

FOOTPATHS/PRIVATE PROPERTY/ROADS

ROADS

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TYPE 1

TYPE 2

TYPE 3 – SAND SURROUND

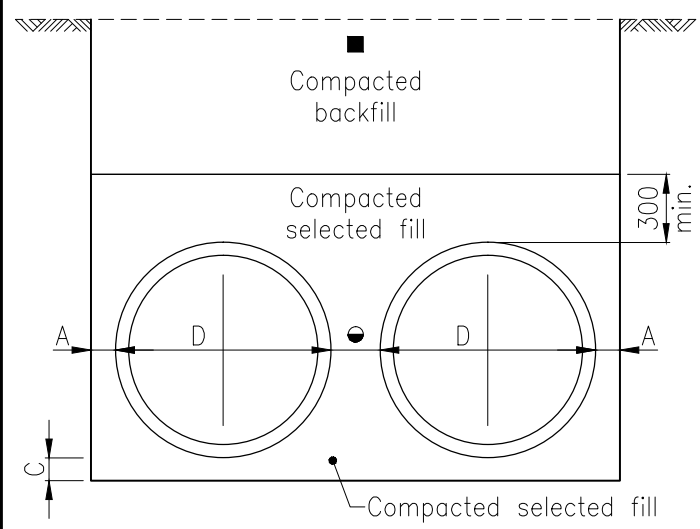
TYPE 4 – CONCRETE OR GRAVEL SURROUND

TYPE 5 – CONCRETE OR GRAVEL ENCASEMENT

TYPE 6 – BEDDING IN POOR GROUND

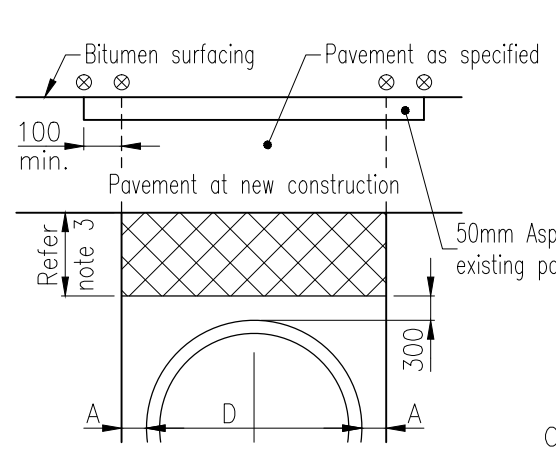
Conforms to Support Type U AS 3725

Conforms to Support Type H1 AS 3725



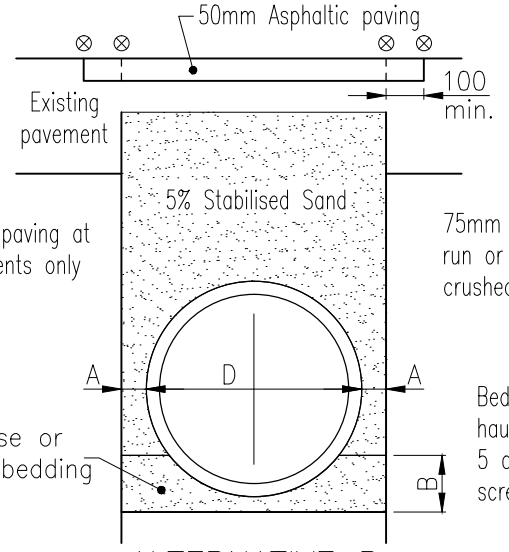
TYPE 7 – BEDDING OF MULTIPLE PIPES

Conforms to Support Type H1



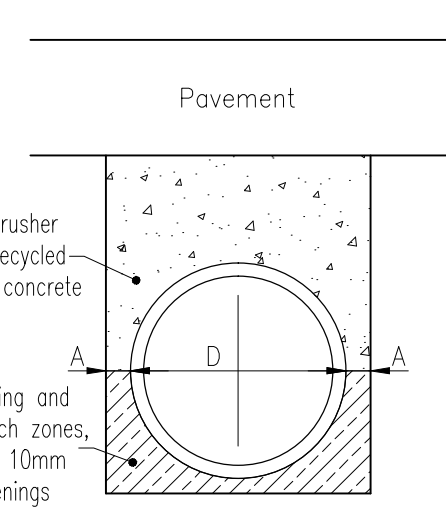
ALTERNATIVE A

(At new pavements on residential streets and rural roads and existing sealed roads)



ALTERNATIVE B

(At existing surfaced pavements on industrial, trunk collector, sub-arterial and arterial streets/roads)



ALTERNATIVE C

NOMINAL ϕ culvert D (mm)	MINIMUM width A (mm)	HAUNCH depth B (mm)	BEDDING depth C (mm)	Allowable width, E(m)	
				DES	MAX
300	300	36	100	1.0	1.1
375	300	45	100	1.1	1.2
450	300	53	100	1.1	1.3
525	300	61	100	1.2	1.5
600	300	69	100	1.3	1.6
750	300	85	100	1.5	1.8
900	300	103	100	1.6	1.9
1050	300	120	100	1.8	2.1
1200	300	135	100	2.0	2.2
1350	300	150	100	2.1	2.4
1500	300	169	100	2.3	2.7
1650	330	184	150	2.6	2.9
1800	360	200	150	2.8	3.1
1950	390	222	150	3.1	3.3
2100	420	239	150	3.4	3.5
2400	480	270	150	3.9	4.2
2700	540	303	150	4.3	4.6
3000	600	335	150	4.9	5.0

BEDDING AND HAUNCH MATERIAL GRADING
(Gravel, loam, sand, or mixture)

AS Sieve Size	% Passing by mass	
	Type 1 Pipes \leq 1200 ϕ	Type 2 Pipes \geq 1350 ϕ
19.0	100	98-100
9.5	-	35-50
4.75	-	5-10
2.36	40-100	0-2
0.425	15-70	0-1
0.075	3-30	0-1

NOTES:

- Selected backfill in all cases shall be carried through to the wings and continued 300 thick for the length and height of the wings.
- Bedding compaction (Compacted selected fill/sand bedding):
 - Cohesive material – 95% standard compaction.
 - Non-cohesive material – density index of 70MIN, refer AS1289.5.5.1.
 - Sand – compact by flooding and use of vibrators.
- Backfill compaction:
 - Compacted gravel (300mm) layer under road pavement 95% standard compaction.
 - Compacted selected fill/CBR 15 Gravel 90% standard compaction – below 300mm zone.
 - Compacted backfill – at footpaths/private property 90% standard compaction.
 - MAX. densities determined by standard compaction tests to AS 1289.5.1.1.

- Refer project drawings for types and/or alternatives to be adopted.
- Type U & Type H1 to conform to AS 3725.
- Dimension A can be reduced to 150 MIN for non mechanical compaction of backfill.
- Pipes are to be designed to their correct strength class under all construction loads, dead loads and in-service loads.
- All dimensions in millimetres.
- Where groundwater is encountered the superintendent must be notified and an appropriate trench drainage solution provided.

LEGEND

- ⊗ Saw cut at existing pavement.
- Pipes: 600 when NOMINAL D < 1800
900 when NOMINAL D > 1800
- Dimensions can be reduced to 100 MIN for 5% stabilised sand backfill.
- Refer Alternative A, B and C for backfill requirements at existing and new pavements.
- Depth to be approved by the superintendent.
- ⊠ Gravel (Min CBR 15).

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

REVISIONS	DATE	
F	IRC ADDED	12/2016
D	GRC AND LSC ADDED	09/2014
E	NOTE 9 ADDED RE: GROUNDWATER	03/2012
C	MRC ADDED	04/2011
B	REFERENCE TO 'ORDINARY' FILL REMOVED	07/2010
A	POST AMALGAMATION REVIEW	10/2003

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Capricorn Municipal Development Guidelines
Incorporating:
Banana Shire Council (BSC) Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

EXCAVATION, BEDDING AND BACKFILLING OF CONCRETE/REINFORCED FIBRE DRAINAGE PIPES

DRAINAGE
STANDARD DRAWING
CMDG-D-010
REV. | B | C | D | E | F | G