

Tees	 (SOC/SOC/SOC)	 (FL/FL/FL)	 (SOC/SOC/FL)	 (SOC/SP/FL)	 (SP/SP/SP)	 (SP/SP/FL)
Tapers	 (SOC/SOC)	 (concentric)(FL/FL)	 (eccentric)(FL/FL)	 (SP/FL)	 (SP/SP)	
Bends	11 ¹ / ₄	 (SOC/SOC)	 (FL/FL)			
	45	 (SOC/SOC)	 (FL/FL)			
	22 ¹ / ₂	 (SOC/SOC)	 (FL/FL)			
	90	 (SOC/SOC)	 (FL/FL)			
Connectors	 (SOC/SOC)	 (FL/SOC)	 (FL/SP)			
End Caps	 End Cap	 Blank Flange				
Riser/Spacer	 (FL/FL)					
Fittings	FH	 Prop. (SOC/SOC)				
	SV	 Open (SOC/SOC)	 Open (FL/FL)			
	ScV	 Open (SOC/SOC)	 Open (FL/FL)			
	AV	 (SOC/SOC)	 (FL/FL)			
Gibault	 Gibault					
Wyes	 (SOC/SOC/SOC)	 (FL/FL/FL)				

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

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

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 SCHEDULE			
DETAIL ID	SIZE	DESCRIPTION	QTY
①	1000	Tee (FI/FI/FI)	3
②		Gibault	2
N/A		11 1/4° Bend (Soc/Soc)	7
③		11 1/4° Bend (FI/FI)	1
N/A		22 1/2° Bend (Soc/Soc)	2
N/A		45° Bend (Soc/Soc)	1
N/A		90° Bend (Soc/Soc)	1
N/A		Connector (Soc/Soc)	2
④		Connector (FI/Soc)	7
⑤		Connector (FI/Spig)	3
⑥	1500	Sluice Valve (FI/FI)	7
N/A		Scour Valve (Soc/Soc)	2
N/A		Air Valve (Soc/Soc)	2
⑦		End Cap	2
⑧	Misc.	375 x 300 Taper	1

SEWER RISING MAIN CONSTRUCTION NOTES

- All sewer rising mains to be on 1.8m alignment unless otherwise noted.
- Sewer rising mains to be in accordance with D12.
- 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 (GRC to be anticlockwise 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.
- Sewer gravity mains to be in accordance with D12.
- 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 complas 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 in accordance with D12 Table D12.09.03. Maximum lamphole segment (where approved by the LGA) to be in accordance with D12 clause D12.09.03.
- Place detectable marker tape in trench approx. 300 mm above pipe.

FALL THROUGH MANHOLE (FIBREGLASS BASE)		
MANHOLE DESC.	DIAGRAM	MIN. DROP (mm)
Straight through		20
Deflection up to 40°		30
Deflection 40°-90°		40
Branch <40°		30
Branch 40° - 90°		40
MAIN AND BRANCH VARY IN DIA.		
Main DIA.	Brand DIA.	
300	225	
300	150	
300	100	
225	150	
225	100	
150	100	
		Min Drop(mm)
		80
		150
		200
		80
		130
		50

NOTE: For House Drains & Concrete Manhole Bases refer CMDG Std Dwg CMDG-S-020

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

REVISIONS		DATE	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.	Capricorn Municipal Development Guidelines		SEWER INFORMATION FITTING AND BEND SYMBOLS, PIPE INFORMATION AND GENERAL NOTES	
H	MANHOLE DESC. CORRECTED, STYLE UPDATED	03/2024		Incorporating: Banana Shire Council (BSC) Maranoa Regional Council (MRC) Central Highlands Regional Council (CHRC) Rockhampton Regional Council (RRC) Gladstone Regional Council (GRC) Isaac Regional Council (IRC) Livingstone Shire Council (LSC)			
G	IRC ADDED	11/2016					
F	AMEND SEWER GRAVITY MAIN NOTE 1	10/2016					
E	SEWER NOTE 10 AMENDED 03/2015	03/2015					
D	GRC AND LSC ADDED	09/2014					
C	SEWER GRAVITY MAIN NOTE 10 AMENDED	05/2014					
SEWER		STANDARD DRAWING					
CMDG-S-005							
REV.	C	D	E	F	G	H	