mm above pipe.

APPLICABILITY TABLE

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

REVISIONS		DATE
G	IRC ADDED	11/2016
F	AMEND SEWER GRAVITY MAIN NOTE 1	10/2016
E	SEWER NOTE 10 AMENDED	03/2015
D	GRC AND LSC ADDED	09/2014
C	SEWER GRAVITY MAIN NOTE 10 AMENDED	05/2014
B	FALL THROUGH TABLE AMENDED	02/2014
A	POST AMALGAMATION REVIEW	04/2016

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Capricorn Municipal Development Guidelines

Incorporating:



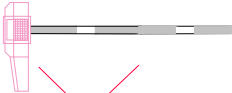



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Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
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Rockhampton Regional Council (RRC)

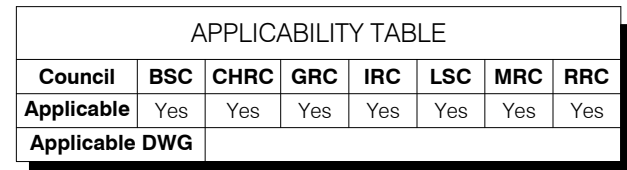
SEWER/WATERMAIN INFORMATION FITTING AND BEND SYMBOLS, PIPE INFORMATION AND GENERAL NOTES

STANDARD						
STANDARD DRAWING CMDG-S-005						
REV.	A	B	C	D	E	F
REV.	G					

NOTES

1. ALL LOT FILLING & EARTHWORKS FOR ROADS IS TO BE COMPLETED PRIOR TO SEWER CONSTRUCTION. THE CONTRACTOR SHALL THEN CHECK FINISHED SURFACE LEVELS IN RELATION TO DESIGN TOP OF MANHOLE LEVELS & ADVISE THE SUPERINTENDENT OF ANY ANOMALIES PRIOR TO PROCEEDING WITH EXCAVATION FOR SEWERS.
2. ALL SEWER MANHOLES TO BE PRECAST 1050Ø CONCRETE MANHOLES AND TOPS WITH CORAL COAST COMPOSITES FIBREGLASS BASES (OR APPROVED EQUIVALENT) UNO. HEAD OF LINE STRUCTURES TO BE LAMP HOLES (LH) WHERE SHOWN ON LONGITUDINAL SECTIONS.
3. NOTWITHSTANDING THE FINISHED MANHOLE SURFACE LEVELS SHOWN ON THE LONGITUDINAL SECTIONS, THE LEVEL OF SEWER MANHOLE COVERS SHALL BE ADJUSTED SO AS TO MATCH THE FINISHED SURFACE PROFILES PLUS ANY COUNCIL REQUIRED CLEARANCE ALLOWANCES. NO ADDITIONAL PAYMENT WILL BE MADE FOR THESE ADJUSTMENTS.
4. PIPE GRADES, LENGTHS AND INVERT LEVELS SHOWN ON THE LONGITUDINAL SECTIONS ARE PROJECTED AT THE SPECIFIED PIPE GRADES TO THE CENTRE OF THE MANHOLE .
5. SEWERS OVER 2.0m DEEP TO BE COMPACTION TESTED (95% MIN STANDARD COMPACTION)
6. LOCATION OF HOUSE JUNCTIONS ON MAIN SEWER SHOWN ON LONGITUDINAL SECTIONS MEASURED FROM DOWNSTREAM MANHOLE UNLESS SHOWN WITH CO-ORDINATES ON PLAN VIEW.
7. CONFIRM CONNECTION LEVELS TO EXIST. SEWERS PRIOR TO COMMENCING EXCAVATION FOR ANY SEWERS.
8. ALL HOUSE CONNECTIONS DEEPER THAN 2m DEPTH TO HAVE HEAVY DUTY REINFORCED FIBREGLASS JUNCTIONS.

- ## LEGEND
- | | |
|---|--|
| 2/S10 | MANHOLE 2; SEWER LINE S1; CENTER CO-ORDINATES |
|  | OBLIQUE HOUSE CONNECTION JUNCTION (HC); 150Ø SEWER CL SN8; MANHOLE |
|  | 150Ø WATERMAIN WITH FH AND HC |
|  | ALLOTMENT FILLING/EXCAVATION. REFER ROADWORKS PLANS |
|  | STORMWATER |
|  | ELECTRICAL LINE AND TURRET |
|  | SUBSOIL DRAINAGE |
| EXISTING SEWER AND NEW DRAINAGE SERVICES SHOWN GREYED | |



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Isaac Regional Council (IRC)	

ROADS					
STANDARD DRAWING					
CMDG-S-011					
REV.	A	B	C	D	E

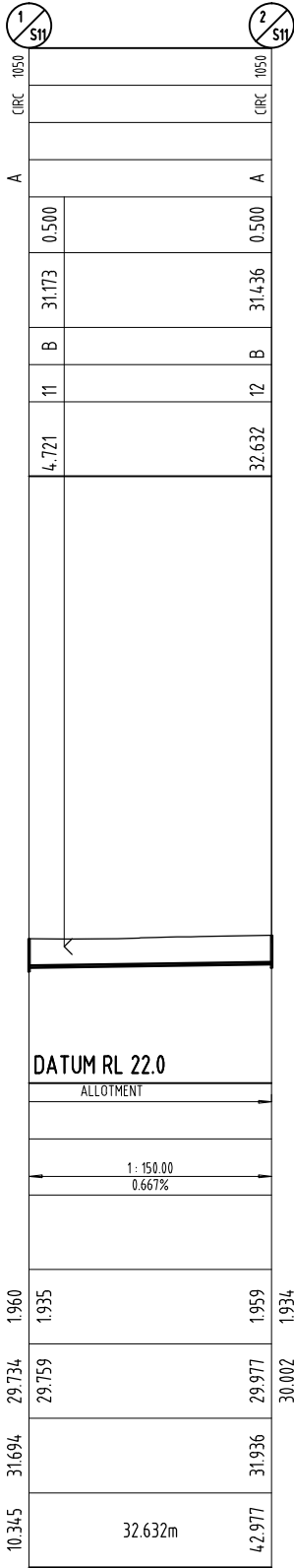
MANHOLE/END NAME
MANHOLE TYPE
LID TYPE
JUNCTION LINE
DROP TYPE
DEPTH TO HC
HOUSE CONNECTION INVERT LEVEL
HC TYPE
HC LOT No
CH. FROM D/S MH

MANHOLE SEWER INLET DROPS TYPE
'A' & 'B' AS PER COUNCIL STD DWG.

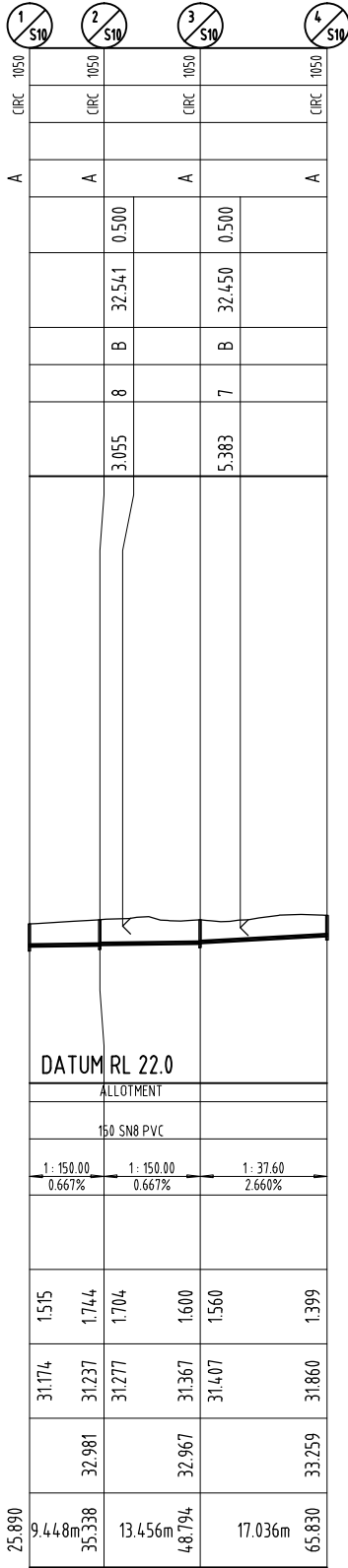
HOUSE CONNECTIONS TO SEWERS &
MANHOLES
TYPE 'A' & 'B' AS PER STD DWG;
TYPE BSG JUMP UP WITH SUGDEN
CONNECTION.

LOCATION
DIAMETER/CLASS
GRADE
JUNCTION INVERT LEVEL
DEPTH TO INVERT
INVERT LEVEL OF SEWER
DESIGN SURFACE LEVEL
RUNNING CHAINAGE

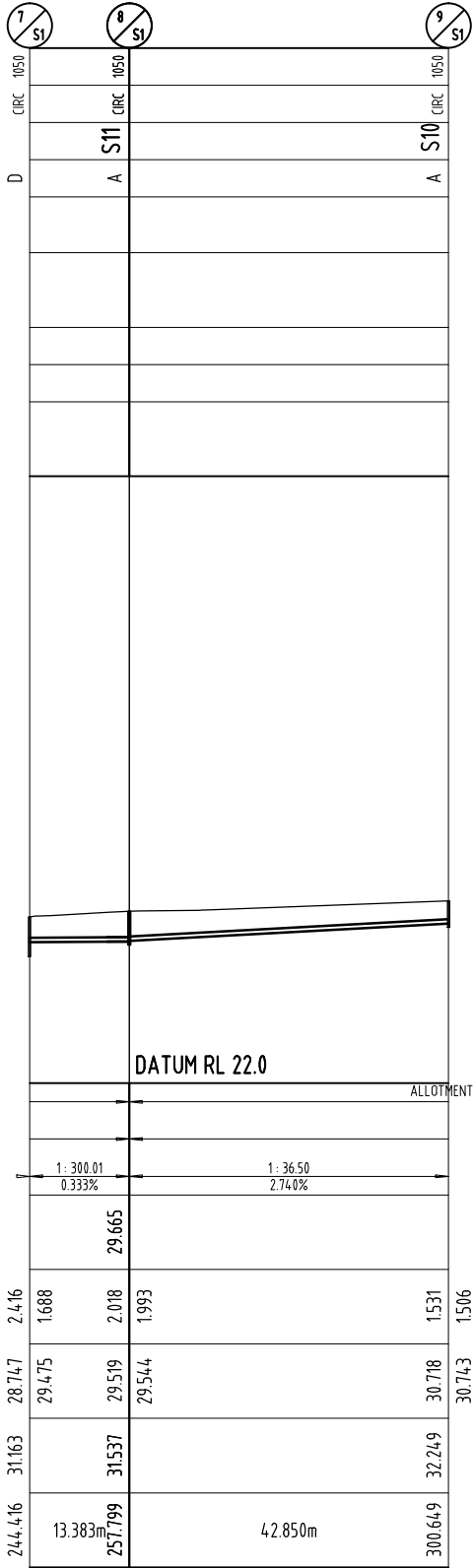
LINE



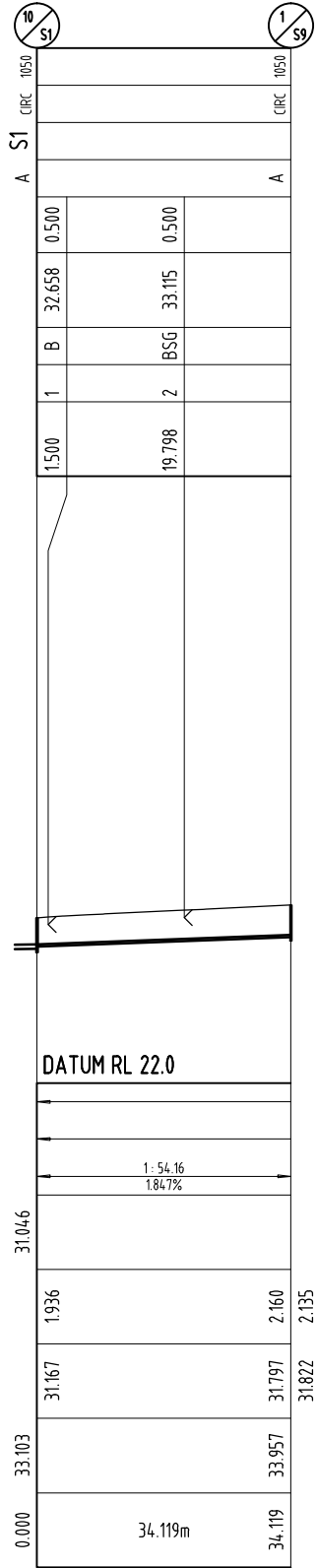
S11



S10



S1



S9

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

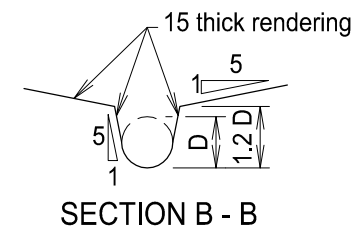
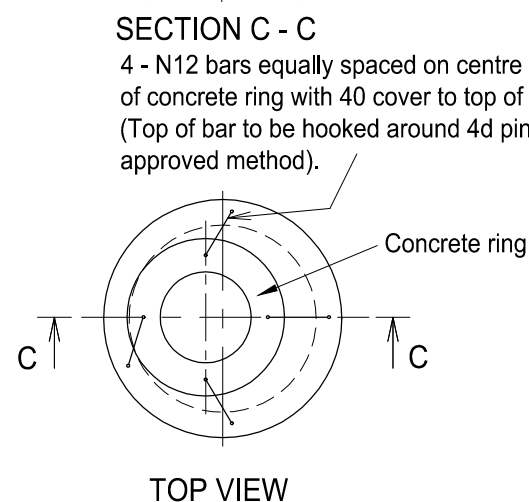
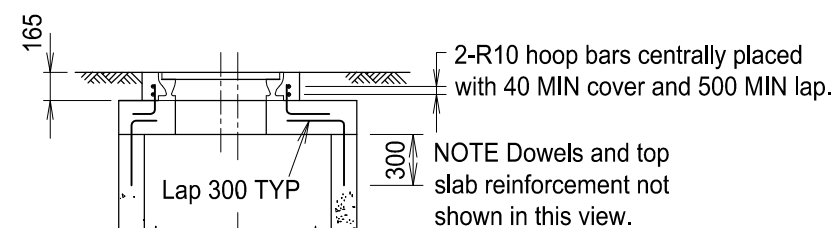
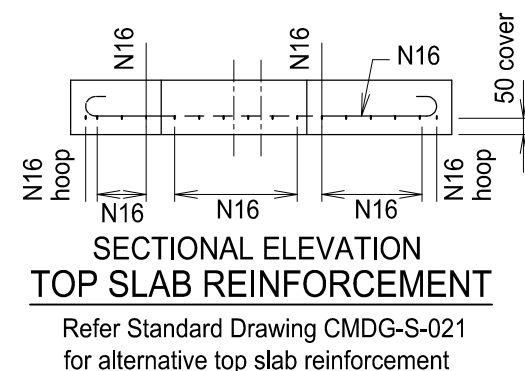
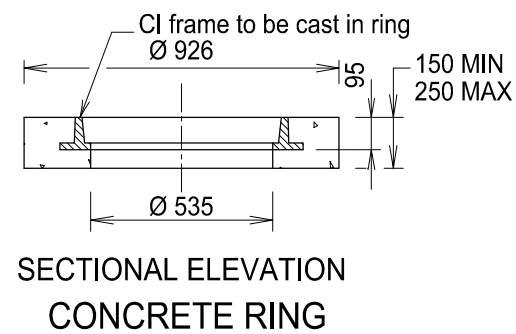
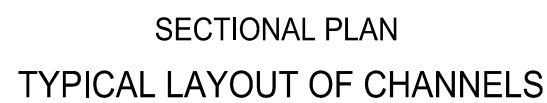
REVISIONS		DATE
C	IRC ADDED	11/2016
B	GRC AND LSC ADDED	01/2015
A	ORIGINAL ISSUE	09/2013

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Rockhampton Regional Council (RRC)


SAMPLE DESIGN
LONGITUDINAL SECTION

ROADS				
STANDARD DRAWING				
CMDG-S-012				
REV.	A	B	C	



CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	'a'	'b'
Minimum to 3000	150	150
3000 to 6000	225	300

MINIMUM DEPTHS	
Outlet Ø	Minimum Depth 'd'
Ø150	1500 + (Type A fall - 100)
Ø225	1575 + (Type A fall - 100)
Ø300	1650 + (Type A fall - 100)
Ø375	1725 + (Type A fall - 100)

INLET DROP - DEPTH RANGE 						
PIPE SIZE	V C PIPE			uPVC PIPE		
	TYPE A	TYPE B	TYPE C	TYPE A	TYPE B	TYPE C
Ø150	40 to 300	300 to 600	over 350	40 to 300	300 to 600	over 600
Ø225	40 to 300	500 to 800	over 550	40 to 300	500 to 1000	over 1000
Ø300	40 to 300	600 to 900	over 700	40 to 300	600 to 1500	over 1500
Ø375	40 to 300	700 to 1000	over 900	40 to 300	1000 to 2100	over 2100

LEGEND

- Length of pipe shall be 3 x DIA of pipe
- ☆ For details of Inlet drop types refer drawing SD-S-021.

NOTES:

1. Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S-005.
2. Concrete N32 in accordance with AS 1379 and AS 3600.
3. All fasteners shall be Grade AS 2837/316 stainless steel.
Unless otherwise noted, fasteners shall be as described below.
 - (a) Fixing to concrete - bolts shall be approved anchors.
 - (b) Fixing to metalwork - bolts shall be HEX head bolts.
4. Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
5. Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
6. Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
7. uPVC or GRP pipes cast into access chamber wall shall be coated or sanded for the length of wall penetration to ensure bonding.
8. ACCESS - Ladders or steps are not required.
9. Roof design to Austroads W7 wheel load, dynamic factor 0.4.
10. All dimensions in millimetres.

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

REVISIONS		DATE
F	REINFORCING DETAILS AMENDED	12/2017
E	IRC ADDED	11/2016
D	AMEND DRAWING REFERENCE NOTE 1	10/2016
C	GRC AND LSC ADDED	11/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

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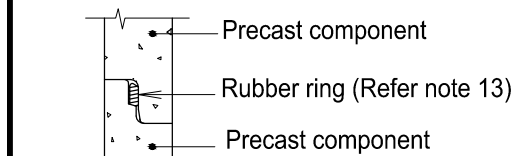
Capricorn Municipal Development Guidelines

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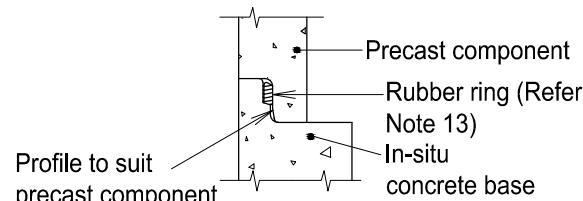
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Central Highlands Regional Council (CHRC)	Maranoa Regional Council (MRC)
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ACCESS CHAMBERS
1050mm NOM. DIA.
INSITU CONSTRUCTION

ROADS						
STANDARD DRAWING						
CMDG-S-020						
REV.	A	B	C	D	E	F



DETAIL B

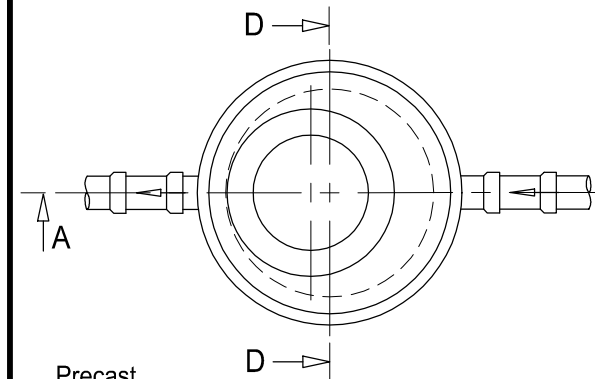


DETAIL A

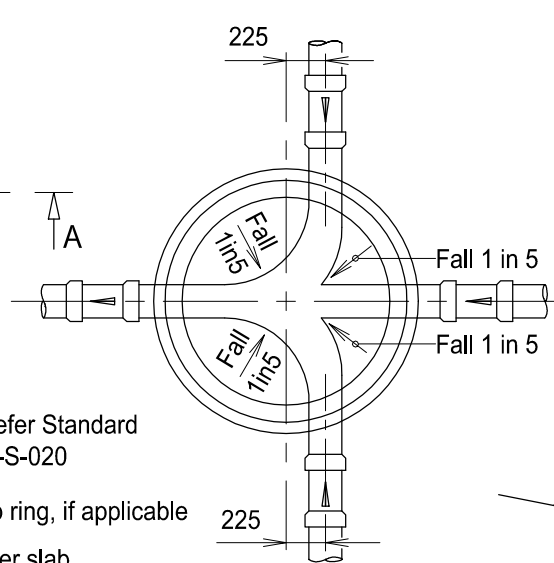
INLET DROP - DEPTH RANGE						
PIPE SIZE	V C PIPE			uPVC PIPE		
	TYPE A	TYPE B	TYPES C&D	TYPE A	TYPE B	TYPES C&D
Ø150	40 to 300	300 to 600	over 350	40 to 300	300 to 600	over 600
Ø225	40 to 300	500 to 800	over 550	40 to 300	500 to 1000	over 1000
Ø300	40 to 300	600 to 900	over 700	40 to 300	600 to 1500	over 1500
Ø375	40 to 300	700 to 1000	over 900	40 to 300	1000 to 2100	over 2100

MINIMUM DEPTHS	
Outlet Pipe Size	Minimum Depth to Outlet Invert
Ø150	1500 + (Type A fall-100)
Ø225	1575 + (Type A fall-100)
Ø300	1650 + (Type A fall-100)
Ø375	1725 + (Type A fall-100)

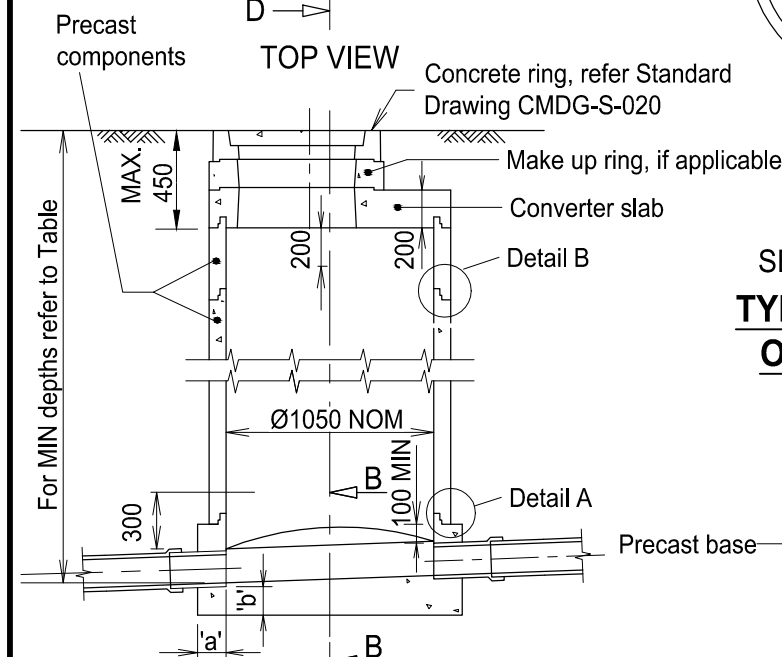
CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	'a'	'b'
Minimum to 3000	150	150
3000 to 6000	225	300



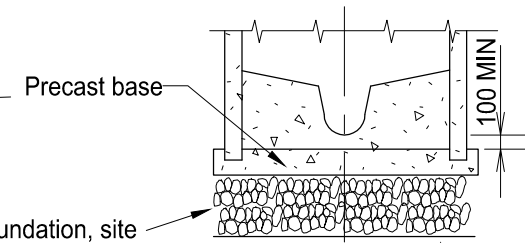
TOP VIEW



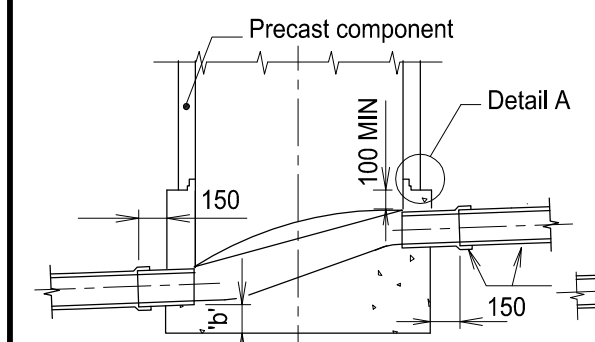
SECTIONAL PLAN
TYPICAL LAYOUT
OF CHANNELS



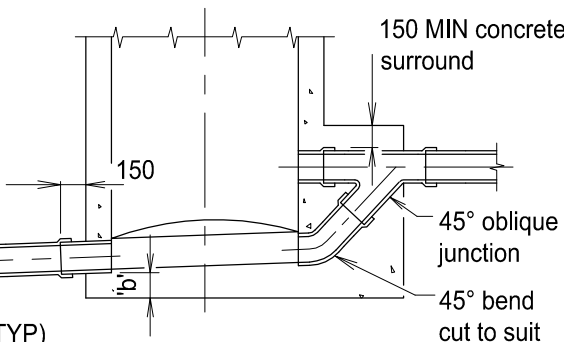
SECTION A - A



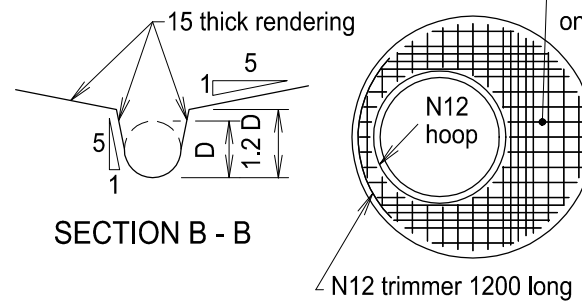
PART SECTION D - D
PRECAST BASE



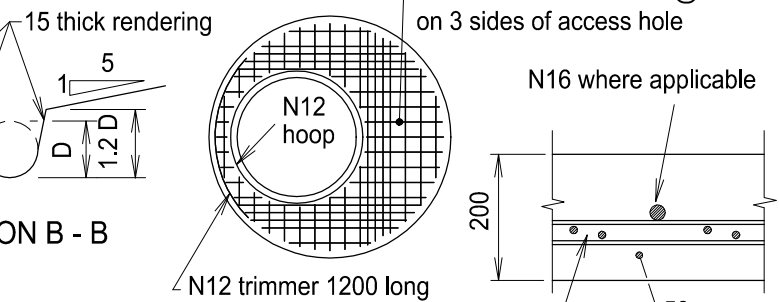
INLET TYPE A



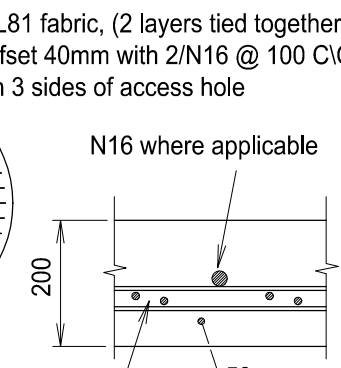
INLET TYPE B



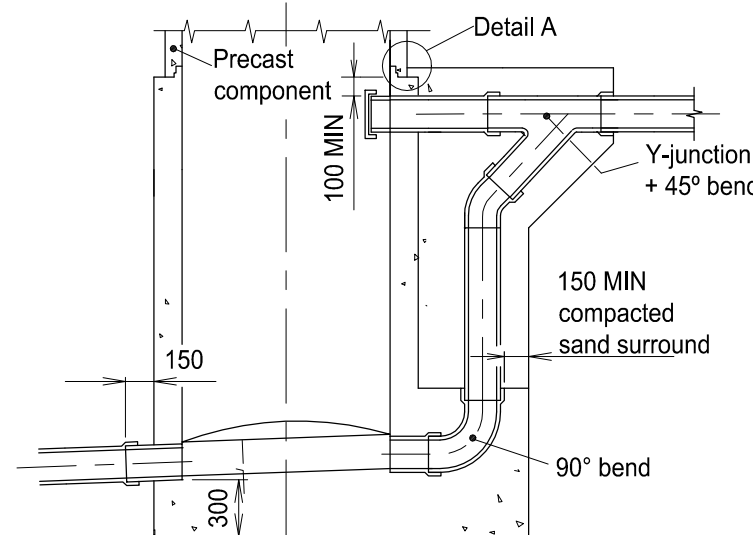
SECTION B - B



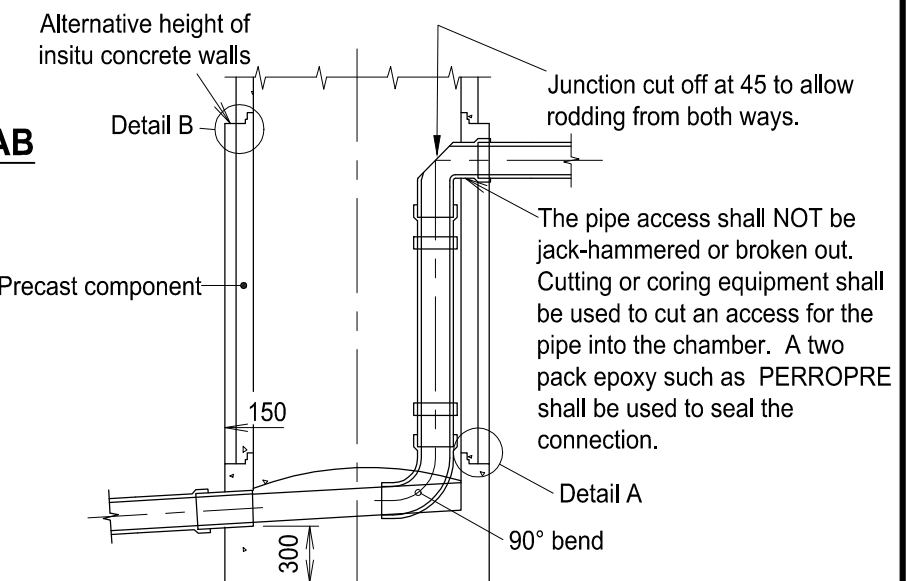
PLAN



PART SECTION
CONVERTER SLAB



INLET TYPE C
(EXTERNAL)



INLET TYPE D
(INTERNAL)

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Maximum internal drops per 1050Ø access chamber	2	1		1	2	1	2
Applicable DWG	For GRC CMDG-S-021A						

REINFORCING DETAILS AMENDED		12/2017
REVISIONS		DATE
H	IRC ADDED	11/2016
G	NOTE 8 DELETED (PRECAST CHAMBERS)	10/2016
F	GRC APPLICABILITY CHANGE	03/2015
E	GRC AND LSC ADDED	09/2014
D	NOTE ADDED RE: PRESSURE MAINS	04/2013
C	AMENDED TYPE D DROP - MORTAR BEHIND	02/2013
DELETE NOTE RE: PRECAST CHAMBERS APPLICABILITY TABLE CHANGES		
B	RRC AMENDMENTS	
A	ORIGINAL ISSUE	01/2010

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Capricorn Municipal Development Guidelines

Incorporating:

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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)

ACCESS CHAMBERS 1050mm NOM. DIA. PRECAST COMPONENTS

ROADS

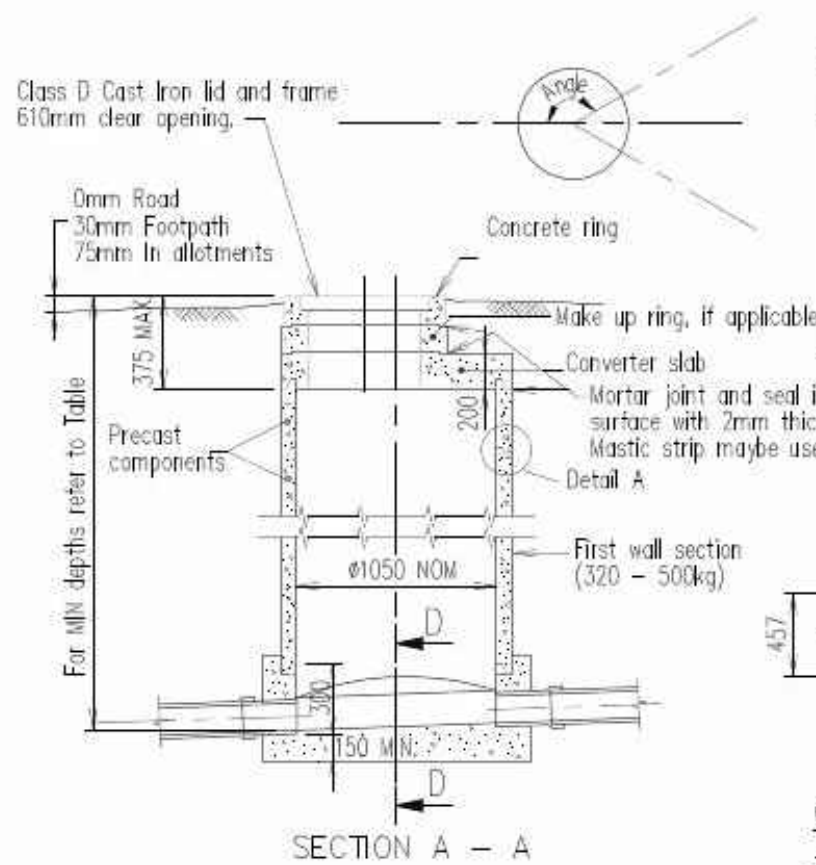
STANDARD
DRAWING

CMDG-S-021

REV.	A	B	C	D	E	F
	G	H	I			

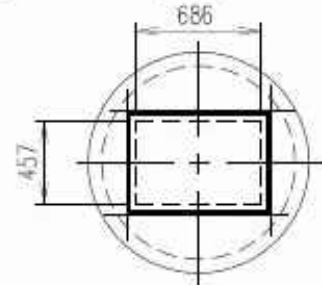
NOTES

- Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S-024. Squat cones shall be in non-trafficable areas.
- Concrete shall be:
 - Class N32 for in-situ concrete.
 - Class N40 for pre-cast segments.
 Both in accordance with AS 1379 and AS 3600.
- All fasteners shall be Grade AS2837/316 stainless steel. Unless otherwise noted, fasteners shall be as described below.
 - Fixing to concrete - bolts shall be approved anchors.
 - Fixing to metalwork - bolts shall be HEX head bolts.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
- Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
- Deleted.
- ACCESS - Ladders or steps are not required.
- Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
- All dimensions in millimetres.
- Squat cones shall be used in non traffic areas.
- Lubricate concrete surface and rubber ring before placing precast components.

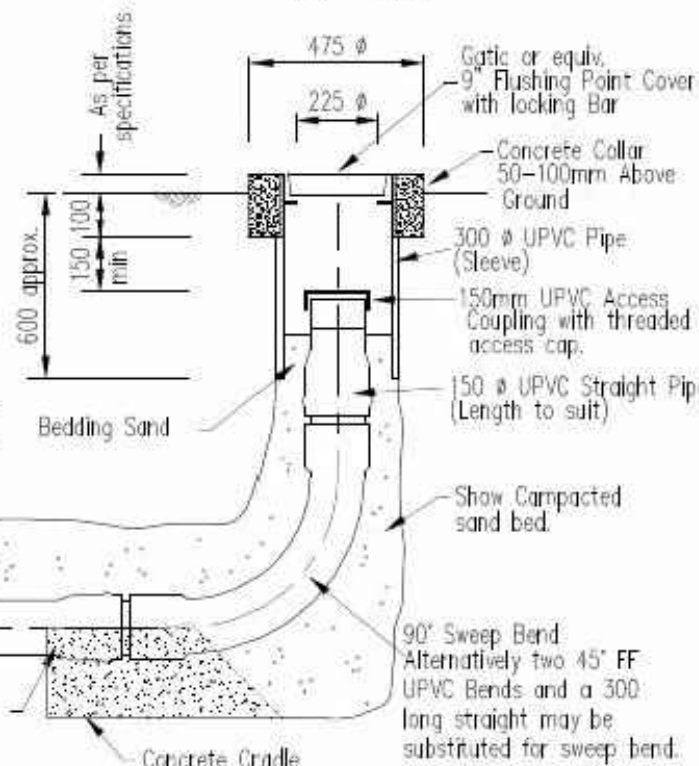
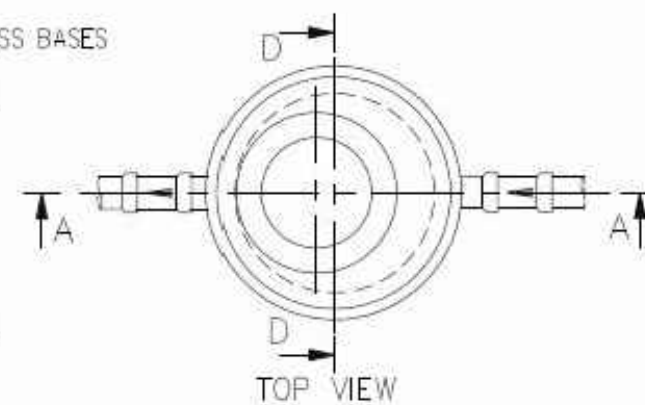


ANGLES AVAILABLE IN FIBREGLASS BASES

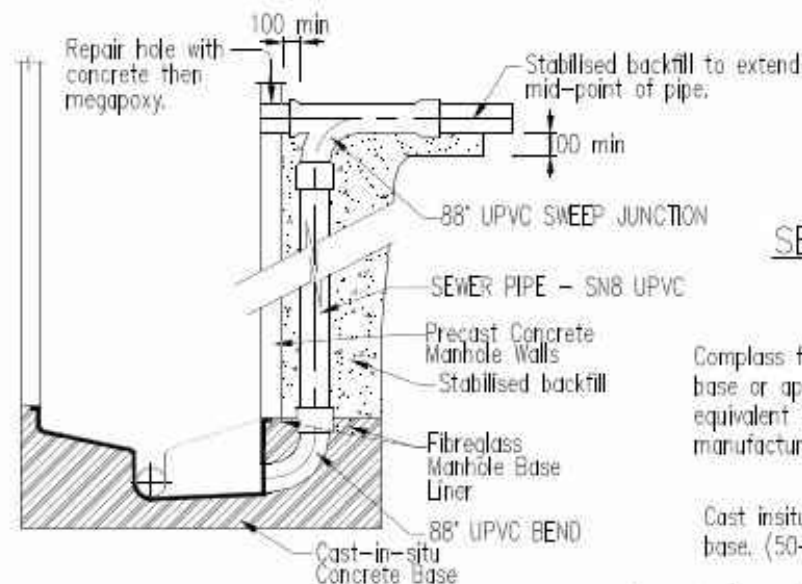
Angle	Drop thru Chamber
90-112°	40mm
112-125°	40mm
125-140°	40mm
140-150°	20mm
150-170°	(Y Pattern) 20mm
Straight	20mm



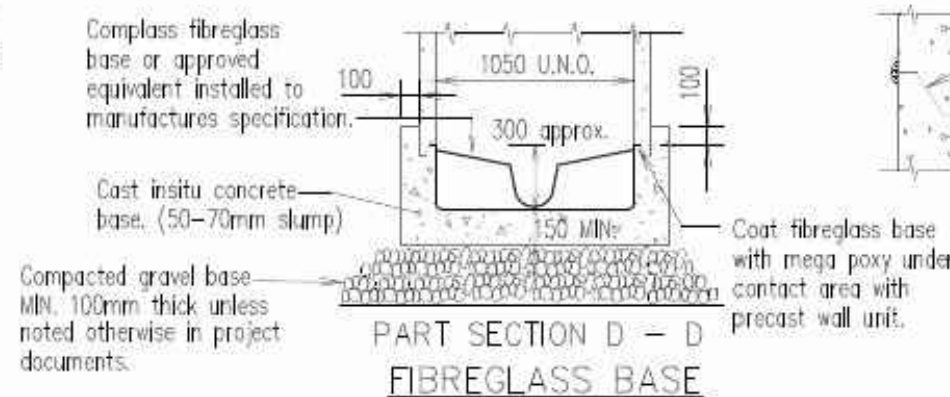
CONVERTER SLAB
— SQUARE COVER



SECTIONAL ELEVATION - TERMINAL MAINTENANCE SHAFT



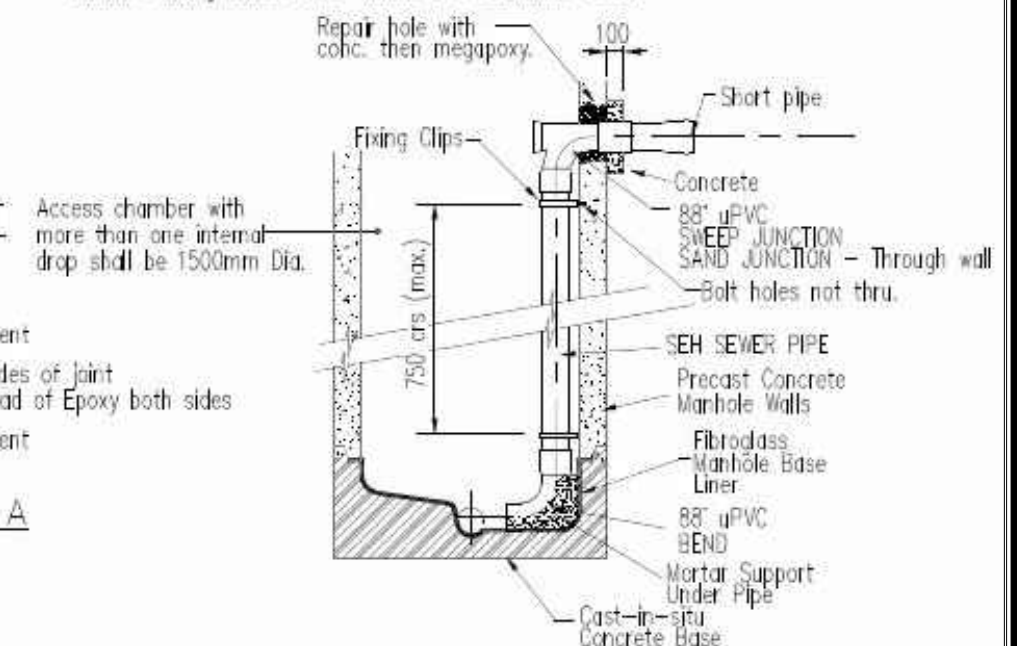
EXTERNAL DROP DETAIL
Gladstone City Council only.



DETAIL A

NOTES

- Concrete shall be
 - Class N32 for in-situ concrete
 - Class N40 for pre-cast segments
 both in accordance with AS 1379 and AS 3600.
- All fasteners shall be Grade A283/316 stainless steel. Unless otherwise noted, fasteners shall be as described below.
 - Fixing to concrete - bolts shall be approved anchors.
 - Fixing to metalwork - bolts shall be HEX head bolts.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
- Anti-galling lubricant "Lactite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
- Precast chambers shall not be used where :-
 - sewer lines accept pumped flows
 - sewer lines are greater than 4375
 - chambers are greater than 6.0m in depth
- One 6mm hole will be allowed to be drilled into a bench to vent base and witness concrete slurry. "Drummy" benches may need to be filled with sand/cement slurry mixture. All holes in base to be sealed with megapoxy or equivalent.
- Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
- All precast concrete components shall be manufactured by a manufacturer with an accredited quality assurance program from Standards Australia under AS 3902 - 1987/ISO 9002 - 1987.
- All dimensions in millimetres.
- All sewer pipe to be Class SN8 UPVC
- Fixing clips to be Grade 316 Stainless Steel. Brackets would be required either side of all bends at 750mm MAX. spacings. Brackets to be at least 25mm wide x 2mm thick. Bracket fixing bolts to be Grade 316 Stainless Steel.



INTERNAL DROP DETAIL
Calliope Shire Council only.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No

REVISIONS	DATE
B IRC ADDED	12/2016
A ORIGINAL ISSUE	03/2015

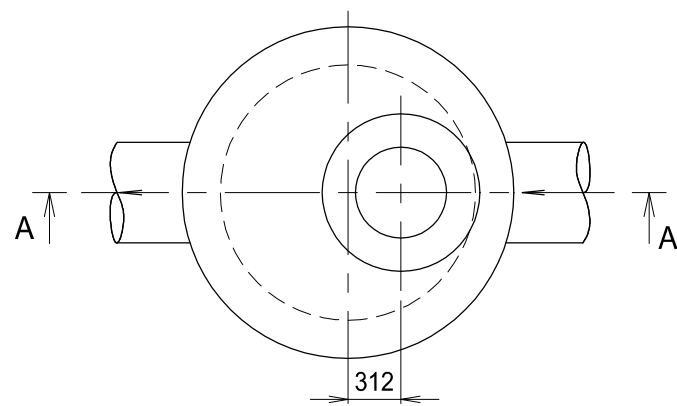
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Capricorn Municipal Development Guidelines

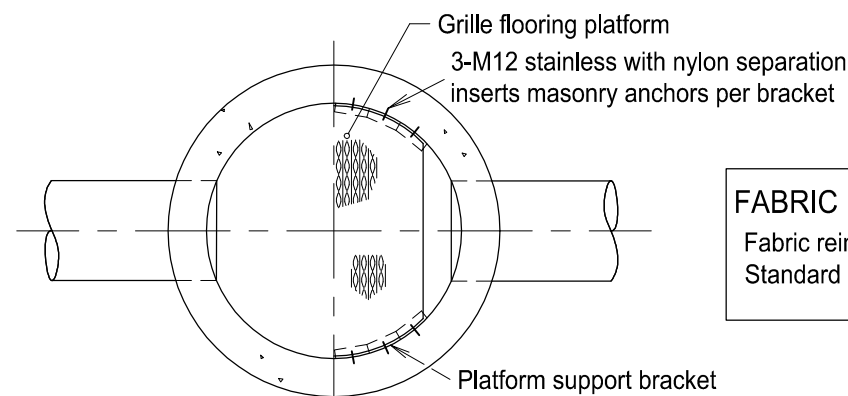
Incorporating:
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Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

ACCESS CHAMBERS 1050mm NOM. DIA. PRECAST COMPONENTS

ROADS
STANDARD DRAWING CMDG-S-021A
REV. A B

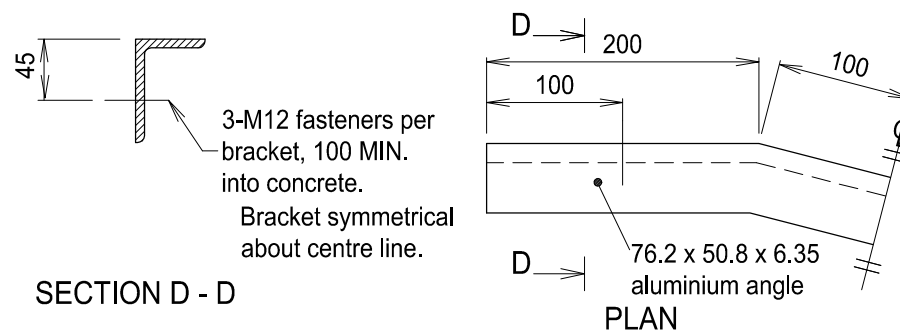


PLAN



SECTION B - B

FABRIC REINFORCED ROOF
Fabric reinforced alternative on
Standard Drawing CMDG-D-031

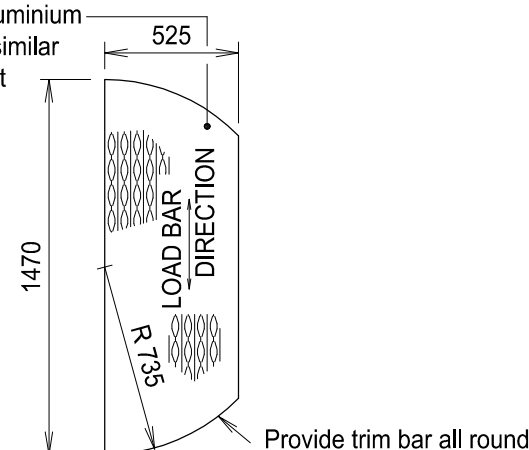


SECTION D - D

PLAN

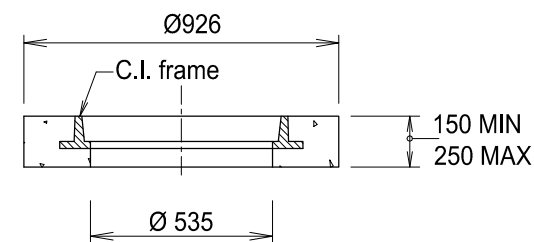
GRILLE PLATFORM SUPPORT BRACKET

Ampligrip 440 aluminium
grille flooring or similar
approved product

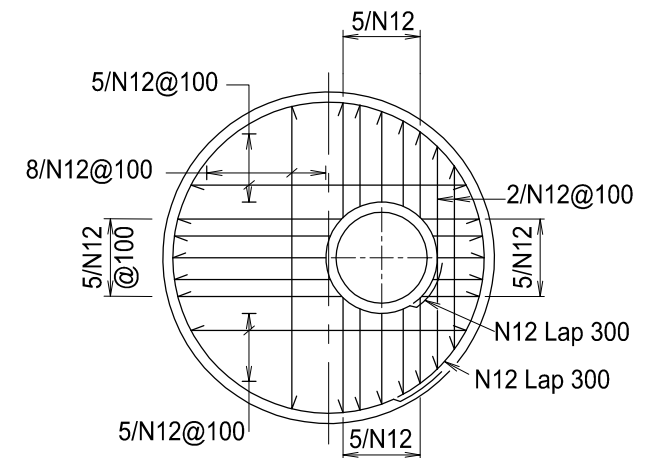


GRILLE FLOORING DETAILS

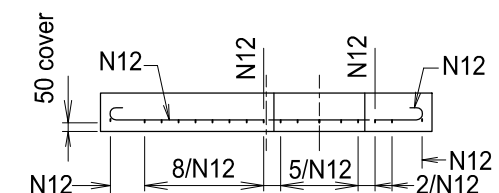
PROVIDE 4 NO APPROVED STAINLESS
STEEL RETAINING CLIPS



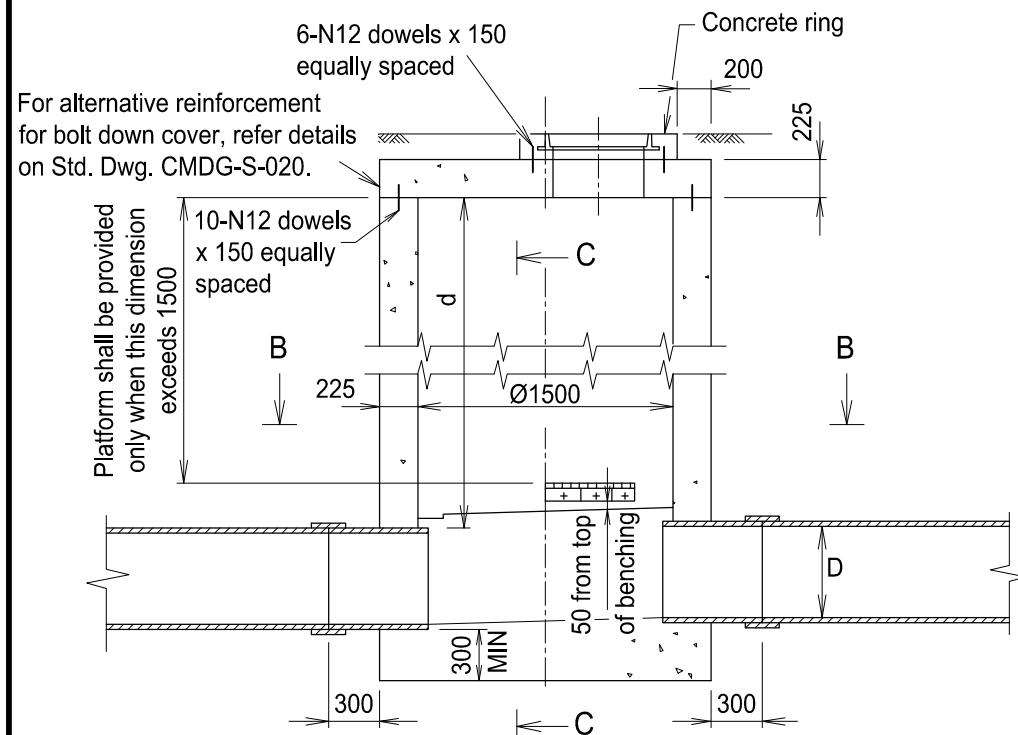
SECTIONAL ELEVATION
CONCRETE RING



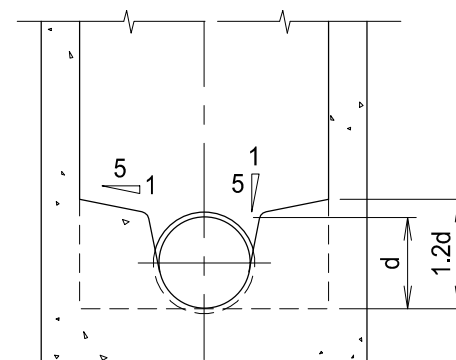
PLAN



SECTIONAL ELEVATION
ROOF SLAB REINFORCEMENT



SECTION A - A



SECTION C - C

NOTES:

- Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S- 024.
- Concrete N32 in accordance with AS 1379 and AS 3600.
- All fasteners Grade AS 2837/316 stainless steel.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners & aluminium sections.
- Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into chamber walls shall be coated or sanded for the length of wall penetration to ensure bonding.
- Unless noted otherwise angles, bars and tubes shall be aluminium alloy 6061 T6 to AS1664.
- Provide 2 NO safety bars at 300 centres for outlet pipes larger than Ø600.
- Wall thickness for chamber greater than 6.0m deep should be design specific.
- Reinforcement. N Bars to AS 1302. Fabric to AS 1304.
- Deleted.
- Roof design based on Austroads W7 wheel load, dynamic factor 0.4.
- All dimensions in millimetres.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maximum internal drops per 1500Ø access chamber	2	1	1	1	2	1	2

H	REINFORCING DETAILS AMENDED	12/2017
REVISIONS		
G	IRC ADDED	11/2016
F	NOTE 1. DRAWING REFERENCE AMENDED	10/2016
E	NOTE 12 DELETED	03/2015
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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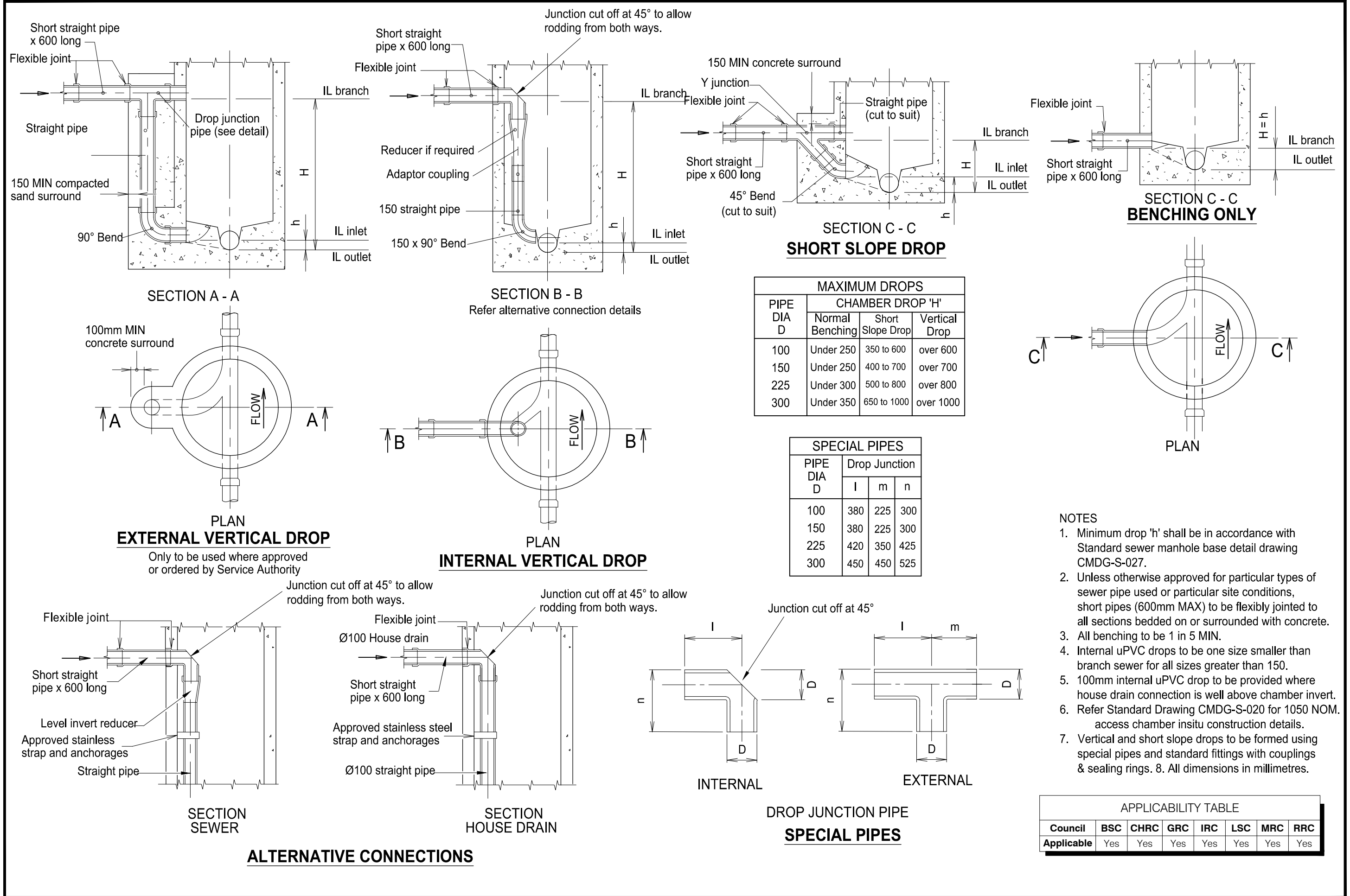
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Isaac Regional Council (IRC)

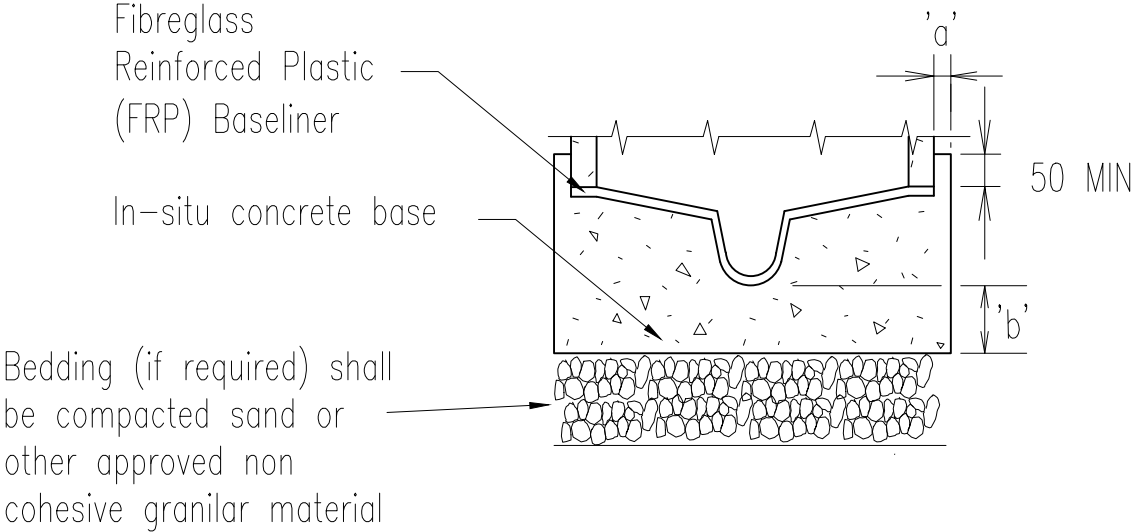
ACCESS CHAMBERS 1500mm NOM. DIA. INSITU CONSTRUCTION

ROADS						
STANDARD DRAWING CMDG-S-022						
REV.	A	B	C	D	E	F
REV.	G	H				



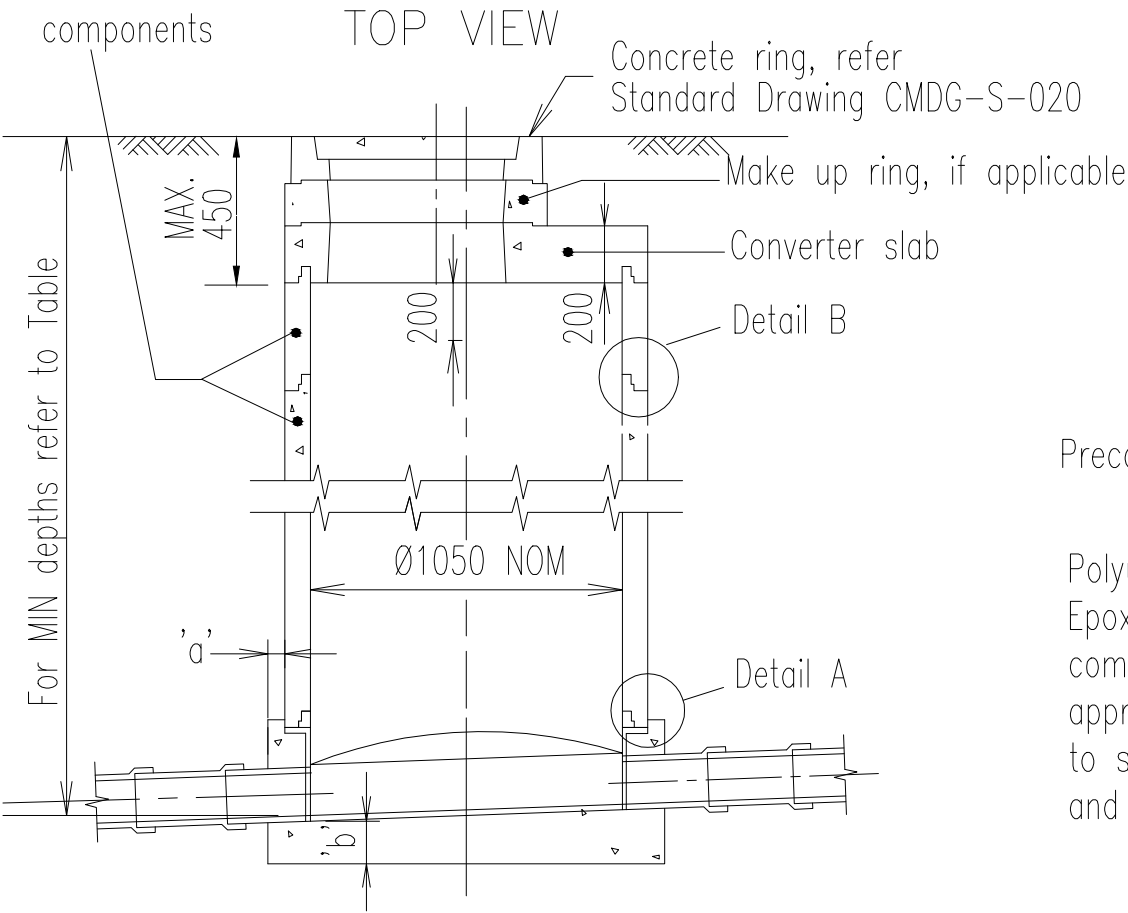
CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	a	b
Minimum to 3000	150	150
3000 to 6000	225	300

TYPICAL LAYOUT

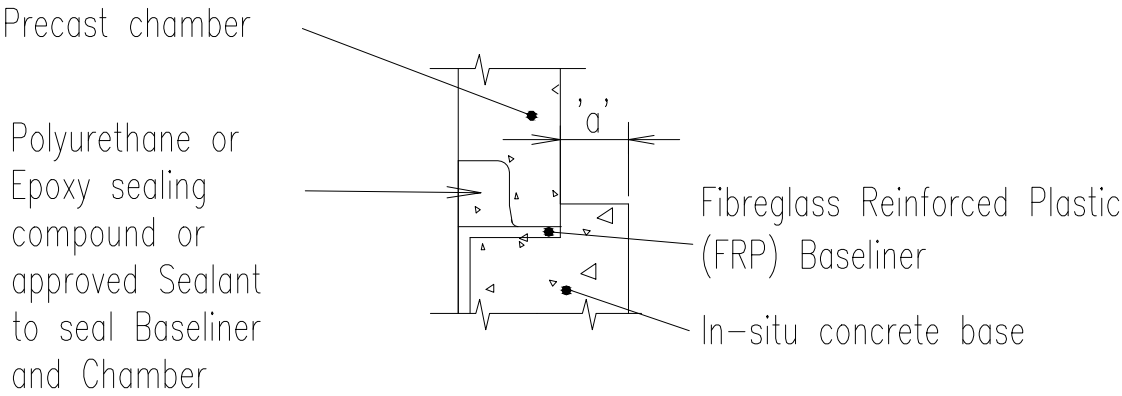


BASELINER

- NOTES
- Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S-005. Squat cones shall be in non-trafficable areas.
 - Concrete shall be –
(a) Class N32 for in-situ concrete.
(b) Class N40 for pre-cast segments.
both in accordance with AS 1379 and AS 3600.
 - All fasteners shall be Grade AS2837/316 stainless steel. Unless otherwise noted, fasteners shall be as described below.
(a) Fixing to concrete – bolts shall be approved anchors.
(b) Fixing to metalwork – bolts shall be HEX head bolts.
 - Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
 - Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
 - Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
 - uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
 - Deleted.
 - ACCESS – Ladders or steps are not required.
 - Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
 - All dimensions in millimetres.
 - Squat cones shall be used in non traffic areas.



DETAIL A



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

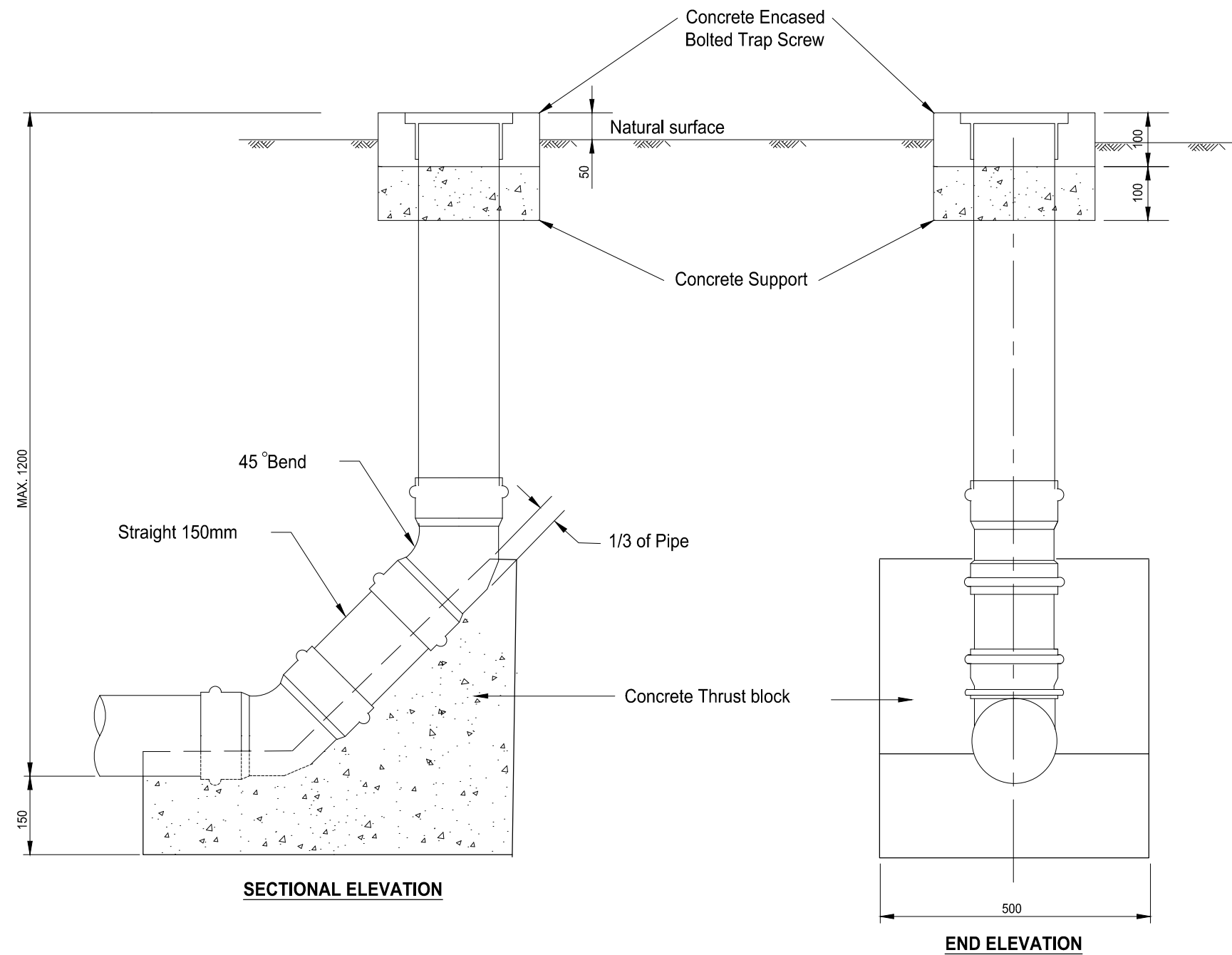
REVISIONS		DATE
F	IRC ADDED	11/2016
E	NOTE 8 DELETED (PRECAST CHAMBERS)	10/2016
D	GRC AND LSC ADDED	01/2015
C	REPLACED DRAWING REGISTER	02/2013
B	BASELINER CONSTRUCTION_RRC	12/2010
A	POST AMALGAMATION REVIEW	10/2003

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Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

ACCESS CHAMBERS
1050mm NOM. DIA.
BASELINER CONSTRUCTION

SEWERAGE STANDARD DRAWING CMDG-S-024							
REV.	A	B	C	D	E	F	



NOTES:

1. Concrete shall be Class N12 in accordance with AS 1379 and AS 3600
2. All Dimensions in Millimetres
3. All Pipework to be 150Ø uPVC DWV SN8 unless stated otherwise
4. Where Proprietary Precast Concrete Surrounds are used, Dimensions may be varied to suit Manufacturer's Standard Specifications.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	Yes	No	Yes	Yes	No	Yes
Applicable DWG	GRC details CMDG-S-021A						

REVISIONS		DATE
F	IRC ADDED	11/2016
E	AMEND GRC APPLICABILITY	03/2015
D	GRC AND LSC ADDED	09/2014
C	BSC APPLICABILITY NO	01/2013
B	RRC AMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2010

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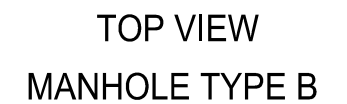
Capricorn Municipal Development Guidelines

Incorporating:

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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)	

**ACCESS CHAMBERS
LAMP HOLE DETAILS**

ROADS						
STANDARD DRAWING						
CMDG-S-026						
REV.	A	B	C	D	E	F



1. 3mm ALUMINIUM PLATE 125mm LONG x 75mm WIDE
2. 6mm HOLES TO BE BORED IN PLATE.
3. PLATES ARE TO BE FIXED TO THE CONCRETE SURFACE OF EACH SEWER MANHOLE USING MONEL(NON CORROSIVE ZINC ALLOY) METAL "SURE DRIVE" PINS 5mm x 22mm.
4. ASSET NUMBER IS TO BE STAMPED ON TO THE PLATE ie SMH 1234
5. DEPTH TO INVERT SHOWN AS 5.4 INDICATES THAT THE DEPTH OF THE MANHOLE (TOP OF MANHOLE AT EXISTING SURFACE LEVEL TO INVERT LEVEL BEING THE INTERNAL BASE)
6. DIAMETER OF PIPE TO BE SHOWN ie U/S450 INDICATES 450mm BORE UPSTREAM, D/S600 INDICATES 600mm BORE DOWNSTREAM, SIDE225 INDICATES 225mm BORE SIDE LINE ENTERING PIT ALSO
7. MATERIAL TO BE SHOWN AS CONCRETE = CONC EARTHENWARE = EW ASBESTOS CEMENT = AC PLASTIC= PVC
8. STATUS IF PIPE HAS BEEN LINED IT IS TO BE INDICATED BY THE LETTER "L"
9. DATE MONTH AND YEAR THAT PIPE WAS LINED IS ie 02/97 = FEB 1997
10. CI MANHOLES IN ROAD - PLATES TO BE AFFIXED TO UNDER SIDE OF COVER
11. ALL DIMENSIONS IN MILLIMETRES

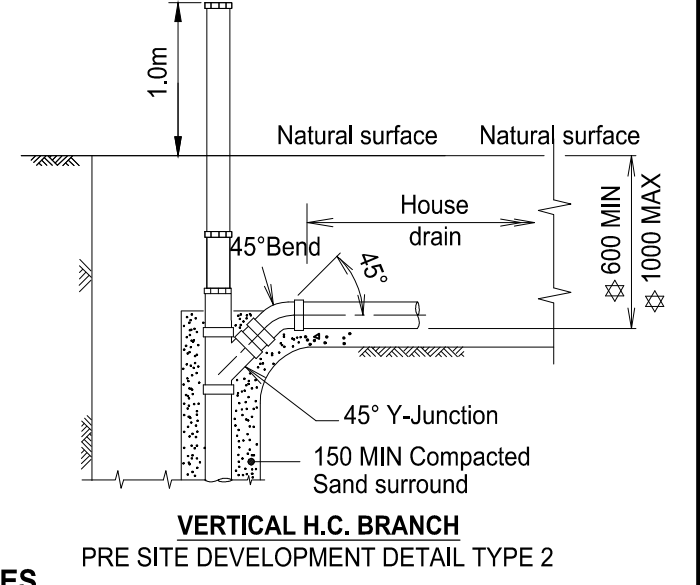
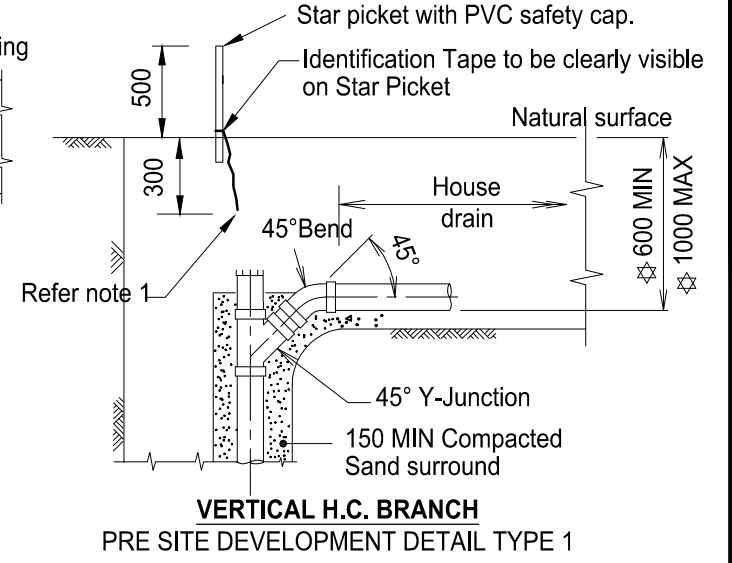
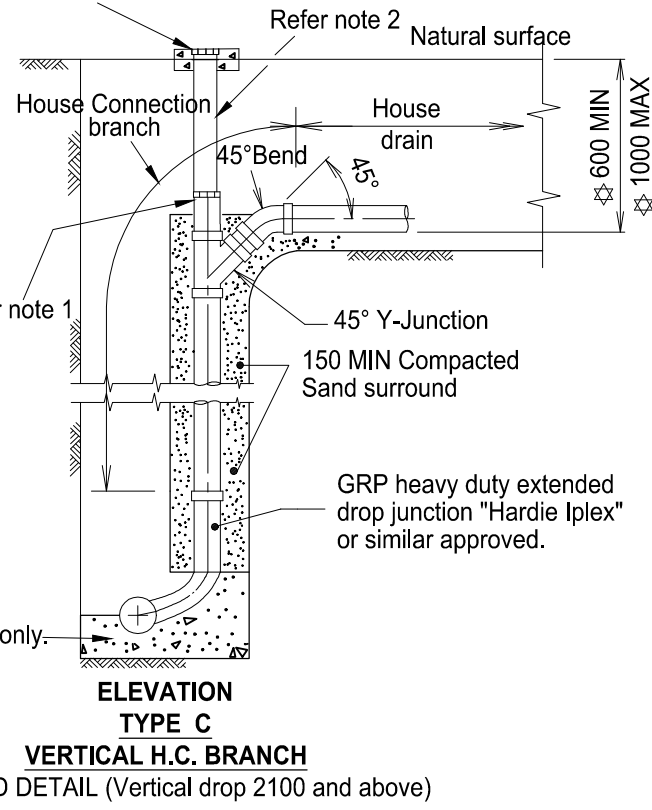
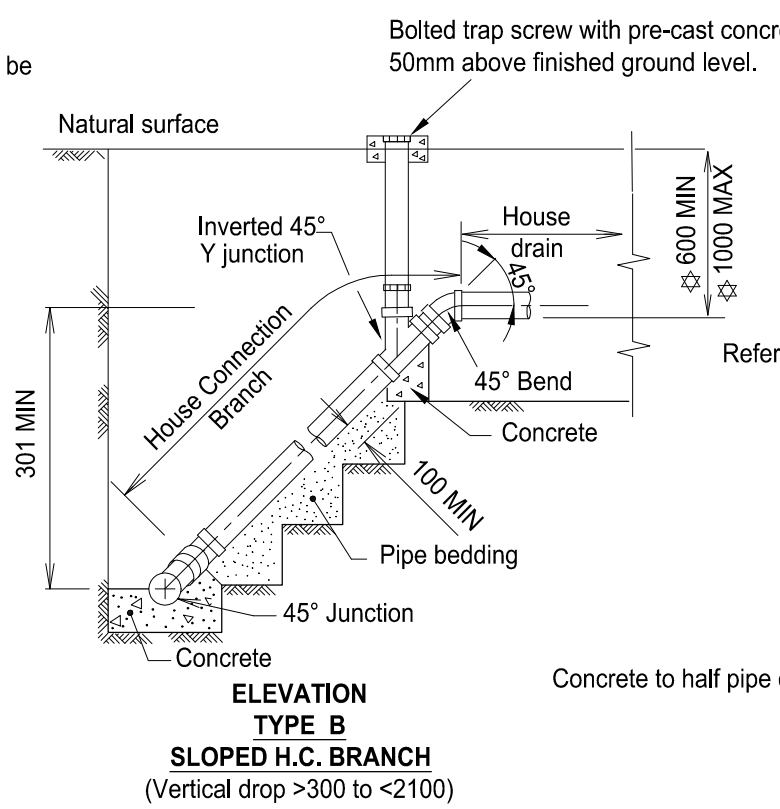
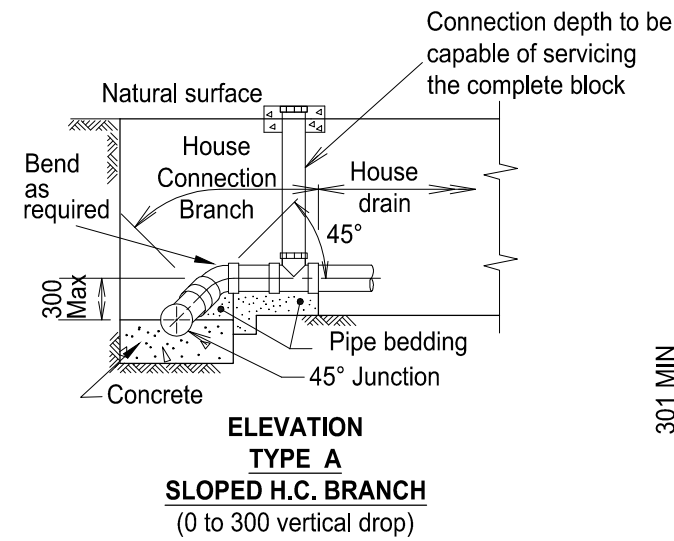
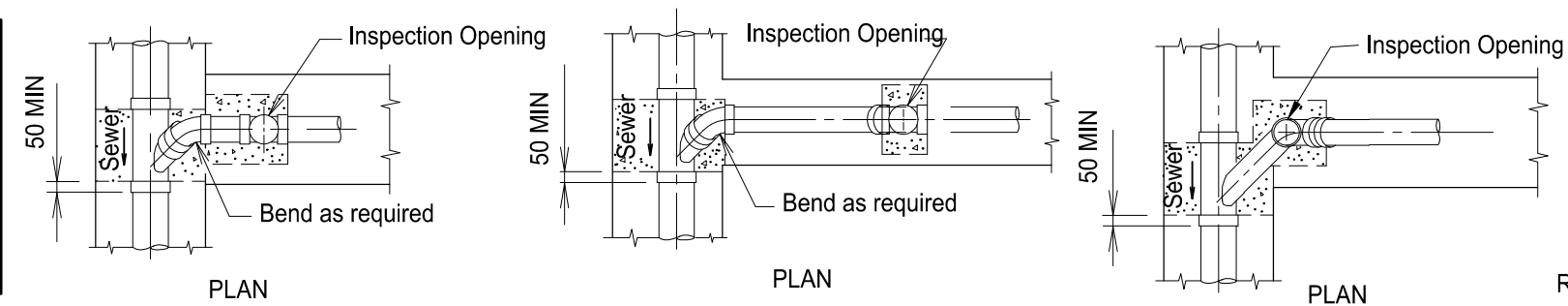
APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	No	Yes	No
Applicable DWG							

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>	Capricorn Municipal Development Guidelines		ASSET IDENTIFICATION PLATE FOR EXISTING SEWER MANHOLES		ROADS					
				Incorporating:				STANDARD DRAWING					
D	IRC ADDED	11/2016		Banana Shire Council (BSC)		Livingstone Shire Council (LSC)							
C	GRC AND LSC ADDED	09/2014		Central Highlands Regional Council (CHRC)		Maranoa Regional Council (MRC)							
B	RRC AMENDMENTS	04/2010		Gladstone Regional Council (GRC)		Rockhampton Regional Council (RRC)							
A	POST AMALGAMATION REVIEW	01/2010		Isaac Regional Council (IRC)									
REV.	A	B	C	D									

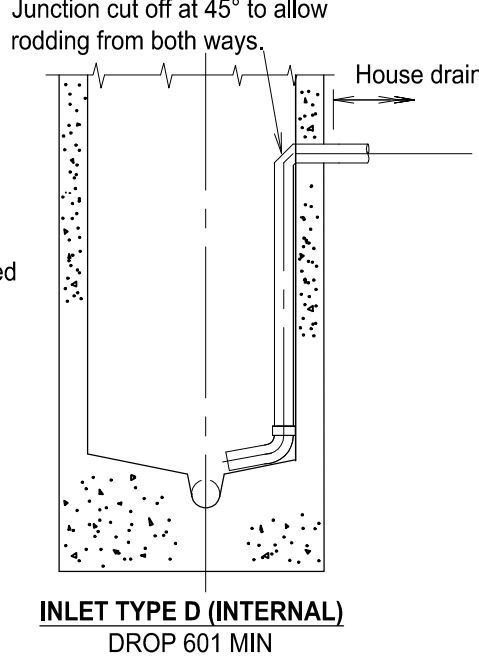
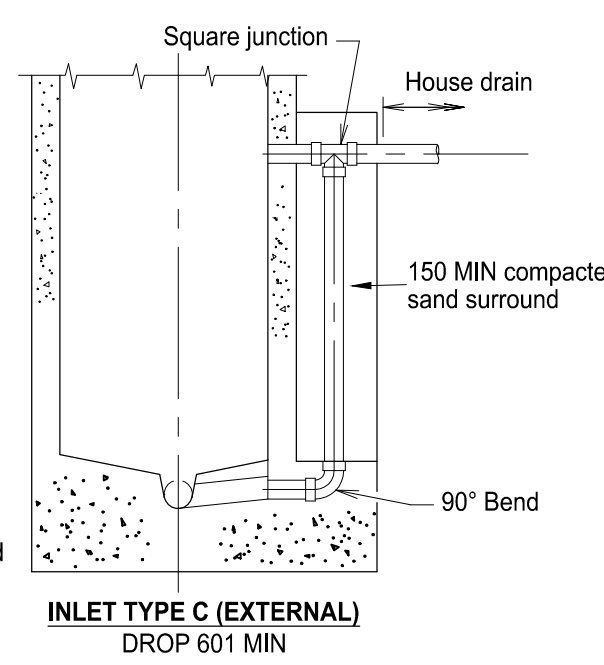
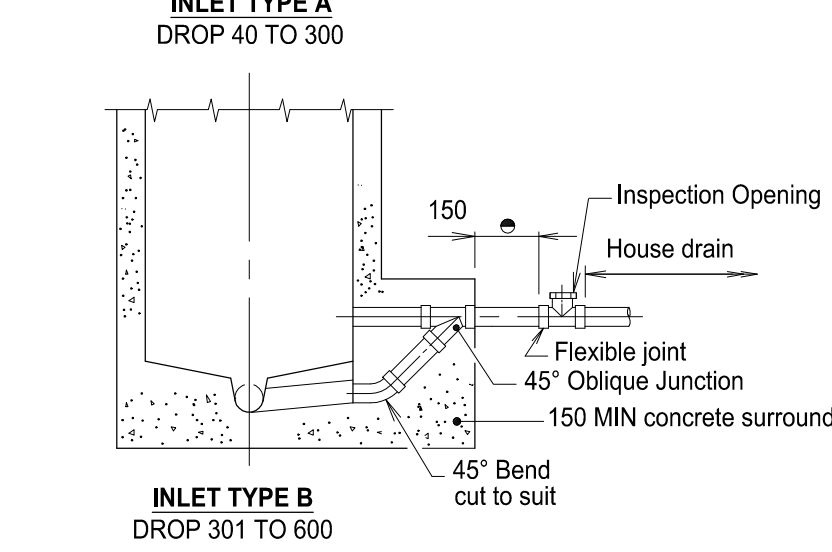
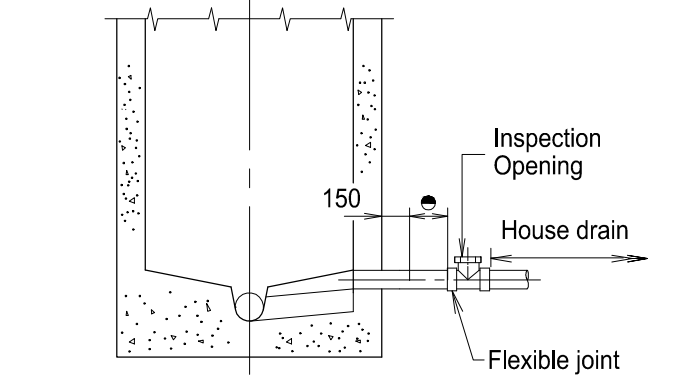
LEGEND

☆ The maximum depth to the inspection pipe may be varied only if there is insufficient cover to serve the block

● Length of short pipe shall be 400mm.



- NOTES**
1. Jump ups to be left 300mm below surface at time of subdivision with star picket marker.
 2. Raising of jump ups to be carried out at time of connection.
 3. Concrete (excluding access chambers) N20 in accordance with AS1379 & AS3600.
 4. Pipe materials and fittings shall a 'Standards Mark' under the National Plumbing Certification Scheme.
 5. Where rigid pipes are used in sewers a 500 long pipe shall be located on each side of the house connection branch.
 6. All dimensions in millimetres.



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maximum internal drops per 1050Ø access chamber	2	1	1	1	2	1	2
Pre Site Development Detail	Type 1	Type 1	Type 1	Type 1	Type 1	Type 2	Type 1

REVISIONS		DATE
G	IRC ADDED	11/2016
F	AMEND GRC PPE DEVELOPMENT TYPE DETAIL	03/2015
E	GRC AND LSC ADDED	09/2014
D	INSPECTION OPENING ADDED CHRC APPLICABILITY AMENDED	04/2013
C	INLET TYPE NAMES AMENDED	02/2013
	AMEND INLET TYPE A DROP, PRESITE DETAILS	
B	RRC AMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2010

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HOUSE CONNECTION BRANCHES

ROADS					
STANDARD DRAWING					
CMDG-S-030					
REV.	A	B	C	D	E
G					

INFORMATION ON THIS DRAWING SHALL APPLY UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THE SPECIFICATIONS

DESIGN

D1. THE PUMP STATION HAS BEEN DESIGNED IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS INCLUDING THE FOLLOWING:
AS 1170.0:2002 (+A5:2011) STRUCTURAL DESIGN ACTIONS - GENERAL PRINCIPLES
AS 1170.1:2002 (+A2:2009) STRUCTURAL DESIGN ACTIONS - PERMANENT, IMPOSED AND OTHER ACTIONS
AS 1170.2:2011 STRUCTURAL DESIGN ACTIONS - WIND ACTIONS
AS 1170.4:2007 STRUCTURAL DESIGN ACTIONS - EARTHQUAKE ACTIONS IN AUSTRALIA
AS 1657:1992 FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS - DESIGN, CONSTRUCTION AND INSTALLATION
AS / NZS 1664:1997 (+A1:1999) SAA ALUMINIUM STRUCTURES CODE
AS 3600:2009 (+A1:2010) CONCRETE STRUCTURES
AS 3735:2001 CONCRETE STRUCTURES RETAINING LIQUIDS
GRC-ES001 ELECTRICAL WORK
GRC-ES002 PREFERRED ELECTRICAL COMPONENTS
GRC-ES008 ELECTRICAL AND VALVE EQUIPMENT IDENTIFICATION LABELS
GRC-ES011 PLAIN, REINFORCED AND PRE-STRESSED CONCRETE (JWP-88-001)
GRC-ES013 FABRICATED METALWORK (JWP-88-002)
GRC-ES016 STANDARD CONSTRUCTION REQUIREMENTS SEWER PUMP STATIONS

GENERAL

G1. NO DIMENSION SHALL BE OBTAINED BY SCALING.
G2. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.
G3. ALL LEVELS ARE IN METRES U.N.O.
G4. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
G5. FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
G6. REFER ALL DISCREPANCIES TO THE WSM BEFORE PROCEEDING WITH THE WORKS.
G7. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
G8. ALL DRAWINGS MUST BE APPROVED BY GRC BEFORE COMMENCING WORK.
G9. DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS.
G10. THE APPLICANT SHALL BE RESPONSIBLE FOR PROTECTING STRUCTURES AGAINST FLOTATION DURING CONSTRUCTION.
G11. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, THE REQUIREMENTS OF RELEVANT SAA CODES, BCA AND THE LOCAL LAWS AND ORDINANCES OF THE RELEVANT GOVERNMENT AUTHORITY.
G12. NO PENETRATIONS, CHASES OR TEMPORARY FIXTURES ARE PERMITTED WITHOUT PRIOR APPROVAL FROM THE WSM. ALL DRAWINGS SHALL BE CHECKED AGAINST ARCHITECTURAL AND SERVICES DRAWINGS FOR PENETRATIONS, CONDUITS AND PIPES ETC.
G13. PUMPS MUST BE ABLE TO BE REMOVED FROM, AND REINSTALLED INTO THE WET WELL, WITHOUT DISMANTLING ANY EQUIPMENT, PIPEWORK, BRACKETS OR COVERS.

PIPEWORK

P1. WHERE CONNECTING TO EXISTING PIPEWORK, THE LEVEL AND DIAMETER OF THE EXISTING PIPEWORK, SHALL BE CONFIRMED BY THE CONTRACTOR, PRIOR TO THE CONNECTION.
P2. ALL FLANGES SHALL BE IN ACCORDANCE WITH AS 4087.
P3. ALL FLANGE BOLT HOLE ORIENTATIONS SHALL BE OFF-CENTRE U.N.O.
P4. ALL FLANGE BOLT SETS SHALL BE GRADE 316 STAINLESS STEEL.
P5. FLANGE GASKET MATERIAL AND THICKNESS SHALL BE IN ACCORDANCE WITH AS 4087.
P6. THRUST AND PUDDLE FLANGES SHALL BE CAST CENTRALLY WITHIN WALLS UNLESS SHOWN OTHERWISE.
P7. ALL FLANGED, SPIGOT AND SOCKET DICL PIPEWORK SHALL BE CLASS PN35.
P8. ALL GATE AND REFLUX VALVES SHALL BE INTERNALLY AND EXTERNALLY COATED WITH A POLYMERIC COATING.
P9. ALL GATE VALVES SHALL BE RESILIENT SEATED AND O-RING SEALED.

ELECTRICAL

E1. THE LOCATION OF ALL CONDUITS SHALL BE CONFIRMED BY THE WSM PRIOR TO CONSTRUCTION OF THE SWITCHBOARD SLAB.
E2. REFERENCE SHALL BE MADE TO GLADSTONE REGIONAL COUNCIL ELECTRICAL ENGINEERING STANDARDS.
E3. FOR GRC ELECTRICAL WORKS STANDARDS REFER GRC-ES001.
E4. FOR GRC PREFERRED ELECTRICAL COMPONENTS REFER GRC-ES002.
E5. FOR GRC PRE-FABRICATED SWITCHROOM STANDARDS REFER GRC-ES003.
E6. FOR GRC STANDARD LIGHT POWER DB REFER GRC-ES005.
E7. FOR GRC STANDARD ELECTRICAL & VALVE EQUIPMENT LABELS REFER GRC-ES008.
E8. FOR GRC PLAIN REINFORCED PRESTRESSED CONCRETE STANDARDS GRC-ES011.
E9. FOR GRC FABRICATED METALWORKS STANDARDS REFER GRC-ES013.
E10. FOR GRC STANDARD CONSTRUCTION REQUIREMENTS FOR SEWER PUMP STATIONS REFER GRC-ES016.

ABBREVIATIONS

A1. ABBREVIATIONS SHALL BE IN ACCORDANCE WITH STANDARDS AUSTRALIA PUBLICATION "SYMBOLS AND ABBREVIATIONS FOR BUILDING AND CONSTRUCTION" EXCEPT AS FOLLOWS:-

ECDP	ELECTRICAL CONDUIT DRAW PIT
FL	FLANGE
FSL	FINISHED SURFACE LEVEL
GJ	GIBAULT JOINT
RRJ	RUBBER RING JOINT
SP	SPIGOT
SC	SOCKET
SS	STAINLESS STEEL
STD DRG	STANDARD DRAWING
TWL	TOP WATER LEVEL
BWL	BOTTOM WATER LEVEL
UNO	UNLESS NOTED OTHERWISE
PWWF	PEAK WET WEATHER FLOW
PDWF	PEAK DRY WEATHER FLOW
ADWF	AVERAGE DRY WEATHER FLOW
MDWF	MINIMUM DRY WEATHER FLOW

AUTHORISED FOR CONSTRUCTION

ALL boxes MUST be signed prior to Construction

AUTHORISED BY APPLICANT

We certify that all the information provided on this drawing will ensure that the pump station is fully suited for its intended use and that it complies with all Gladstone Regional Council specifications and/or requirements.

----- Date:-----
Applicant / Applicants Authorised Officer

AUTHORISED BY DESIGN ENGINEER

We certify that all the information provided on this drawing will ensure that the pump station is fully suited for its intended use and that it complies with all Gladstone Regional Council specifications and/or requirements.

----- RPEQ: ----- Date:-----
Design Engineer / Design Engineers Authorised Officer

AUTHORISED BY OWNER

We certify that all the information provided on this drawing will ensure that the pump station is fully suited for its intended use and that it complies with all Gladstone Regional Council specifications and/or requirements.

----- Date:-----
Owner / Owners Authorised Officer

AUTHORISED BY GLADSTONE REGIONAL COUNCIL

You are advised that Gladstone Regional Council have NOT undertaken a detailed dimensional or design check and that this review in no way relieves your company of the responsibility for ensuring that all variable dimensions, levels, equipment and workmanship is in compliance with the relevant codes and specifications and for ensuring that the pump station design and equipment is fully suited for its intended use.

----- Date:-----
Water Services Manager OR Delegate

AUTHORISED BY GLADSTONE REGIONAL COUNCIL

You are advised that Gladstone Regional Council have NOT undertaken a detailed dimensional or design check and that this review in no way relieves your company of the responsibility for ensuring that all variable dimensions, levels, equipment and workmanship is in compliance with the relevant codes and specifications and for ensuring that the pump station design and equipment is fully suited for its intended use.

----- Date:-----
Technical Services Manager OR Delegate

AUTHORISED BY GLADSTONE REGIONAL COUNCIL

You are advised that Gladstone Regional Council have NOT undertaken a detailed dimensional or design check and that this review in no way relieves your company of the responsibility for ensuring that all variable dimensions, levels, equipment and workmanship is in compliance with the relevant codes and specifications and for ensuring that the pump station design and equipment is fully suited for its intended use.

----- Date:-----
Director of Engineering Services OR Delegate



APPLICABILITY TABLE

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

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)	

STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
NOTES AND CONSTRUCTION
AUTHORISATION

STANDARD
DRAWING
CMDG-S-050

REV. | 0 | 1 | A | B | |

REVISIONS		DATE
B	IRC ADDED	11/2016
A	ORIGINAL CMDG ISSUE	05/2015
1	AMENDMENTS	—
0	ORIGINAL ISSUE	05/2012

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SEWERAGE PUMP STATIONS

STANDARD DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE	REVISION
CMDG-S-050	NOTES AND CONSTRUCTION AUTHORISATION	B
CMDG-S-050A	STANDARD DRAWING INDEX	B
CMDG-S-050B	PUMP AND SYSTEM CURVES	B
CMDG-S-050C	SITE LAYOUT REQUIREMENTS	B
CMDG-S-050D	HYDRAULIC DESIGN DETAIL	B
CMDG-S-050E	GENERAL ARRANGEMENT 01 PUMPWELL FLOOR AND ROOF DETAILS	B
CMDG-S-050F	GENERAL ARRANGEMENT 02 OVERFLOW ARRANGEMENT	B
CMDG-S-050G	GENERAL ARRANGEMENT 03 EMERGENCY STORAGE TANK	B
CMDG-S-050H	GENERAL ARRANGEMENT 04 EMERGENCY STORAGE SCHEMATIC	B
CMDG-S-050I	GENERAL ARRANGEMENT 05 FLOW METER AND PIGGING PITS	B
CMDG-S-050J	GENERAL ARRANGEMENT 06 ELECTRICAL SERVICES LAYOUT 4-22kW	B
CMDG-S-050K	GENERAL ARRANGEMENT 07 ELECTRICAL SERVICES LAYOUT 30-105kW	B
CMDG-S-050L	GENERAL ARRANGEMENT 08 RAIN GAUGE POST	B
CMDG-S-050M	GENERAL ARRANGEMENT 09 BACK FLOW PREVENTION	B
CMDG-S-050N	GENERAL ARRANGEMENT 10 ODOUR FILTER, BOLLARDS, ROADS AND LANDSCAPING	B
CMDG-S-050O	LABELS	B
CMDG-S-050P	FENCE AND GATE DETAILS	B
CMDG-S-050Q	SCOUR AND AIR VALVE DETAILS	B
CMDG-S-050R	PIPING AND INSTRUMENTATION DIAGRAM	B

EQUIPMENT FUNCTION	PREFERRED COMPONENT
0-22kW PUMPS	KSB, FLYGT(XYLEM), GRUNDFOS, OR EQUIVALENT
30-105kW PUMPS	KSB, FLYGT(XYLEM), GRUNDFOS, OR EQUIVALENT
FLOW METERS	ABB WATERMASTER OR 24V DC
VENTILATION	MCBERNS OR EQUIVALENT
KNIFE VALVES	FULL STAINLESS STEEL CONSTRUCTION TYCO OR EQUIVALENT
SLUICE VALVES	RESILIENT SEAT O-RING SEALED TYCO OR EQUIVALENT
REFLUX VALVES	BALL CHECK FBE COATED CI SINKING EPDM BALL JOHN VALVES OR EQUIVALENT

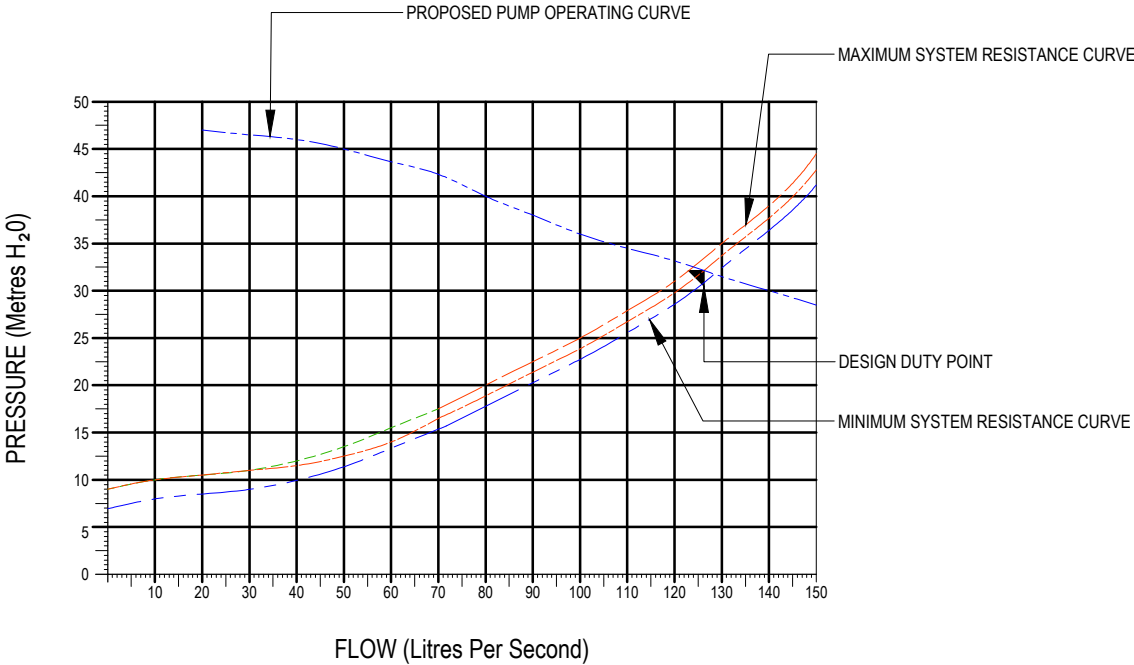


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B	AMENDMENTS	11/2016				REV. 0 1 2 A B	
A	ORIGINAL CMDG ISSUE	05/2015					
2	AMENDMENTS	—					
1	AMENDMENTS	08/2012					
0	ORIGINAL ISSUE	05/2012					

NOTES:

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY GRC BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. THE CURVES SHOWN ON THIS DRAWING ARE GIVEN AS A SAMPLE ONLY AND SHOW A STATION WITH ONE DUTY PUMP OPERATING AND AT A SINGLE SPEED.
7. FOR STATIONS WITH MORE THAN ONE DUTY PUMP ADDITIONAL CURVES ARE REQUIRED FOR EACH ADDITIONAL PUMP RUNNING.
8. FOR INSTALLATIONS WITH VARIABLE SPEED DRIVES PUMP CURVES ARE REQUIRED FOR PUMP SPEED AT 5Hz INCREMENTS FROM 25Hz TO 50 Hz
9. THE PROJECT DRAWING MUST CONTAIN CURVES WHICH REFLECT THE PUMPS INSTALLED.
10. THE TABLES SHOWN ON THIS DRAWING MUST BE POPULATED AND INCLUDED IN THE PROJECT DRAWINGS.
11. PUMP DUTY POINT TO BE BASED ON THE GRC DESIGN GUIDELINES AND WSA 04-2005
12. PUMP TO BE CAPABLE OF ACHIEVING DUTY POINTS OVER THE RANGE BETWEEN THE MAXIMUM AND MINIMUM CURVES.



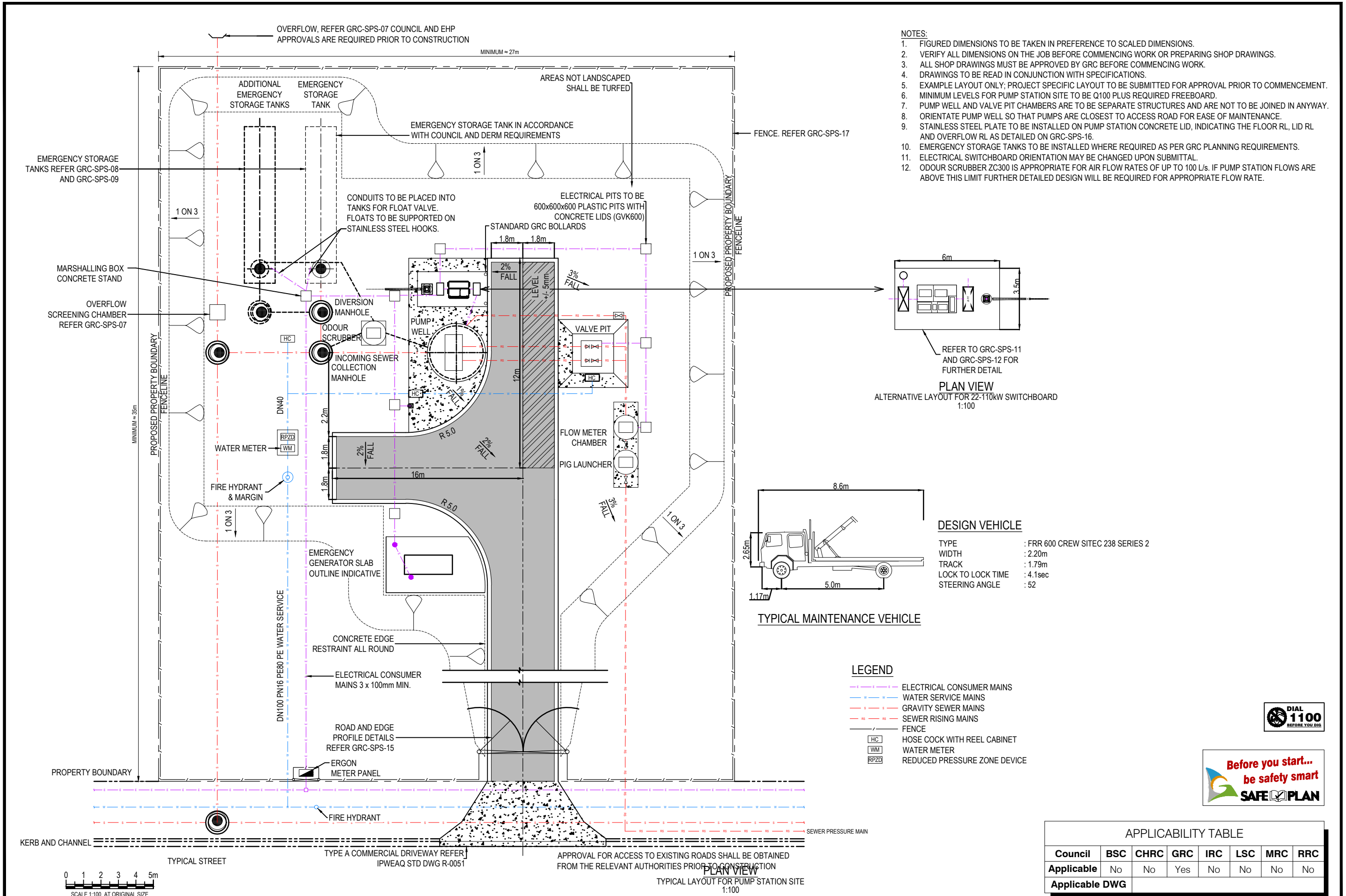
FLOW DETAILS				
FLOW RATES	FLOW RATE INTO PUMPING STATION (L/s)	VELOCITY IN RISING MAIN (m/s)	NUMBER OF PUMP STARTS PER HOUR	RISING MAIN RETENTION TIME (mins.)
PWWF				
PDWF				
ADWF				
MDWF				

PUMP DETAILS				
NUMBER OF DUTY PUMPS				
NUMBER OF STANDBY PUMPS				
TOTAL NUMBER OF PUMPS				
	PUMP 1		PUMP 2	
PUMP MANUFACTURER				
PUMP MODEL				
PUMP TYPE				
- SUBMERSIBLE				
- GRINDER				
- DRY				
PUMP IMPELLER DIAMETER				
PUMP MANUFACTURER CURVE No.				
OPERATING POINT (1 PUMP)	L/s @	m	L/s @	m
OPERATING POINT (2 PUMPS)	L/s @	m	L/s @	m
SHUT OFF HEAD	m		m	
COOLING JACKET	Yes/No		Yes/No	
NPSHr	m		m	
DISCHARGE DIAMETER 'X'	ø'X'	mm	ø'X'	mm
DISCHARGE STYLE (OFFSET OR CENTRE)				
GUIDE RAIL SIZE	mm		mm	
SHAPE OF GUIDE RAILS				
NUMBER OF GUIDE RAILS PER PUMP				
PUMP MASS	kg each		kg each	
MOTOR MANUFACTURER				
MOTOR kW RATING	kW @	PF	kW @	PF
MOTOR VOLTAGE	V	Phase	V	Phase
MOTOR SPEED AT 50 Hz				
MOTOR START TYPE				
NUMBER OF POLES				
FULL LOAD CURRENT	Amps		Amps	
THERMAL OL or CEF or CET				
CB TYPE & RATING	Amps		Amps	
NUMBER OF CORES PER PHASE				
THERMISTOR CABLE INCLUDED	Yes/No		Yes/No	
MOTOR CABLE LENGTH	Metres		Metres	
SYSTEM H-Q CURVE SHOWN	Yes/No		Yes/No	
PUMP H-Q CURVE SHOWN	Yes/No		Yes/No	

SWITCHBOARD DETAILS	
RATING	Amps
ELECTRICAL MAINS SIZE	mm²
RISING MAIN DETAILS	
PIPE NOMINAL DIAMETER	
PIPE MATERIAL	
PIPE MANUFACTURER	
PIPE INTERNAL DIAMETER	mm
PIPE OUTSIDE DIAMETER	mm
PIPE PN RATING	
VELOCITY AT 50 Hz FROM TWL	
VELOCITY AT MINIMUM Hz FROM BWL	
RISING MAIN VOLUME	m³

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

REVISIONS		DATE	<div>DISCLAIMER</div> <div>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>	<div>Capricorn Municipal Development Guidelines</div> <div>Incorporating:</div> <div><div>Banana Shire Council (BSC)</div><div>Central Highlands Regional Council (CHRC)</div><div>Gladstone Regional Council (GRC)</div><div>Isaac Regional Council (IRC)</div><div>Livingstone Shire Council (LSC)</div><div>Maranoa Regional Council (MRC)</div><div>Rockhampton Regional Council (RRC)</div></div>	STANDARD DRAWINGS		<div>STANDARD DRAWING</div> <div>CMDG-S-050B</div>						
					SEWERAGE PUMP STATIONS								
B	IRC ADDED	11/2016											
A	ORIGINAL CMDG ISSUE	05/2015											
1	AMENDMENTS	—											
0	ORIGINAL ISSUE	05/2012											
					PUMP AND SYSTEM CURVES		REV.	0	1	A	B		

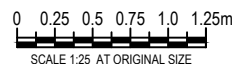


Station Number _____
Location _____

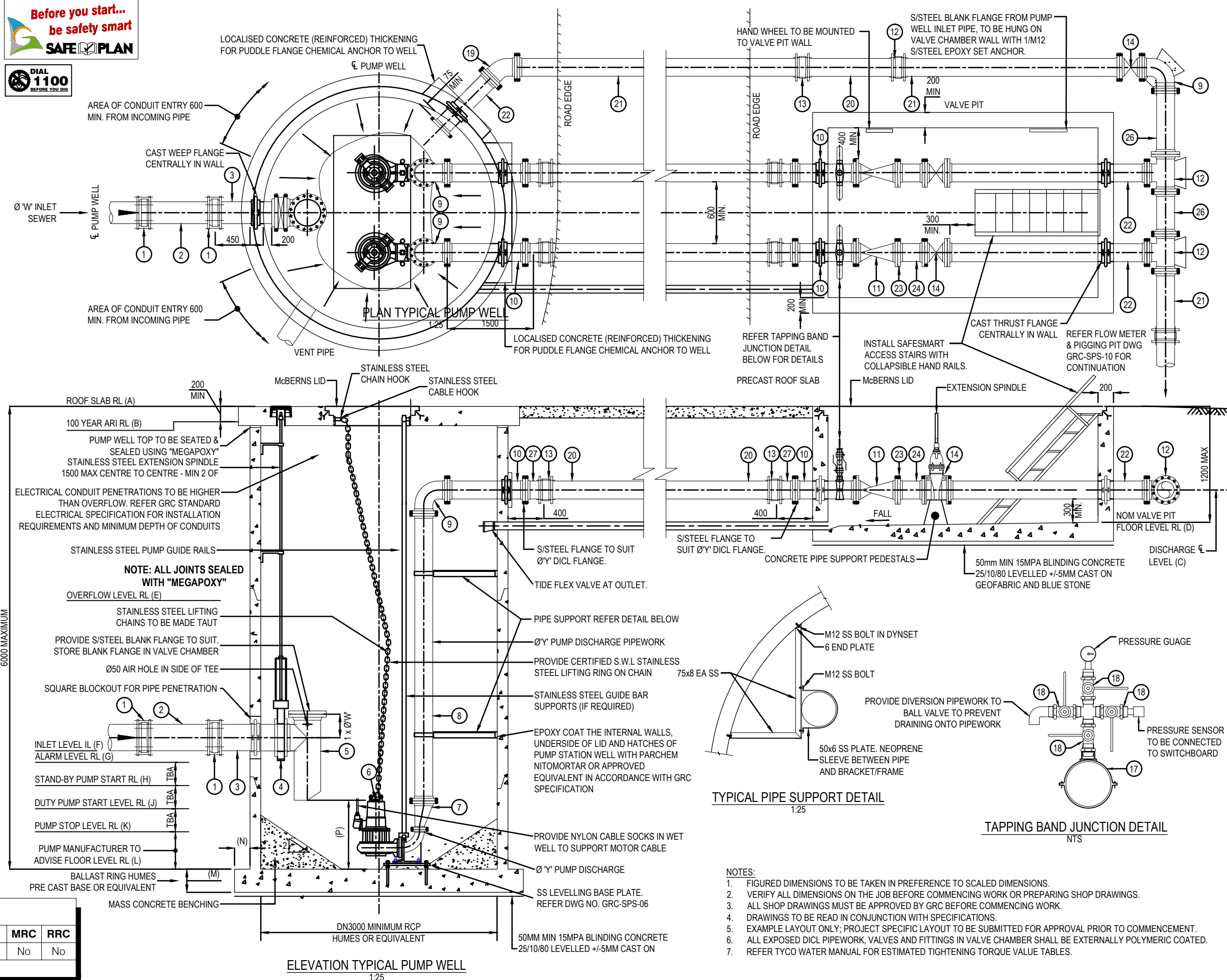
Pump Station Roof Slab	RL (A)	_____
100 year ARI	RL (B)	_____
Discharge C Level	RL (C)	_____
Valve Pit Floor Level	RL (D)	_____
Overflow Level	RL (E)	_____
Inlet Level (Pipe Invert)	IL (F)	_____
Alarm Level	RL (G)	_____
Standby Pump Start	RL (H)	_____
Duty Pump Start Level (TWL)	RL (J)	_____
Pump Stop Level (BWL)	RL (K)	_____
Floor Level	RL (L)	_____
Ballast Ring	RL (M)	_____
Dimension	'N'	_____
Dimension	'P'	_____
Inlet Sewer	Ø'W'	_____
Pump Discharge Pipework	Ø'Y'	_____
Sewer Pressure Main	Ø'Z'	_____
Design Inflow Rate (ADWF)		_____
Estimated System Storage		_____
between Standby Pump Start		_____
Volume		_____
Time		_____

ITEM	DESCRIPTION
------	-------------

1	ØW' Gibault Joint
2	ØW' SP-SP S/Steel Pipe
3	ØW' FL-SP S/Steel Tailpipe With Puddle Flange
4	ØW' Lugged S/Steel Bi-directional Knife Gate Valve Complete with Support Bracket to Wall of Pump Station
5	ØW' x ØW' MDPE SP-FLxFL Fabricated Tee Complete With S/Steel Backing Rings
6	Submersible Wastewater Pump
7	ØX' x ØY' FL-FL S/Steel Offset Taper (if required)
8	ØY' FL-FL S/Steel Pipe
9	ØY' x 90° FL-FL S/Steel Bend
10	ØY' FL-SP S/Steel Pipe With Puddle Flange and Adaptor Flange within Valve Chamber
11	ØY' REFLUX Valve, Ball Type NRV
12	ØY' FL-FLxFL DICL Tee
13	ØY' Gibault Joint
14	ØY' FL GATE Valve
15	ØY' FL-FL DICL Electro Magnetic Flow Meter
16	ØY' FL-FL-FL DICL Y' Tee
17	ØY' Tapping Saddle Ø20 BSP Outlet
18	Ø20 BSP Ball Valve
19	ØY' 45° BEND FL-FL
20	ØY' SP-SP DICL PIPE
21	ØY' FL-SP DICL PIPE
22	ØY' FL-FL DICL PIPE With Puddle Flange
23	ØY' UNI-FLANGE
24	ØY' 350mm LONG FL-FL DICL PIPE (Spool)
25	ØY' - 150mm DICL FL-FL TAPER (Con)
26	ØY' FL-FL DICL Pipe
27	ØY' FL-SP CONNECTOR



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Applicable DWG							



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DISCLAIMER.

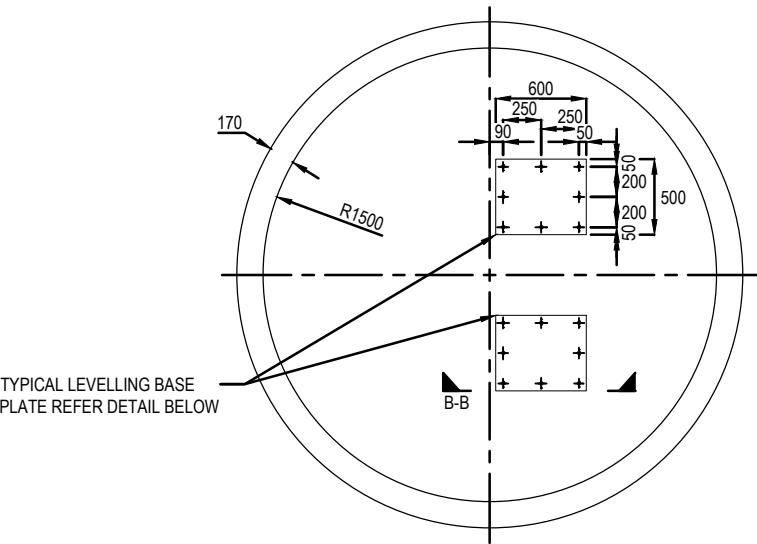
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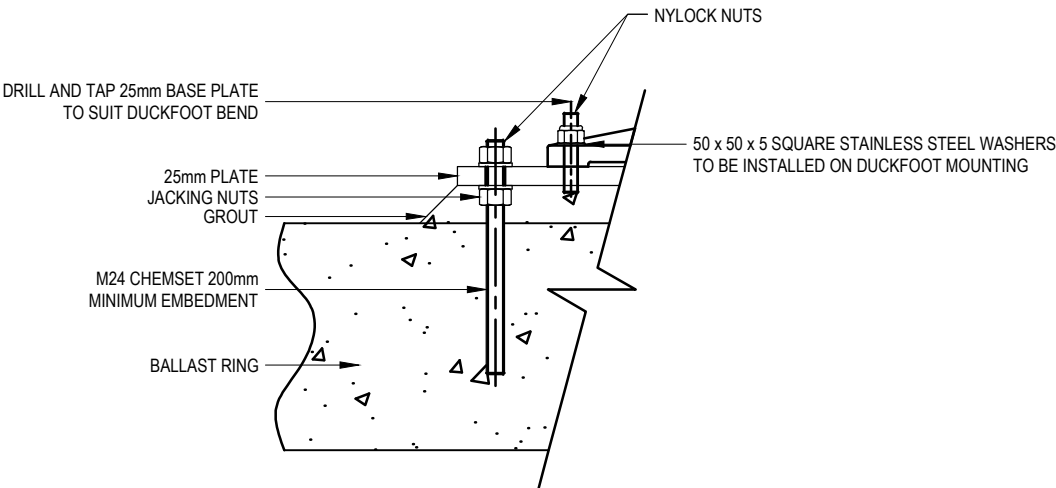
STANDARD DRAWING CMDG-S-050D					
REV.	0	1	2	A	B

- NOTES:
- 1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
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 - 5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
 - 6. SAFETY GRATE TO BE A NON-COATED ALUMINIUM SUITABLE FOR HIGH CORROSIVE ENVIRONMENT.
 - 7. STAINLESS STEEL PLATE TO BE INSTALLED ON UNDERSIDE OF PUMP STATION ACCESS LID, INDICATING PUMP 1 AND PUMP 2 AS DETAILED ON GRC-SPS-16.



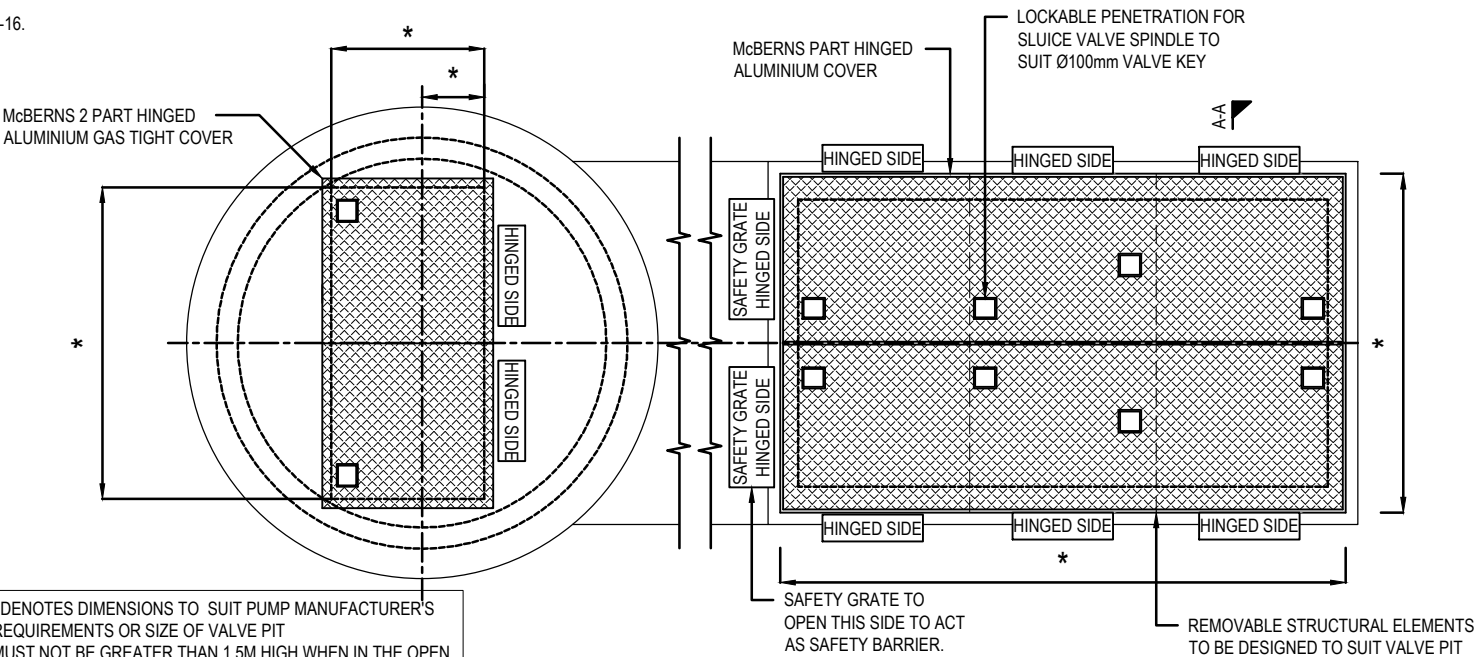
PLAN VIEW - LEVELLING BASE PLATE AND HOLD DOWN BOLTS

1:25
25mm 316 SS PLATE TO BE SIZED & DESIGNED BASED ON PUMP SELECTION



SECTION B-B HOLD DOWN BOLT & BASE PLATE DETAIL

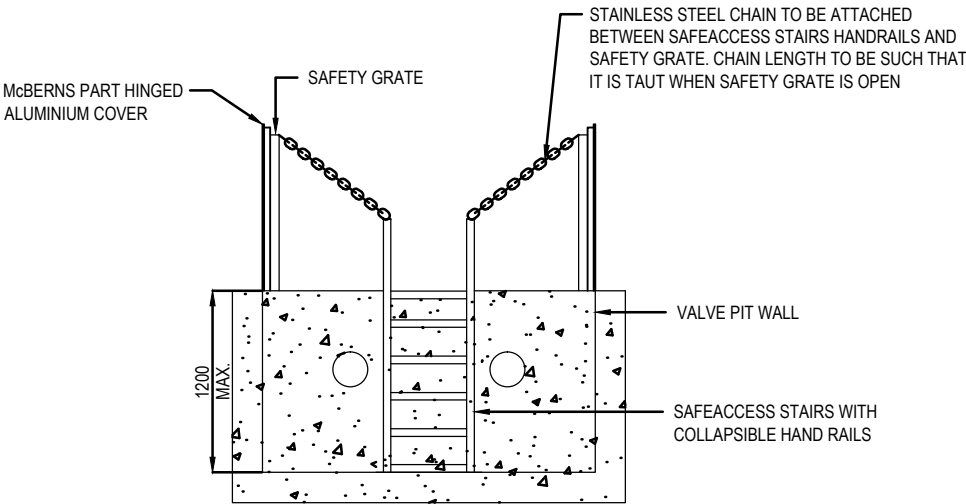
1:5
ALL MATERIALS GRADE 316 SS



PLAN VIEW - ROOF SLAB

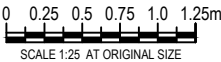
1:25

ALL ALUMINIUM FLOOR PLATE COVERS SHALL BE EXTERNALLY COATED WITH 'ENVELON - TREDGRIP' OR SIMILAR APPROVED WATER BASED, RUBBERISED NON-SLIP FINISH COLOUR - YELLOW



ELEVATION A-A

1:25



APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
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Applicable DWG							

REVISIONS	DATE
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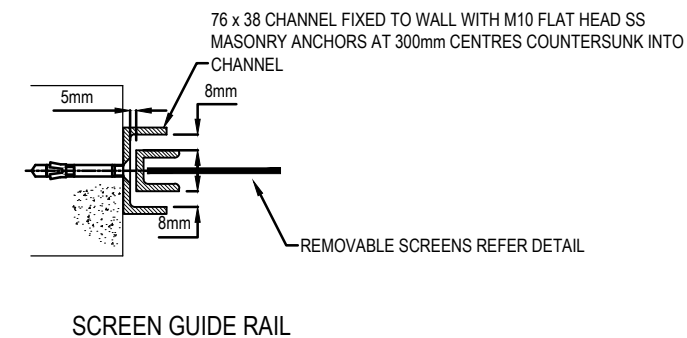
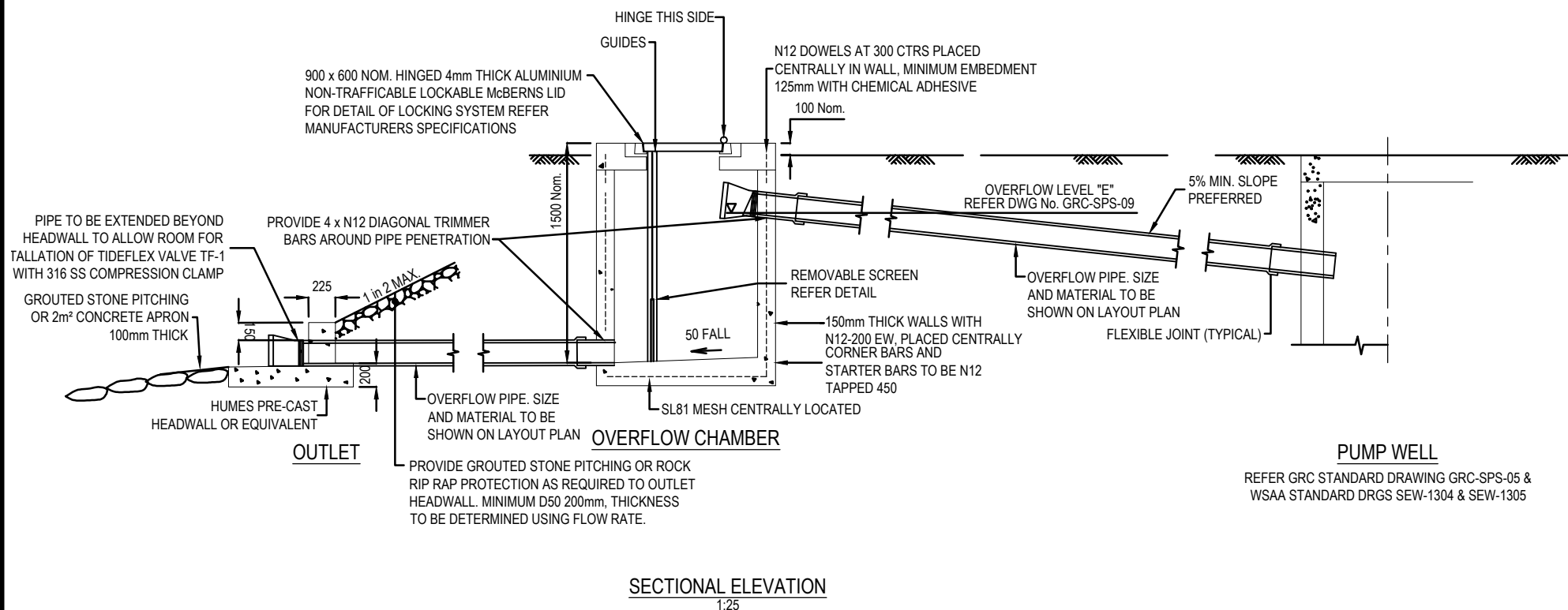
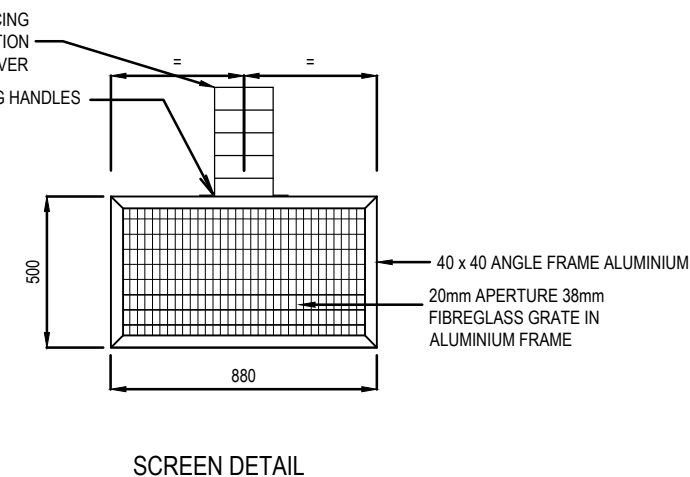
STANDARD DRAWINGS
SEWERAGE PUMP STATIONS

HYDRAULIC DESIGN DETAILS

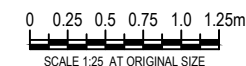
STANDARD
DRAWING
CMDG-S-050E

REV. 0 1 2 A B

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY GRC BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.



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



REVISIONS		DATE
B	IRC ADDED	11/2016
A	ORIGINAL CMDG ISSUE	05/2015
1	AMENDMENTS	—
0	ORIGINAL ISSUE	05/2012

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Incorporating:

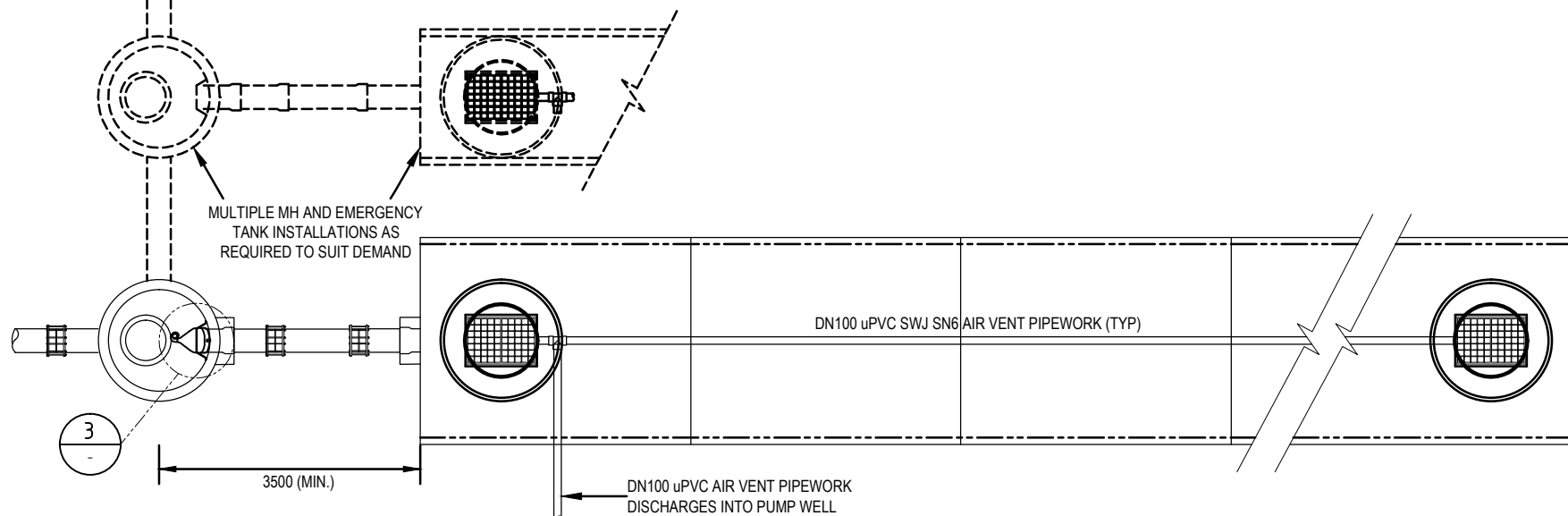
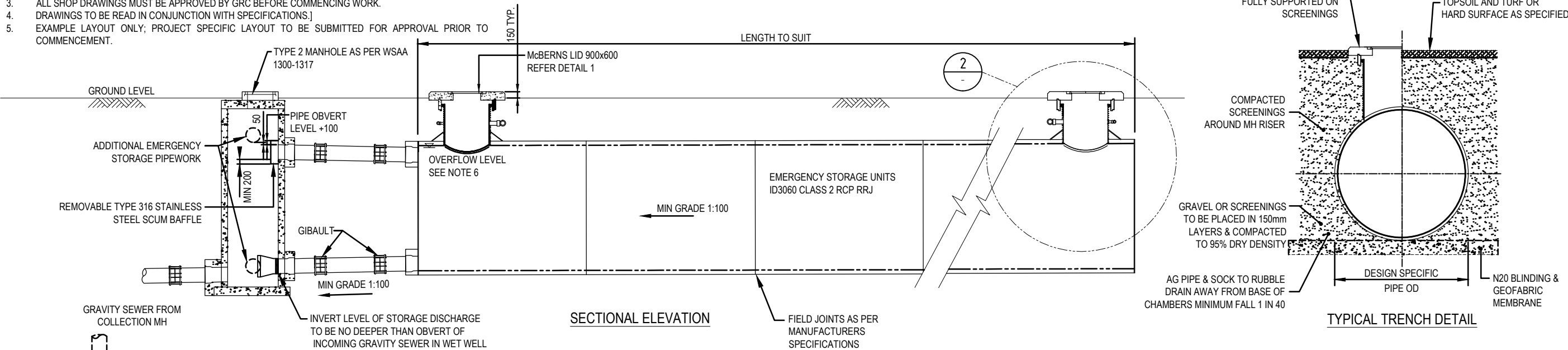
Banana Shire Council (BSC)	Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC)	Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC)	Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)	

STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
GENERAL ARRANGEMENT 02
OVERFLOW ARRANGEMENT

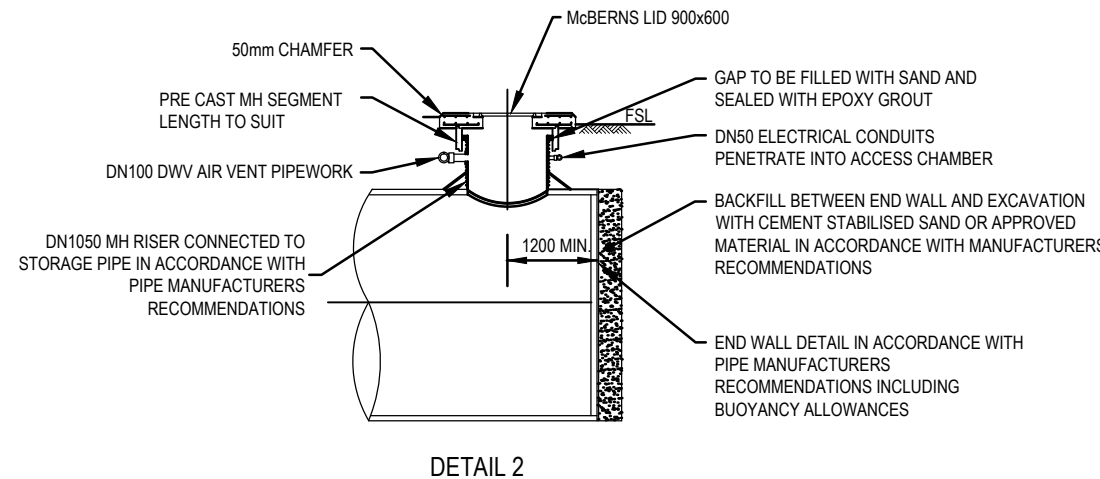
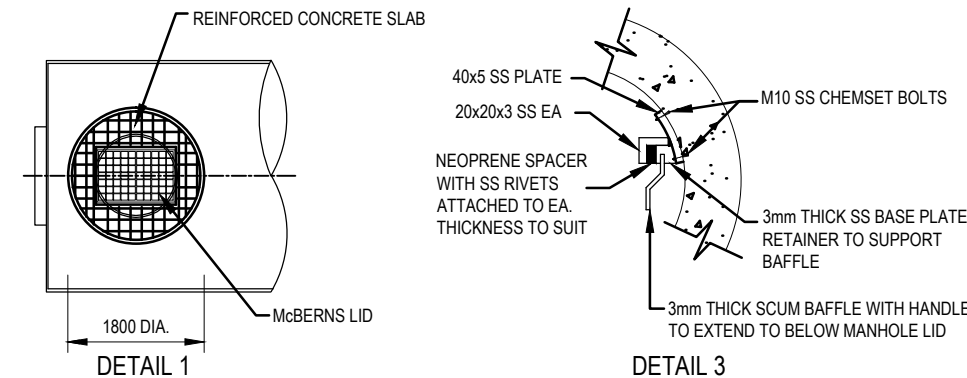
STANDARD
DRAWING
CMDG-S-050F

REV.	0	1	A	B		
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- NOTES:
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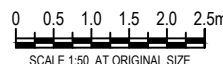


- NOTES:
- IT IS CRITICAL TO ENSURE THAT THE STORAGE PIPE IS PREVENTED FROM FLOATING IN WATERLOGGED TRENCHES DURING AND AFTER INSTALLATION.
 - STORAGE PIPES MUST BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
 - MINIMUM PIPE SEPARATION DISTANCE TO BE IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATIONS.
 - FINAL STORAGE PIPE TYPE & CONFIGURATION TO BE CONFIRMED BY GRC.
 - STRUCTURAL STABILITY OF STORAGE TANKS IN RELATION TO FILL TO BE REVIEWED & SIGNED OFF BY SUITABLY QUALIFIED STRUCTURAL AND/OR GEOTECHNICAL ENGINEER WITH RPEQ SIGN-OFF TO DRAWINGS & DESIGN.
 - OVERFLOW LEVEL AT EMERGENCY STORAGE TO TAKE INTO ACCOUNT HEAD LOSSES BETWEEN SYSTEM OVERFLOW POINT RL AND EMERGENCY STORAGE TOP WATER LEVEL. EMERGENCY STORAGE IS TO BE DESIGNED TO FILL TO DESIGN CAPACITY BEFORE SYSTEM OVERFLOW OCCURS.
 - NUMBER OF EMERGENCY STORAGE PIPE ARRAYS SUBJECT TO GRC APPROVAL.
 - ONLY ONE CHAMBER TO FILL/DRAIN AT A TIME.



APPLICABILITY TABLE

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Applicable	No	No	Yes	No	No	No	No
Applicable DWG							



Capricorn Municipal Development Guidelines

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STANDARD DRAWINGS SEWERAGE PUMP STATIONS GENERAL ARRANGEMENT 03 EMERGENCY STORAGE TANK

STANDARD
DRAWING
CMDG-S-050G

REV. 0 1 2 A B

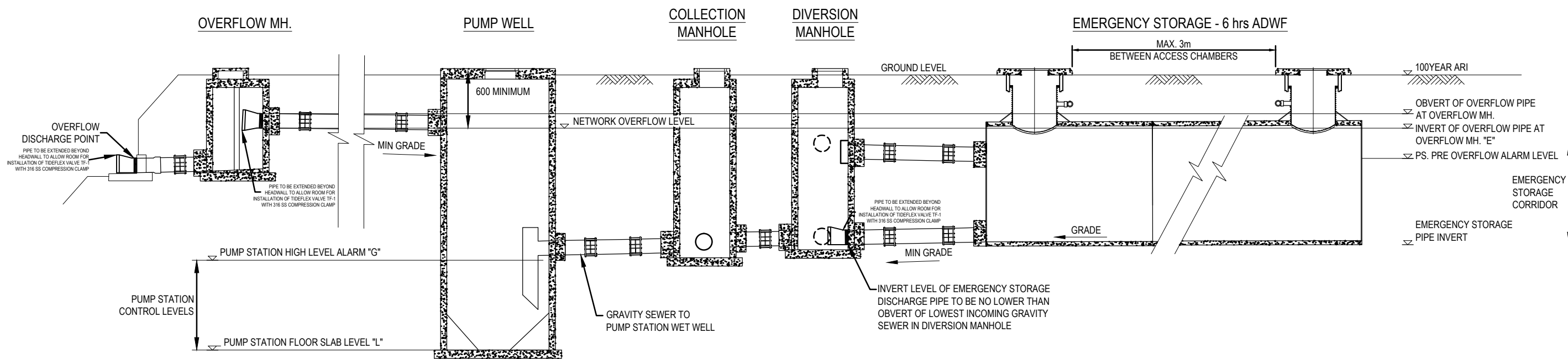
REVISIONS	DATE
B IRC ADDED	11/2016
A ORIGINAL CMDG ISSUE	05/2015
2 AMENDMENTS	-
1 AMENDMENTS	08/2012
0 ORIGINAL ISSUE	05/2012

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NOTE: ALL COVERS TO EMERGENCY STORAGE TANK AND MANHOLES TO BE 150mm ABOVE FINISHED GROUND LEVEL



WELL DETAILS

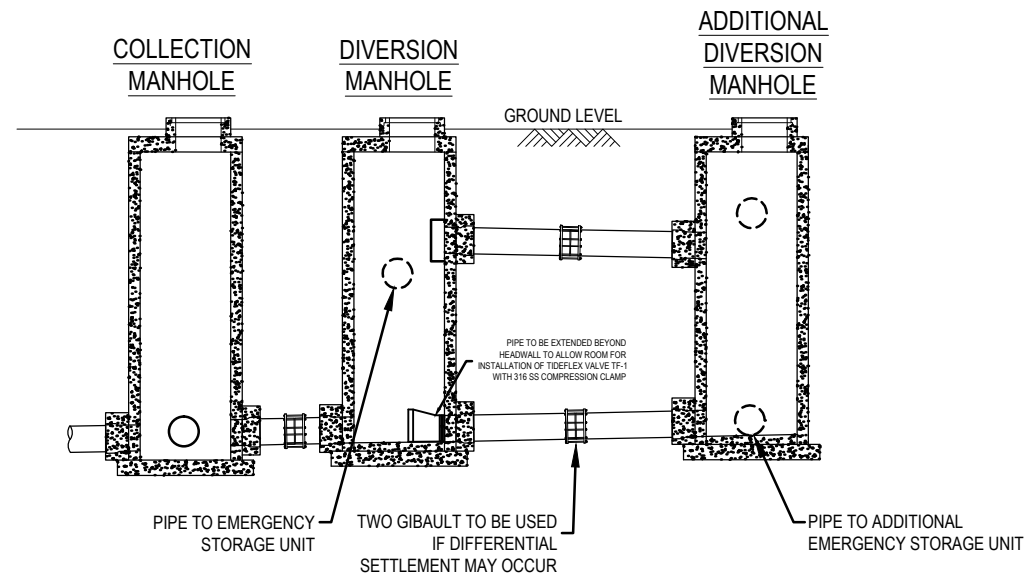
Station Number _____
Location _____

Pump Station Roof Slab	RL (A)	_____
100 year ARI	RL (B)	_____
Discharge C Level	RL (C)	_____
Valve Pit Floor Level	RL (D)	_____
Overflow Level	RL (E)	_____
Inlet Level (Pipe Invert)	IL (F)	_____
Alarm Level	RL (G)	_____
Standby Pump Start	RL (H)	_____
Duty Pump Start Level (TWL)	RL (J)	_____
Pump Stop Level (BWL)	RL (K)	_____
Floor Level	RL (L)	_____
Ballast Ring	RL (M)	_____
Dimension 'N'	'N'	_____
Dimension 'P'	'P'	_____
Inlet Sewer	Ø'W'	_____
Pump Discharge Pipework	Ø'Y'	_____
Sewer Pressure Main	Ø'Z'	_____
Design Inflow Rate (ADWF)		_____
Estimated System Storage between Standby Pump Start		_____
Volume		_____ kL
Time		_____ hr

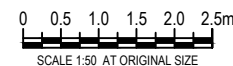
NOTES:

- NETWORK OVERFLOW LEVEL =
 - LOWEST OVERFLOW RELIEF GULLY (ORG) LEVEL IN THE CATCHMENT
 - LESS 300mm SAFETY FACTOR
 - LESS HEAD LOSS BETWEEN ORG AND OVERFLOW POINT
 - LESS OVERFLOW PIPE DIAMETER
- FOR CONTROL LEVELS WITHIN PUMP STATION REFER STANDARD DRAWING GRC-SPS-05
- VENT PIPE CONNECTIONS TO BE SET MINIMUM 100mm ABOVE OVERFLOW OBVERT LEVEL

SCHEMATIC ELEVATION



SCHEMATIC ELEVATION OF ADDITIONAL EMERGENCY STORAGE UNIT MANHOLE AND PIPEWORK ARRANGEMENT



APPLICABILITY TABLE

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Applicable	No	No	Yes	No	No	No	No
Applicable DWG							



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

STANDARD DRAWINGS SEWERAGE PUMP STATIONS GENERAL ARRANGEMENT 03 EMERGENCY STORAGE SCHEMATIC

STANDARD
DRAWING
CMDG-S-050H

REV. 0 1 A B

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5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. VALVE MARGINS AND EXTENSION PIPES TO BE PROVIDED FOR ALL UNDERGROUND SLUICE VALVES.



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

REVISIONS		DATE
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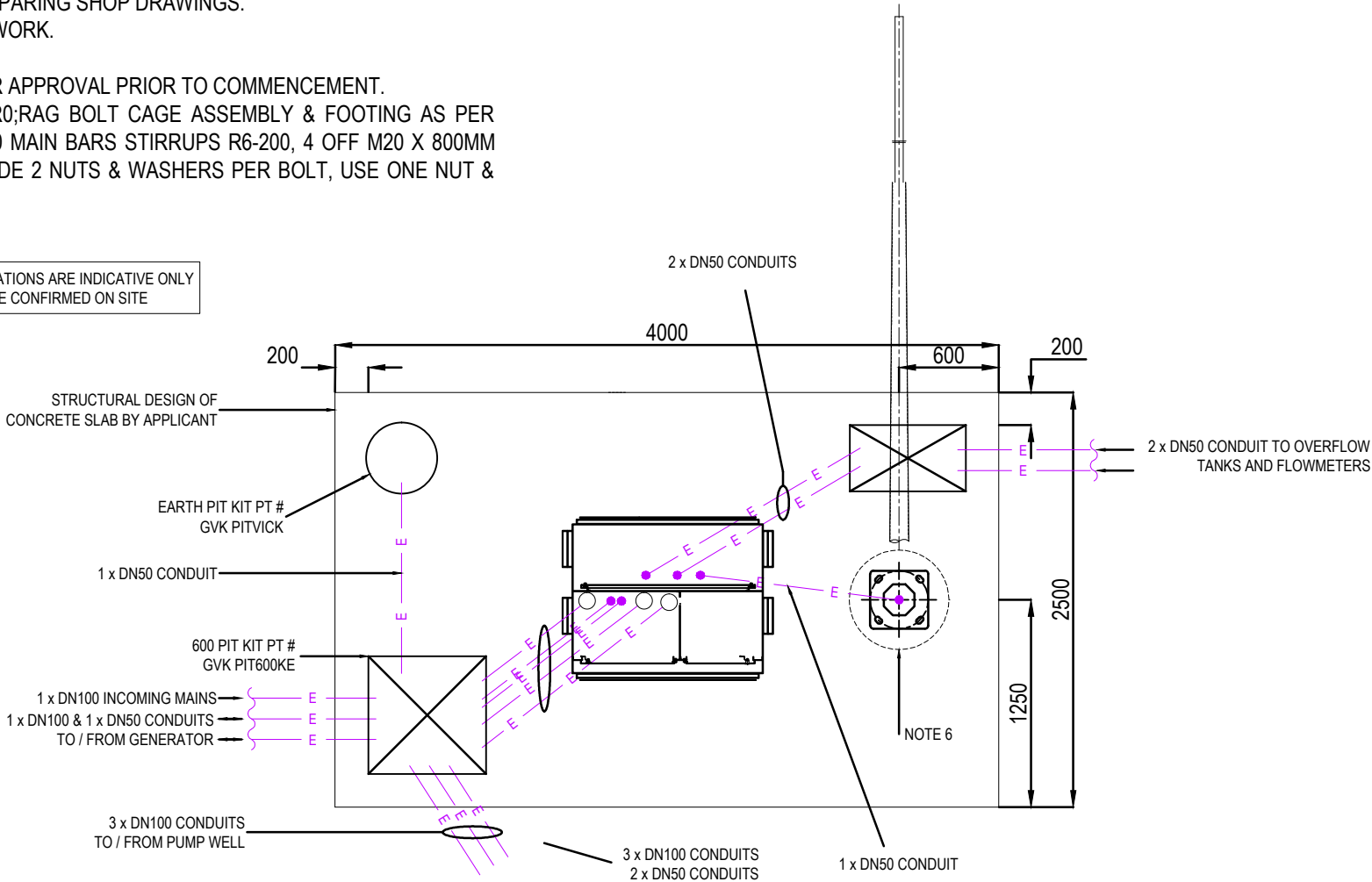
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Isaac Regional Council (IRC)	

STANDARD DRAWING CMDG-S-0501					
REV.	0	1	2	A	B

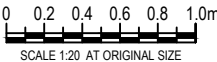
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5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. AUSPOLE 6MTR. HINGED WATERCORP SPEC, REFER TO AUS-1806-11-D0-R0;RAG BOLT CAGE ASSEMBLY & FOOTING AS PER MANUFACTURERS DETAIL/.LOCAL SLAB THICKENING 600Ø X 1450D, 8 X N20 MAIN BARS STIRRUPS R6-200, 4 OFF M20 X 800MM LONG HOOK BOLTS 105MM THREAD, SET 95MM ABOVE CONCRETE; PROVIDE 2 NUTS & WASHERS PER BOLT, USE ONE NUT & WASHER UNDER BASE PLATE FOR LEVELLING.
7. ORIENTATION OF SWITCHBOARD MAY BE CHANGED UPON SUBMITTAL.

CONDUIT LOCATIONS ARE INDICATIVE ONLY
AND ARE TO BE CONFIRMED ON SITE



4-22kW SWITCHBOARD CONDUIT LAYOUT
PLAN VIEW
NTS



APPLICABILITY TABLE							
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Applicable DWG							

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Capricorn Municipal Development Guidelines

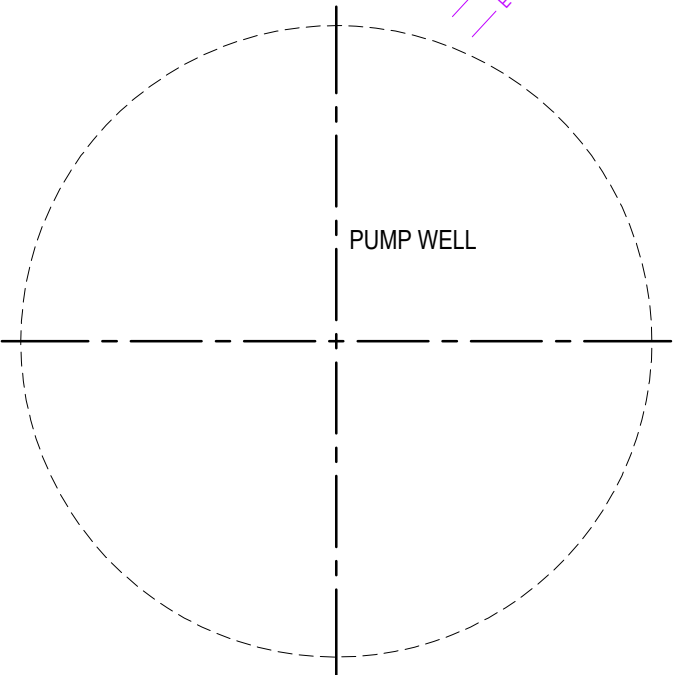
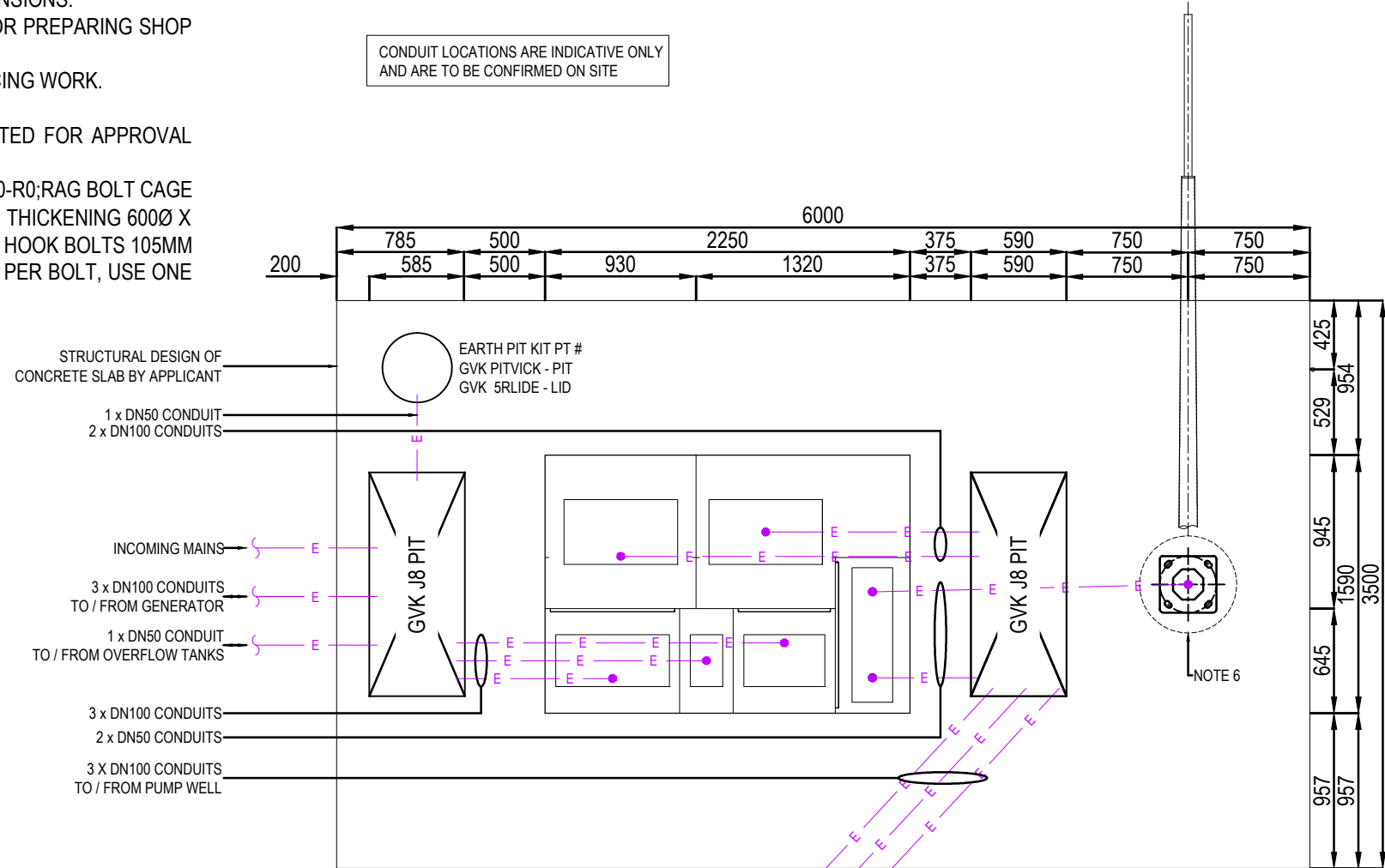
Incorporating:
Banana Shire Council (BSC) Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)
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STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
GENERAL ARRANGEMENT 06
ELECTRICAL SERVICES LAYOUT 4–22kW

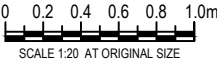
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DRAWING
CMDG–S–050J

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- NOTES:
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 - 7. ORIENTATION OF SWITCHBOARD MAY BE CHANGED UPON SUBMITTAL.



22-160kW SWITCHBOARD CONDUIT LAYOUT
PLAN VIEW
NTS



APPLICABILITY TABLE							
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Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
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2	AMENDMENTS	—
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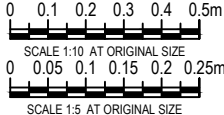
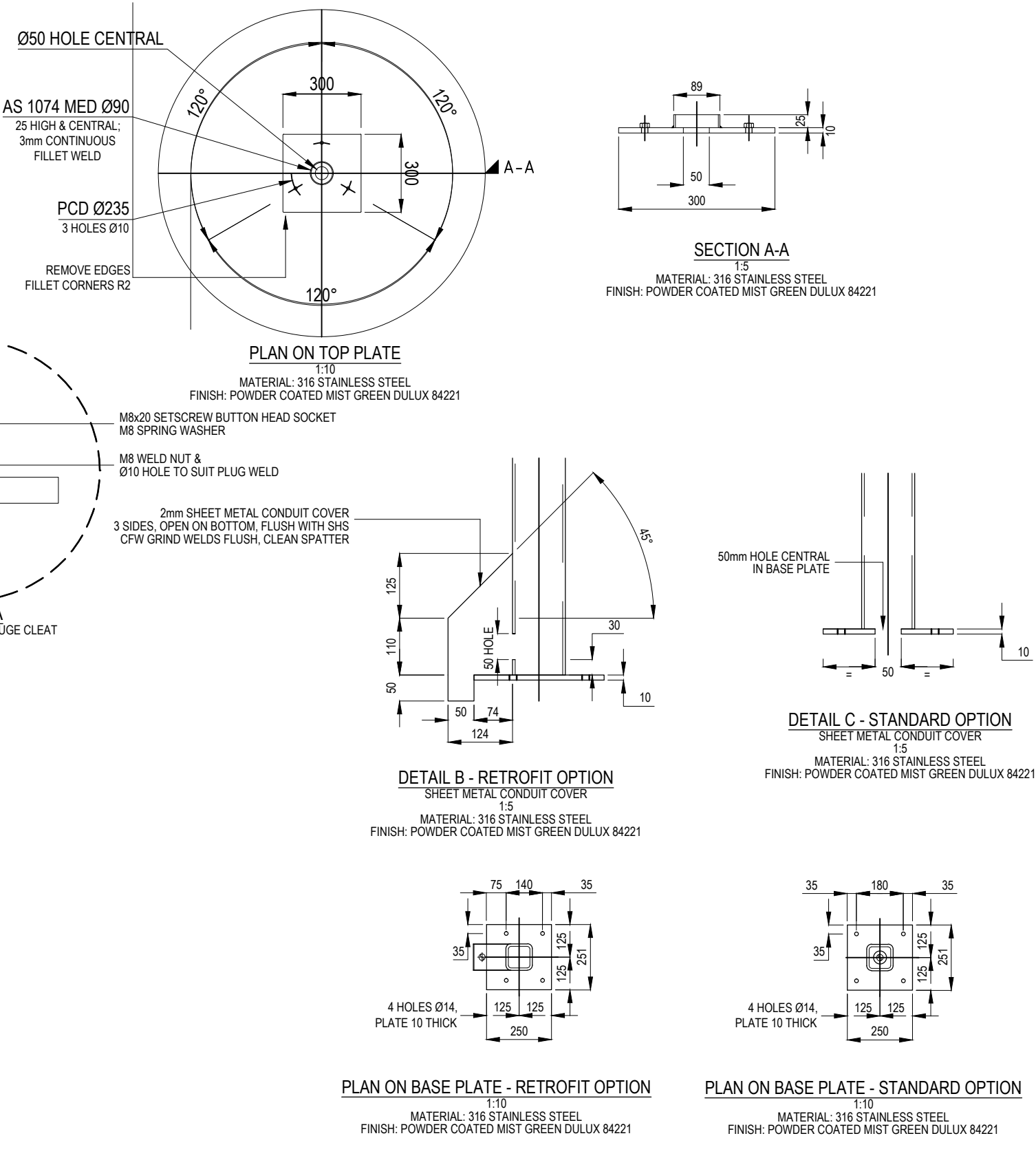
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
GENERAL ARRANGEMENT 07
ELECTRICAL SERVICES LAYOUT 30–105kW

STANDARD
DRAWING
CMDG–S–050K

REV. | 0 | 1 | 2 | A | B |

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 - ALL PRE-FABRICATED STRUCTURAL MEMBERS, SHEET, NUTS & BOLTS ETC. TO BE 316SS & POWDER COATED PALE EUCALYPT - DULUX 84221.



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

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STANDARD DRAWINGS SEWERAGE PUMP STATIONS GENERAL ARRANGEMENT 08 RAIN GAUGE POST

STANDARD
DRAWING
CMDG-S-050L
REV. 0 1 2 A B

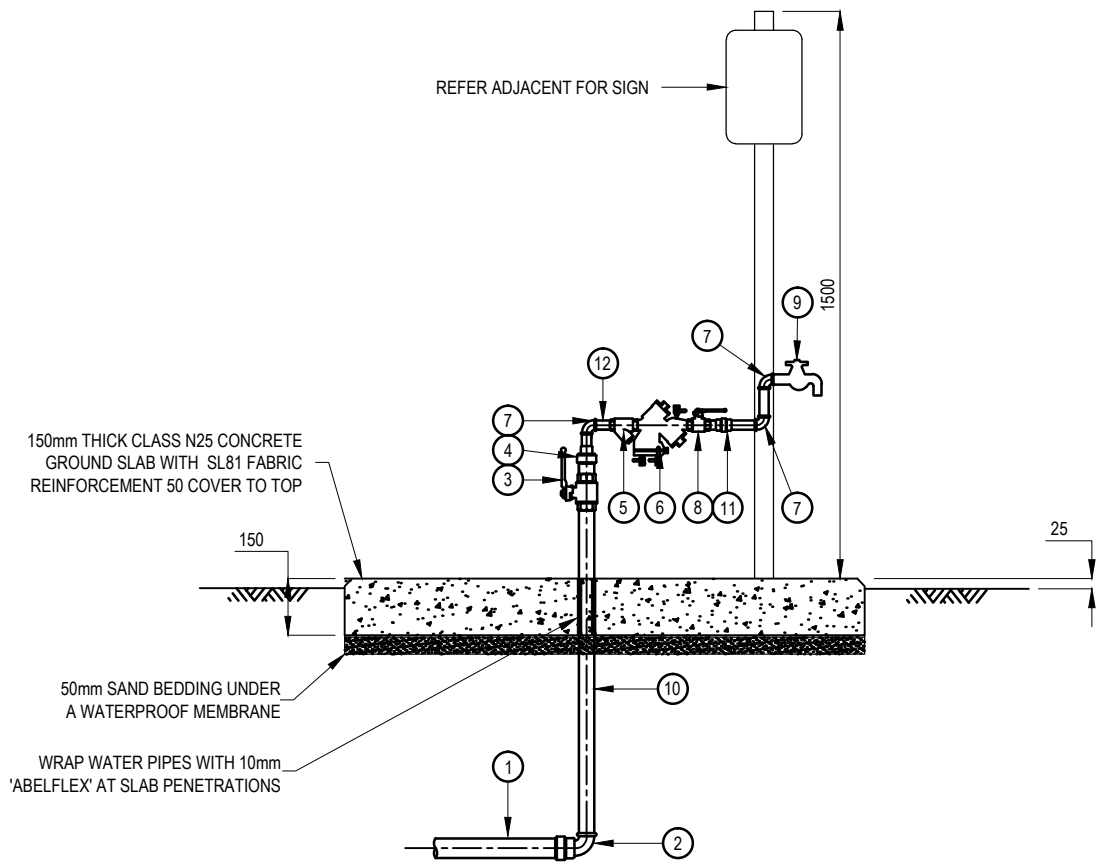
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BILL OF MATERIALS

ITEM	DESCRIPTION
1	DN40 PN16 POLYETHYLENE WATER SERVICE
2	DN40 90° BEND STAINLESS STEEL WITH POLY TO STAINLESS ADAPTOR
3	DN40 STAINLESS STEEL BALL VALVE
4	DN40 TO DN25 TAPPER
5	DN25 STAINLESS STEEL STRAINER
6	DN25 STAINLESS STEEL RPZ DEVICE
7	DN25 90° BEND STAINLESS STEEL FL-FL SOCKETS
8	DN25 STAINLESS STEEL BALL VALVE
9	HOSE COCK
10	DN40 STAINLESS STEEL TUBE
11	DN25 STAINLESS STEEL BSP ADAPTOR WITH TUBE END
12	DN25 STAINLESS STEEL TUBE

ALL FITTINGS TO BE BLUCHER AUSTRALIA MAPRESS STAINLESS STEEL PRESSURE FITTINGS



BACK FLOW PREVENTION DEVICE AT PUMP WELL
1:10 U.N.O.

NON-POTABLE WATER NOTICE TO
BE INSTALLED ABOVE HOSE COCK

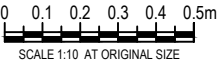


NON-POTABLE SAFETY SIGNAGE
NOT TO SCALE



APPLICABILITY TABLE

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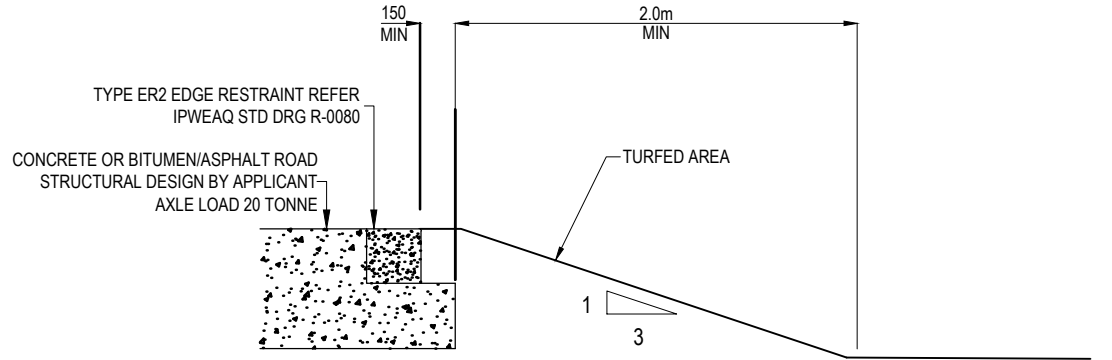
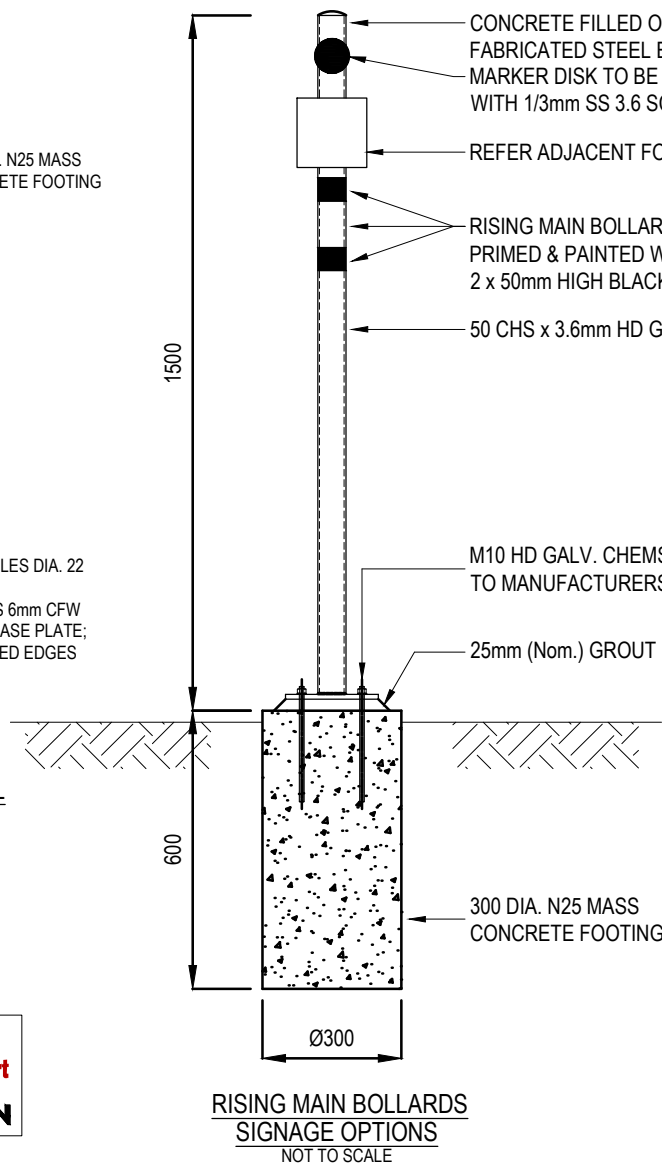
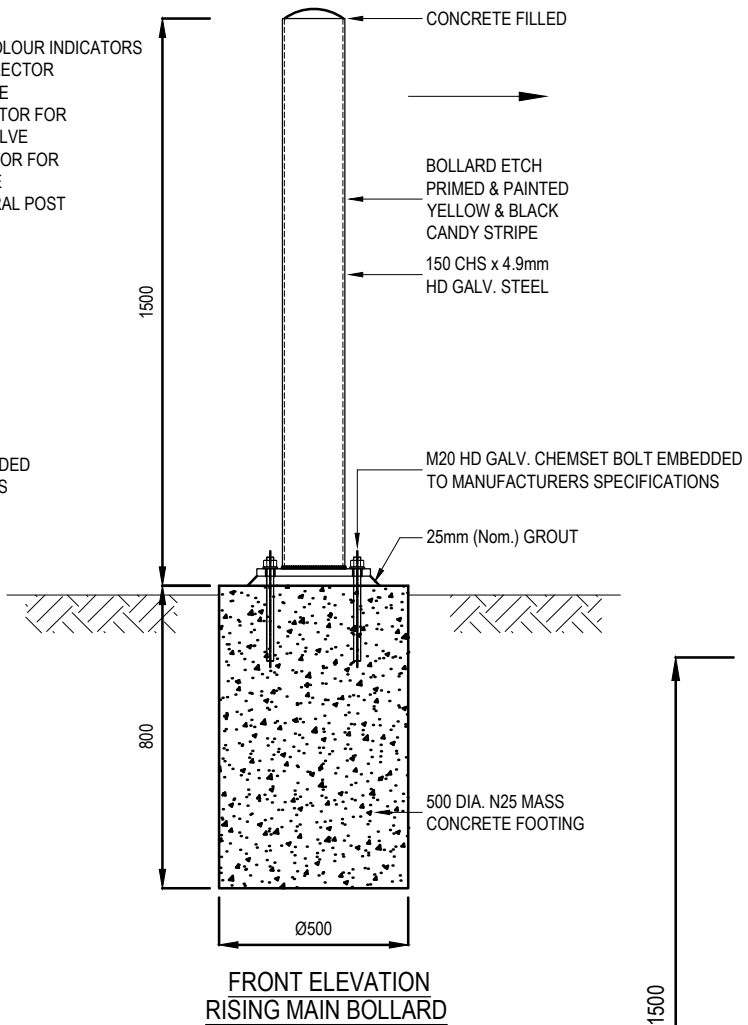
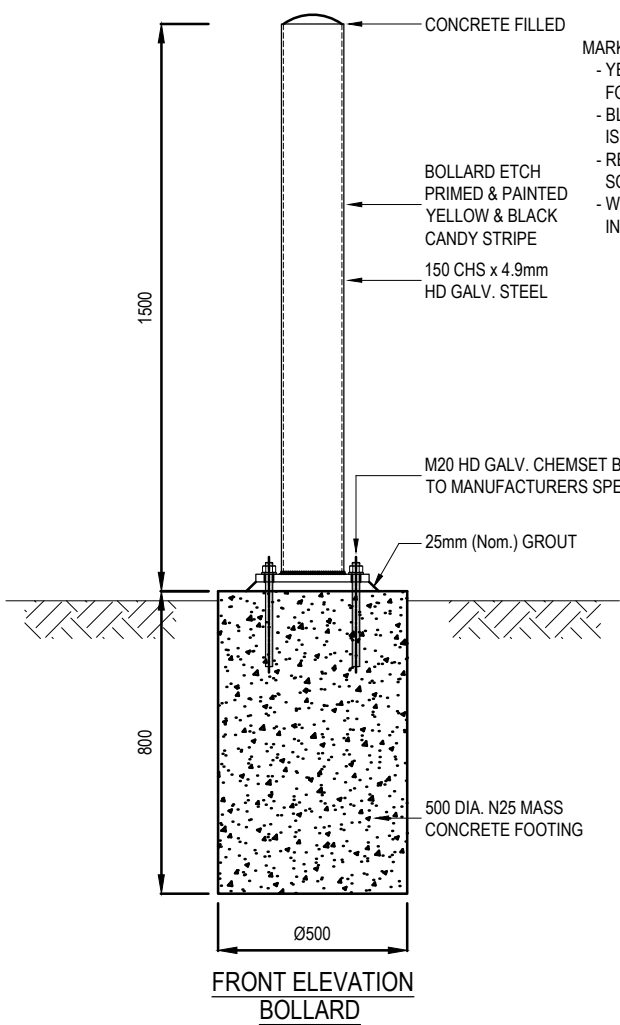
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STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
GENERAL ARRANGEMENT 09
BACK FLOW PREVENTION

STANDARD
DRAWING
CMDG-S-050M
REV. 0 1 A B

- NOTES:
- FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
 - VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
 - ALL SHOP DRAWINGS MUST BE APPROVED BY GRC BEFORE COMMENCING WORK.
 - DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS.
 - EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.



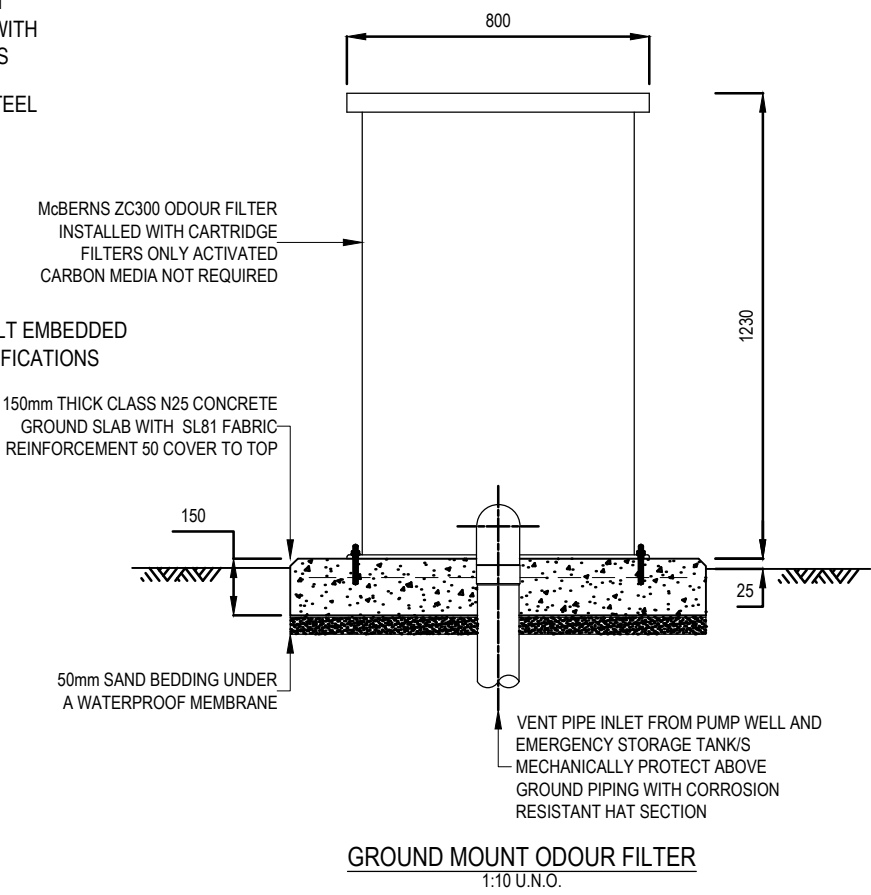
LANDSCAPING

- SUPPLY AND ESTABLISH TURF ON ALL SURFACES NOT PAVED AS APPROVED. TOPSOIL STRIPPED PRIOR TO CONSTRUCTION SHALL BE REPLACED ON ALL SURFACES NOT PAVED, INCLUDING BATTER SLOPES.

PAVEMENT

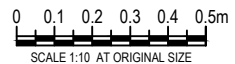
- PAVEMENT SHALL BE DRY AND THOROUGHLY BROOMED BEFORE SURFACING IS UNDERTAKEN. ANY DEPRESSIONS GREATER THAN 25mm SHALL BE TACK COATED AND BROUGHT UP TO THE LEVEL OF THE PAVEMENT.
- PAVEMENT SHALL COMPLY WITH MAIN ROADS SPECIFICATION "UNBOUND PAVEMENTS" MRS 11.05
- ASPHALTIC CONCRETE SHALL COMPLY WITH MAIN ROADS SPECIFICATION "DENSE GRADED ASPHALT PAVEMENTS" MRS 11.30

TYPICAL EDGE PROFILE FOR AC PAVEMENT
Not To Scale



APPLICABILITY TABLE

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



Capricorn Municipal Development Guidelines

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Gladstone Regional Council (GRC)	Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)	

STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
GENERAL ARRANGEMENT 10
ODOUR FILTER, BOLLARDS, ROADS AND LANDSCAPING

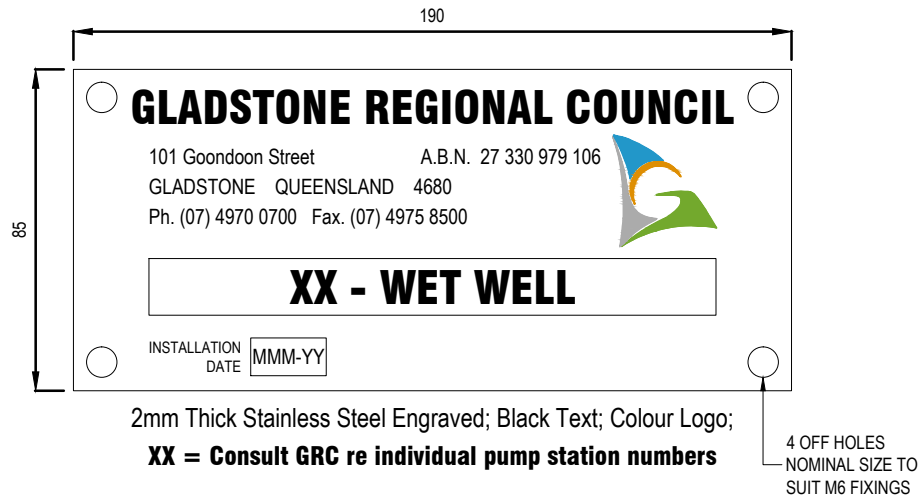
STANDARD
DRAWING
CMDG-S-050N
REV. 0 1 2 A B

REVISIONS	DATE
B IRC ADDED	11/2016
A ORIGINAL CMDG ISSUE	05/2015
2 AMENDMENTS	-
1 AMENDMENTS	08/2012
0 ORIGINAL ISSUE	05/2012

DISCLAIMER.

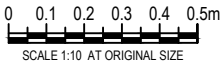
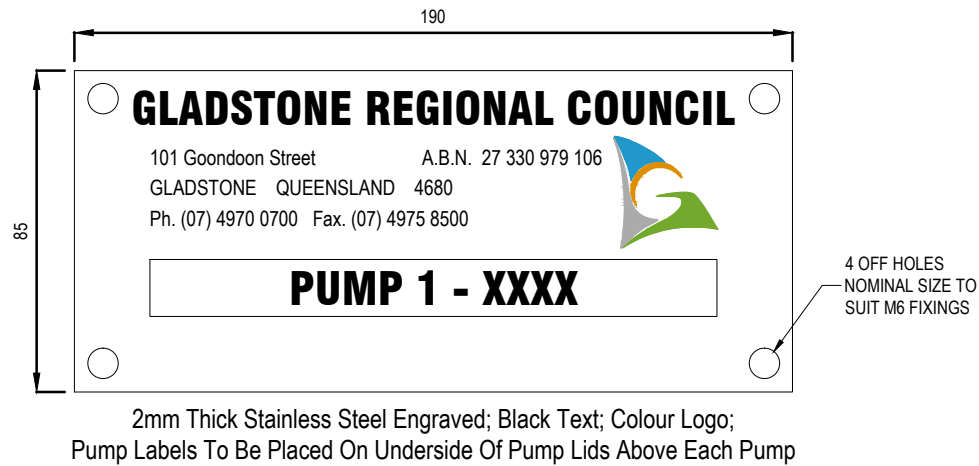
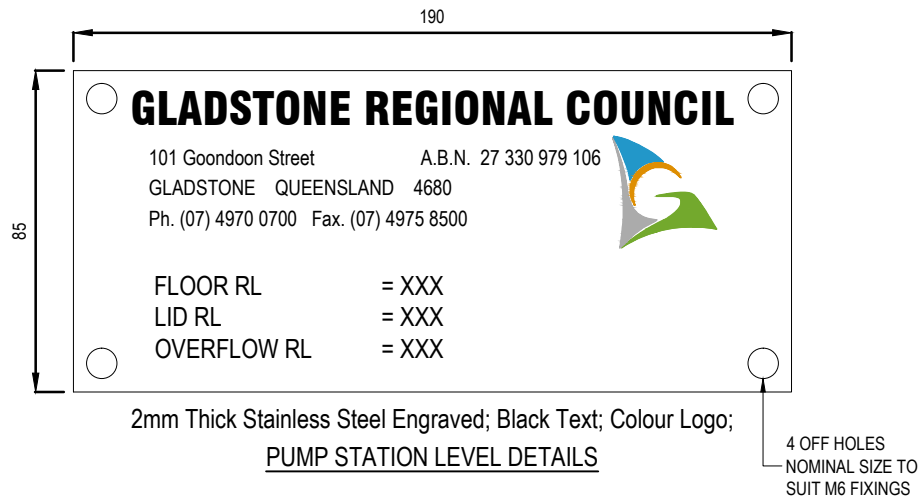
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 - 6. REFER GRC TAGGING AND LABELLING SPECIFICATION FOR REQUIREMENTS.



FABRICATE AND INSTALL LABELS FOR THE FOLLOWING ITEMS OF PLANT:

- XX - VALVE PIT
- XX - FLOW METER CHAMBER
- XX - PIGGING CHAMBER
- XX - COLLECTION MAN HOLE
- XX - OVERFLOW MAN HOLE
- XX - OVERFLOW TANK 1
- XX - OVERFLOW TANK 2
- XX - OVERFLOW SCREEN CHAMBER
- XX - SCOUR VALVE



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

REVISIONS		DATE
B	IRC ADDED	11/2016
A	ORIGINAL CMDG ISSUE	05/2015
1	AMENDMENTS	—
0	ORIGINAL ISSUE	05/2012

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Capricorn Municipal Development Guidelines

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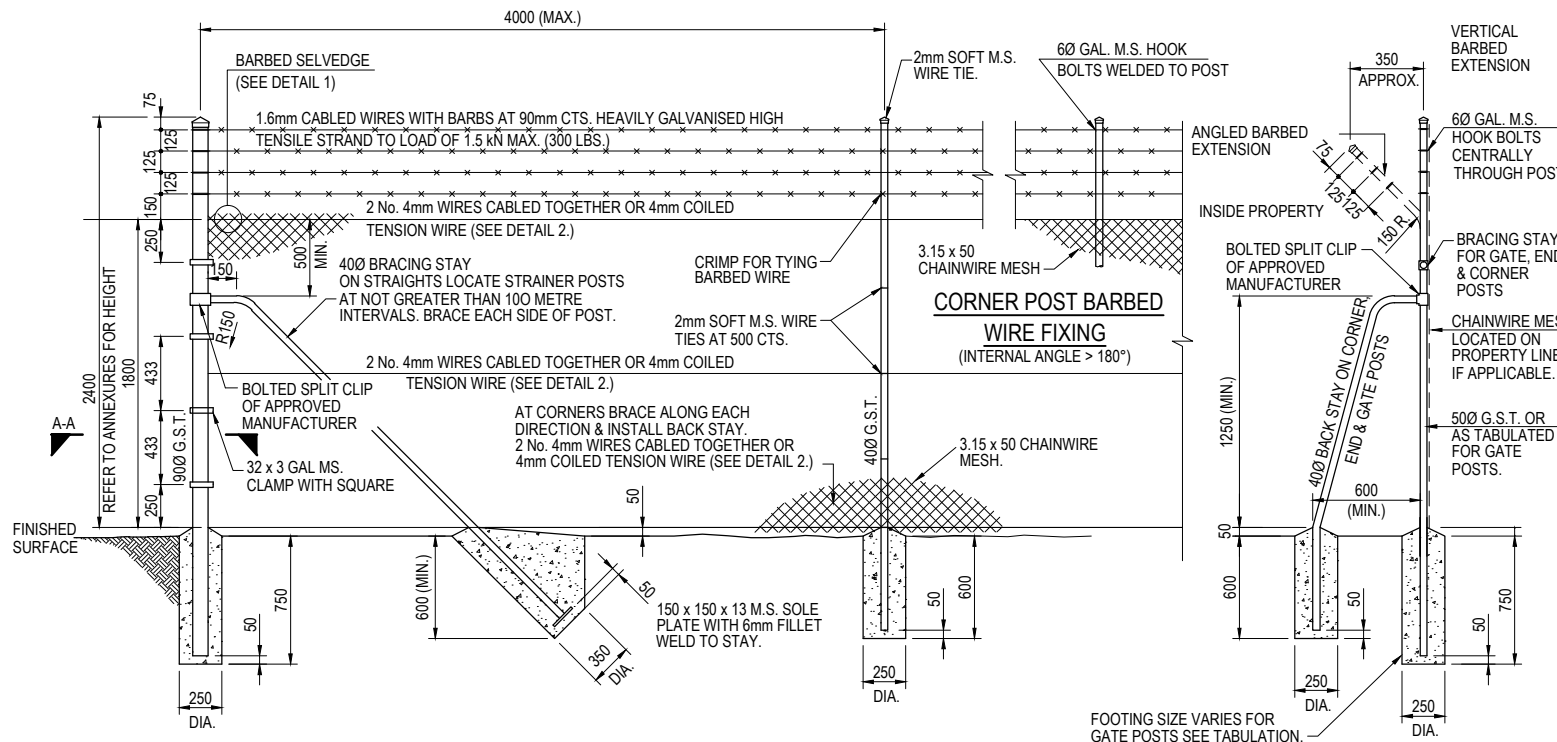
Banana Shire Council (BSC) Livingstone Shire Council (LSC)
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Isaac Regional Council (IRC)

STANDARD DRAWINGS
SEWERAGE PUMP STATIONS

LABELS

STANDARD
DRAWING
CMDG-S-0500

REV. 0 1 A B

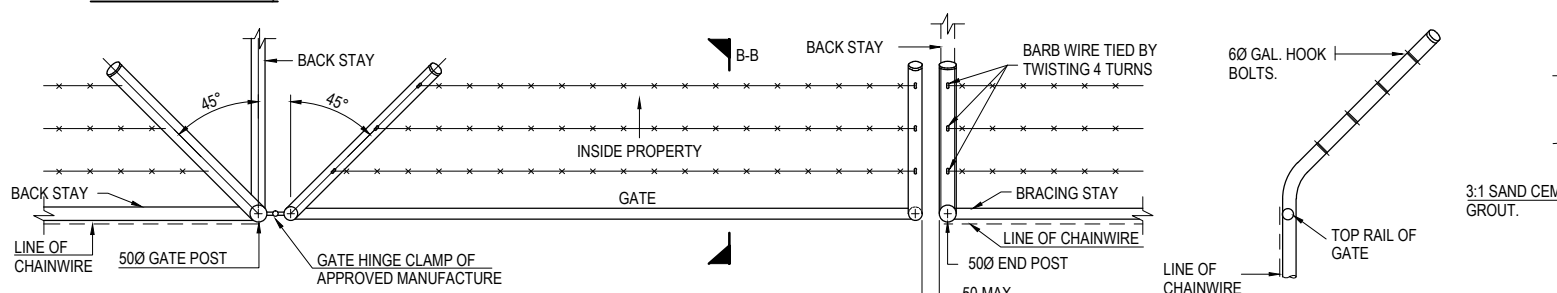


CORNER, END & STRAINER POST
(USE BACK STAY FOR GATE, END & CORNER POSTS.)

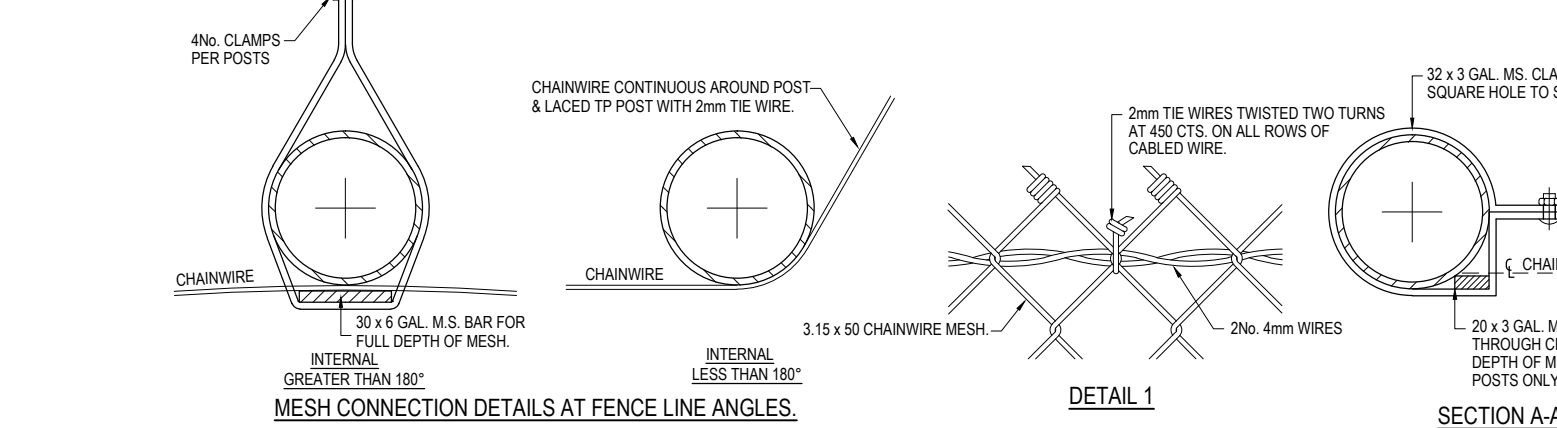
BRACING STAY FOR GATE CORNER, END & STRAINER POSTS.

INTERMEDIATE POST

BACK STAY FOR GATE, END & CORNER POSTS.



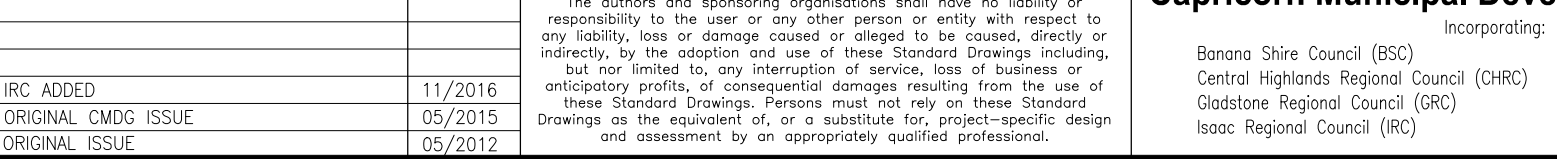
ANGLED BARBED EXTENSION ON GATES.
SCALE 1:20



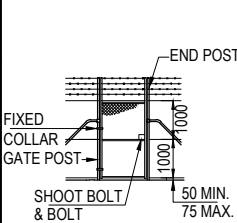
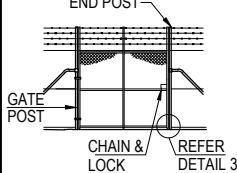
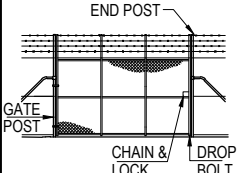
MESH CONNECTION DETAILS AT FENCE LINE ANGLES.



FOOTING SIZE WHEN IN ROCK.

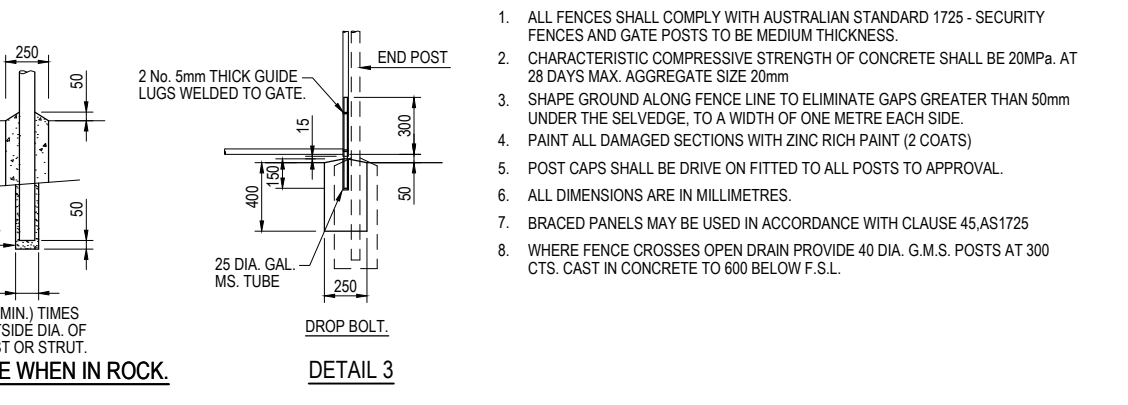


DETAIL 1

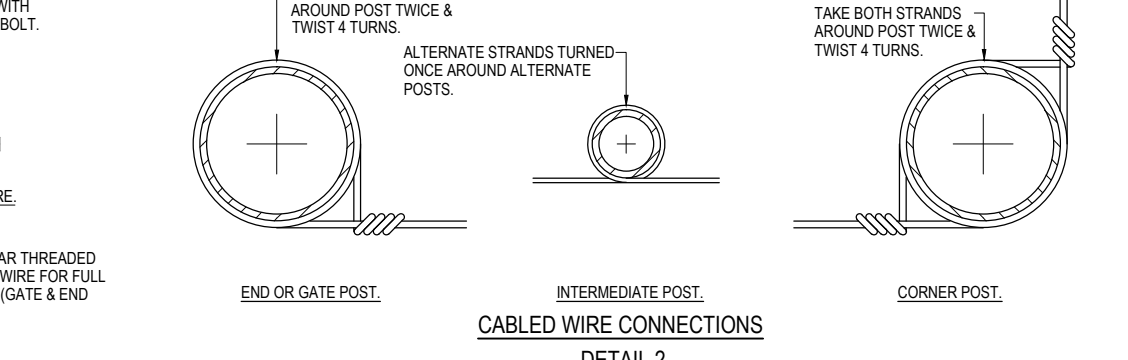
GATES:- FRAMES, POSTS AND FOOTINGS								
WIDTH OF LEAF		OUTER FRAME	INNER BRACING	DIAG. BRACING	GATE POST	GATE POST FOOTINGS		NUMBER REQUIRED
						DIA.	DEPTH	
			(NOMINAL DIAMETERS.)					
1000		32	25	-	50	250	1000	-
1500		32	25	-	50	250	1000	-
2000		32	25	-	50	250	1000	-
2500		32	25	-	80	300	1000	-
3500		40	32	-	100	400	1100	-

NOTE: OMIT HANDHOLES WHEN OPENING FROM ONE SIDE ONLY IS REQUIRED.

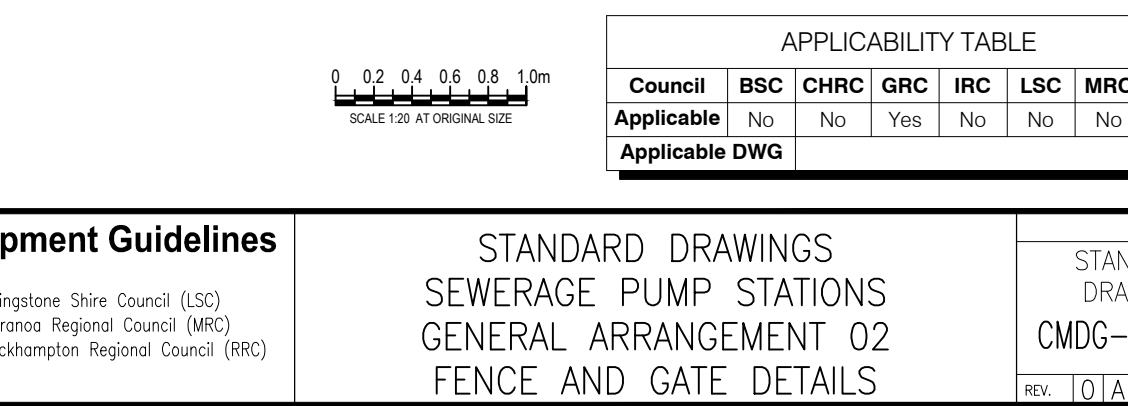
NOTE: OMIT HANDHOLES WHEN OPENING FROM ONE SIDE ONLY IS REQUIRED.



DETAIL 2

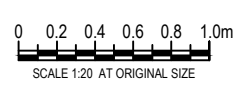


DETAIL 3

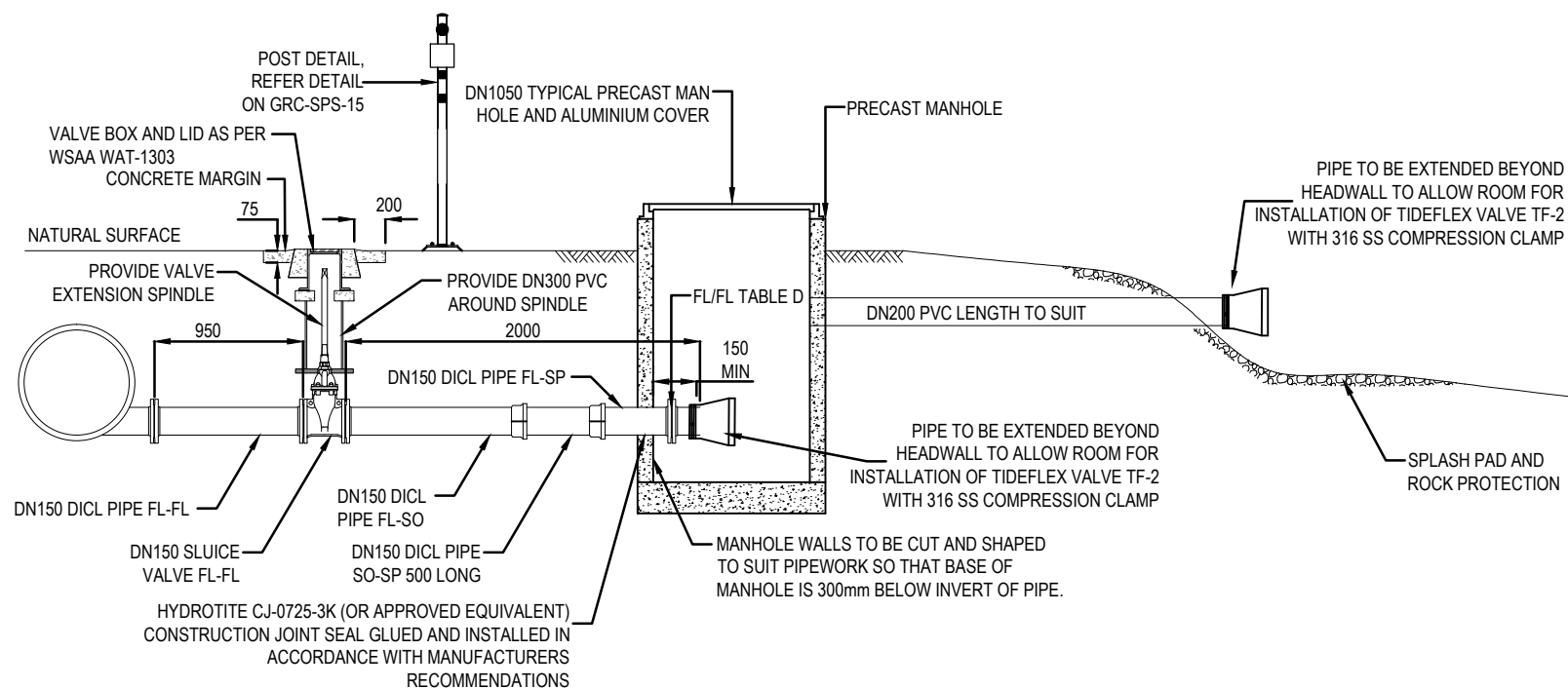


DETAIL 4

- NOTE:**
- ALL FENCES SHALL COMPLY WITH AUSTRALIAN STANDARD 1725 - SECURITY FENCES AND GATE POSTS TO BE MEDIUM THICKNESS.
 - CHARACTERISTIC COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 20MPa. AT 28 DAYS MAX. AGGREGATE SIZE 20mm
 - SHAPE GROUND ALONG FENCE LINE TO ELIMINATE GAPS GREATER THAN 50mm UNDER THE SELVEDGE, TO A WIDTH OF ONE METRE EACH SIDE.
 - PAINT ALL DAMAGED SECTIONS WITH ZINC RICH PAINT (2 COATS)
 - POST CAPS SHALL BE DRIVE ON FITTED TO ALL POSTS TO APPROVAL.
 - ALL DIMENSIONS ARE IN MILLIMETRES.
 - BRACED PANELS MAY BE USED IN ACCORDANCE WITH CLAUSE 45,AS1725
 - WHERE FENCE CROSSES OPEN DRAIN PROVIDE 40 DIA. G.M.S. POSTS AT 300 CTS. CAST IN CONCRETE TO 600 BELOW F.S.L.

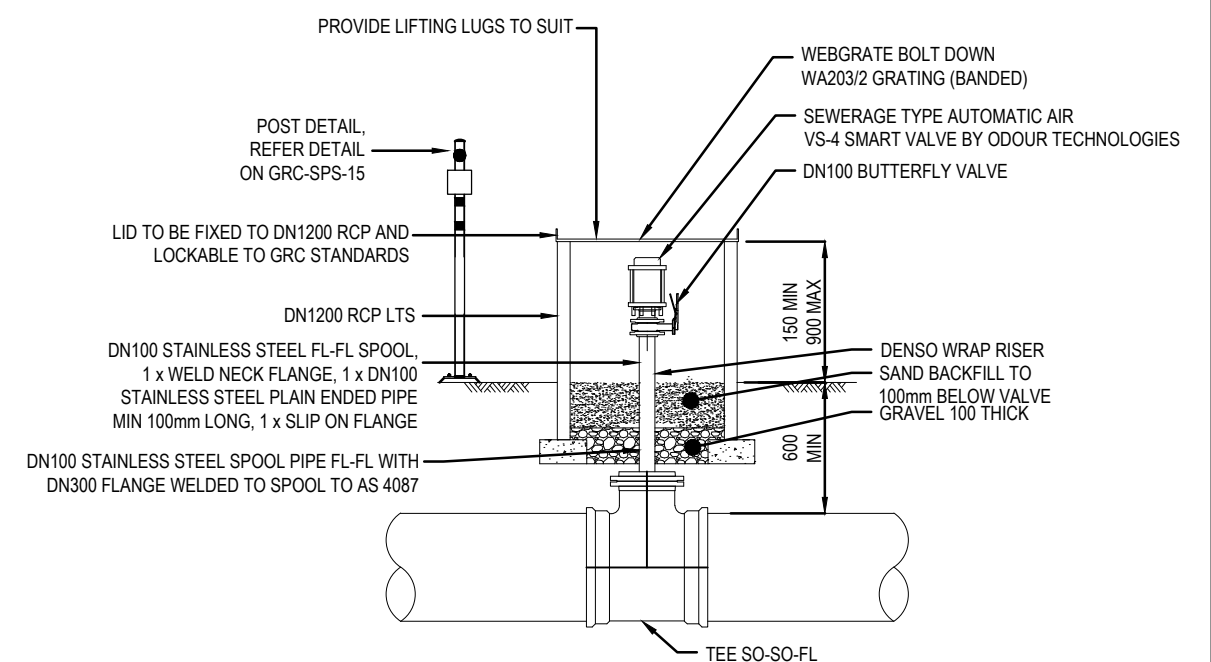


APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
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Applicable DWG							



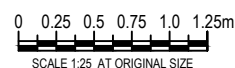
SCOUR DETAIL
SCALE 1:25

- NOTE:
1. FOR FURTHER DETAILS REFER WSAA STD DWG WAT-1307.
 2. IF RISING MAIN IS HIGHER THEN DISCHARGE POINT MANHOLE IS NOT REQUIRED



TYPICAL AIR RELEASE VALVE
SCALE 1:25

NOTE: AIR VALVE TO BE LOCATED ABOVE GROUND WATER LEVEL, AIR VALVE AND RCP TO BE LIFTED 900 MAX ABOVE GROUND TO SUIT



APPLICABILITY TABLE							
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Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS	DATE
B	IRC ADDED 11/2016
A	ORIGINAL CMDG ISSUE 05/2015
O	ORIGINAL ISSUE 05/2012

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Isaac Regional Council (IRC)	

STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
SCOUR AND AIR VALVE DETAILS

STANDARD
DRAWING
CMDG-S-050Q
REV.

0	A	B		
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1. REFER GRC LABELLING SPECIFICATION FOR DETAILS.



APPLICABILITY TABLE							
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Applicable DWG							

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0	ORIGINAL ISSUE	05/2012

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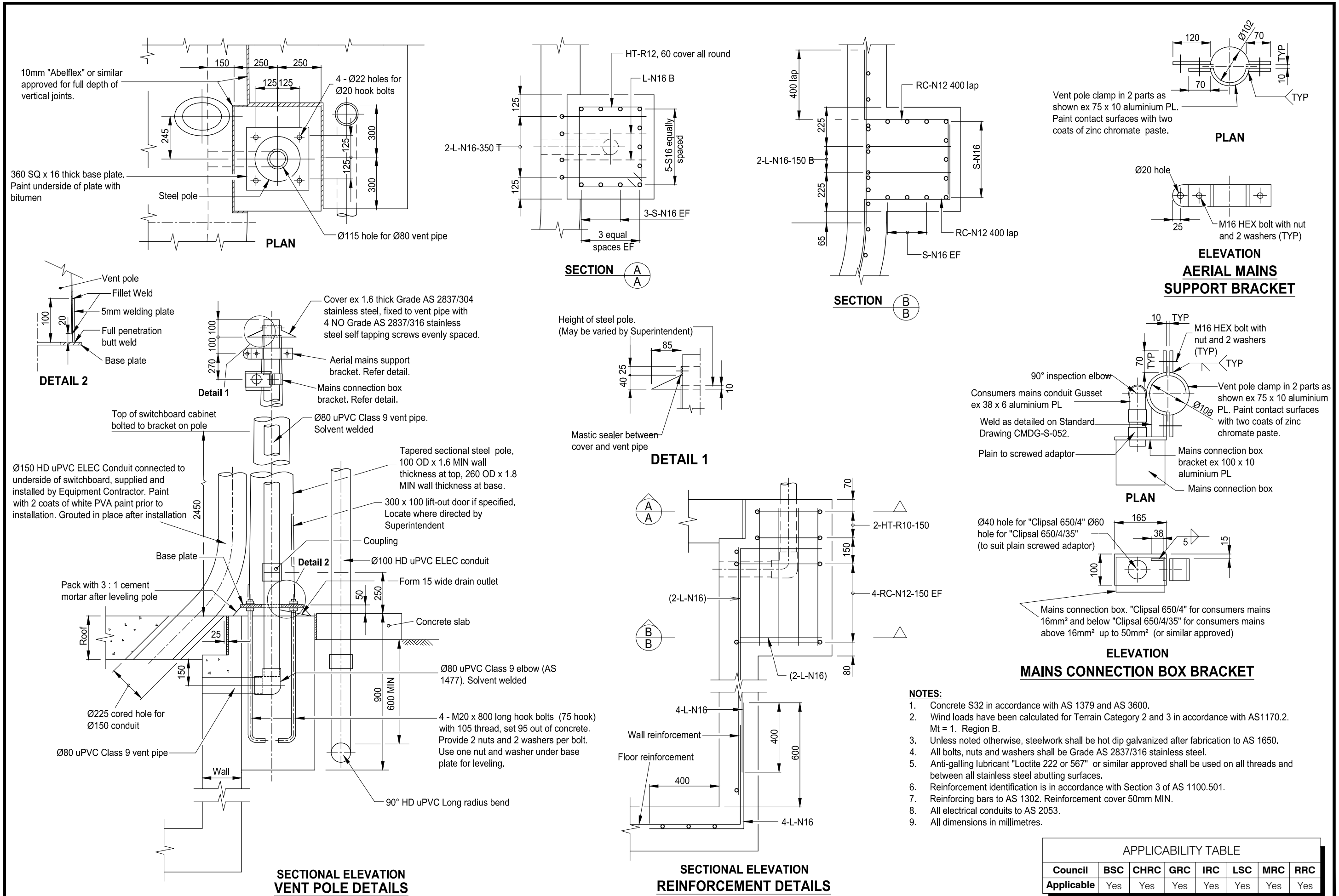
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STANDARD DRAWINGS
SEWERAGE PUMP STATIONS
PIPING AND INSTRUMENTATION DIAGRAM

STANDARD
DRAWING
CMDG-S-050R

REV.	0	A	B			
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REVISIONS		DATE
E	REINFORCING DETAILS AMENDED	12/2017
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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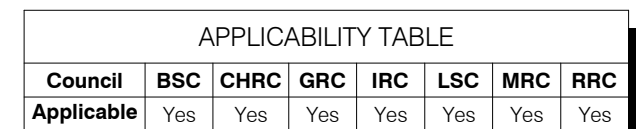
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

SUBMERSIBLE SEWAGE PUMPING STATION

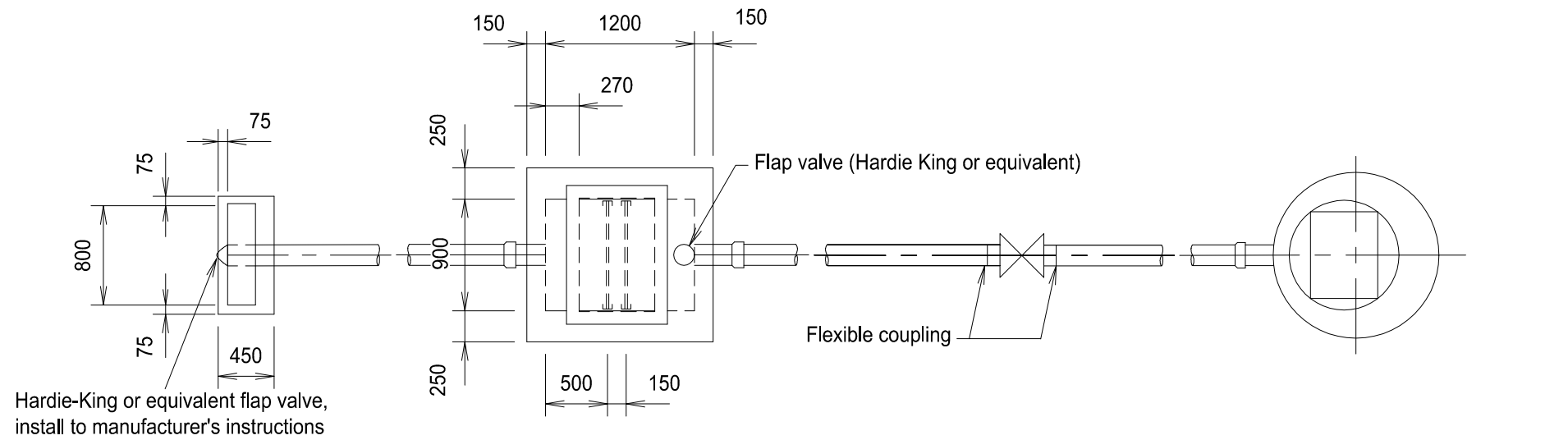
6.0M VENT POLE

TERRAIN CAT. 2 & 3

ROADS					
STANDARD DRAWING					
CMDG-S-051					
REV.	A	B	C	D	E

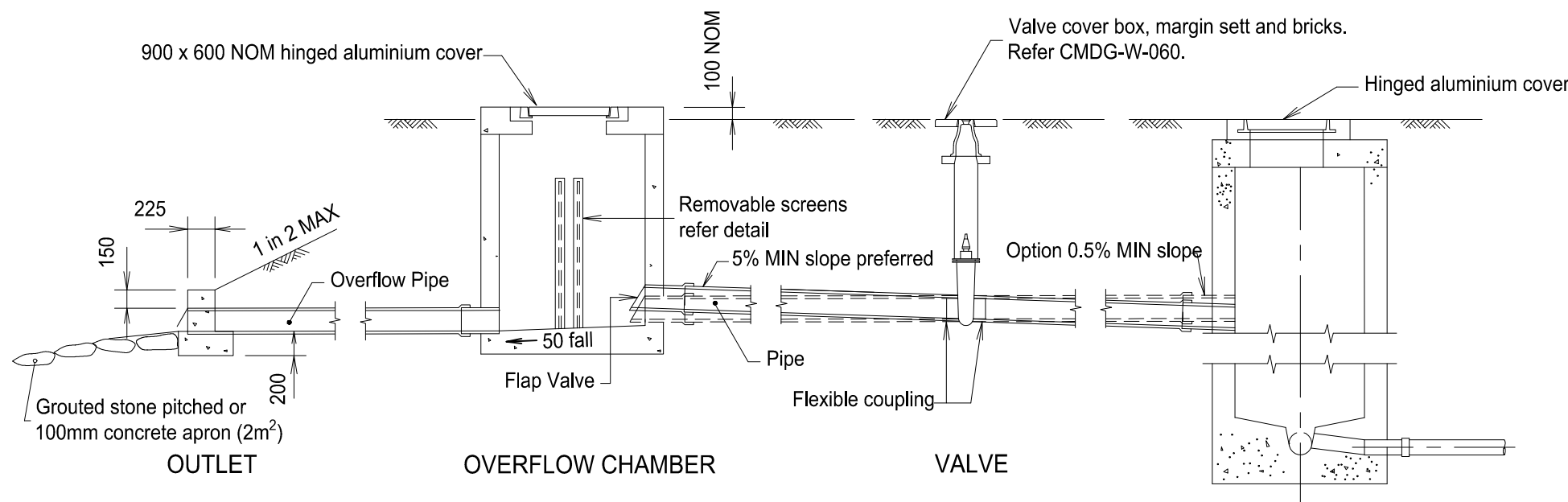
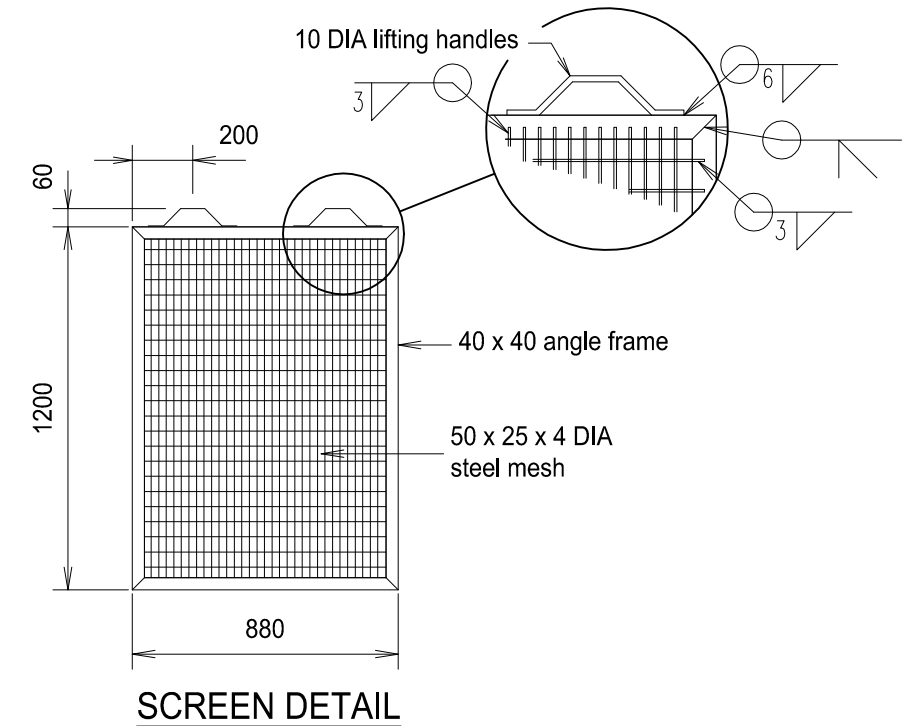


ROADS					
STANDARD DRAWING					
CMDG-S-052					
REV.	A	B	C	D	E



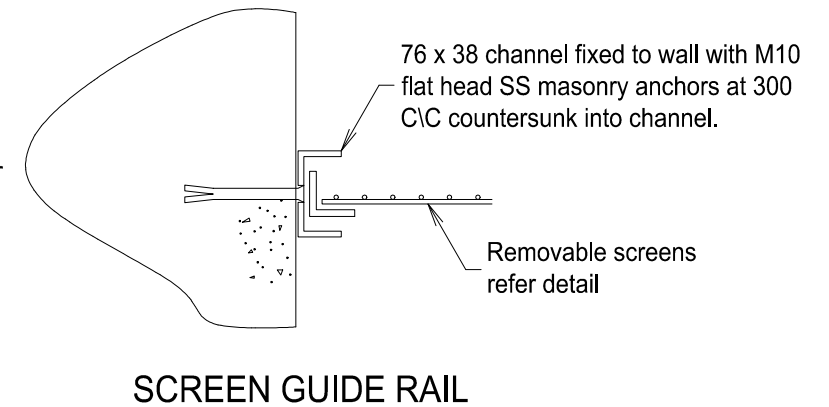
OUTLET OVERFLOW CHAMBER VALVE RECEIVING ACCESS CHAMBER

PLAN



OUTLET OVERFLOW CHAMBER VALVE RECEIVING ACCESS CHAMBER

SECTIONAL ELEVATION



NOTES

1. Pipes shown are diagrammatic only, refer project drawings for layout and levels.
2. Concrete N32 in accordance with AS 1379 and AS 3600.
3. All steelwork hot dip galvanized to AS 1650 after fabrication.
4. All bars and angles Grade 250 to AS 3679.
5. All bolts, nuts and washers shall be Grade AS 2837/316 stainless steel with approved anti-galling compound.
6. All welds to AS 1554. All welding symbols comply with AS 1101.3.
7. The covers shall be gas tight similar to those produced by Hallico

- Engineering. All components of access covers and frames shall be fabricated from aluminium alloy 6061-T6, to AS 2848. All embedded surfaces shall be painted with two coats of alkali resistant bituminous paint. The covers shall be designed as a platform in accordance with AS 1657. Fabrication details shall be submitted to the Superintendent for approval prior to manufacture.
8. If covers are subject to vehicular loading, use appropriately rated C.I. covers.
 9. All dimensions in millimetres.

APPLICABILITY TABLE							
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Applicable	Yes	Yes	Yes	Yes	Yes	No	Yes
Applicable DWG							

REVISIONS	DATE
E IRC ADDED	11/2016
D GRC AND LSC ADDED	09/2014
C MRC APPLICABILITY - NO	04/2013
B RRC AMENDMENTS	05/2011
A POST AMALGAMATION REVIEW	01/2010

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PUMP STATION OVERFLOW

ROADS
STANDARD DRAWING
CMDG-S-058
REV. A B C D E

No.	DESCRIPTION	DIA.	No. OFF
P1*	FI Eccentric Taper	ND(P) ND(RM)	2
P2*	FI/PI pipe x length to suit	ND(RM)	3
P3*	Uniflange	ND(RM)	3
P4*	FI 90° bend	ND(RM)	4
P5*	FI/PL pipe x length to suit with "puddle" flange and 1/4" BSP Pressure tapping	ND(RM)	2
P6*	Gibault joint	ND(RM)	3
P7*	FI/PI connector	ND(RM)	2
P8*	FI Tee	ND(RM) x ND(RM)	2
P9*	FI/PL pipe x length to suit with "puddle" flange	ND(RM)	1
P10*	80mm Camlock Coupling	80	1
V1	FI reflux valve (AS2658) with Magnetic Limit Switch)	ND(RM)	2
V2	FI vertical gate valve (AS3578) (Clockwise Close)	ND(RM)	4

No.	DESCRIPTION	DIA.	No. OFF
P6*	Gibault Joint	ND(INLET)	2
P11	SP-SP S/Steel Pipe	ND(INLET)	1
P12	FL-SP S/Steel Tailpipe with Puddle Flange	ND(INLET)	1
V3	Lugged S/Steel Bi-Directional Knife Gate Valve Complete with Support Bracket to wall of Pump Station	ND(INLET)	1
P13	MDPE SP-FLxFL Fabricated Tee Complete with Gibault joint	ND(INLET)	1

Note: For Cover Slab refer to CMDG-S-062

Retractable handrail as per Australian Standard.

Workplace Health & Safety Guidelines

Pressure tapping (Binder Twinlok Hot Plug 1/4" BSP Stainless Steel)

Conduit

50mm Proud Refer to CDMG-S-063 or CDMG-S-064

N16 tie bars at 300 centres, 450 x 450 leg

1 in 20 to FSL.

170

400

860

Rising Main Nom. Dia. ND (RM)

IL.

289

150

25mm fall

N12-300, Central Concrete blocks under sluice and reflux valves.

N12 Dowels at 300mm centres, 300mm lay with Floor Slab Mesh, 65mm depth, Chemical Anchor.

N16 tie bars at 300 centres, 450 x 450 leg

CJ

P9 P6

Ø100mm PVC trap complete with removable grate

Float Switches

Ø2400mm pump well units (refer note 18)

Pump guide rails 316SS to suit pump

Fabricate brackets Ex 70x10 316SS

Benching in base of pump well. Shape to minimise volume of retained effluent at pump stop level and to suit pump pedestal. Benching to incorporate 150x150x150 toe holes at 300 crs.

1 in 20 to FSL.

RL Top of Well

2400 Dia.

880

100

1850

1470

150

V2 V1

P8 P7 P6 P5

DN50 conduit

Electrical conduits

Ø80mm outlet vent

316SS lifting chain (D's @ 1000 crs)

Auto well washer Refer Note 11

Provide frog flap to opening

Multitrode, Cleaning Bracket and Cables.

Stainless Steel Ladder

Provide S/Steel blank flange to suit. Store blank flange in valve chamber.

Ø50 air hole in side of tee

Square breakout for pipe penetration

INLET IL.

P6 P11

P6 P12

V3

P13

HIGH LEVEL ALARM RL.

STANDBY START RL.

DUTY PUMP START RL.

PUMP STOP RL.

FLOOR LEVEL RL.

300

1 in 20

300

P1

40mm grout

Submersible pumps (Note 16)

316SS Pedestal Anchor Studs & Nuts.

Pedestal Nom. Dia. ND (P).

Mass concrete topping slab

N16-200 EW, Central

Mass Concrete Benching

400

200

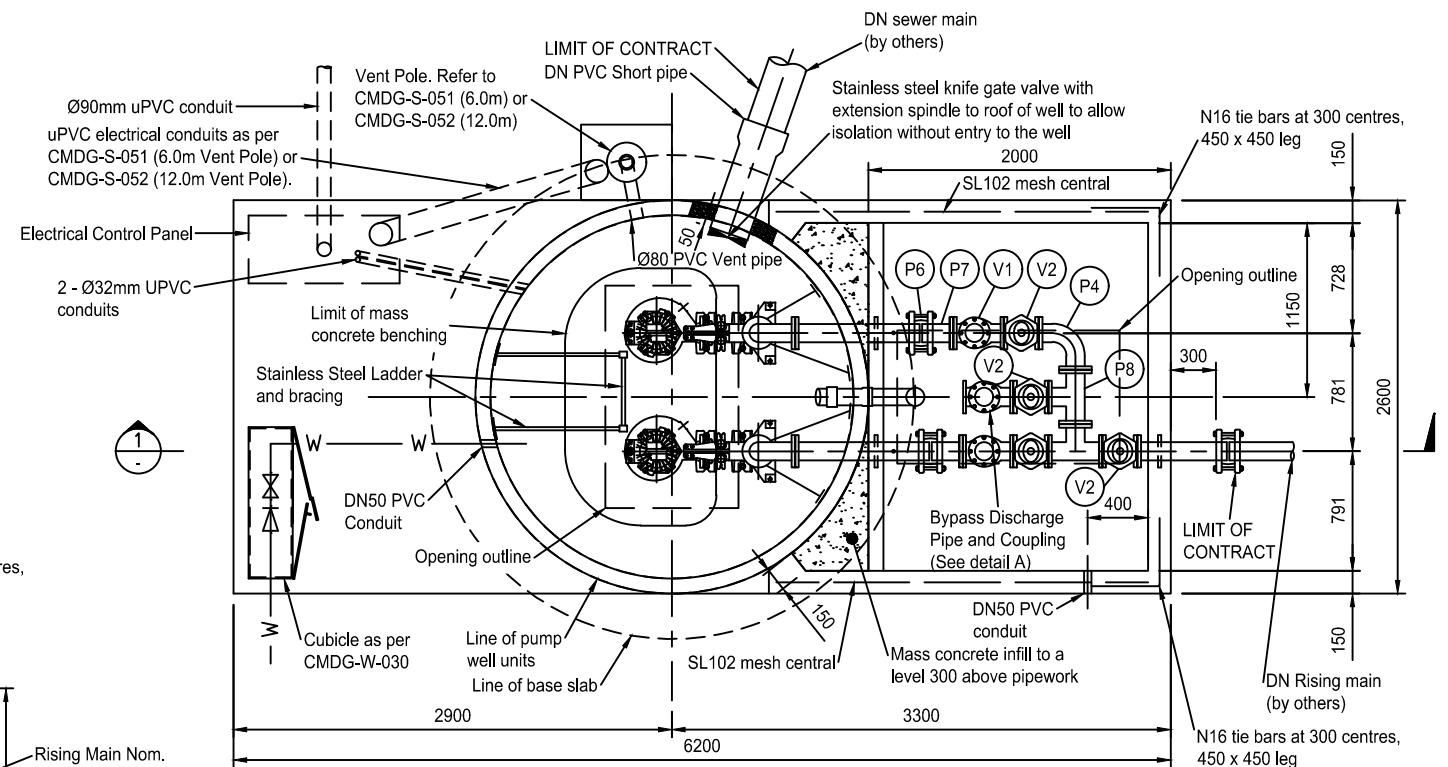
SECTION 1

SCALE 1:50

Refer CMDG-S for details.

BYPASS DISCHARGE DETAIL

SECTION
SCALE 1:50



1:50

1. All concrete shall have a minimum characteristic strength (F_c) of N40 to AS3600 at 28 days.
2. Cored holes left in the well for pipe work shall be tapered being 25 larger in diameter than the flange at the inside face and 50 larger at the outside face.
3. Steel wire fabric to be in accordance with A.S.1304, latest revision.
4. Steel reinforcing bars shall be high-tensile hot-rolled deformed bar in accordance with AS.1302, latest revision.
5. Laps in reinforcing shall be 300 minimum for rebar and 1 (one) mesh spacing for fabric.
6. Concrete cover to reinforcement shall be a minimum of 65 in all cases except where noted otherwise.
7. Stainless steel pipe brackets at 1000 maximum centres fixed to wall with 2-M10 SS. approved Masonry Fasteners.
8. Location of conduits to be confirmed by Council Engineer prior to construction of plinth.
9. All pipe work penetration to be grouted up using non shrink grout.
10. Corrosion Protection of discharge chamber or pump well alternatives:
 - a) All internal surfaces shall be smooth and free of holes and lightly sandblasted or acid-etched before painting with Peerless Epigen 1311 or Parchem Nitocote EP410 in two coats with a total dry film thickness of 600 microns. The concrete surface shall have cured for at least 28 days; or
 - b) A fabricated chamber liner of polyethylene shall be placed before the wall and top slab is poured or use a complete polyethylene manhole system such as Iplex E21 pit or Wavin Tegra; or
 - c) An alternative method of corrosion protection approved by the Service Authority.
11. Auto well washer to be secured to the pump well wall via a pivoting wall mount bracket supplied by the Manufacturer. Provide 4 - grade 316 SS Dynabolts or equivalent for wall mount. 24V AC solenoid valve for well washer to be connected to a relay in the main switch board. Provide 50mm 'RMC Model 909' or equivalent Reduced Pressure Zone back flow prevention device installed in accordance with AS 3500. Solenoid valve must be installed between RPZ and washer head. Water inlet for washer head is 3/4" BSP (NPT) male. Exact position of washer to be confirmed by Superintendent.
12. All pipes and fittings within pump well and valve pit to be FBE (Fusion Bonded Epoxy) coated.
13. All conduits from pump well to be filled with an approved void filler following installation of cables.
14. All UPVC conduits and pipe work location to be subject to Council Engineers prior approval .
15. Confirm pump stop level with Manufacturer for minimum submergence requirements.
16. Pump Duty and Pump selection to be confirmed by Council Engineer.
17. Switchboard to have 1m clearance to any obstructions.
18. Precast units must be RPEQ approved. Humes precast sewage pumping station dimensions shown.
19. Refer to AS 1657 - 2013 Fixed platforms, walkways, stairways and ladders - design, construction and installation for ladder requirements.
20. Refer also to standard drawings CMDG-S-051, CMDG-S-052, CMDG-S-062, CMDG-S-063, CMDG-S-064 & CMDG-W-030.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Chamber Ladder Requirement	No	No	No	No	Yes	No	Yes
Applicability DWG	GRC details on SPS drawing set						

REVISIONS		DATE
I	DROP PIPE ADDED / GRAVITY INLET DELETED	03/2018
H	SCALES, CUBICLE LOCATION & LAYOUT AMENDED	10/2017
G	IRC ADDED	11/2016
F	DIMENSIONS CORRECTED	08/2015
E	GRC AND LSC ADDED	09/2014
D	CORRECTION OF ALL DIMENSIONS	06/2013
C	RETRACTABLE LADDER ADDED	05/2011

DISCLAIMER.

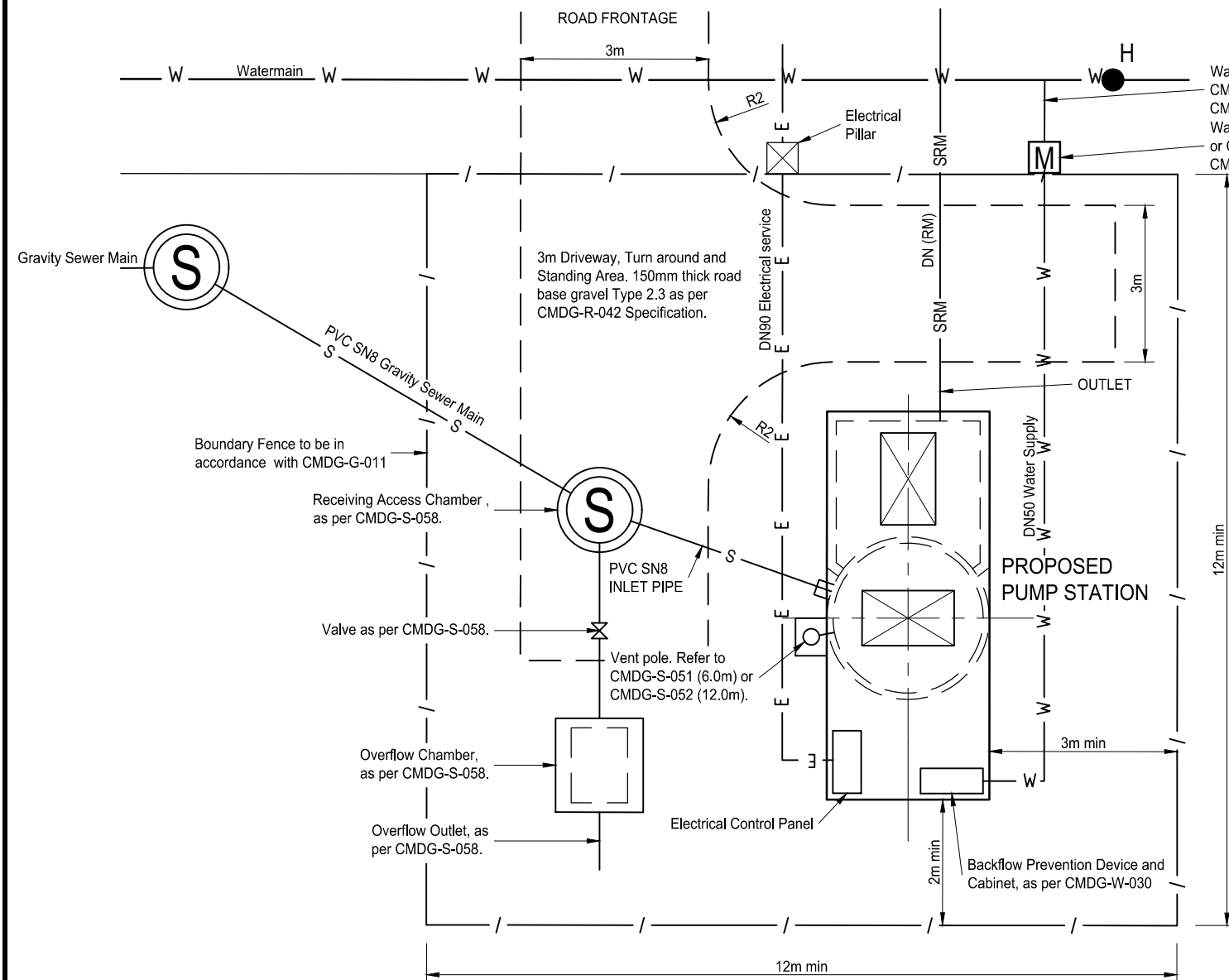
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Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

SUBMERSIBLE SEWAGE
PUMPING STATION
GENERAL ARRANGEMENT
2400MM DIA.

SEWERAGE
STANDARD
DRAWING
MDG-S-06

REV.	D	E	F	G	H	I
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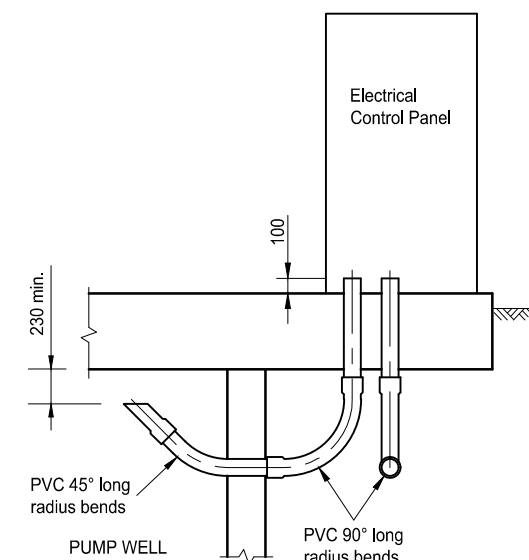
TYPICAL PLAN
1:100

NOTES

- All concrete shall have a minimum characteristic strength (F_c) of N40 to AS3600 at 28 days.
- Cored holes left in the well for pipe work shall be tapered being 25 larger in diameter than the flange at the inside face and 50 larger at the outside face.
- Steel wire fabric to be in accordance with A.S.1304, latest revision.
- Steel reinforcing bars shall be high-tensile hot-rolled deformed bar in accordance with AS.1302, latest revision.
- Laps in reinforcing shall be 300 minimum for rebar and 1 (one) mesh spacing for fabric.
- Concrete cover to reinforcement shall be a minimum of 65 in all cases except where noted otherwise.
- Stainless steel pipe brackets at 1000 maximum centres fixed to wall with 2-M10 SS. approved Masonry Fasteners.
- Location of conduits to be confirmed by Council Engineer prior to construction of plinth.
- All pipe work penetration to be grouted up using non shrink grout.
- All pipes and fittings within pump well and valve pit to be FBE (Fusion Bonded Epoxy) coated.
- All conduits from pump well to be filled with an approved void filler following installation of cables.
- All UPVC conduits and pipe work location to be subject to Council Engineers prior approval.
- Switchboard to have 1m clearance to any obstructions.
- Refer also to standard drawings CMDG-G-011, CMDG-R-042, CMDG-S-051, CMDG-S-052, CMDG-S-058, CMDG-S-062, CMDG-S-063, CMDG-S-064, CMDG-W-030, CMDG-W-090, CMDG-W-090A, CMDG-W-094, CMDG-W-094A & CMDG-W-094B.

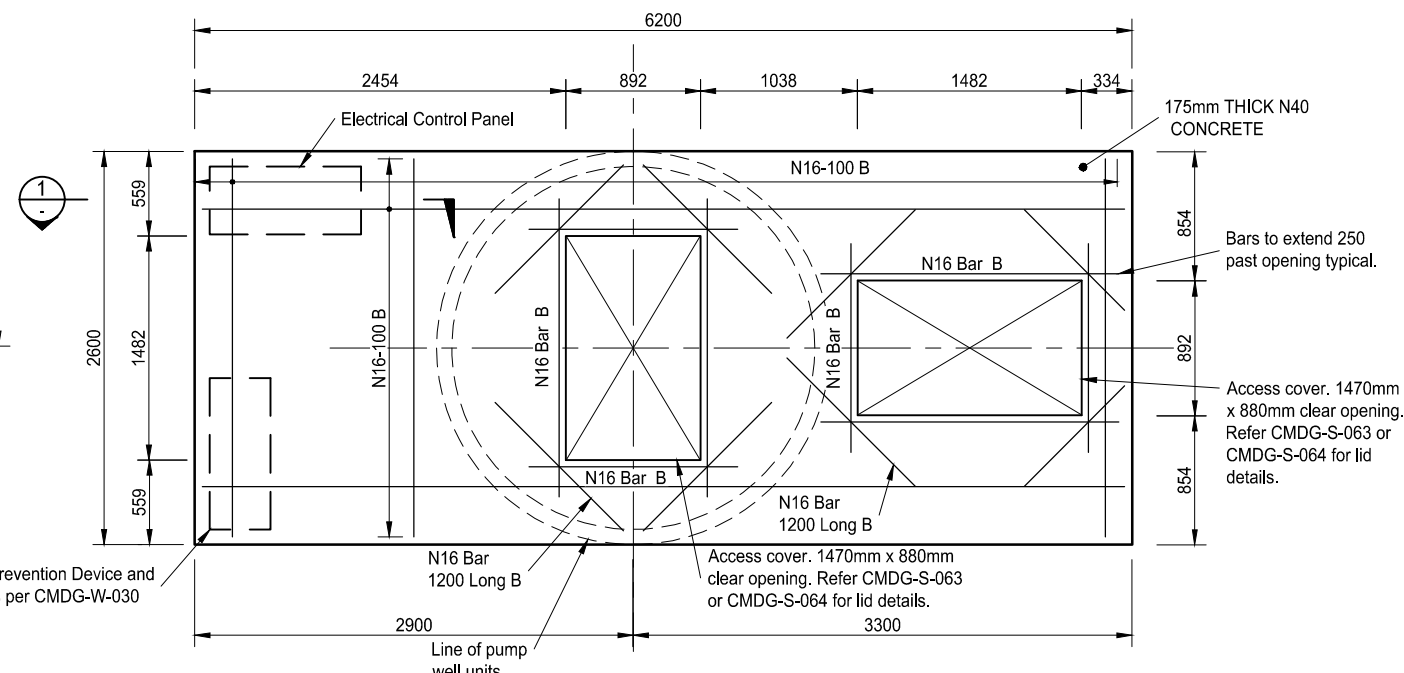
LEGEND

---	Access Road
— E —	Electrical Supply
— / — / —	Fence or Boundary Line
— S —	Gravity Sewer main
— SRM —	Sewer Rising Main
— W —	Water Supply



ELECTRICAL CONDUIT ACCESS

SECTION 1
N.T.S.



PLAN
COVER SLAB
1:50

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Applicability DWG	GRC details on SPS drawing set						

I	TYPICAL PLAN LAYOUT & COVER SLAB SHAPE & DIMENSIONS AMENDED	10/2017
REVISIONS		
H	IRC ADDED	11/2016
G	DIMENSION CHANGES	03/2015
F	GRC AND LSC ADDED	09/2014
E	AMEND VALVE PIT ORIENTATION ON PLAN	06/2013
D	FALL - ARRESTOR ANCHOR POINTS	04/2013
C	NOTES DELETED	01/2013
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

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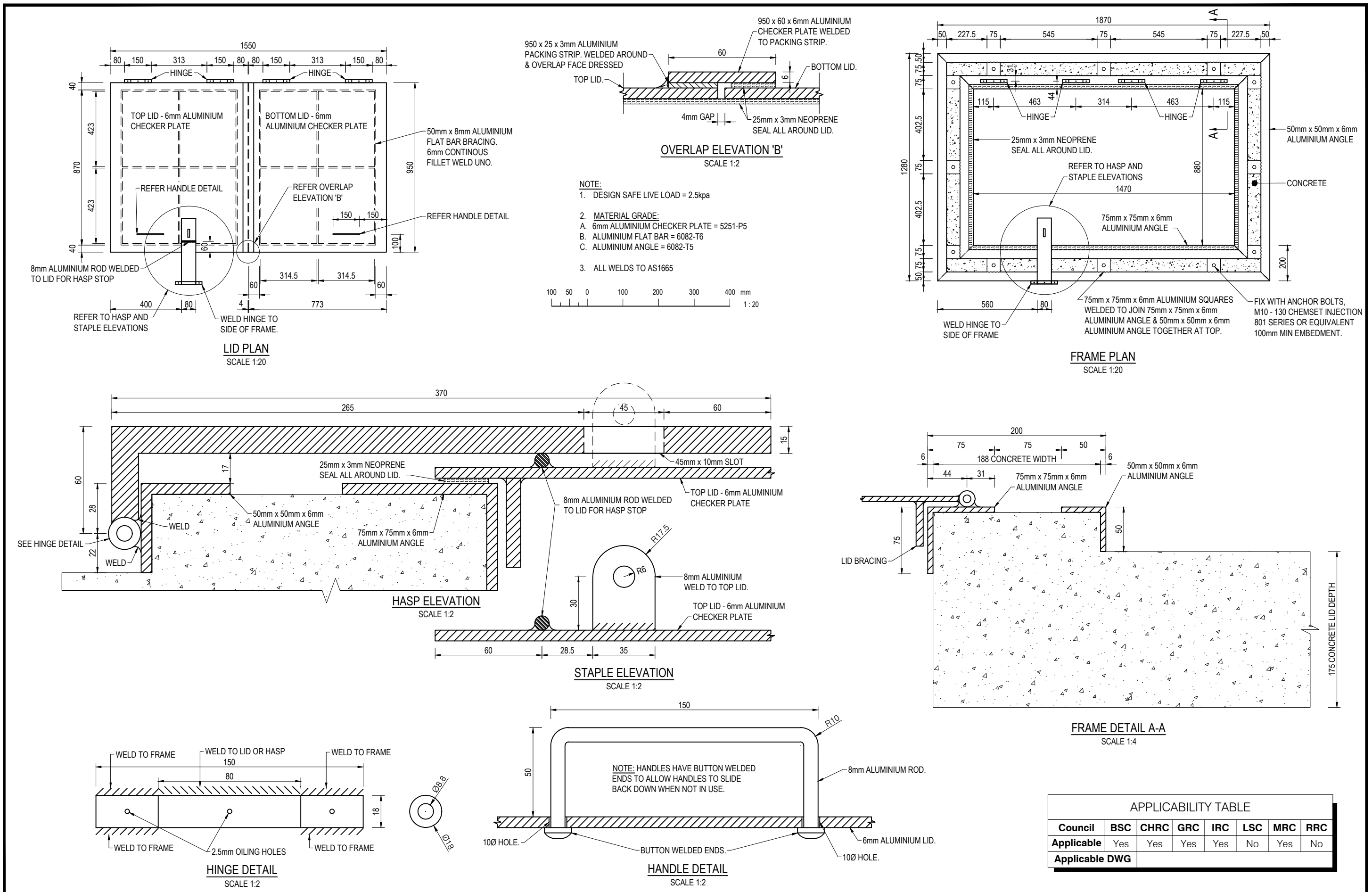
SUBMERSIBLE SEWAGE PUMPING STATION GENERAL ARRANGEMENT - 2400mm DIA. TYPICAL SITE PLAN

SEWERAGE

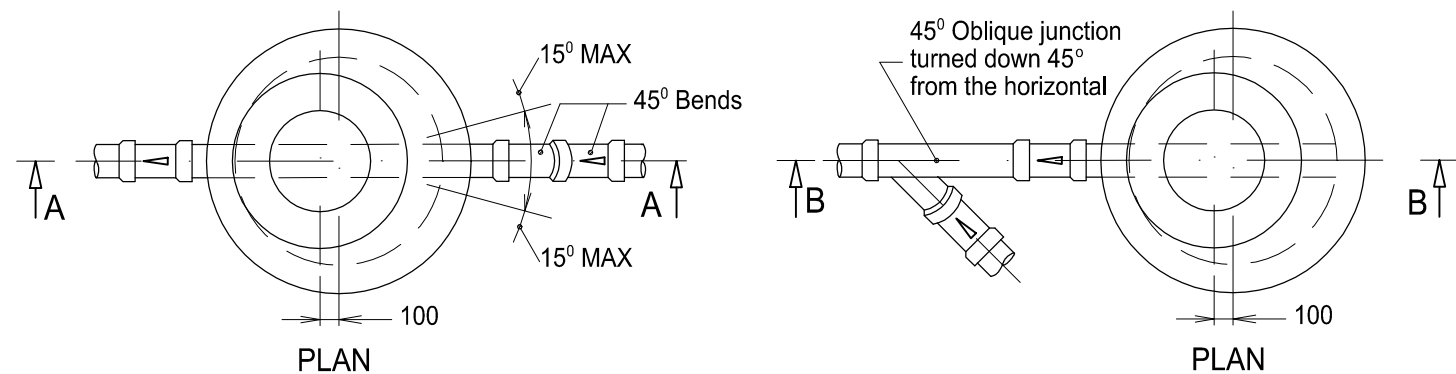
STANDARD DRAWING

CMDG-S-062

REV	A	B	C	D	E	F	G
REV	H	I					

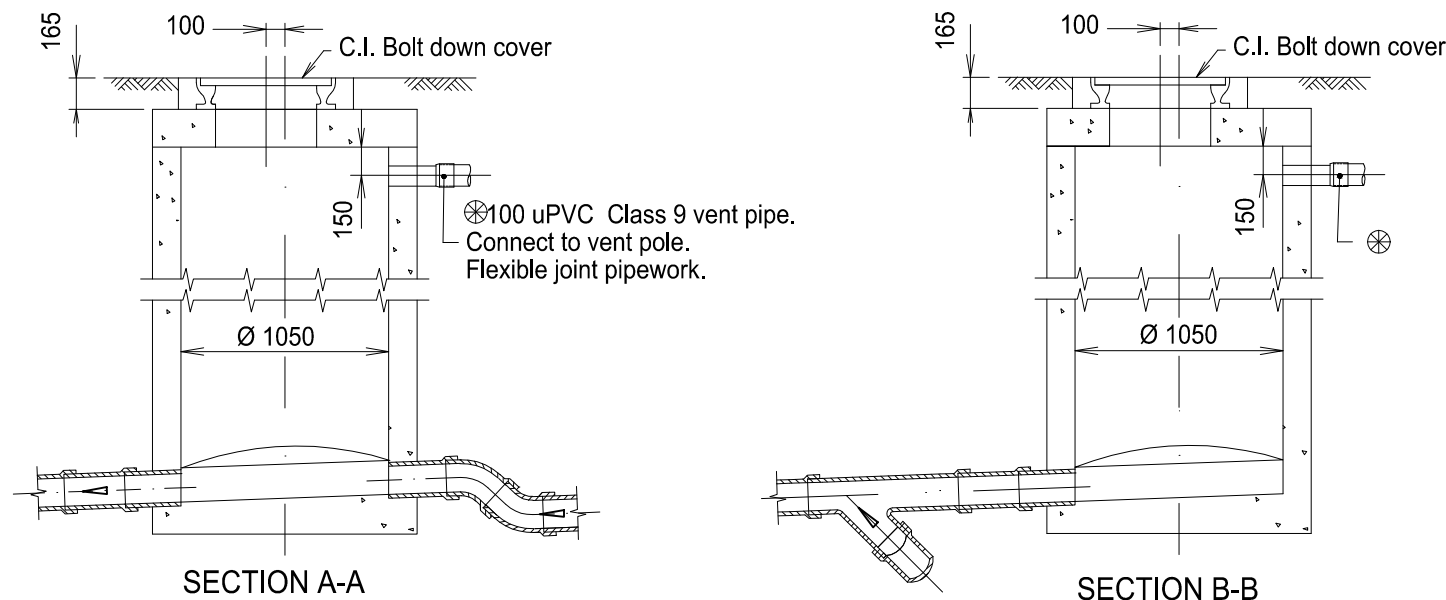


REVISIONS		DATE	<div>DISCLAIMER. The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard 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		SUBMERSIBLE SEWAGE PUMPING STATION LID DETAILS		SEWERAGE STANDARD DRAWING CMDG-S-064	
E	SCALES & LID ARRANGEMENT AMENDED	10/2017							
D	IRC ADDED	11/2016							
C	GRC AND LSC ADDED	09/2014							
B	RRC AMENDMENTS	07/2010							
A	POST AMALGAMATION REVIEW	01/2010							
			Incorporating:				REV. A B C D E		



NOTES:

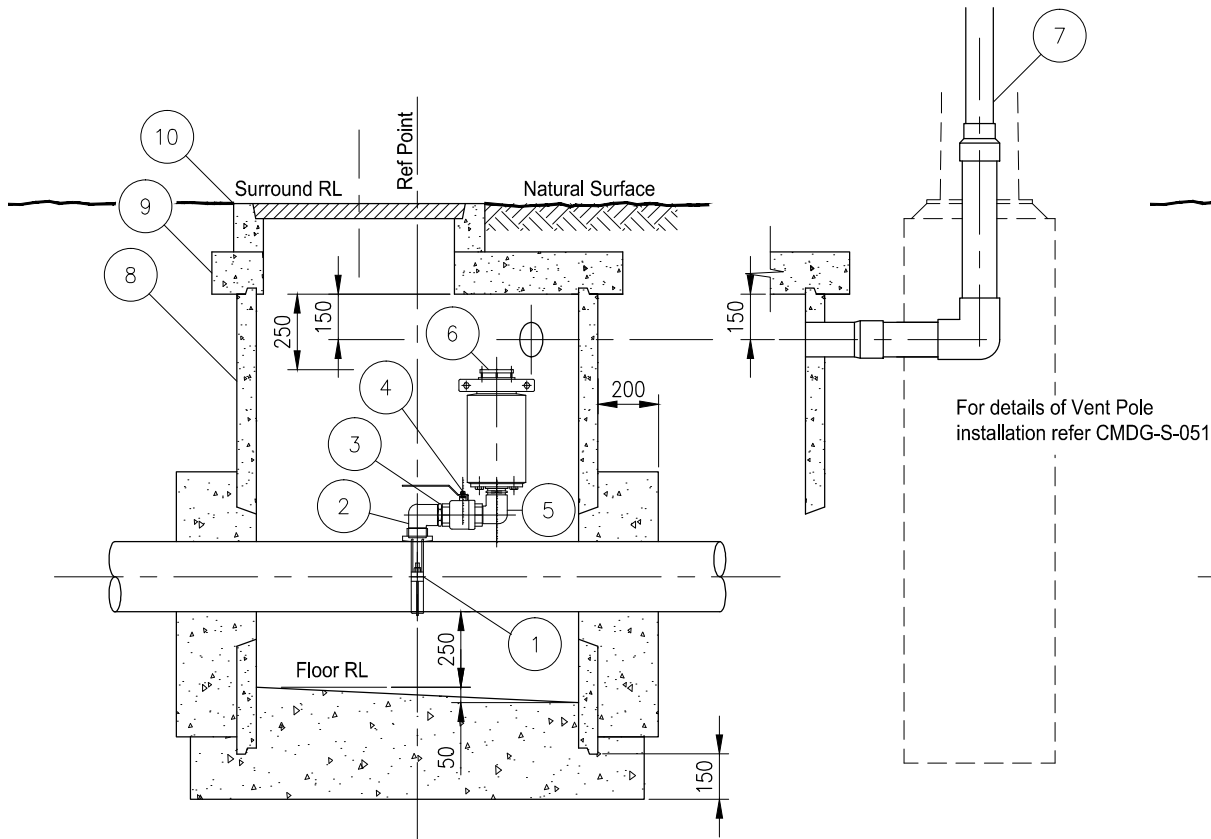
1. Discharge Chambers, refer project drawings.
2. Backfill in vent trench shall be compacted to at least the same density as the surrounding soil.
3. Wind loads have been calculated for Terrain Category 2 and 3 in accordance with AS 1170.2. Mt=1. Region B.
4. Design parameters for soil properties:- Clay - $C_u \geq 15$ Kpa
Loose Sand - Relative Density $\geq 15\%$
Water Table at surface level
5. Concrete N32 in accordance with AS 1379 and AS 3600.
6. All steelwork hot dip galvanized after fabrication to AS 1650.
7. Bars Grade 250 to AS 1302. Plate Grade 250 to AS 3678.
8. All bolts & washers Grade AS 2837/316 stainless steel. Nuts and vent pole cover Grade AS 2837/304 stainless steel.
9. Anti-galling lubricant "Loctite 222 or 567" or similar approved shall be used on all threads and between all stainless steel abutting surfaces.
10. Corrosion Protection of discharge chamber or pump well alternatives:
 - a) Polyethylene chambers are preferred.
 - b) All internal surfaces shall be smooth and free of holes and lightly sandblasted or acid-etched before painting with Peerless Epigen 1311 or Parchem Nitocote EP410 in two coats with a total dry film thickness of 600 microns. The concrete surface shall have cured for at least 28 days; or
 - c) A fabricated chamber liner of polyethylene shall be placed before the wall and top slab is poured or use a complete polyethylene manhole system such as Iplex EZI pit or Wavin Tegra; or
 - d) An alternative method of corrosion protection approved by the Service Authority.
11. Any chamber within 100m downstream of rising main discharge to be protected in similar manner to discharge chamber.
12. All dimensions in millimetres.



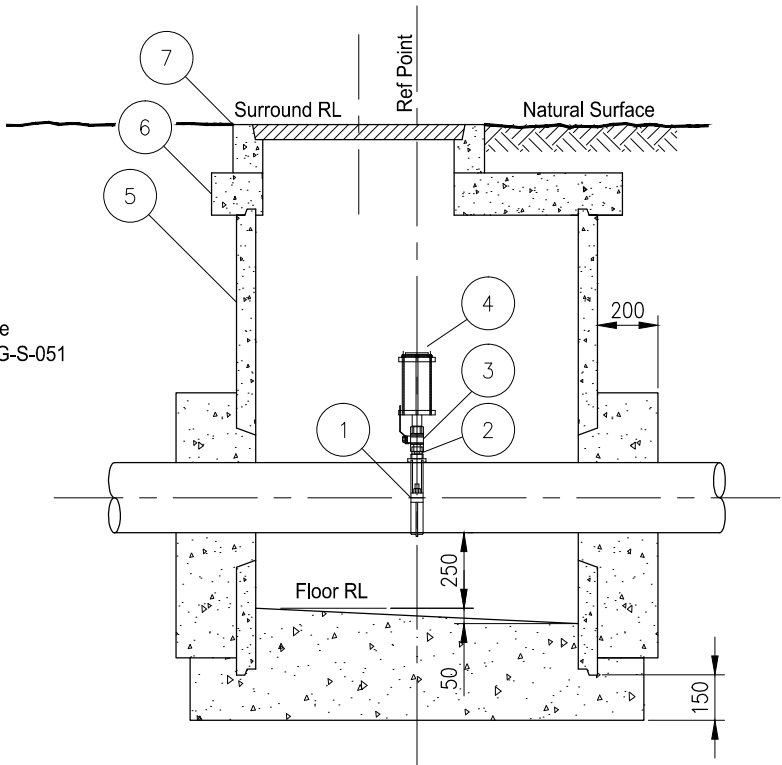
PRESSURE MAIN DISCHARGE CHAMBER

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

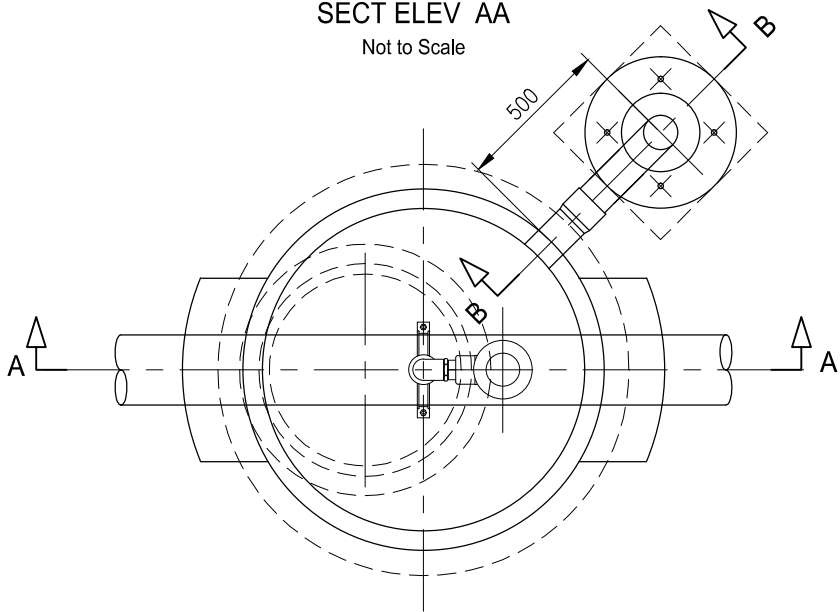
REVISIONS		DATE	<p>DISCLAIMER.</p> <p>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard 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>	<h2>Capricorn Municipal Development Guidelines</h2> <p>Incorporating:</p> <div><div>Banana Shire Council (BSC)</div><div>Central Highlands Regional Council (CHRC)</div><div>Gladstone Regional Council (GRC)</div><div>Isaac Regional Council (IRC)</div><div>Livingstone Shire Council (LSC)</div><div>Maranoa Regional Council (MRC)</div><div>Rockhampton Regional Council (RRC)</div></div>		<div><h1>PRESSURE MAIN DISCHARGE DETAILS</h1><div>CMDG-S-070</div></div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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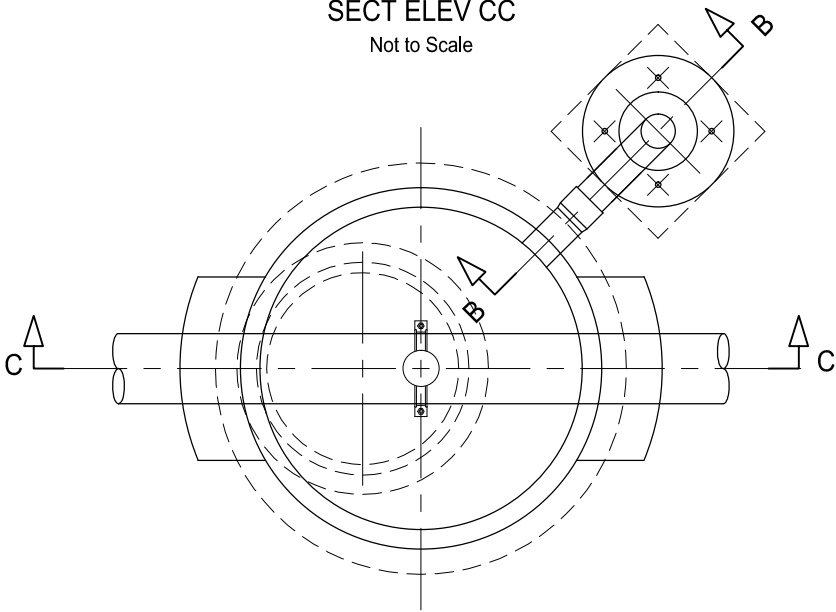
SECT ELEV BB
Not to Scale



SECT ELEV CC
Not to Scale



PLAN
AIR VALVE (SEWER
R/MAIN)
TYPICAL DETAILS
Not to Scale



PLAN
AIR VALVE (EFFLUENT R/MAIN)
TYPICAL DETAILS
Not to Scale

ITEMS SCHEDULE (SEWER R/MAIN)			
ITEM	DESCRIPTION	DIA (mm)	REQD
1	Tapping Band (Screwed)	??x50	1
2	SS Elbow (Screwed) M&F	50	1
3	SS Nipple (Screwed) M&M	50	1
4	SS Ball Valve (Screwed) F&F	50	1
5	SS Elbow (Screwed) M&F	50	1
6	GFR "Vent Master" Air Valve	50	1
7	Vent Pipe	-	1
8	RC Shaft (length to suit)	1050	1
9	RC Convertor Slab	1050	1
10	RC Surround & CI Cover	600	1

ITEMS SCHEDULE (EFFLUENT R/MAIN)			
ITEM	DESCRIPTION	DIA (mm)	REQD
1	Tapping Band (Screwed)	200x25	1
2	Brass Nipple (Screwed) M&M	25	1
3	Brass Ball Valve (Screwed) F&F	25	1
4	"Vent-o-Mat" Air Valve (Screwed)	25	1
5	RC Shaft (length to suit)	1050	1
6	RC Convertor Slab	1050	1
7	RC Surround & CI Cover	600	1

NOTES:

- All dimensions are in metres unless otherwise shown.
- Concrete to be 32MPa and in accordance with AS. 1379 and AS. 3600.
- Reinforcement to be in accordance with AS. 1304.
- All flanges to be in accordance with AS. 2129 - Table C U.N.O.
- Air Valve marker posts to be installed in accordance with CMDG-W-060.
- Precast Reinforced Concrete Chamber components to be Humes 1050 Access Chamber Epoxy Jointed or similar approved equivalent.
- RC Convertor Slab, RC Surround & CI Cover to be rotated to provide optimum access to pit.
- RC Surround to be supplied with Cast Iron frame to suit solid Cast Iron bolt down San Sew Cover.
- For details of Vent Pole refer to CMDG-S-051.
- Where foundation bearing pressure is less than 50 kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Works Supervisor.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Applicable DWG	GRC SPS Drawing GRC-SPS-24						

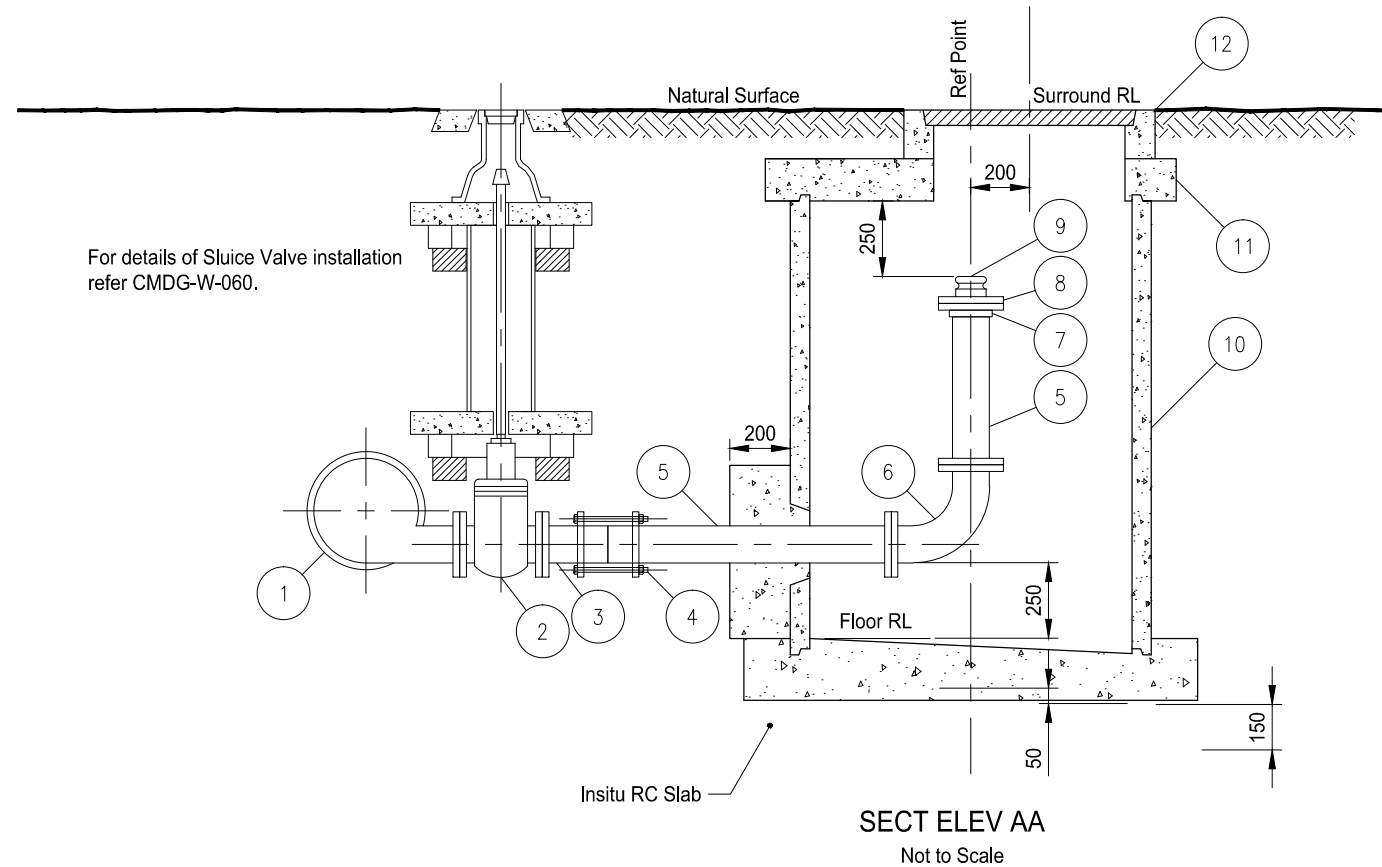
REVISIONS		DATE
F	IRC ADDED	11/2016
E	DIMENSIONS EXPRESSED IN MM GRC APPLICABILITY CHANGE	03/2015
D	GRC AND LSC ADDED	09/2014
C	VENT POLE DWG REFERENCE AMENDED	01/2013
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

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AIR VALVES
CONSTRUCTION DETAILS

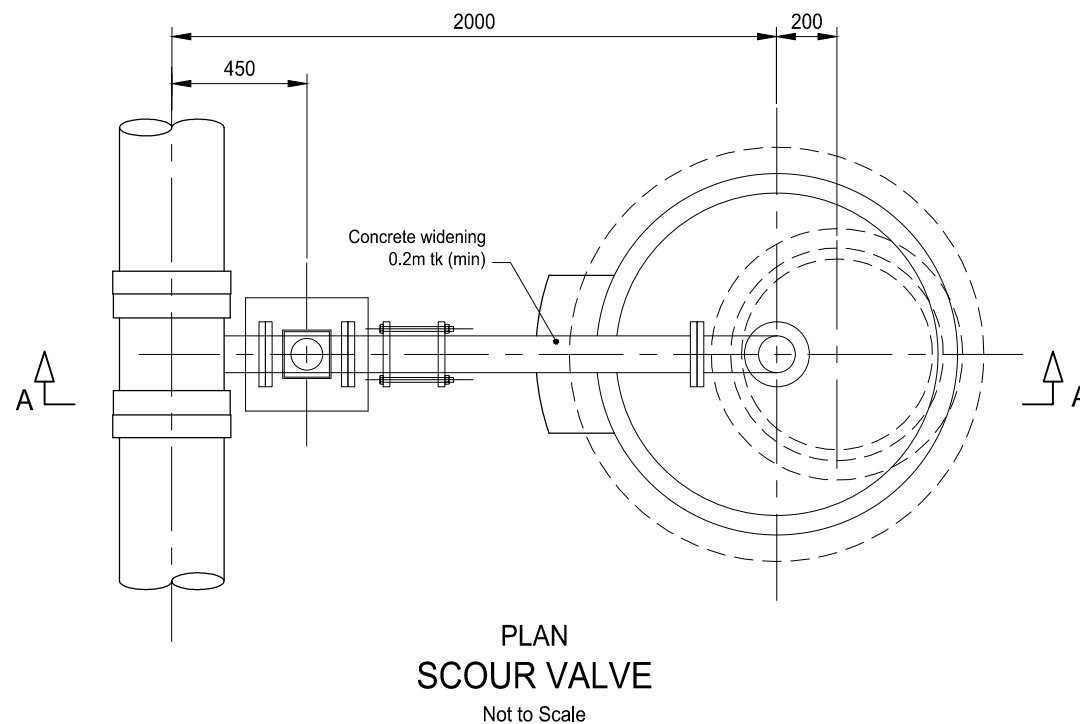
ROADS						
STANDARD DRAWING CMDG-S-072						
REV.	A	B	C	D	E	F



ITEMS SCHEDULE			
ITEM	DESCRIPTION	DIA (mm)	REQD
1	Scour Tee Soc/Soc/FI	??x100	1
2	Sluice Valve FI/FI	100	1
3	Convector FI/Sp	100	1
4	Gibault	100	1
5	Pipe - (length to suit) Sp/FI	100	2
6	90° Bend FI/FI	100	1
7	Adapta Flange	100	1
8	Reducing Flange	100x80	1
9	Camlock Coupling	80	1
10	RC Shaft (length to suit)	1050	1
11	RC Convector Slab	1050	1
12	RC Surround & Cover	600	1

NOTES:

- All dimensions are in metres unless otherwise shown.
- Concrete to be 32MPa and in accordance with AS. 1379 and AS. 3600.
- Reinforcement to be in accordance with AS. 1304.
- All flanges to be in accordance with AS. 2129 - Table C U.N.O.
- Scour Valve marker posts to be installed in accordance with CMDG-W-060.
- Precast Reinforced Concrete Chamber components to be Humes 1050 Access Chamber Epoxy Jointed or similar approved equivalent.
- RC Convector Slab, RC Surround & CI Cover to be rotated to provide optimum access to pit.
- RC Surround to be supplied with Cast Iron frame to suit solid Cast Iron bolt down San Sew Cover.
- Where foundation bearing pressure is less than 50 kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Works Supervisor.



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Applicable DWG	GRC SPS drawing GRC-SPS-24						

REVISIONS		DATE
E	IRC ADDED	11/2016
D	GRC APPLICABILITY CHANGE	03/2015
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

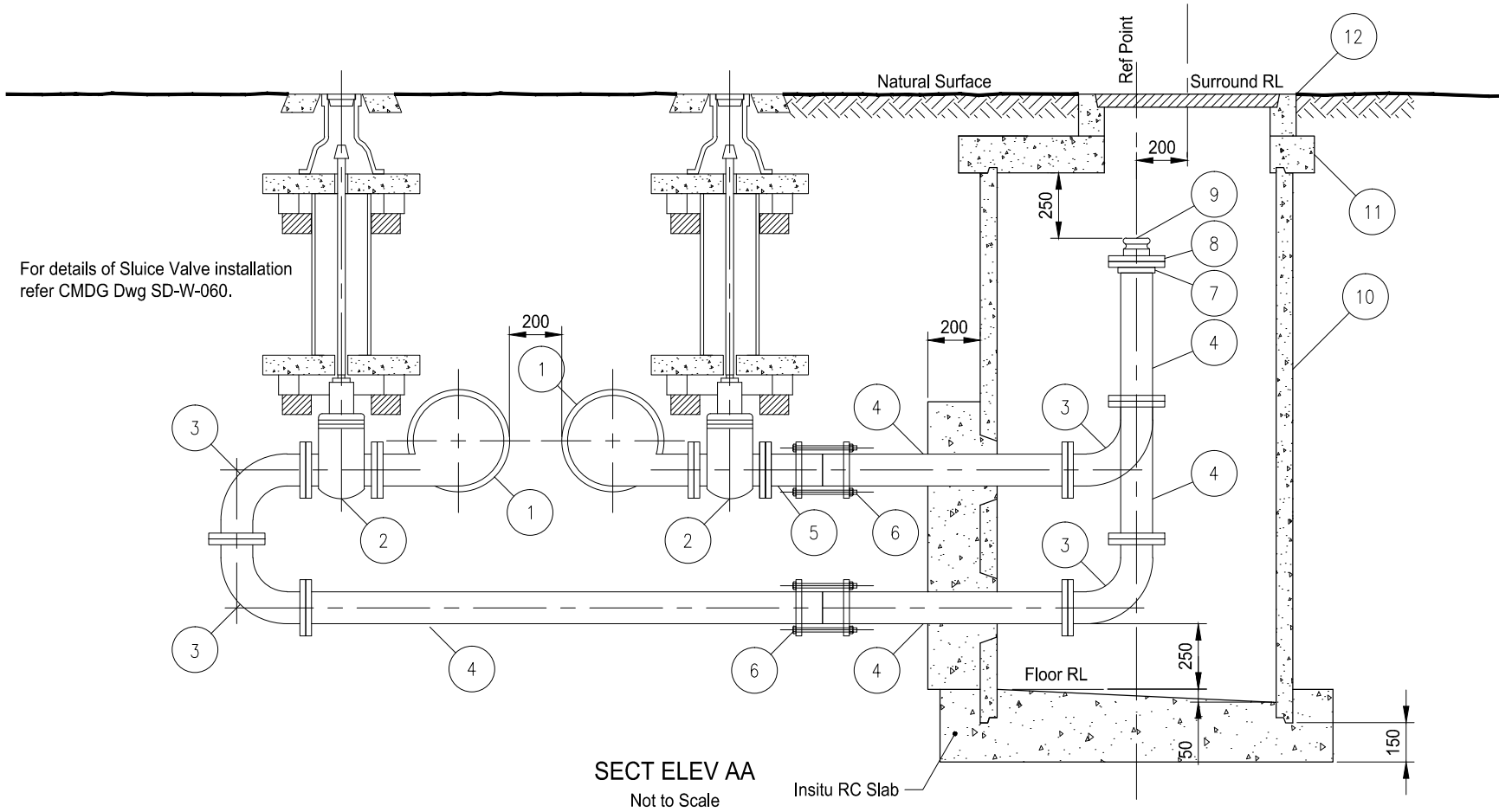
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SCOUR VALVE-100dia CONSTRUCTION DETAILS

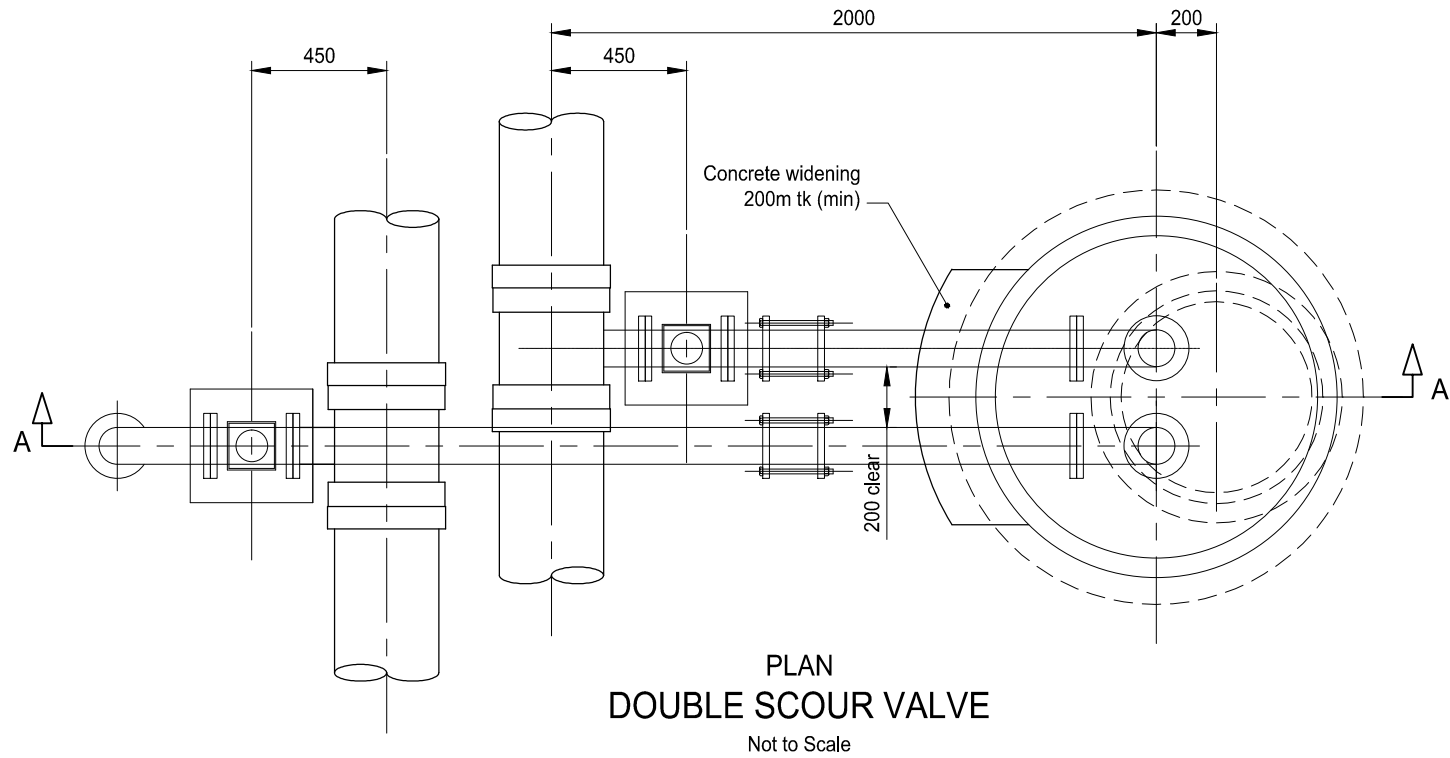
ROADS							
STANDARD DRAWING							
CMDG-S-073							
REV.	A	B	C	D	E		



ITEMS SCHEDULE			
ITEM	DESCRIPTION	DIA	REQD
1	Scour Tee Soc/Soc/FI	??x100	2
2	Sluice Valve FI/FI	100	2
3	90° Bend FI/FI	100	4
4	Pipe (length to suit) FI/FI	100	5
5	Convertor FI/Sp	100	2
6	Gibault	100	2
7	Adapta Flange	100	2
8	Reducing Flange	100x80	2
9	Camlock Coupling	80	2
10	RC Shaft (length to suit)	1050	1
11	RC Convertor Slab	1050	1
12	RC Surround & Cover	600	1

NOTES:

1. All dimensions are in metres unless otherwise shown.
2. Concrete to be 32MPa and in accordance with AS. 1379 and AS. 3600.
3. Reinforcement to be in accordance with AS. 1304.
4. All flanges to be in accordance with AS. 2129 - Table C U.N.O.
5. Scour Valve marker posts to be installed in accordance with CMDG-W-060.
6. Precast Reinforced Concrete Chamber components to be Humes 1050 Access Chamber Epoxy Jointed or similar approved equivalent.
7. RC Convertor Slab, RC Surround & CI Cover to be rotated to provide optimum access to pit.
8. RC Surround to be supplied with Cast Iron frame to suit solid Cast Iron bolt down San Sew Cover.
9. Where foundation bearing pressure is less than 50 kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Works Supervisor.



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

REVISIONS		DATE
E	IRC ADDED	11/2016
D	DIMENSIONS EXPRESSED IN mm	03/2013
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

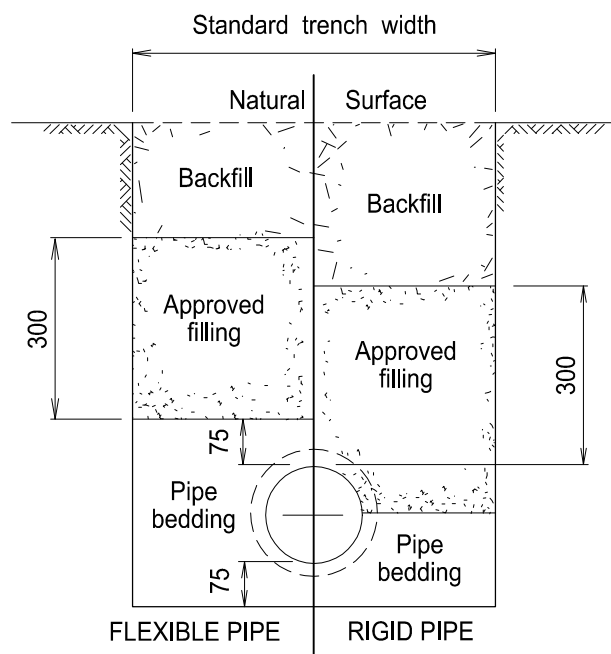
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Capricorn Municipal Development Guidelines

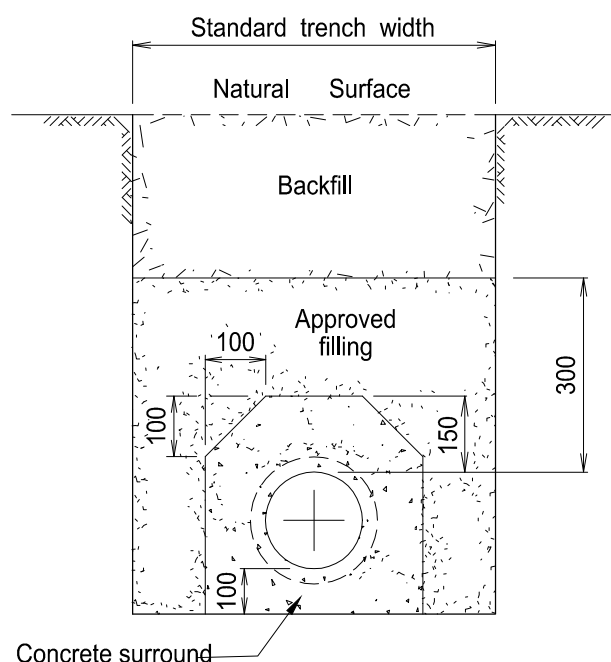
Incorporating:
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Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

DOUBLE SCOUR SEWER VALVE
CONSTRUCTION DETAILS

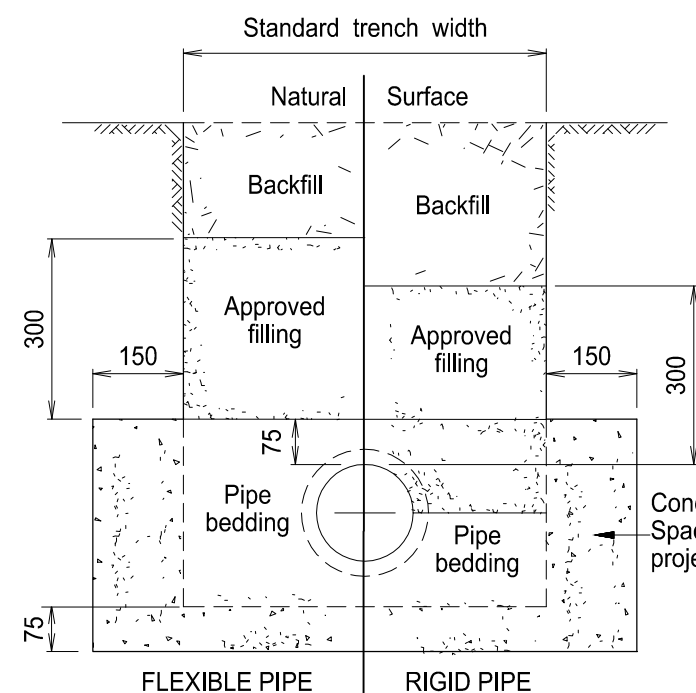
ROADS							
STANDARD DRAWING CMDG-S-074							
REV.	A	B	C	D	E		



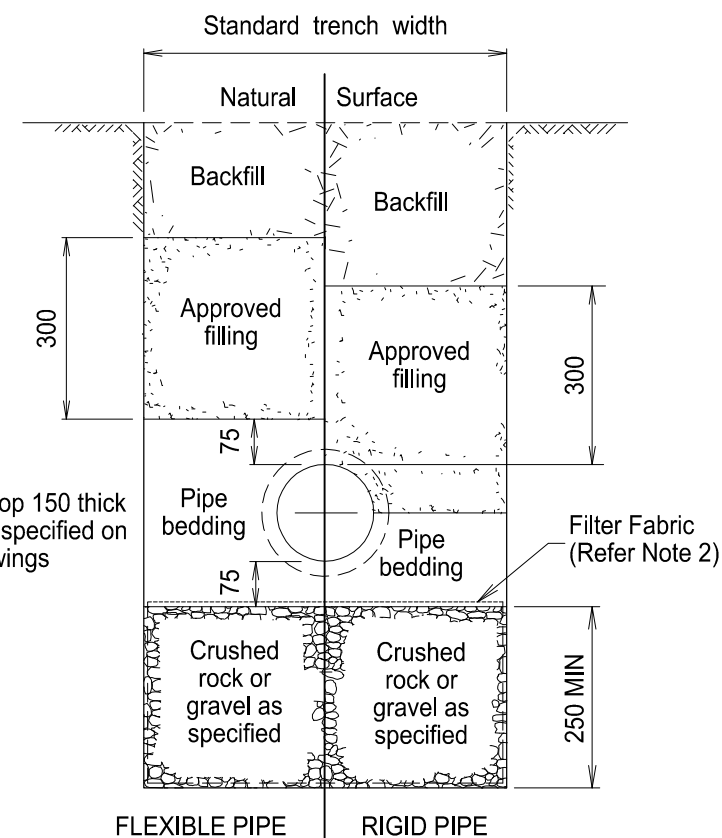
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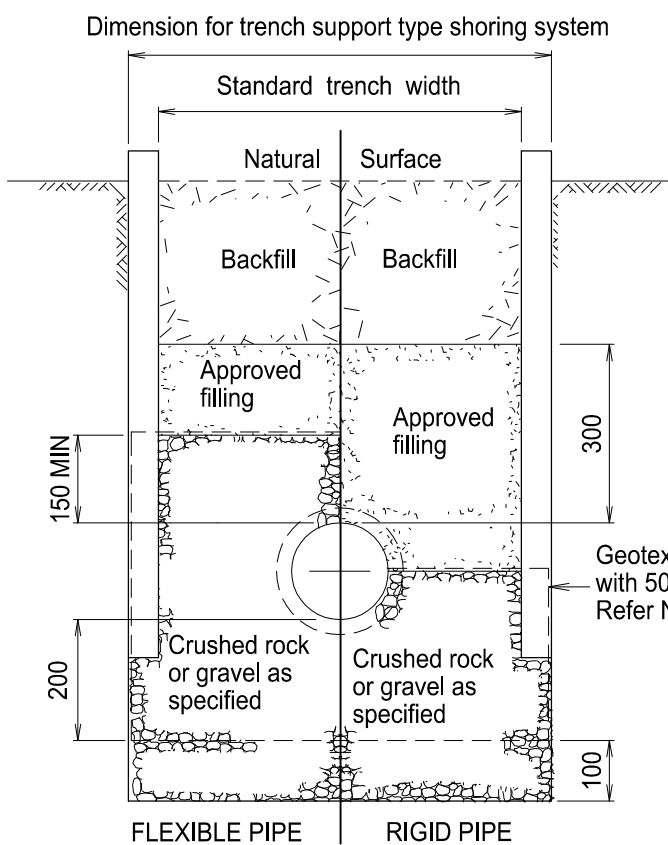
TYPE 2



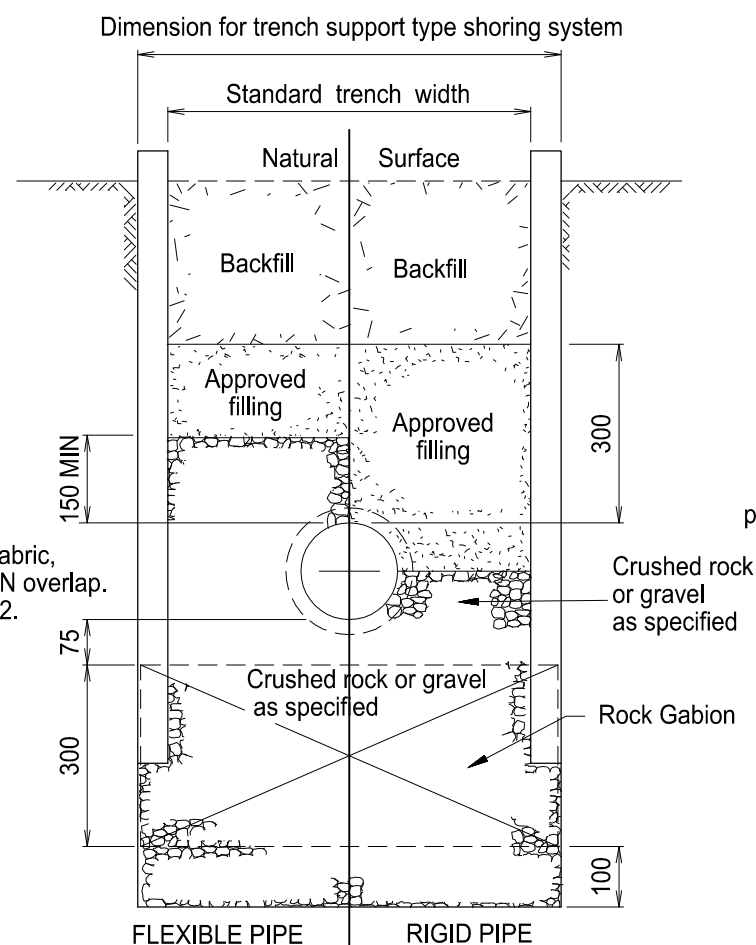
TYPE 3



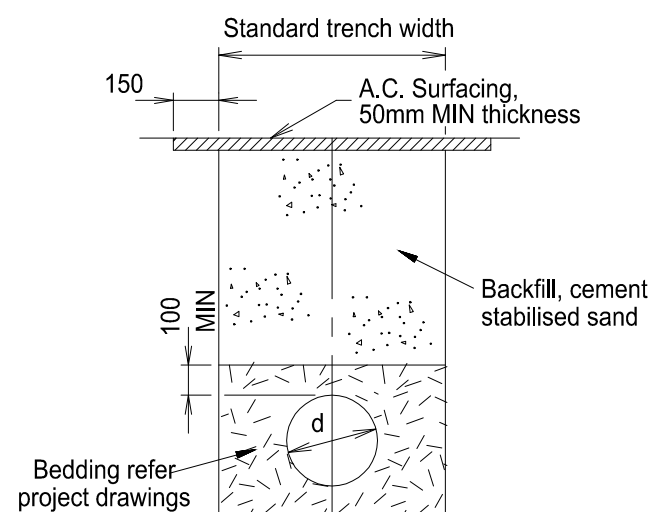
TYPE 4



TYPE 5



TYPE 6



UNDER EXISTING ROADS

TYPE 7

NOTES:

- Pipe bedding classification
 - Rigid Pipes : Vitrified clay, steel, ductile iron, fibre cement and concrete.
 - Flexible Pipes : Unplasticised polyvinyl chloride, glass filament reinforced thermosetting plastics, acrylonitrile butadiene styrene and polyethylene.(Pipe to be wrapped with "Abelflex" or equivalent).
- An approved geotextile fabric shall be used in all trenches around crushed rock pipe bedding.
- The road surface finish shall be asphaltic concrete or other surface specified in the project drawings or by the Superintendent.
- Sand surround (compacted in 150mm layers) > 70% D.I. or 95% standard compaction in bedding and side support. Density index (D.I.) as per A.S.1289 E6.1 Standard compaction as per A.S. 1289 E1.2
- Concrete N20 in accordance with AS 1379 and AS 3600.
- All dimensions in millimetres.

APPLICABILITY TABLE

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

DIA of Pipe	100	150	225	300	375	450	525	600	675	750	825	900
Standard trench width	600	600	675	750	825	900	1000	1075	1150	1300	1375	1450

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

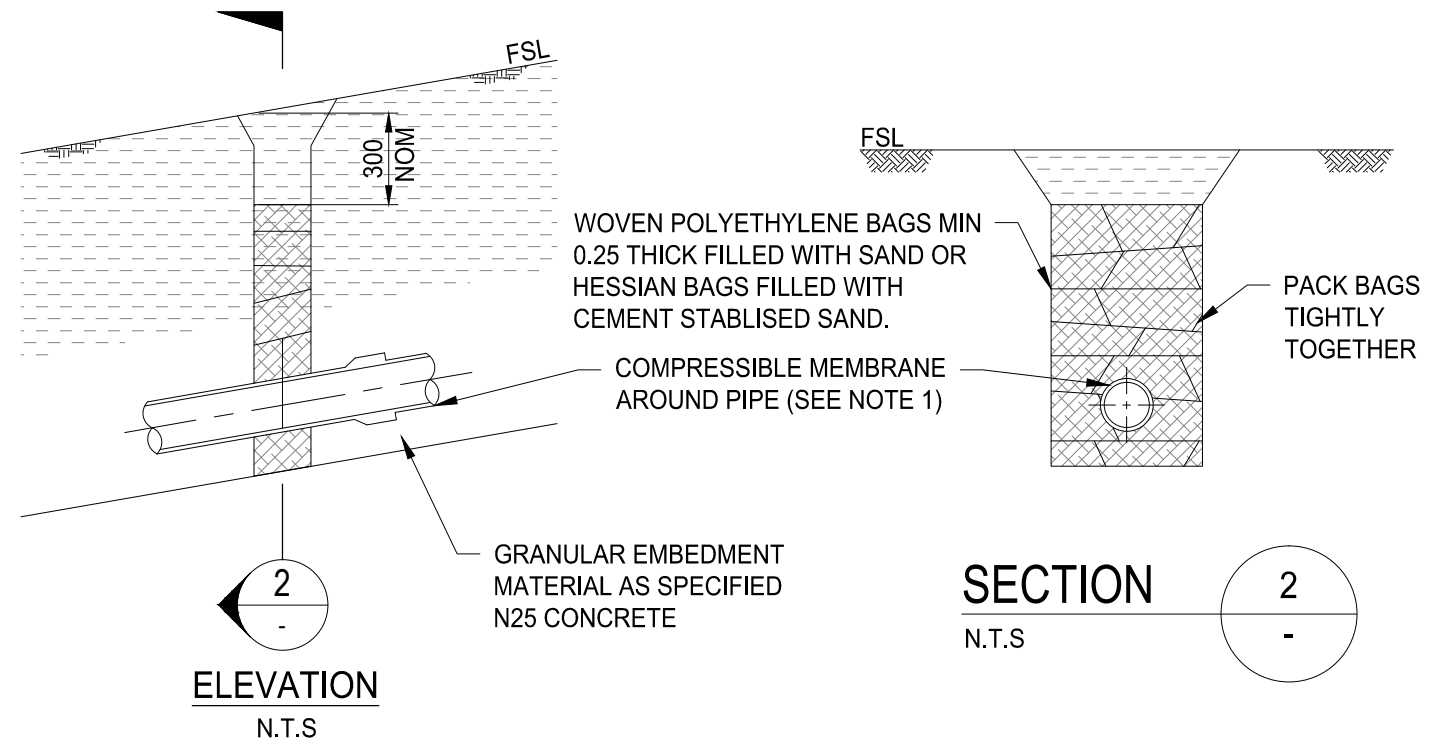
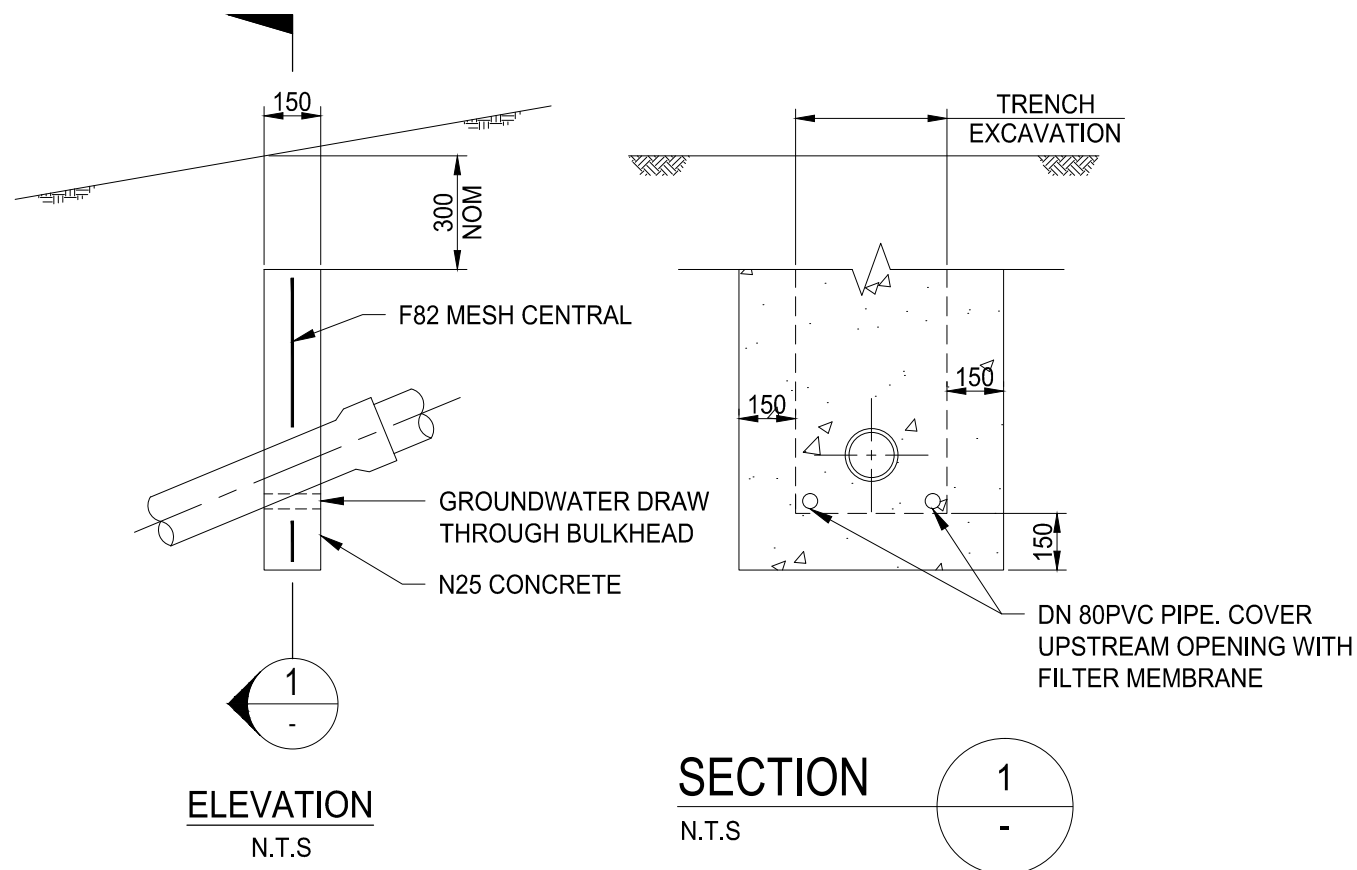
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Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

SEWER CONSTRUCTION PIPELINE CONSTRUCTION TYPES

ROADS
STANDARD DRAWING CMDG-S-090
REV. A B C D



CONCRETE BULKHEADS

NOTES:

1. Compressible membrane around pipe to be 3mm thick rubber.
2. Concrete bulkhead / trenchstop spacing based on standard pipe length 5.5m (DICI) and 2.44m (RCP)
Refer designer for bulkhead / trenchstop spacing for non standard pipe lengths
3. Key concrete bulkhead into sides and bottom of trench against a bearing surface of undisturbed soil.
4. Concrete class N25

CONCRETE BULKHEAD / TRENCHSTOPS FOR DICI (5.5m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	5.5 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	11.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	11.000	4.000
1 in 5	16.500	5.000
1 in 6	22.000	6.000

CONCRETE BULKHEAD / TRENCHSTOPS FOR UPVC (3m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	3.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	6.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	10.0	4.000
1 in 5	12.0	5.000
1 in 6	14.0	6.000

CONCRETE BULKHEAD / TRENCHSTOPS FOR RCP (2.44m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	2.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	3.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	7.800	4.000
1 in 5	9.800	5.000
1 in 6	11.700	6.000

CONCRETE BULKHEAD / TRENCHSTOPS FOR UPVC (6m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	6.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	12.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	18.0	4.000
1 in 5	22.0	5.000
1 in 6	27.0	6.000

APPLICABILITY TABLE

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

REVISIONS	DATE
C IRC ADDED	11/2016
B UPVC REQUIREMENTS ADDED	03/2015
A NEW DRAWING	01/2015

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SEWER CONSTRUCTION BULKHEAD AND TRENCHSTOP DETAILS

ROADS			
STANDARD DRAWING CMDG-S-091			
REV.	A	B	C