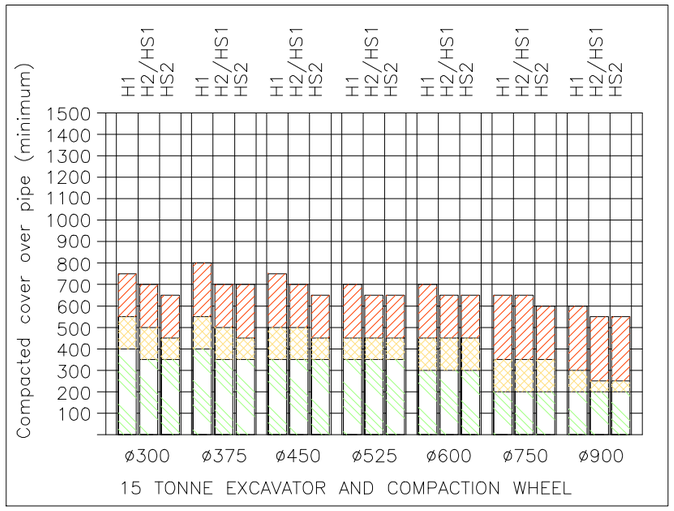
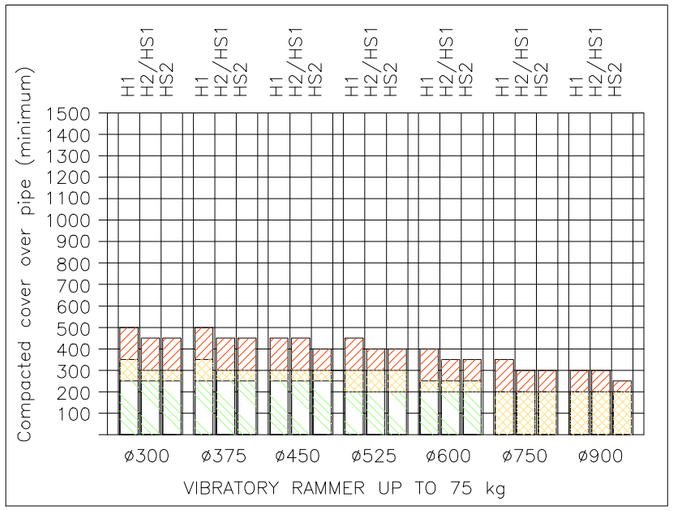
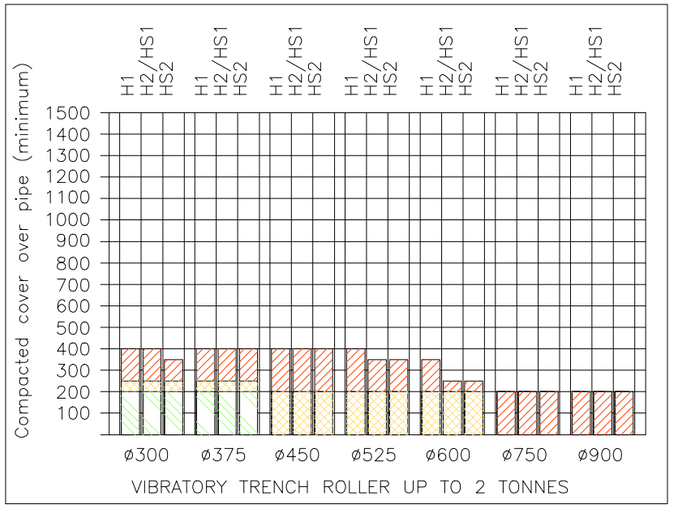
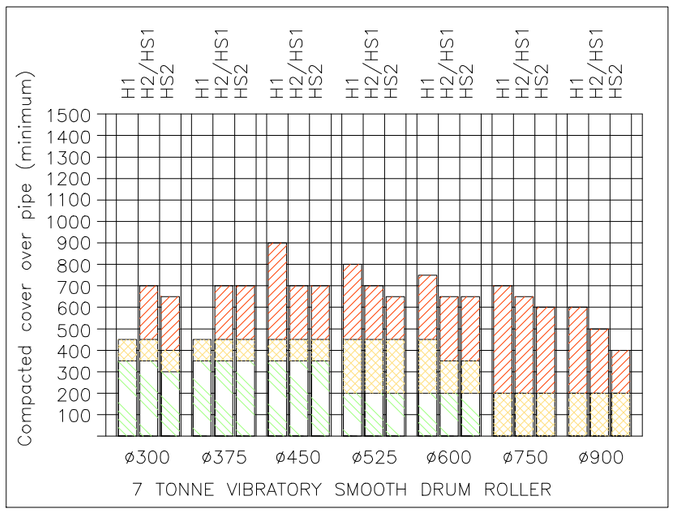
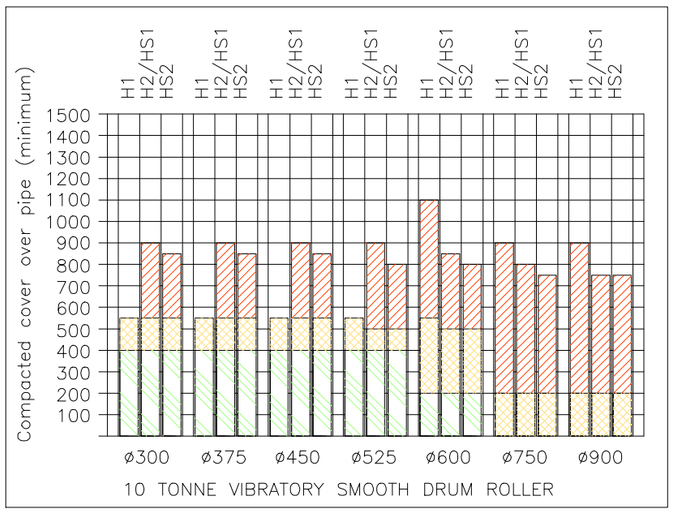
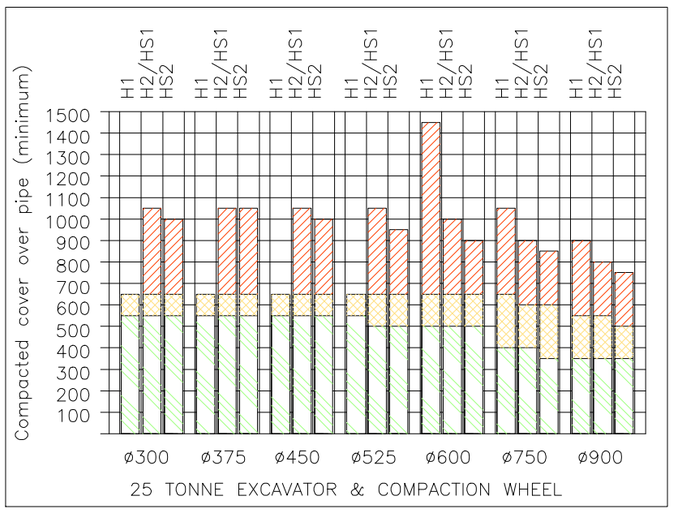




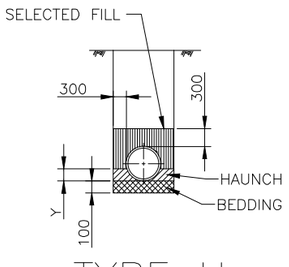








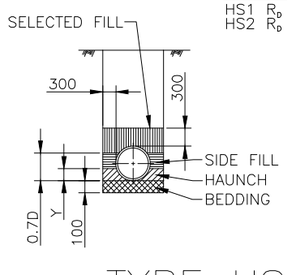
Y = 0.1 D FOR H1 TYPE
Y = 0.3 D FOR H2 TYPE
D = NOM. PIPE DIA.



TYPE H

Y = 0.1 D FOR HS1
Y = 0.3 D FOR HS2
D = NOM. PIPE DIA.

COMPACTION
HS1 R_p = 85% (Std)
HS2 R_p = 90% (Std)



TYPE HS

LEGEND:

PIPES MANUFACTURED TO AS 4058

CLASS 2 PIPE

CLASS 3 PIPE

CLASS 4 PIPE

NOTES:

1. THE VERTICAL PIPE LOAD CALCULATION IS APPLICABLE FOR CONSTRUCTION LOADING ONLY, AND DOES NOT INCORPORATE THE ULTIMATE SERVICE LOADING.
2. THE CONTENT OF THIS DRAWING IS BASED ON INFORMATION SUPPLIED BY THE CONCRETE PIPE ASSOCIATION OF AUSTRALASIA (CPAA). THE LOAD CHARTS SHOULD BE USED FOR GUIDANCE ONLY. THE LOADING CALCULATIONS HAVE BEEN DERIVED BASED ON PIPE SUPPORT CONFIGURATION AS DEFINED IN AS 3725 – 1989. THE TRENCH SUPPORT GIVEN IN DRAWING BSD–8011 IS APPROX. EQUIVALENT TO THE TYPE H2 SUPPORT.
3. FOR SPECIAL APPLICATIONS OR FOR LOAD APPLICATIONS NOT SHOWN ON THE DRAWING, REFER TO AS 3725 OR USE THE CPAA PIPE SELECTION SOFTWARE VERSION 4. A WIDER TRENCH WILL INCREASE LOAD TRANSFER TO THE PIPE AND WILL REQUIRE REVIEW OF PIPE CLASS AND BACKFILLING METHOD.
4. INCORPORATE PIPE CLASS (EG. CLASS 3), PIPE SUPPORT (EG. TYPE H2), AND TRENCH BACKFILL METHOD (EG. VIBRATORY RAMMER UP TO 75 kg) IN STORMWATER DRAINAGE LONGITUDINAL SECTION DRAWING.
5. A COMBINATION OF SUITABLE COMPACTION EQUIPMENT CAN BE USED TO ACHIEVE THE REQUIRED COMPACTION STANDARD IN THE PIPE TRENCH. FOR EXAMPLE, A 450mm DIAMETER CLASS 3 PIPE LAID IN TYPE H2 SUPPORT WITH 1m FILL HEIGHT ABOVE THE PIPE IS REQUIRED FOR THE ULTIMATE SERVICE LOADING. THE LOAD CHART ILLUSTRATES THAT A VIBRATORY TRENCH ROLLER (UP TO 2 TONNES) MUST BE USED INITIALLY TO COMPACT THE 200–300mm FILL OVER THE PIPE. A RAMMER (UP TO 75kg) MAY BE USED FOR FILL HEIGHT BETWEEN 300 AND 500mm. A 15 TONNE EXCAVATOR AND COMPACTION WHEEL MAY BE USED FOR FILL HEIGHT ABOVE 500mm.
6. DIMENSIONS IN MILLIMETRES (UNO).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01

MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

DESIGN	Std Dwgs WG	DATE	APR 01
DRAWN	CPO - P&D	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8001(A) Minimum pipe cover for construction loads - Steel reinforced concrete pipes.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-301		

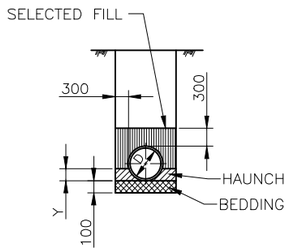
BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

MINIMUM PIPE COVER FOR CONSTRUCTION LOADS–STEEL REINFORCED CONCRETE PIPES

SCALE: NOT TO SCALE
DWG No.: BSD–8001
ORIGINAL SIZE: A3
REVISION: A

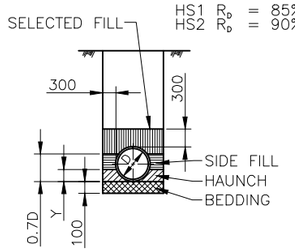
Y = 0.1 D FOR H1 TYPE
Y = 0.3 D FOR H2 TYPE
D = NOM. PIPE DIA.



TYPE H

Y = 0.1 D FOR HS1
Y = 0.3 D FOR HS2
D = NOM. PIPE DIA.

COMPACTION
HS1 R_p = 85% (Std)
HS2 R_p = 90% (Std)



TYPE HS

NOTES:

1. THE VERTICAL PIPE LOAD CALCULATION IS APPLICABLE FOR CONSTRUCTION LOADING ONLY, AND DOES NOT INCORPORATE THE ULTIMATE SERVICE LOADING.

2. THE CONTENT OF THIS DRAWING IS BASED ON INFORMATION SUPPLIED BY JAMES HARDIE FRC PIPES. THE LOAD CHARTS SHOULD BE USED FOR GUIDANCE ONLY.

3. THE LOADING CALCULATIONS HAVE BEEN DERIVED BA
FOLLOWING ASSUMPTIONS:
– PIPE SUPPORT CONFIGURATION AS DEFINED IN
THE TRENCH SUPPORT GIVEN IN DRAWING
APPROX. EQUIVALENT TO THE TYPE H
– EVEN LOAD DISTRIBUTION WHERE C
– SOIL DENSITY OF 18kN/m³ FOR

4. FOR SPECIAL APPLICATIO
SHOWN ON THE DRA
JAMES HARDIE PI
WILL INCREASE
REVIEW OF IRE

5. INC PORT (eg.
. VIBRATORY
UDINAL SECTION

MPACTION EQUIPMENT CAN BE
ED COMPACTION STANDARD IN THE
E A 450mm DIA. CLASS 2 PIPE LAID
WITH 1.0m FILL HEIGHT ABOVE THE PIPE
HE ULTIMATE SERVICE LOADING. THE LOAD
C ES THAT A 3.3 TONNE VIBRATORY RAMMER MUST
BE ALLY TO COMPACT THE 300–460mm FILL OVER
THE .. A 25 TONNE EXCAVATOR AND COMPACTION WHEEL MAY
BE USED FOR FILL HEIGHT ABOVE 460mm.

7. DIMENSIONS IN MILLIMETRES (UNO).

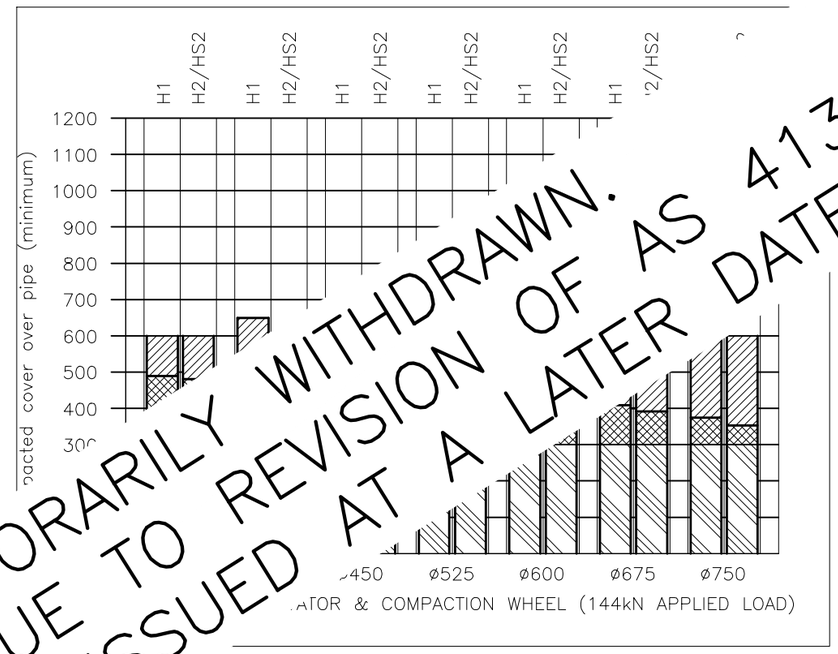
LEGEND:

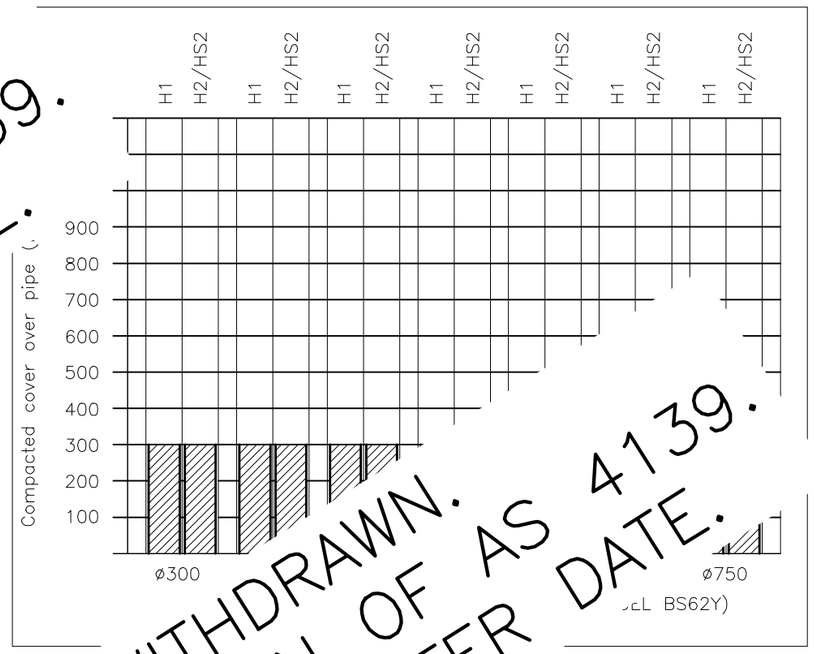
PIPES MANUFACTURED TO AS 4139

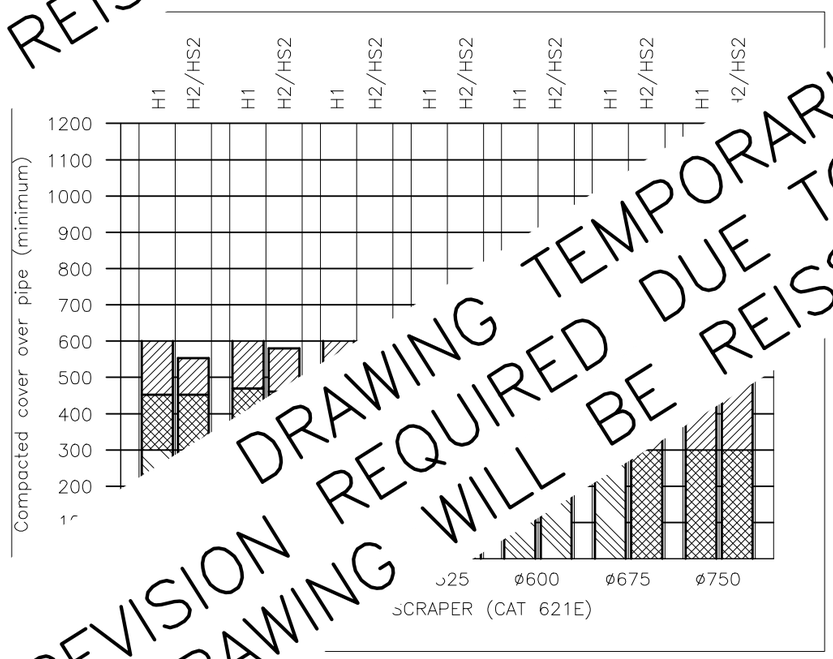
CLASS 1 PIPE

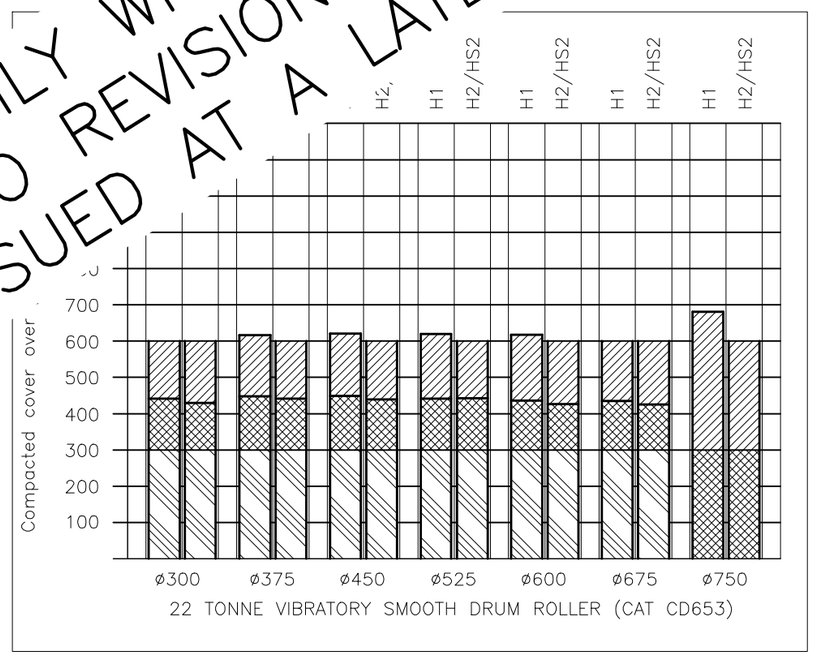
CLASS 2 PIPE

CLASS 3 PIPE









ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

DESIGN	Std Dwgs WG	DATE	APR '01
DRAWN	CPO - P&D	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8002 (A) Minimum pipe cover for construction loads - Fibre reinforced concrete pipes.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-302		

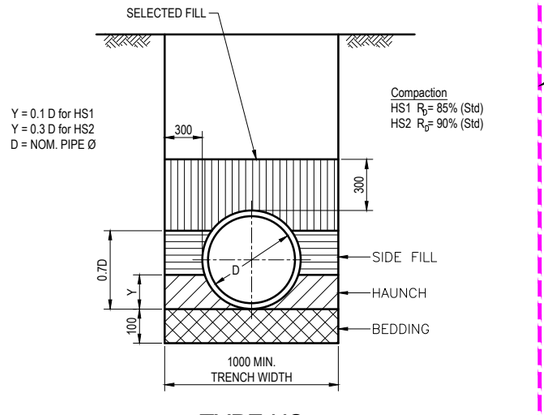
BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

MINIMUM PIPE COVER FOR CONSTRUCTION LOADS–FIBRE REINFORCED CONCRETE PIPES

SCALE: NOT TO SCALE
DWG No.: BSD–8002
ORIGINAL SIZE: A3
REVISION: A

STRUCTURE NAME
STRUCTURE DESCRIPTION



TYPE HS

PIPE CLASS & TRENCH DETAIL HAS BEEN CHECKED USING AN APPROPRIATE METHOD CONFORMING TO *AS/NZS 3725:2007* SUCH AS THE CONCRETE PIPE ASSOCIATION OF AUSTRALASIA PROGRAM 'PipeClass' v2.0 (OR LATER). CONSTRUCTION LOADS APPLIED WERE:

A) SCRAPER - CAT621F (53.8T)

B) EXCAVATOR - CAT325B (25.9T)

C) COMPACTOR - CAT815F (20.9T)

D) EXCAVATOR WITH 580mm WIDE ROLLER (25.0T)

IF THE CONTRACTOR USES DIFFERENT OR HEAVIER EQUIPMENT THAN SHOWN ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO DETERMINE IF THE CLASS OF PIPE FOR THIS PROJECT IS ADEQUATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS INCURRED AS A RESULT.

ADOPTED MINIMUM FILL DEPTH OF 700mm DURING CONSTRUCTION.

NO MORE THAN TWO (2) WEEKS BEFORE ON-MAINTENANCE INSPECTION, THE CONTRACTOR SHALL UNDERTAKE A CCTV DEFECT/CONDITION INSPECTION WITH WINCAN REPORT (TO BE SUBMITTED TO COUNCIL) TO DEMONSTRATE THAT THE STORMWATER SYSTEM IS ACCEPTABLE TO COUNCIL.

FOR DEFECT CRITERIA REFER TO REFERENCE SPECIFICATION FOR CIVIL ENGINEERING WORKS S160 DRAINAGE FOR THE ACCEPTANCE, REPAIR OR REJECTION OF NEWLY CONSTRUCTED STORMWATER PIPELINES.

UNACCEPTABLE DEFECTS ARE TO BE RECTIFIED BY THE CONTRACTOR AT THEIR OWN EXPENSE BEFORE ACCEPTANCE OF WORKS AT OFF-MAINTENANCE.

PIPE TYPE or MATERIAL	FRCP	SRCP
PIPE SIZE mm	300	375
PIPE CLASS - BEDDING CONFIGURATION	3 - HS2	3 - HS2
PIPE OWNER	PVT	BCC
PIPE GRADE %	2.80%	0.40%
PIPE SLOPE 1 in X	35.78	249.99

LONGITUDINAL SECTION INFORMATION

STORMWATER LONGITUDINAL SECTION

PIPE SUPPORT/BEDDING CONFIGURATION AS DEFINED IN *AS/NZS3725*

EXAMPLE DESIGN CONSTRUCTION COMPACTION EQUIPMENT/LOADS AND ALTERATION OBLIGATIONS

'ON-MAINTENANCE' AND CCTV INSPECTION REQUIREMENTS

DETAIL ON LONGITUDINAL SECTION SHOWING:
- PIPE TYPE OR MATERIAL (FRCP/SRCP/FLEXIBLE)
- PIPE Ø
- PIPE CLASS (DETERMINED BY CONSTRUCTION LOADS OR IN-SERVICE LOADS WHICHEVER IS MORE SEVERE)
- BEDDING TYPE

SHOW PIPE ULTIMATE PIPE/ASSET OWNERSHIP:
- BCC (BRISBANE CITY COUNCIL)
- TMR (QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS)
- QR (QUEENSLAND RAIL)
- PVT (PRIVATE)
- OTH (OTHER - ENTITY NOT SHOWN ABOVE)

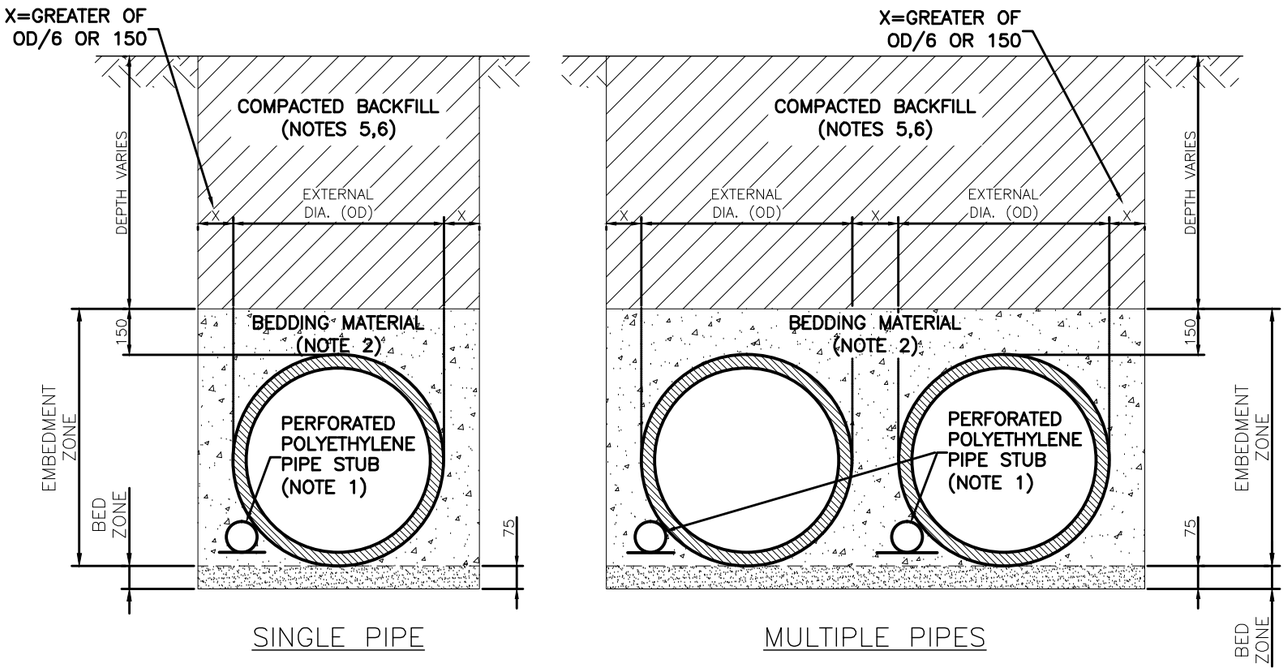
NOTES:

1. DETAILS SHOWN ARE TYPICAL LAYOUT ONLY - ACTUAL DETAILS WILL VARY ON A PROJECT TO PROJECT BASIS.
2. DETAILS THAT MUST BE SHOWN INCLUDE:
   - BEDDING TYPE (DIAGRAM AND/OR DESCRIPTION);
   - DESIGN CONSTRUCTION/COMPACTION EQUIPMENT/LOADS UTILISED;
   - DESIGN UTILITY/SOFTWARE USED;
   - OBLIGATIONS IF DESIGN CONSTRUCTION/COMPACTION EQUIPMENT/LOADS ARE ALTERED;
   - CCTV INSPECTION AND REPORTING REQUIREMENTS.
3. PIPE DETAILS ON LONG SECTION CLEARLY SHOWS PIPE TYPE/MATERIAL, PIPE Ø/SIZE, PIPE CLASS, BEDDING TYPE AND ULTIMATE PIPE/ASSET OWNERSHIP.
4. ACCEPTABLE PIPE LOAD DESIGN SOFTWARE FOR REINFORCED CONCRETE PIPE (FRCP/SRCP):
   - PipeClass: DEVELOPED BY CONCRETE PIPE ASSOCIATION OF AUSTRALASIA (www.cpaa.org.au).
5. MINIMUM PIPE COVER FOR TYPICAL CONSTRUCTION AND COMPACTION EQUIPMENT TO BE SHOWN ON DESIGN DRAWINGS.
6. FOR FLEXIBLE (POLYETHYLENE/POLYPROPYLENE) PIPE TYPES, REFER MANUFACTURERS REQUIREMENTS FOR DESIGN AND CONSTRUCTION LOADINGS.
7. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

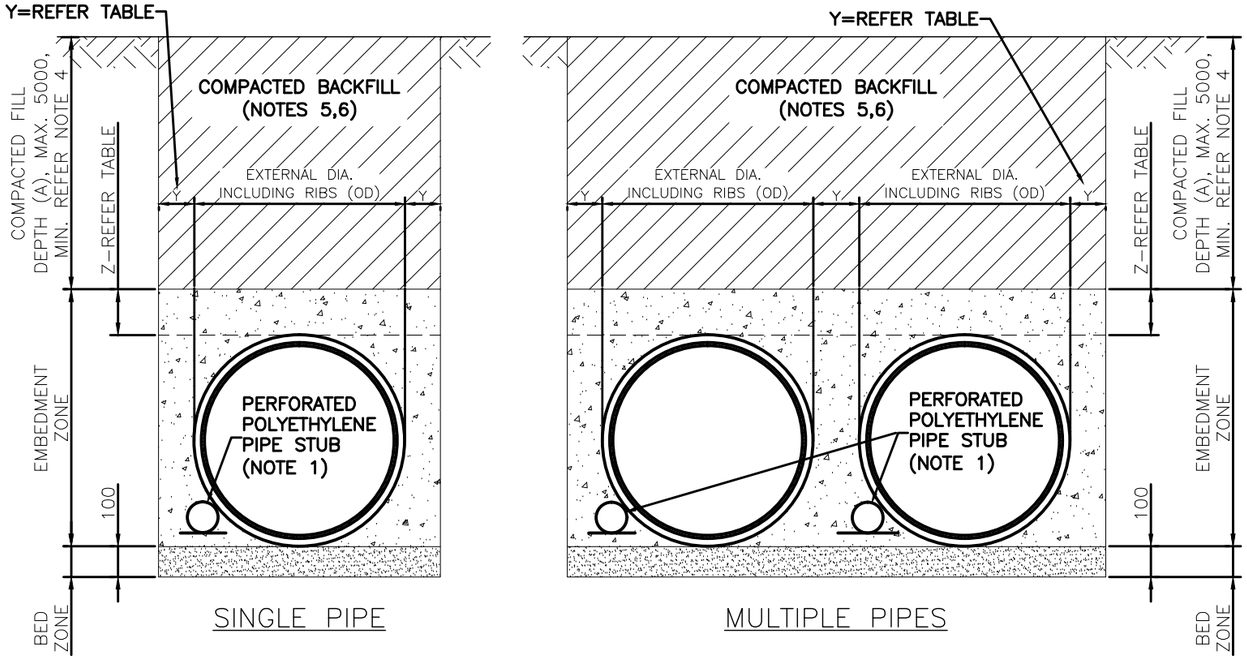
BRISBANE CITY COUNCIL STANDARD DRAWING

CONSTRUCTION LOADING TYPICAL DETAIL REQUIREMENTS FOR LONG SECTION DRAWINGS

PUBLISH DATE	
MAR 2021	
SCALE	
NOT TO SCALE	
DRAWING NUMBER	
BSD-8003	
ORIGINAL SIZE	REVISION
A3	C



RIGID PIPE



FLEXIBLE PIPE

NOTES:

1. UNLESS DIRECTED OTHERWISE, PROVIDE PIPE STUB TO DEWATER DRAINAGE TRENCH. STUB TO BE 1000mm LONG x 100mm DIA. CORRUGATED POLYETHYLENE PIPE CLASS 400 TO AS 2439 (WITH END CAP) INSTALLED ON THE UPSTREAM FACE OF MANHOLES.
2. BED ZONE MATERIAL: 5mm OR 10mm SCREENINGS, OR ALTERNATIVELY WASHED SCREENED BEDDING SAND TO GRADING SPECIFIED BELOW TO BED ZONE.

SIEVE SIZE(mm)	PASSING (% BY WEIGHT)
9.5	100
4.75	95–100
2.36	75–90
1.18	15–25
0.60	10–20
0.30	5–10
0.15	0–5

3. EMBEDMENT ZONE MATERIAL: 5mm OR 10mm SCREENINGS.
4. FOR FLEXIBLE PIPES, DEPTH OF COMPACTED BACKFILL (A) VARIES:
   - MINIMUM 600 TO UNDERSIDE OF CONSTRUCTED PAVEMENT OR;
   - MINIMUM 750 TO FINISHED SURFACE LEVEL (WHICHEVER IS GREATER).
5. COMPACTED BACKFILL UNDER ROADS (RIGID AND FLEXIBLE PIPES): GRANULAR FILL COMPRISING CRUSHED ROCK (75mm MAXIMUM SIZE, NON PLASTIC OPEN GRADED MATERIAL) OR CRUSHER RUN RECYCLED CONCRETE. WHERE APPROVED UNDER SPECIAL CIRCUMSTANCES, STABILISED SAND (1 PART CEMENT TO 12 PARTS SAND BY VOLUME) OR CONTROLLED LOW STRENGTH MATERIAL OR LEAN MIX CONCRETE OR CLASS 3 MATERIAL MAY BE PERMITTED.
6. COMPACTED BACKFILL UNDER FOOTPATHS AND BIKEWAYS (RIGID AND FLEXIBLE PIPES): EXCAVATED MATERIALS PROVIDED ADEQUATE COMPACTION CAN BE OBTAINED. ALTERNATIVELY USE GRANULAR FILL OR SAND.
7. INCREASE EXCAVATION LOCALLY AT SPIGOT AND SOCKET JOINTS (RIGID PIPES) TO ENSURE MINIMUM BOTTOM COVER AS SHOWN.
8. DIMENSIONS IN MILLIMETRES (U.N.O.).

FLEXIBLE PIPE SPACINGS 'Y' & 'Z'

EXTERNAL DIA. (OD)	SPACING 'Y'	SPACING 'Z'
>150, ≤300	150	150
>300, ≤450	200	
>450, ≤900	300	
>900, ≤1500	350	200
>1500	OD/4	300

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q: 3852
DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER ROADS AND DRAINAGE

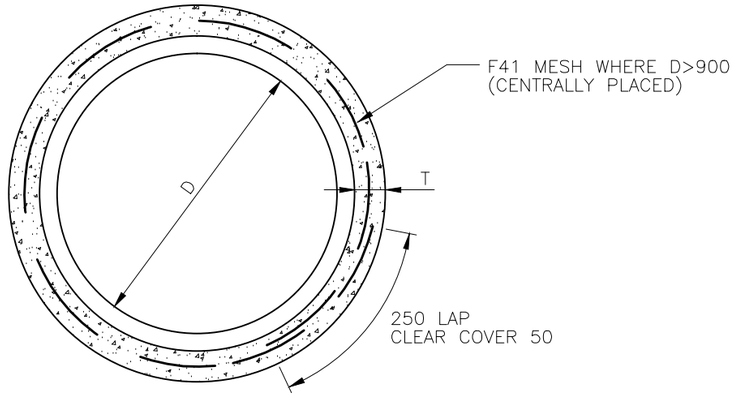
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8011 (A) Bedding methods for rigid and flexible drainage pipes		
ASSOCIATED PLANS	SUPERSEDES UMS-311		

BRISBANE CITY

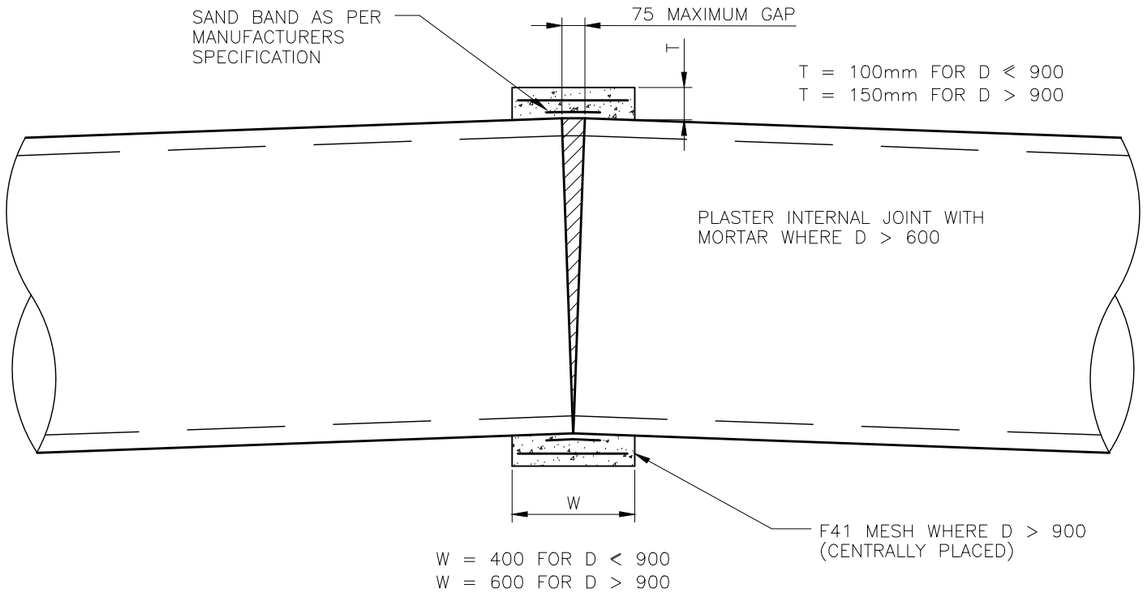
BRISBANE CITY COUNCIL STANDARD DRAWING

BEDDING METHODS FOR RIGID AND FLEXIBLE DRAINAGE PIPES

SCALE: NOT TO SCALE
DWG No.: BSD-8011
ORIGINAL SIZE: A3
REVISION: A



CROSS–SECTION



LONGITUDINAL SECTION

NOTES:

1. THIS STANDARD IS NOT PERMITTED FOR NEW SUBDIVISIONS/DEVELOPMENTS. IT IS ONLY TO BE USED BY COUNCIL TO UPGRADE EXISTING RELIEF DRAINAGE SYSTEMS WHERE ALTERNATIVES ARE IMPRACTICAL.
2. DEFLECTION JOINTS MAY BE PERMITTED AT CHANGES IN GRADE AND DIRECTION ONLY IF APPROVED BY MANAGER ASSET SUPPORT OR DELEGATE.
3. MORTAR TO BE 3 PARTS SAND TO 1 PART CEMENT BY VOLUME.
4. CONCRETE TO BE GRADE N20.
5. DIMENSIONS IN MILLIMETRES (UNO).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q: 3852
DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8012 (A) Deflection joint for concrete pipes.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-312		

BRISBANE CITY

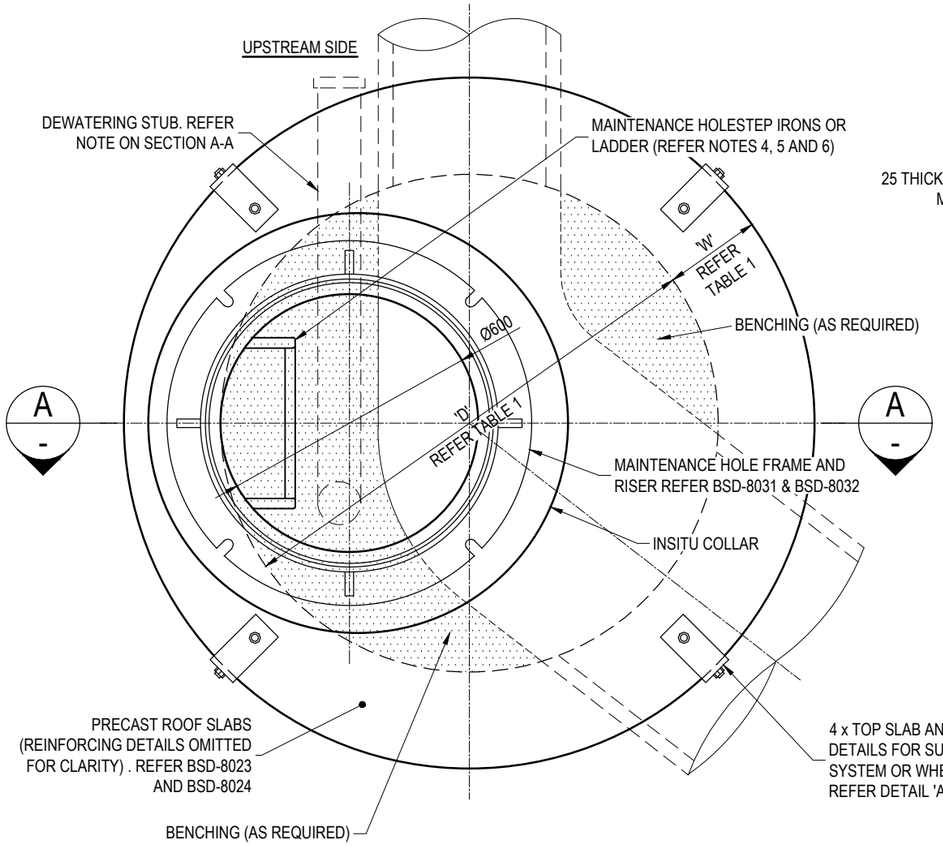
BRISBANE CITY COUNCIL STANDARD DRAWING

DEFLECTION JOINT FOR CONCRETE PIPES

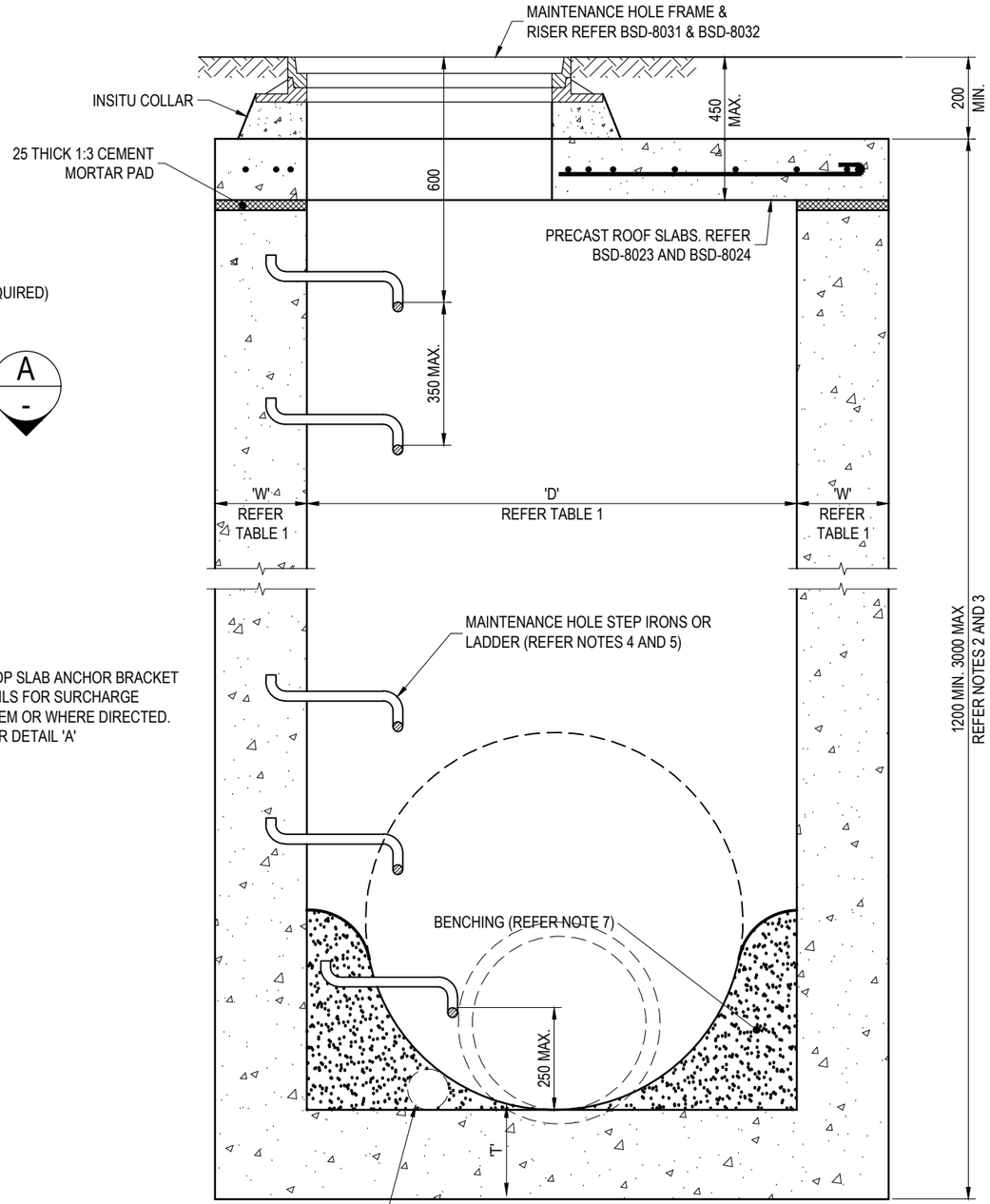
SCALE: NOT TO SCALE
DWG No.: BSD–8012
ORIGINAL SIZE: A3
REVISION: A

NOTES:

1. CONCRETE TO WALLS AND FLOOR TO BE GRADE N25.
2. MAINTENANCE HOLE DESIRABLE MINIMUM AND MAXIMUM DEPTHS TO 1200 AND 3000 RESPECTIVELY.
3. MAINTENANCE HOLES DEEPER THAN 3000 TO BE INDIVIDUALLY DESIGNED AND CERTIFIED BY A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
4. INSTALL STEP IRONS OR FIXED ACCESS LADDER TO MAINTENANCE HOLES ACCORDANCE WITH *AS1657*.
   - INSTALL STEP IRONS TO MAINTENANCE HOLES UP TO 3000 DEEP;
   - INSTALL FIXED ACCESS LADDER TO MAINTENANCE HOLES DEEPER THAN 3000 DEEP;
   - STAINLESS STEEL LADDERS TO BE USED IN AGGRESSIVE OR MARINE ENVIRONMENTS OR AS DIRECTED.
5. ALTERNATIVE STEP IRON OR LADDER MATERIALS COMPLYING TO *AS1657* MAY BE USED UPON APPLICATION TO COUNCIL.
6. PROVIDE 150 MINIMUM CLEAR DISTANCE BETWEEN INLET PIPES. PROVIDE BENCHING AS REQUIRED BY DESIGN ON THE FLOOR OF MAINTENANCE HOLE (TO HALF THE DIAMETER OF THE OUTLET PIPE) FOR COMPLEX MAINTENANCE HOLES WITH MORE THAN 2 INLET PIPES.
7. FRAME AND RISER MAY BE BOLTED TO TOP SLAB WITH 4xM20 BOLTS AND NUTS WITH FLAT AND SPRING WASHERS. BOLTS TO BE EITHER CAST IN-SITU AS PART OF TOP SLAB OR CHEMICALLY FASTENED TO TOP SLAB POST CONSTRUCTION. REFER BSD-8031 FOR FRAME DETAILS AND BSD-8032 FOR RISER DETAILS.
8. PRINCIPLES TO MINIMISE HYDRAULIC HEAD LOSS AT MAINTENANCE HOLE:
   - REDUCE CHANGES IN DIRECTION TO A MINIMUM.
   - AVOID "OPPOSED LATERAL" SITUATIONS BY LOCATING ALL INCOMING PIPES WITHIN A 90° ARC.
   - AVOID VERTICAL MISALIGNMENT (DROP MAINTENANCE HOLES) IF POSSIBLE, UNLESS THERE IS A DELIBERATE ATTEMPT TO REDUCE VELOCITY.
   - WHERE POSSIBLE DIRECT INLET PIPES WHOLLY INTO THE BARREL OF OUTLET PIPE.
   - PROVIDE GEOMETRY SUCH THAT THE CHANGE OF DIRECTION OCCURS AT OR NEAR THE DOWNSTREAM FACE OF THE MAINTENANCE HOLE.
8. APPLY HEAVY GREASE TO FRAME SEAT PRIOR TO INSTALLING COVER.
9. RISER TO BE OMITTED FOR NON-ROADWAY MAINTENANCE HOLES.
10. DIMENSIONS IN MILLIMETRES (U.N.O.).



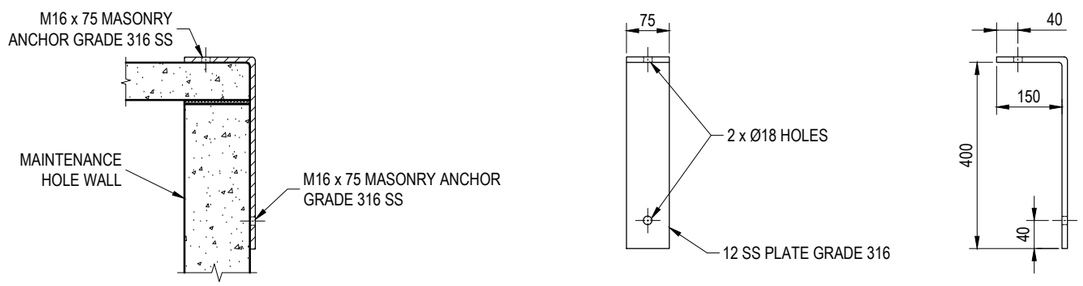
PLAN VIEW



TYPICAL SECTION A-A

TABLE 1 - MAINTENANCE HOLE WALL THICKNESS

MANHOLE DIAMETER 'D'	ROOF SLAB DIAMETER	WALL THICKNESS 'W'	DIMENSION 'T' FOR MH INVERT GRADE	
			INLET/S	OUTLET
1050	1350	150	175	150
1200	1650	225	250	225
1350	1800			
1500	1950			



DETAIL 'A' - TOP SLAB ANCHOR BRACKET DETAILS FOR SURCHARGE SYSTEM OR WHERE DIRECTED

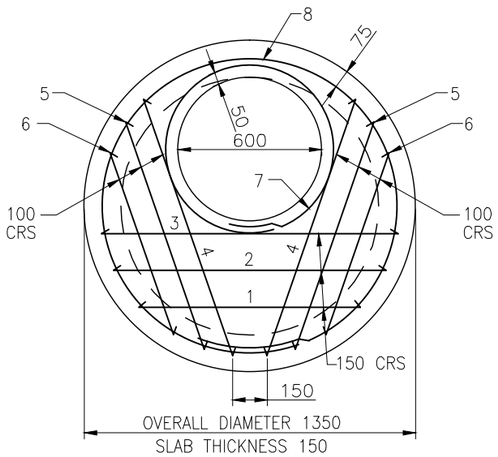
THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHALL BE ASSESSED AND ACCEPTED BY A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER MAINTENANCE HOLE DETAILS - 1050 TO 1500 DIAMETER TO 3.0m DEEP

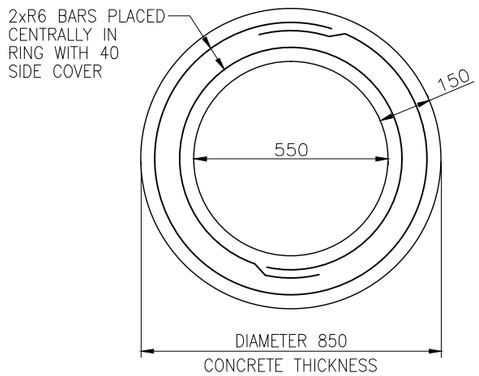
PUBLISH DATE	MAR 2021
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8021
ORIGINAL SIZE	A3
REVISION	D



BAR No.	SHAPE	'a'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		937	1175	1	1175
2	'a'	1125	1350	1	1350
3		1225	1450	1	1450
4		1125	1350	2	2700
5		1000	1225	2	2450
6		812	1050	2	2100
7	'a'	700	2600	1	2600
8		1200	4200	1	4200
				TOTAL	18025

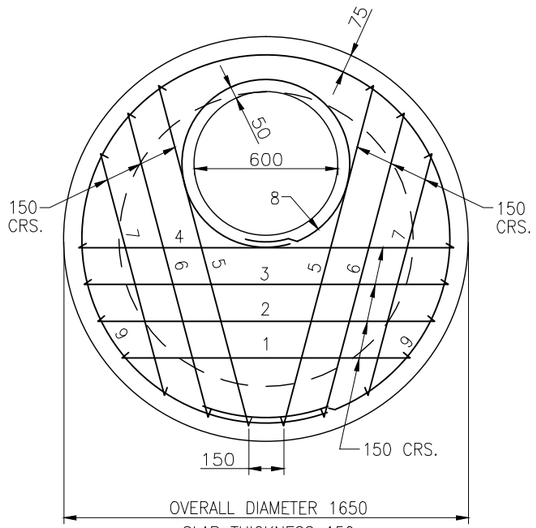
STEEL MASS : 18kg
CONCRETE : 0.2m3
TOTAL MASS : 430kg

1350 DIA M.H. ROOF SLAB (FOR 1050 I.D. MANHOLES)



MANHOLE RING

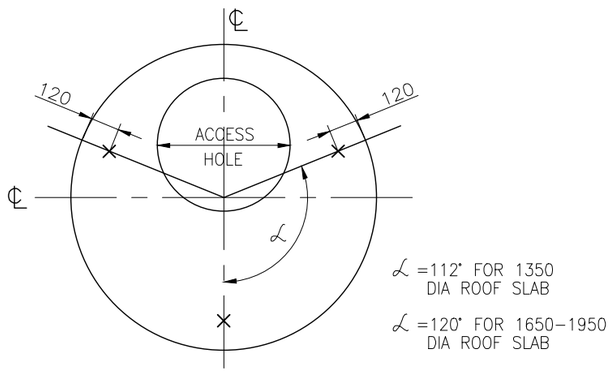
FOR USE IN RAISING COVERS AND FRAMES OF EXISTING MANHOLES



BAR No.	SHAPE	'a'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		1200	1425	1	1425
2		1400	1625	1	1625
3	'a'	1500	1725	1	1725
4		1537	1775	1	1775
5		1450	1675	2	3350
6		1300	1525	2	3050
7		1050	1275	2	2550
8	'a'	700	2600	1	2600
9		1500	5150	1	5150
				TOTAL	23250

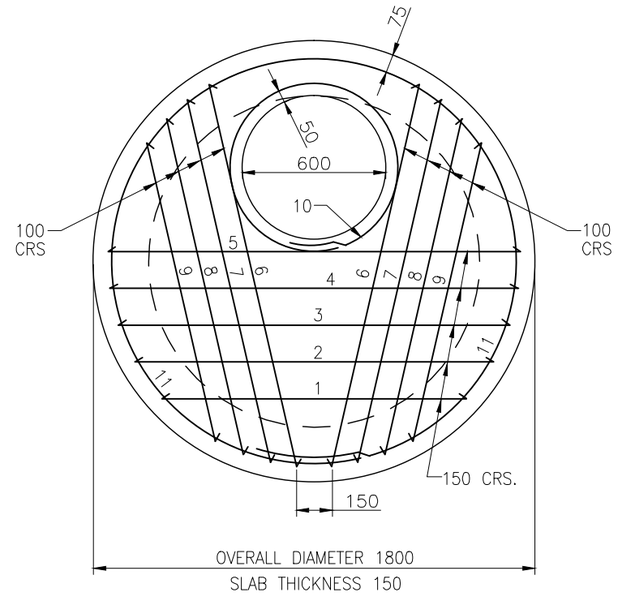
STEEL MASS : 24kg
CONCRETE : 0.3m3
TOTAL MASS : 705kg

1650 DIA M.H. ROOF SLAB (FOR 1200 I.D. MANHOLES)



LIFTING ANCHOR LOCATIONS

(SEE NOTE No. 5)



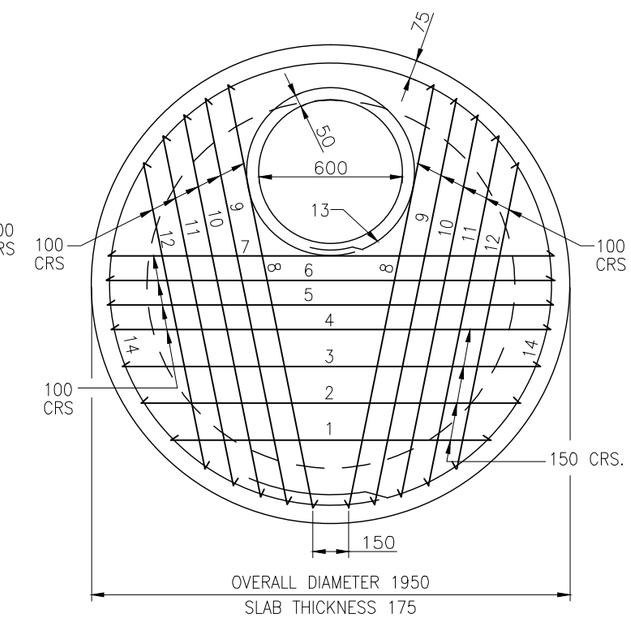
BAR No.	SHAPE	'a'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		1275	1500	1	1500
2		1488	1725	1	1725
3	'a'	1612	1850	1	1850
4		1675	1900	1	1900
5		1675	1900	1	1900
6		1600	1825	2	3650
7		1525	1750	2	3500
8		1412	1650	2	3300
9		1262	1500	2	3000
10	'a'	700	2600	1	2600
11		1650	5625	1	5625
				TOTAL	30550

STEEL MASS : 31kg
CONCRETE : 0.35m3
TOTAL MASS : 830kg

1800 DIA M.H. ROOF SLAB (FOR 1350 I.D. MANHOLES)

NOTES:

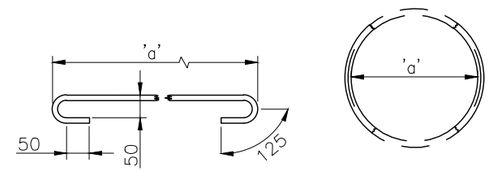
1. ALL BARS 12 DIA – STRUCTURAL GRADE (400Y) TO AS 1302.
2. CONCRETE CLEAR COVER 30 (BOTTOM FACE).
3. PRECAST CONCRETE TO BE GRADE N40 CONFORMING TO AS 3600.
4. DESIGN LOADING AUSTROADS W7.
5. EACH LIFTING ANCHOR TO BE "SWIFTLIFT" OR EQUIVALENT. 1.3 TONNE,GALVANISED AND FITTED TO MANUFACTURERS SPECIFICATION.
6. DIMENSIONS IN MILLIMETRES (UNO).



BAR No.	SHAPE	'a'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		1337	1575	1	1575
2		1575	1800	1	1800
3		1712	1950	1	1950
4		1800	2025	1	2025
5	'a'	1825	2050	1	2050
6		1837	2075	1	2075
7		1825	2050	1	2050
8		1762	2000	2	4000
9		1700	1925	2	3850
10		1600	1825	2	3650
11		1462	1700	2	3400
12		1275	1500	2	3000
13	'a'	700	2600	1	2600
14		1800	6100	1	6100
				TOTAL	40125

STEEL MASS : 40kg
CONCRETE : 0.5m3
TOTAL MASS : 1015kg

1950 DIA M.H. ROOF SLAB (FOR 1500 I.D. MANHOLES)



ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q. 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER ROADS AND DRAINAGE

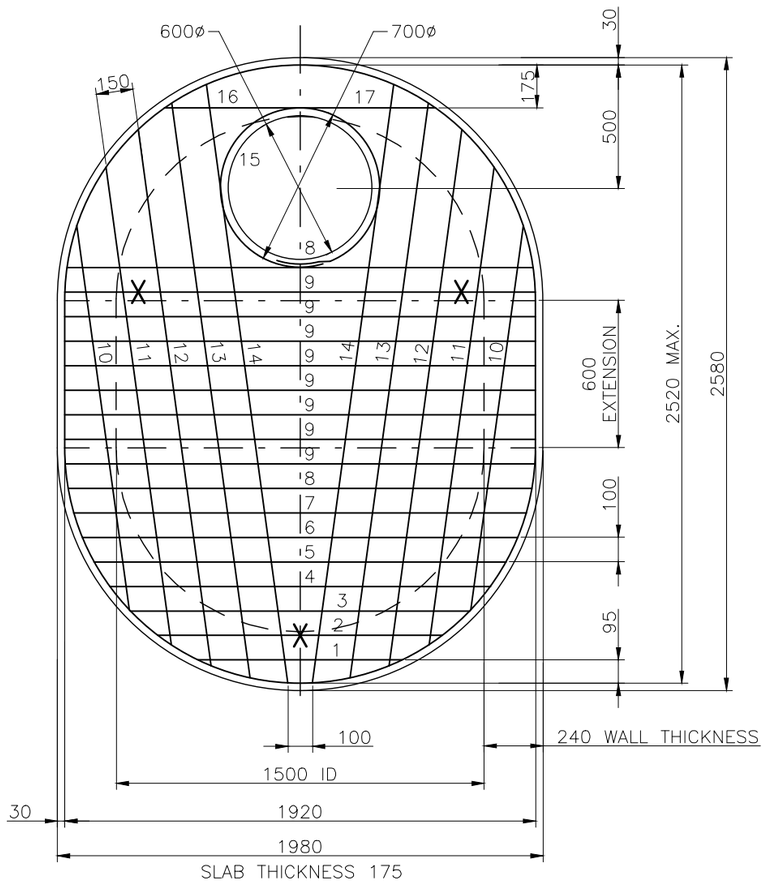
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8023 (A) Maintenance hole roof slab 1350 to 1950 diameter.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-322		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

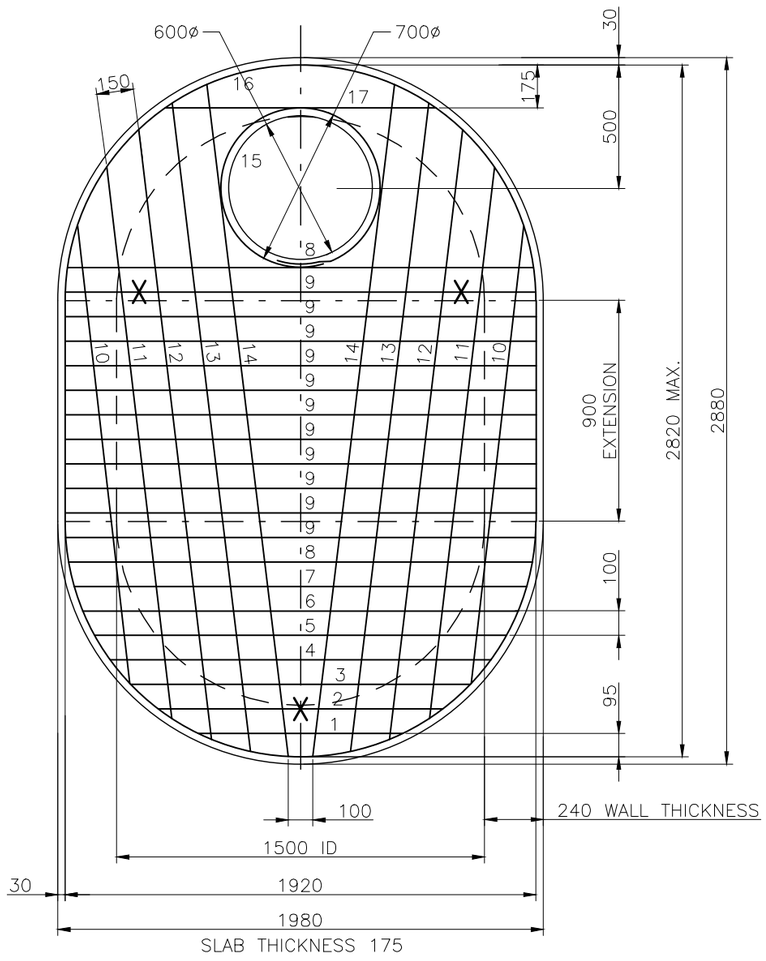
MANHOLE ROOF SLAB 1350 TO 1950 DIAMETER

SCALE: NOT TO SCALE
DWG No.: BSD–8023
ORIGINAL SIZE: A3
REVISION: A



1980 DIA. ROOF SLAB EXTENDED 600

(FOR 1500 ID MAINTENANCE HOLES EXTENDED 600)



1980 DIA. ROOF SLAB EXTENDED 900

(FOR 1500 ID MAINTENANCE HOLES EXTENDED 900)

NOTES:

1. ALL BARS 12mm DIA. 400Y TO AS 1302.
2. PRECAST CONCRETE TO BE GRADE N40, AND TO CONFORM TO AS 3600.
3. CONCRETE TO HAVE CLEAR COVER 30mm (BOTTOM FACE).
4. DESIGN LOADING AUSTROADS W7.
5. EACH LIFTING ANCHOR TO BE "SWIFTLIFT" OR EQUIVALENT 1.3 TONNE, GALVANISED AND FITTED TO MANUFACTURERS SPECIFICATION AT POINTS SHOWN X.
6. LIFTING CAPACITY OF MECHANICAL DEVICES TO BE NOT LESS THAN 4 TONNES.
7. DIMENSIONS IN MILLIMETRES (UNO).

1980 DIA ROOF SLAB EXTENDED 600

BAR NO.	SHAPE	LENGTH	NO. OFF	TOTAL
1		835	1	835
2		1160	1	1160
3		1385	1	1385
4		1550	1	1550
5		1680	1	1680
6		1775	1	1775
7		1845	1	1845
8		1890	2	3780
9		1920	8	15360
10		1560	2	3120
11		1920	2	3840
12		2170	2	4340
13		2300	2	4600
14		2450	2	4900
15		2600	1	2600
16		7195	1	7195
17		1105	1	1105
			TOTAL LENGTH	61070

STEEL MASS 54.2 kg
CONCRETE MASS 1950 kg
TOTAL MASS 2005 kg
VOLUME OF CONCRETE $0.8m^3$

1980 DIA ROOF SLAB EXTENDED 900

BAR NO.	SHAPE	LENGTH	NO. OFF	TOTAL
1		835	1	835
2		1160	1	1160
3		1385	1	1385
4		1550	1	1550
5		1680	1	1680
6		1775	1	1775
7		1845	1	1845
8		1890	2	3780
9		1920	11	21120
10		1800	2	3600
11		2200	2	4400
12		2470	2	4940
13		2650	2	5300
14		2750	2	5500
15		2600	1	2600
16		7795	1	7795
17		1105	1	1105
			TOTAL LENGTH	70370

STEEL MASS 62.5 kg
CONCRETE MASS 2940 kg
TOTAL MASS 3004 kg
VOLUME OF CONCRETE $1.2m^2$

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL'16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8024 (B) Maintenance hole roof slabs 1980 diameter extended 600 and 900.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-323		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

MAINTENANCE HOLE ROOF SLABS 1980 DIAMETER EXTENDED 600 AND 900

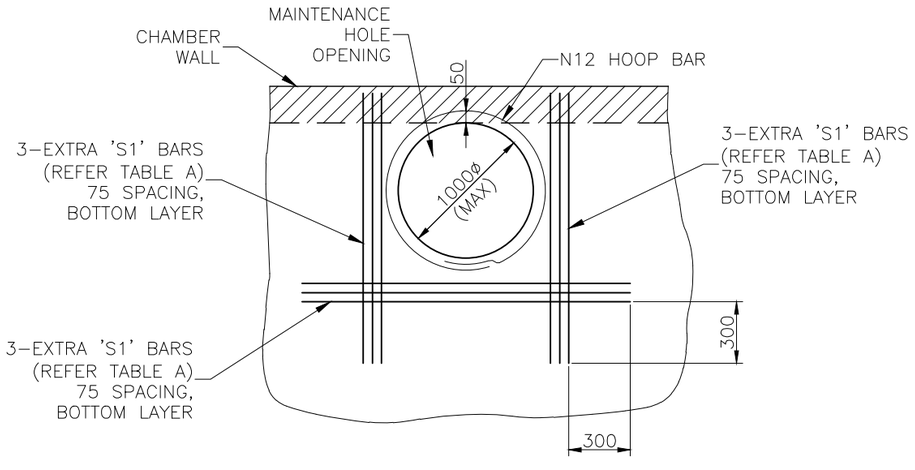
SCALE NOT TO SCALE
DWG No. BSD-8024
ORIGINAL SIZE A3
REVISION B

SHORT SPAN \ LONG SPAN	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	SLAB DEPTH
1200	N12 AT 150	N16 AT 200	N16 AT 200	N16 AT 200	N16 AT 175	N16 AT 175	N16 AT 175	N16 AT 150	N16 AT 150	N16 AT 150	200
1400		N12 AT 150	N16 AT 200	N16 AT 200	N16 AT 175	N16 AT 175	N16 AT 150	N16 AT 150	N16 AT 150	N16 AT 150	200
1600			Y12 AT 150	N16 AT 200	N16 AT 200	N16 AT 175	N16 AT 150	N16 AT 150	N16 AT 150	N16 AT 150	200
1800				N12 AT 150	N16 AT 200	N16 AT 200	N16 AT 200	N16 AT 175	N16 AT 175	N16 AT 175	225
2000					N12 AT 150	N16 AT 200	N16 AT 200	N16 AT 200	N16 AT 175	N16 AT 175	225
2200						N12 AT 150	N16 AT 200	N16 AT 200	N16 AT 175	N16 AT 175	225
2400							N16 AT 200	N16 AT 200	N16 AT 200	N16 AT 175	225
2600								N16 AT 200	N16 AT 200	N16 AT 175	250
2800									N16 AT 200	N16 AT 175	250
3000										N16 AT 175	250

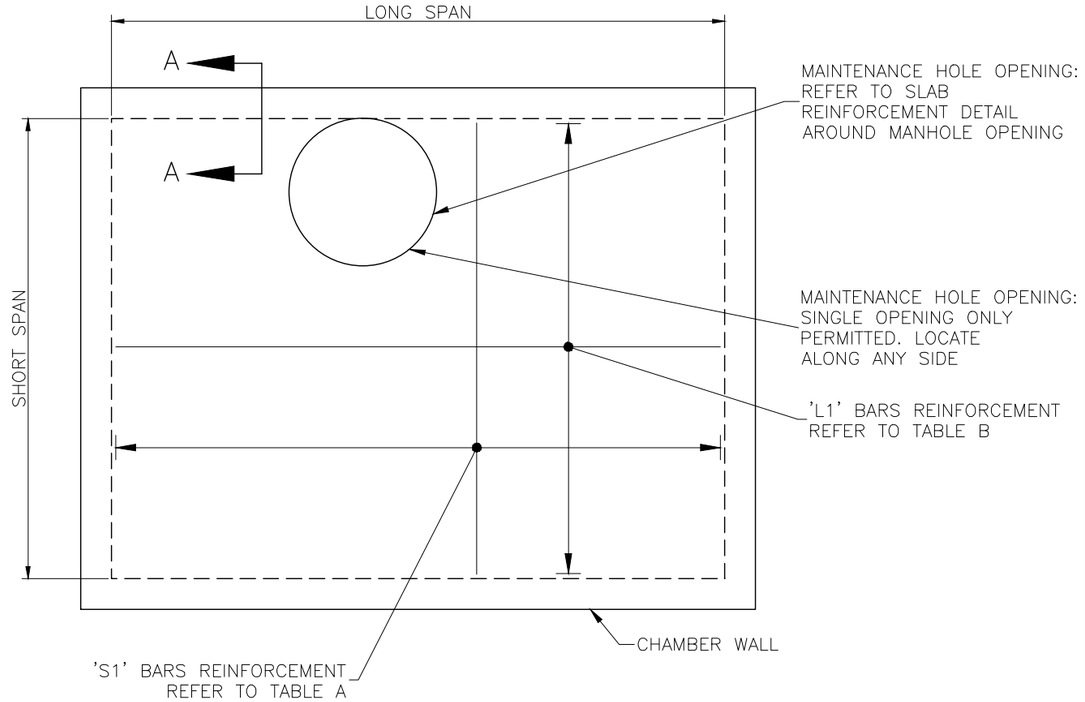
TABLE A : 'S1' BARS

SHORT SPAN \ LONG SPAN	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	SLAB DEPTH
1200	N12 AT 150	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	200
1400		N12 AT 150	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	200
1600			N12 AT 150	N12 AT 150	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	200
1800				N12 AT 150	N12 AT 150	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	225
2000					N12 AT 150	N12 AT 150	N12 AT 200	N12 AT 200	N12 AT 200	N12 AT 200	225
2200						N12 AT 150	N12 AT 150	N12 AT 200	N12 AT 200	N12 AT 200	225
2400							N16 AT 200	N12 AT 150	N12 AT 150	N12 AT 150	225
2600								N16 AT 200	N16 AT 200	N16 AT 200	250
2800									N16 AT 200	N16 AT 200	250
3000										N16 AT 175	250

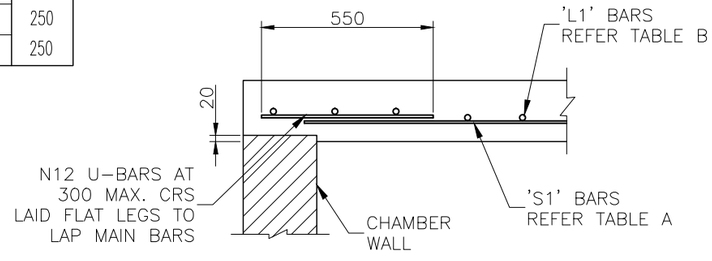
TABLE B : 'L1' BARS



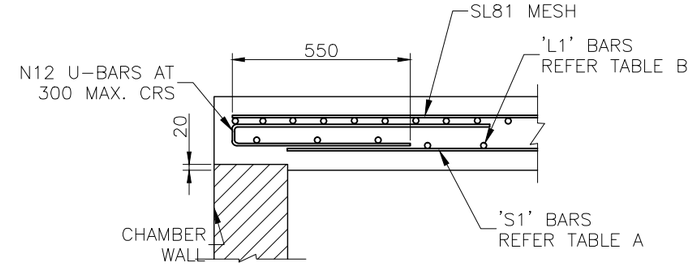
SLAB REINFORCEMENT AROUND MAINTENANCE HOLE OPENING



TYPICAL SLAB REINFORCEMENT



FOR 200 THICK SLAB



FOR 225, 250 THICK SLAB

TYPICAL EDGE SECTIONS A–A

NOTES:

1. CONCRETE TO BE CONSTRUCTED IN ACCORDANCE WITH AS 3600.
2. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS 3610.
3. ALL CONCRETE TO BE GRADE N32. 80mm SLUMP NOMINAL AGGREGATE SIZE OF 20mm.
4. ALL LAPS IN REINFORCEMENT SHALL BE: N12–300, N16–400.
5. MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 45mm.
6. COVER TO REINFORCEMENT SHALL BE MAINTAINED DURING POURING BY THE USE OF APPROVED CHAIRS.
7. DESIGNED TO "AUSTROADS – BRIDGE DESIGN CODE 1992".
8. NOT TO BE USED IN TIDAL AREAS.
9. DIMENSIONS IN MILLIMETRES (UNO).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01

MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

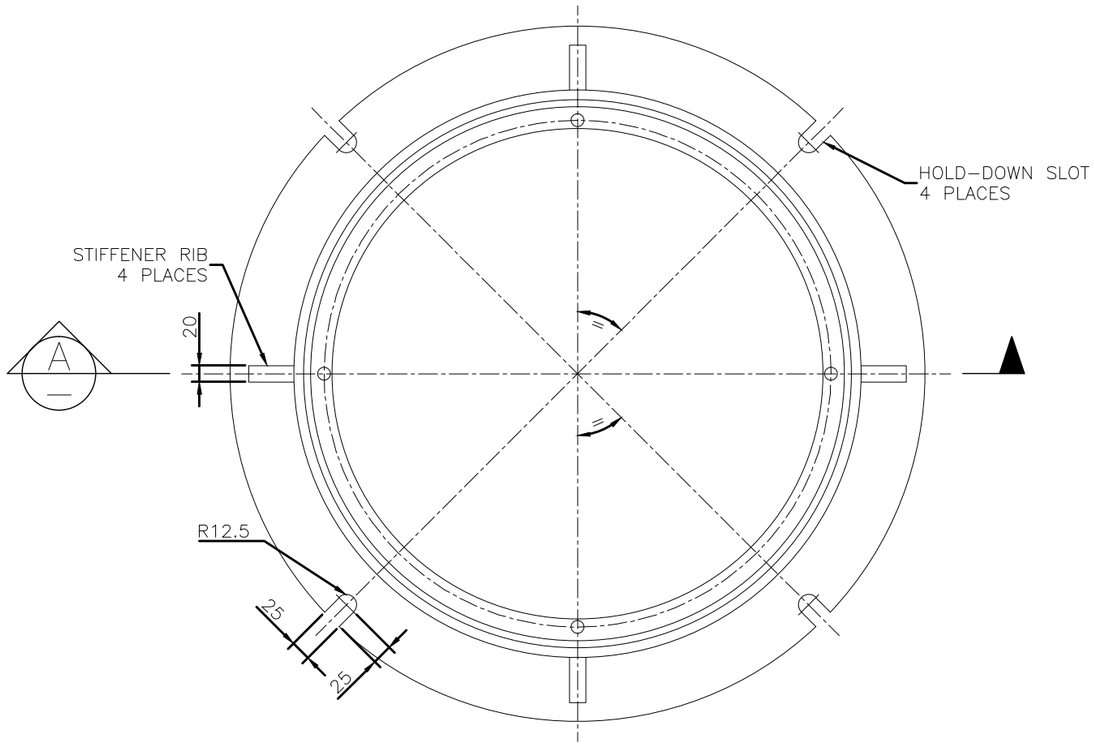
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8025 (B) Reinforced concrete roof slabs for maintenance hole chambers.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-324		

BRISBANE CITY

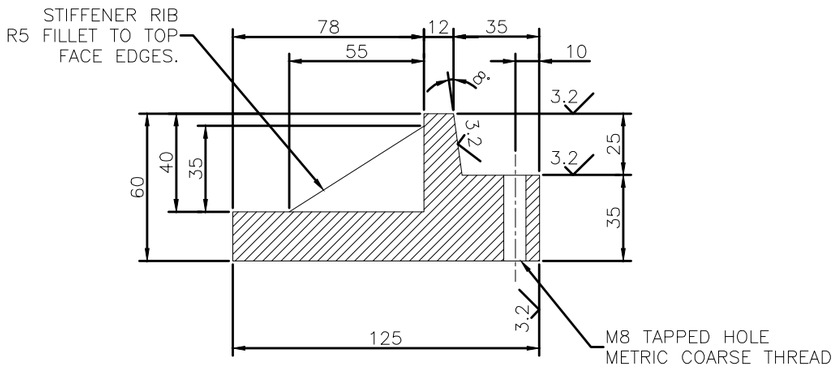
BRISBANE CITY COUNCIL STANDARD DRAWING

REINFORCED CONCRETE ROOF SLABS FOR MAINTENANCE HOLE CHAMBERS

SCALE: NOT TO SCALE
DWG No.: BSD–8025
ORIGINAL SIZE: A3
REVISION: B

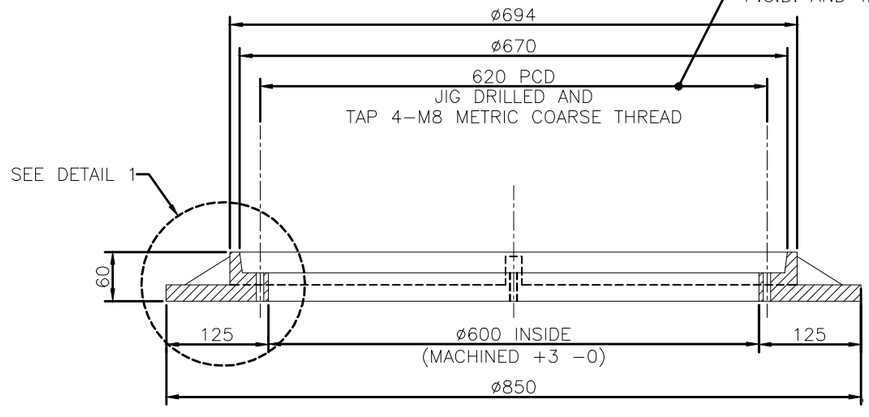


PLAN



DETAIL 1

NOTE:
GAUGE SHALL BE USED TO CHECK
P.C.D. AND TAPPED HOLE POSITION.



SECTION A—A
SCALE NTS

SPECIAL NOTE – ROADWAY USE

COVERS, FRAMES AND 35mm RISER RINGS (MIN.) TO BE SUPPLIED ASSEMBLED.
(RISER MUST BE USED WITH FRAME WHEN USED WITH ROADWAY MANHOLE COVER)

NOTES:

1. ALL EDGES TO BE SQUARE.
2. CASTING TO BE FREE OF BURRS AND PITS.
3. MATERIAL
   GREY CAST IRON (AS 1830)
   TENSILE STRENGTH: T220
   HARDNESS: 145–185 (HB)
   DESIGN LOAD: 210kN (AS 3996)
   MASS: 59.5Kg
4. TOLERANCES
   CAST SIZE: ±1.00mm
   ANGLE PROFILE: ±0.25°
   MACHINED SIZE: ±0.125mm
   OVERALL DIAMETER OF COVER: +0mm–0.25mm
   DRY FILM THICKNESS (DFT) OF COATING: 50µm
5. MACHINE SURFACE SYMBOL: 3.2
6. ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON–STICK AND GAS/WATER PROOF JOINT. (HAVTEC–HS1 OR SIMILAR)
7. DIMENSIONS IN MILLIMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

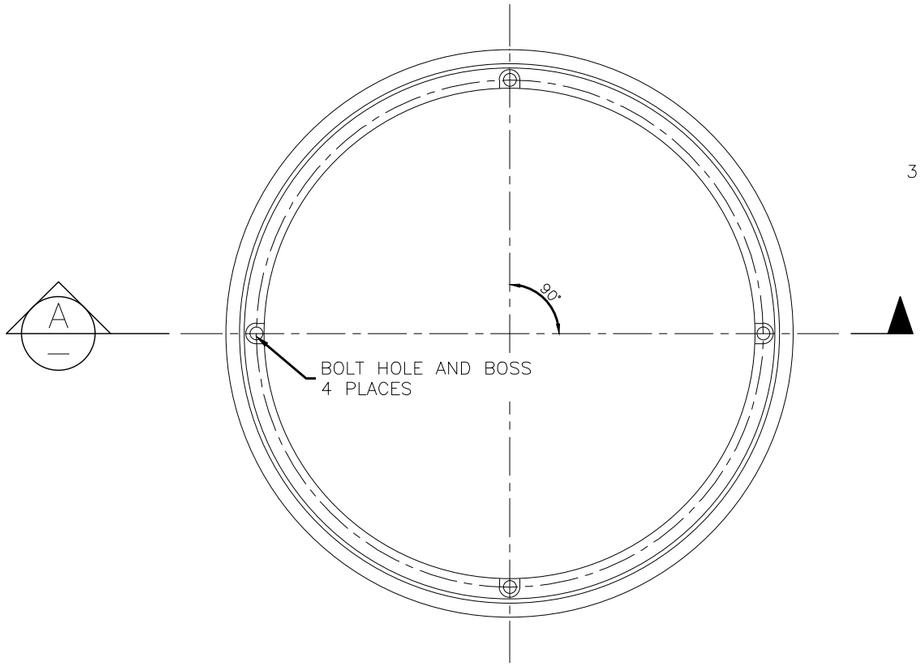
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8031 IBI Maintenance hole frame (roadway and non-roadway) 1050 to 1500 diameter.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-325		

BRISBANE CITY

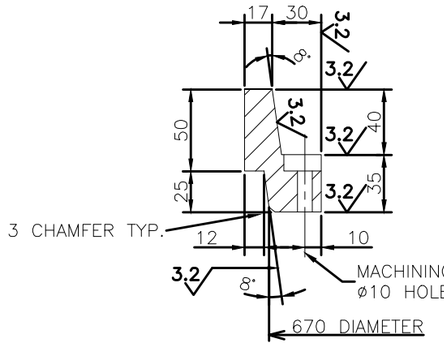
BRISBANE CITY COUNCIL STANDARD DRAWING

MAINTENANCE HOLE FRAME (ROADWAY & NON–ROADWAY) 1050 TO 1500 DIAMETER

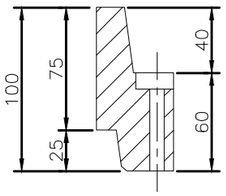
SCALE: NOT TO SCALE
DWG No.: BSD–8031
ORIGINAL SIZE: A3
REVISION: B



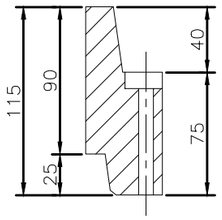
PLAN



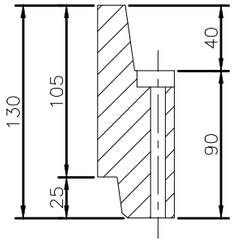
35mm RISER
MASS: 27.5kg



60mm RISER
MASS: 32kg



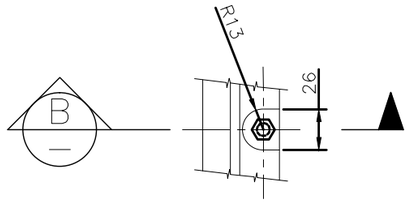
75mm RISER
MASS: 38kg



90mm RISER
MASS: 44kg

RISER DETAILS

(REFER TO 35mm RISER FOR TYPICAL DIMENSIONS FOR ALL RISERS)



PLAN OF BOLTING BOSS

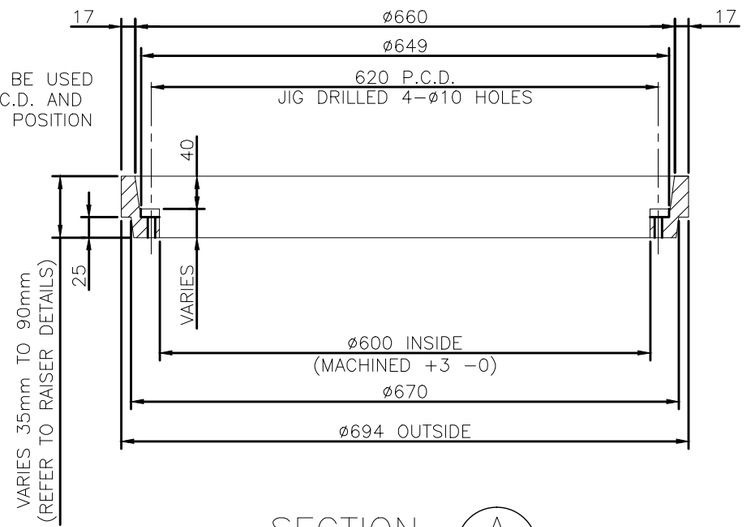
NOTES:

1. ALL EDGES TO BE SQUARE.
2. CASTING TO BE FREE OF BURRS AND PITS.
3. MATERIAL

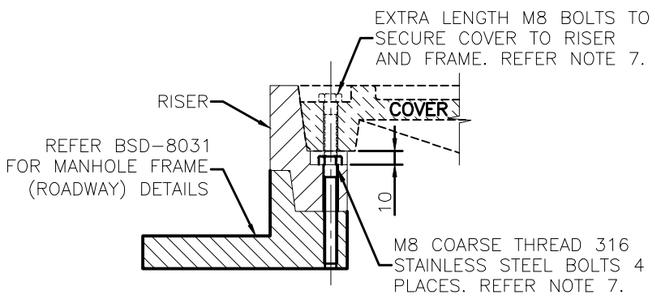
   DUCTILE CAST IRON
   TENSILE STRENGTH: 600–3 (AS 1831)
   HARDNESS: 145–185 (HB)
   DESIGN LOAD = 210kN (AS 3996)
   MASS = VARIES
4. TOLERANCES

   CAST SIZE: ±1.00mm
   ANGLE PROFILE: ±0.25°
   MACHINED SIZE: ±0.125mm
   OVERALL DIAMETER OF COVER: +0mm–0.25mm
   DRY FILM THICKNESS (DFT) OF COATING: 50µm
5. MACHINE SURFACE SYMBOL: 3.2
6. ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON–STICK AND GAS/WATER PROOF JOINT. (HAVTEC–HS1 OR SIMILAR).
7. FOUR (4) M8 COARSE THREAD STAINLESS STEEL BOLTS MUST BE SUPPLIED AND USED TO FIX RISER TO FRAME. WHERE COVER IS REQUIRED TO BE BOLTED DOWN, MIN. TWO EXTRA LENGTH BOLTS MUST BE USED TO SECURE COVER AND RAISER TO FRAME, WITH TWO REMAINING BOLTS SECURING RISER TO FRAME. REFER TABLE 1 FOR BOLT LENGTHS.
8. REFER BSD–8033 FOR COVER DETAIL.
9. DIMENSIONS IN MILLIMETRES (UNO).

NOTE:
GAUGE SHALL BE USED TO CHECK P.C.D. AND TAPPED HOLE POSITION



SECTION A
SCALE NTS



SECTION B
SCALE NTS

TABLE 1: BOLT LENGTH

RISER HEIGHT	BOLT LENGTH	
	FOR RISER ONLY	FOR RISER WITH COVER
35	60	100
60	90	130
75	110	150
90	115	160

SPECIAL NOTE – ROADWAY USE

COVERS, FRAMES AND 35mm RISER RINGS (MIN.) TO BE SUPPLIED ASSEMBLED.
(RISER MUST BE USED WITH FRAME WHEN USED WITH ROADWAY MANHOLE COVER)

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT – R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

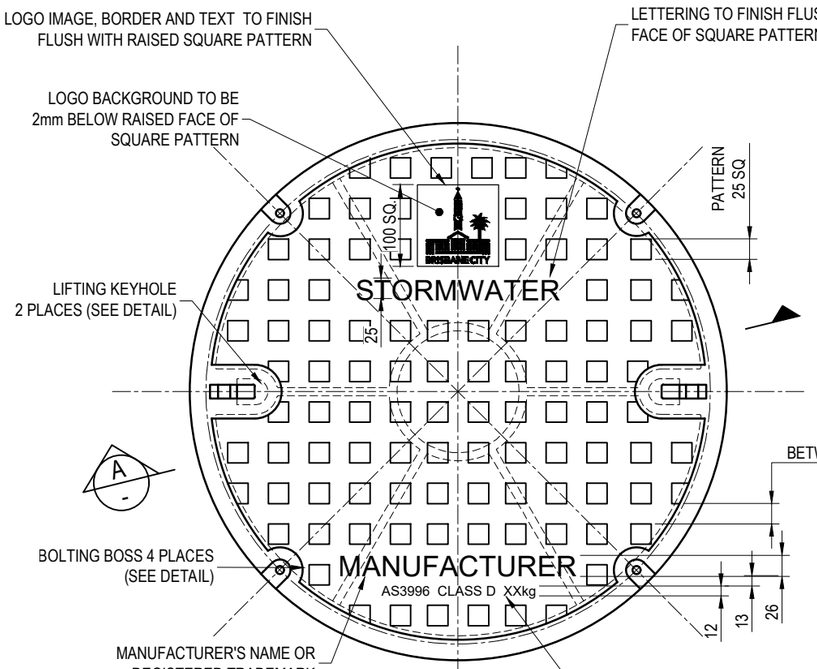
DESIGN	ST DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8032 (A) Riser details (roadway).dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-326		

BRISBANE CITY

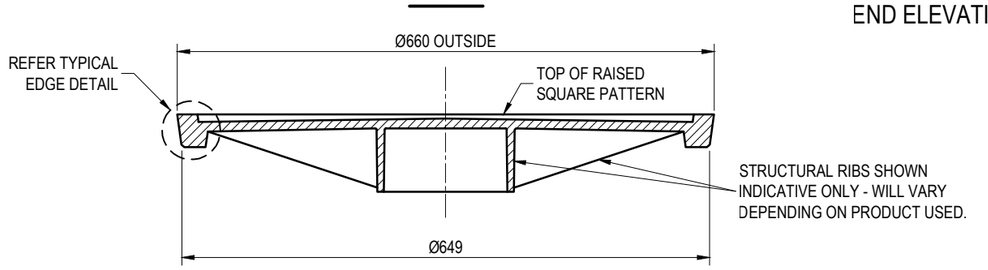
BRISBANE CITY COUNCIL STANDARD DRAWING

RISER DETAILS (ROADWAY)

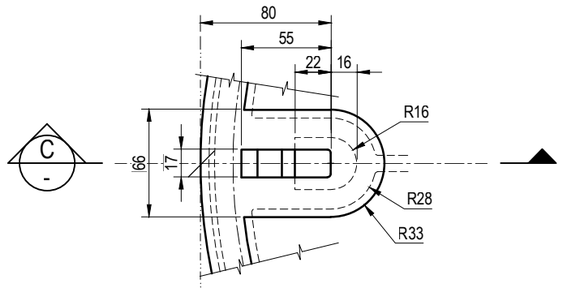
SCALE NOT TO SCALE
DWG No. BSD–8032
ORIGINAL SIZE A3
REVISION A



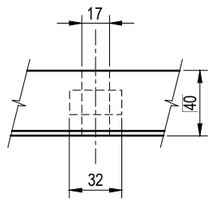
PLAN



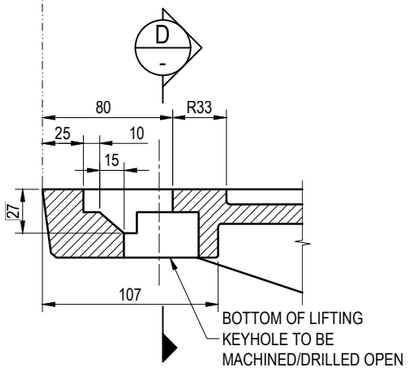
TYPICAL SECTION A
SCALE: N.T.S.

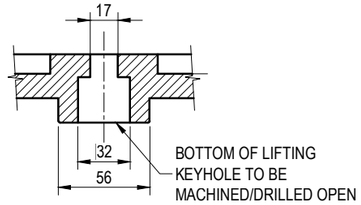


PLAN

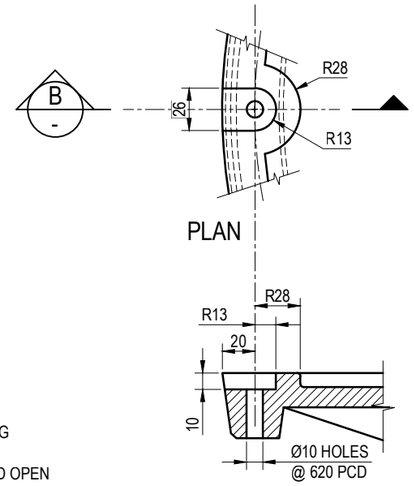


END ELEVATION





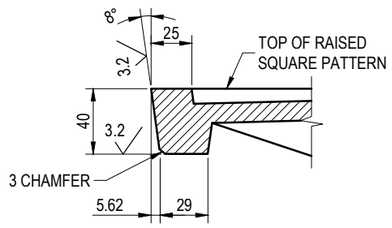
SECTION D
SCALE: N.T.S.



SECTION B
SCALE: N.T.S.

SECTION C
SCALE: N.T.S.

LIFTING KEYHOLE DETAIL



TYPICAL EDGE DETAIL

BOLTING BOSS DETAIL

SPECIAL NOTE - ROADWAY USE

COVERS, FRAMES AND 35mm RISER RINGS (MIN.) TO BE SUPPLIED ASSEMBLED.
(RISER MUST BE USED WITH FRAME WHEN USED WITH ROADWAY MANHOLE COVER)

NOTES:

1. PROPRIETARY PRODUCTS TO BE FULLY COMPATIBLE WITH BRISBANE CITY COUNCIL STANDARD MAINTENANCE HOLE FRAME (BSD-8031) AND RISER (BSD-8032). PROPRIETARY COVERS MUST BE ABLE TO BE DIRECTLY SUBSTITUTED FOR EXISTING COVERS.
2. MATERIAL: TYPICALLY CAST DUCTILE IRON. OTHER MATERIALS WILL BE CONSIDERED UPON REQUEST.
3. ALL EDGES TO BE SQUARE.
4. CASTING TO BE FREE OF BURRS AND PITS.
5. DESIGN LOAD OF COVER = CLASS 'D' TO *AS3996*.
6. MAXIMUM MASS OF COVER = 50Kg
7. TOLERANCES

CAST SIZE:	±1.00mm
ANGLE PROFILE:	±0.25°
MACHINED SIZE:	±0.125mm
OVERALL DIAMETER OF COVER:	+0mm-0.25mm
DRY FILM THICKNESS (DFT) OF COATING:	50µm

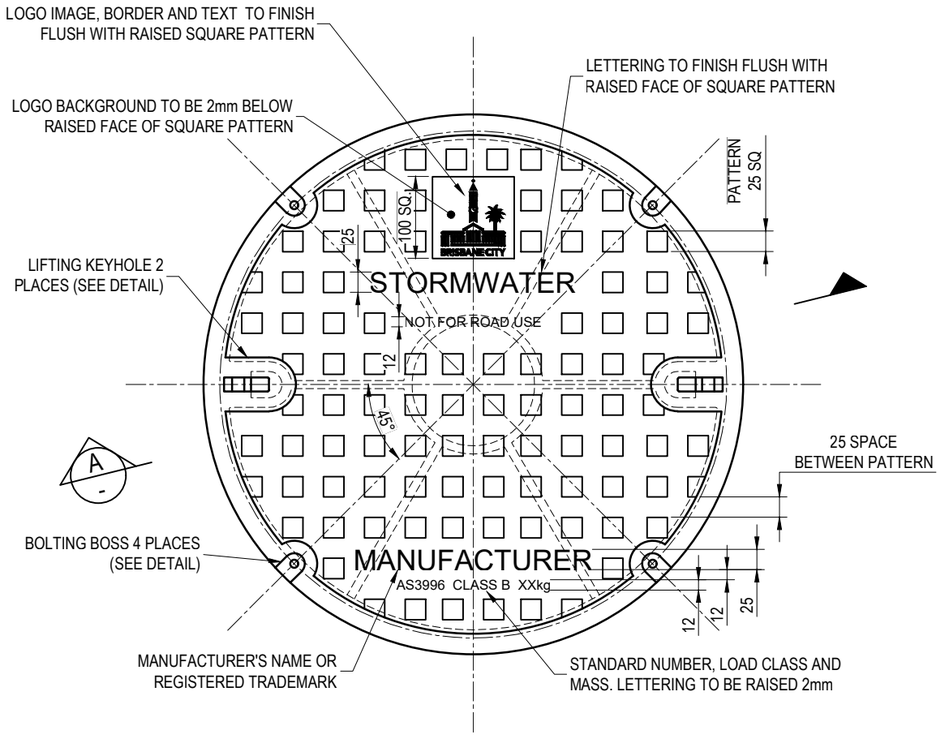
8. MACHINE SURFACE SYMBOL $\sqrt{3.2}$
9. ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON-STICK AND GAS/WATER PROOF JOINT. (HAVTEC-HS1 OR SIMILAR)
10. COVERS TO BE BOLTED DOWN IF DIRECTED BY DESIGNER. MIN. TWO EXTRA LENGTH BOLTS MUST BE USED TO SECURE COVER AND RISER TO FRAME. REFER TO BSD-8032 FOR RISER DETAIL AND BOLT LENGTHS.
11. COVER TO BE PERMANENTLY MARKED AS PER *AS3996*. MANUFACTURER NAME/REGISTERED TRADEMARK, STANDARD NUMBER AND LOAD CLASS TO BE DISPLAYED ON COVER SURFACE AS SHOWN. OTHER MARKINGS MAY BE MARKED ON THE UNDERSIDE OF THE COVER.
12. DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

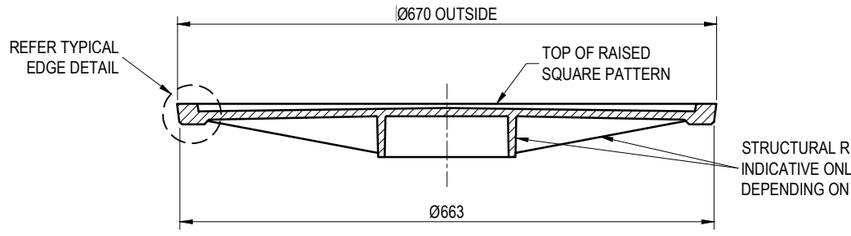
BRISBANE CITY COUNCIL STANDARD DRAWING

MAINTENANCE HOLE COVER
(ROADWAY)
1050 TO 1500 DIAMETER

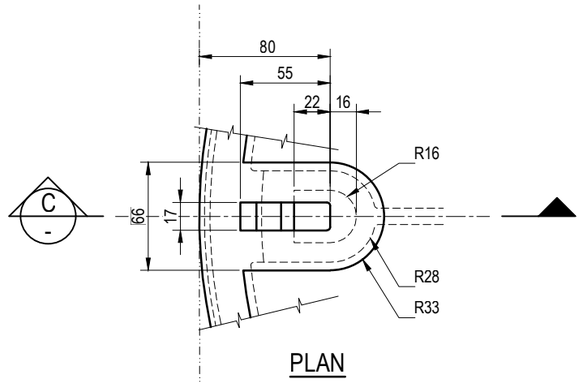
PUBLISH DATE	March 2021
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8033
ORIGINAL SIZE	A3
REVISION	C



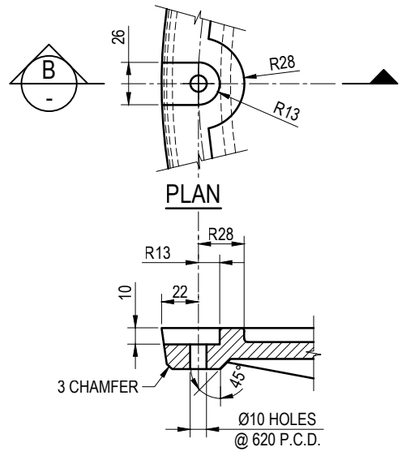
PLAN



TYPICAL SECTION A
SCALE: N.T.S.

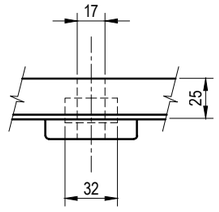


PLAN



SECTION B
SCALE: N.T.S.

BOLTING BOSS DETAIL



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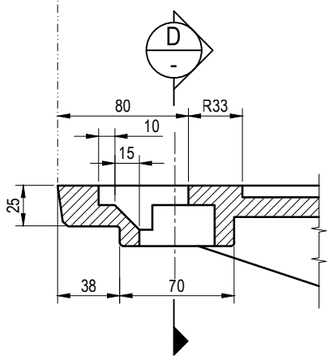
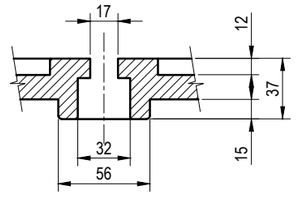
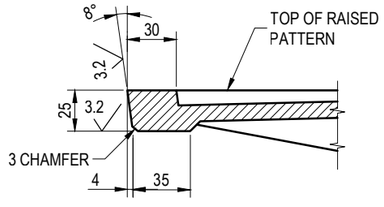


SECTION C
SCALE: N.T.S.

LIFTING KEYHOLE DETAIL



SECTION D
SCALE: N.T.S.



TYPICAL EDGE DETAIL

NOTES:

1. PROPRIETARY PRODUCTS TO BE FULLY COMPATIBLE WITH BRISBANE CITY COUNCIL STANDARD MAINTENANCE HOLE FRAME (BSD-8031). PROPRIETARY COVERS MUST BE ABLE TO BE DIRECTLY SUBSTITUTED FOR EXISTING COVERS.
2. MATERIAL: TYPICALLY CAST DUCTILE IRON. OTHER MATERIALS WILL BE CONSIDERED UPON REQUEST.
3. ALL EDGES TO BE SQUARE.
4. CASTING TO BE FREE OF BURRS AND PITS.
5. DESIGN LOAD OF COVER = CLASS 'B' TO *AS3996*.
6. MAXIMUM MASS OF COVER = 40Kg
7. TOLERANCES

CAST SIZE:	±1.00mm
ANGLE PROFILE:	±0.25°
MACHINED SIZE:	±0.125mm
OVERALL DIAMETER OF COVER:	+0mm-0.25mm
DRY FILM THICKNESS (DFT) OF COATING:	50µm

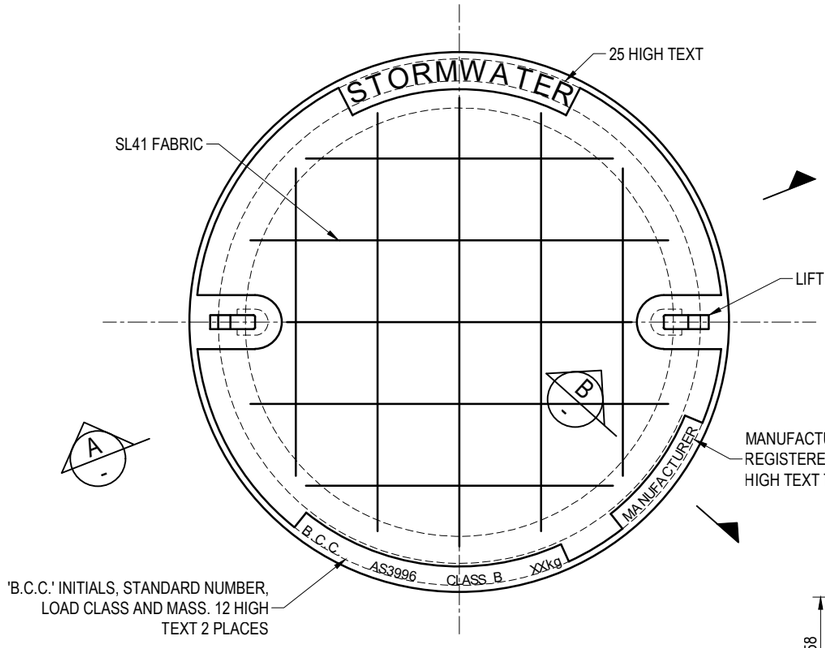
8. MACHINE SURFACE SYMBOL $\sqrt{3.2}$
9. ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON-STICK AND GAS/WATER PROOF JOINT. (HAVTEC-HS1 OR SIMILAR)
10. COVERS TO BE BOLTED DOWN IF DIRECTED BY DESIGNER. MIN. TWO EXTRA LENGTH BOLTS MUST BE USED TO SECURE COVER AND RISER TO FRAME. REFER TO BSD-8032 FOR RISER DETAIL AND BOLT LENGTHS.
11. COVER TO BE PERMANENTLY MARKED AS PER *AS3996*. MANUFACTURER NAME/REGISTERED TRADEMARK, STANDARD NUMBER, LOAD CLASS AND MASS TO BE DISPLAYED ON COVER SURFACE AS SHOWN. OTHER MARKINGS MAY BE MARKED ON THE UNDERSIDE OF THE COVER.
12. DIMENSIONS IN MILLIMETERS (U.N.O.).

BRISBANE CITY

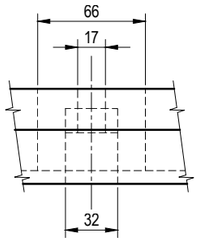
BRISBANE CITY COUNCIL STANDARD DRAWING

MAINTENANCE HOLE COVER
(NON-ROADWAY)
1050 TO 1500 DIAMETER

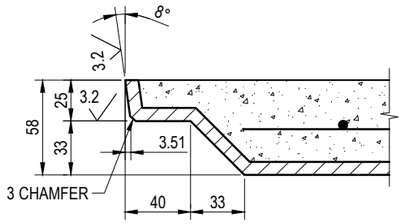
PUBLISH DATE	March 2021
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8034
ORIGINAL SIZE	A3
REVISION	C



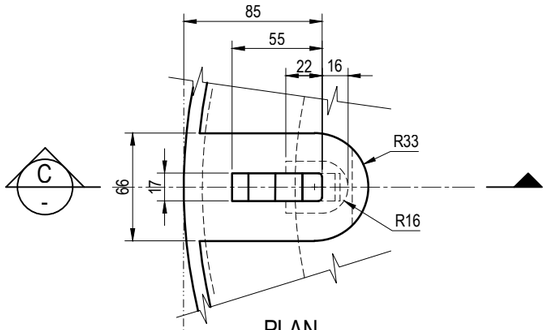
PLAN



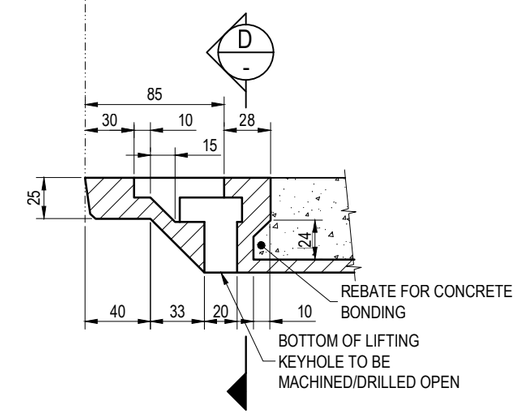
END ELEVATION

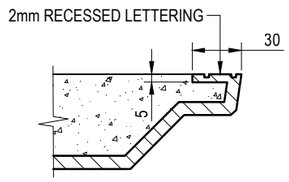


DETAIL 1
SCALE: N.T.S.

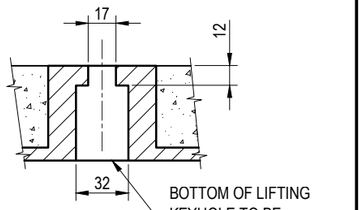


PLAN





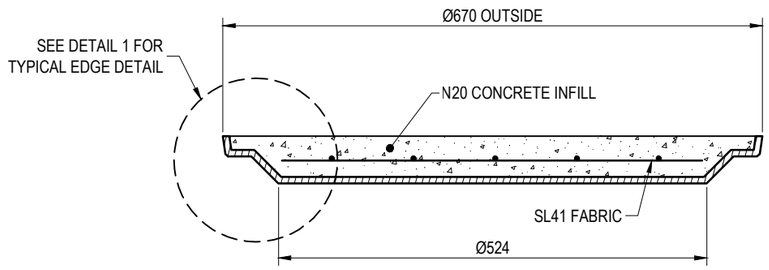
SECTION B
SCALE: N.T.S.



SECTION C
SCALE: N.T.S.

SECTION D
SCALE: N.T.S.

LIFTING KEYHOLE DETAILS



SECTION A
SCALE: N.T.S.

NOTES:

1. PROPRIETARY PRODUCTS TO BE FULLY COMPATIBLE WITH BRISBANE CITY COUNCIL STANDARD MAINTENANCE HOLE FRAME (BSD-8031). PROPRIETARY COVERS MUST BE ABLE TO BE DIRECTLY SUBSTITUTED FOR EXISTING COVERS.
2. MATERIAL: TYPICALLY CAST DUCTILE IRON. OTHER MATERIALS WILL BE CONSIDERED UPON REQUEST.
3. ALL EDGES TO BE SQUARE.
4. CASTING TO BE FREE OF BURRS AND PITS.
5. DESIGN LOAD OF COVER = CLASS 'B' TO *AS3996*.
6. MAXIMUM MASS OF COVER = 60Kg (INCLUDING CONCRETE INFILL).
7. TOLERANCES

CAST SIZE:	±1.00mm
ANGLE PROFILE:	±0.25°
MACHINED SIZE:	±0.125mm
OVERALL DIAMETER OF COVER:	+0mm-0.25mm
DRY FILM THICKNESS (DFT) OF COATING:	50µm

8. MACHINE SURFACE SYMBOL $\sqrt{3.2}$
9. ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON-STICK AND GAS/WATER PROOF JOINT. (HAVTEC-HS1 OR SIMILAR)
10. COVER TO BE PERMANENTLY MARKED AS PER *AS3996*. MANUFACTURER NAME/REGISTERED TRADEMARK, 'B.C.C.' INITIALS, STANDARD NUMBER, LOAD CLASS AND MASS TO BE DISPLAYED ON COVER SURFACE AS SHOWN. OTHER MARKINGS MAY BE MARKED ON THE UNDERSIDE OF THE COVER.
11. DIMENSIONS IN MILLIMETRES (U.N.O.).

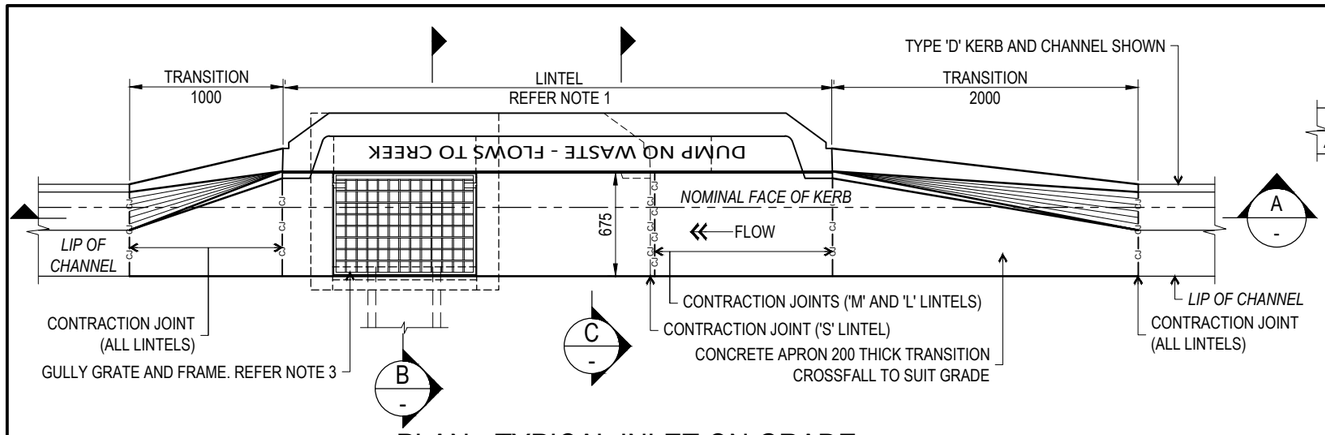
SPECIAL NOTE - NON-ROADWAY USE
THIS DRAWING IS FOR USE IN NON-ROADWAY APPLICATION SUBJECT TO PEDESTRIAN LOADINGS ONLY.

BRISBANE CITY

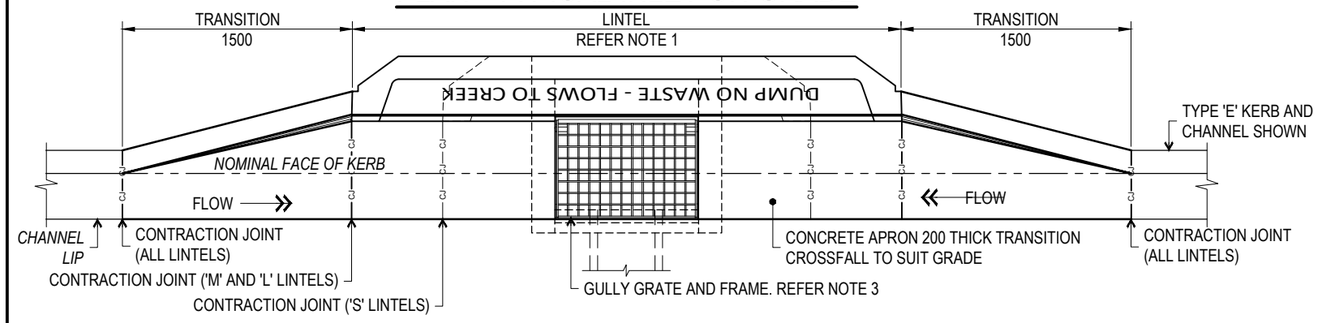
BRISBANE CITY COUNCIL STANDARD DRAWING

MAINTENANCE HOLE COVER CONCRETE INFILL (PEDESTRIAN TRAFFIC) 1050 TO 1500 DIAMETER

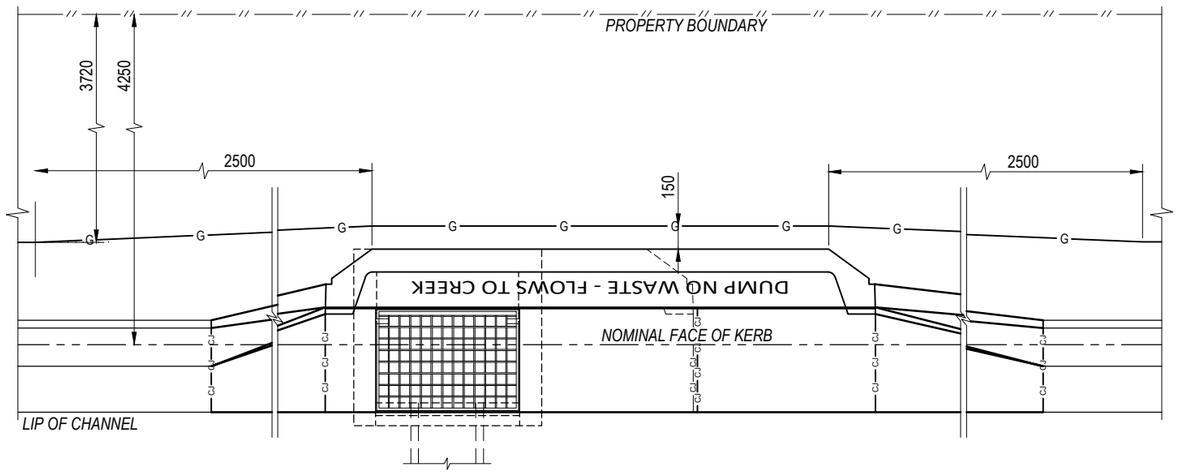
PUBLISH DATE	March 2021
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8035
ORIGINAL SIZE	A3
REVISION	C



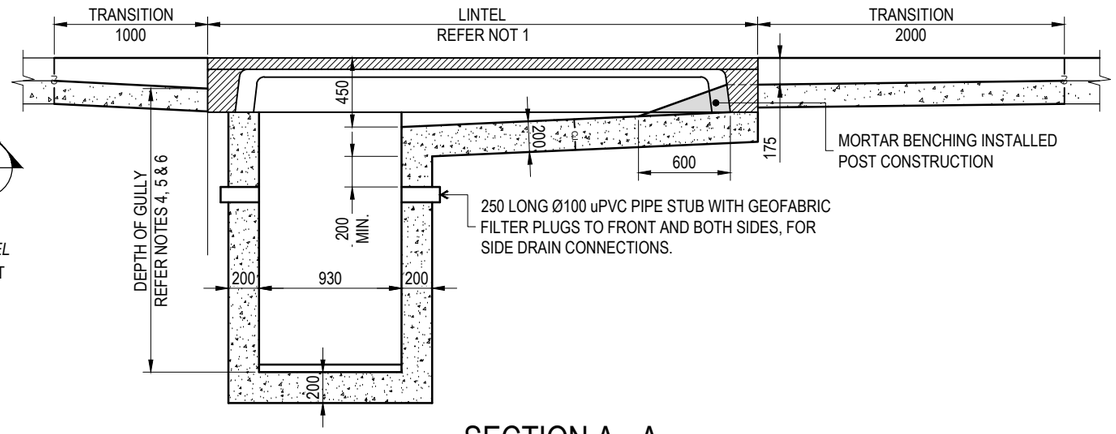
PLAN - TYPICAL INLET ON GRADE



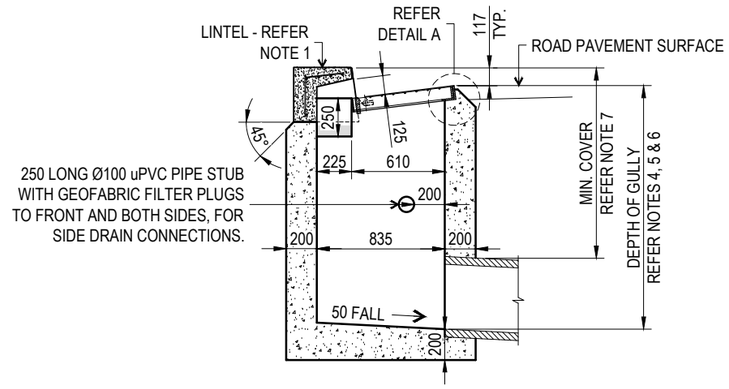
PLAN - TYPICAL INLET IN SAG



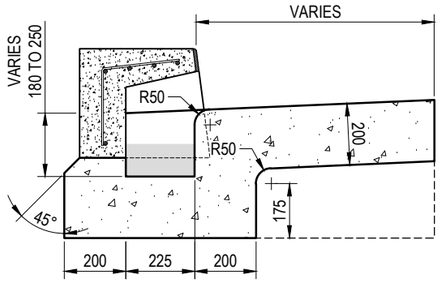
GAS RE-ALIGNMENT DETAILS



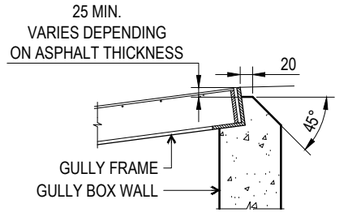
SECTION A - A



SECTION B-B



SECTION C-C



DETAIL A

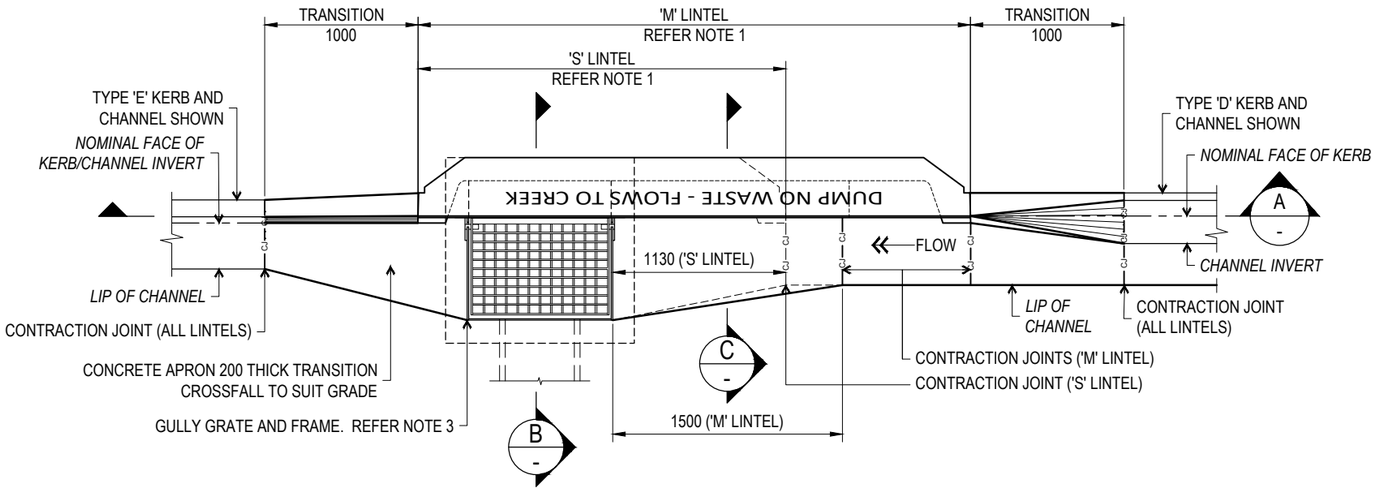
NOTES:

1. REFER BSD-8055 FOR LINTEL DETAILS.
2. CAST INSITU CONCRETE N32 TO *AS1379* AND *AS3600*.
3. REFER BSD-8053 & BSD-8054 FOR GULLY GRATE AND FRAME DETAILS.
4. LIMIT DEPTH OF STANDARD GULLY TO 1.80m.
5. STANDARD GULLIES BETWEEN 1.8 AND 3.0m ARE PERMITTED ONLY WITH THE PRIOR APPROVAL OF COUNCIL,
6. GULLIES DEEPER THAN 3.0m TO BE INDIVIDUALLY DESIGNED UNDER THE DIRECTION OF A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
7. INSTALL STEP IRONS TO GULLIES GREATER THAN 1.20m DEEP IN ACCORDANCE WITH *AS1657*.
8. REFER TO BSD-2042 (ROADWAYS) AND BSD-2043 (PATHS AND VERGES) FOR MINIMUM COVER REQUIREMENTS. MIN. 450mm IN OTHER AREAS.
9. DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY COUNCIL STANDARD DRAWING

TYPE 'A'
GULLY
LIP IN LINE

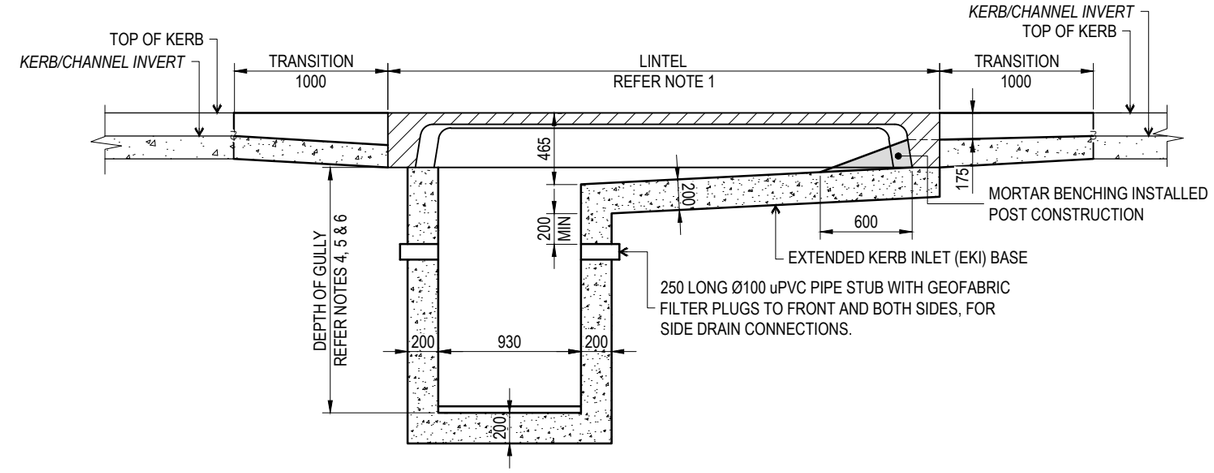
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8051
ORIGINAL SIZE	A3
REVISION	E



TYPICAL INLET ON GRADE - PLAN

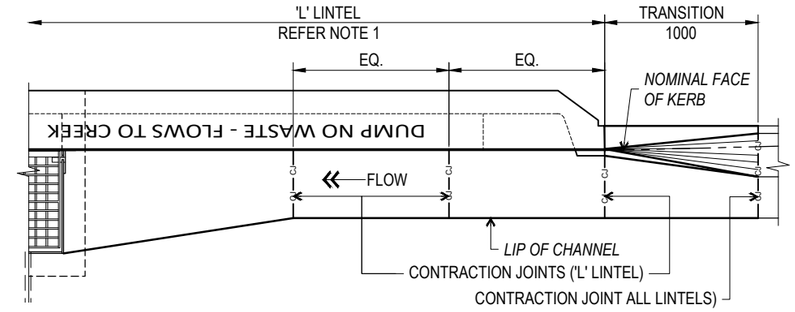
'S' AND 'M' LINTELS

NOTE: FOR SAG GULLY, APRON TO EXTEND TO END OF LINTEL AND GULLY TO BE LOCATED IN CENTRE OF LINTEL.



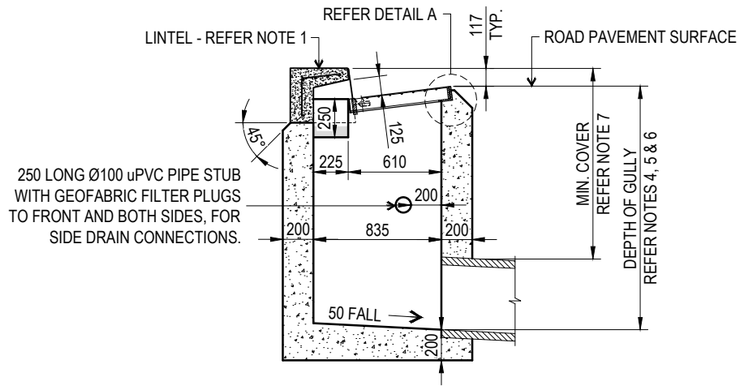
TYPICAL INLET ON GRADE

SECTION A-A

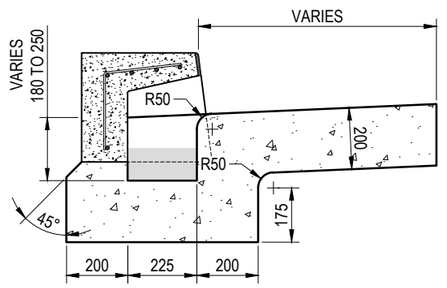


TYPICAL INLET ON GRADE - PLAN

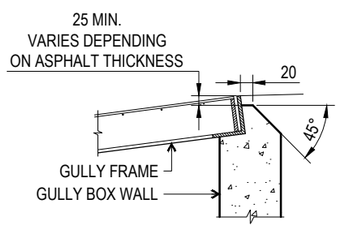
'L' LINTEL



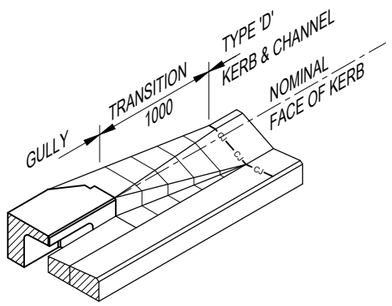
SECTION B-B



SECTION C-C



DETAIL A



TRANSITION TO KERB & CHANNEL

(TYPE 'D' KERB & CHANNEL SHOWN)

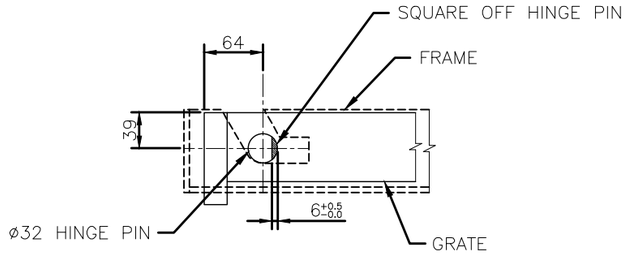
NOTES:

1. REFER BSD-8055 FOR LINTEL DETAILS.
2. CAST INSITU CONCRETE N32 TO *AS1379* AND *AS3600*.
3. REFER BSD-8053 & BSD-8054 FOR GULLY GRATE AND FRAME DETAILS.
4. LIMIT DEPTH OF STANDARD GULLY TO 1.80m.
5. STANDARD GULLIES BETWEEN 1.8 AND 3.0m ARE PERMITTED ONLY WITH THE PRIOR APPROVAL OF COUNCIL,
6. GULLIES DEEPER THAN 3.0m TO BE INDIVIDUALLY DESIGNED UNDER THE DIRECTION OF A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
7. INSTALL STEP IRONS TO GULLIES GREATER THAN 1.20m DEEP IN ACCORDANCE WITH *AS1657*.
8. REFER TO BSD-2042 (ROADWAYS) AND BSD-2043 (PATHS AND VERGES) FOR MINIMUM COVER REQUIREMENTS. MIN. 450mm IN OTHER AREAS.
9. DIMENSIONS IN MILLIMETRES (U.N.O.).

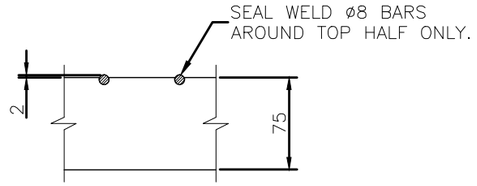
BRISBANE CITY COUNCIL STANDARD DRAWING

TYPE 'A'
GULLY
KERB IN LINE

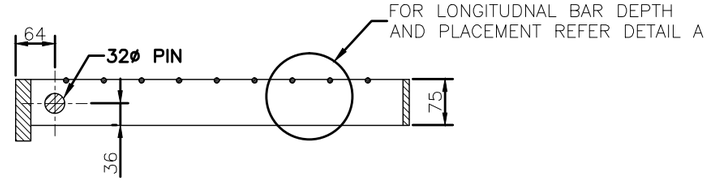
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8052
ORIGINAL SIZE	A3
REVISION	E



LOCKING DEVICE DETAIL (GRATE)



DETAIL A



SECTION B–B

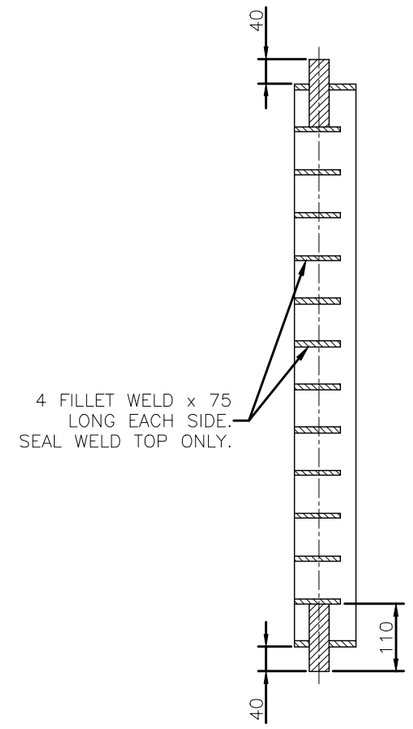
NOTES:

1. MASS OF GRATE: 72.5kg
2. GRATE STEEL TO BE GRADE 300 STRUCTURAL STEEL TO AS/NZS3679.1.
3. GRATE TO BE HOT DIP GALVANISED TO AS4680.
4. ALL WELDS TO BE 4 CFW UNLESS NOTED OTHERWISE.
5. GRATE TO HAVE PERMANENT VISIBLE MARKING INDICATING STANDARD (AS3996), MANUFACTURER, GRATE CLASS, DATE OF MANUFACTURE AND/OR BATCH No. AND MASS AS PER AS3996.
6. TOLERANCES SPECIFIED FOR THE LOCKING DEVICE BOTH IN THE FRAME AND HINGE PIN ARE REQUIRED FOR EFFECTIVENESS AND RELIABILITY.
7. OTHER TOLERANCES TO ± 2.
8. GRATES TO COMPLY WITH AS3996, CLASS 'D' AND BE CLASSIFIED 'BIKE SAFE' IN ALL DIRECTIONS (SATISFY BICYCLE TYRE PENETRATION TEST IN ALL DIRECTIONS).
9. GRATE TO BE FULLY COMPATIBLE AND INTERCHANGABLE WITH BCC STANDARD TYPE 'A' GULLY FRAME – REFER BSD–8054 FOR DETAILS.
10. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

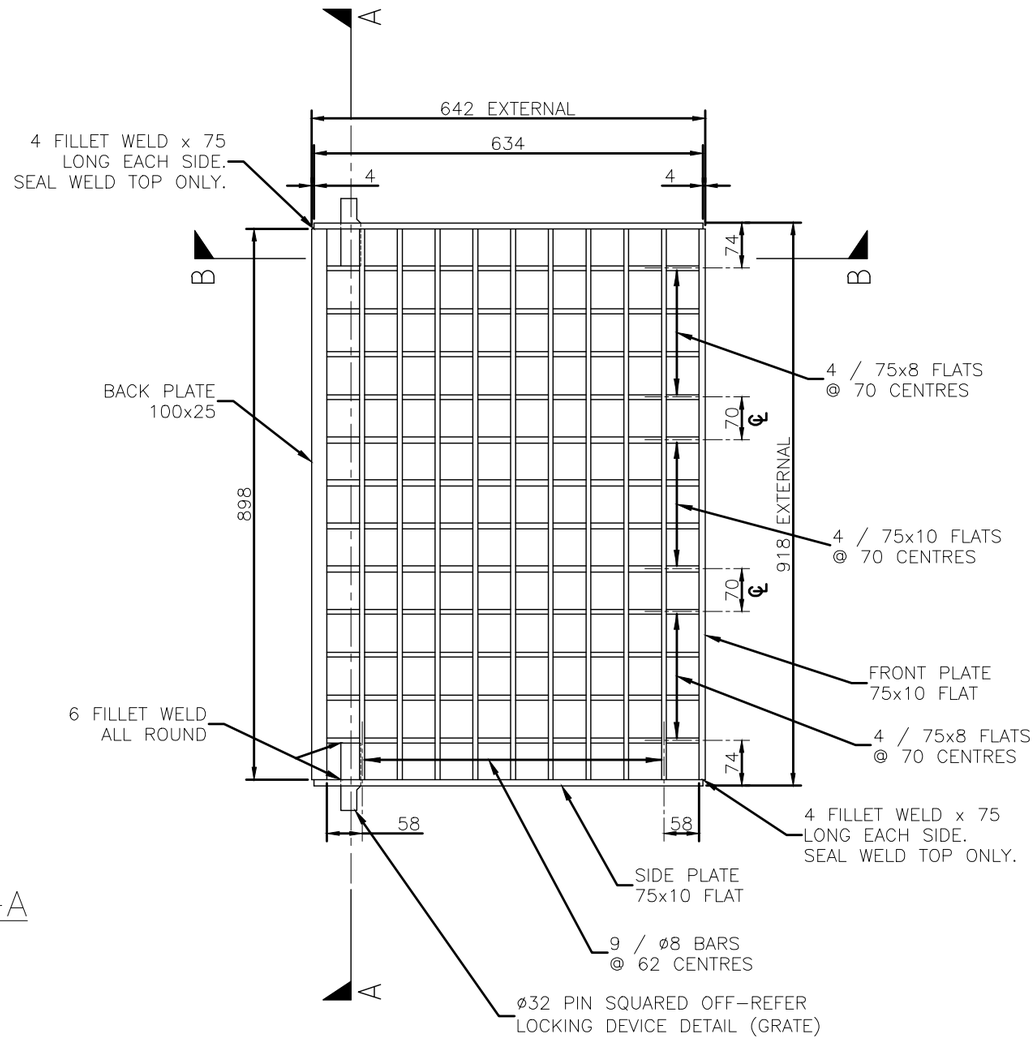
SPECIAL NOTE:

BRISBANE CITY COUNCIL PROPRIETARY DESIGN

REFER ALSO TO REFERENCE SPECIFICATION FOR CIVIL ENGINEERING WORKS S160–DRAINAGE.



SECTION A–A



PLAN

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01

MANAGER ASSET SUPPORT - R.P.E.Q. 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

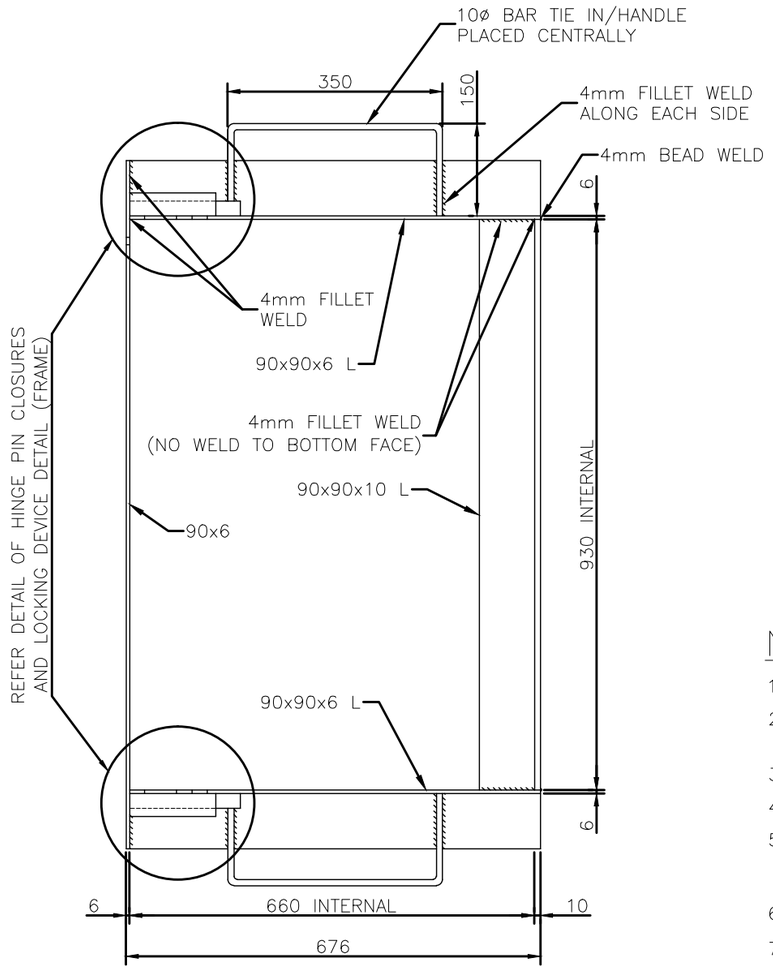
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8053 (A) Type 'A' gully grate.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-332		

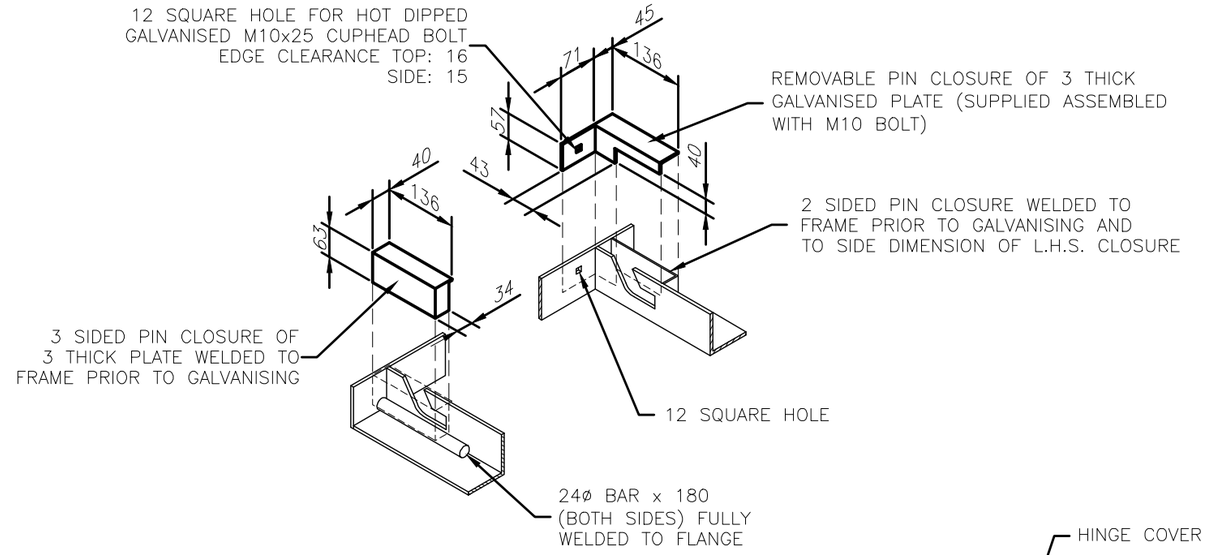
BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

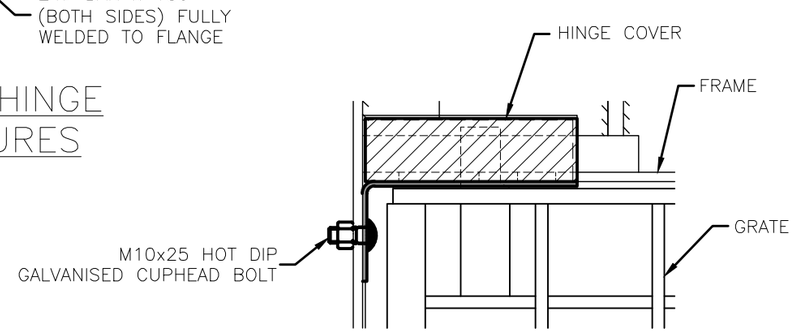
TYPE 'A' GULLY GRATE
(HUNGED, CLASS 'D', BIKE SAFE IN ALL DIRECTION)

SCALE: NOT TO SCALE
DWG No.: BSD–8053
ORIGINAL SIZE: A3
REVISION: A





DETAIL OF HINGE PIN CLOSURES



DETAIL OF HINGE COVER AND BOLT

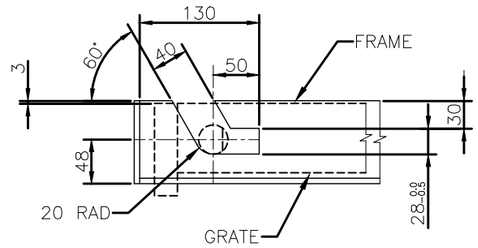
NOTES:

1. MASS OF FRAME: 30kg
2. FRAME STEEL TO BE GRADE 300 STRUCTURAL STEEL TO AS/NZS3679.1.
3. FRAME TO BE HOT DIP GALVANISED TO AS4680.
4. ALL WELDS TO BE 4 CFW UNLESS NOTED OTHERWISE.
5. TOLERANCES SPECIFIED FOR THE LOCKING DEVICE BOTH IN THE FRAME AND HINGE PIN ARE REQUIRED FOR EFFECTIVENESS AND RELIABILITY.
6. OTHER TOLERANCES TO ± 2mm.
7. REFER BSD–8053 FOR BCC STANDARD TYPE 'A' GULLY GRATE DETAILS.
8. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

SPECIAL NOTE:

BRISBANE CITY COUNCIL PROPRIETARY DESIGN

REFER ALSO TO REFERENCE SPECIFICATION FOR CIVIL ENGINEERING WORKS S160–DRAINAGE.



LOCKING DEVICE DETAIL (FRAME)

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01
MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER ROADS AND DRAINAGE

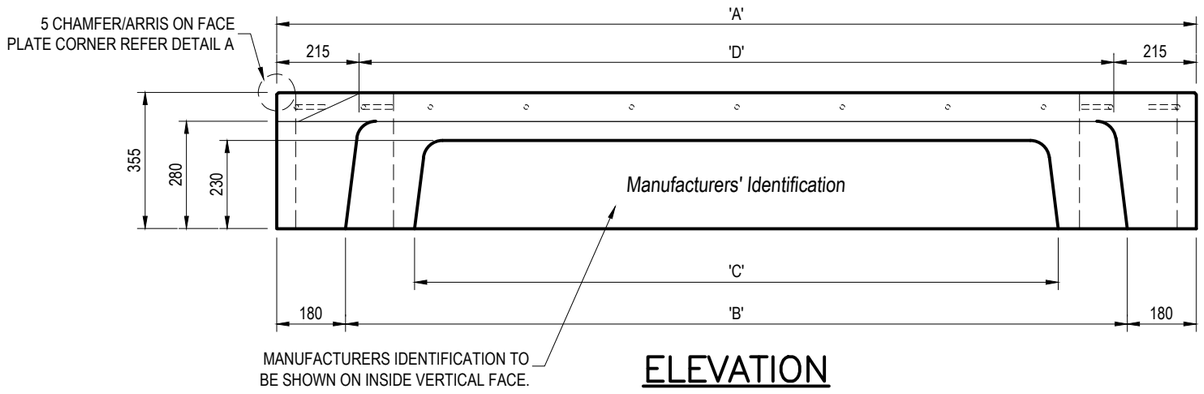
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8054 (A) Type 'A' gully grate frame.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-333		

BRISBANE CITY

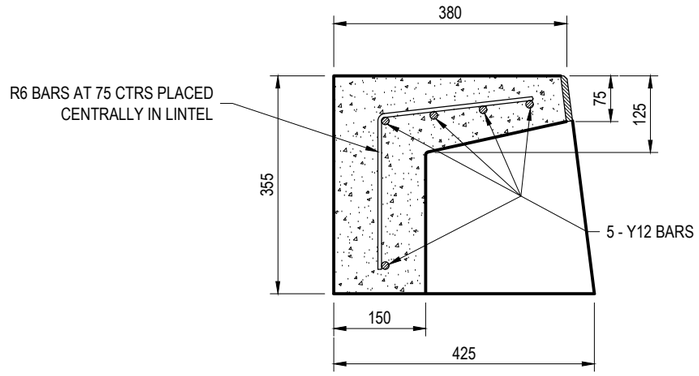
BRISBANE CITY COUNCIL STANDARD DRAWING

TYPE 'A' GULLY GRATE FRAME

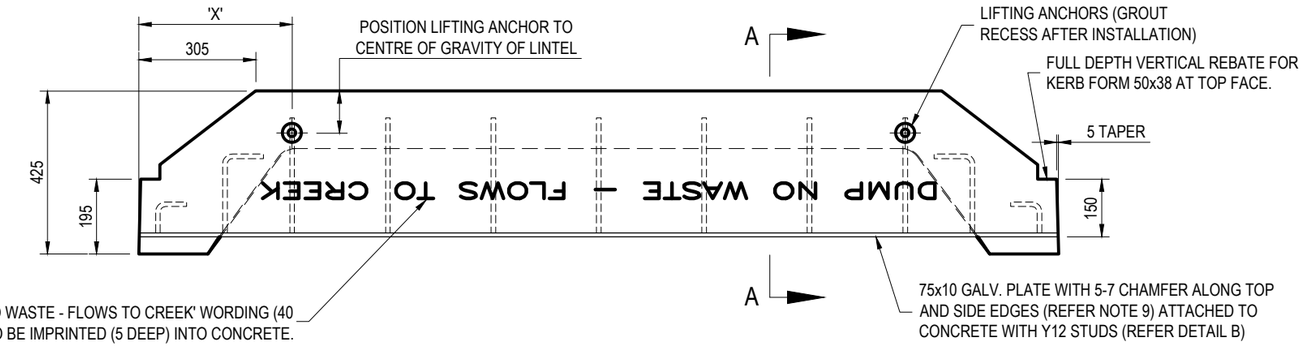
SCALE: NOT TO SCALE
DWG No.: BSD–8054
ORIGINAL SIZE: A3
REVISION: A



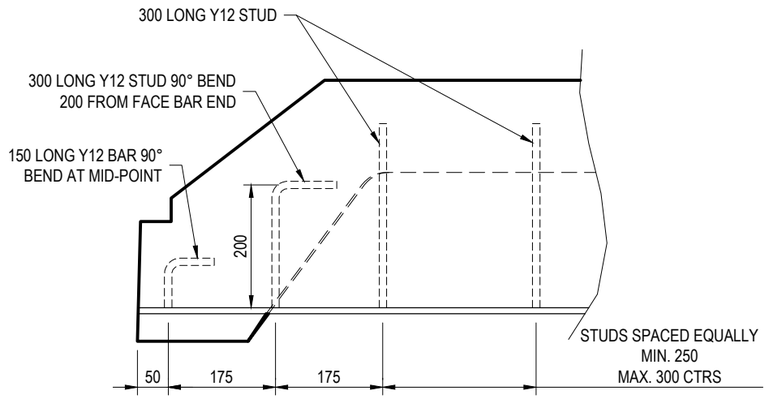
ELEVATION



SECTION A-A



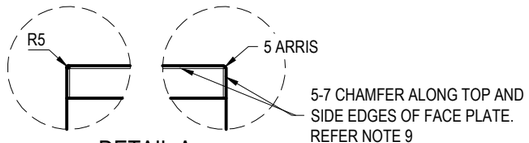
PLAN



DETAIL B

FACE PLATE ATTACHMENT

(STUDS TO BE BENT TO CLEAR REINFORCING CAGE. ENSURE CONCRETE COVER MAINTAINED)



DETAIL A

FACE PLATE CORNER TREATMENTS

PRECAST LINTEL DETAIL

TYPICAL DIMENSIONS

LINTEL	"A" mm	"B" mm	"C" mm	"D" mm	"X" mm	MASS (kg)
XS*	1200	840	600	770	400	300
S	2400	2040	1800	1970	400	500
M	3600	3240	3000	3170	690	700
L	4800	4440	4200	4370	1000	900

* BCC USE ONLY. SEE NOTE 6.

NOTES:

1. PRECAST CONCRETE LINTEL TO BE GRADE N32 AND TO CONFORM TO AS 3600.
2. COVER TO ALL BARS TO BE 40 MIN.
3. REINFORCEMENT STEEL TO CONFORM TO AS/NZS 4671.
4. EACH LIFTING ANCHOR TO BE "SWIFTLIFT" OR EQUIVALENT 1.3 TONNE GALVANISED AND FITTED TO MANUFACTURERS SPECIFICATION.
5. LINTELS ARE TO BE ORDERED AS FOLLOWS:
   - 'XS' LINTEL (EXTRA SMALL)
   - 'S' LINTEL (SMALL)
   - 'M' LINTEL (MEDIUM)
   - 'L' LINTEL (LARGE)
6. 'XS' (1.2m) LINTEL ONLY TO USED FOR 'ANTI-PONDING' APPLICATIONS AND NOT TO BE INCLUDED IN HYDRAULIC CALCULATIONS. 'XS' LINTEL FOR INTERNAL BCC USE ONLY.
7. ALL Y12 STUDS TO BE 6mm CFW TO FRONT PLATE.
8. FACE PLATE AND STUD ASSEMBLY TO BE HOT DIPPED GALVANISED TO AS/NZS 4680 AFTER FABRICATION.
9. 75x10 PLATE WITH A MIN. 1.5mm 'ROLLED' TOP EDGE MAY BE SUBSTITUTED FOR THE 5-7mm CHAMFER ALONG TOP EDGE OF FRONT PLATE. CHAMFER ON END OF PLATE REQUIRED FOR ALL PLATE TYPES.
10. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Notes 3 & 8 AS Ref. Updated, Note 9 Edited: Spelling Errors	OCT '17	AUG '18	NOV '18
A	ORIGINAL ISSUE - Detail From UMS 331	Apr '14	Apr '14	Apr '14

DRAWING AUTHORISED FOR PUBLICATION
Gavin Blakey
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
Inga Condric
PRINCIPAL ENGINEER
STRATEGIC ASSET MANAGEMENT

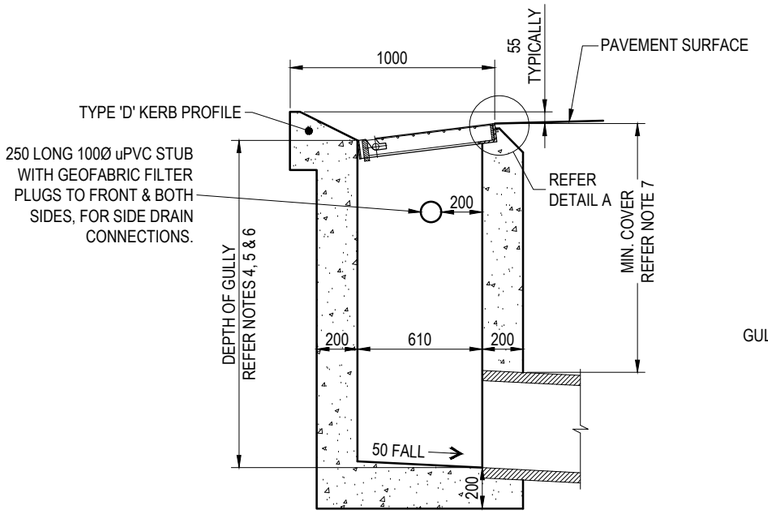
DESIGN	STD DWG GROUP	DATE	April '01
DRAWN	ASSET MGMT	DATE	Feb '13
CHECKED	ASSET MGMT	DATE	Feb '13
DRAWING FILENAME	BSD-8055 (B) Type 'A' gully precast concrete lintel (extended kerb inlet).dwg		
ASSOCIATED PLANS	UMS 331		

BRISBANE CITY

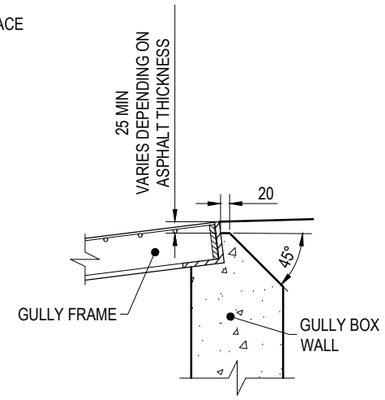
BRISBANE CITY COUNCIL STANDARD DRAWING

TYPE 'A' GULLY
PRECAST CONCRETE LINTEL
(EXTENDED KERB INLET)

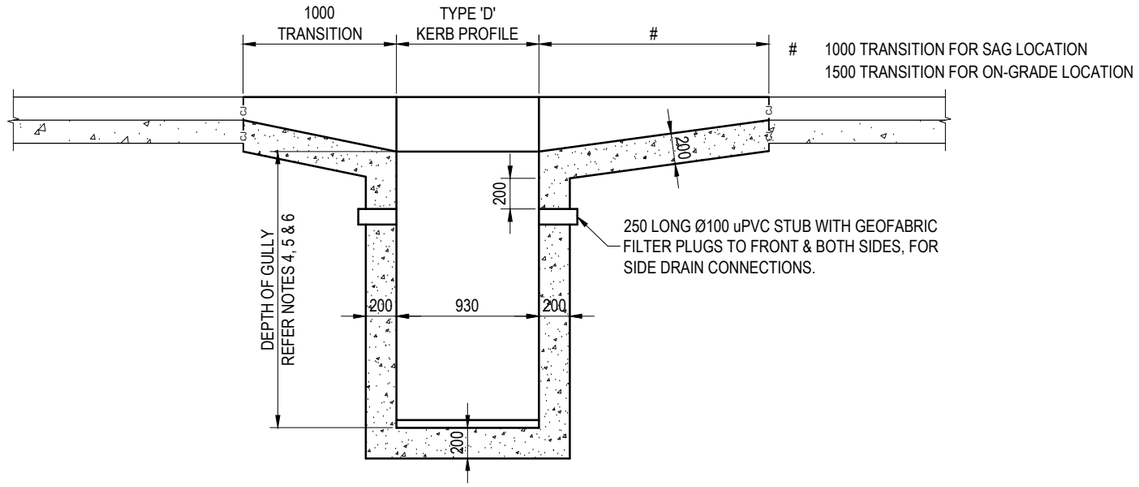
SCALE: NOT TO SCALE
DWG No.: BSD-8055
ORIGINAL SIZE: A3
REVISION: B



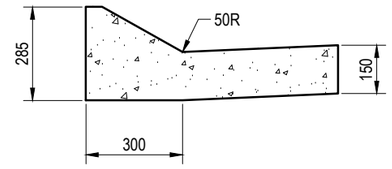
SECTION B-B



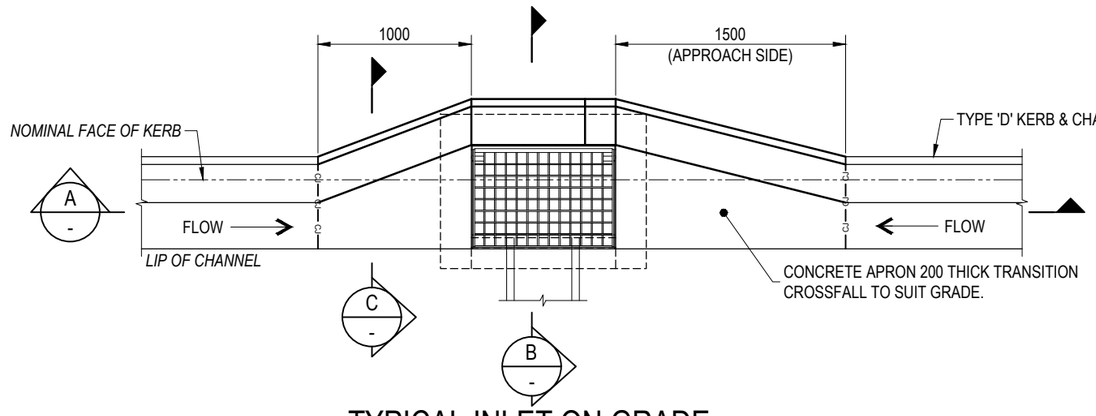
DETAIL A



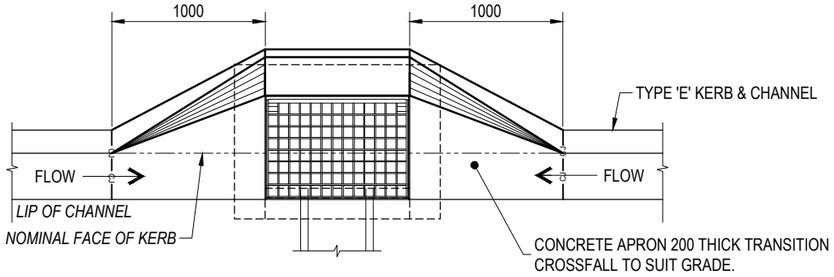
SECTION A-A



SECTION C-C



TYPICAL INLET ON GRADE



TYPICAL INLET IN SAG

NOTES:

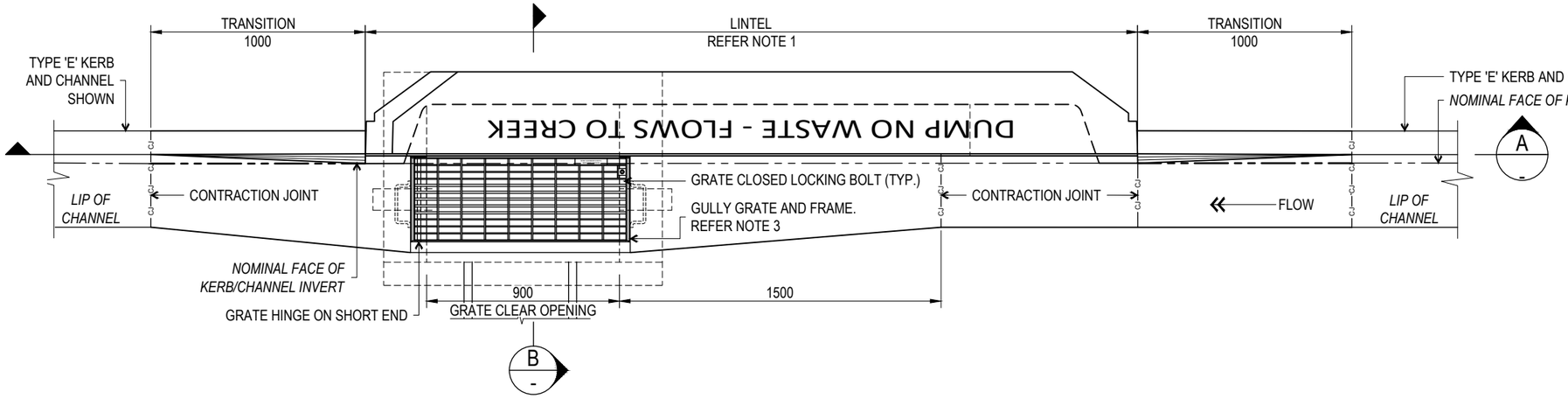
1. REFER BSD-8055 FOR LINTEL DETAILS.
2. CAST INSITU CONCRETE N32 TO *AS1379* AND *AS3600*.
3. REFER BSD-8053 & BSD-8054 FOR GULLY GRATE AND FRAME DETAILS.
4. LIMIT DEPTH OF STANDARD GULLY TO 1.80m.
5. STANDARD GULLIES BETWEEN 1.8 AND 3.0m ARE PERMITTED ONLY WITH THE PRIOR APPROVAL OF COUNCIL,
6. GULLIES DEEPER THAN 3.0m TO BE INDIVIDUALLY DESIGNED UNDER THE DIRECTION OF A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
7. INSTALL STEP IRONS TO GULLIES GREATER THAN 1.20m DEEP IN ACCORDANCE WITH *AS1657*.
8. REFER TO BSD-2042 (ROADWAYS) AND BSD-2043 (PATHS AND VERGES) FOR MINIMUM COVER REQUIREMENTS. MIN. 450mm IN OTHER AREAS.
9. DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

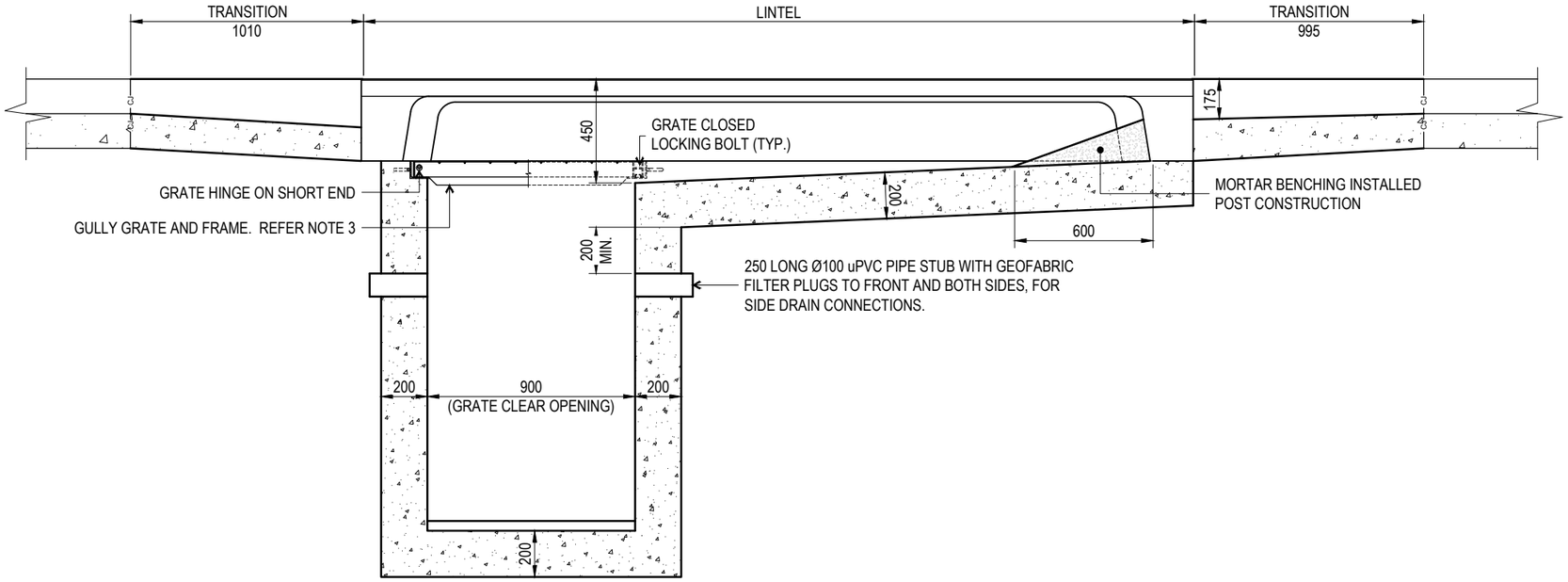
TYPE 'A'
ANTI-PONDING GULLY

PUBLISH DATE	March 2021
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8056
ORIGINAL SIZE	A3
REVISION	C



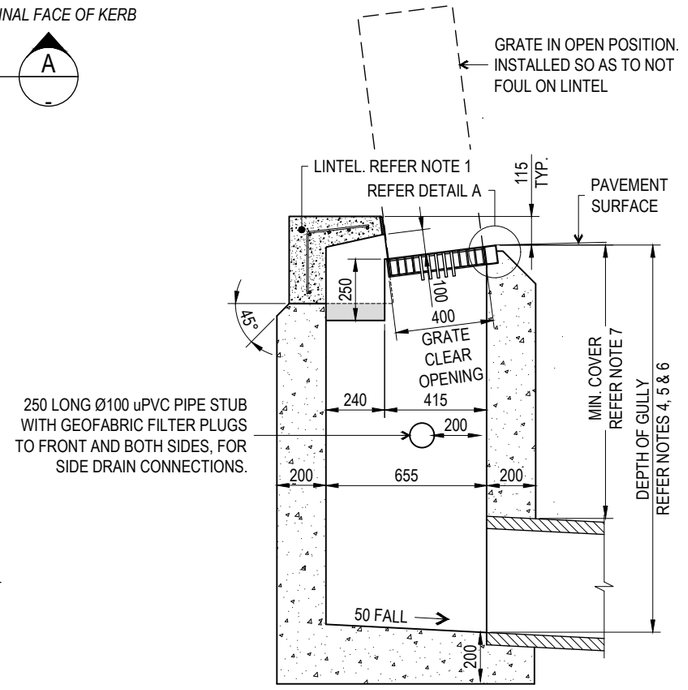
TYPICAL INLET ON GRADE - PLAN

NOTE: FOR SAG GULLY, APRON TO EXTEND TO END OF LINTEL AND GULLY TO BE LOCATED IN CENTRE OF LINTEL.

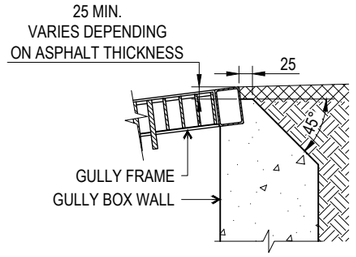


SECTION A-A

NOTE: FOR SAG GULLY, APRON TO EXTEND TO END OF LINTEL AND GULLY TO BE LOCATED IN CENTRE OF LINTEL.



SECTION B-B



DETAIL A

NOTES:

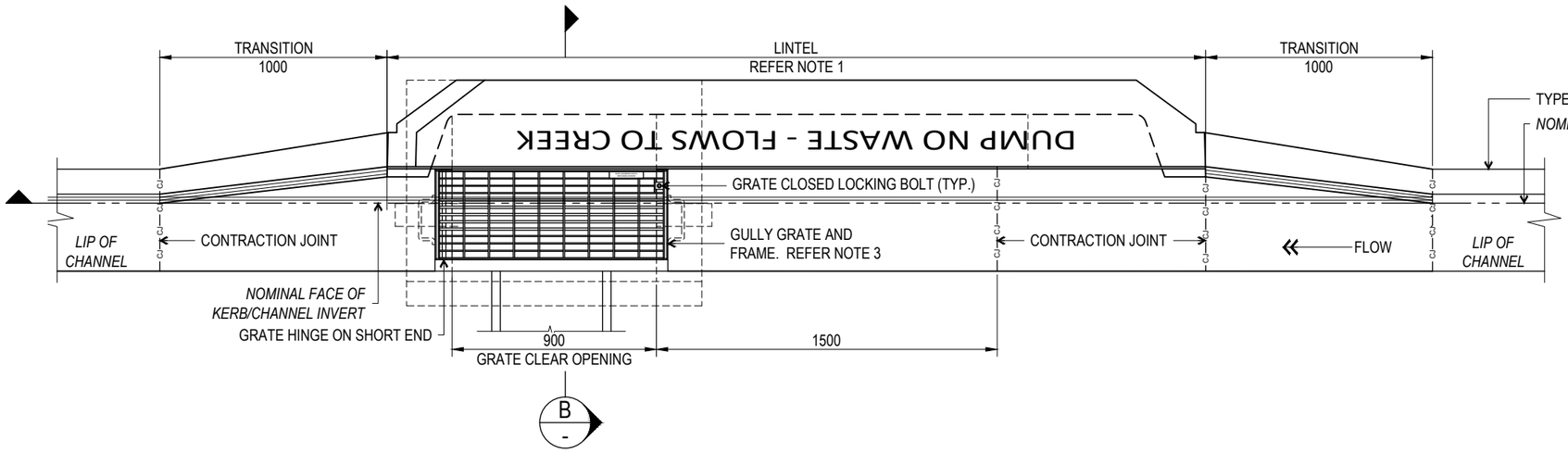
1. REFER BSD-8055 FOR LINTEL DETAILS.
2. CAST INSITU CONCRETE N32 TO *AS1379* AND *AS3600*.
3. GRATE AND FRAME:
   - PROPRIETARY 900 x 400 CLEAR OPENING SLIMLINE GULLY GRATE AND FRAME TO BE USED.
   - GRATE TO HINGE ON SHORT EDGE WITH BOLT TO SECURE IN CLOSED POSITION AT OPPOSITE END.
   - GRATE TO SELF-SUPPORT/LOCK IN OPEN POSITION - POSITIVE MECHANISM REQUIRED.
4. LIMIT DEPTH OF STANDARD GULLY TO 1.8m.
5. STANDARD GULLIES BETWEEN 1.8 AND 3.0m ARE PERMITTED ONLY WITH THE PRIOR APPROVAL OF COUNCIL,
6. GULLIES DEEPER THAN 3.0m TO BE INDIVIDUALLY DESIGNED UNDER THE DIRECTION OF A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
7. INSTALL STEP IRONS TO GULLIES GREATER THAN 1.2m DEEP IN ACCORDANCE WITH *AS1657*.
8. REFER TO BSD-2042 (ROADWAYS) AND BSD-2043 (PATHS AND VERGES) FOR MINIMUM COVER REQUIREMENTS. MIN. 450mm IN OTHER AREAS.
9. DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY COUNCIL STANDARD DRAWING

TYPE 'C' (SLIMLINE TYPE) GULLY KERB-IN-LINE GULLY

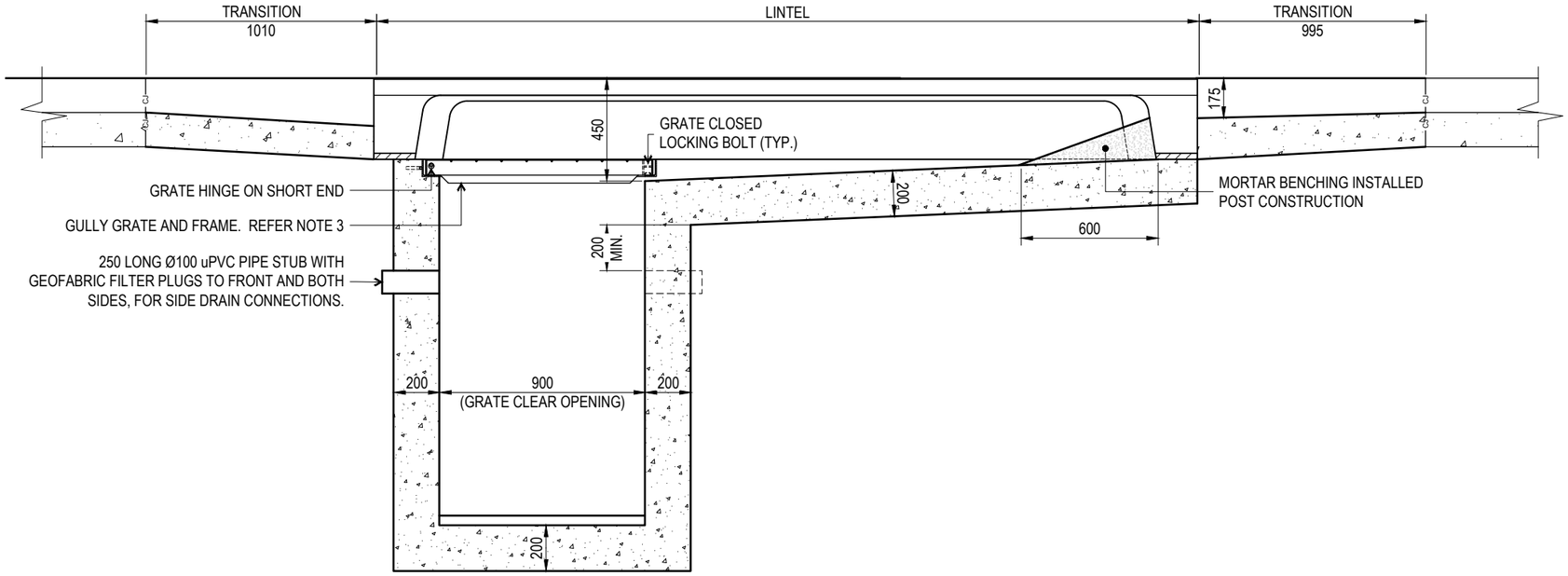
SHEET 1 OF 2

PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8057
ORIGINAL SIZE	A3
REVISION	C



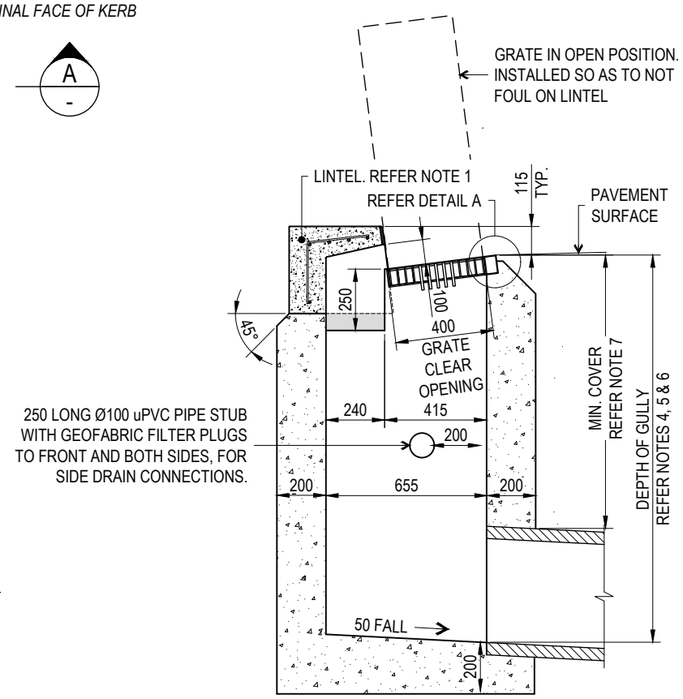
TYPICAL INLET ON GRADE - PLAN

NOTE: FOR SAG GULLY, APRON TO EXTEND TO END OF LINTEL AND GULLY TO BE LOCATED IN CENTRE OF LINTEL.

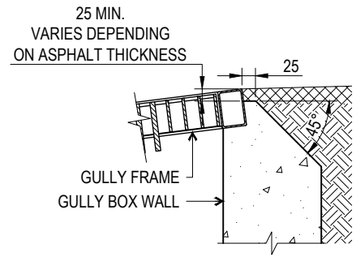


SECTION A-A

NOTE: FOR SAG GULLY, APRON TO EXTEND TO END OF LINTEL AND GULLY TO BE LOCATED IN CENTRE OF LINTEL.



SECTION B-B



DETAIL A

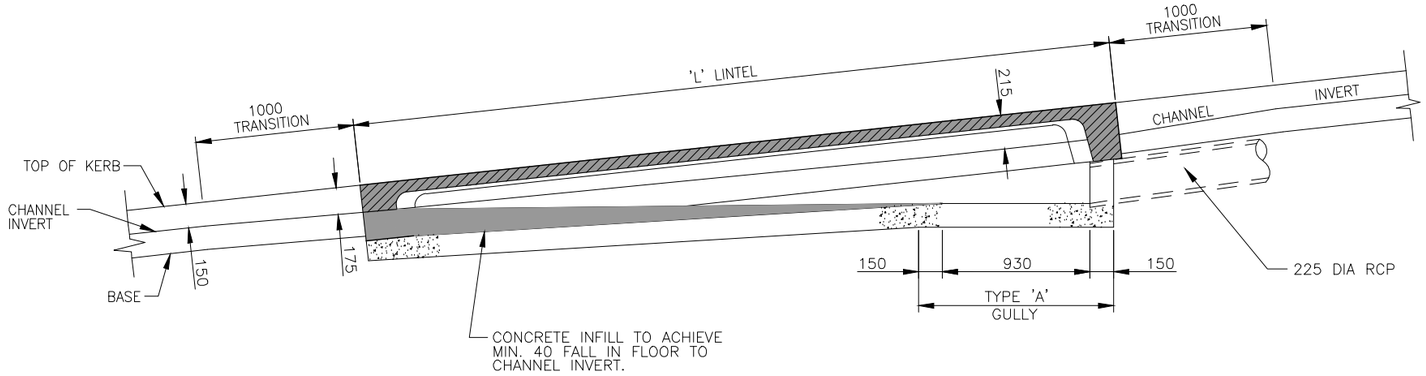
NOTES:

1. REFER BSD-8055 FOR LINTEL DETAILS.
2. CAST INSITU CONCRETE N32 TO *AS1379* AND *AS3600*.
3. GRATE AND FRAME:
   - PROPRIETARY 900 x 400 CLEAR OPENING SLIMLINE GULLY GRATE AND FRAME TO BE USED.
   - GRATE TO HINGE ON SHORT EDGE WITH BOLT TO SECURE IN CLOSED POSITION AT OPPOSITE END.
   - GRATE TO SELF-SUPPORT/LOCK IN OPEN POSITION - POSITIVE MECHANISM REQUIRED.
4. LIMIT DEPTH OF STANDARD GULLY TO 1.8m.
5. STANDARD GULLIES BETWEEN 1.8 AND 3.0m ARE PERMITTED ONLY WITH THE PRIOR APPROVAL OF COUNCIL,
6. GULLIES DEEPER THAN 3.0m TO BE INDIVIDUALLY DESIGNED UNDER THE DIRECTION OF A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
7. INSTALL STEP IRONS TO GULLIES GREATER THAN 1.2m DEEP IN ACCORDANCE WITH *AS1657*.
8. REFER TO BSD-2042 (ROADWAYS) AND BSD-2043 (PATHS AND VERGES) FOR MINIMUM COVER REQUIREMENTS. MIN. 450mm IN OTHER AREAS.
9. DIMENSIONS IN MILLIMETRES (U.N.O.).
10.

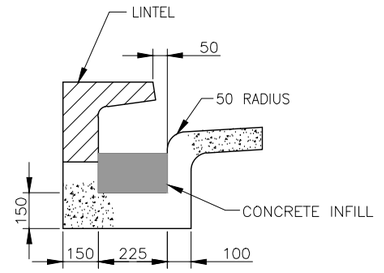
BRISBANE CITY COUNCIL STANDARD DRAWING

TYPE 'C' (SLIMLINE TYPE) GULLY
LIP-IN-LINE GULLY
SHEET 2 OF 2

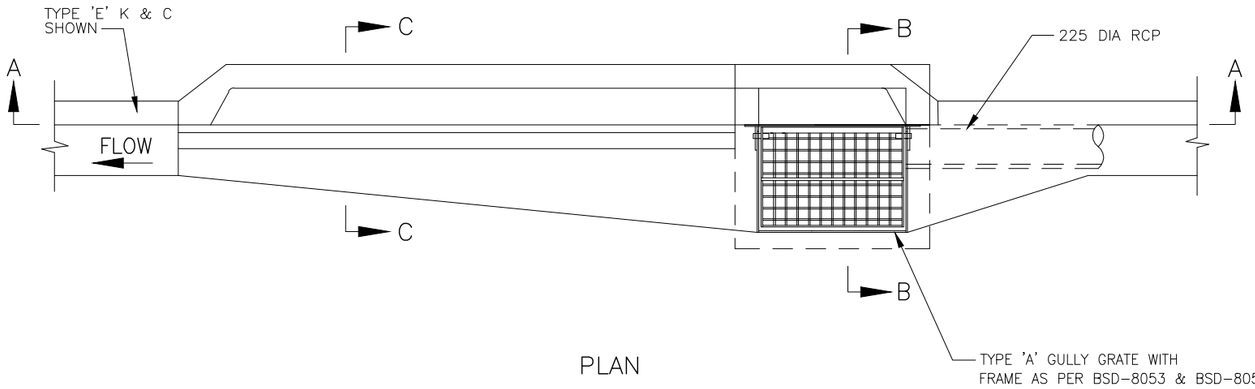
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8057
ORIGINAL SIZE	A3
REVISION	C



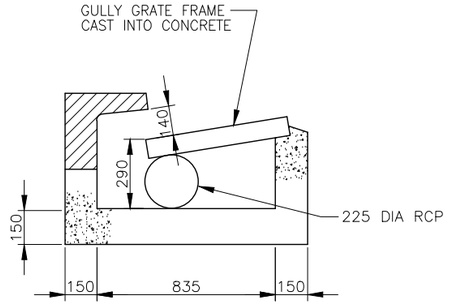
SECTION A–A



SECTION C–C
(THROUGH LINTEL)



PLAN



SECTION B–B

SURCHARGE GULLY

NOTES:

1. FOR COUNCIL USE ONLY. SURCHARGE GULLY ONLY TO BE USED WITH APPROVAL OF MANAGER WATERWAYS OR DELEGATED AUTHORITY. USE IS GENERALLY LIMITED TO RETROFITTING OR INFRASTRUCTURE UPGRADING.
2. FOR STANDARD GULLY COMPONENT/DIMENSION DETAIL REFER BSD–8052.
3. DIMENSIONS IN MILLIMETRES (UNO).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MANAGER ASSET SUPPORT - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

CLIENT POSITION
COUNCIL WORK AREA OR BRANCH

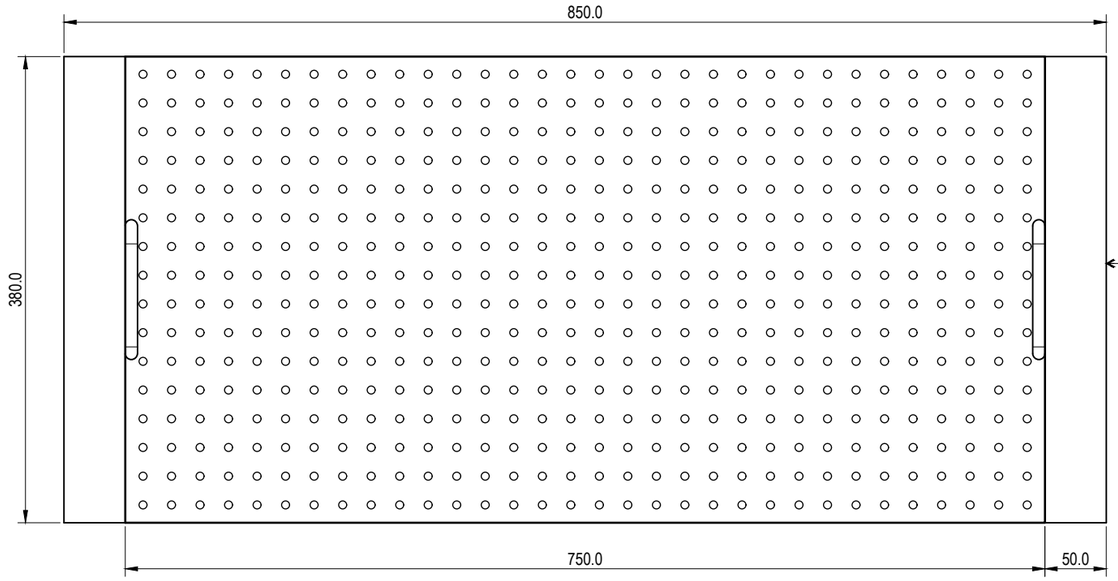
DESIGN	STD DWG GROUP	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEEER	DATE	MAY'01
DRAWING FILENAME	BSD-8059 (A) Surcharge gully.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-338		

BRISBANE CITY

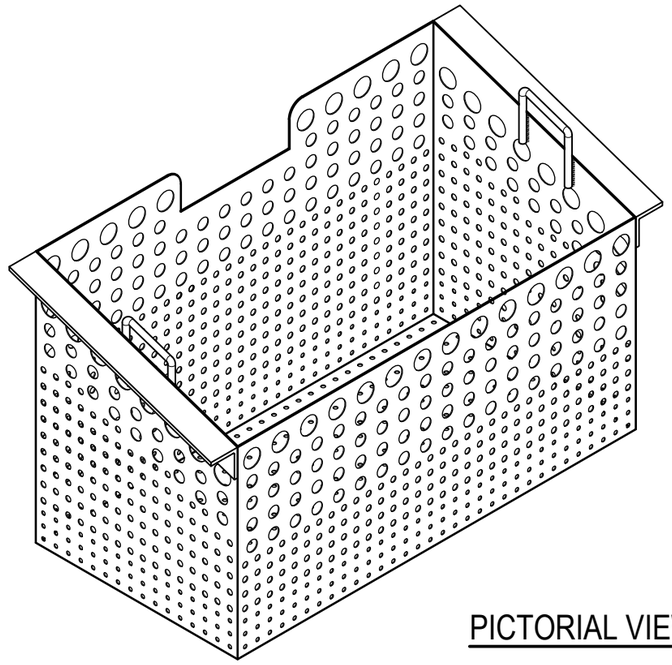
BRISBANE CITY COUNCIL STANDARD DRAWING

SURCHARGE GULLY

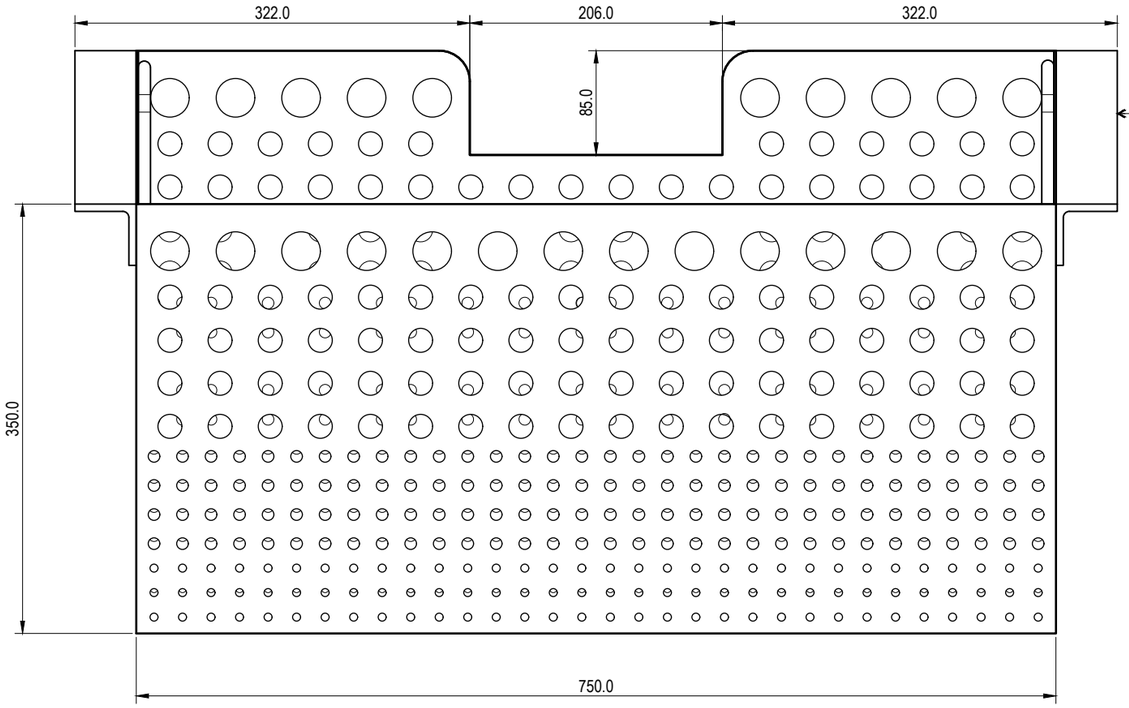
SCALE: NOT TO SCALE
DWG No.: BSD–8059
ORIGINAL SIZE: A3
REVISION: A



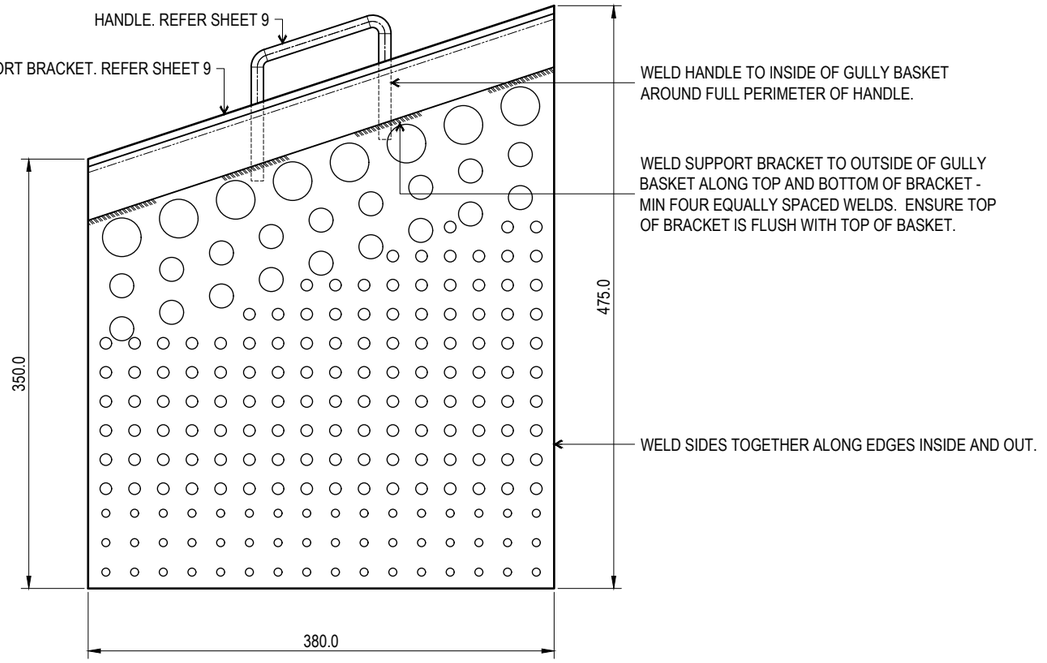
TOP ELEVATION



PICTORIAL VIEW



FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. MATERIAL:
   - BASKET BODY: 1.6mm PERFORATED STEEL. REFER SHEET 2.
   - BASKET SUPPORT BRACKETS: 50x6mm ANGLE. REFER SHEET 5.
   - HANDLES: Ø10 STEEL BAR BENT TO SHAPE. REFER SHEET 5.
2. HOT DIP GALVANISE MILD STEEL COMPONENTS (WHERE USED) TO *AS/NZS4680* AFTER FABRICATION.
3. ALL WELDS TO BE 4mm CFW UNLESS NOTED OTHERWISE.
4. REFER SHEET 2 FOR HOLES SIZES AND SETOUT.
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

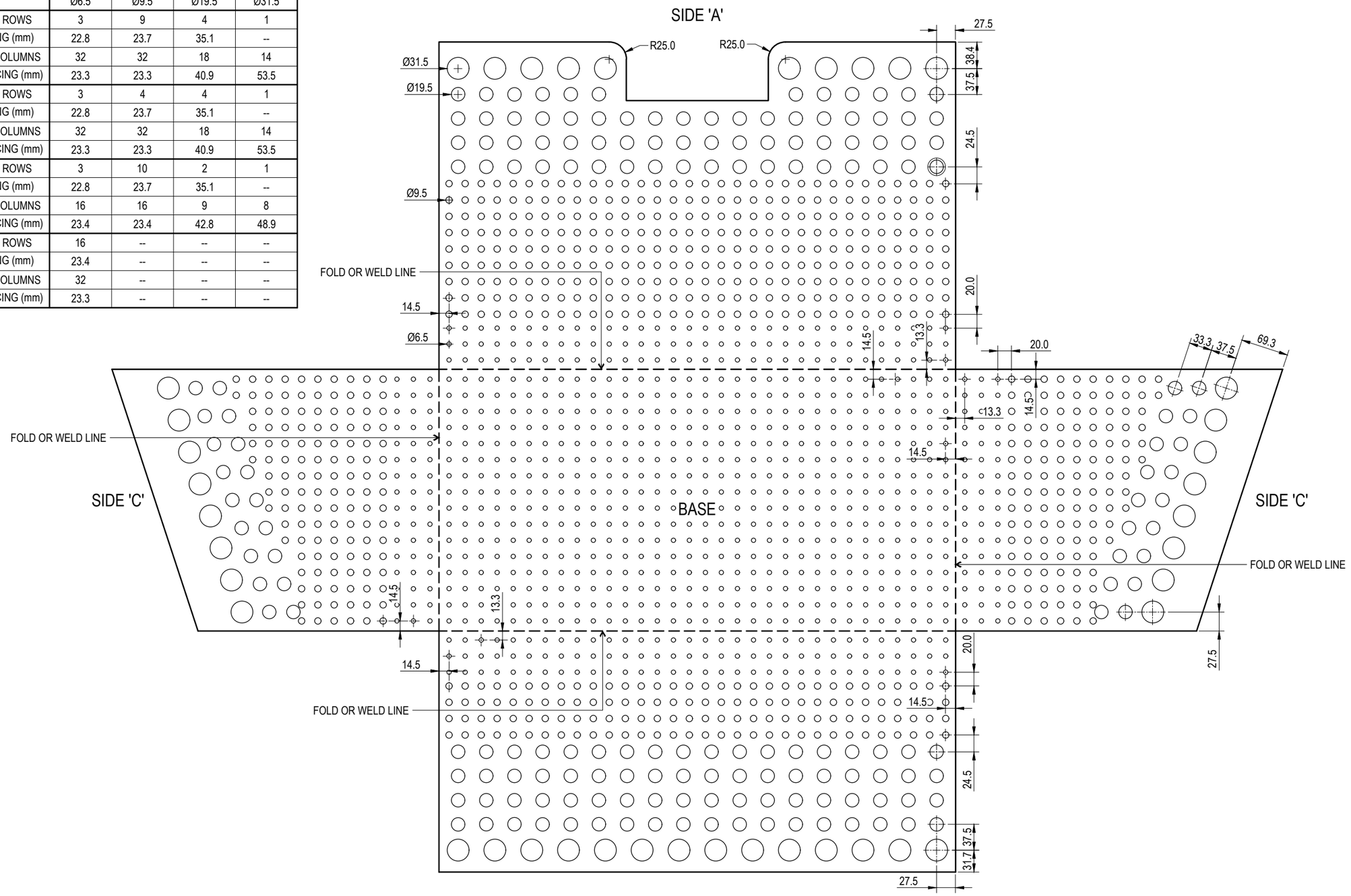
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 1 (LARGE) BASKET ASSEMBLY
SHEET 1 OF 10

PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C

DRAINAGE HOLE SETOUT

		HOLE SIZE (Ømm)			
		Ø6.5	Ø9.5	Ø19.5	Ø31.5
SIDE 'A'	NUMBER OF ROWS	3	9	4	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'B'	NUMBER OF ROWS	3	4	4	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'C' x 2	NUMBER OF ROWS	3	10	2	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	16	16	9	8
	COLUMN SPACING (mm)	23.4	23.4	42.8	48.9
BASE	NUMBER OF ROWS	16	--	--	--
	ROW SPACING (mm)	23.4	--	--	--
	NUMBER OF COLUMNS	32	--	--	--
	COLUMN SPACING (mm)	23.3	--	--	--



NOTES:

1. MATERIAL:
   - 1.6mm THICK 316 MARINE GRADE STAINLESS STEEL (PREFERRED); OR
   - 1.6mm THICK MILD STEEL (GALVANISED AFTER FABRICATION - REFER SHEET 1).
2. HOLES TO BE CLEANLY DRILLED, PUNCHED OR LASER CUT FROM STEEL SHEETING.
3. ALL SHARP EDGES ARE TO BE REMOVED. THIS IS TO OCCUR PRIOR TO GALVANISING FOR BASKETS FABRICATED FROM MILD STEEL.
4. HOLE DIAMETER TO BE MAINTAINED DURING AND AFTER GALVANISING IN BASKETS FABRICATED FROM MILD STEEL
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

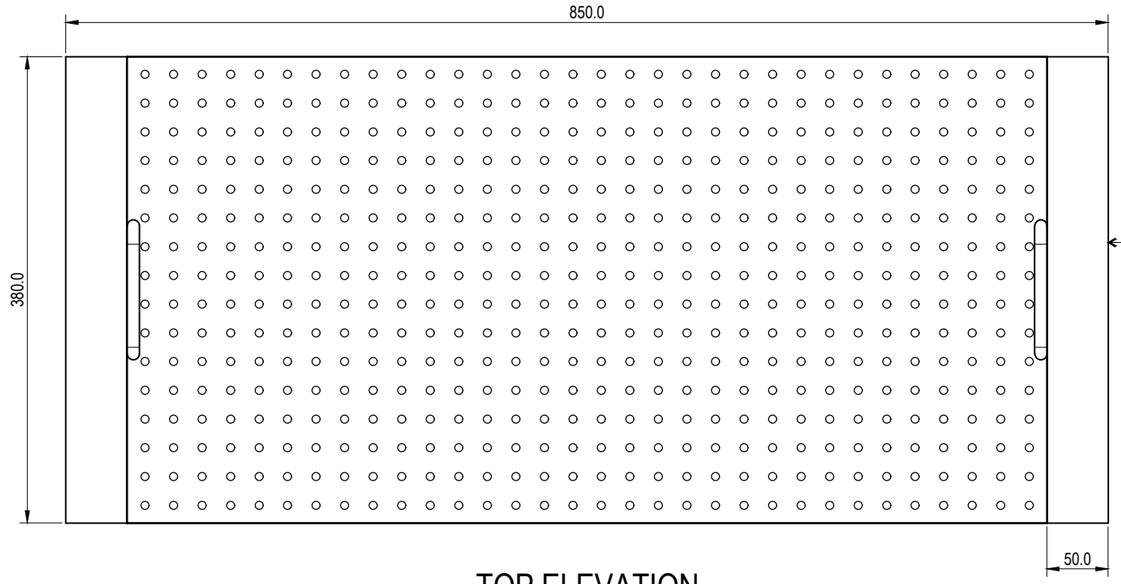
FABRICATION PATTERN

BRISBANE CITY

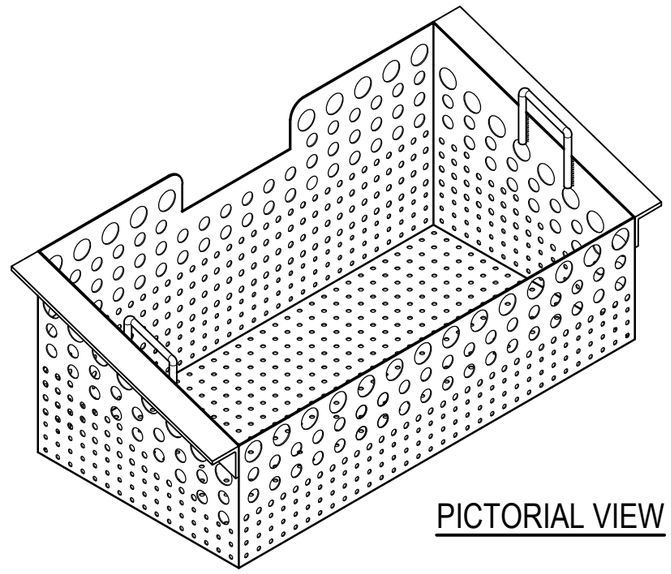
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 1 (LARGE) BASKET LAYOUT DETAILS
SHEET 2 OF 10

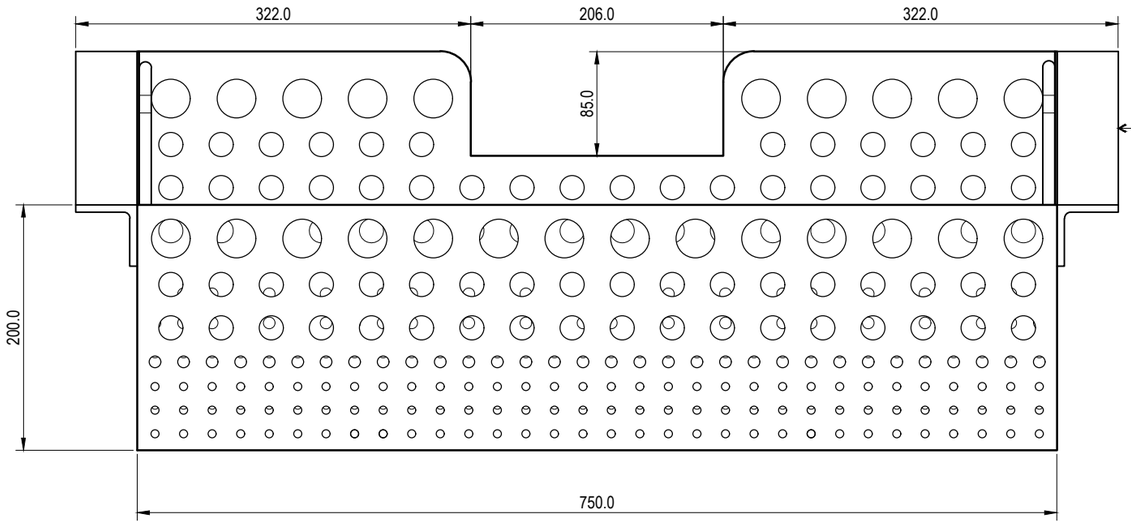
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C



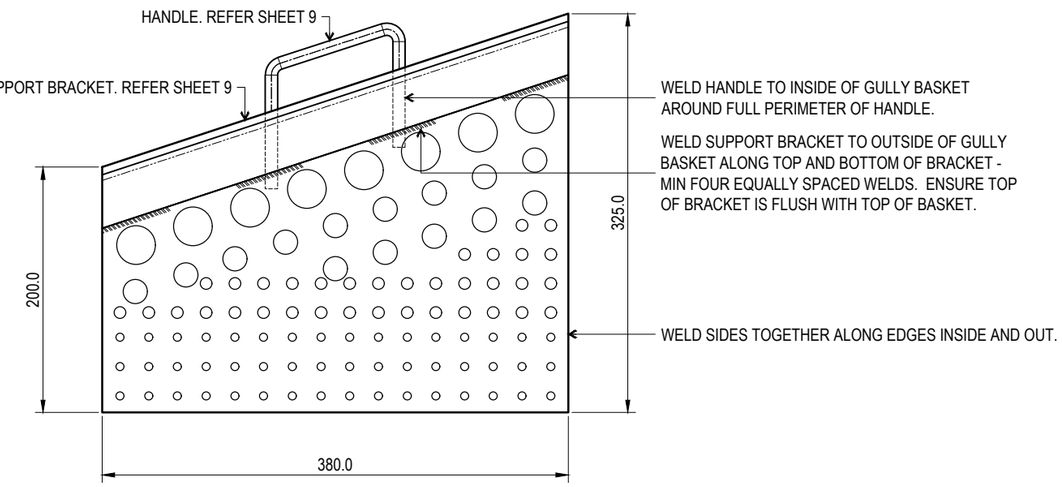
TOP ELEVATION



PICTORIAL VIEW



FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. MATERIAL:
   - BASKET BODY: 1.6mm PERFORATED STEEL. REFER SHEET 4.
   - BASKET SUPPORT BRACKETS: 50x6mm ANGLE. REFER SHEET 5.
   - HANDLES: Ø10 STEEL BAR BENT TO SHAPE. REFER SHEET 5.
2. HOT DIP GALVANISE MILD STEEL COMPONENTS (WHERE USED) TO *AS/NZS4680* AFTER FABRICATION.
3. ALL WELDS TO BE 4mm CFW UNLESS NOTED OTHERWISE.
4. REFER SHEET 4 FOR HOLE SIZES AND SETOUT.
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

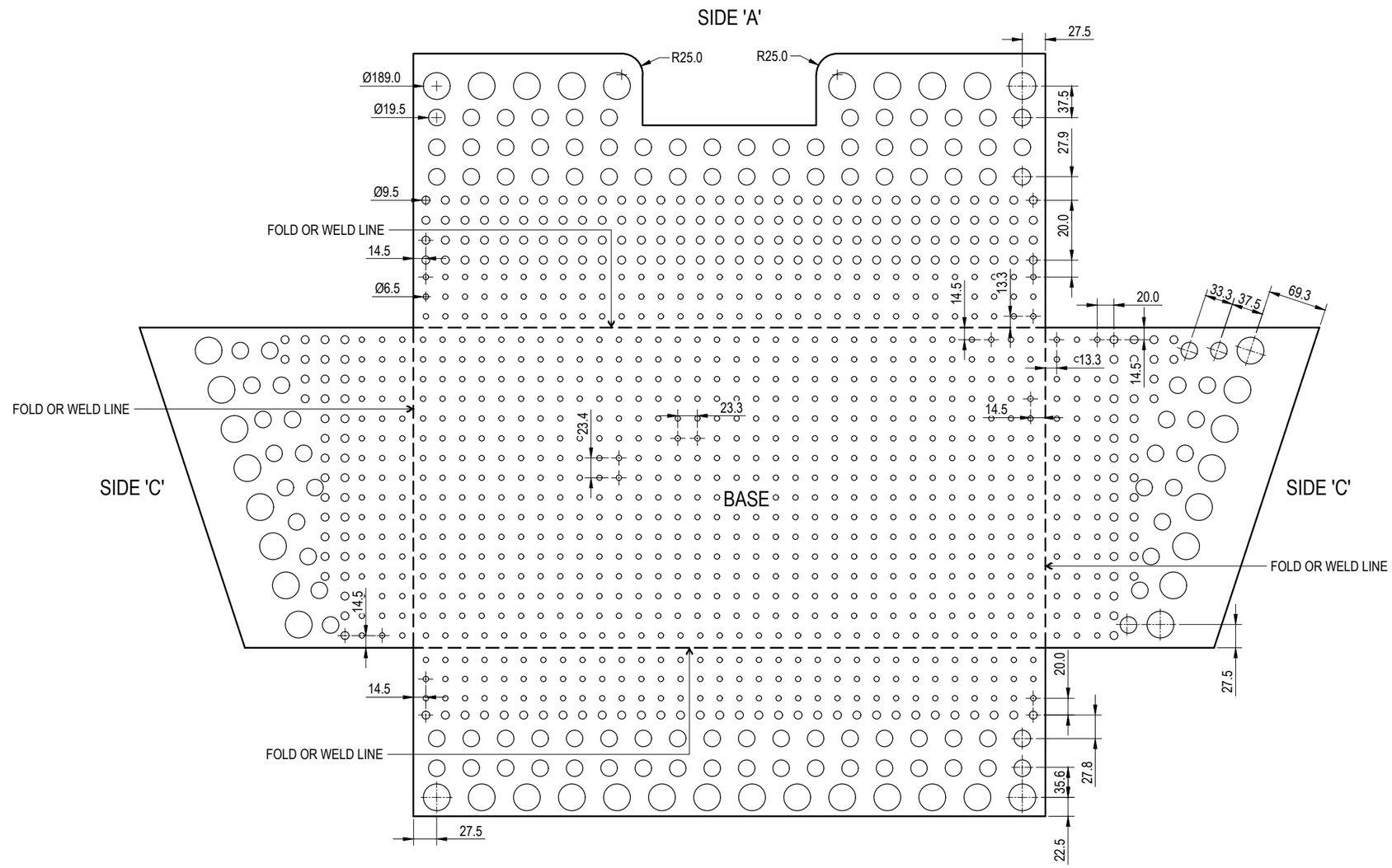
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 2 (SMALL) BASKET ASSEMBLY
SHEET 3 OF 10

PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C

DRAINAGE HOLE SETOUT

		HOLE SIZE (Ømm)			
		Ø6.5	Ø9.5	Ø19.5	Ø31.5
SIDE 'A'	NUMBER OF ROWS	3	4	3	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'B'	NUMBER OF ROWS	3	1	2	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'C' x 2	NUMBER OF ROWS	3	4	5	1
	ROW SPACING (mm)	24.0	23.7	33.3	--
	NUMBER OF COLUMNS	16	16	9	8
	COLUMN SPACING (mm)	23.4	23.4	42.8	48.9
BASE	NUMBER OF ROWS	16	--	--	--
	ROW SPACING (mm)	23.4	--	--	--
	NUMBER OF COLUMNS	32	--	--	--
	COLUMN SPACING (mm)	23.3	--	--	--



FABRICATION PATTERN

NOTES:

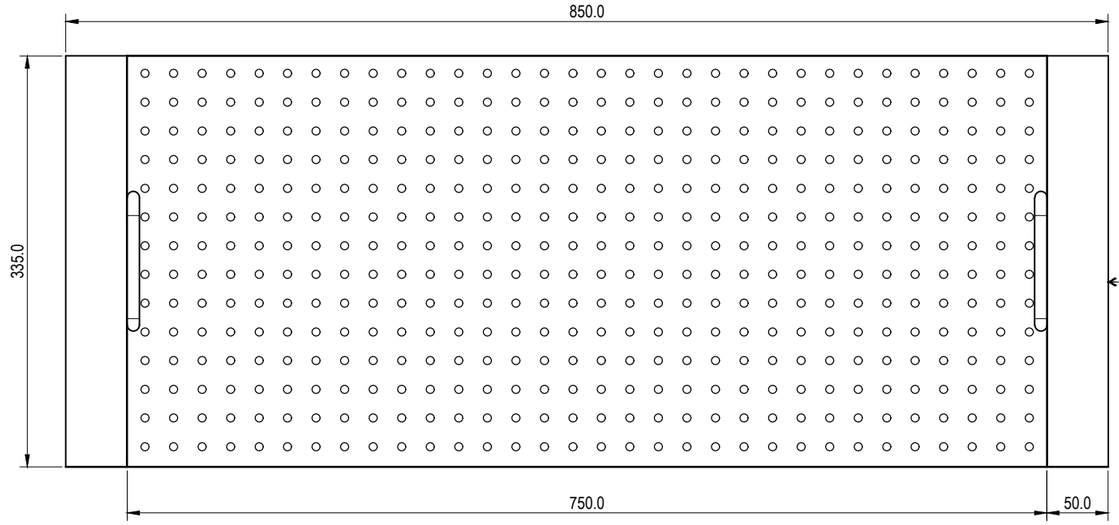
1. MATERIAL:
   - 1.6mm THICK 316 MARINE GRADE STAINLESS STEEL (PREFERRED); OR
   - 1.6mm THICK MILD STEEL (GALVANISED AFTER FABRICATION - REFER SHEET 1).
2. HOLES TO BE CLEANLY DRILLED, PUNCHED OR LASER CUT FROM STEEL SHEETING.
3. ALL SHARP EDGES ARE TO BE REMOVED. THIS IS TO OCCUR PRIOR TO GALVANISING FOR BASKETS FABRICATED FROM MILD STEEL.
4. HOLE DIAMETER TO BE MAINTAINED DURING AND AFTER GALVANISING IN BASKETS FABRICATED FROM MILD STEEL
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

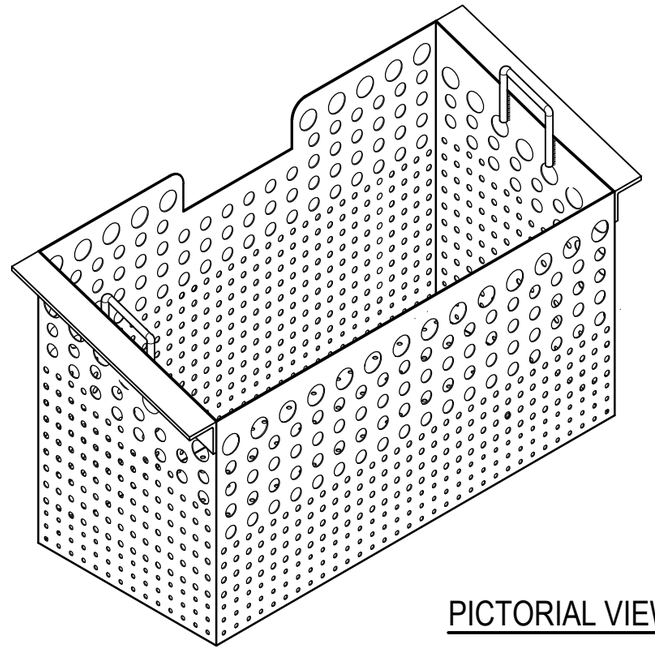
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 2 (SMALL) BASKET LAYOUT DETAILS
SHEET 4 OF 10

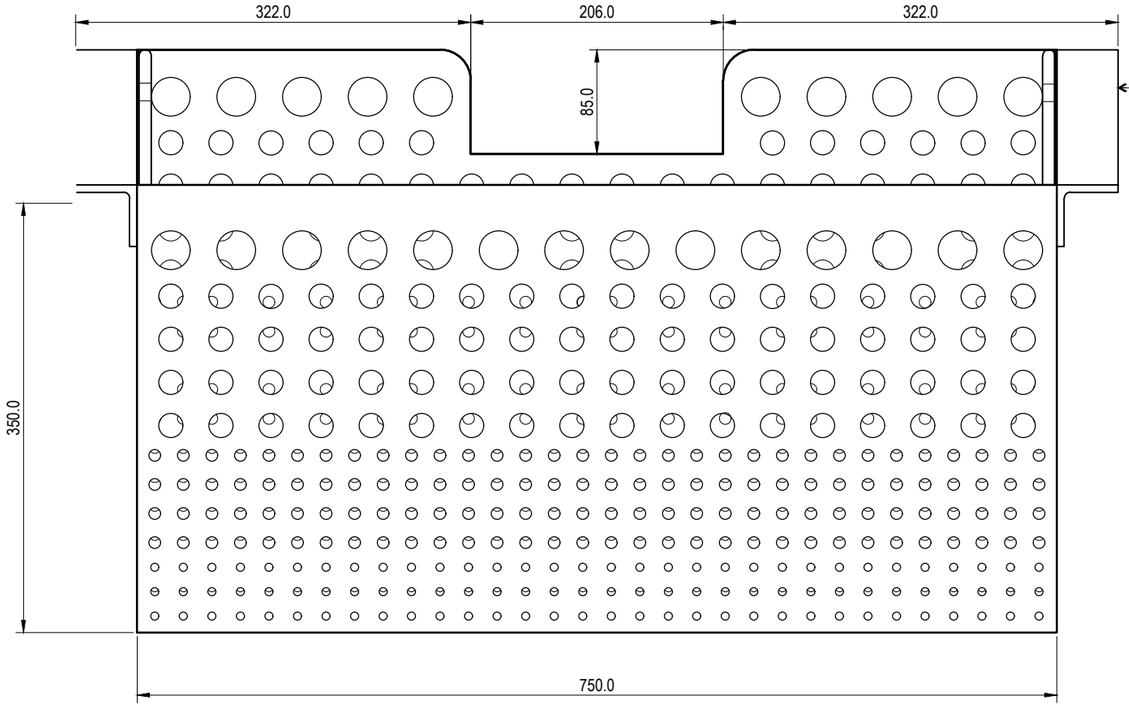
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C



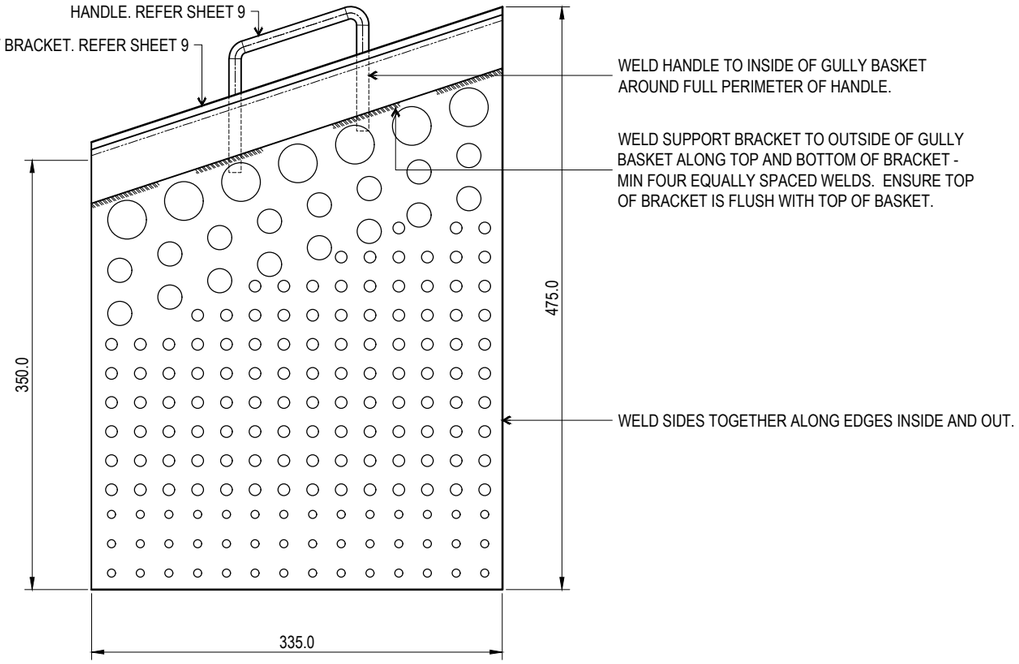
TOP ELEVATION



PICTORIAL VIEW



FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. MATERIAL:
   - BASKET BODY: 1.6mm PERFORATED STEEL. REFER SHEET 2.
   - BASKET SUPPORT BRACKETS: 50x6mm ANGLE. REFER SHEET 5.
   - HANDLES: Ø10 STEEL BAR BENT TO SHAPE. REFER SHEET 5.
2. HOT DIP GALVANISE MILD STEEL COMPONENTS (WHERE USED) TO *AS/NZS4680* AFTER FABRICATION.
3. ALL WELDS TO BE 4mm CFW UNLESS NOTED OTHERWISE.
4. REFER SHEET 2 FOR HOLES SIZES AND SETOUT.
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

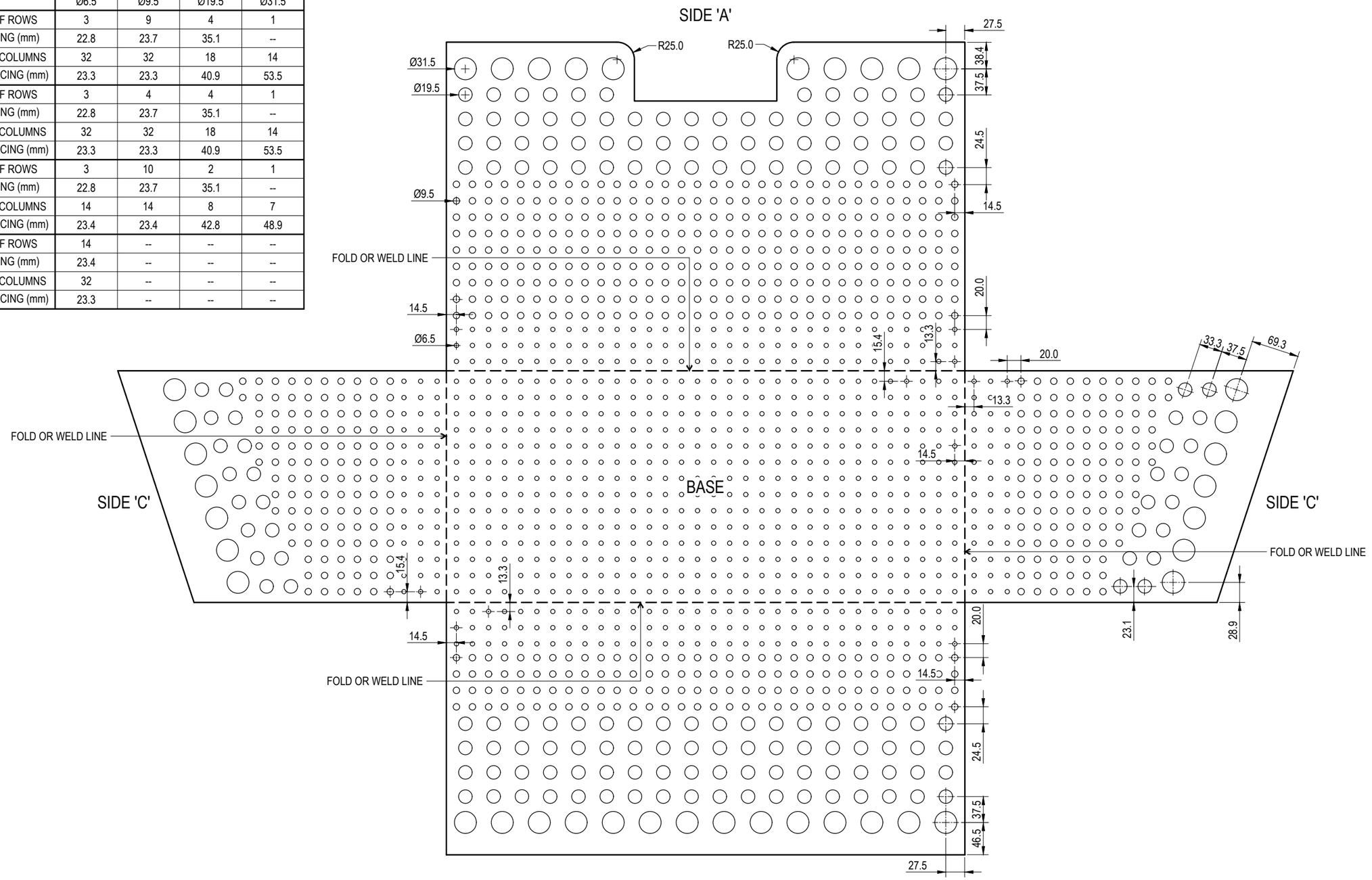
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 3 (SLIMLINE LARGE) BASKET
ASSEMBLY - SHEET 5 OF 10

PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C

DRAINAGE HOLE SETOUT

		HOLE SIZE (Ømm)			
		Ø6.5	Ø9.5	Ø19.5	Ø31.5
SIDE 'A'	NUMBER OF ROWS	3	9	4	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'B'	NUMBER OF ROWS	3	4	4	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'C' x 2	NUMBER OF ROWS	3	10	2	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	14	14	8	7
	COLUMN SPACING (mm)	23.4	23.4	42.8	48.9
BASE	NUMBER OF ROWS	14	--	--	--
	ROW SPACING (mm)	23.4	--	--	--
	NUMBER OF COLUMNS	32	--	--	--
	COLUMN SPACING (mm)	23.3	--	--	--



NOTES:

1. MATERIAL:
   - 1.6mm THICK 316 MARINE GRADE STAINLESS STEEL (PREFERRED); OR
   - 1.6mm THICK MILD STEEL (GALVANISED AFTER FABRICATION - REFER SHEET 1).
2. HOLES TO BE CLEANLY DRILLED, PUNCHED OR LASER CUT FROM STEEL SHEETING.
3. ALL SHARP EDGES ARE TO BE REMOVED. THIS IS TO OCCUR PRIOR TO GALVANISING FOR BASKETS FABRICATED FROM MILD STEEL.
4. HOLE DIAMETER TO BE MAINTAINED DURING AND AFTER GALVANISING IN BASKETS FABRICATED FROM MILD STEEL
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

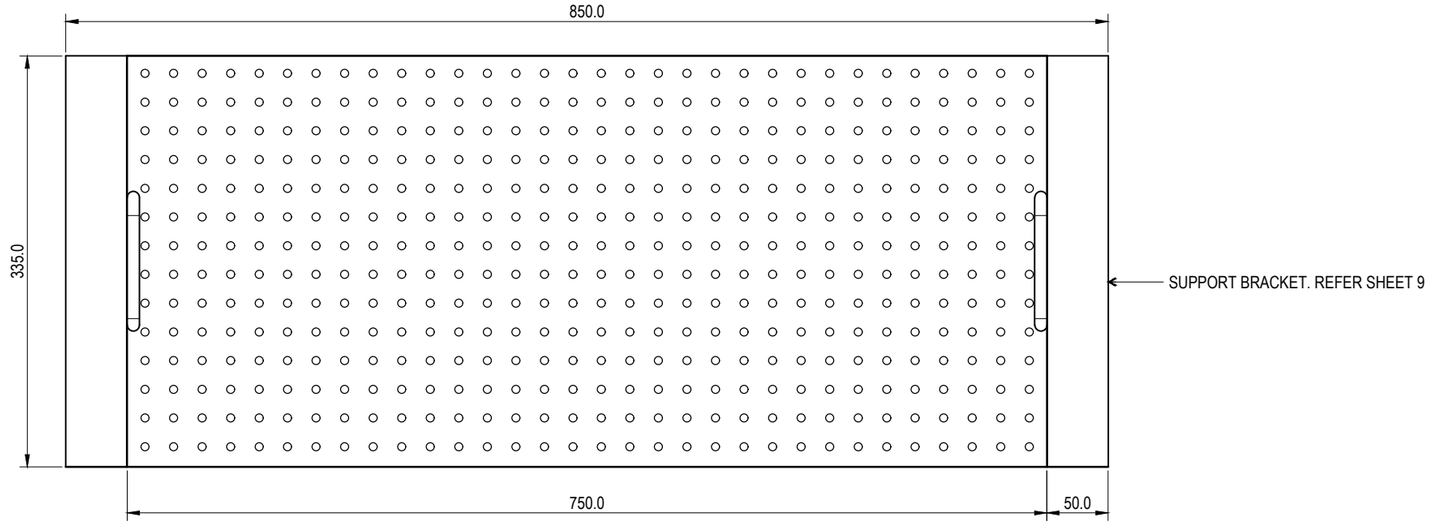
FABRICATION PATTERN

BRISBANE CITY

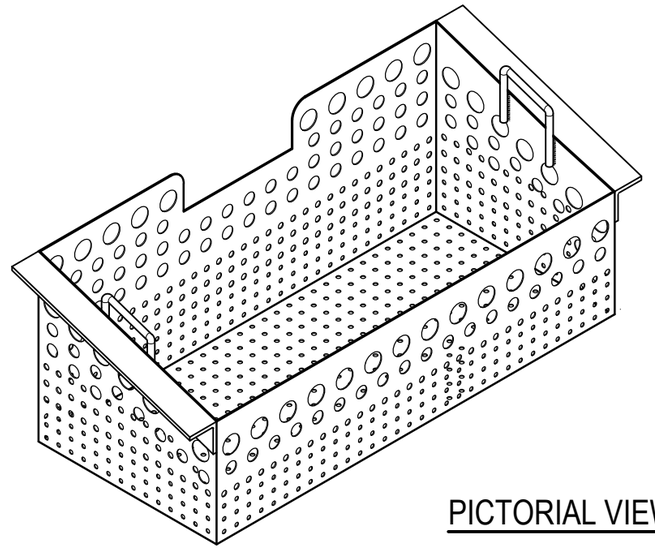
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 3 (SLIMLINE LARGE) BASKET LAYOUT
DETAILS - SHEET 6 OF 10

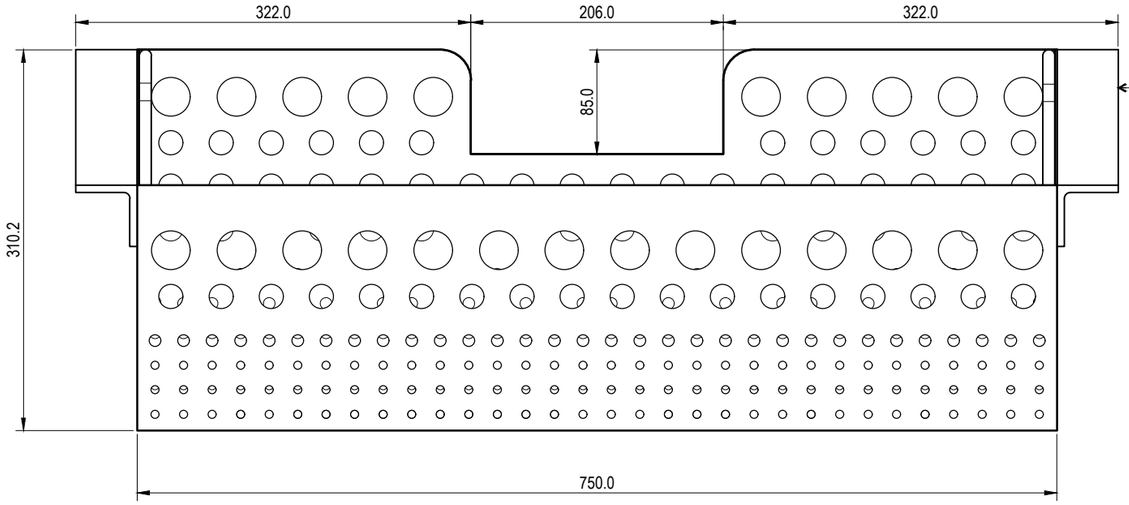
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C



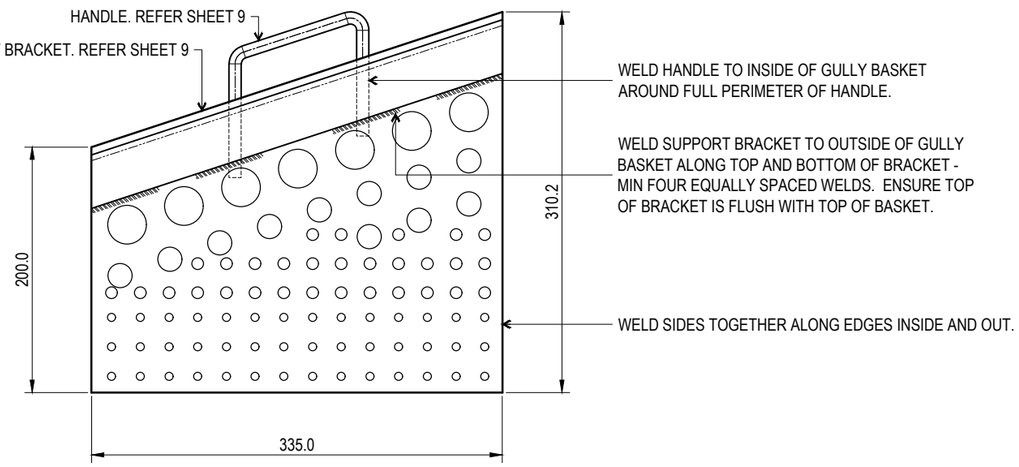
TOP ELEVATION



PICTORIAL VIEW



FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. MATERIAL:
   - BASKET BODY: 1.6mm PERFORATED STEEL. REFER SHEET 2.
   - BASKET SUPPORT BRACKETS: 50x6mm ANGLE. REFER SHEET 5.
   - HANDLES: Ø10 STEEL BAR BENT TO SHAPE. REFER SHEET 5.
2. HOT DIP GALVANISE MILD STEEL COMPONENTS (WHERE USED) TO *AS/NZS4680* AFTER FABRICATION.
3. ALL WELDS TO BE 4mm CFW UNLESS NOTED OTHERWISE.
4. REFER SHEET 2 FOR HOLES SIZES AND SETOUT.
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

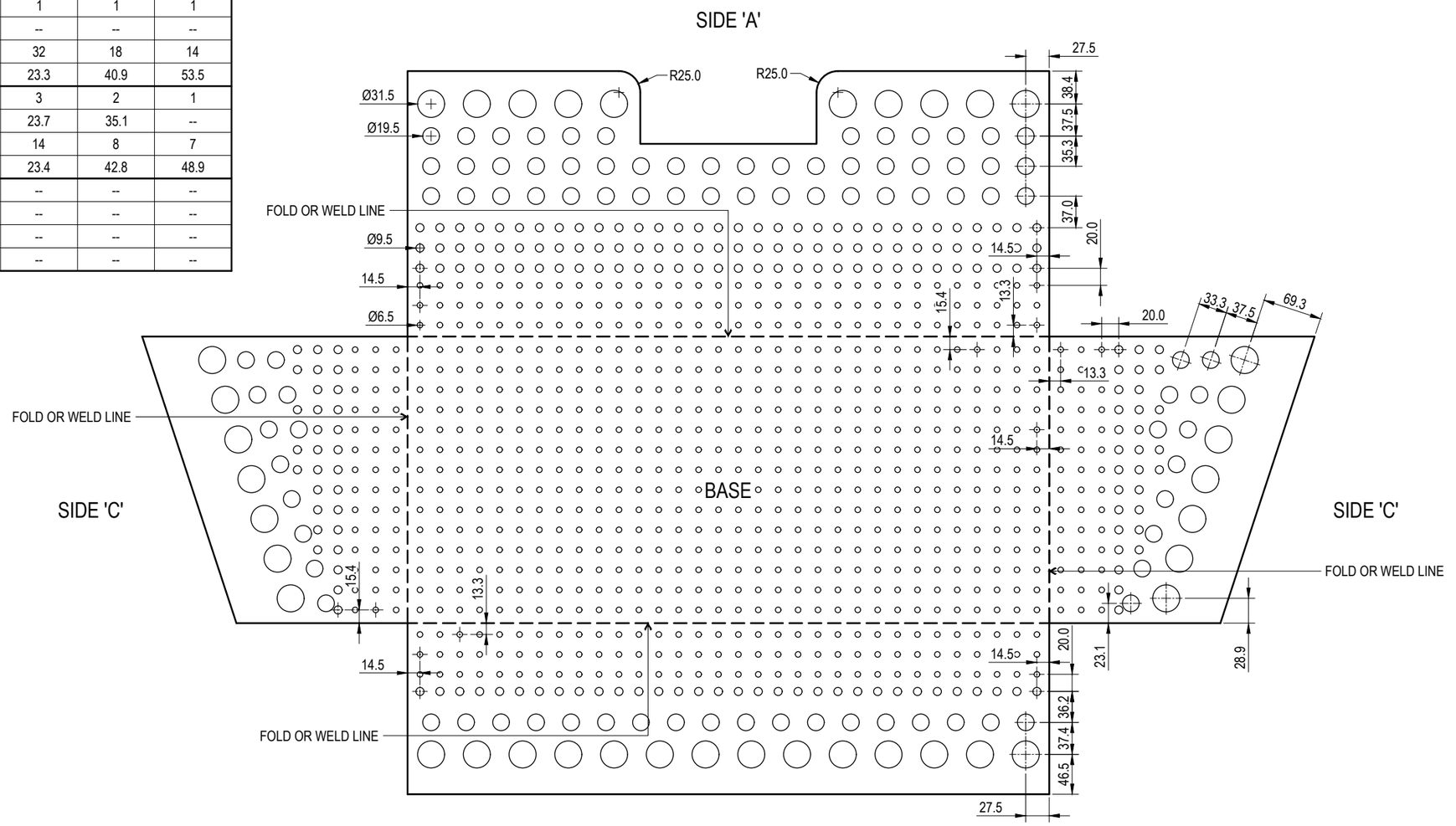
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 4 (SLIMLINE SMALL) BASKET ASSEMBLY - SHEET 7 OF 10

PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C

DRAINAGE HOLE SETOUT

		HOLE SIZE (Ømm)			
		Ø6.5	Ø9.5	Ø19.5	Ø31.5
SIDE 'A'	NUMBER OF ROWS	3	3	4	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'B'	NUMBER OF ROWS	3	1	1	1
	ROW SPACING (mm)	22.8	--	--	--
	NUMBER OF COLUMNS	32	32	18	14
	COLUMN SPACING (mm)	23.3	23.3	40.9	53.5
SIDE 'C' x 2	NUMBER OF ROWS	3	3	2	1
	ROW SPACING (mm)	22.8	23.7	35.1	--
	NUMBER OF COLUMNS	14	14	8	7
	COLUMN SPACING (mm)	23.4	23.4	42.8	48.9
BASE	NUMBER OF ROWS	14	--	--	--
	ROW SPACING (mm)	23.4	--	--	--
	NUMBER OF COLUMNS	32	--	--	--
	COLUMN SPACING (mm)	23.3	--	--	--



FABRICATION PATTERN

NOTES:

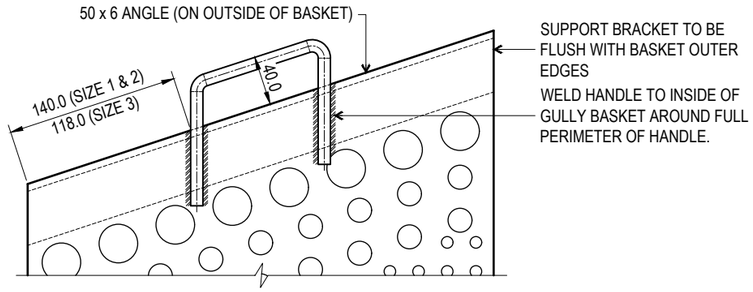
1. MATERIAL:
   - 1.6mm THICK 316 MARINE GRADE STAINLESS STEEL (PREFERRED); OR
   - 1.6mm THICK MILD STEEL (GALVANISED AFTER FABRICATION - REFER SHEET 1).
2. HOLES TO BE CLEANLY DRILLED, PUNCHED OR LASER CUT FROM STEEL SHEETING.
3. ALL SHARP EDGES ARE TO BE REMOVED. THIS IS TO OCCUR PRIOR TO GALVANISING FOR BASKETS FABRICATED FROM MILD STEEL.
4. HOLE DIAMETER TO BE MAINTAINED DURING AND AFTER GALVANISING IN BASKETS FABRICATED FROM MILD STEEL
5. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

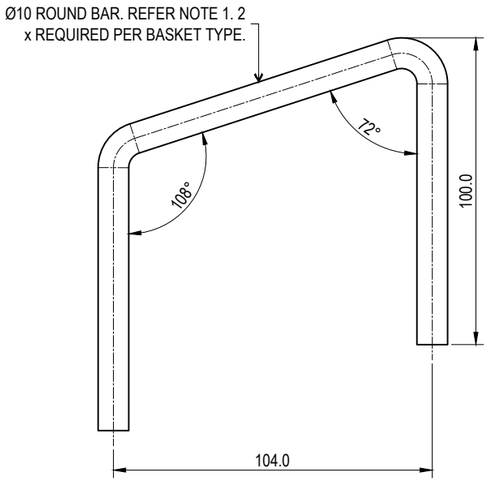
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SIZE 4 (SLIMLINE SMALL) BASKET
LAYOUT DETAILS - SHEET 8 OF 10

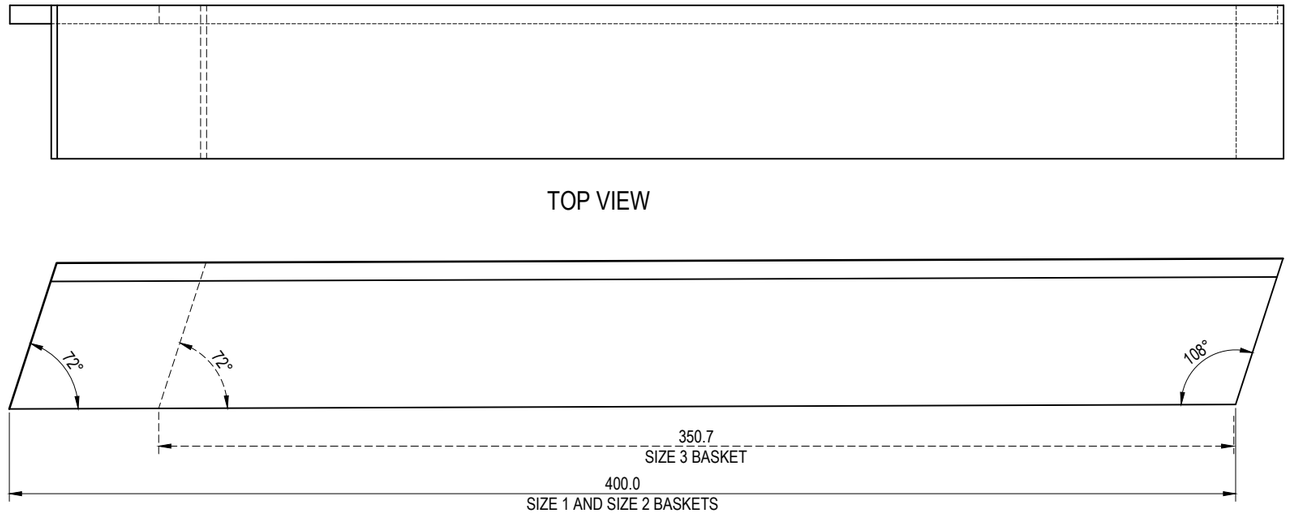
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C



HANDLE ATTACHMENT
(INSIDE OF GULLY BASKET)

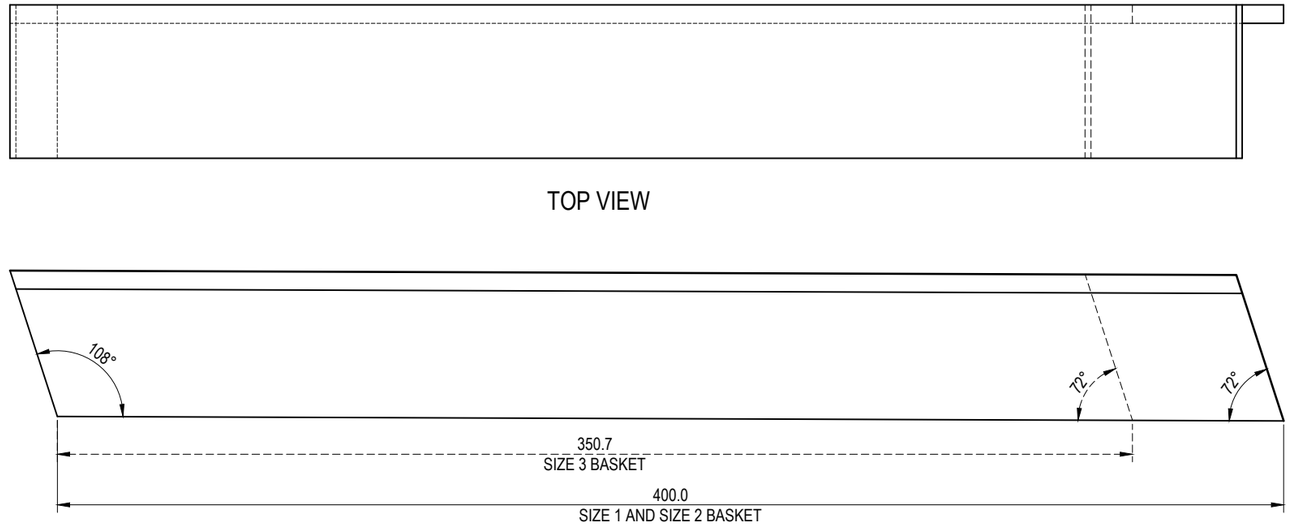


HANDLE



TOP VIEW

RIGHT BASKET SUPPORT BRACKET
50 x 6 ANGLE. REFER NOTE 1.
ELEVATION



TOP VIEW

LEFT BASKET SUPPORT BRACKET
50 x 6 ANGLE. REFER NOTE 1.
ELEVATION

NOTES:

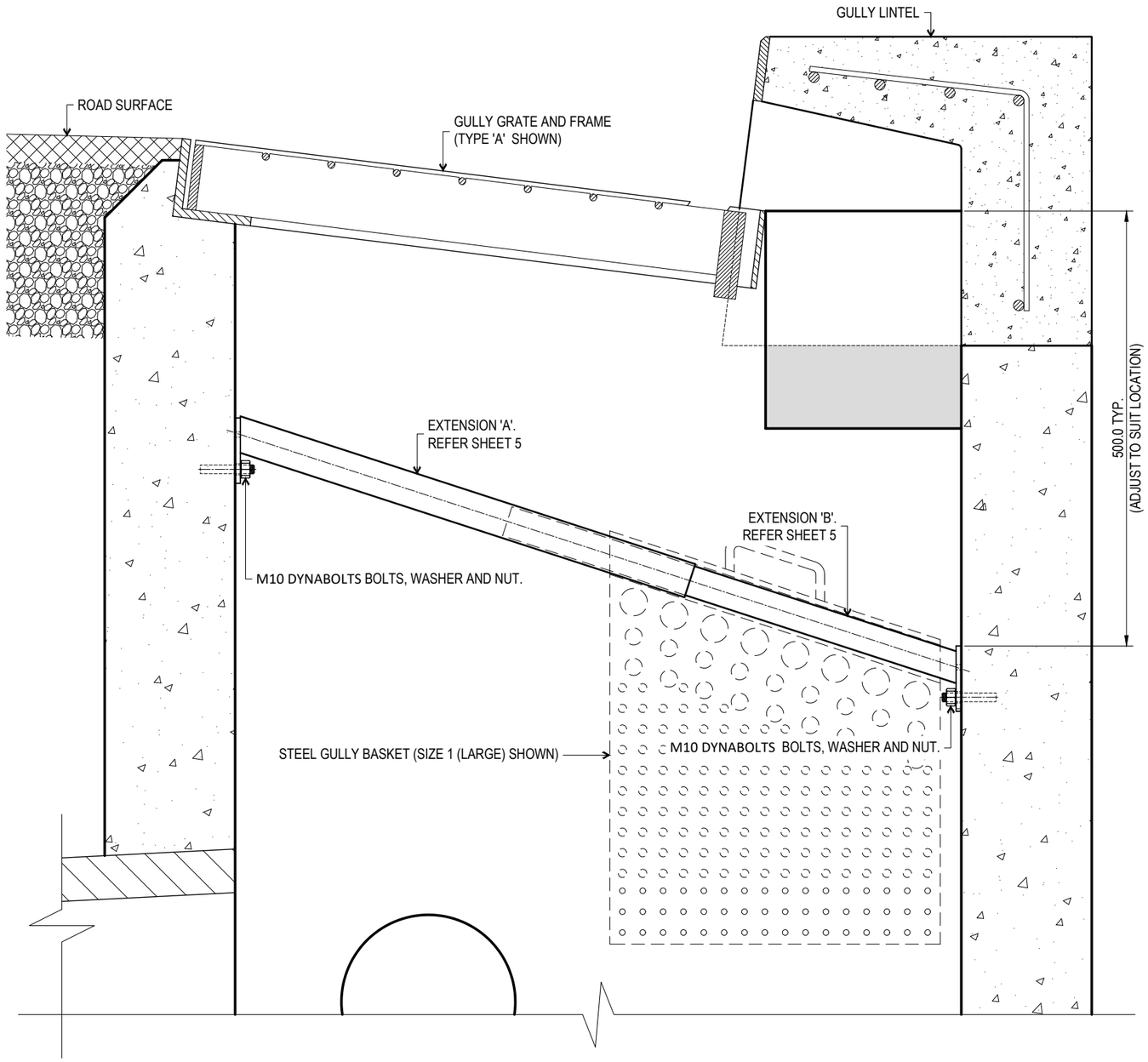
1. SUPPORT BRACKET AND HANDLE MATERIAL TO MATCH BASKET MATERIAL.
2. BASKET SUPPORT BRACKETS: 50 x 6 ANGLE.
3. PAIR OF BASKET SUPPORT BRACKETS (ONE LEFT, ONE RIGHT) REQUIRED FOR EACH GULLY BASKET (TYPE 1 (LARGE), TYPE 2 (SMALL) AND TYPE 3 (SLIMLINE)).
4. HANDLE: Ø10 ROUND BAR.
5. HANDLE ARE SAME SIZE AND POSITION FOR TYPE 1 (LARGE) AND TYPE 2 (SMALL) GULLY BASKETS.
6. ALL WELDS TO BE 4mm CFW UNLESS NOTED OTHERWISE.
7. ALL SHARP EDGES ARE TO BE REMOVED. THIS IS TO OCCUR PRIOR TO GALVANISING FOR BASKETS FABRICATED FROM MILD STEEL.
8. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

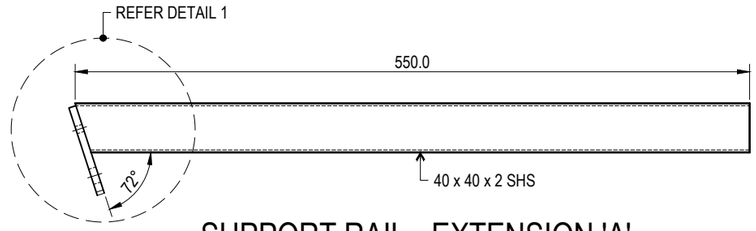
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
BASKET SUPPORT BRACKETS AND
HANDLE DETAILS - SHEET 9 OF 10

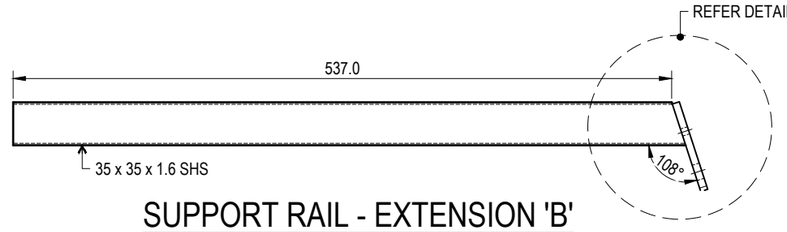
PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C



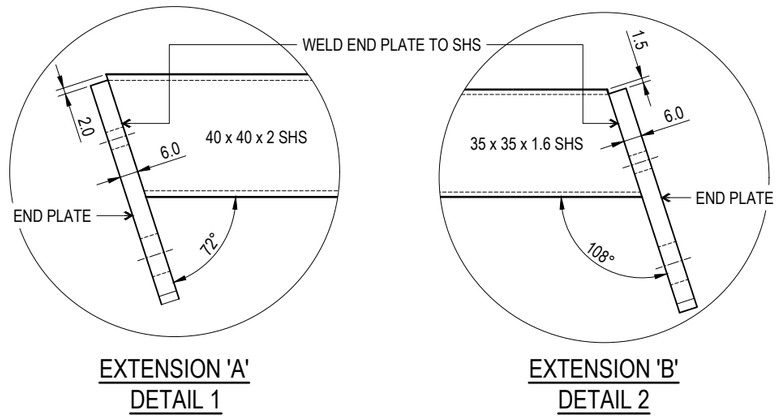
GULLY BASKET INSTALLATION
STANDARD TYPE 'A' GULLY



SUPPORT RAIL - EXTENSION 'A'

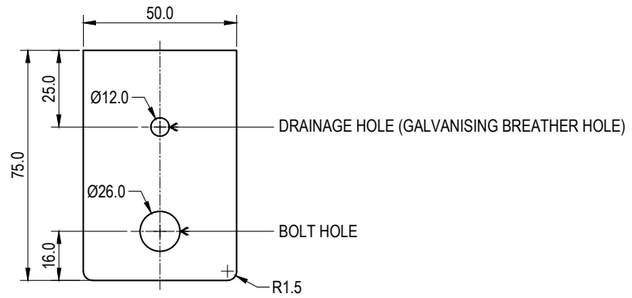


SUPPORT RAIL - EXTENSION 'B'



EXTENSION 'A'
DETAIL 1

EXTENSION 'B'
DETAIL 2



SUPPORT RAIL END PLATE
6mm THICK

NOTES:

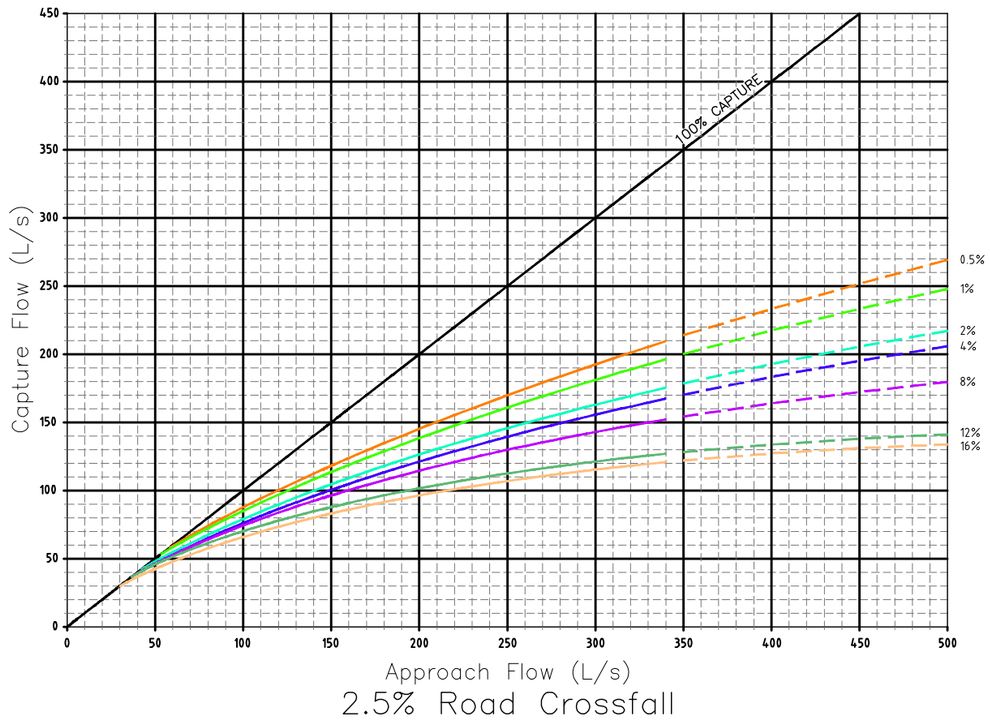
1. SUPPORT RAIL MATERIAL TO MATCH BASKET MATERIAL.
2. MATERIAL:
   - EXTENSION 'A': 40 x 40 x 2 SHS.
   - EXTENSION 'B': 35 x 35 x 1.6 SHS.
2. ALL WELDS TO BE 4mm CFW UNLESS NOTED OTHERWISE.
3. HOT DIP GALVANISE SUPPORT RAILS (EXTENSIONS) TO *AS/NZS4680* AFTER FABRICATION.
4. AFTER GALVANISING, ENSURE EXTENSION 'B' IS ABLE TO BE INSERTED INTO EXTENSION 'A'.
5. 2 PAIRS REQUIRED FOR EACH GULLY BASKET.
6. ALL SHARP EDGES ARE TO BE REMOVED. THIS IS TO OCCUR PRIOR TO GALVANISING FOR BASKETS FABRICATED FROM MILD STEEL.
7. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY

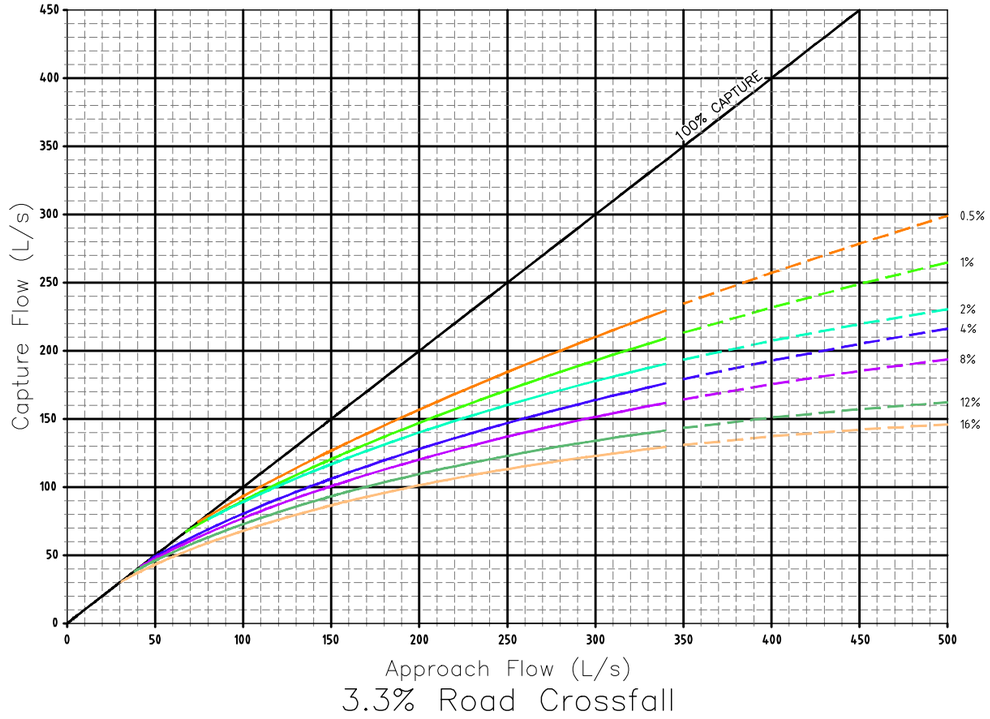
BRISBANE CITY COUNCIL STANDARD DRAWING

STEEL GULLY BASKET
SUPPORT RAILS (EXTENSIONS) AND
INSTALLATION DETAILS - SHEET 10 OF 10

PUBLISH DATE	SEP 2024
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8060
ORIGINAL SIZE	A3
REVISION	C



2.5% Road Crossfall



3.3% Road Crossfall

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN LIP–IN–LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 10% BLOCKAGE APPLIED TO GRATE.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_0)

BASED ON ACTUAL DATA

EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MAN INFRASTRUCTURE MANAGE - R.P.E.Q.: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

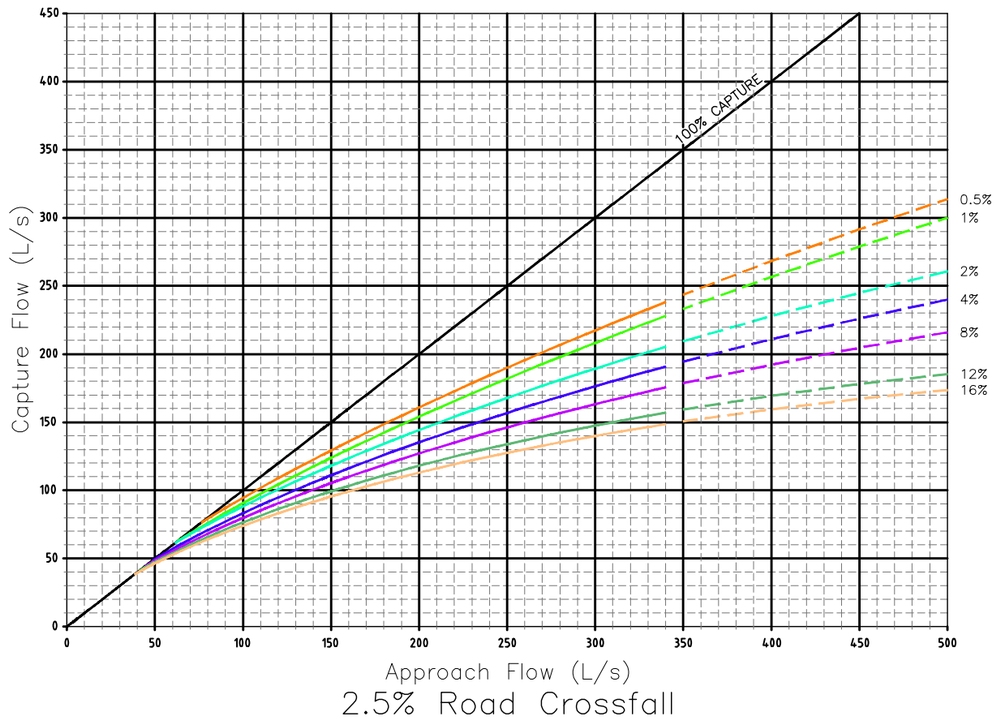
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8071(B) Hydraulic capture charts, lip in line gully on grade, type 'D' K&C, 2400mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-381		

BRISBANE CITY

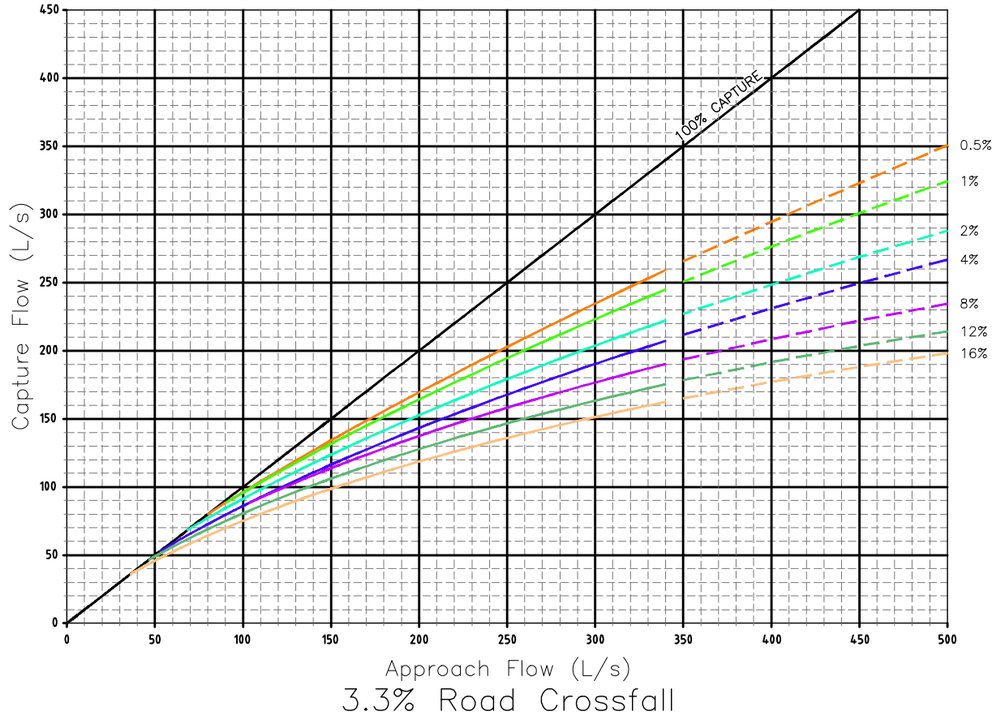
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY ON GRADE TYPE 'D' KERB AND CHANNEL 2400mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8071
ORIGINAL SIZE: A3
REVISION: B



2.5% Road Crossfall



3.3% Road Crossfall

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN LIP–IN–LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETRY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL:
   – 150mm BELOW CHANNEL INVERT LEVEL FOR S = 0.5 TO 3%
   – 350mm BELOW CHANNEL INVERT LEVEL FOR S > 3%.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 10% BLOCKAGE APPLIED TO GRATE.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

BASED ON ACTUAL DATA

EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MAN INFRASTRUCTURE MANAGE - R.P.E.Q.: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

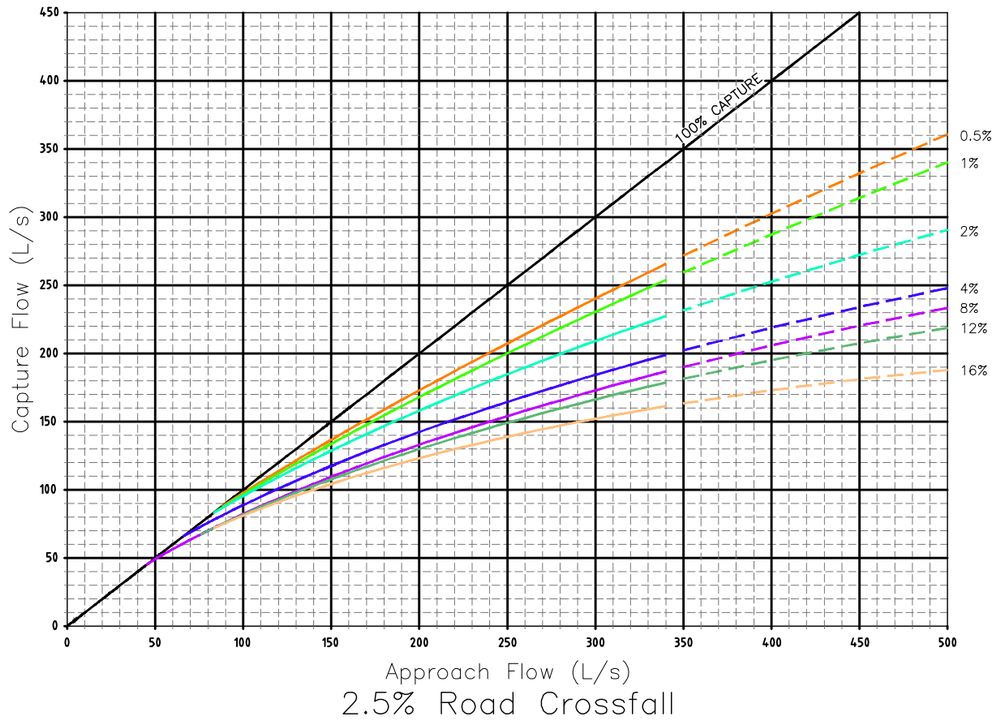
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8072 [B] Hydraulic capture charts, lip in line gully on grade, type 'D' K&C, 3600mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-382		

BRISBANE CITY

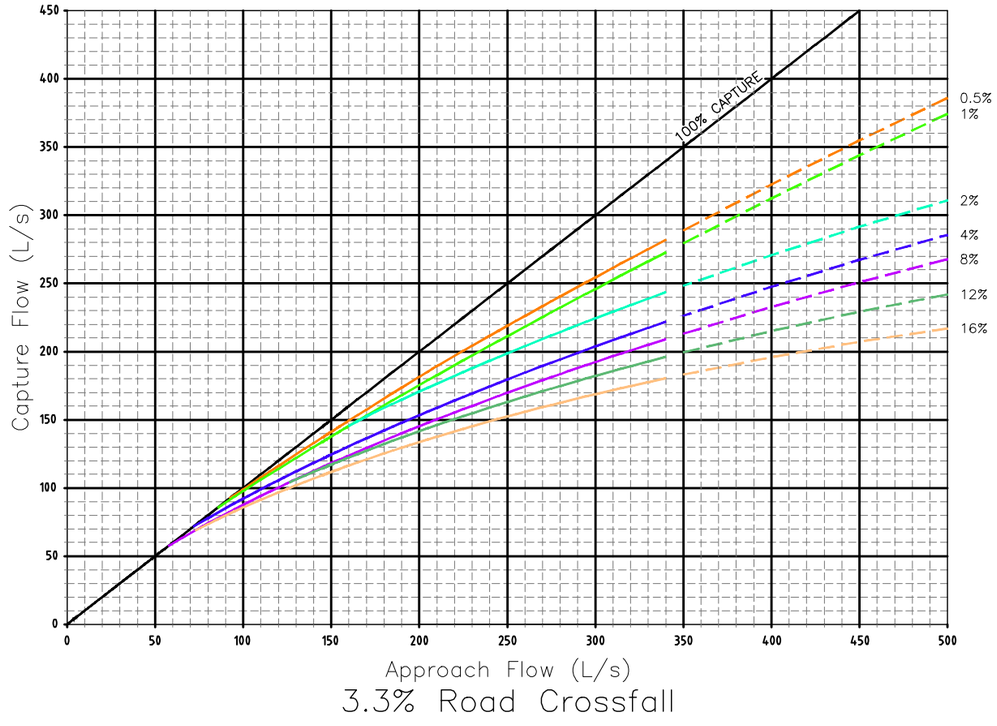
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY ON GRADE TYPE 'D' KERB AND CHANNEL 3600mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8072
ORIGINAL SIZE: A3
REVISION: B



2.5% Road Crossfall



3.3% Road Crossfall

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN LIP–IN–LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL:
   – 150mm BELOW CHANNEL INVERT LEVEL FOR S = 0.5 TO 3%
   – 350mm BELOW CHANNEL INVERT LEVEL FOR S > 3%.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 10% BLOCKAGE APPLIED TO GRATE.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

——— BASED ON ACTUAL DATA

– – – – EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MAN INFRASTRUCTURE MANAGE – R.P.E.Q.: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

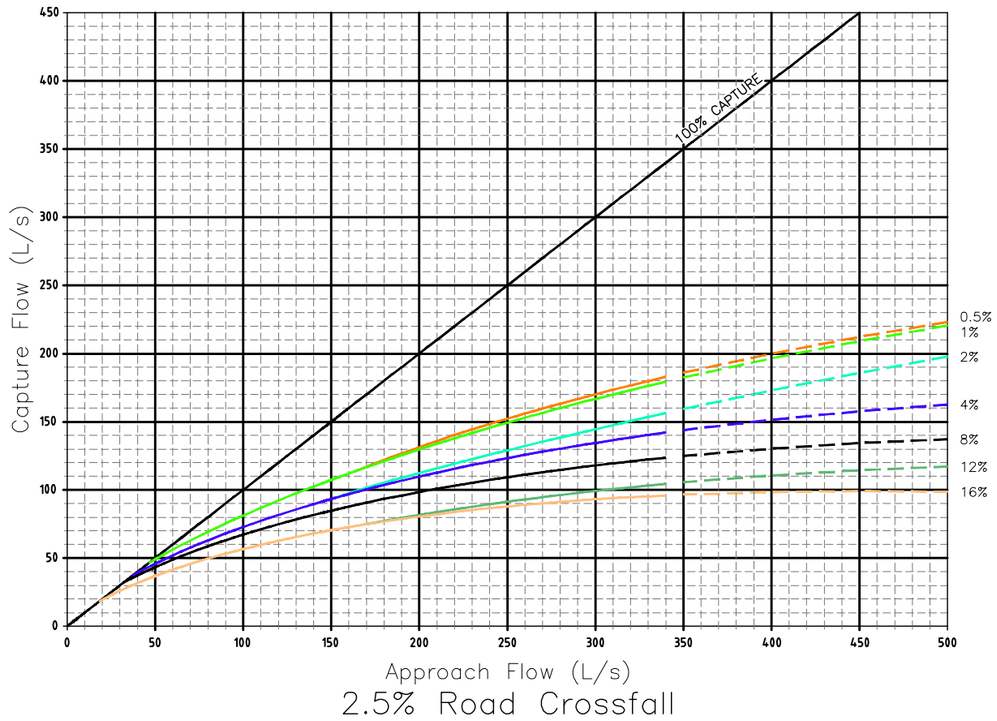
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8073 (B) Hydraulic capture charts, lip in line gully on grade, type 'D' KAK, 4800mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-383		

BRISBANE CITY

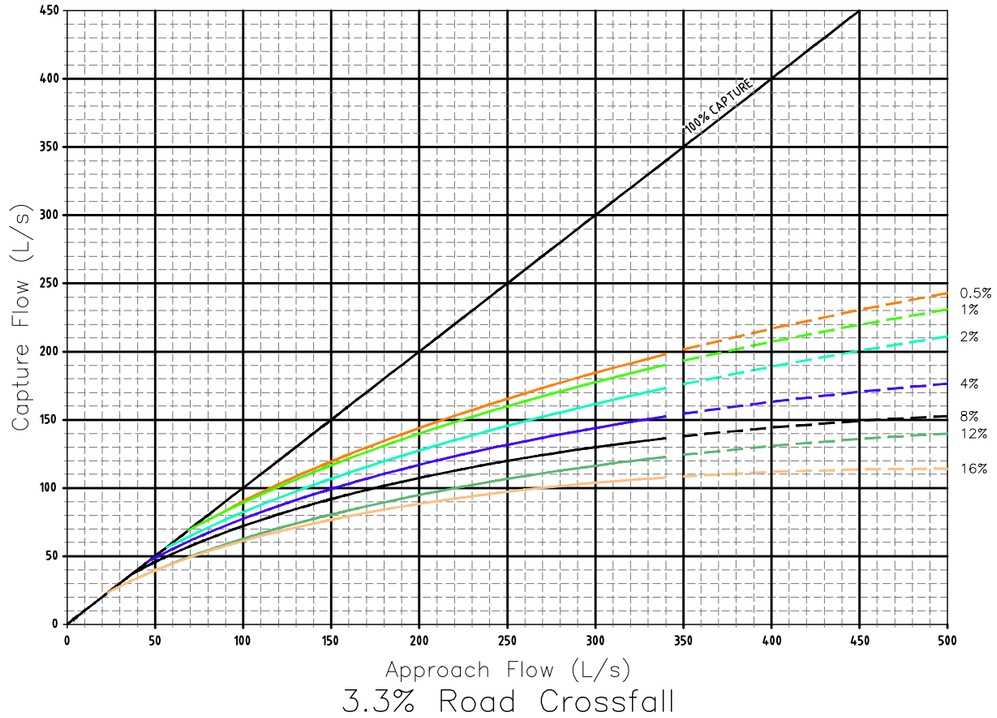
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY ON GRADE TYPE 'D' KERB AND CHANNEL 4800mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8073
ORIGINAL SIZE: A3
REVISION: B



2.5% Road Crossfall



3.3% Road Crossfall

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN LIP–IN–LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 10% BLOCKAGE APPLIED TO GRATE.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

BASED ON ACTUAL DATA

EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MAN INFRASTRUCTURE MANAGE – R.P.E.Q.: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

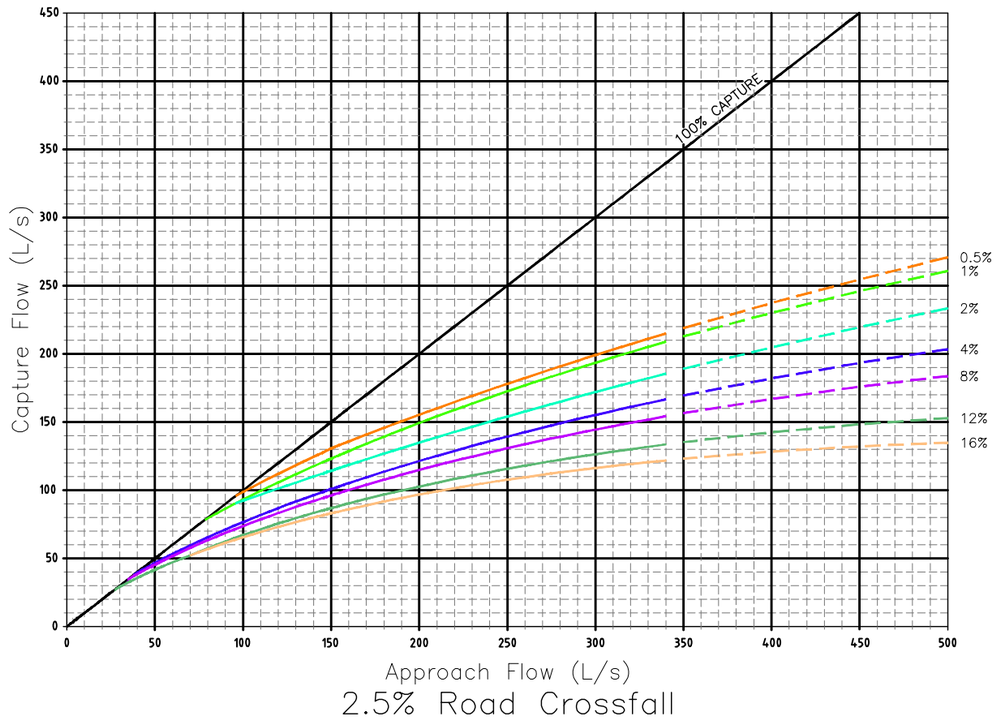
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8074 (B) Hydraulic capture charts, lip in line gully on grade, type 'E' K&C, 2400mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-384		

BRISBANE CITY

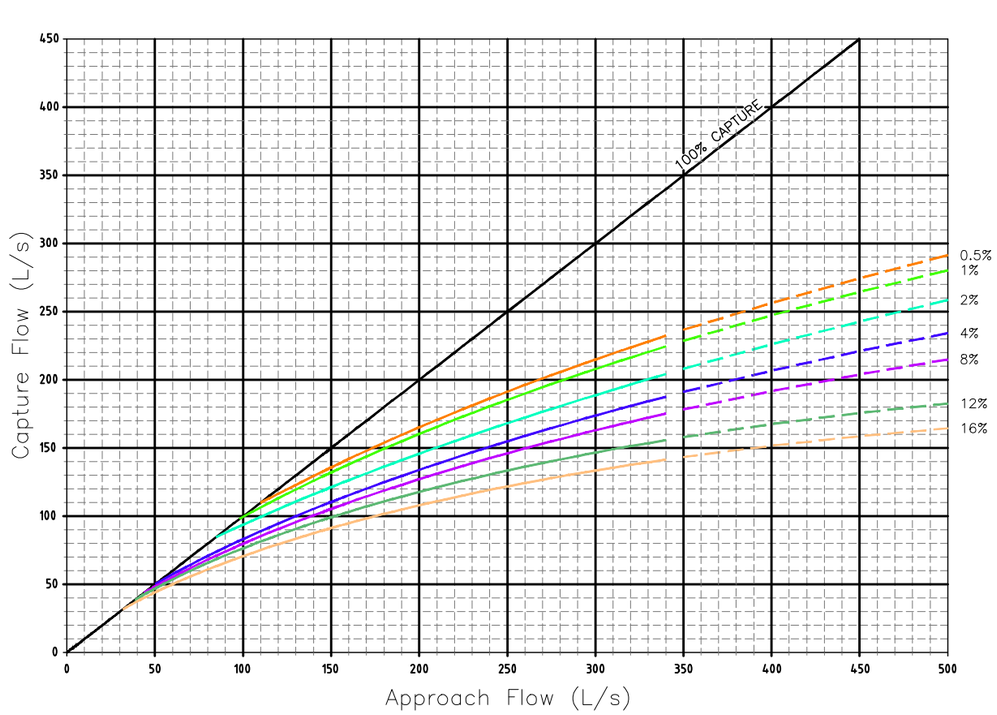
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY ON GRADE TYPE 'E' KERB AND CHANNEL 2400mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8074
ORIGINAL SIZE: A3
REVISION: B



2.5% Road Crossfall



3.3% Road Crossfall

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN LIP-IN-LINE CONFIGURATION. REFER BSD-8053 FOR GRATE DETAILS AND BSD-8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL:
   - 150mm BELOW CHANNEL INVERT LEVEL FOR S = 0.5 TO 3%
   - 350mm BELOW CHANNEL INVERT LEVEL FOR S > 3%.
5. CAPTURE CHARTS REFER TO STANDARD LIP-IN-LINE GULLY WITH 125mm THROAT OPENING. REFER BSD-8051, REVISION 'C' FOR DETAILS.
6. 10% BLOCKAGE APPLIED TO GRATE.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

BASED ON ACTUAL DATA

EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01
MAN INFRASTRUCTURE MANAGE - R.P.E.Q. 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

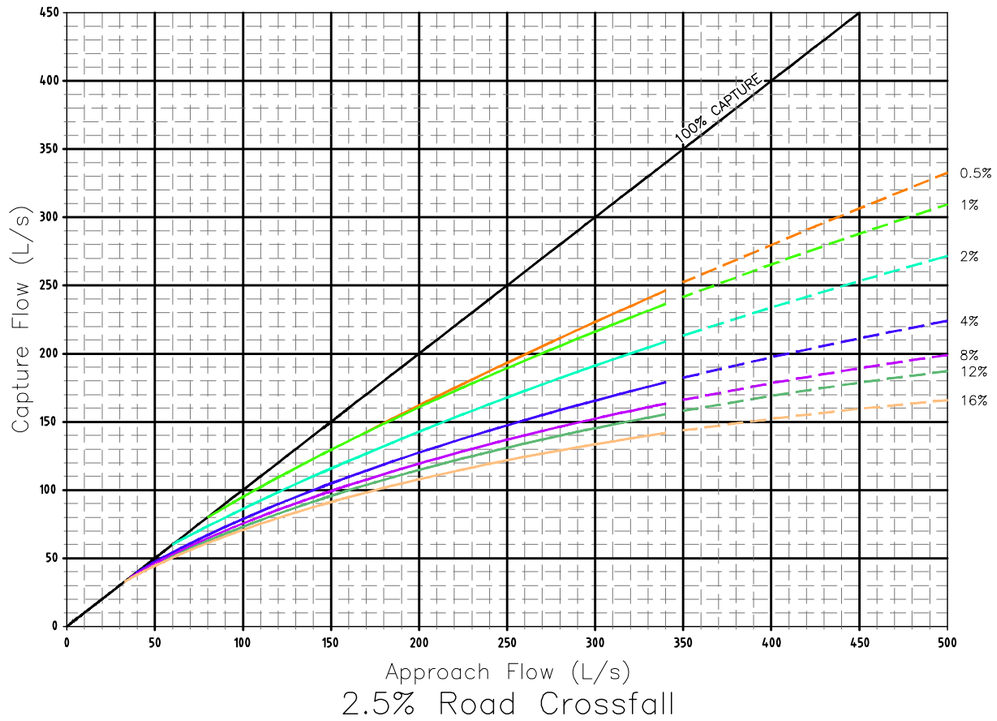
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8075 [B] Hydraulic capture charts, lip in line gully on grade, type 'E' K&C, 3600mm Lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-385		

BRISBANE CITY

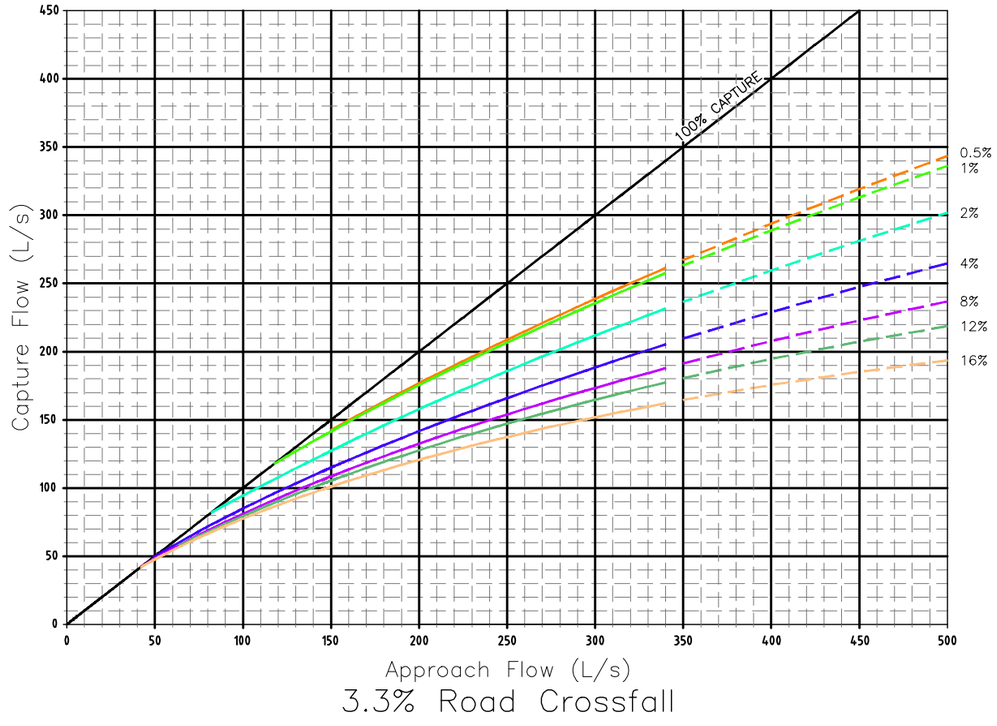
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY ON GRADE TYPE 'E' KERB AND CHANNEL 3600mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD-8075
ORIGINAL SIZE: A3
REVISION: B



2.5% Road Crossfall



3.3% Road Crossfall

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN LIP–IN–LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL:
   – 150mm BELOW CHANNEL INVERT LEVEL FOR S = 0.5 TO 3%
   – 350mm BELOW CHANNEL INVERT LEVEL FOR S > 3%.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 10% BLOCKAGE APPLIED TO GRATE.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

BASED ON ACTUAL DATA

EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MAN INFRASTRUCTURE MANAGE – R.P.E.Q.: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

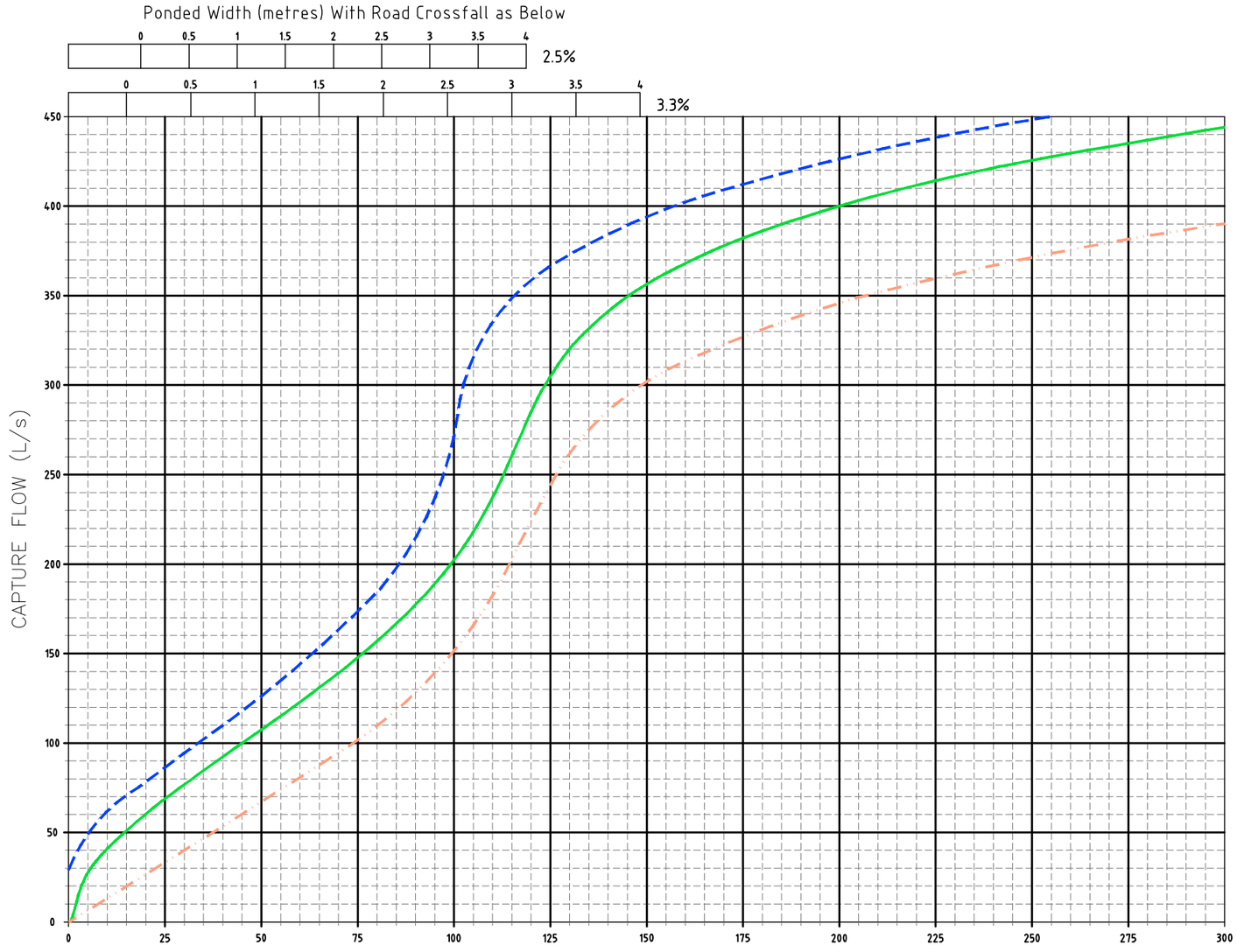
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8076 [B] Hydraulic capture charts, lip in line gully on grade, type 'E' K&C, 4800mm Lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-386		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY ON GRADE TYPE 'E' KERB AND CHANNEL 4800mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8076
ORIGINAL SIZE: A3
REVISION: B



SAG CONDITION

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GULLY INSTALLED IN LIP–IN–LINE SAG CONFIGURATION. REFER BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 100% BLOCKAGE APPLIED TO GRATE.

LEGEND

- 2400mm LINTEL
- 3600mm LINTEL
- 4800mm LINTEL

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01

MAN INFRASTRUCTURE MANAGE - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01

PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

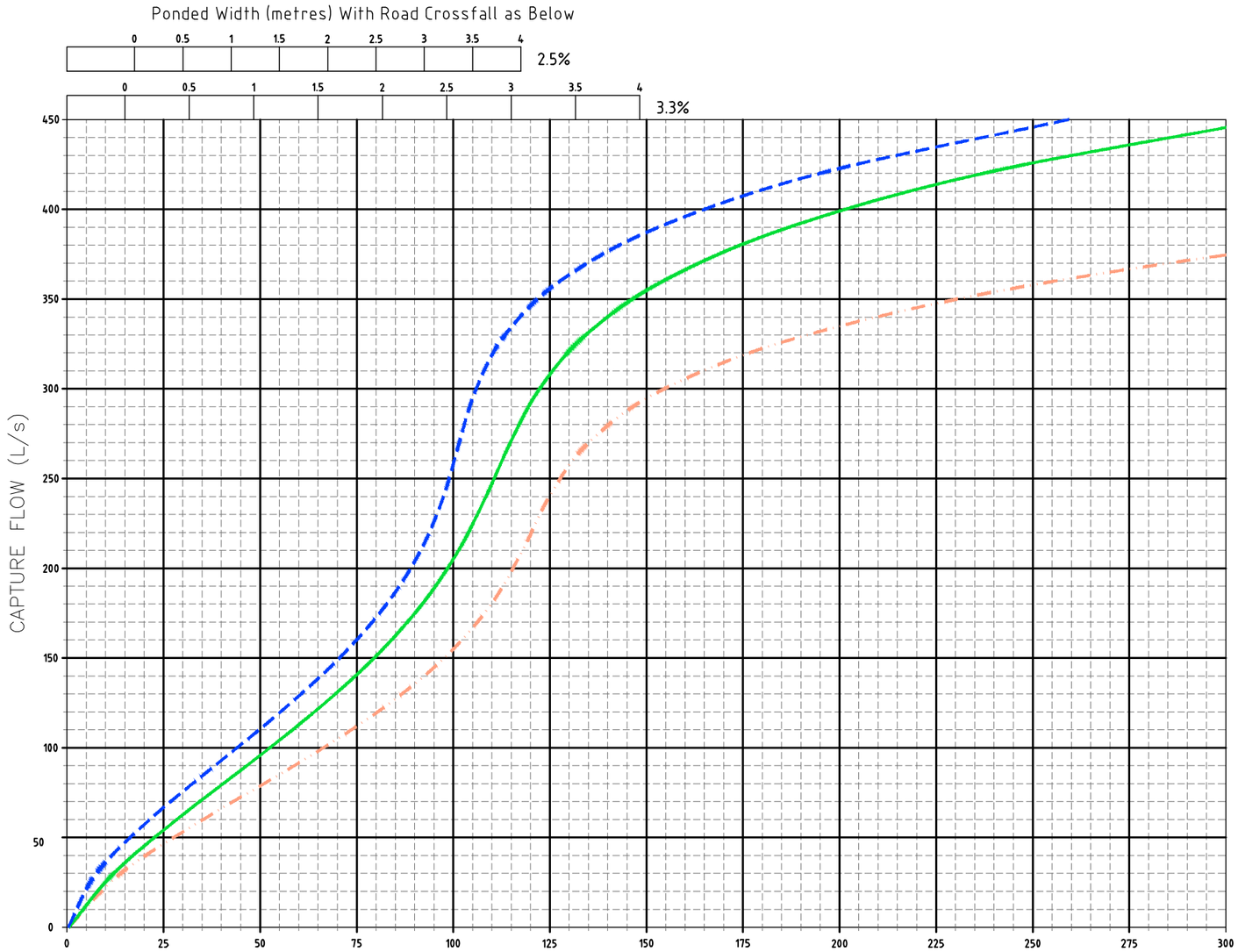
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8077 [B] Hydraulic capture charts, lip in line gully, sag conditions, type 'D' K&C, all lintels.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-387		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY SAG CONDITIONS TYPE 'D' KERB AND CHANNEL ALL LINTELS

SCALE: NOT TO SCALE
DWG No.: BSD–8077
ORIGINAL SIZE: A3
REVISION: B



SAG CONDITION

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GULLY INSTALLED IN LIP–IN–LINE SAG CONFIGURATION. REFER BSD–8051 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, GOLD COAST CITY COUNCIL AND QUEENSLAND DEPARTMENT OF MAIN ROADS, MARCH 2001 AND NOVEMBER 2002. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL.
5. CAPTURE CHARTS REFER TO STANDARD LIP–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8051, REVISION 'C' FOR DETAILS.
6. 100% BLOCKAGE APPLIED TO GRATE.

LEGEND

- 2400mm LINTEL
- 3600mm LINTEL
- 4800mm LINTEL

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
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B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01
MAN INFRASTRUCTURE MANAGE - R.P.E.Q: 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

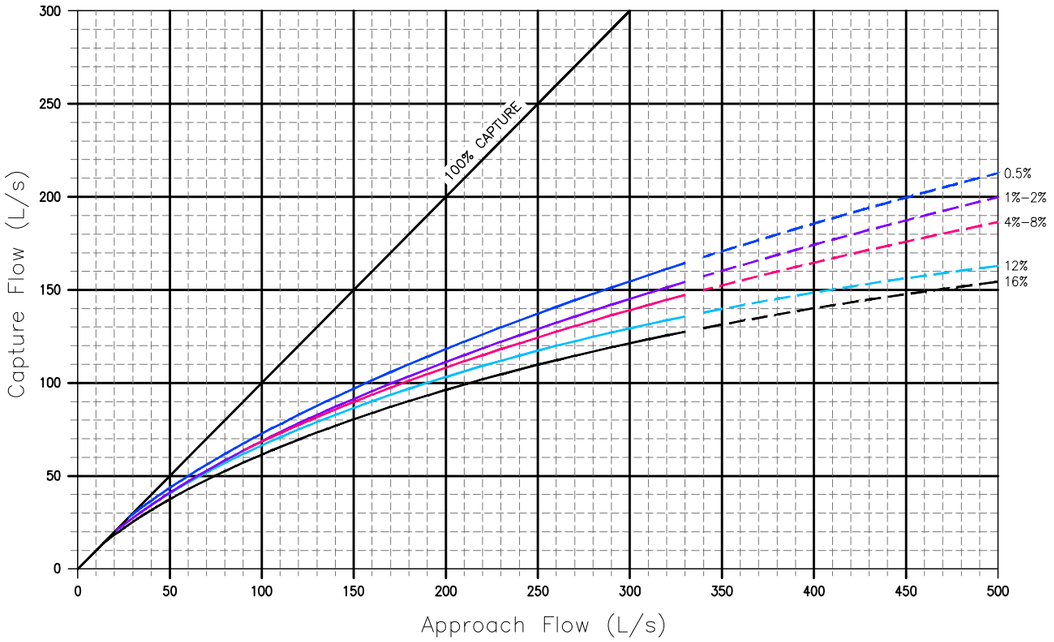
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8078 [B] Hydraulic capture charts, lip in line gully, sag conditions, type 'E' KKF, all lintels.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-388		

BRISBANE CITY

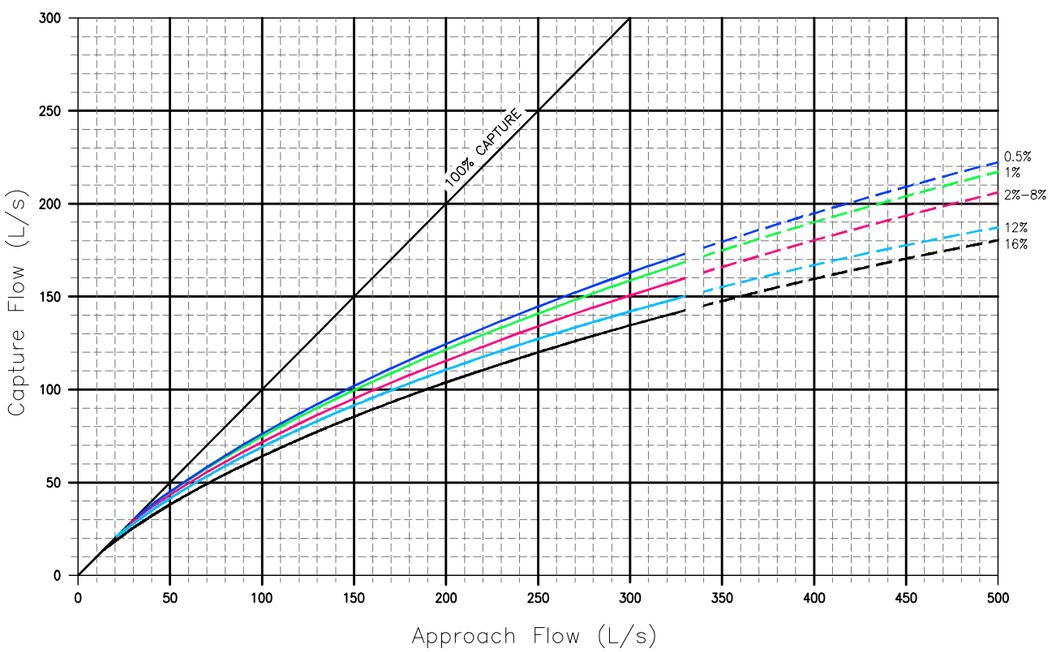
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS LIP IN LINE GULLY SAG CONDITIONS TYPE 'E' KERB AND CHANNEL ALL LINTELS

SCALE: NOT TO SCALE
DWG No.: BSD–8078
ORIGINAL SIZE: A3
REVISION: B



2.5% ROAD CROSSFALL



3.3% ROAD CROSSFALL

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN KERB IN LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8052 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, MAY 2005. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MINIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL WHERE THE WATER SURFACE IS SIGNIFICANTLY BELOW THIS (ie. >450mm); CAPTURE MAY BE ADJUSTED FOR LONGITUDINAL SLOPES AS FOLLOWS:
   - 0% TO AND INCLUDING 1% – NIL
   - 1% TO AND INCLUDING 6% – INCREASE BY 6%
   - 6% TO AND INCLUDING 16% – INCREASE BY 10%
5. TO USE CURVES, SELECT APPROPRIATE SLOPE ON CHART. DO NOT INTERPOLATE BETWEEN RANGES/CURVES.
6. 10% BLOCKAGE APPLIED TO GRATE.
7. TYPE 'E' AND TYPE 'D' KERB CONDITIONS WERE TESTED. TYPE 'D' RESULTS HAVE BEEN ADOPTED ON THESE CHARTS.
8. CAPTURE CHARTS REFER TO STANDARD KERB–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8052, REVISION 'B' FOR DETAILS.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

——— BASED ON ACTUAL DATA

– – – – EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 31/10/01
MAN INFRASTRUCTURE MANAGE – R.P.E.Q. 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 31/10/01
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

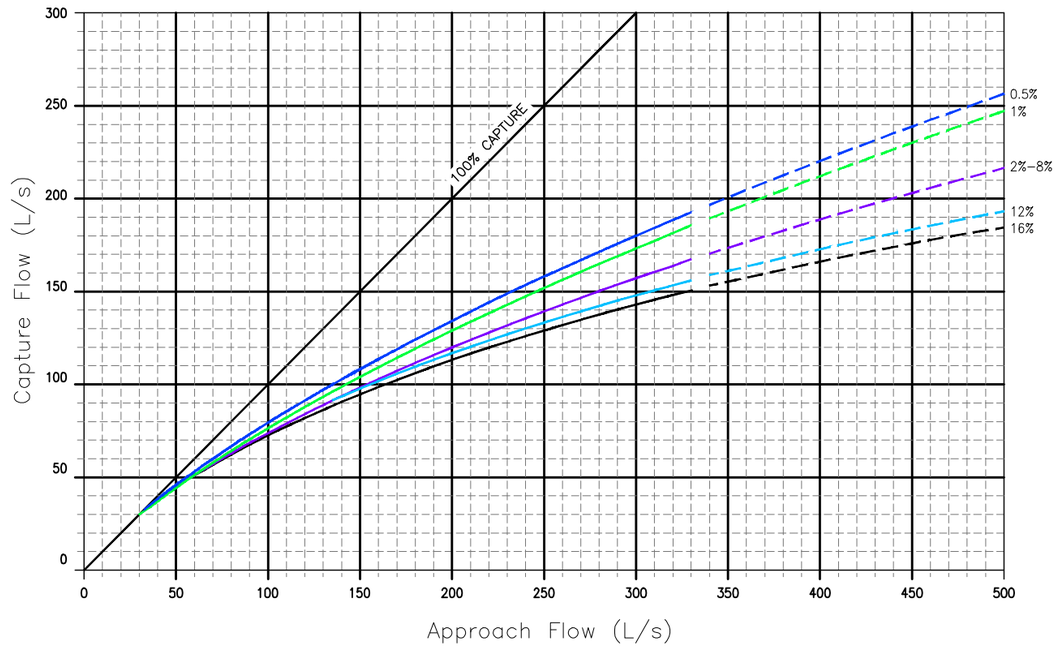
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8079 [B] Hydraulic capture charts, kerb in line gully on grade, type 'D'&'E' KAE, 2400mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-389		

BRISBANE CITY

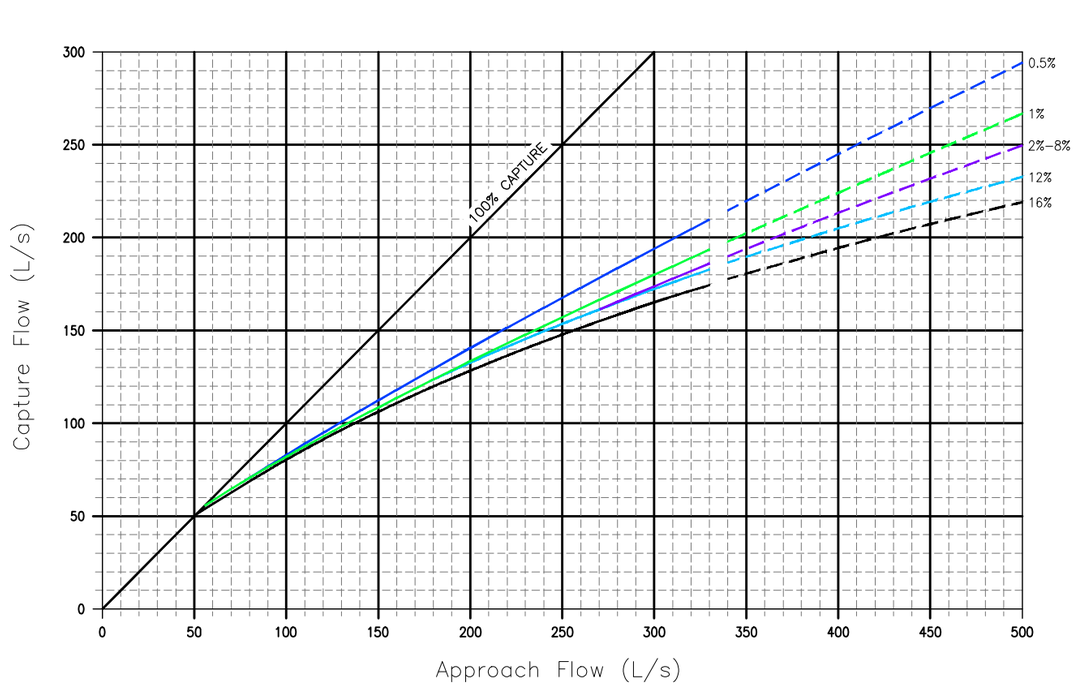
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS KERB IN LINE GULLY ON GRADE TYPE 'D'&'E' KERB AND CHANNEL 2400mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8079
ORIGINAL SIZE: A3
REVISION: B



2.5% ROAD CROSSFALL



3.3% ROAD CROSSFALL

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN KERB IN LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8052 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, MAY 2005. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MINIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL WHERE THE WATER SURFACE IS SIGNIFICANTLY BELOW THIS (ie. >450mm); CAPTURE MAY BE ADJUSTED FOR LONGITUDINAL SLOPES AS FOLLOWS:
   - 0% TO AND INCLUDING 1% – NIL
   - 1% TO AND INCLUDING 6% – INCREASE BY 6%
   - 6% TO AND INCLUDING 16% – INCREASE BY 10%
5. TO USE CURVES, SELECT APPROPRIATE SLOPE ON CHART. DO NOT INTERPOLATE BETWEEN RANGES/CURVES.
6. 10% BLOCKAGE APPLIED TO GRATE.
7. TYPE 'E' AND TYPE 'D' KERB CONDITIONS WERE TESTED. TYPE 'D' RESULTS HAVE BEEN ADOPTED ON THESE CHARTS.
8. CAPTURE CHARTS REFER TO STANDARD KERB–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8052, REVISION 'B' FOR DETAILS.

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

——— BASED ON ACTUAL DATA

– – – – EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amrnded	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

B.BALL SIGNATURE ON ORIGINAL DATED 31/10/01
MAN INFRASTRUCTURE MANAGE - R.P.E.Q. 3852

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL DATED 31/10/01
PRINCIPAL ASSET OFFICER ROADS AND DRAINAGE

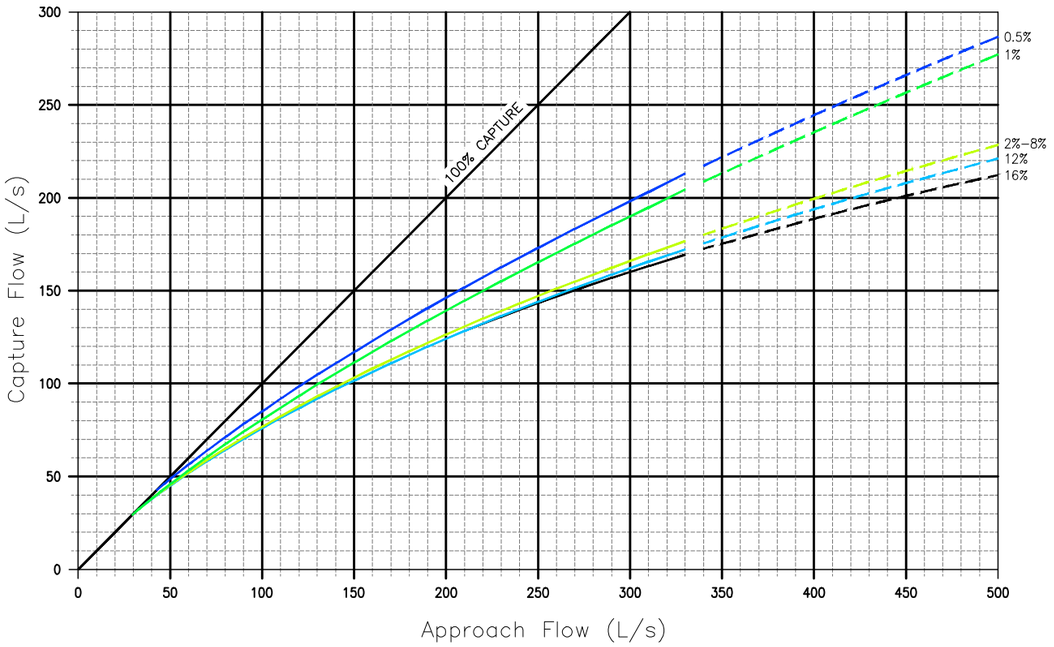
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8080 [B] Hydraulic capture charts, kerb in line gully on grade, type 'D'&'E' K&C, 3600mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-390		

BRISBANE CITY

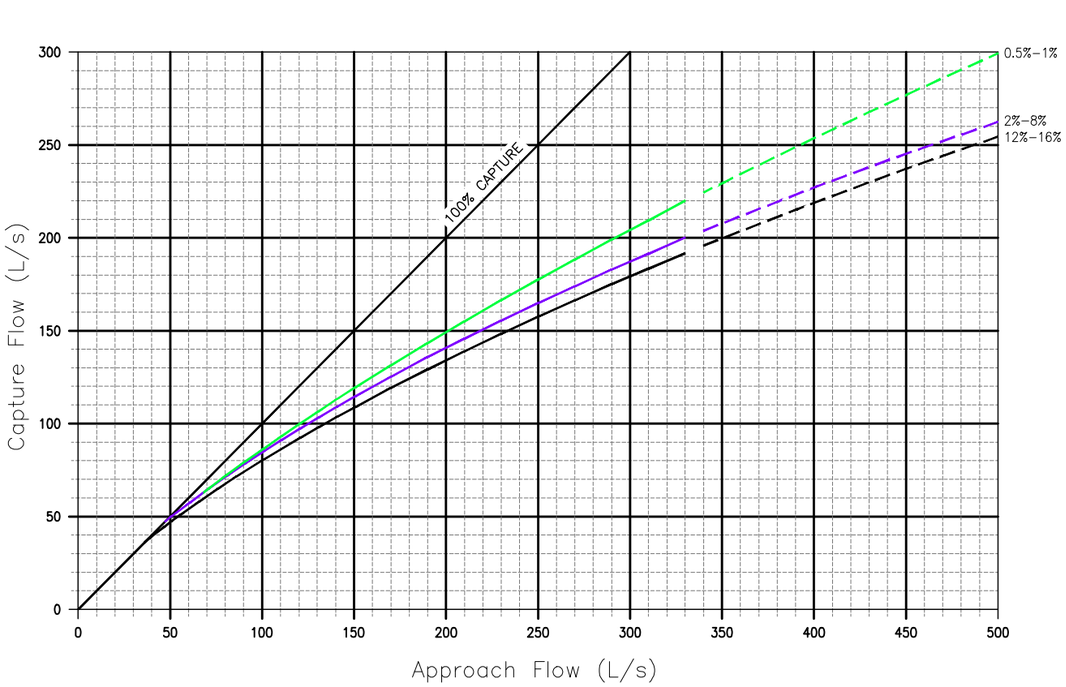
BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS KERB IN LINE GULLY ON GRADE TYPE 'D'&'E' KERB AND CHANNEL 3600mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8080
ORIGINAL SIZE: A3
REVISION: B



2.5% ROAD CROSSFALL



3.3% ROAD CROSSFALL

NOTES

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GRATE ONLY INSTALLED IN KERB IN LINE CONFIGURATION. REFER BSD–8053 FOR GRATE DETAILS AND BSD–8052 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, MAY 2005. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MINIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL WHERE THE WATER SURFACE IS SIGNIFICANTLY BELOW THIS (ie. >450mm); CAPTURE MAY BE ADJUSTED FOR LONGITUDINAL SLOPES AS FOLLOWS:
   - 0% TO AND INCLUDING 1% – NIL
   - 1% TO AND INCLUDING 6% – INCREASE BY 6%
   - 6% TO AND INCLUDING 16% – INCREASE BY 10%
5. TO USE CURVES, SELECT APPROPRIATE SLOPE ON CHART. DO NOT INTERPOLATE BETWEEN RANGES/CURVES.
6. 10% BLOCKAGE APPLIED TO GRATE.
7. TYPE 'E' AND TYPE 'D' KERB CONDITIONS WERE TESTED. TYPE 'D' RESULTS HAVE BEEN ADOPTED ON THESE CHARTS.
8. CAPTURE CHARTS REFER TO STANDARD KERB–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8052, REVISION 'B' FOR DETAILS

LEGEND

XX%. KERB AND CHANNEL LONGITUDINAL SLOPE (S_o)

——— BASED ON ACTUAL DATA

– – – – EXTRAPOLATED DATA

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

B.BALL SIGNATURE ON ORIGINAL DATED 31/10/01
MAN INFRASTRUCTURE MANAGE - R.P.E.Q. 3852
DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL DATED 31/10/01
PRINCIPAL ASSET OFFICER ROADS AND DRAINAGE

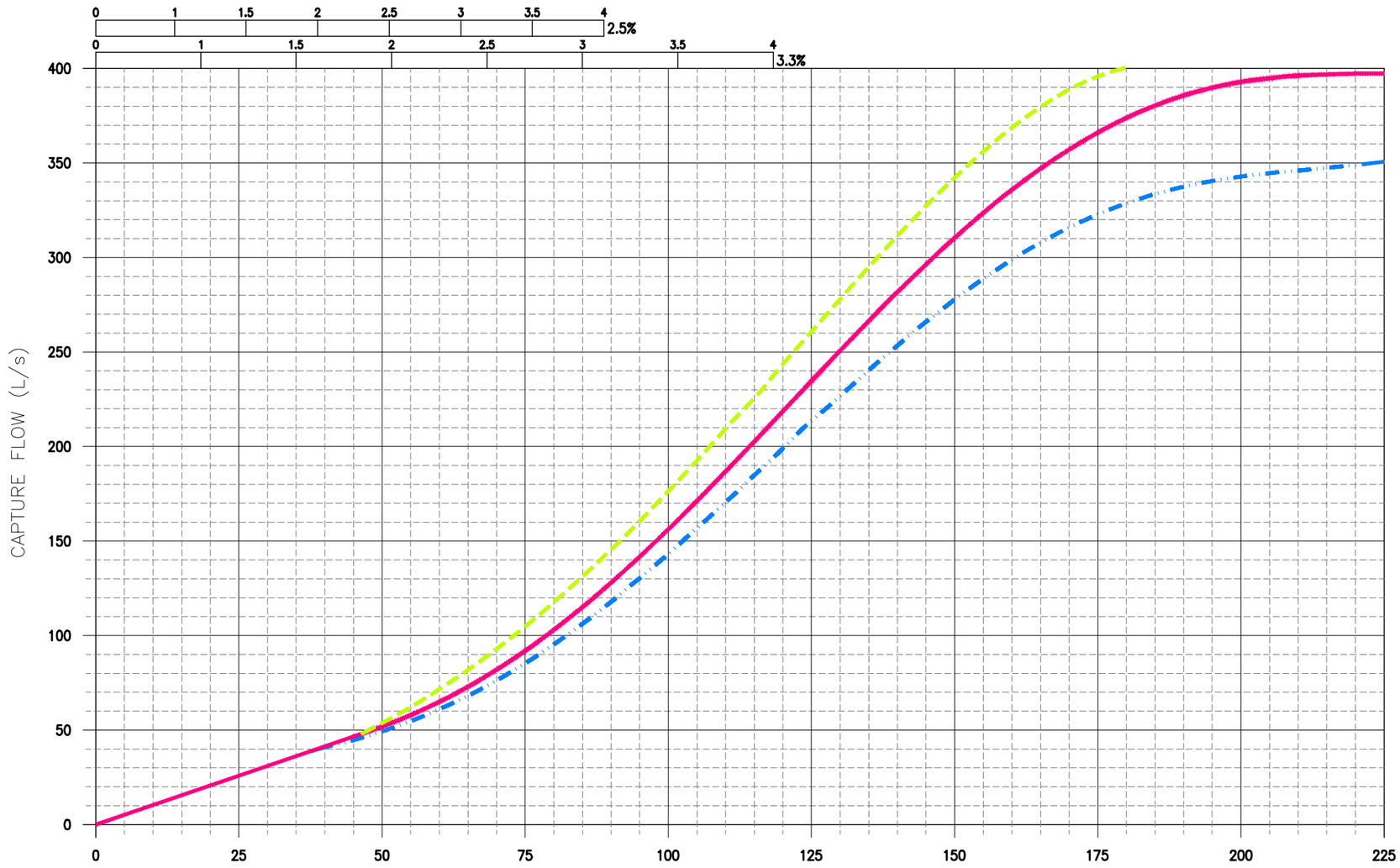
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8081(B) Hydraulic capture charts, kerb in line gully on grade, type 'D'&'E' K&C, 4800mm lintel.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-391		

BRISBANE CITY COUNCIL STANDARD DRAWING

HYDRAULIC CAPTURE CHARTS KERB IN LINE GULLY ON GRADE TYPE 'D'&'E' KERB AND CHANNEL 4800mm LINTEL

SCALE: NOT TO SCALE
DWG No.: BSD–8081
ORIGINAL SIZE: A3
REVISION: B

PONDED WIDTH (METRES) WITH ROAD CROSSFALL AS BELOW



SAG CONDITION

CAPTURE WITH KERB OVERTOPPED 90mm

LINTEL/LENGTH	CAPACITY
S/2400mm	330 L/s
M/3600mm	350 L/s
L/4800mm	480 L/s

NOTES:

1. CHARTS TO BE USED TO DETERMINE THE HYDRAULIC CAPTURE OF BCC STANDARD TYPE 'A' GULLY ONLY INSTALLED IN KERB IN LINE CONFIGURATION. REFER BSD–8052 FOR GULLY DETAILS.
2. FOR APPROVED PROPRIETARY PRODUCTS, MANUFACTURER/SUPPLIER TO SUPPLY FULL HYDRAULIC DESIGN DETAILS AND CAPTURE CHARTS.
3. DATA BASED ON TESTING UNDERTAKEN AT URBAN WATER RESOURCES CENTRE, UNIVERSITY OF SOUTH AUSTRALIA FOR BRISBANE CITY COUNCIL, MAY 2005. (NO EXTRAPOLATION BEYOND THE LIMITS OF THE CHARTS SHOULD BE UNDERTAKEN.)
4. CAPTURE BASED ON MAXIMUM CHAMBER WATER LEVEL 150mm BELOW CHANNEL INVERT LEVEL.
5. 100% BLOCKAGE APPLIED TO GRATE.
6. TYPE 'E' AND TYPE 'D' KERB CONDITIONS WERE TESTED. TYPE 'D' RESULTS HAVE BEEN ADOPTED ON THESE CHARTS.
7. CAPTURE CHARTS REFER TO STANDARD KERB–IN–LINE GULLY WITH 125mm THROAT OPENING. REFER BSD–8052, REVISION 'B' FOR DETAILS

LEGEND

- 2400mm LINTEL
- 3600mm LINTEL
- 4800mm LINTEL

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

B.BALL SIGNATURE ON ORIGINAL DATED 31/10/01
MAN INFRASTRUCTURE MANAGE - R.P.E.Q: 3852
DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL DATED 31/10/01
PRINCIPAL ASSET OFFICER ROADS AND DRAINAGE

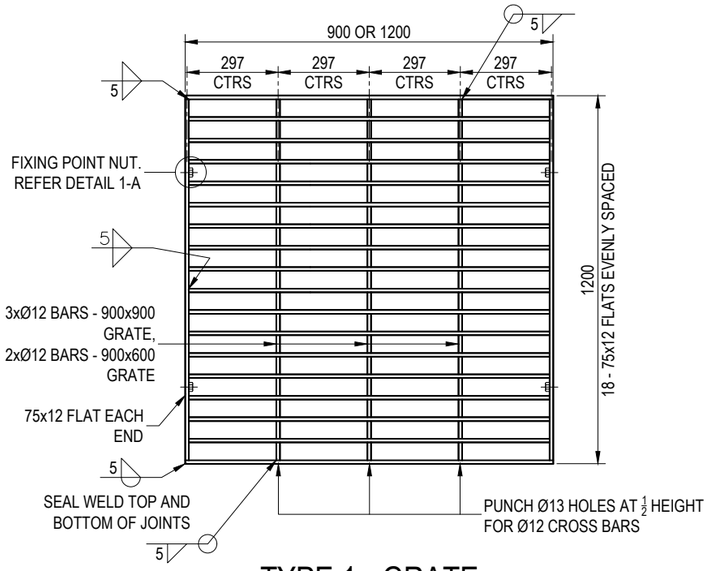
DESIGN	INFST MNGMT	DATE	OCT '01
DRAWN	INFST MNGMT	DATE	OCT '01
CHECKED	M.STEER	DATE	OCT '01
DRAWING FILENAME	BSD-8082 (B) Hydraulic capture charts, kerb in line gully, sag conditions, type 'D'&'E' K&C, all lintels.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-392		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

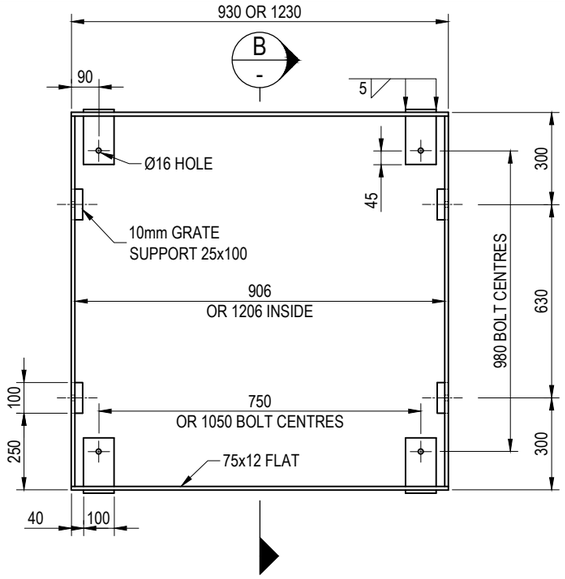
HYDRAULIC CAPTURE CHARTS KERB IN LINE GULLY SAG CONDITIONS TYPE 'D'&'E' KERB AND CHANNEL ALL LINTELS

SCALE: NOT TO SCALE
DWG No.: BSD–8082
ORIGINAL SIZE: A3
REVISION: B



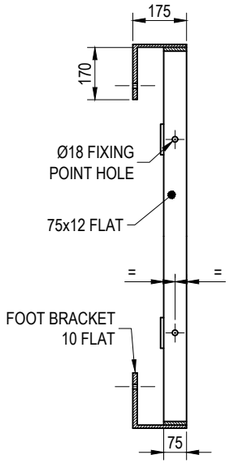
TYPE 1 - GRATE

(900x900 GRATE SHOWN)



TYPE 1 - FRAME

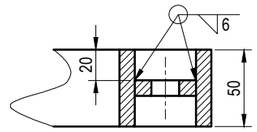
(900x900 FRAME SHOWN)



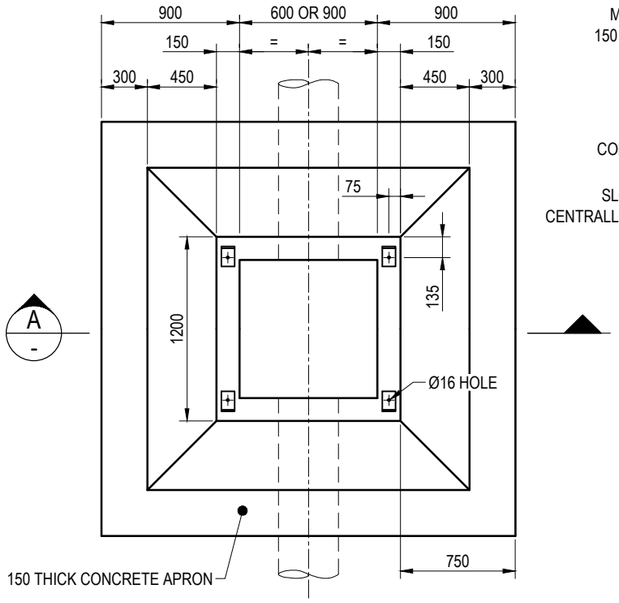
TYPE 1 - SECTION B-B

NOTES:

1. ALTERNATIVELY, A MODIFIED TYPE A GULLY (WITHOUT A LINTEL) TO ACCOMMODATE A FLUSH TYPE A GRATE/FRAME MAY BE ADOPTED.
2. CONCRETE N25 IN ACCORDANCE WITH *AS1379* AND *AS3600*.
3. ALL WELDS TO *AS1554*. ALL WELDING SYMBOLS TO *AS1101.3*.
4. GRATE AND FRAME TO BE HOT DIP GALV. AFTER FABRICATION TO *AS4680*.
5. REINFORCING BARS GRADE 250 TO *AS1302*.
6. ALL FLATS GRADE 250 TO *AS3678*.
7. ALL ANGLES GRADE 250 TO *AS3679*.
8. GRATES AND FRAMES TO COMPLY WITH *AS3996* CLASS B DESIGN.
9. BOLTS, NUTS AND WASHERS TO *AS1252*.
10. HOT DIP GALVANISE BOLTS AND NUTS TO *AS1214*. HOT DIP GALVANISED WASHERS TO *AS4680*.
11. FIELD INLETS DEEPER 1.80m ARE PERMITTED ONLY WITH THE PRIOR APPROVAL OF COUNCIL.
12. FIELD INLETS DEEPER THAN 1.80m TO BE INDIVIDUALLY DESIGNED UNDER THE DIRECTION OF A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).
13. INSTALL STEP IRONS OR FIXED ACCESS LADDERS IN ACCORDANCE WITH *AS165* IN INLETS WITH DEPTHS GREATER THAN 1.20m.
14. DIMENSIONS IN MILLIMETRES (U.N.O.).

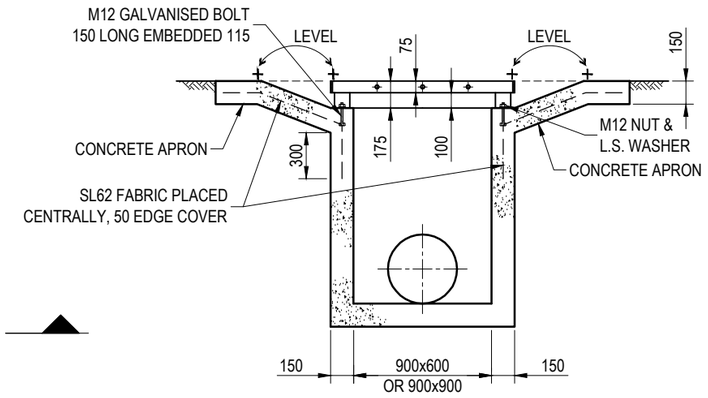


SECTION C-C

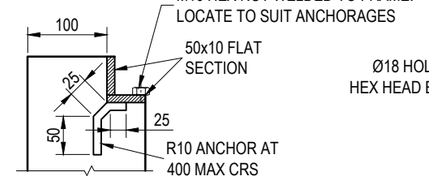


TYPE 1 - PLAN

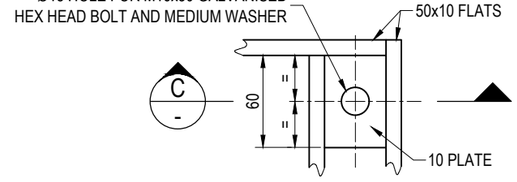
(900x900 PIT SHOWN)
GRATE OMITTED FOR CLARITY



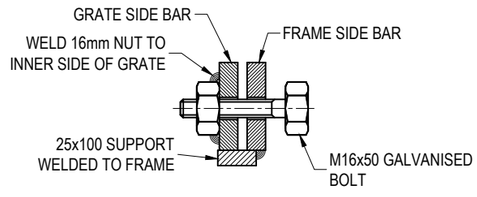
TYPE 1 - SECTION A-A



DETAIL 2-B

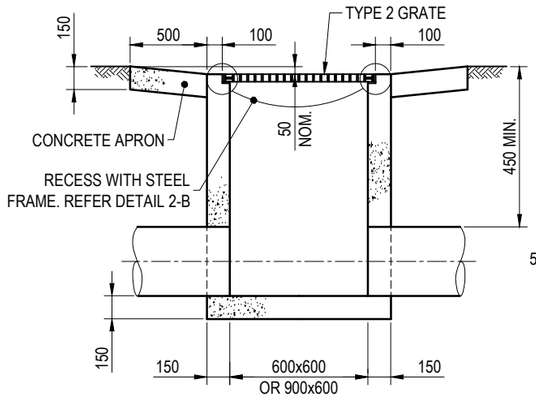


DETAIL 2-A

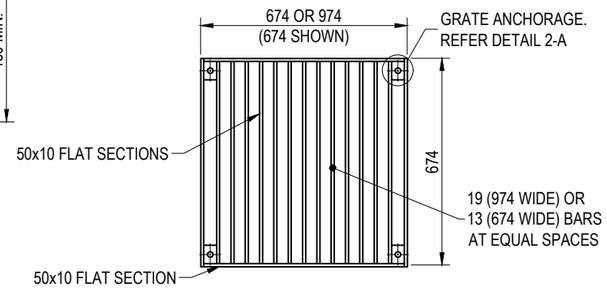


DETAIL 1-A

GRATE/FRAME FIXING POINT



TYPE 2 - SECTION



TYPE 2 - GRATE

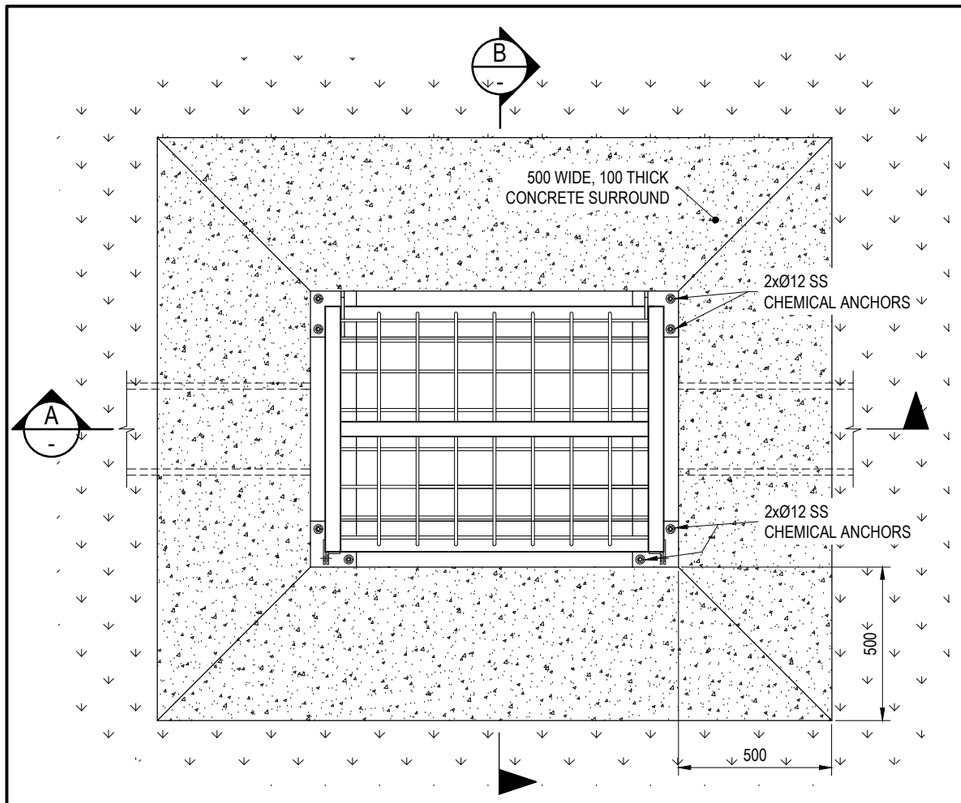
THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHALL BE ASSESSED AND ACCEPTED BY A SUITABLY QUALIFIED REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

BRISBANE CITY

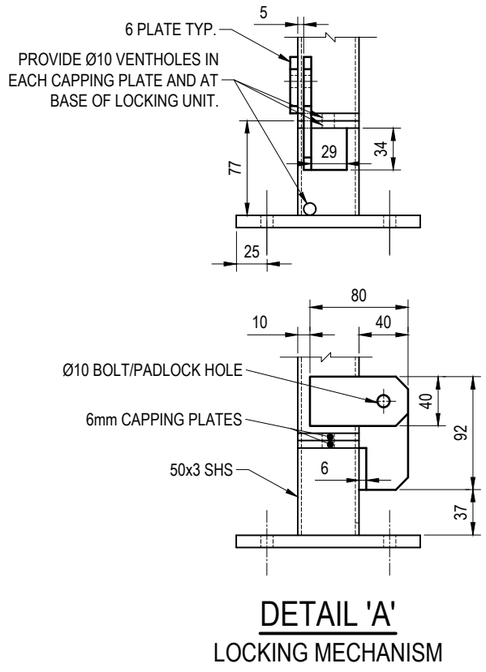
BRISBANE CITY COUNCIL STANDARD DRAWING

FIELD INLETS
TYPE 1 AND TYPE 2

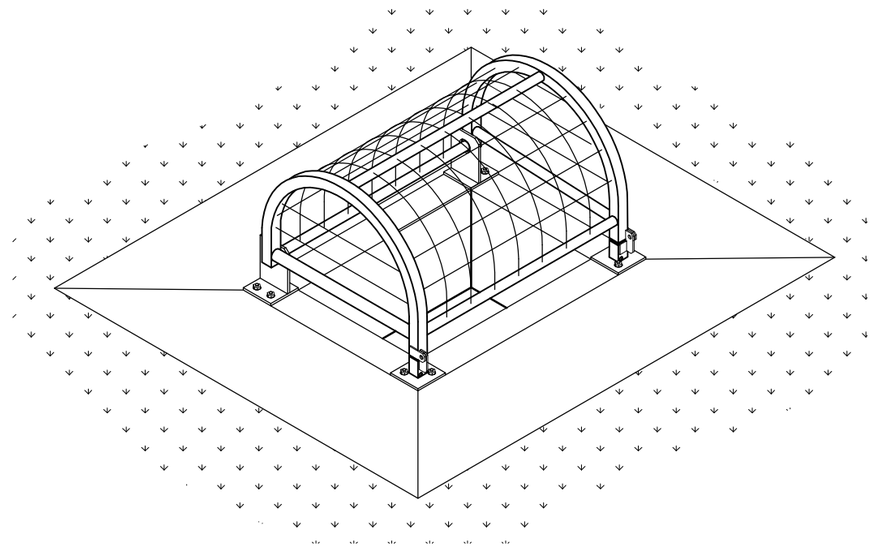
PUBLISH DATE	MAY 2021
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8091
ORIGINAL SIZE	A3
REVISION	C



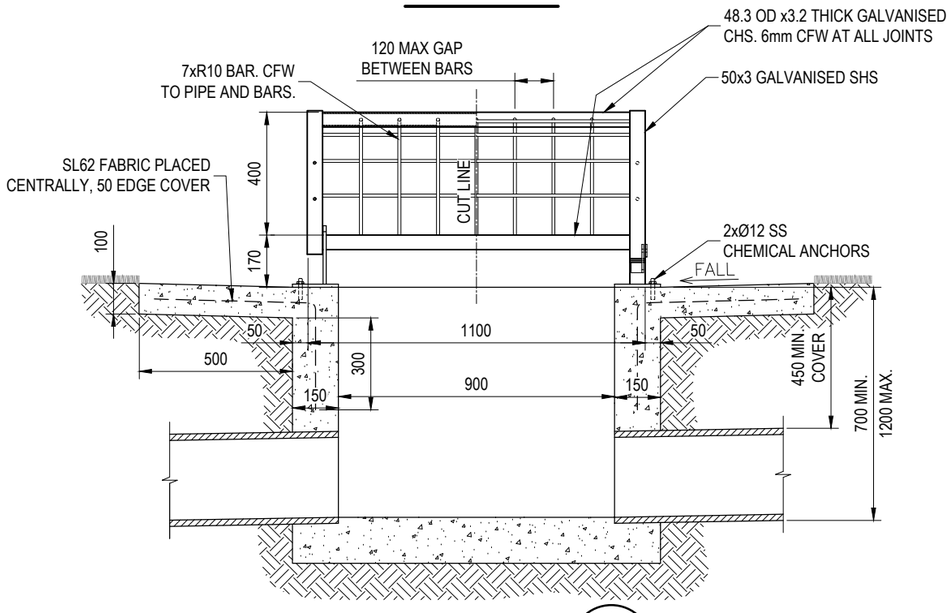
PLAN VIEW



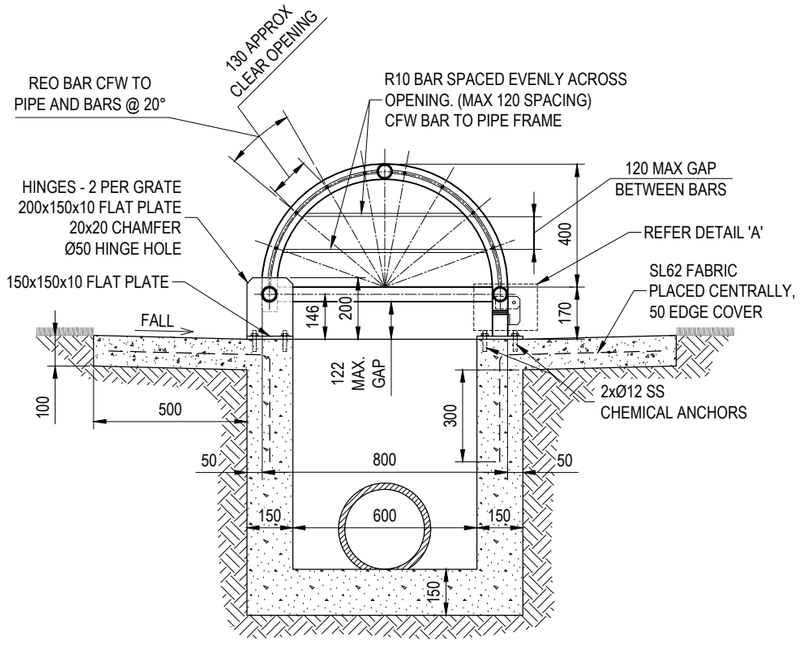
DETAIL 'A'
LOCKING MECHANISM



ISOMETRIC VIEW



FRONT ELEVATION A -



END ELEVATION B -

NOTES:

1. CONCRETE N25 IN ACCORDANCE WITH AS1379 AND AS3600
2. ALL WELDS TO AS1554, ALL WELDING SYMBOLS TO AS1101.3
3. GRATE TO BE HOT DIPPED GALVANISED AFTER FABRICATION TO AS4680
4. ALL FLAT PLATE STEEL GRADE 250 TO AS3678
5. BOLTS NUTS AND WASHERS TO AS1252
6. LOCK GRATE WITH GALVANISED M10 BOLT AND NUT (STANDARD) OR WITH COUNCIL PROVIDED PADLOCK (IF DIRECTED)
7. HOT DIPPED GALVANISED BOLTS AND NUTS TO AS1214. HOT DIPPED GALVANISED WASHERS TO AS4680.
8. UNLESS APPROVED OTHERWISE BY COUNCIL DELEGATE, LIMIT DEPTH OF FIELD INLET TO 1,350mm.
9. FIELD INLETS DEEPER THAN 1,350mm TO BE INDIVIDUALLY DESIGNED AND CERTIFIED BY AN RPEQ.
10. FOR INLETS WITH DEPTHS GREATER THAN 1,200mm, STEP IRONS WILL BE REQUIRED IN ACCORDANCE WITH AS1657.
11. ALL DIMENSIONS IN MILLIMETRES (U.N.O.)

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
C	Locking Detail Added, Note 6 Added, Inlet Frame Material Altered	MAR '18	AUG '18	NOV '18
B	Dimension Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 24/09/09
MANAGER CITY ASSETS - R.P.E.Q: 2546

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 22/09/09
PRINCIPAL ASSET OFFICER
ROADS AND DRAINAGE

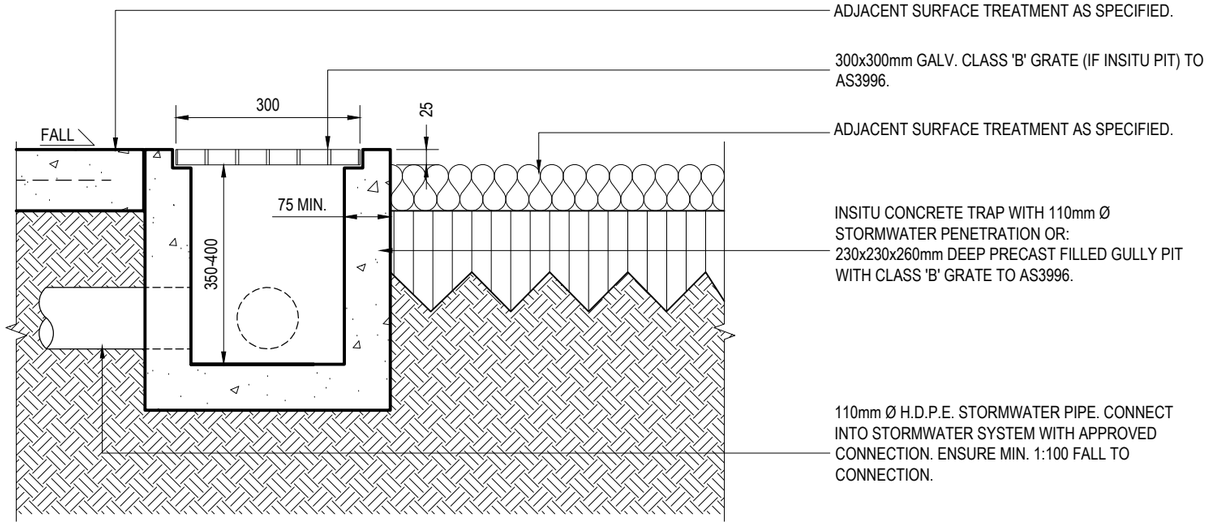
DESIGN	CAB	DATE	FEB '09
DRAWN	CAB (DJL)	DATE	FEB '09
CHECKED	CITY ASSETS	DATE	SEP '09
DRAWING FILENAME	BSD-8092 (C) Field inlet dome top cover.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-340		

BRISBANE CITY

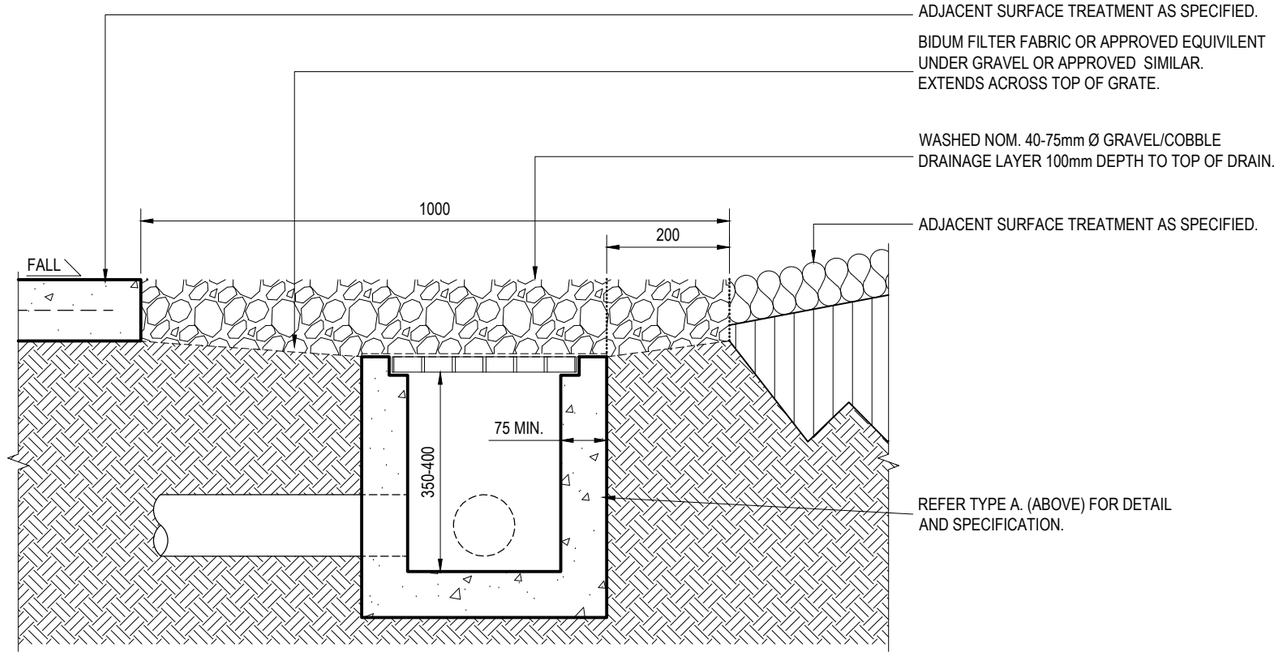
BRISBANE CITY COUNCIL STANDARD DRAWING

FIELD INLET
DOME TOP COVER

SCALE: NOT TO SCALE
DWG No.: BSD-8092
ORIGINAL SIZE: A3
REVISION: C



TYPE A - INLET PIT DRAIN WITH GRATE - SECTION



TYPE B - INLET PIT DRAIN WITH GRATE - SECTION

GENERAL NOTES

1. ENSURE MOWN HEIGHT OF GRASS (TURF) AREAS FINISHES FLUSH WITH GRATE.
2. ENSURE GARDEN AREAS (MULCH) FINISH 25mm BELOW GRATE.
3. MULCH SHOULD NOT BE USED ON STEEP SLOPES ADJACENT TO GRATES OR WHERE PONDING COULD CAUSE THE MULCH TO FLOAT AND BLOCK THE INLET GRATE.
4. ENSURE EVEN GRADE FALLS MIN. 1:50 TO PAVEMENT AREAS TOWARDS GRATE.
5. ENSURE DRAINS ARE LOCATED IN ACCORDANCE ARKS CHAPTER OF INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY.
6. FIELD INLET AND CONNECTION TO STORMWATER LINE TO HYDRAULIC ENGINEERS SPECIFICATION.
7. INLET PITS ONLY TO BE USED TO DRAIN LOW AREAS IN LANDSCAPING AND TURF AREAS. NOT SUITABLE FOR ROADS, CARPARKS, KERB AND CHANNEL AND EXTENSIVE PAVEMENT AREAS.
8. DIMENSIONS IN MILLIMETRES. (U.N.O.).
9. AUSTRALIAN STANDARDS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE REFERENCED AUSTRALIAN STANDARDS EXCEPT WHERE VARIED BY SPECIFICATIONS AND/OR DRAWINGS.

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Obsolete Std Dwg ref. (BSD-10003) Removed from Type A Detail	FEB '19	APR '19	APR '19
A	Drawing Converted From UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
PAUL COTTON SIGNATURE ON ORIGINAL DATED 03/09/04
MANAGER INFRASTRUCTURE MANAGEMENT
R.P.E.Q: 2546

DESIGN APPROVED
LAUREN TEMPLEMAN SIGNATURE ON ORIGINAL DATED 31/08/04
PRICIPAL PROGRAM OFFICER PARKS

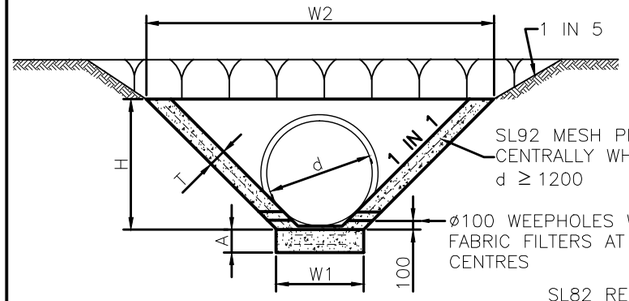
DESIGN	Std Dwgs WG	DATE	OCT '13
DRAWN	CPO - P&D	DATE	OCT '13
CHECKED	UMD - E&P & IMB	DATE	OCT '13
DRAWING FILENAME	BSD-8094 (A) Drain - Inlet pit with grate.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-761		

BRISBANE CITY

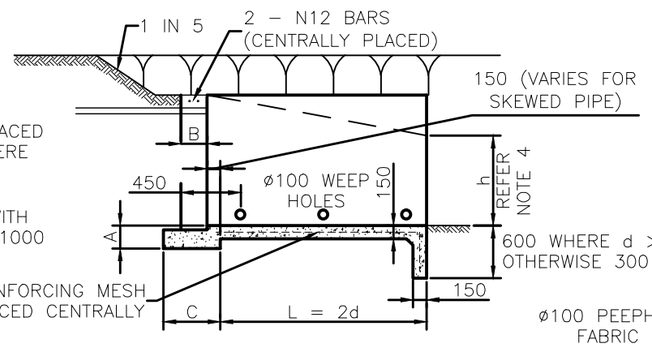
BRISBANE CITY COUNCIL STANDARD DRAWING

DRAIN -
INLET PIT WITH GRATE

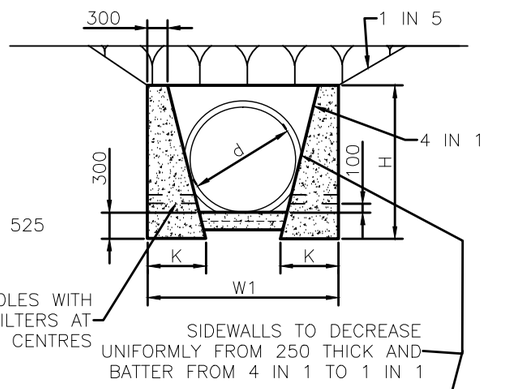
SCALE 1:10
DWG No. BSD-8094
ORIGINAL SIZE A3
REVISION B



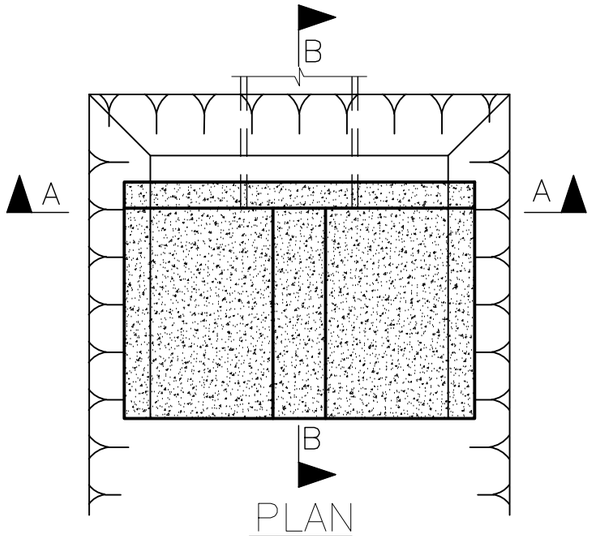
SECTION A–A



SECTION B–B



SECTION C–C



PLAN

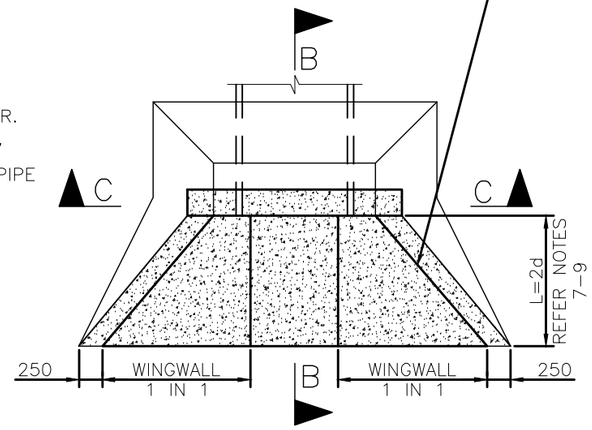
PIPE SKEW	5°–15°	16°–25°	26°–35°	36°–45°
SKEW FACTOR	1.02	1.07	1.16	1.32

* FOR SKEWED PIPES – MULTIPLY W1 AND W2 BY SKEW FACTOR.

* FOR MULTIPLE PIPES INCREASE W1 AND W2 BY DIMENSION 'X' FOR EACH ADDITIONAL PIPE. ('X' BEING THE DISTANCE FROM PIPE ℄ TO PIPE ℄).

MULTIPLE\SKEW PIPES

TYPE A OR TYPE B



PLAN

DIMENSION	PIPE DIAMETER 'd'															
	300	375	450	525	600	675	750	825	900	1050	1200	1350	1500	1650	1800	1950
A	150	150	150	200	200	200	250	250	250	250	250	300	300	300	300	300
B	225	225	225	300	300	300	300	300	300	300	300	300	300	300	300	300
C	450	450	450	450	450	450	600	600	600	600	600	600	600	600	600	600
H	580	670	750	830	900	980	1060	1140	1220	1370	1530	1690	1840	2000	2160	2340
T	150	150	150	200	200	200	200	200	200	200	200	200	200	200	200	200
W1*	700	730	760	790	820	850	880	920	950	1010	1070	1140	1200	1260	1320	1380
W2*	1860	2070	2260	2450	2620	2810	3000	3200	3390	3750	4130	4520	4880	5260	5640	6060
'X'	510	595	685	765	850	935	1015	1095	1180	1345	1510	1675	1835	2000	2165	2340

DIMENSIONS

TYPE A INLET FOR d = 300 TO 1200

TYPE A OUTLET FOR d = 300 TO 1950

DIMENSION	PIPE DIAMETER 'd'				
	1350	1500	1650	1800	1950
A	300	300	300	300	300
B	300	300	300	300	300
C	600	600	600	600	600
K	800	840	875	915	960
H	2000	2160	2300	2460	2640
W1*	2500	2700	2890	3085	3135
'X'	1675	1835	2000	2165	2340

DIMENSIONS

TYPE 'B' INLET AND OUTLET

FOR d = 1350 to 1950

NOTES:

1. DESIGN ALLOWABLE BEARING PRESSURE 75 KPa. WHERE THIS BEARING PRESSURE CANNOT BE OBTAINED, THE SUPERINTENDENT MAY DIRECT THAT A WIDER FOOTING BE USED.
2. UNREINFORCED CONCRETE CLASS 20 MPa/20. REINFORCED CONCRETE CLASS 32 MPa/20. CONCRETE COVER TO 50 UNLESS SHOWN OTHERWISE.
3. IN TIDAL AREAS WHERE MESH REINFORCEMENT IS SPECIFIED, CONCRETE IS TO BE SULPHATE RESISTANT GRADE S40.
4. IN EMBANKMENT SITUATIONS, THE HEIGHT OF THE WING WALL AT THE TOE SHOULD BE REDUCED TO "h" SO THAT THE SLOPE OF THE TOP OF THE WING WALL EQUALS THE ADJACENT EMBANKMENT BATTER. (REFER TO PROJECT DRAWINGS FOR VALUE OF "h").
5. SEE PROJECT DRAWINGS FOR THE FOLLOWING: NUMBER AND DIAMETER OF PIPES; SKEW ANGLES OF PIPES, IF APPLICABLE; INVERT LEVELS OF PIPES; HEIGHT OF WING WALL "h" AT TOE IF APPLICABLE.
6. FOR QUANTITIES REFER BSD–8104.
7. SCOUR PROTECTION IS GENERALLY REQUIRED DOWNSTREAM OF THE APRON UNDER ANY ONE OF THE FOLLOWING CONDITIONS:
   - AVERAGE OUTLET VELOCITY EXCEEDS THE NON–EROSIVE VELOCITY.
   - AVERAGE OUTLET VELOCITY EXCEEDS 2m/s.
   - OUTLET JET IS EXPECTED TO STRIKE AN UNPROTECTED CHANNEL BANK WITHIN A DISTANCE OF 10 TIMES THE PIPE DIAMETER.
8. BED SCOUR MAY BE CONTROLLED BY THE FOLLOWING METHODS:
   - REDUCING THE OUTLET VELOCITY BY INSTALLING AN EXPANSION CHAMBER.
   - INSTALLING AN ENERGY DISSIPATER.
   - ARMOURING THE BED WITH ROCK, USUALLY OVER A MAXIMUM DISTANCE OF 8 TIMES THE PIPE DIAMETER.
9. PREFERRED POSITIONING OF STORMWATER PIPE OUTLET:
   - SETBACK FOR MORE THAN A DISTANCE OF 3 TIMES THE BANK HEIGHT MEASURED FROM THE TOE OF THE WATERCOURSE BANK.
   - FOR 'NARROW' RECEIVING WATERCOURSE, ANGLE THE OUTLET PIPE IN THE DIRECTION OF THE MAIN FLOW. AN APPROACH ANGLE IN THE RANGE OF 45° TO 60° MEASURED FROM THE BANK IS RECOMMENDED.
   - LIMIT THE MAXIMUM HEIGHT BETWEEN THE OUTLET INVERT AND THE RECEIVING CHANNEL INVERT OR EXPECTED WATER LEVEL TO $0.247/d^{0.5}$ WHERE d IS THE OUTLET PIPE DIAMETER IN METRES.
10. WHERE DIRECTED, INSTALL 1200 HIGH FENCE ALONG HEADWALL AND WINGWALLS:
    - FOR 1000–1500 DROP HEIGHT, PROVIDE GALVANISED TUBULAR HANDRAIL IN ACCORDANCE WITH BSD–7001, GALVANISED WELD MESH FENCING IN ACCORDANCE WITH BSD–7002 OR PEDESTRIAN SAFETY FENCING IN ACCORDANCE WITH BSD–7003.
    - FOR >1500 DROP HEIGHT, PROVIDE POWDER COATED STEEL FENCING (HUNTER ROD TOP OR APPROVED EQUIVALENT) INSTALLED USING VANDAL PROOF FIXINGS. DESIGN TO RESIST A MINIMUM STATIC LOAD OF 1.5 kN/m AS PER CLAUSE 3.6 OF AS 1170–2002.
11. USE OF EQUIVALENT PRECAST PRODUCTS IS PERMITTED.
12. DIMENSIONS IN MILLIMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B. BALL SIGNATURE ON ORIGINAL
DATED 29/6/01
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 27/6/01
PRINCIPAL ASSET OFFICER
ROADS & DRAINAGE

DESIGN	Std Dwgs WG	DATE	OCT '13
DRAWN	CPO - P&D	DATE	OCT '13
CHECKED	M. STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8101 (A) Inlets and outlets (concrete) stormwater drains.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-341		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

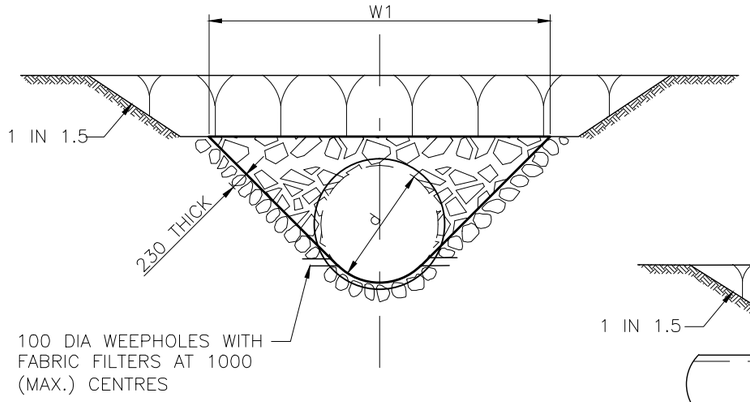
INLETS AND OUTLETS (CONCRETE) STORMWATER DRAINS

SCALE NOT TO SCALE

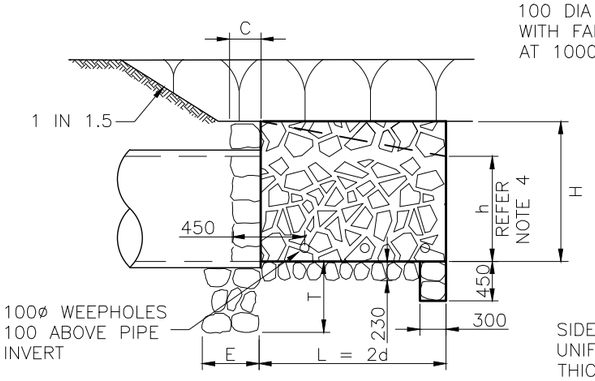
DWG No. BSD–8101

ORIGINAL SIZE A3

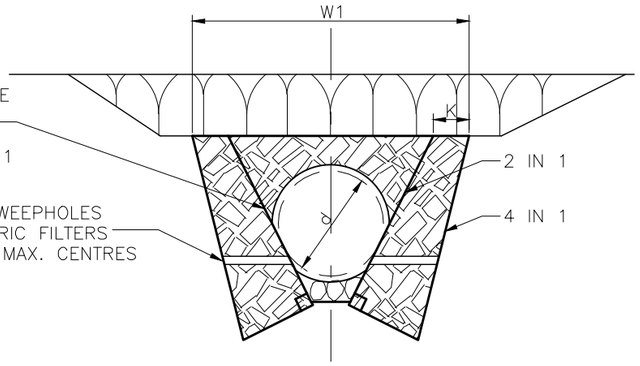
REVISION A



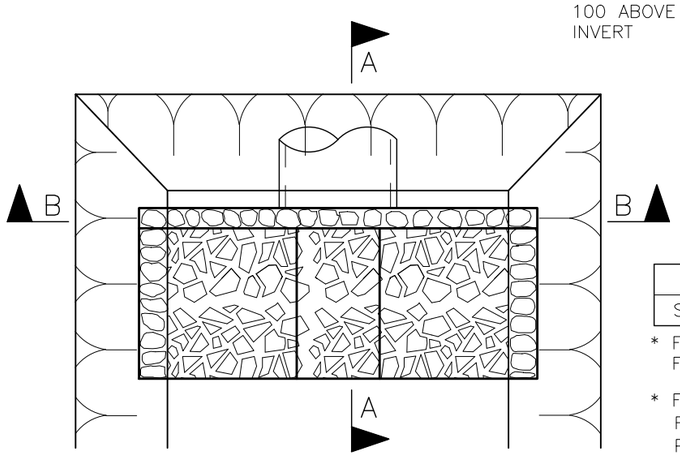
SECTION B–B



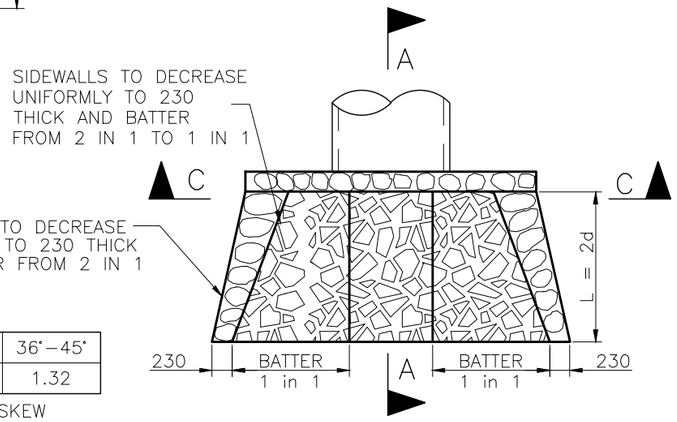
SECTION A–A



SECTION C–C



TYPE A PLAN



TYPE B PLAN

PIPE SKEW	5°–15°	16°–25°	26°–35°	36°–45°
SKEW FACTOR	1.02	1.07	1.16	1.32

* FOR SKEWED PIPES – MULTIPLY W1 BY THE SKEW FACTOR.

* FOR MULTIPLE PIPES – INCREASE W1 BY DIMENSION 'X' FOR EACH ADDITIONAL PIPE ('X' BEING THE DISTANCE FROM PIPE ℄ TO PIPE ℄).

MULTIPLE\SKEW PIPES

DIMENSION	PIPE DIAMETER 'd'													
	300	375	450	525	600	675	750	900	1050	1200	1350	1500	1650	1800
W1*	1095	1285	1485	1820	2015	2200	2550	2720	3300	3685	4065	4450	4810	5175
C	150	150	150	230	230	230	300	300	300	300	300	300	300	300
E	450	450	450	450	450	450	600	600	600	600	600	600	600	600
H	485	565	650	800	885	960	1120	1275	1435	1595	1755	1905	2065	2215
T	450	450	450	450	450	600	600	600	600	600	600	600	600	600
'X'	510	595	685	765	850	935	1015	1180	1345	1510	1675	1835	2000	2165

DIMENSIONS

TYPE A INLET FOR d = 300 TO 1200

TYPE A OUTLET FOR d = 300 TO 1800

DIMENSION	PIPE DIMENSION 'd'			
	1350	1500	1650	1800
W1*	2960	3200	3755	4000
B	760	840	915	990
C	300	300	300	300
E	600	600	600	600
H	1755	1905	2065	2220
T	450	450	450	450
K	300	300	450	450
X	1675	1835	2000	2165

DIMENSIONS

TYPE B INLET AND OUTLET

FOR d = 1350 TO 1800

NOTES:

1. DESIGN ALLOWABLE BEARING PRESSURE 75 KPa. WHERE THIS BEARING PRESSURE CANNOT BE OBTAINED, THE SUPERINTENDENT MAY DIRECT THAT A WIDER FOOTING BE USED.
2. UNREINFORCED CONCRETE CLASS 20 MPa/20. REINFORCED CONCRETE CLASS 32 MPa/20. CONCRETE COVER TO 50 UNLESS SHOWN OTHERWISE.
3. IN TIDAL AREAS WHERE MESH REINFORCEMENT IS SPECIFIED, CONCRETE IS TO BE SULPHATE RESISTANT GRADE S40.
4. IN EMBANKMENT SITUATIONS, THE HEIGHT OF THE WING WALL AT THE TOE SHOULD BE REDUCED TO "h" SO THAT THE SLOPE OF THE TOP OF THE WING WALL EQUALS THE ADJACENT EMBANKMENT BATTER. (REFER TO PROJECT DRAWINGS FOR VALUE OF "h").
5. SEE PROJECT DRAWINGS FOR THE FOLLOWING: NUMBER AND DIAMETER OF PIPES; SKEW ANGLES OF PIPES, IF APPLICABLE; INVERT LEVELS OF PIPES; HEIGHT OF WING WALL "h" AT TOE IF APPLICABLE.
6. FOR QUANTITIES REFER BSD–8104.
7. SCOUR PROTECTION IS GENERALLY REQUIRED DOWNSTREAM OF THE APRON UNDER ANY ONE OF THE FOLLOWING CONDITIONS:
   - AVERAGE OUTLET VELOCITY EXCEEDS THE NON–EROSIVE VELOCITY.
   - AVERAGE OUTLET VELOCITY EXCEEDS 2m/s.
   - OUTLET JET IS EXPECTED TO STRIKE AN UNPROTECTED CHANNEL BANK WITHIN A DISTANCE OF 10 TIMES THE PIPE DIAMETER.
8. BED SCOUR MAY BE CONTROLLED BY THE FOLLOWING METHODS:
   - REDUCING THE OUTLET VELOCITY BY INSTALLING AN EXPANSION CHAMBER.
   - INSTALLING AN ENERGY DISSIPATOR.
   - ARMOURING THE BED WITH ROCK, USUALLY OVER A MAXIMUM DISTANCE OF 8 TIMES THE PIPE DIAMETER.
9. PREFERRED POSITIONING OF STORMWATER PIPE OUTLET:
   - SETBACK FOR MORE THAN A DISTANCE OF 3 TIMES THE BANK HEIGHT MEASURED FROM THE TOE OF THE WATERCOURSE BANK.
   - FOR 'NARROW' RECEIVING WATERCOURSE, ANGLE THE OUTLET PIPE IN THE DIRECTION OF THE MAIN FLOW. AN APPROACH ANGLE IN THE RANGE OF 45° TO 60° MEASURED FROM THE BANK IS RECOMMENDED.
   - LIMIT THE MAXIMUM HEIGHT BETWEEN THE OUTLET INVERT AND THE RECIEVING CHANNEL INVERT OR EXPECTED WATER LEVEL TO $0.247/d^{0.5}$ WHERE d IS THE OUTLET PIPE DIAMETER IN METRES.
10. WHERE DIRECTED, INSTALL 1200 HIGH FENCE ALONG HEADWALL AND WINGWALLS:
    - FOR 1000–1500 DROP HEIGHT, PROVIDE GALVANISED TUBULAR HANDRAIL IN ACCORDANCE WITH BSD–7001, GALVANISED WELD MESH FENCING IN ACCORDANCE WITH BSD–7002 OR PEDESTRIAN SAFETY FENCING IN ACCORDANCE WITH BSD–7003.
    - FOR >1500 DROP HEIGHT, PROVIDE POWDER COATED STEEL FENCING (HUNTER ROD TOP OR APPROVED EQUIVALENT) INSTALLED USING VANDAL PROOF FIXINGS. DESIGN TO RESIST A MINIMUM STATIC LOAD OF 1.5 kN/m AS PER CLAUSE 3.6 OF AS 1170–2002.
11. USE OF EQUIVALENT PRECAST PRODUCTS IS PERMITTED.
12. DIMENSIONS IN MILLIMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
Publish
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT
DESIGN APPROVED
Publish
PRINCIPAL ASSET OFFICER
ROADS & DRAINAGE

DESIGN	Std Dwgs WG	DATE	OCT '13
DRAWN	CPO - P&D	DATE	OCT '13
CHECKED		DATE	OCT '13
DRAWING FILENAME	BSD-8102 (A) Inlets and outlets (stonepitched) stormwater drains.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-342		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

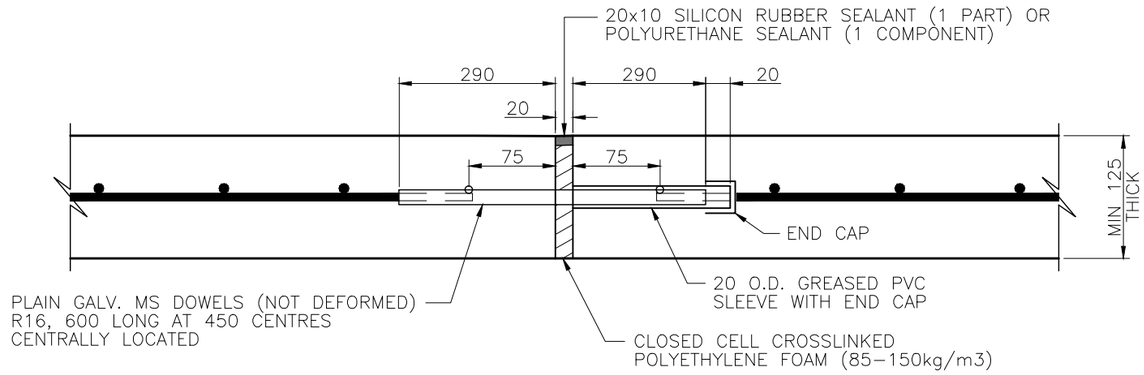
INLETS AND OUTLETS (STONEPITCHED) STORMWATER DRAINS

SCALE NOT TO SCALE

DWG No. BSD–8102

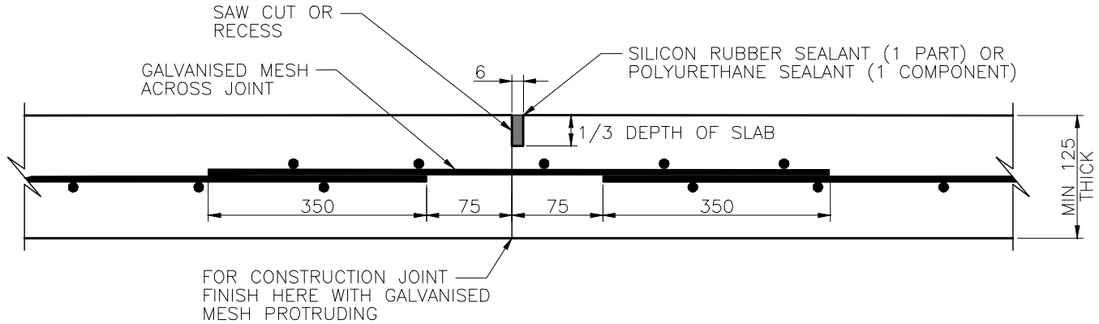
ORIGINAL SIZE A3

REVISION A



EXPANSION JOINT

SPACING 24m



CONTRACTION JOINT

SPACING 8m

NOTES:

1. REFER PROJECT DRAWINGS FOR CONCRETE GRADE, SLAB THICKNESS AND REINFORCEMENT DETAILS.
2. ALL DIMENSIONS IN MILLIMETRES (UNO).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B. BALL SIGNATURE ON ORIGINAL
DATED 29/6/01
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 27/6/01
PRINCIPLE ASSETT OFFICER
ROADS & DRAINAGE

DESIGN	Std Dwgs WG	DATE	Mmm 'YY
DRAWN	CPO - P&D	DATE	Mmm 'YY
CHECKED		DATE	Mmm 'YY
DRAWING FILENAME	BSD-8103 (A) Expansion and contraction joints for concrete lined open channels.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-361		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

EXPANSION AND CONTRACTION JOINTS FOR CONCRETE LINED OPEN CHANNELS

SCALE: NOT TO SCALE
DWG No.: BSD–8103
ORIGINAL SIZE: A3
REVISION: A

TYPE 'A' INLETS AND OUTLETS

DIAMETER	'd'	300	375	450	525	600	675	750	900	1050	1200	1350	1500	1650	1800
HEADWALL & FOUNDATION	m^3	0.26	0.28	0.29	0.49	0.58	0.65	1.02	1.21	1.42	1.57	1.86	2.12	2.38	2.66
SIDEWALLS & INVERT	m^3	0.25	0.35	0.47	0.65	0.80	0.97	1.22	1.67	2.32	3.00	3.48	4.25	5.09	5.94

EXTRA FOR EACH ADDITIONAL PIPE

DIAMETER	'd'	300	375	450	525	600	675	750	900	1050	1200	1350	1500	1650	1800
HEADWALL & FOUNDATION	m^3	0.13	0.15	0.18	0.24	0.27	0.35	0.54	0.64	0.75	0.90	0.96	1.07	1.17	1.30
INVERT	m^3	0.10	0.15	0.19	0.24	0.30	0.36	0.42	0.57	0.75	0.95	1.17	1.41	1.67	1.95

TYPE 'B' INLETS AND OUTLETS

DIAMETER	'd'	1350	1500	1650	1800
HEADWALL & FOUNDATION	m^3	1.39	1.54	1.94	2.08
SIDEWALLS & INVERT	m^3	5.44	6.69	9.57	11.23

EXTRA FOR EACH ADDITIONAL PIPE

DIAMETER	'd'	1350	1500	1650	1800
HEADWALL & FOUNDATION	m^3	0.96	1.07	1.17	1.30
INVERT	m^3	1.17	1.41	1.67	1.95

QUANTITY OF STONEPITCHING

TYPE 'A' INLETS AND OUTLETS

DIAMETER	'd'	300	375	450	525	600	675	750	825	900	1050	1200	1350	1500	1650	1800	1950
HEADWALL	m^3	0.19	0.23	0.26	0.39	0.42	0.47	0.57	0.63	0.69	0.79	0.92	1.09	1.23	1.38	1.54	1.73
APRON	m^3	0.08	0.10	0.12	0.14	0.20	0.23	0.26	0.29	0.32	0.39	0.46	0.54	0.62	0.71	0.80	0.90
WINGWALLS	m^3	0.15	0.21	0.29	0.49	0.61	0.75	0.90	1.06	1.24	1.63	2.08	2.58	3.12	3.73	4.40	5.16
F92 MESH	m^2	NOT APPLICABLE										13.5	16.5	19.7	23.4	27.3	31.8
TOTAL CONCRETE	m^3	0.4	0.5	0.7	1.0	1.2	1.5	1.7	2.0	2.3	2.8	3.5	4.2	5.0	5.8	6.7	7.8

EXTRA FOR EACH ADDITIONAL PIPE

DIAMETER	'd'	300	375	450	525	600	675	750	825	900	1050	1200	1350	1500	1650	1800	1950
HEADWALL	m^3	0.04	0.05	0.07	0.10	0.11	0.13	0.15	0.16	0.18	0.22	0.26	0.30	0.34	0.39	0.45	0.51
APRON	m^3	0.06	0.08	0.11	0.14	0.21	0.25	0.30	0.34	0.40	0.51	0.65	0.79	0.95	1.13	1.32	1.53
F92 MESH	m^2	NOT APPLICABLE										4.3	5.3	6.3	7.5	8.8	10.2
TOTAL CONCRETE	m^3	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.3	1.4	1.8	2.0

FOR SKEWED PIPES

PIPE SKEW	5°–15°	16°–25°	26°–35°	36°–45°
SKEW FACTOR	1.02	1.07	1.16	1.32

INCREASE TOTAL QUANTITY FOR HEADWALL AND APRON ONLY, BY MULTIPLICATION FACTOR ABOVE

QUANTITY OF CONCRETE

TYPE 'B' INLETS AND OUTLETS

DIAMETER	'd'	1350	1500	1650	1800	1950
HEADWALL	m^3	1.46	1.72	2.01	2.31	2.68
APRON	m^3	0.22	0.29	0.39	0.48	0.60
WINGWALLS	m^3	4.88	5.98	7.14	8.53	10.13
TOTAL CONCRETE	m^3	6.6	8.0	9.5	11.3	13.4

EXTRA FOR EACH ADDITIONAL PIPE

DIAMETER	'd'	1350	1500	1650	1800	1950
HEADWALL	m^3	1.14	1.35	1.56	1.79	2.06
APRON	m^3	0.79	0.95	1.13	1.32	1.53
TOTAL CONCRETE	m^3	1.9	2.3	2.7	3.1	3.6

NOTES:

1. THIS STANDARD DRAWING TO BE READ IN CONJUNCTION WITH BSD–8101 AND BSD–8102.
2. QUANTITIES OF SPALLS FOR SIDEWALLS AND INVERT TAKEN FOR L=2d, FOR L=d MULTIPLY APPROPRIATE SPALLS QUANTITY BY 0.5.
3. QUANTITIES ARE SHOWN FOR WINGWALLS WHERE h = H IF h IS LESS THAN H ADJUSTMENT SHOULD BE MADE.
4. EXAMPLE : TWIN 1200 DIA PIPE
   LENGTH OF INVERT = d
   QUANTITIES : SPALLS FOR HEADWALL AND FOUNDATION = 1.57+0.9 = 2.47
   SPALLS FOR SIDEWALLS AND INVERT
   (3.0+0.95)x0.5 = 1.98
   TOTAL = 2.47+1.98 = 4.45m3

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B. BALL SIGNATURE ON ORIGINAL
DATED 29/6/01
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 27/6/01
PRINCIPLE ASSET OFFICER
ROADS & DRAINAGE

DESIGN	Std Dwgs WG	DATE	Mmm 'YY
DRAWN	CPO - P&D	DATE	Mmm 'YY
CHECKED		DATE	Mmm 'YY
DRAWING FILENAME	BSD-8104 (A) Quantities for inlets and outlets.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-371		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

QUANTITIES FOR INLETS AND OUTLETS

SCALE: NOT TO SCALE
DWG No.: BSD–8104
ORIGINAL SIZE: A3
REVISION: A

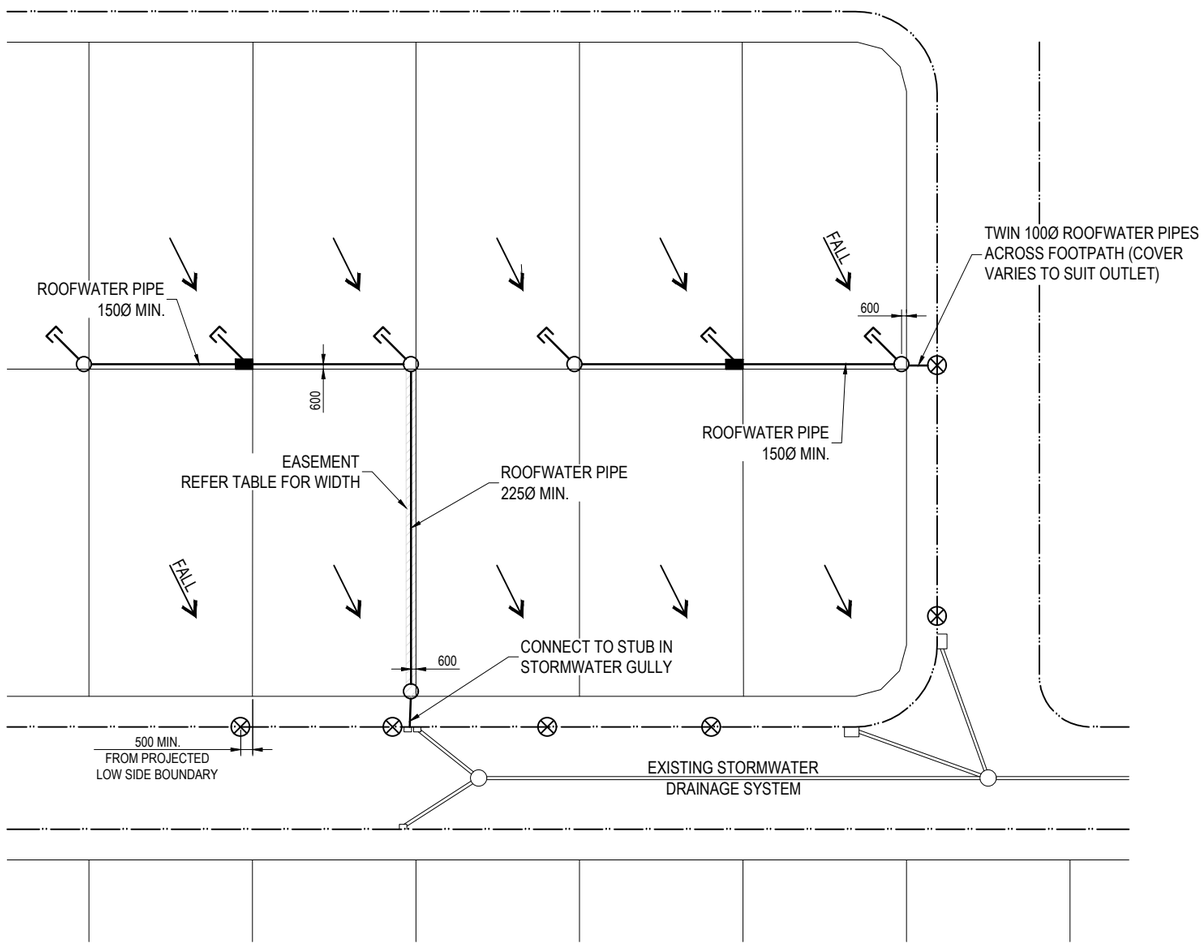
LEGEND

ROOFWATER INSPECTION MANHOLE AS PER BSD-8112

ROOFWATER INSPECTION OPENING WITH 100mm DIA STUB AND END CAP

uPVC Y JUNCTION WITH 100mm DIA STUB AND END CAP

KERB ADAPTOR TO BSD-8114



TYPICAL PLAN ROOFWATER DRAINAGE SYSTEM

DESIGN CRITERIA FOR REAR OF ALLOTMENT DRAINAGE SYSTEM

EASEMENT WIDTH (m)	NOMINAL PIPE DIAMETER (mm)	MINIMUM PIPE SLOPE (%)	FLOW (L/s) - NOTE 4							
			PIPE GRADIENT % - NOTE 6							
			0.5	1.0	1.5	2.0	2.5	3.0	4.0	5.0
NOT REQUIRED - NOTE 3	150	1.0	N/A	18	23	26	30	33	38	42
0.9	225	0.5	38	56	67	78	87	96	110	125
0.9	300	0.5	84	120	146	170	190	210	N/A	N/A

NOTES:

1. DESIGN FLOWS CALCULATED BASED ON MANNING'S 'n' OF 0.011. PIPE SIZED ASSUMING A DISCHARGE OF 15 L/s FROM EACH ALLOTMENT - BASED ON ROOF AREAS OF 250m^2 AND ARI OF 20 YEARS FOR S.E. QUEENSLAND. ALL PIPES SHALL HAVE A MINIMUM DIAMETER OF 150mm, EXCEPT ACROSS FOOTPATH.
2. WHERE THE PIPE GRADIENT EXCEEDS 5%, UNDERTAKE A MORE DETAILED HYDRAULIC ANALYSIS INCLUDING THE ASSESSMENT OF STRUCTURE LOSSES, WHERE APPROPRIATE.
3. AN EASEMENT IN FAVOUR OF COUNCIL IS REQUIRED WHEN THE ROOFWATER LINE IS DESIGNED TO SERVICE MORE THAN 2 ALLOTMENTS, IRRESPECTIVE OF PIPE SIZE.
4. DISCHARGE TO KERB AND CHANNEL MUST BE LIMITED TO 30L/s.
5. PROVIDE MINIMUM 450 COVER TO PIPES EXCEPT WHERE REDUCED COVER IS NECESSARY TO EFFECT DISCHARGE TO KERB AND CHANNEL. PIPE TYPES AND CLASSES TO COMPLY WITH THE FOLLOWING REQUIREMENTS:
   - UPVC PIPE (MINIMUM SEWER CLASS SN8) MANUFACTURED IN ACCORDANCE WITH *AS 2 0*;
   - PVC PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATIONS. JOINT TYPE, SOLVENT WELDED;
   - STEEL REINFORCED CONCRETE PIPE MINIMUM CLASS 2, MANUFACTURED TO *AS 05* . JOINT TYPE, RUBBER RING;
   - FIBRE REINFORCED CONCRETE PIPE MINIMUM CLASS 1, MANUFACTURED TO *AS 3* . JOINT TYPE, RUBBER RING.
6. MINIMUM PIPE GRADES TO COMPLY GENERALLY WITH *AS3500* NATIONAL PLUMBING AND DRAINAGE CODE PART 3 STORMWATER DRAINAGE:
   - 1.0% GRADE FOR PIPES ≤150Ø;
   - 0.5% GRADE FOR PIPES > 150Ø BUT < 375Ø;
   - 0.5-0.3% GRADE FOR PIPES 375Ø.
7. PROVIDE ROOFWATER INSPECTION MANHOLES:
   - AT MAXIMUM 100m SPACING;
   - AT ALL CHANGES IN PIPE SIZES;
   - AT ALL DIRECTION CHANGES EXCEEDING 15°;
   - AT LINE TERMINATION.
8. PROVIDE "AS CONSTRUCTED" INFORMATION FOR:
   - OFFSETS OF THE MAIN LINE TO THE PROPERTY BOUNDARY;
   - THE LOCATIONS OF INSPECTION MANHOLES AND Y JUNCTIONS MEASURED FROM THE PROPERTY BOUNDARY.
9. DIMENSIONS IN MILLMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
C	Min. Pipe sizes Added to Detail, Easement Width Updated, Notes 1, 2, 3 & 4 Revised	NOV '18	APR '19	APR '19
B	Note 5 Amended - SN6 changed to SN8	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B. BALL SIGNATURE ON ORIGINAL
DATED 29/6/01
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 27/6/01
PRINCIPLE ASSET OFFICER
ROADS & DRAINAGE

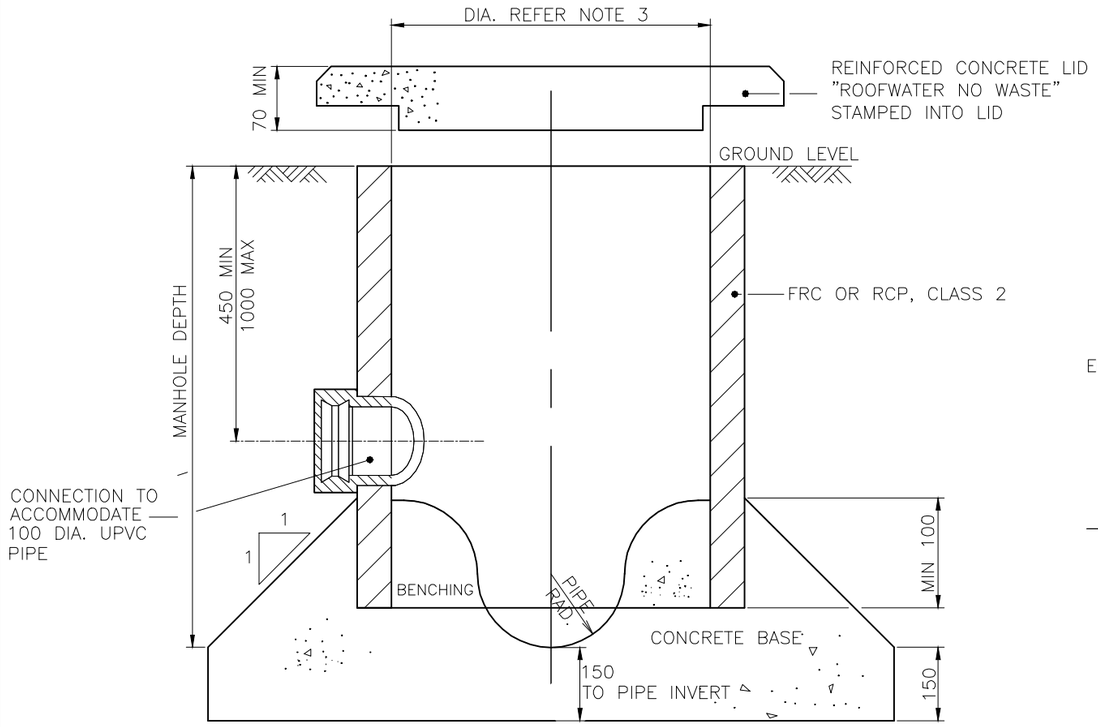
DESIGN	Std Dwgs WG	DATE	APR '01
DRAWN	CITY DESIGN	DATE	APR '01
CHECKED	M.STEER	DATE	MAY '01
DRAWING FILENAME	BSD-8111 (C) Roofwater drainage for low density residential subdivisions.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-351		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

ROOFWATER DRAINAGE
FOR LOW DENSITY
RESIDENTIAL SUBDIVISIONS

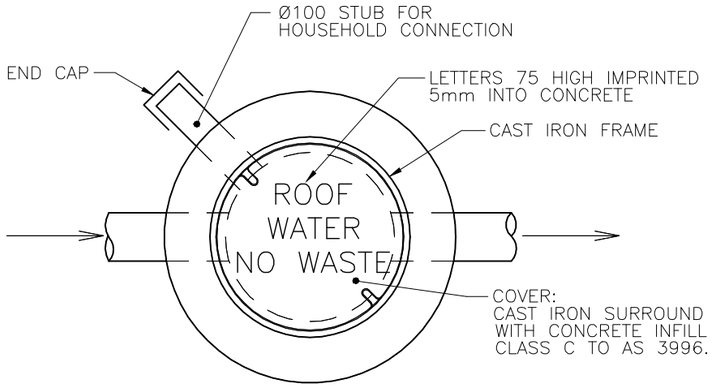
SCALE: NOT TO SCALE
DWG No.: BSD-8111
ORIGINAL SIZE: A3
REVISION: C



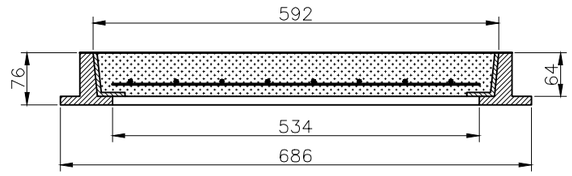
SECTION

TYPE 2

PRECAST/INSITU

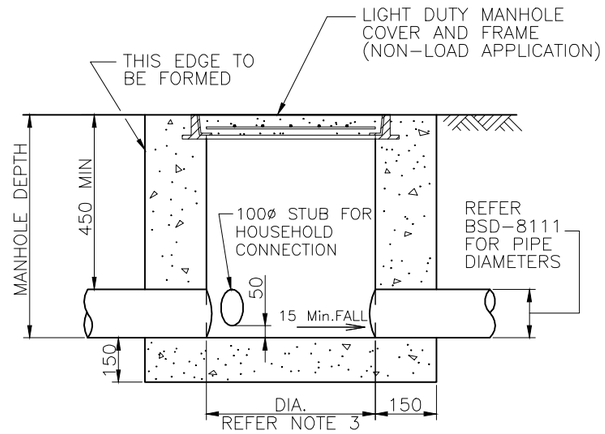


PLAN



COVER AND FRAME DETAIL

TO FIT 550 DIA. MANHOLE



SECTION

TYPE 1

CAST INSITU

NOTES:

1. THIS STANDARD IS TO BE READ IN CONJUNCTION WITH BSD-8111.
2. THE ROOFWATER DRAINAGE SYSTEM IS A PRIVATE SYSTEM WITH THE MAINTENANCE BEING THE RESPONSIBILITY OF THE PRIVATE OWNERS WHO HAVE BEEN PROVIDED WITH A DIRECT ROOFWATER CONNECTION.
3. THE ROOFWATER MANHOLE DEPTHS AND MINIMUM DIAMETERS SHALL BE AS FOLLOWS:

MANHOLE DEPTH	MIN. MANHOLE DIA
< 600	300
600 – 750	550
> 750 – 1500	900

4. ALTERNATIVE DESIGNS, MATERIALS AND METHODS OF CONSTRUCTION WILL BE CONSIDERED FOR APPROVAL INCLUDING PRECAST ROOFWATER CHAMBERS AVAILABLE FROM VARIOUS MANUFACTURERS. ALTERNATIVE PRECAST UNITS TO BE BEDDED AND ENCASED IN 150mm THICK CONCRETE (GRADE N25) UP TO 150mm ABOVE CROWN OF THE INLET PIPE WITH ALL SUBSEQUENT BACKFILL COMPACTED TO 95% MDD (STANDARD COMPACTION TO AS 1289) TO ENSURE STABILITY AND ROBUSTNESS.
5. ALTERNATIVE COVERS AND FRAMES PROPOSED FOR APPROVAL MUST BE CIRCULAR, KEYED INTO THE PERIMETER OF THE MANHOLE AND BE DESIGNED TO SUSTAIN A PROOF LOAD OF 10 kN AS PER AS 3996.
6. A GRATED COVER MAYBE USED IN SAG SITUATIONS AT OWNERS EXPENSE.
7. CONCRETE BASE N25, COVER INFILL N32 IN ACCORDANCE WITH AS 1379 AND AS 3600.
8. DIMENSIONS IN MILLIMETERS (U.N.O.)

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
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DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 27/6/01
PRINCIPLE ASSET OFFICER
ROADS & DRAINAGE

DESIGN	Std Dwgs WG	DATE	April '01
DRAWN	CPO - P&D	DATE	April '01
CHECKED	M. STEER	DATE	May '01
DRAWING FILENAME	BSD-8112 (A) Roofwater inspection maintenance holes for low density residential subdivisions.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-352		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

ROOFWATER INSPECTION MANHOLES FOR LOW DENSITY RESIDENTIAL SUBDIVISIONS

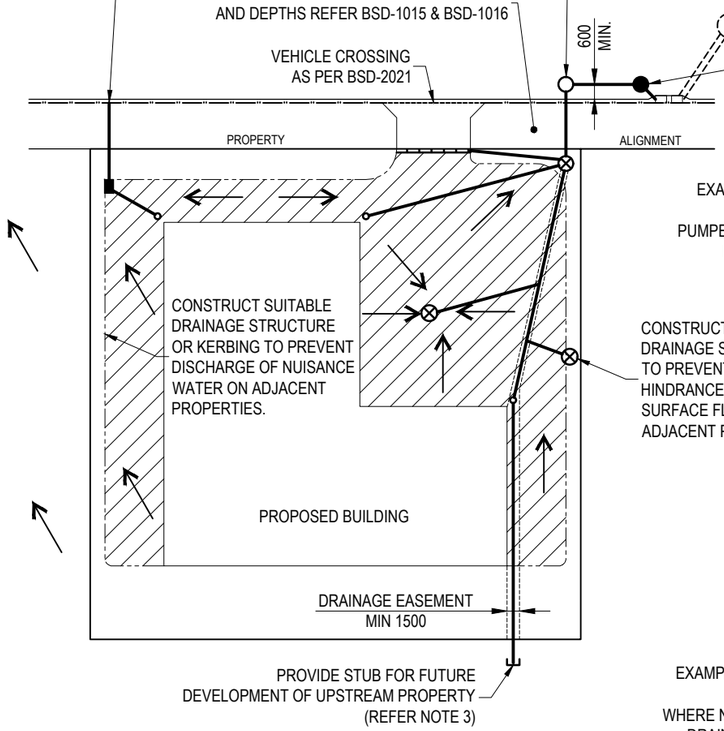
SCALE: NOT TO SCALE
DWG No.: BSD-8112
ORIGINAL SIZE: A3
REVISION: A

LEGEND

- INSPECTION MANHOLE 600Ø WITH HEAVY DUTY COVER AND FRAME FOR VEHICLE LOADING
- INSPECTION MANHOLE 600Ø WITH LIGHT DUTY COVER AND FRAME FOR NO VEHICLE LOADING
- INSPECTION MANHOLE 550Ø WITH HEAVY DUTY GRATE AND FRAME FOR FIELD INLET
- DOWN PIPE AND PRIVATE PROPERTY DRAIN
- SEALED RECESS 600Ø
- PUMP WELL.
- SEALED RECESS 600Ø
- EXISTING STORMWATER SYSTEM
- PAVED AREA

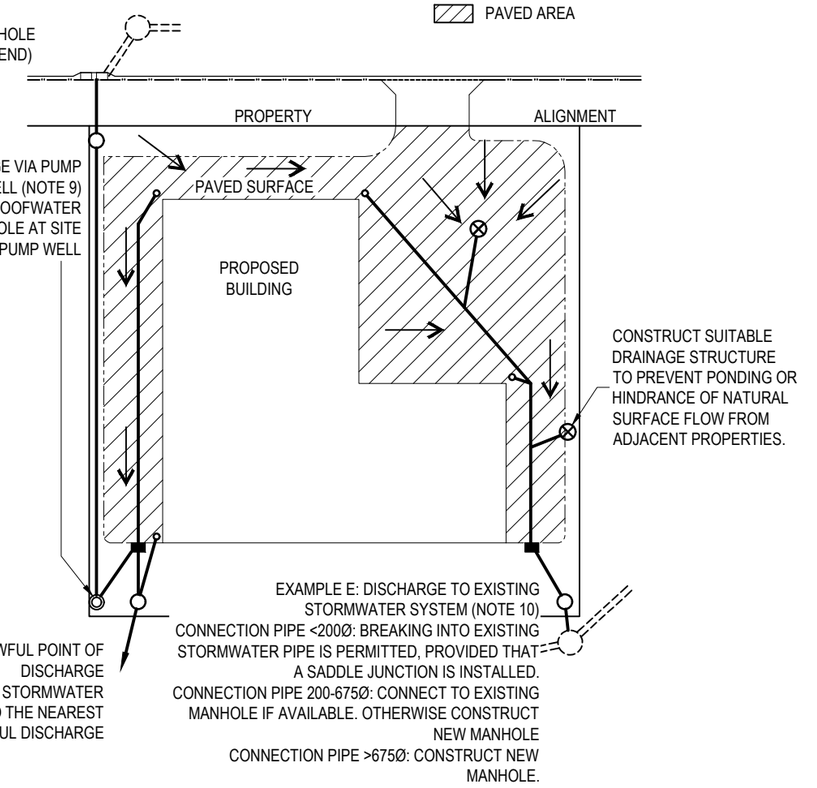
EXAMPLE A: DISCHARGE TO KERB AND CHANNEL (NOTE 6)
GALVANISED RHS SECTIONS (WITH KERB ADAPTOR) TO DISCHARGE TO KERB AND CHANNEL (ONE CONNECTION AT <30L/s PERMITTED ONLY).

EXAMPLE B: DISCHARGE TO EXISTING STORMWATER SYSTEM (NOTE 8)
SEALED RECESS ALLOWABLE ONLY WHERE IT CAN BE PRACTICALLY CLEARED BY RODS.



SITE SLOPING TOWARD ROAD

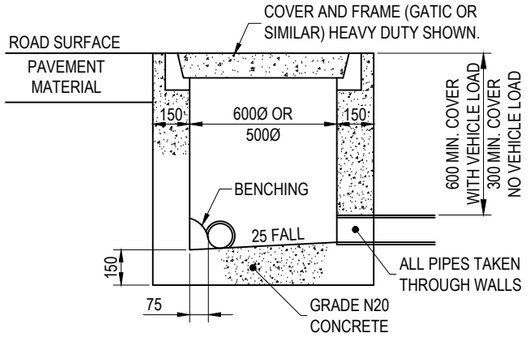
EXAMPLE C: DISCHARGE VIA PUMP WELL (NOTE 9)
PUMPED DRAIN LINE TO ROOFWATER INSPECTION MANHOLE AT SITE BOUNDARY VIA PUMP WELL



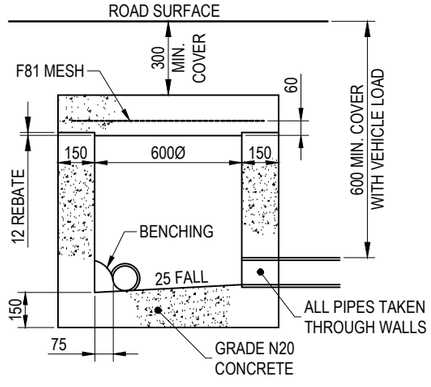
EXAMPLE D: DRAIN TO LAWFUL POINT OF DISCHARGE
WHERE NO UNDERGROUND STORMWATER DRAIN EXISTS, DRAIN TO THE NEAREST POINT OF LAWFUL DISCHARGE

EXAMPLE E: DISCHARGE TO EXISTING STORMWATER SYSTEM (NOTE 10)
CONNECTION PIPE <200Ø: BREAKING INTO EXISTING STORMWATER PIPE IS PERMITTED, PROVIDED THAT A SADDLE JUNCTION IS INSTALLED.
CONNECTION PIPE 200-675Ø: CONNECT TO EXISTING MANHOLE IF AVAILABLE. OTHERWISE CONSTRUCT NEW MANHOLE
CONNECTION PIPE >675Ø: CONSTRUCT NEW MANHOLE.

SITE SLOPING AWAY FROM ROAD



INSPECTION MANHOLE 600Ø OR 550Ø



SEALED RECESS 600Ø

NOTES:

1. THIS STANDARD DRAWING DEPICTS FIVE TYPICAL EXAMPLES OF HOW ROOF AND SURFACE WATER CAN BE DISCHARGED FROM A DEVELOPMENT (OTHER THAN SINGLE DWELLING). ALL ROOF AND SURFACE WATER MUST BE COLLECTED INTERNALLY AND DRAINED TO A LAWFUL POINT OF DISCHARGE.
2. THE OWNER IS WHOLLY RESPONSIBLE FOR THE ADEQUACY OF THE INTERNAL DRAINAGE SYSTEM AND THE MAINTENANCE OF ALL PRIVATE STORMWATER DRAINS, INCLUDING CONNECTIONS THAT ARE EXTERNAL TO THE SITE.
3. THE MINIMUM PIPE SIZE FOR INTERNAL UNDERGROUND SITE DRAINAGE IS 150 NOMINAL DIAMETER. WHERE THE PIPE ALSO CONVEYS STORMWATER FROM AN ADJOINING UPSTREAM PROPERTY (NOW OR IN FUTURE), THE MINIMUM PIPE SIZE IS 225 DIAMETER. SIZE PIPE TO TAKE INTO ACCOUNT OF ULTIMATE DEVELOPMENT FLOWS FOR INTERNAL AND EXTERNAL CATCHMENTS.
4. PIPE TYPES AND CLASSES TO COMPLY WITH THE FOLLOWING REQUIREMENTS:
   - UPVC STORMWATER PIPE MANUFACTURED IN ACCORDANCE WITH *AS1254.*
   - UPVC PIPES AND FITTINGS FOR STORMWATER AND SURFACE WATER APPLICATIONS. LIMIT USE OF THIS PIPE TO DOMESTIC (LOW DENSITY RESIDENTIAL) APPLICATIONS.
   - UPVC SEWER PIPE (MINIMUM CLASS SN8) MANUFACTURED IN ACCORDANCE WITH *AS1260*
   - PVC PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATIONS. THE "ULTRA-RIB" PIPE AND FITTING SYSTEMS MANUFACTURED BY VINIDEX IS ACCEPTABLE.
   - STEEL REINFORCED CONCRETE PIPE (MINIMUM CLASS 2) MANUFACTURED TO *AS4058.*
   - FIBRE REINFORCED CONCRETE PIPE (MINIMUM CLASS 1) MANUFACTURED TO *AS4139.*
5. MINIMUM PIPE GRADES TO COMPLY GENERALLY WITH *AS3500* NATIONAL PLUMBING AND DRAINAGE CODE PART 3 STORMWATER DRAINAGE:
   - 1.0% GRADE FOR PIPES ≤150 DIAMETER.
   - 0.5% GRADE FOR PIPES >150 BUT <375 DIAMETER.
   - 0.3% GRADE FOR PIPES ≥375 DIAMETER.
6. THE PERMITTED TOTAL DISCHARGE FROM THE DEVELOPMENT TO KERB AND CHANNEL, INCLUDING CONTRIBUTION FROM ANY EXTERNAL CATCHMENT, MUST NOT EXCEED 30L/s.
7. REFER TO BDS-8114 FOR KERB ADAPTOR INSTALLATION.
8. STORMWATER DISCHARGE EXCEEDING 30L/s MUST BE CONNECTED TO AN EXISTING GULLY PIT OR MANHOLE SITUATED WITHIN 50m OFF THE SITE BOUNDARY. WHERE THE CAPACITY OF THE EXISTING STORMWATER DRAINAGE SYSTEM IS DEFICIENT, THE DEVELOPER IS GENERALLY RESPONSIBLE FOR UPGRADING THE PIPE DRAINAGE TO THE APPROPRIATE DESIGN STANDARD IN THE ABSENCE OF AN INFRASTRUCTURE CHARGES PLAN THAT SPECIFIES THE DEVELOPMENT CONTRIBUTION FOR STORMWATER FACILITIES.
9. ALL DISCHARGE FROM PUMP-OUT SYSTEMS FOR ROOFWATER DISPOSAL TO MEET FOLLOWING:
   - NO DIRECT PUMPING INTO COUNCIL OWNED STORMWATER INFRASTRUCTURE. PUMP DISCHARGE IS TO BE DIRECTED INTO A ROOFWATER INSPECTION MANHOLE AT SITE BOUNDARY AND GRAVITY DRAIN INTO GULLY PIT IN ROAD RESERVE.
   - COUNCIL WILL ONLY CONSIDER A PUMPED ROOFWATER DRAINAGE SYSTEM FOR A LAWFUL POINT OF DISCHARGE WHERE LETTERS OF REFUSAL ARE PROVIDED FROM DOWNSTREAM PROPERTY OWNERS FOR CONSENT TO ACCEPT DRAINAGE VIA GRAVITY DRAINED SYSTEMS
   - ALL PUMP STORAGE TO BE DESIGNED FOR THE 5% AEP STORM EVENT WHERE PROVIDING A LAWFUL POINT OF DISCHARGE (AS PER ROOFWATER DESIGN STANDARD)
10. WHERE THE CAPACITY OF THE EXISTING STORMWATER DRAINAGE SYSTEM IS DEFICIENT, THE DEVELOPER IS GENERALLY RESPONSIBLE FOR UPGRADING THE PIPE DRAINAGE TO THE APPROPRIATE DESIGN STANDARD. DISCHARGE TO THE EXISTING STORMWATER SYSTEM MUST BE LIMITED TO ONE CONNECTION (BEING KERB ADAPTOR, GULLY OR MANHOLE).
11. MAXIMUM PIPE SIZE FOR PRIVATE STOMRWATER CONNECTION TO BACK OF EXISTING GULLY TO BE 300MM OR LESS, OTHERWISE CONNECTION TO STORMWATER MANHOLE REQUIRED
12. DIMENSIONS IN MILLIMETRES U.N.O.

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
C	Note 7 Reference Updated, Notes 1, 9 & 10 Revised, Note 11 Added	OCT '17	AUG '18	NOV '18
B	Note 4 Amended - SN6 changed to SN8	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B. BALL SIGNATURE ON ORIGINAL
DATED 29/6/01
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 27/6/01
PRINCIPLE ASSET OFFICER
ROADS & DRAINAGE

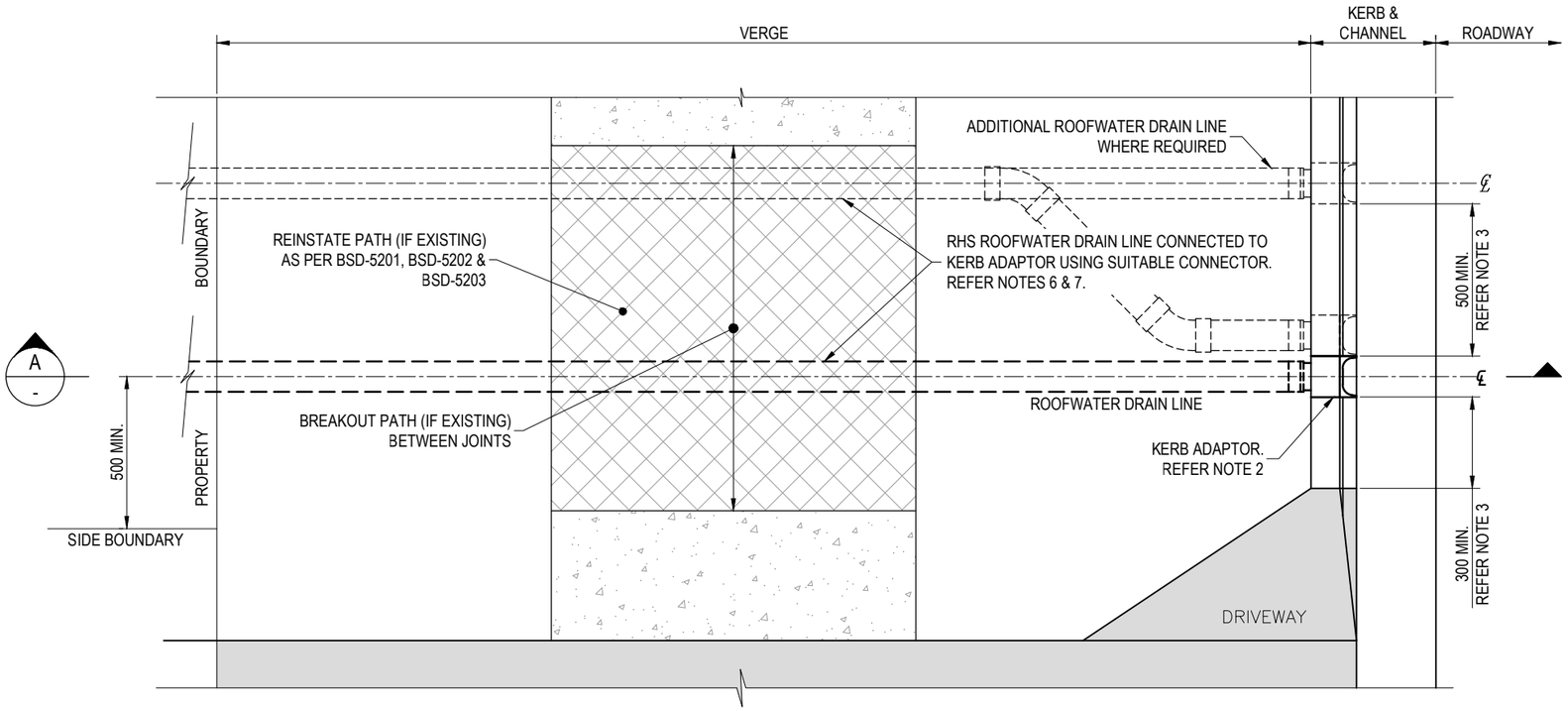
DESIGN	Std Dwgs WG	DATE	April '01
DRAWN	CPO - P&D	DATE	April '01
CHECKED	M. STEER	DATE	May '01
DRAWING FILENAME	BSD-8113 (C) Roof and surface water drainage for site developments.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-353		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

ROOF AND SURFACE WATER DRAINAGE FOR SITE DEVELOPMENTS

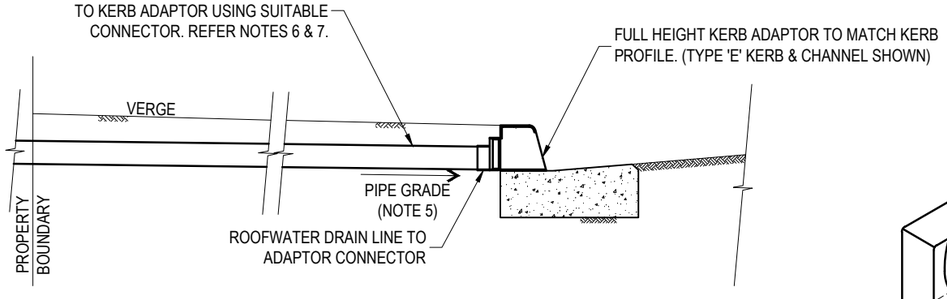
SCALE: NOT TO SCALE
DWG No.: BSD-8113
ORIGINAL SIZE: A3
REVISION: C



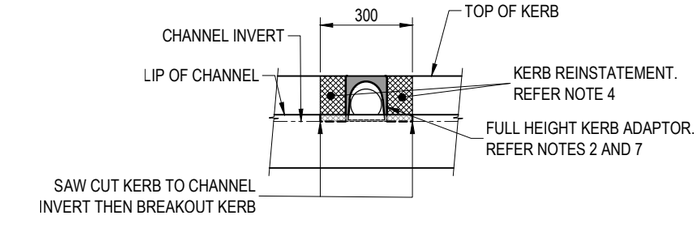
PLAN

NOTES:

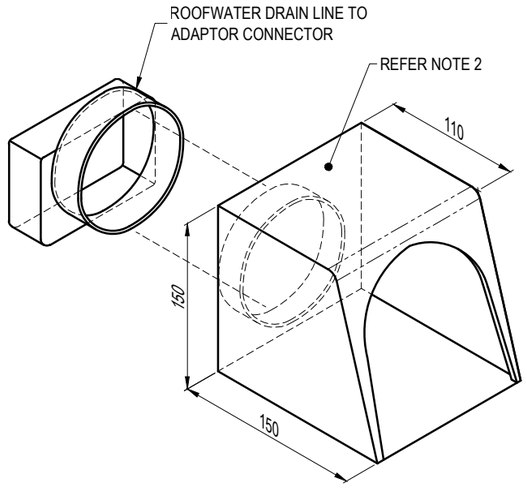
1. ROOFWATER DRAINS AND THEIR CONNECTION TO THE STORMWATER DRAINAGE NETWORK ARE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE PROPERTY OWNER IS RESPONSIBLE FOR THE RESTORATION OF THE AFFECTED KERB, VERGE AND FOOTPATH.
2. FULL HEIGHT KERB ADAPTOR TO MATCH KERB & CHANNEL PROFILES AND CONFORM TO REFERENCE SPECIFICATION FOR CIVIL ENGINEERING WORKS S150 ROADWORKS, SECTION 5.3. REFER BSD-2001 FOR KERB PROFILE DETAIL.
3. PROVIDE SINGLE PIECE/MULTIPLE OUTLET ADAPTOR OR MIN. 500 CLEARANCE BETWEEN SINGLE OUTLETS WITH, A MIN. 300 CLEARANCE FROM ALL OUTLETS TO DRIVEWAY TAPERS.
4. AT EXISTING KERB & CHANNEL SAW CUT AS NECESSARY. REINSTATE WITH N25 CONCRETE IN ACCORDANCE WITH *AS1379* AND *AS3600* TO CLEAN CONCRETE FACE.
5. ROOFWATER DRAIN ACROSS VERGE TO BE LAID WITH THE MAXIMUM AVAILABLE COVER AND WITH A MINIMUM GRADE OF 1 IN 80.
6. IN COLLECTOR ROADS OR IN LOW DENSITY RESIDENTIAL STREETS PROVIDE SINGLE 125 x 75 RHS ROOFWATER DRAIN FOR FULL WIDTH OF VERGE. ROOFWATER DRAIN TO CONNECT TO FULL HEIGHT KERB ADAPTOR.
7. OTHER THAN SINGLE DWELLINGS, PROVIDE SINGLE OR MULTIPLE RHS ROOFWATER DRAINS ACROSS FULL WIDTH OF VERGE. ROOFWATER DRAIN(S) TO CONNECT TO FULL HEIGHT SINGLE PIECE/MULTIPLE OUTLET ADAPTOR KERB ADAPTOR. GENERALLY 102 x 76, 125 x 75, 152 x 76 OR 185 x 65 RHS.
8. RHS TO BE MIN. 3mm WALL THICKNESS.
9. RHS TO BE HOT DIPPED GALVANISED STEEL TO *AS/NZS4680* OR ZINC-ALLOY COATED STEEL TO ZM275 COATING CLASS AS SPECIFIED IN *AS1397*.
10. CUT ENDS OF RHS TO BE TREATED WITH A COLD GALVANISING MATERIAL OR APPROPRIATE ANTI-CORROSION TREATMENT.
11. REINSTATE ANY CONSTRUCTED PATH TO MATCH ORIGINAL FINISH.
12. ALL DIMENSIONS IN MILLIMETRES (U.N.O.)



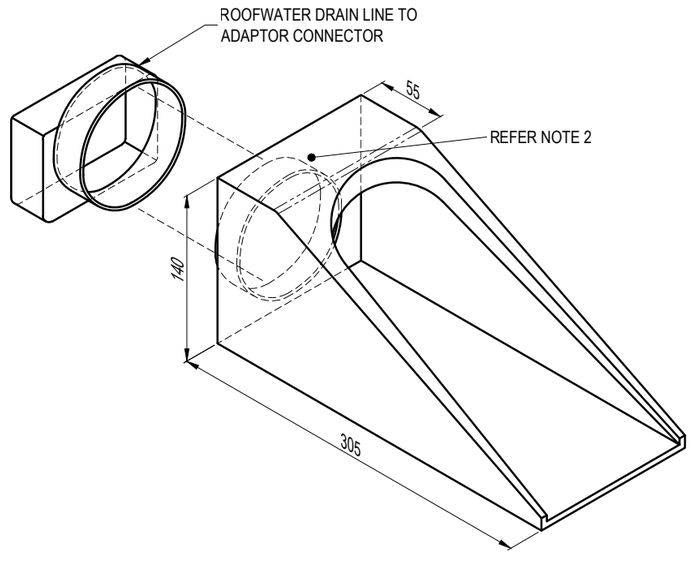
TYPICAL SECTION A-A



FRONT ELEVATION



TYPICAL TYPE 'E' PROFILE KERB ADAPTOR DIMENSIONS



TYPICAL TYPE 'D' PROFILE KERB ADAPTOR DIMENSIONS

THE PURPOSE OF THIS STANDARD DRAWING IS TO PROVIDE TYPICAL DETAILS THAT SUPPORT THE DESIRED OUTCOMES OF THE BRISBANE CITY PLAN 2014 AND ASSOCIATED PLANNING SCHEME POLICIES. THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHOULD BE ASSESSED AND ACCEPTED BY AN APPROPRIATELY QUALIFIED DESIGNER AND/OR REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

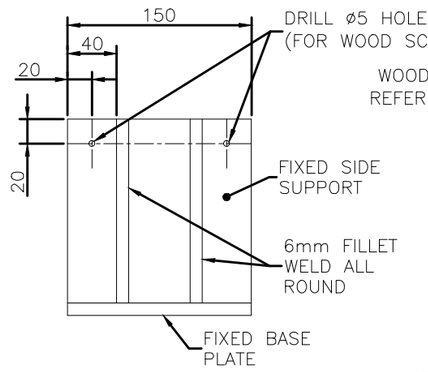
BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

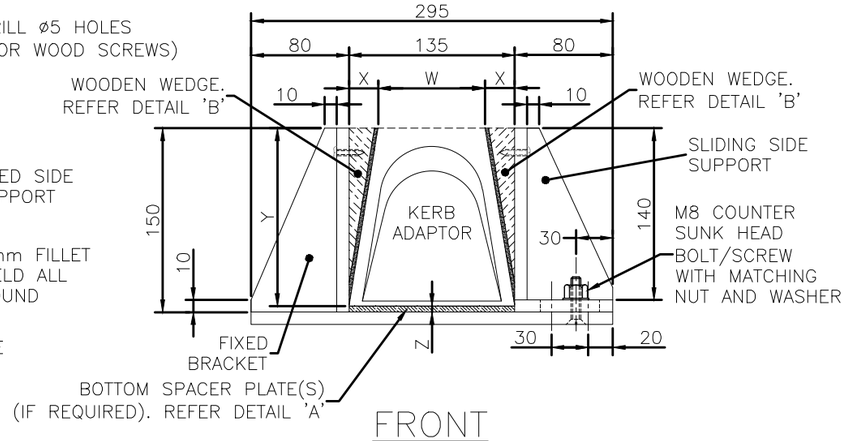
ROOFWATER DRAINAGE CONNECTION (KERB ADAPTOR INSTALLATION)

PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8114
ORIGINAL SIZE	A3
REVISION	C

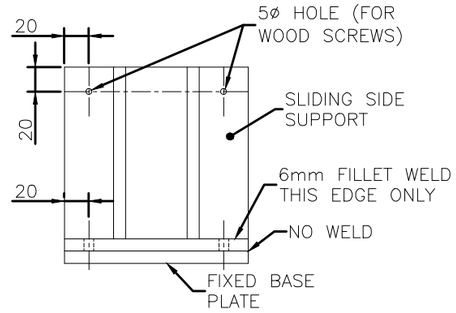
W = TOP WIDTH OF KERB ADAPTOR.
X = (135–W)/2
Y = HEIGHT OF KERB ADAPTOR
Z = HEIGHT OF SPACER PLATE (IF REQUIRED)
NOTE: 'Y'+'Z'=150



LEFT END ELEVATION



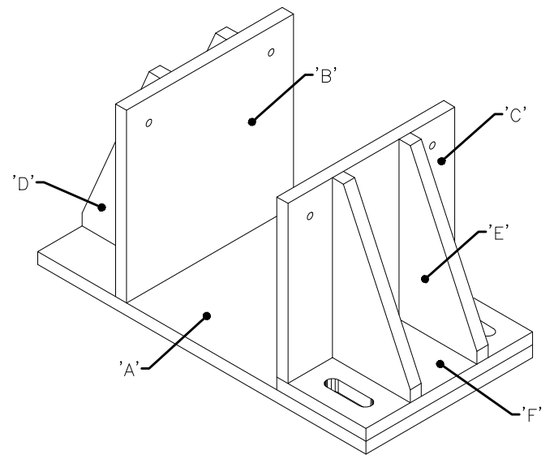
FRONT ELEVATION
(WITH KERB ADAPTOR IN PLACE FOR TESTING)



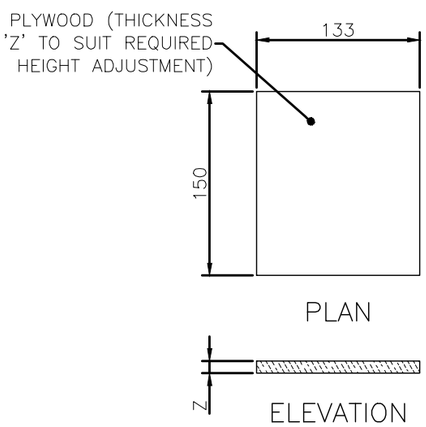
RIGHT END ELEVATION

MATERIAL LIST

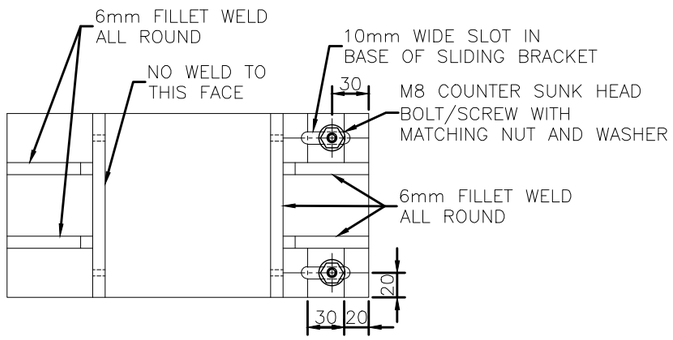
PLATE	SIZE	NUMBER	COMMENT
A	295 x 150	1	FIXED BASE PLATE
B	150 x 150	1	FIXED SUPPORT
C	140 x 150	1	SLIDING SUPPORT
D	70 x 150	2	FIXED SIDE BRACKET
E	70 x 140	2	SLIDING SIDE BRACKET
F	80 x 150	1	BASE – SLIDING



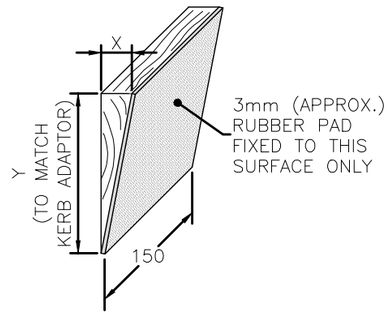
ISOMETRIC VIEW
N.T.S.



DETAIL 'A'
SPACER PLATE



PLAN



DETAIL 'B'
WOODEN WEDGE WITH RUBBER PAD (x2)

NOTES:

1. ALL STEEL PLATE TO BE 10mm THICK MS.
2. ALL WELDS TO BE 6 CFW.
3. SPACER PLATE(S) (IF REQUIRED) TO BE USED UNDER KERB ADAPTORS TO ENSURE THE TOP SURFACE OF ADAPTOR IS FLUSH WITH TOP OF JIG.
4. WOODEN WEDGES WITH RUBBER PAD TO BE CUT AND MODIFIED TO SUIT EACH TYPE OF KERB ADAPTOR TO ENSUE FIRM HOLD AND THAT KERB ADAPTOR IS SUPPORTED ON SIDES.
5. TYPICALLY 10Gx20mm WOOD SCREWS ARE REQUIRED TO SECURE WOODEN WEDGES TO TESTING JIG.
6. REFER TO STANDARD DRAWING BSD–8114 FOR STANDARD KERB ADAPTOR DIMENSIONS AND INSTALLATION REQUIREMENTS.
7. REFER TO REFERENCE SPECIFICATION S150–ROADWORKS FOR KERB ADAPTOR REQUIREMENTS AND LOAD TEST METHOD.
8. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
P.COTTON SIGNATURE ON ORIGINAL
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT
DESIGN APPROVED
B. HANSEN SIGNATURE ON ORIGINAL
DATED 06/08/07
PRINCIPAL ENGINEER
STRATEGIC ASSET MANAGEMENT

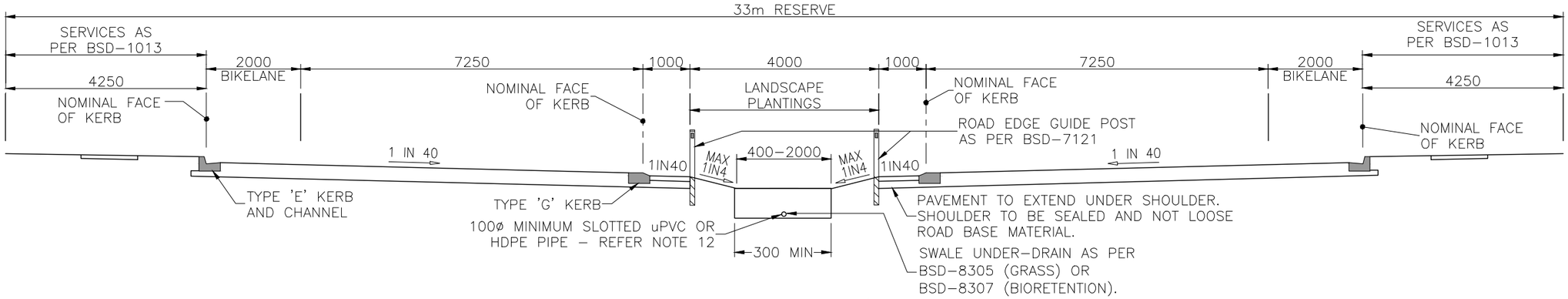
DESIGN	Std Dwgs WG	DATE	MAY '04
DRAWN	CPO - P&D	DATE	MAY '04
CHECKED	CA (CD/BH)	DATE	MAY '04
DRAWING FILENAME	BSD-8115 (A) Kerb adaptor testing jig construction details.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-355		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

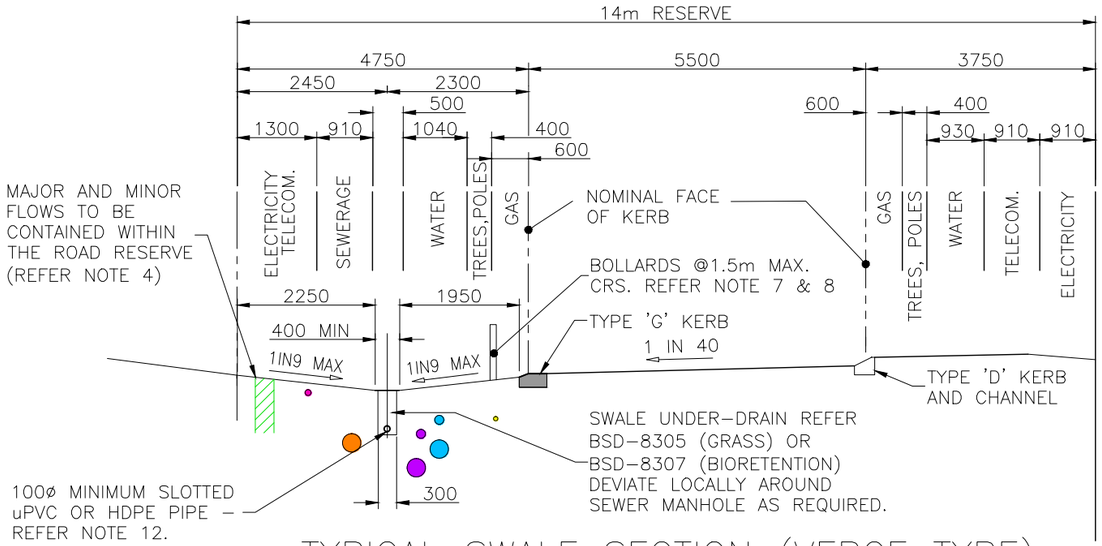
KERB ADAPTOR TESTING JIG CONSTRUCTION DETAILS

SCALE: NOT TO SCALE
DWG No.: BSD–8115
ORIGINAL SIZE: A3
REVISION: A



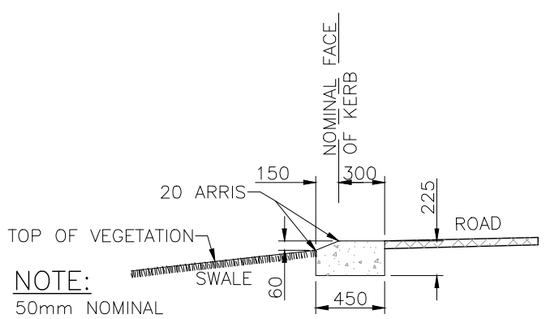
TYPICAL SWALE SECTION (MEDIAN TYPE)

SUBURBAN ROUTES PAVEMENT TYPE "D"



TYPICAL SWALE SECTION (VERGE TYPE)

LOCAL ACCESS ROADS PAVEMENT TYPE "A" AND "B"



NOTE:
50mm NOMINAL HEIGHT OF VEGETATION

TYPE 'G' KERB

(FOR WSUD ROADS ONLY)
(REFER NOTE 4)

GENERAL SWALE NOTES:

1. SWALES IN THE FOOTPATH MAY BE GRASSED (REFER BSD–8305) OR BIORETENTION (REFER BSD 8307) AND SHALL BE LOCATED AT PARK FRONTAGES ONLY.
2. SWALES IN THE MEDIAN MAY BE EITHER GRASSED OR BIORETENTION.
3. SWALES ARE GENERALLY NOT SUITABLE ON ROADS WITH LONGITUDINAL GRADE LESS THAN 0.5% OR GREATER THAN 5%.
4. IT IS THE DESIGNERS RESPONSIBILITY TO DEMONSTRATE THAT THE ROADWAY AND SWALE CAPACITY IS SUFFICIENT TO CONVEY MAJOR AND MINOR FLOWS, AND MAJOR EVENTS ARE CONTAINED WITHIN THE ROAD RESERVE OR LESSER DEPTH TO PROVIDE FREEBOARD AS PER QUDM SECTION 7.3.15.
5. VERGE SWALE PREFERRED IN GREENFIELD LOCATIONS WHERE WATER RETICULATION IS LOCATED ON THE LAND LOWSIDE.
6. THE DEPTH VELOCITY PRODUCT (d_S . V_{avg}) IN THE SWALE SHALL BE LIMITED IN ACCORDANCE WITH QUDM SECTION 7.4.2. GENERAL REQUIREMENTS FOR PEDESTRIAN SAFETY (TYPICALLY 0.6m²/s OR 0.4m²/s IN HIGH RISK AREAS).
7. DESIGNERS SHALL INCORPORATE FEATURES THAT PREVENT OR DISCOURAGE THE DRIVING OR PARKING OF VEHICLES ON THE SWALE.
8. WHERE BOLLARDS ARE USED, CONSIDERATION SHOULD BE GIVEN TO INTERMIXING MATURE TREE PLANTINGS. BOLLARDS MUST BE LOCATED MIN 600mm FROM BACK OF KERB AND SPACED MAX 1.5m APART, CONSTRUCTED IN ACCORDANCE WITH BSD–7093 AND BSD–7094.
9. KERB TO BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD NOTES SHOWN ON BSD–2001.
10. SERVICE ALIGNMENTS ADAPTED FROM BSD–1013.
11. MINIMUM DEPTH OF COVER TO SERVICES TO BE IN ACCORDANCE WITH BSD–1014.
12. SWALES FRONTING PARKS MAY NOT REQUIRE AN UNDERDRAIN AND SHALL BE ASSESSED ON A SITE BY SITE BASIS. SWALE UNDERDRAIN DETAILS AS PER PER BSD–8305.

DESIGN REVIEWED & CERTIFIED FOR ISSUE
NAME: MARK R GIBSON RPEQ: 6722
SIGNATURE: SIGNATURE ON ORIGINAL DATE: 03/04/14

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	NOTES UPDATED	Feb '15	Feb '15	Feb '15
A	ORIGINAL ISSUE	Apr '14	Apr '14	Apr '14

DESIGN AUTHORISED FOR PUBLICATION
INGA CONDRIC SIGNATURE ON ORIGINAL DATED 14/04/14
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
PETER KURAS SIGNATURE ON ORIGINAL DATED APRIL '14
PRINCIPAL PROGRAM OFFICER
NATURAL ENVIRONMENT WATER & SUSTAINABILITY

DESIGN	CPO - P&D	DATE	Apr '14
DRAWN	CPO - P&D	DATE	Apr '14
CHECKED	M. GIBSON	DATE	Apr '14
DRAWING FILENAME	BSD-8301 (B) Roadside swale types and typical sections.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-151		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

ROADSIDE SWALE TYPES AND TYPICAL SECTIONS

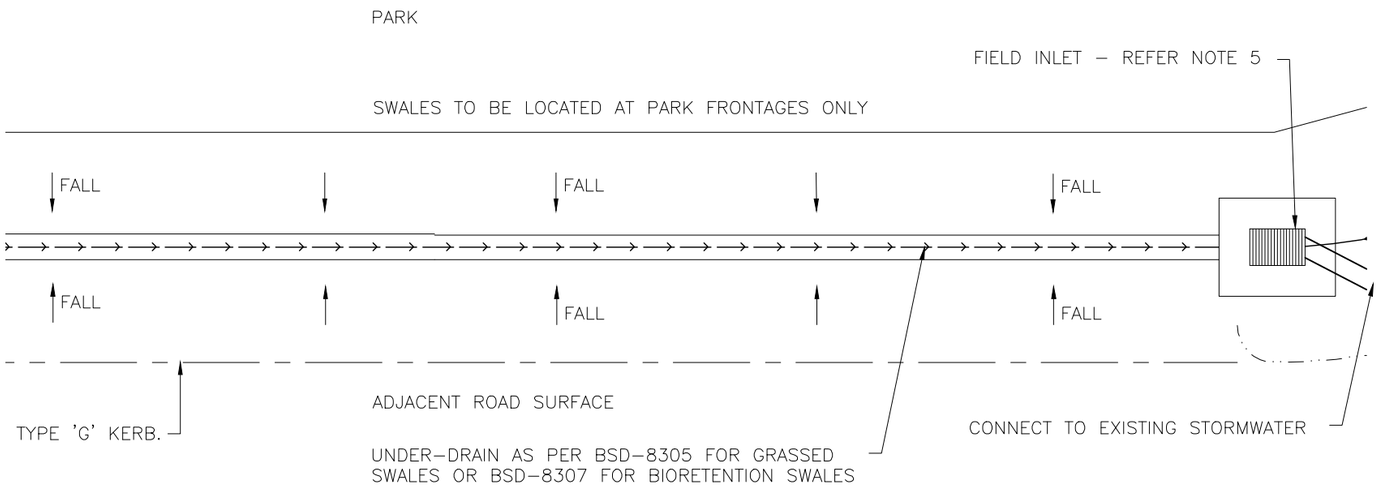
SCALE: NOT TO SCALE
DWG No.: BSD–8301
ORIGINAL SIZE: A3
REVISION: B

LEGEND

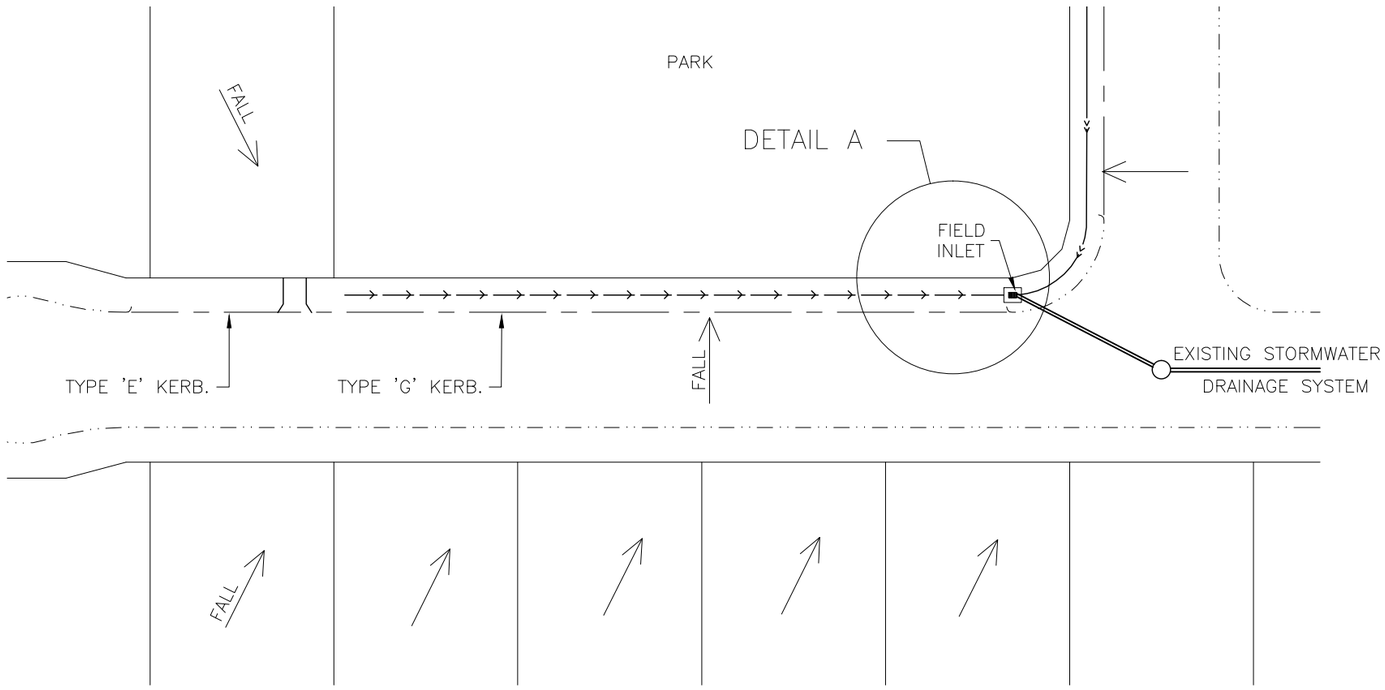
GRASSED SWALE WITH UNDER–DRAIN AS PER BSD–8301 AND BSD–8305

GRASSED SWALE WITHOUT UNDER–DRAIN

VEHICLE CROSSING SLAB AS PER BSD–8303



DETAIL A
(NOT TO SCALE)



GRASS SWALE IN VERGE – TYPICAL LAYOUT PLAN
LOCAL ACCESS ROADS

NOTES:

1. REFER TO BSD–8301 FOR GENERAL SWALE NOTES
2. SWALES ARE GENERALLY NOT SUITABLE ON ROADS WITH LONGITUDINAL GRADE LESS THAN 0.5% OR GREATER THAN 5%.
3. SWALES NOT PERMITTED AT RESIDENTIAL FRONTAGES AND MUST BE LOCATED AT PARK FRONTAGES ONLY.
4. FOR UNDER–DRAIN DETAILS REFER TO BSD–8305 FOR GRASSED SWALES OR BSD–8307 FOR BIORETENTION SWALES
5. FOR FIELD INLET DETAILS REFER TO BSD–8306 FOR GRASSED SWALES OR BSD–8308 FOR BIORETENTION SWALES. FIELD INLET TO BE IN ACCORDANCE WITH BSD–8091.
6. KERB TYPE 'E' AND TYPE 'G' AS PER PROFILES SHOWN ON BSD–2001.

DESIGN REVIEWED & CERTIFIED FOR ISSUE
NAME: MARK R GIBSON RPEQ: 6722
SIGNATURE: SIGNATURE ON ORIGINAL DATE: 03/04/14

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	VERGE SWALES AT PARK FRONATGES ONLY, NOTES UPDATED	Feb '15	Feb '15	Feb '15
A	ORIGINAL ISSUE	Apr '14	Apr '14	Apr '14

DESIGN AUTHORISED FOR PUBLICATION
INGA CONDRIC SIGNATURE ON ORIGINAL DATED 14/04/14
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
PETER KURAS SIGNATURE ON ORIGINAL DATED APRIL '14
PRINCIPAL PROGRAM OFFICER
NATURAL ENVIRONMENT WATER & SUSTAINABILITY

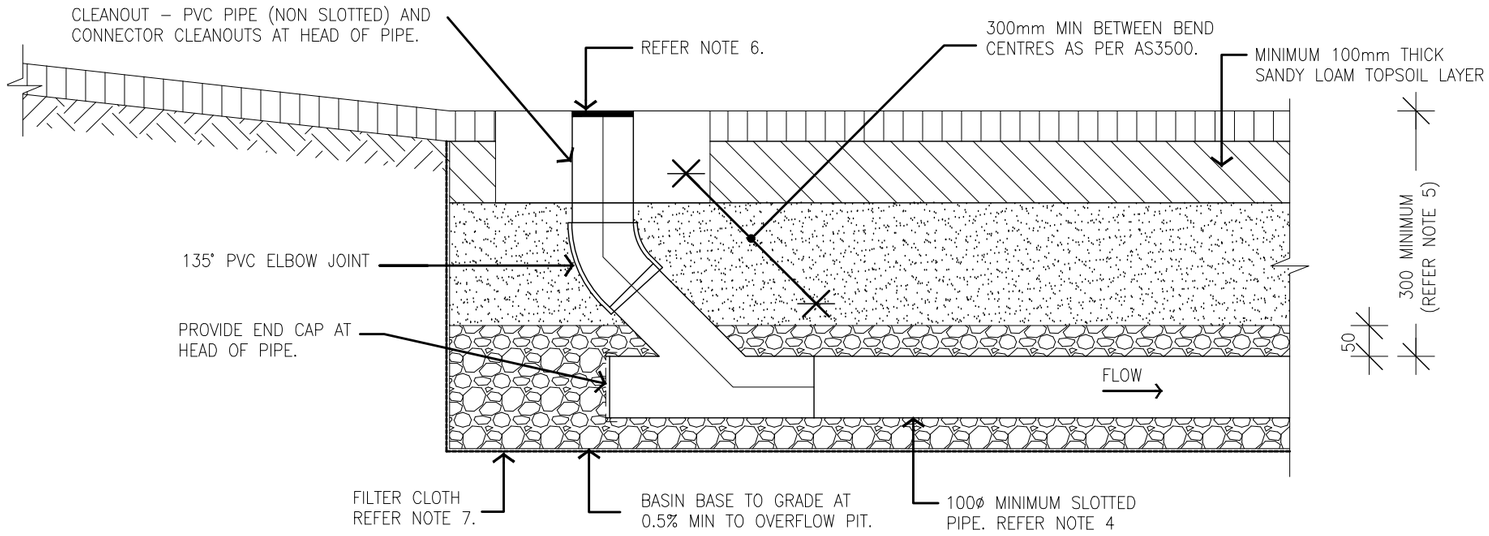
DESIGN	CPO - P&D	DATE	Apr '14
DRAWN	CPO - P&D	DATE	Apr '14
CHECKED	M. GIBSON	DATE	Apr '14
DRAWING FILENAME	BSD-8302 (B) Grass swale (verge type) - typical layout.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-154		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

GRASS SWALE (VERGE TYPE) – TYPICAL LAYOUT

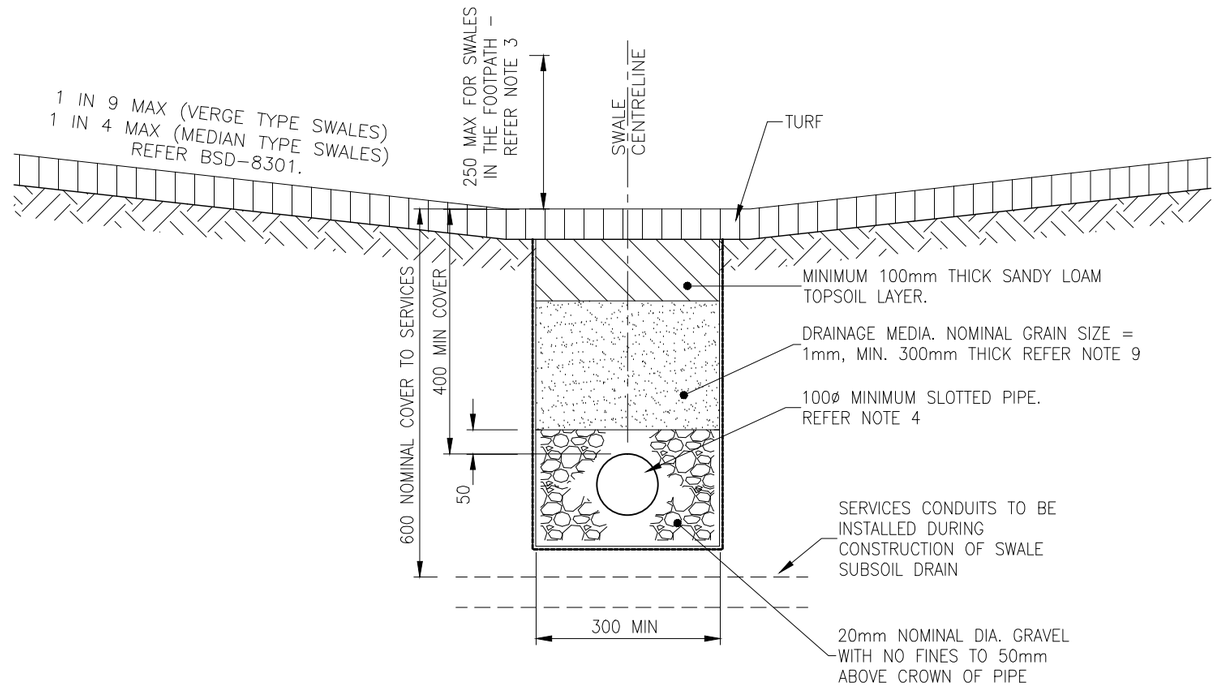
SCALE: NOT TO SCALE
DWG No.: BSD–8302
ORIGINAL SIZE: A3
REVISION: B



GRASS SWALE UNDERDRAIN – LONGITUDINAL SECTION

TURFED SWALE NOTES:

1. REFER TO BSD–8301 FOR GENERAL SWALE NOTES.
2. REFER TO BSD–8306 FOR FIELD INLET DETAILS.
3. THE DEPTH VELOCITY PRODUCT (d_S . V_{AVG}) IN THE SWALE SHALL BE LIMITED IN ACCORDANCE WITH QUDM SECTION 7.4.2 GENERAL REQUIREMENTS FOR PEDESTRIAN SAFETY (TYPICALLY 0.6m2/s, OR 0.4m2/s IN HIGH RISK AREAS). MAXIMUM DEPTH OF FLOW IN BOTH MINOR AND MAJOR EVENT SHALL BE LESS THAN 250mm FOR SWALES IN THE FOOTPATH.
4. UNDERDRAIN: SLOTTED RIGID PIPE (HDPE, UPVC OR SIMILAR TO AS 2439.1) OR APPROVED EQUIVALENT, 0.5% MINIMUM GRADE. DIAMETER TYPICALLY 100 TO 150mm. PIPE JOINS SHALL BE SEALED INTO PITS USING GROUTS OR OTHER APPROVED WATERTIGHT SEAL. 50mm DRAINAGE LAYER (FINE AGGREGATE) COVER OVER 2–3mm SLOTTED PIPE. SWALES FRONTING PARKS MAY NOT REQUIRE AN UNDERDRAIN AND SHALL BE ASSESSED ON A SITE BY SITE BASIS.
5. MINIMUM COVER OF 450mm TO UNDERDRAIN PIPE.
6. CLEANOUT: GRASS SWALE CLEANOUT ACCESS TO HAVE BOLTED TRAP SCREW CAP WITH 350x350x150 CONCRETE SURROUND FINISHED FLUSH WITH GROUND FINISHED SURFACE.
7. FILTER CLOTH: NON–WOVEN GEOTEXTILE. FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. IMPERVIOUS LINER MAY BE REQUIRED ADJACENT TO ROADS AND MAY ALSO BE REQUIRED SUBJECT TO SOIL TESTING REQUIREMENTS IN ACCORDANCE WITH THE WATER SENSITIVE URBAN DESIGN TECHNICAL GUIDELINES (WATER BY DESIGN).
8. TREE PLANTING AS PER BSD–9001.
9. DRAINAGE MEDIA TO BE COMPACTED CLEAN SAND WITH LITTLE OR NO FINES (USCS CLASSIFICATIONS SW AND SP).
10. FOR BIORETENTION SWALE UNDER–DRAIN TYPICAL DETAILS REFER TO BSD–8307.



GRASS SWALE UNDERDRAIN – SECTION

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

DESIGN REVIEWED & CERTIFIED FOR ISSUE
NAME: MARK R GIBSON RPEQ: 6722
SIGNATURE: SIGNATURE ON ORIGINAL DATE: 03/04/14

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	NOTES UPDATED	Feb '15	Feb '15	Feb '15
A	ORIGINAL ISSUE	Apr '14	Apr '14	Apr '14

DESIGN AUTHORISED FOR PUBLICATION
INGA CONDRIC SIGNATURE ON ORIGINAL DATED 14/04/14
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
PETER KURAS SIGNATURE ON ORIGINAL DATED APRIL '14
PRINCIPAL PROGRAM OFFICER
NATURAL ENVIRONMENT WATER & SUSTAINABILITY

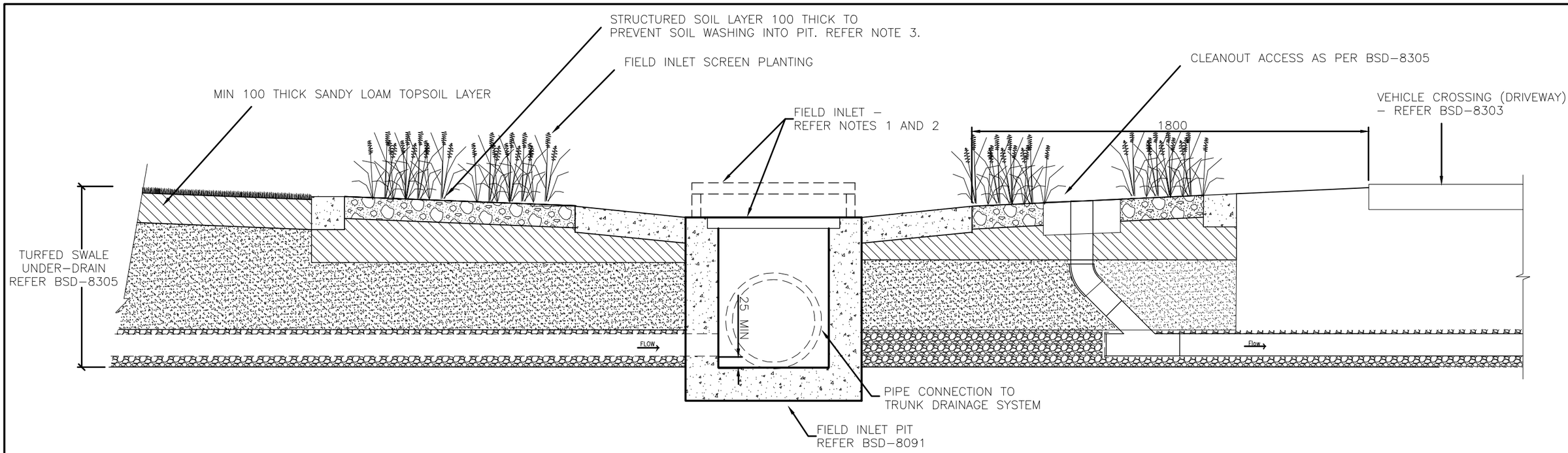
DESIGN	CPO - P&D	DATE	Apr '14
DRAWN	CPO - P&D	DATE	Apr '14
CHECKED	M. GIBSON	DATE	Apr '14
DRAWING FILENAME	BSD-8305 (B) Grass swale - underdrain details.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-153		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

GRASS SWALE – UNDERDRAIN DETAILS

SCALE: NOT TO SCALE
DWG No.: BSD–8305
ORIGINAL SIZE: A3
REVISION: B



TURFED SWALE INLET DETAIL

NOTES:

1. TYPE 2 FIELD INLET PREFERRED TO CAPTURE GROSS POLLUTANTS. TYPE 1 FIELD INLET SHALL BE INSTALLED WHERE MITIGATING LOCAL FLOODING IS CRITICAL, AND ON MOST DOWNSTREAM FIELD INLET. INLET TO BE IN ACCORDANCE WITH BSD–8091. DOME COVERS IN ACCORDANCE WITH BSD–8092 WHERE USE IS DESIRED.

2. VERGE OR MEDIAN SHOULD BE ASSESSED FOR LIKELY PEDESTRIAN TRAFFIC AND IF NECESSARY, BOLLARDS OR SAFETY BARRIERS SHOULD BE INSTALLED AROUND RAISED GRATES WHERE LANDSCAPED BUFFERS ARE NOT PROVIDED. ADEQUATE PROVISION IS TO BE PROVIDED FOR THE PASSAGE OF PEDESTRIANS AROUND OBSTRUCTION (TYPICALLY 1.8m MIN. CLEARANCE).

3. STRUCTURAL SOIL: SELECTED SPALLS 50–75 mm DIA VOIDS FILLED WITH SOIL MEDIA. SOIL LENMD CONFORMING TO AS4419, WITH NO MORE THAN 5% SCREENED COMPOSTED ORGANIC MATTER, MINIMUM HYDRAULIC CONDUCTIVITY OF 5–25 cm/hr AND A MINIMUM CEC (CATHION EXCHANGE CAPACITY) OF 20meq/100g, AND PH RANGE OF 5–6.5.

4. TURFED SWALE UNDER–DRAIN AS PER UMS BSD–8305.

5. CONCRETE N25 IN ACCORDANCE WITH AS1379 AND AS3600.

6. DIMENSIONS IN MILLIMETRES (U.N.O.).

DESIGN REVIEWED & CERTIFIED FOR ISSUE
NAME: MARK R GIBSON RPEQ: 6722
SIGNATURE: SIGNATURE ON ORIGINAL DATE: 03/04/14

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	NOTES UPDATED	Feb '15	Feb '15	Feb '15
A	ORIGINAL ISSUE	Apr '14	Apr '14	Apr '14

DESIGN AUTHORISED FOR PUBLICATION
INGA CONDRIC SIGNATURE ON ORIGINAL DATED 14/04/14
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
PETER KURAS SIGNATURE ON ORIGINAL DATED APRIL '14
PRINCIPAL PROGRAM OFFICER
NATURAL ENVIRONMENT WATER & SUSTAINABILITY

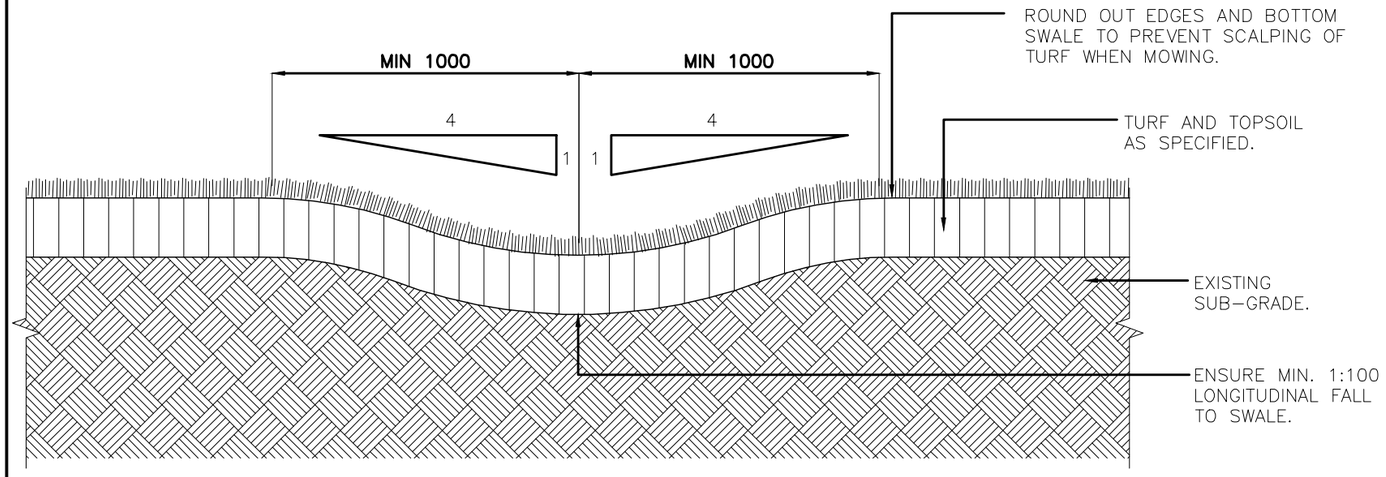
DESIGN	CPO - P&D	DATE	Apr '14
DRAWN	CPO - P&D	DATE	Apr '14
CHECKED	M. GIBSON	DATE	Apr '14
DRAWING FILENAME	BSD-8306 (B) Grass swale - Field inlet details.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-157		

BRISBANE CITY

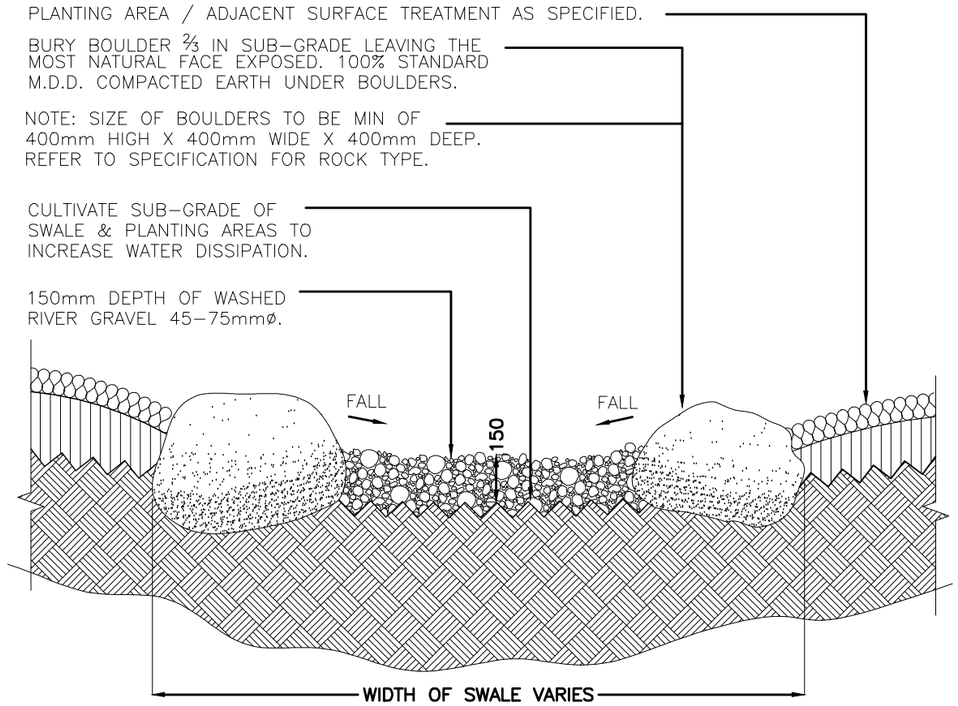
BRISBANE CITY COUNCIL STANDARD DRAWING

GRASS SWALE – FIELD INLET DETAILS

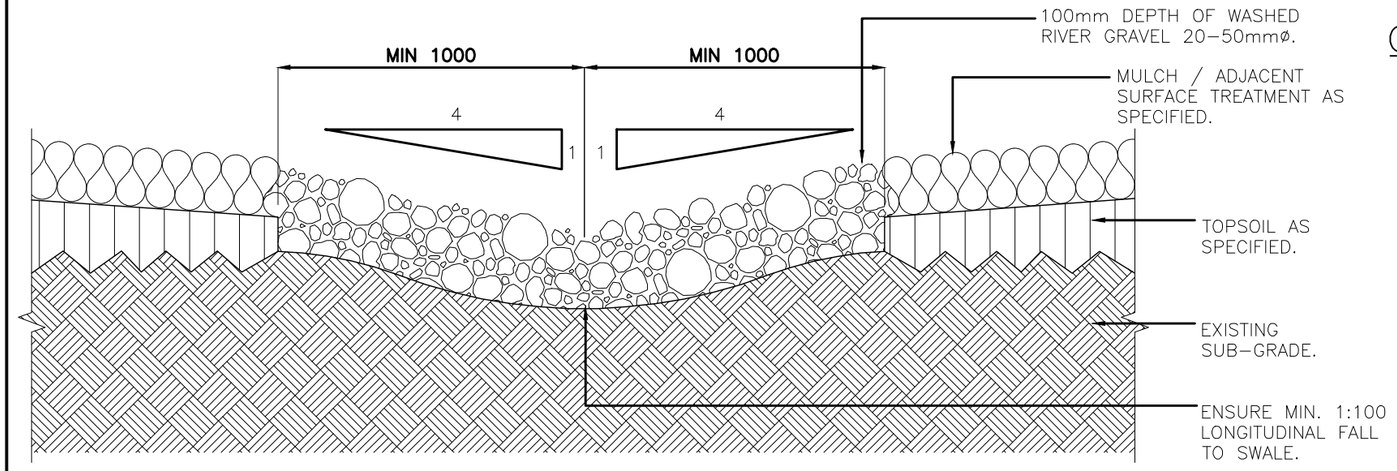
SCALE: NOT TO SCALE
DWG No.: BSD–8306
ORIGINAL SIZE: A3
REVISION: B



TURF SWALE – SECTION
SCALE: 1:20



DRY CREEK BED SWALE – SECTION
SCALE: 1:50



GRAVEL SWALE – SECTION
SCALE: 1:20

GENERAL NOTES & SPECIFICATIONS

- ENSURE SWALES ARE LOCATED IN ACCORDANCE WITH PARKS CHAPTER OF INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY.
- MATERIAL CHOICES ARE TO BE DETERMINED ON THE GROUNDS OF SUSTAINABILITY, LOW MAINTENANCE, VANDAL RESISTANCE, PRODUCT AVAILABILITY AND SUITABILITY TO THE CLIMATIC CONDITIONS. MATERIALS ARE TO BE LOCALLY SOURCED.
- ENSURE GRASS (TURF) AREAS FINISH FLUSH WITH PAVEMENT AREAS.
- ENSURE GARDEN AREAS (MULCH) FINISH 25mm BELOW ADJACENT F.S.L'S OF PAVEMENT AREAS.
- SWALES TO DRAIN TO STORMWATER INLET LOCATION SHOWN ON PLAN (MINIMUM 1:50 LONGITUDINAL GRADE FOR ALL STORMWATER PIPES), IF NO STORMWATER CONNECTION IS POSSIBLE, DRAIN TO GRAVEL SOAKAGE PIT OR TRENCH TO APPROVAL OF SUPERINTENDENT.
- ACCEPTABLE BOULDER TYPES ARE TO BE ACQUIRED LEGALLY FROM A STONE MERCHANT, QUARRY OR ANOTHER SUSTAINABLE SOURCE (NOT TO BE REMOVED FROM BUSHLAND OR A PROTECTED NATURAL ENVIRONMENT UNLESS PERMIT AND LICENSES ARE APPROVED).
- THE APPROVED BOULDER TYPE USED TO FORM THE WALL SHALL BE OF ONE CONSISTENT TYPE. TYPICALLY GRANITE, SANDSTONE, VOLCANIC RED ROCK, QLD PORPHYRY OR OTHER NATURAL QLD BUSHROCK BOULDERS UNLESS SPECIFIED OTHERWISE.
- BOULDERS AS SPECIFIED – BEST AND MOST NATURAL SURFACES EXPOSED, SHARP / ANGLED EDGES ARE NOT ACCEPTABLE.
- BOULDER WALL TO BE CONSTRUCTED BY A EXPERIENCED CONTRACTOR AND MUST NOT EXCEED ONE METRE IN HEIGHT ABOVE ADJACENT FINISHED SURFACE LEVEL.
- SWALE TO DRAIN TO STORMWATER INLET OR TO LANDSCAPE AS SHOWN ON PLAN.
- MULCH SHOULD NOT BE USED ON STEEP SLOPES ADJACENT TO GRATES OR WHERE PONDING COULD CAUSE THE MULCH TO FLOAT AND BLOCK OVERLAND FLOWS.
- ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
A	Drawing Converted From UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
PAUL COTTON SIGNATURE ON ORIGINAL DATED 03/09/04
MANAGER INFRASTRUCTURE MANAGEMENT
R.P.E.Q: 2546

DESIGN APPROVED
LAUREN TEMPLEMAN SIGNATURE ON ORIGINAL DATED 31/08/04
PRICIPAL PROGRAM OFFICER PARKS

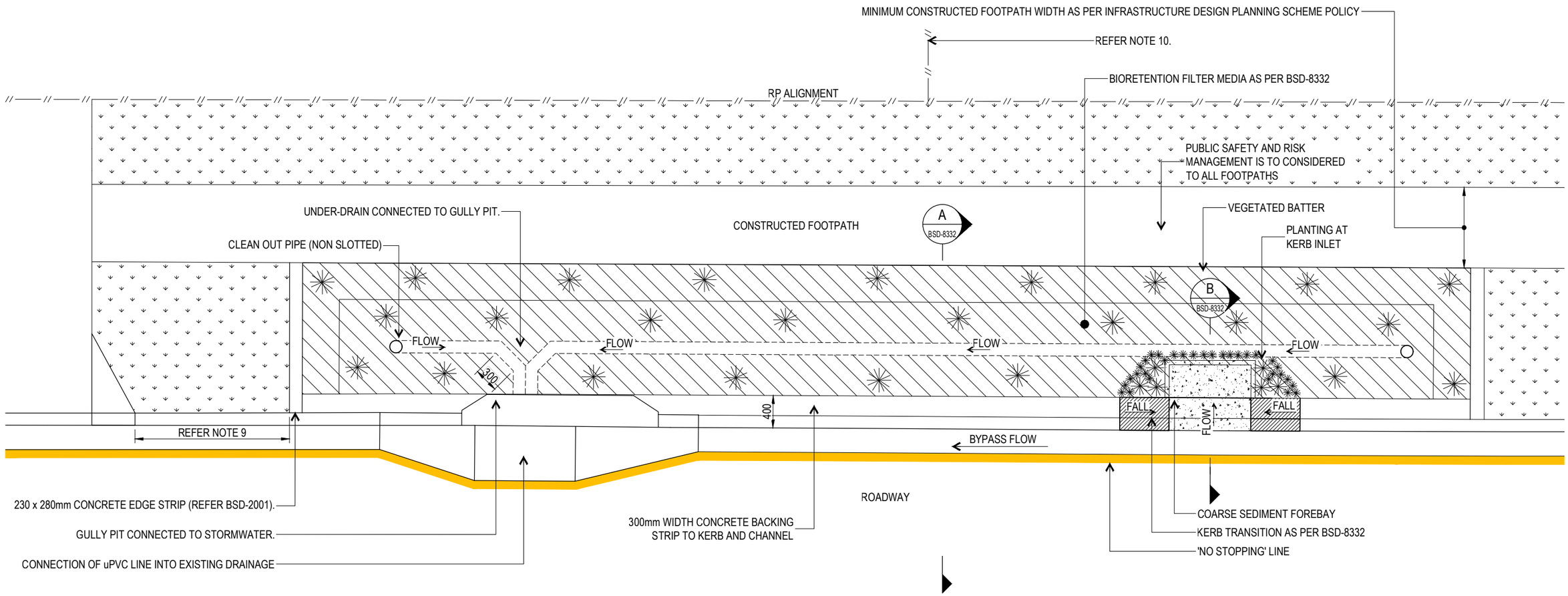
DESIGN	Std Dwgs WG	DATE	OCT '13
DRAWN	CPO - P&D	DATE	OCT '13
CHECKED	UMD - E&P & IMB	DATE	OCT '13
DRAWING FILENAME	BSD-8312 (A) Swale - Turf, gravel and dry creek.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-762		

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

SWALE – TURF, GRAVEL & DRY CREEK

SCALE: AS SHOWN
DWG No.: BSD–8312
ORIGINAL SIZE: A3
REVISION: A



STA BIORETENTION POD (VERGE TYPE) - TYPICAL LAYOUT

NOTES

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH BSD-8332.
2. FOR BIORETENTION SYSTEM NOTES AND DIMENSIONS REFER TO BSD-8332.
3. GENERAL DESIGN: STA BIORETENTION SYSTEM TO BE DESIGNED IN ACCORDANCE WITH “BIORETENTION TECHNICAL DESIGN GUIDELINES” (WATER BY DESIGN).
4. CONSTRUCTION: STA BIORETENTION SYSTEM TO BE CONSTRUCTION IN ACCORDANCE WITH “CONSTRUCTION AND ESTABLISHMENT GUIDELINES” (WATER BY DESIGN).
5. VEGETATION: PLANT SPECIES, TO BE DETERMINED ON A PROJECT BY PROJECT BASIS. PLANT SPECIFICATION AND DENSITY SHALL BE IN ACCORDANCE WITH “BIORETENTION TECHNICAL DESIGN GUIDELINES” (WATER BY DESIGN) AND BRISBANE CITY COUNCIL’S INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY. TREE SPECIES TO BE SELECTED AS PER THE CENTRES DETAIL DESIGN MANUAL AND ALSO CONSIDERING THEIR SUITABILITY FOR WET AND DRY CONDITION. VEGETATION TO BE INSTALLED ON 300MM MINIMUM TOP SOIL LAYER.
6. DETAIL TO BE INCORPORATED IN DEVELOPMENTS WHERE SERVICES/PERMITS/GRADES ENABLE THE CONSTRUCTION OF THE BIORETENTION SYSTEM AND WHERE THE UNDER-DRAIN CAN BE CONNECTED TO GULLY.
7. SELECTION OF APPROPRIATE PLAN LAYOUT IS BASED ON SITE SPECIFIC DETAILS INCLUDING SPACE, SERVICES, DRAINAGE, TOPOGRAPHY, TRAFFIC CONDITIONS ETC.
8. APPROVAL FOR VARIATIONS TO EXISTING ROADS/VERGES SHALL BE OBTAINED FROM COUNCIL.
9. IF THERE IS A GRADE UP FROM THE ROAD TO THE FOOTPATH, A RETAINING WALL AND FENCE MAY BE REQUIRED AND A STREETSCAPE BIORETENTION SYSTEM IN THE VERGE MAY BE LESS FEASIBLE.
10. STREETSCAPE BIORETENTION MAY NOT BE SUITABLE ADJACENT TO CAR PARKING DUE TO ACCESS CONSTRAINTS.
11. MULTIPLE KERB INLETS MAY BE REQUIRED DEPENDING ON CONTRIBUTING CATCHMENT, GRADE, LENGTH AND INFLOWS.
12. KERB FRONTAGE OF 1 METRE PER BIN FOR THE ALLOTMENT SHALL BE PROVIDED WITH A MINIMUM CLEAR KERB OF 2 METRES FOR SINGLE DWELLINGS.
13. CONSIDER PLACEMENT OF BIORETENTION POD AT DIVIDING BOUNDARY TO PREVENT IMPINGING ON AVAILABLE PROPERTY ACCESS.
14. BIORETENTION PODS ARE GENERALLY NO SUITABLE ON ROADS WITH LONGITUDINAL GRADE LESS THAN 0.5% OR GREATER THAN 5%.

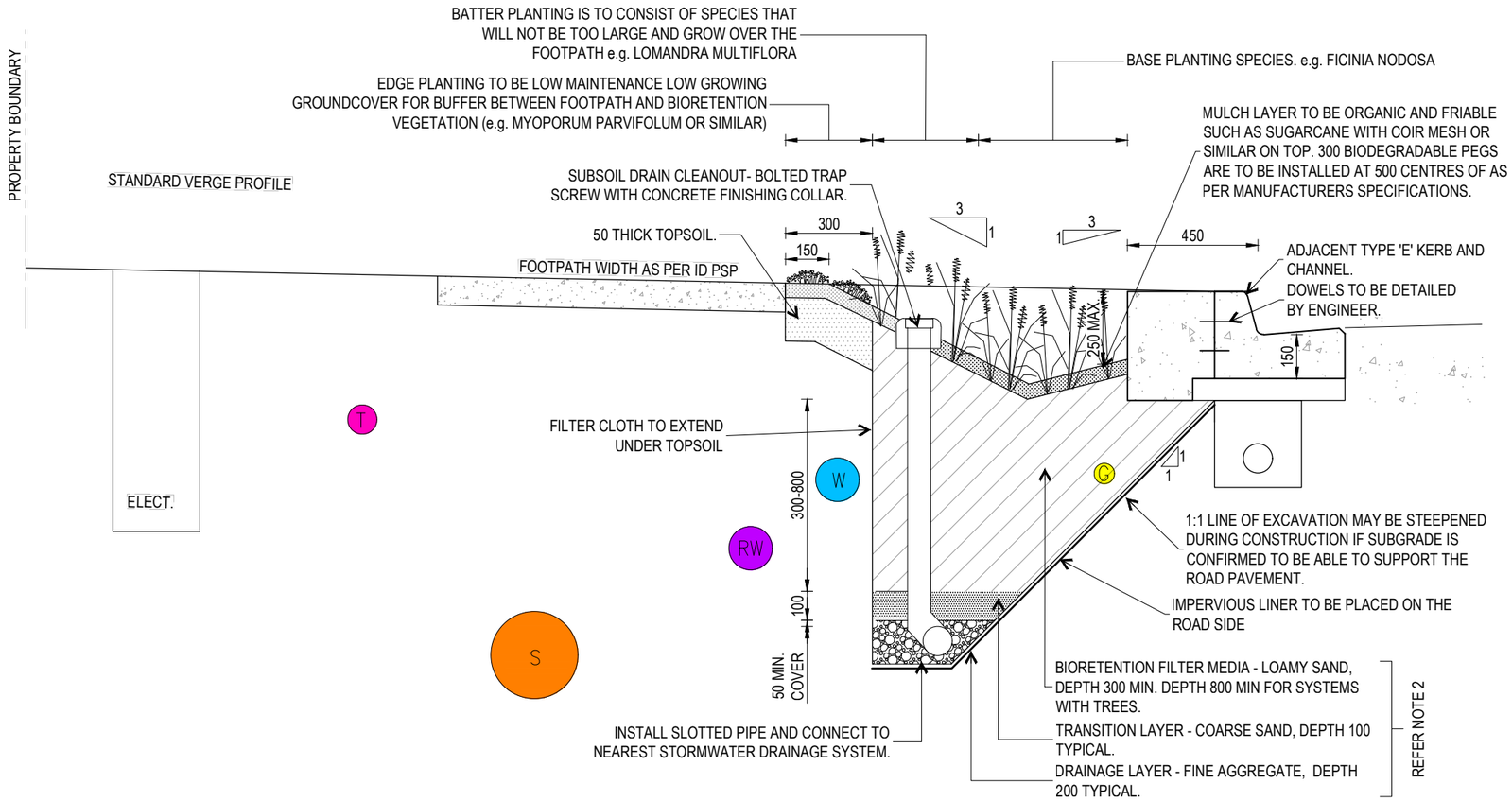
VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

BRISBANE CITY

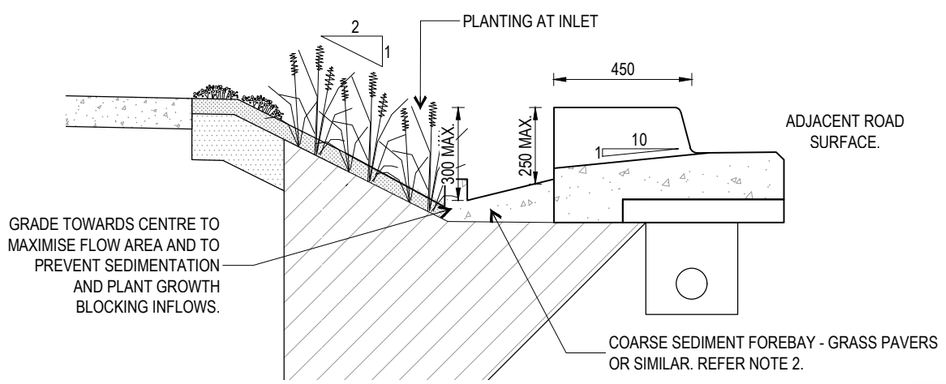
BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA) POD (VERGE TYPE) LAYOUT

PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8331
ORIGINAL SIZE	A3
REVISION	E



A BSD-8331 STA BIORETENTION POD (VERGE TYPE) - TYPICAL SECTION

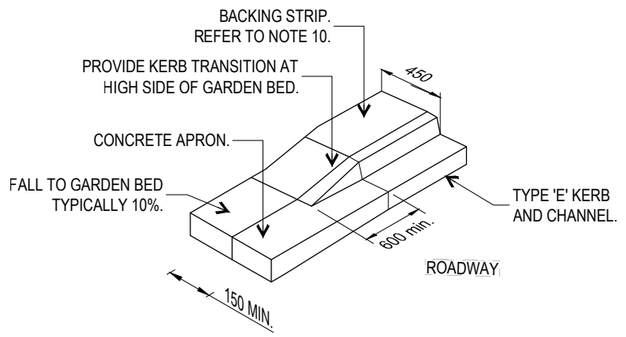


B BSD-8331 STA BIORETENTION POD (VERGE TYPE) - KERB INLET DETAILS

NOTES:

1. BIORETENTION FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYER IN ACCORDANCE WITH THE "GUIDELINES FOR SOIL MEDIA IN BIO-RETENTION SYSTEMS", FACILITY FOR ADVANCING WATER BIO-FILTRATION (FAWB).
2. REFER TO RELEVANT SECTION OF THE "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN) AND PROJECT DRAWINGS FOR SIZING OF COARSE SEDIMENT FOREBAY. NOTE: SEDIMENT FOREBAY IS NOT ALWAYS APPLICABLE FOR SMALL STREETSCAPE BIORETENTION SYSTEMS.
3. UNDER-DRAIN, SLOTTED RIGID PIPE UPVC/HDPE OR SIMILAR TO AS 2439.1) OR APPROVED EQUIVALENT, 0.5% MINIMUM GRADE. DIAMETER TYPICALLY 100 TO 150mm. PIPE JOINS SHALL BE GLUED WITH PLUMBING CEMENT. PIPE SHALL NOT BE INSTALLED WITH A FILTER SOCK SURROUNDING PIPE. UNDER-DRAINAGE PIPES SHALL BE SEALED INTO PITS USING GROUTS OR OTHER APPROVED WATERTIGHT SEAL. 50mm DRAINAGE LAYER (FINE AGGREGATE) COVER OVER 2-3mm SLOTTED PIPE.
4. UNDER-DRAIN CLEANOUT TO BE IN ACCORDANCE WITH BSD-8307.
5. FILTER CLOTH – NON-WOVEN GEOTEXTILE. FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. IMPERVIOUS LINER MAY BE REQUIRED ADJACENT TO ROADS AND MAY ALSO BE REQUIRED SUBJECT TO SOIL TESTING REQUIREMENTS IN ACCORDANCE WITH THE 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
6. VEGETATION: PLANT SPECIES AND LAYOUT TO BE DETERMINED ON A PROJECT BY PROJECT BASIS. PLANT SPECIFICATION AND DENSITY SHALL BE IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN) AND BRISBANE CITY COUNCIL'S INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY. TREE SPECIES TO BE SELECTED AS PER THE CENTRES DETAIL DESIGN MANUAL AND ALSO CONSIDERING THEIR SUITABILITY FOR WET AND DRY CONDITIONS.
7. MULCH: 75mm MULCH LAYER TO BE ORGANIC AND FRIABLE, SUCH AS SUGARCANE. USE JUTE MESH OR SIMILAR BIODEGRADABLE NETTING OVER. SIDES OF JUTE MESH TO BE BURIED IN 300mm TRENCH. EACH JOIN IS TO BE OVER LAPPED BY 100mm. 300mm BIODEGRADABLE PEGS ARE TO BE USED AND INSTALLED AT 500mm CENTRES OR AS PER MANUFACTURERS SPECIFICATION.
8. GENERAL DESIGN: BIORETENTION SYSTEM TO BE DESIGNED IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN).
9. ALL PUBLIC WALKWAYS ARE TO COMPLY WITH AUSTRALIAN STANDARD 1428: DESIGN FOR ACCESS AND MOBILITY.
10. STAMP CONCRETE WITH THE FOLLOWING TEXT "THIS GARDEN FILTERS STORMWATER AND PROTECTS OUR WATERWAYS". TEXT TO BE 50 HIGH AND STYLE AVENIR (SANS SERIF) OR ARIAL (SANS SERIF) IN LINE WITH BCC'S CORPORATE STYLE GUIDE.
11. VERTICAL DROPS FROM THE TOP OF KERB TO FINISH LEVEL OF THE BIORETENTION GARDEN MUST NOT EXCEED 250 AND THE MAXIMUM DEPTH OF THE GARDEN MUST NOT EXCEED 300.
12. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.



KERB TRANSITION DETAIL

THE PURPOSE OF THIS STANDARD DRAWING IS TO PROVIDE TYPICAL DETAILS THAT SUPPORT THE DESIRED OUTCOMES OF THE BRISBANE CITY PLAN 2014 AND ASSOCIATED PLANNING SCHEME POLICIES. THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHOULD BE ASSESSED AND ACCEPTED BY AN APPROPRIATELY QUALIFIED DESIGNER AND/OR REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

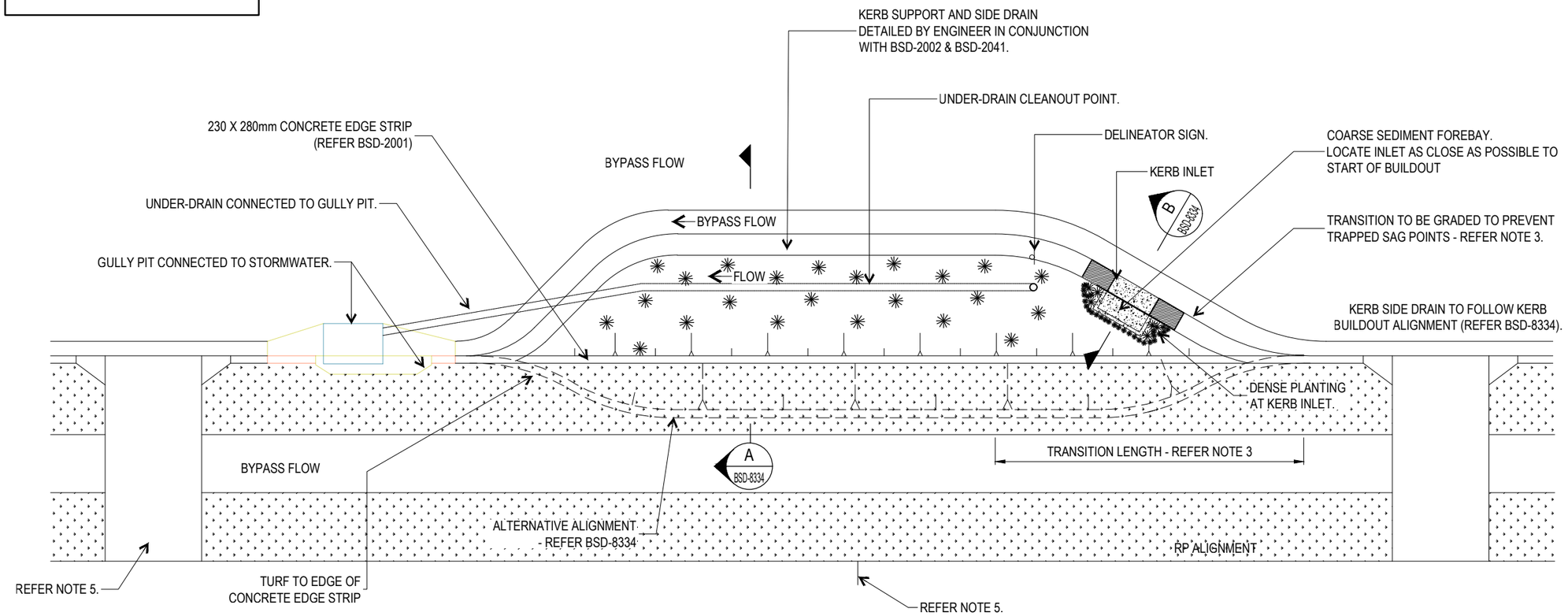
STORMWATER TREATMENT ASSET (STA) BIORETENTION POD (VERGE TYPE) TYPICAL DETAILS

PUBLISH DATE	JUN 2023
SCALE	AS SHOWN
DRAWING NUMBER	BSD-8332
ORIGINAL SIZE	A3
REVISION	D

NOTES:

1. FOR BIORETENTION SYSTEM NOTES, REFER TO BSD-8331.
2. SELECTION OF APPROPRIATE PLAN LAYOUT IS BASED ON SITE SPECIFIC DETAILS INCLUDING SPACE, SERVICES, DRAINAGE, TOPOGRAPHY, TRAFFIC CONDITIONS ETC.
3. FLOWS MUST BE DEMONSTRATED TO BYPASS THE KERB BUILDOUT AND NOT POOL ON THE UPSTREAM SIDE ONCE BIORETENTION HAS REACHED CAPACITY. (i.e. BUILDOUT WIDTH x ROAD CROSSFALL < TRANSITION LENGTH x ROAD LONGITUDINAL GRADE.)
4. KERB BUILDOUT TO COMPLY WITH GENERAL DESIGN CRITERIA AS PER BSD-3201 AND LINEMARKING AND SIGNAGE REQUIREMENTS FOR INTEGRATED KERB BUILDOUTS AS PER BSD-5257.
5. CONSIDER PLACEMENT OF KERB BUILDOUT AT DIVIDING BOUNDARY TO PREVENT IMPINGING ON AVAILABLE PROPERTY ACCESS.
6. USE OF KERB BUILD-OUT WILL REQUIRE CONSULTATION WITH ROADS/TRAFFIC ENGINEER.
7. APPROVAL FOR VARIATIONS TO EXISTING ROADS/VERGES SHALL BE OBTAINED FROM COUNCIL.

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.



STA BIORETENTION POD (KERB BUILDOUT TYPE) - TYPICAL LAYOUT

BRISBANE CITY

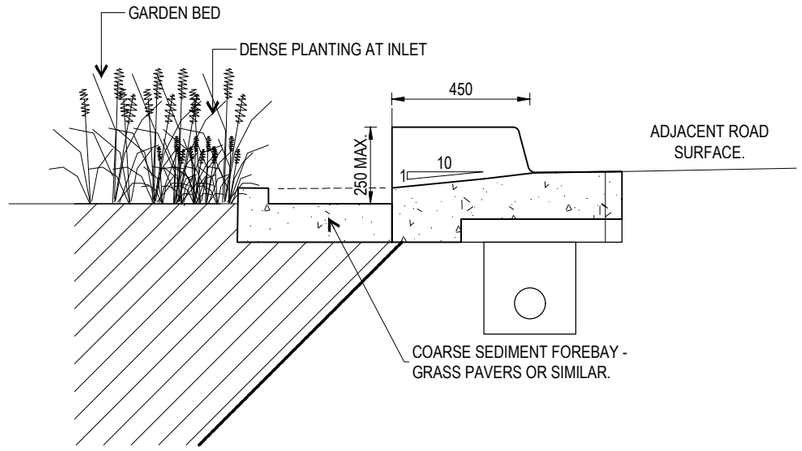
BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA) BIORETENTION POD (KERB BUILDOUT TYPE) LAYOUT

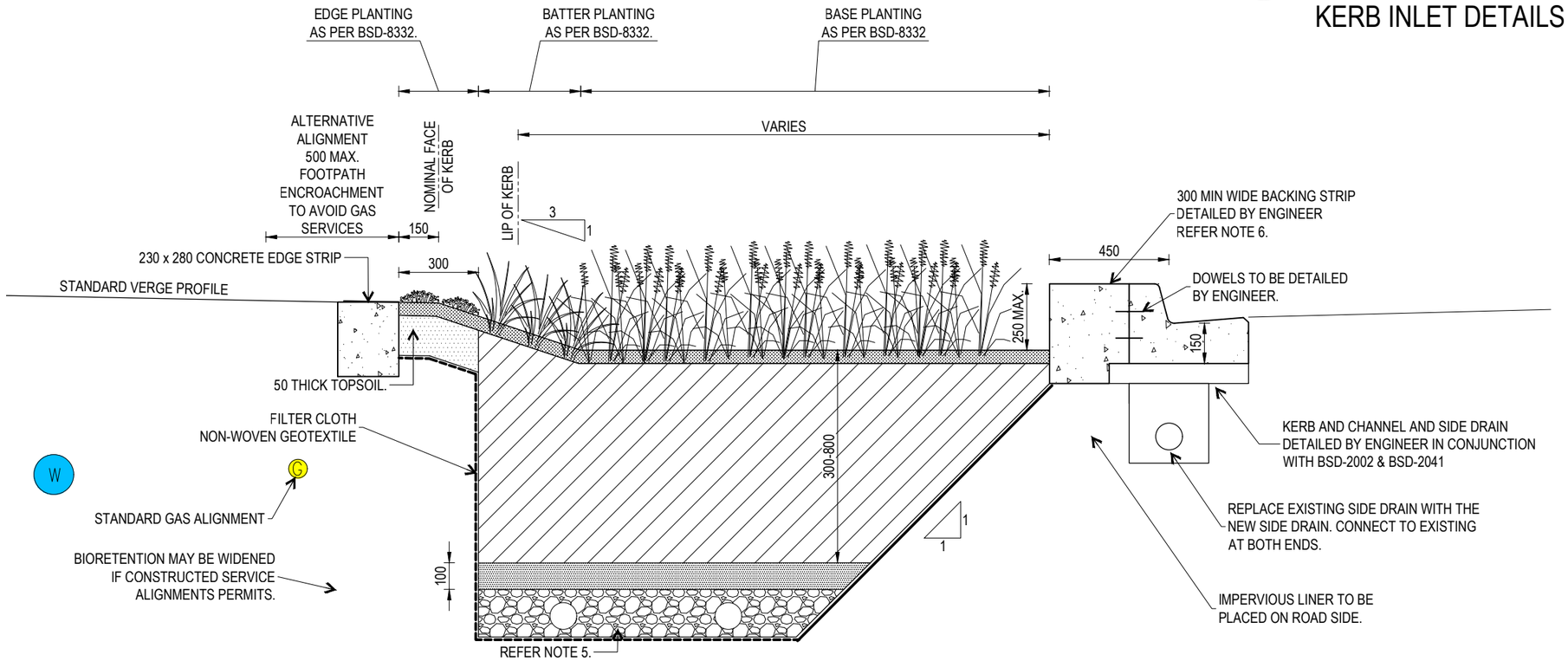
PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8333
ORIGINAL SIZE	A3
REVISION	D

NOTES:

1. TO BE READ IN CONJUNCTION WITH BSD-8333.
2. FOR BIORETENTION SYSTEM NOTES REFER TO BSD-8334.
3. KERB FLOW TIME: KERB FLOW TIME IS TO BE DETERMINED USING IZZARD'S EQUATION IN ACCORDANCE WITH SECTION 4.06.8 OF QUEENSLAND URBAN DRAINAGE MANUAL (2008).
4. BIORETENTION FILTER MEDIA: UNDER-DRAIN, FILTER CLOTH AND DESIGN NOTES, AS PER BSD-8334. UNDERDRAIN CLEANOUT AS PER BSD-8307.
5. MULTIPLE UNDER-DRAINS MAY BE REQUIRED FOR WIDE BIORETENTION SYSTEMS. UNDER-DRAINAGE SHALL BE DESIGNED AS PER THE "BIORETENTION TECHNICAL GUIDELINES" (WATER BY DESIGN).
6. STAMP CONCRETE WITH THE FOLLOWING TEXT " THIS GARDEN FILTERS STORMWATER AND PROTECTS OUR WATERWAYS". TEXT TO BE 2 INCH HIGH AND STYLE AVENIR (SANS SERIF) OR ARIAL (SANS SERIF) IN LINE WITH BCC'S CORPORATE STYLE GUIDE.
7. FOR MULCH AND VEGETATION PLANTING DETAILS REFER TO BSD-8332.
8. VERTICAL DROPS FROM THE TOP OF KERB TO FINISH LEVEL OF THE BIORETENTION GARDEN MUST NOT EXCEED 250mm AND THE MAXIMUM DEPTH OF THE GARDEN MUST NOT EXCEED 300mm.



B BSD-8333 WATERSMARK BIORETENTION POD (KERB BUILDOUT TYPE) KERB INLET DETAILS



A BSD-8333 STA BIORETENTION POD (KERB BUILDOUT TYPE) - TYPICAL SECTION

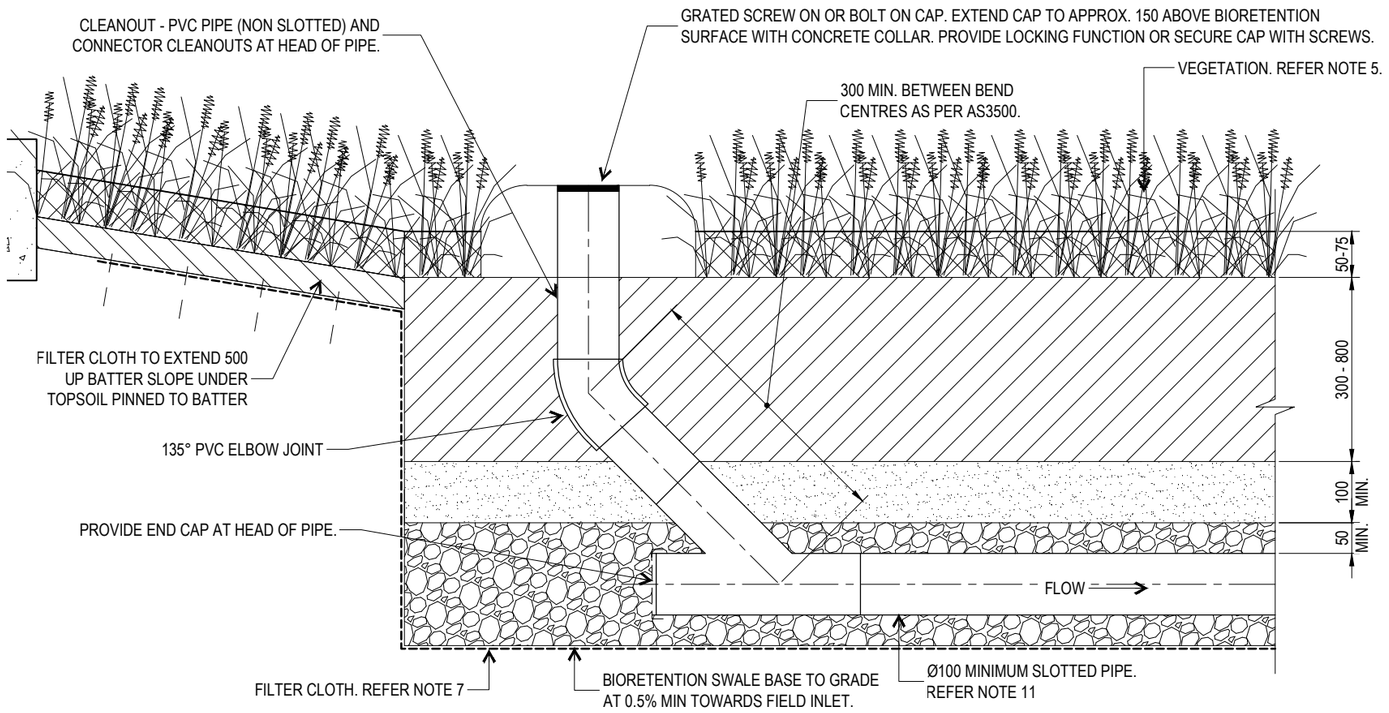
VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

BRISBANE CITY

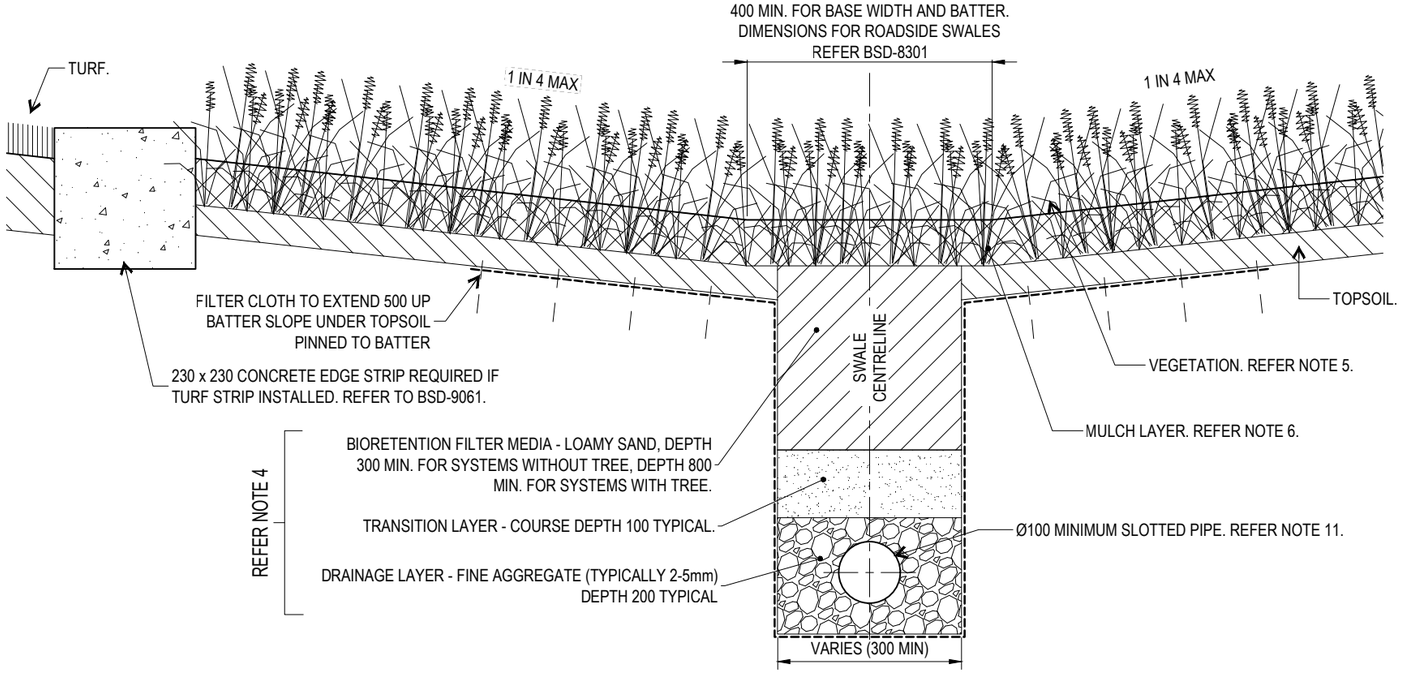
BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA) BIORETENTION POD (KERB BUILDOUT TYPE) - TYPICAL DETAILS

PUBLISH DATE	JUN 2023
SCALE	AS SHOWN
DRAWING NUMBER	BSD-8334
ORIGINAL SIZE	A3
REVISION	D



STA BIORETENTION SWALE - UNDERDRAIN LONGITUDINAL SECTION



STA BIORETENTION SWALE - UNDERDRAIN SECTION

BIORETENTION SWALE NOTES:

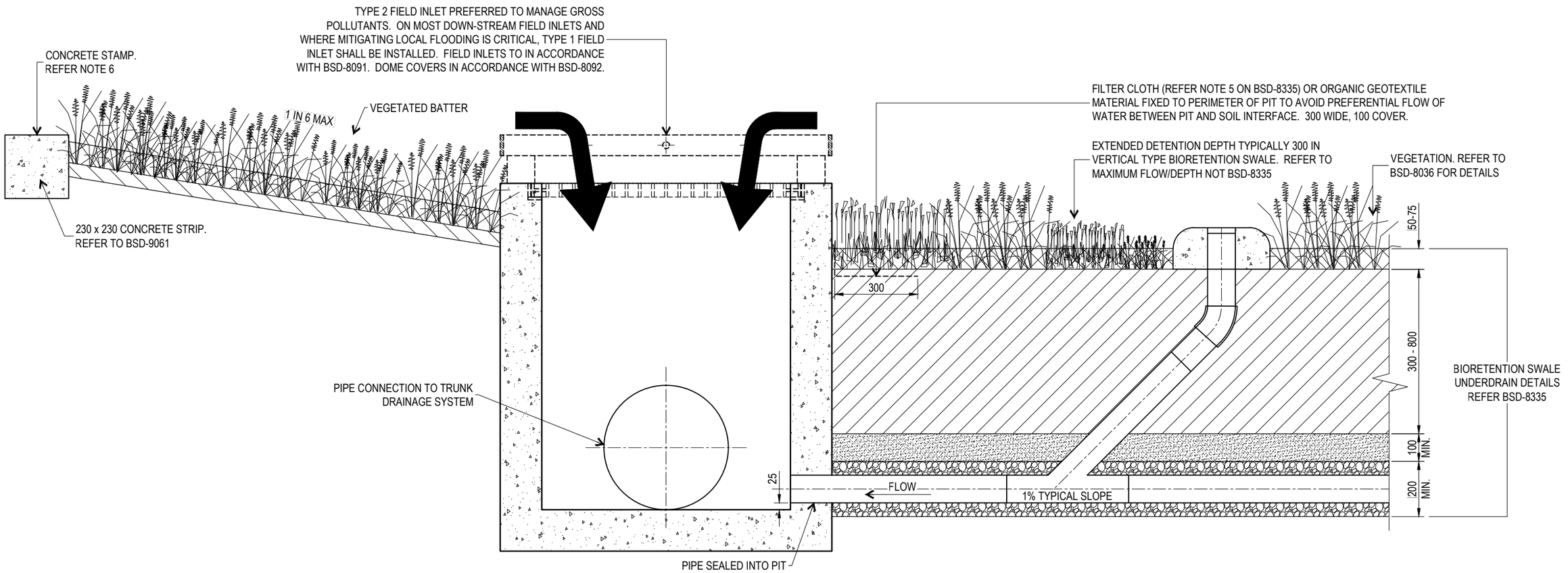
1. DESIGN: STORMWATER TREATMENT ASSET (STA) BIORETENTION SYSTEM TO BE DESIGNED IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN).
2. CONSTRUCTION: STORMWATER TREATMENT ASSET (STA) BIORETENTION SYSTEM TO BE CONSTRUCTED IN ACCORDANCE WITH "CONSTRUCTION AND ESTABLISHMENT GUIDELINES" (WATER BY DESIGN).
3. BIORETENTION SWALE MAY BE USED IN THE CENTRE MEDIAN AND IN THE FOOTPATH AT PARK FRONTAGES. BIORETENTION SWALES SHALL NOT BE USED IN THE FOOTPATH AT RESIDENTIAL FRONTAGES.
4. FOR BIORETENTION SWALE FIELD INLET DETAILS REFER TO BSD-8308, FOR VERGE SWALES AND MEDIAN SWALES REFER TO BSD-8308.
5. THE DEPTH VELOCITY PRODUCT (d_S . V_{AVG}) IN THE SWALE SHALL BE LIMITED IN ACCORDANCE WITH QUDM SECTION 7.4.2 GENERAL REQUIREMENTS FOR PEDESTRIAN SAFETY (TYPICALLY 0.6m^2/s, OR 0.4m^2/s IN HIGH RISK AREAS).
6. BIORETENTION FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYER IN ACCORDANCE WITH THE "GUIDELINES FOR SOIL MEDIA IN BIORETENTION SYSTEMS", FACILITY FOR ADVANCING WATER BIORETENTION (FAWB).
7. VEGETATION: PLANT SPECIES, TO BE DETERMINED ON A PROJECT BY PROJECT BASIS. PLANT SPECIFICATION AND DENSITY SHALL BE IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN) AND BRISBANE CITY COUNCIL'S INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY. TREE SPECIES TO BE SELECTED AS PER THE CENTRES DETAIL DESIGN MANUAL AND ALSO CONSIDERING THEIR SUITABILITY FOR WET AND DRY CONDITIONS. VEGETATION TO BE INSTALLED ON 300 MINIMUM TOPSOIL LAYER.
8. MULCH: 50-75mm MULCH LAYER TO BE ORGANIC AND FRIABLE, SUCH AS SUGARCANE. USE JUTE MESH OR SIMILAR BIODEGRADABLE NETTING OVER. SIDES OF MESH TO BE BURIED IN 300mm TRENCH. EACH JOIN IS TO BE OVER LAPPED BY 100mm. 300mm BIODEGRADABLE PEGS ARE TO BE USED AND INSTALLED AT 500mm CENTRES OR AS PER MANUFACTURERS SPECIFICATION.
9. FILTER CLOTH: NON-WOVEN GEOTEXTILE. FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. IMPERVIOUS LINER MAY BE REQUIRED ADJACENT TO ROADS AND MAY ALSO BE REQUIRED SUBJECT TO SOIL TESTING REQUIREMENTS IN ACCORDANCE WITH THE "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN).
10. EROSION CONTROL AND PUBLIC SAFETY RISKS NEED TO BE CONSIDERED AND MANAGED. VEGETATED BATTERS SHOULD BE NO STEEPER THAN 1V:4H IF USED IN THE STREETSCAPE.
11. UNDERDRAIN: SLOTTED RIGID PIPE (UPVC, HDPE, OR SIMILAR TO AS 2439.1) OR APPROVED EQUIVALENT, 0.5% MINIMUM GRADE. 2-3mm SLOTS, DIAMETER TYPICALLY 100 TO 150mm. PIPE JOINS SHALL BE SEALED INTO PITS USING GROUTS OR OTHER APPROVED WATERTIGHT SEAL. 50mm MIN DRAINAGE LAYER (FINE AGGREGATE) COVER OVER SLOTTED PIPE.
12. STREET FURNITURE AND LAYOUT TO BE DETERMINED ON A PROJECT BY PROJECT BASIS.
13. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA)
BIORETENTION SWALE
UNDERDRAIN DETAILS

PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8335
ORIGINAL SIZE	A3
REVISION	A



STA BIORETENTION SWALE INLET LAYOUT

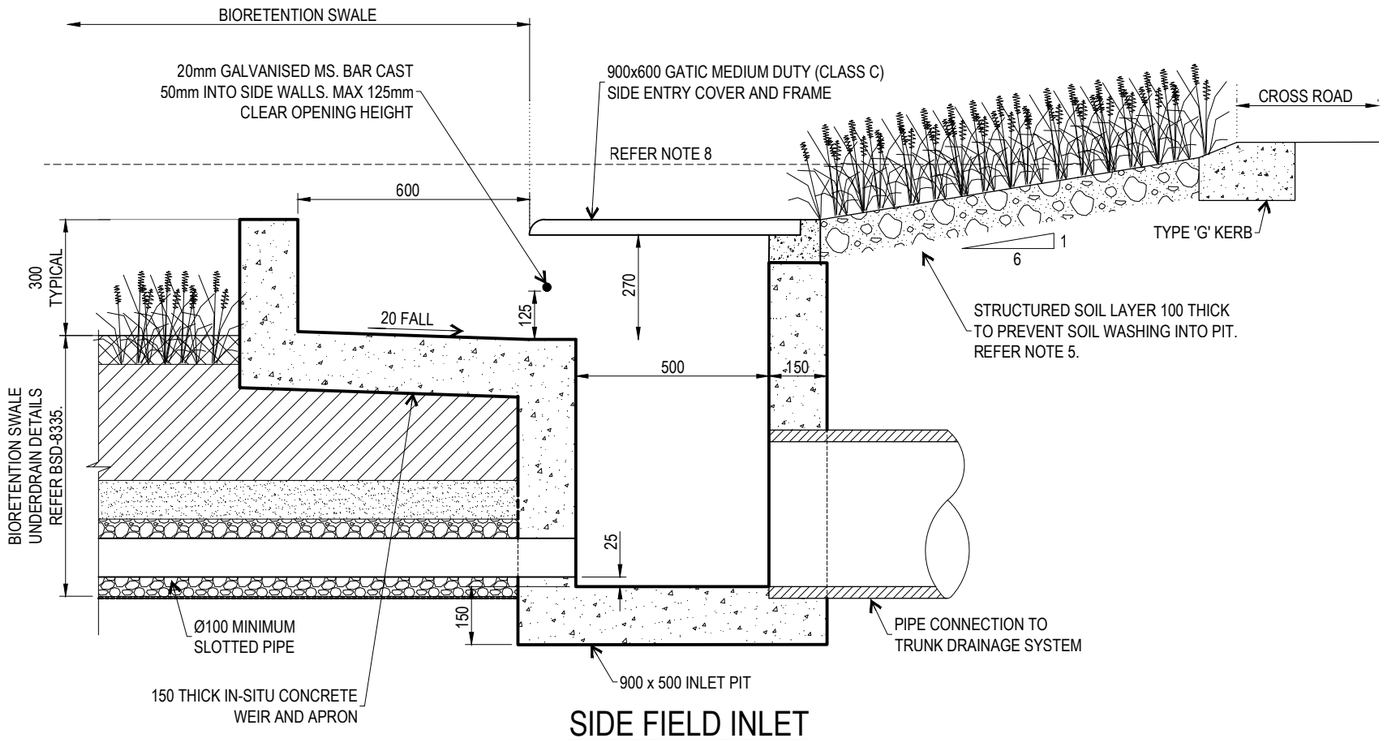
NOTES:

1. REFER TO BSD-8301 FOR GENERAL SWALE NOTES.
2. REFER TO BSD-8335 FOR BIORETENTION SWALE NOTES.
3. FIELD INLETS: FIELD INLETS TO BE LOCATED WITHIN SWALE CHANNEL UPSTREAM OF ROAD CROSSINGS AND/OR TO CONVEY FLOWS ABOVE SWALE CAPACITY TO PIPED DRAINAGE. FIELD INLETS AND PIPES SHALL BE DESIGNED TO THE REQUIRED CAPACITY IN ACCORDANCE WITH QUDM. MAXIMUM FIELD INLET SPACING TO BE DETERMINED BASED ON SWALE MAXIMUM FLOW/DEPTH REQUIREMENTS (REFER NOTE ON BSD-8301) BUT NOT TO EXCEED 60m. 'TYPE 2' FIELD INLETS ARE PREFERRED (REFER BSD-8091) EXCEPT WHERE LOCAL FLOODING IS CRITICAL.
4. FIELD INLETS TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DETAILS PROVIDED IN BSD-8091. LANDSCAPING (e.g. DENSE GROUNDCOVER PLANTING) SHOULD BE PROVIDED AROUND FIELD INLETS TO REDUCE ACCESS TO FIELD INLETS BY PUBLIC.
5. INLET GRATES MAY BE DESIGNED TO COMPLIMENT A PARTICULAR STREETSCAPE OR PUBLIC ART THEME. DESIGNERS MUST CONSIDER PEDESTRIAN AND BICYCLE SAFETY AS WELL AS HYDRAULIC EFFICIENCY AND MAINTENANCE ACCESS.
6. CONCRETE: N25 IN ACCORDANCE WITH *AS1379* AND *AS3600*.
7. STAMP CONCRETE WITH THE FOLLOWING TEXT: "THIS GARDEN FILTERS STORMWATER AND PROTECTS OUR WATERWAYS". TEST TO BE 50 HIGH AND FONT STYLE 'AVENIR' (SAND SERIF) OR 'ARIAL' (SANS SERIF) IN LINE WITH BRISBANE CITY COUNCIL'S CORPORATE STYLE GUIDE.
8. DIMENSIONS IN MILLIMETRES (U.N.O.).

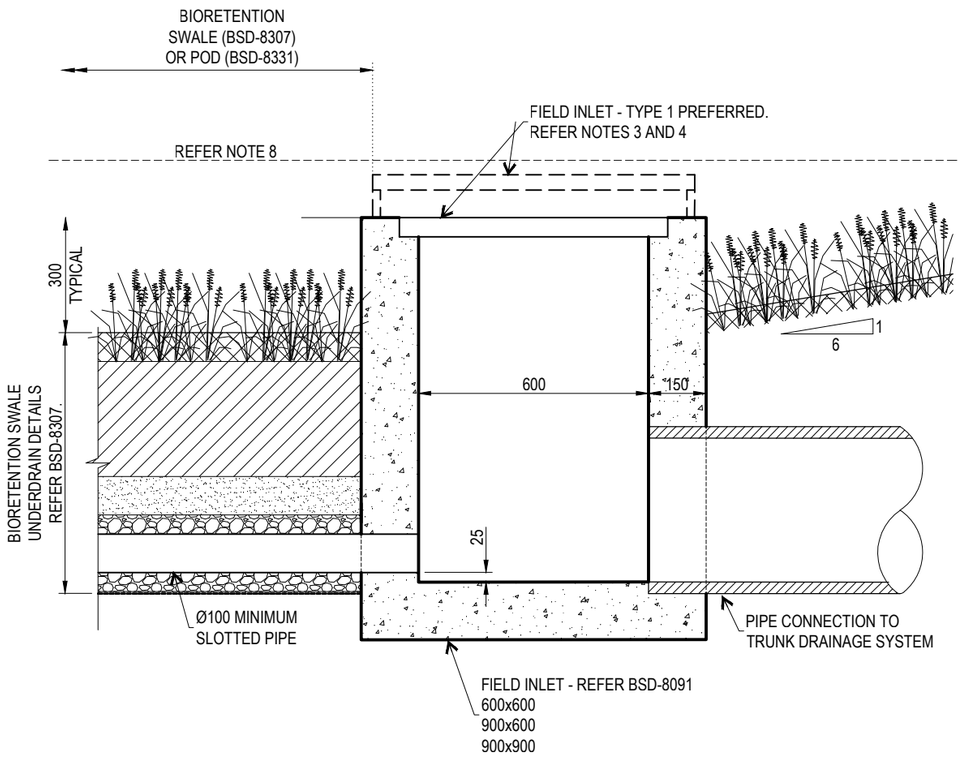
BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA)
BIORETENTION SWALE
FIELD INLET DETAILS

PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8336
ORIGINAL SIZE	A3
REVISION	A



SIDE FIELD INLET



GRATED FIELD INLET

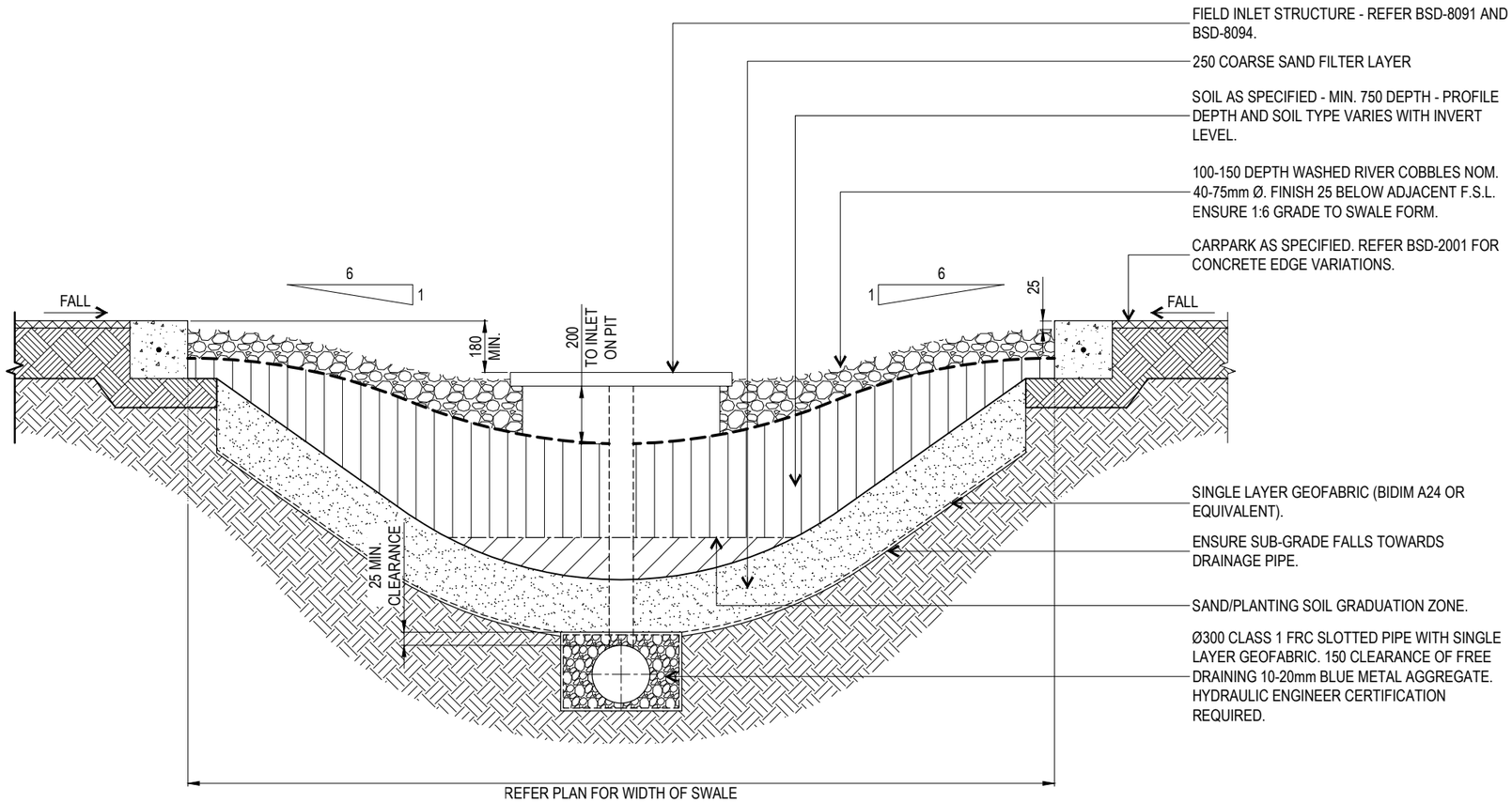
NOTES:

1. REFER BSD-8301 FOR GENERAL SWALE NOTES.
2. REFER BSD-8335 FOR BIORETENTION SWALE NOTES.
3. FOR APPROVED FIELD INLET GRATES REFER BSD-8091 & BSD-8092.
4. INLET GRATES MAY BE DESIGNED TO COMPLIMENT A PARTICULAR STREETSCAPE OR PUBLIC ART THEME. DESIGNERS MUST CONSIDER PEDESTRIAN AND BICYCLE SAFETY AS WELL AS HYDRAULIC EFFICIENCY AND MAINTENANCE ACCESS.
5. STRUCTURAL SOIL: SELECTED SPALLS 50-75 DIA. VOIDS FILLED WITH SOIL MEDIA. SOIL BLEND CONFORMING TO *AS4419*, WITH NO MORE THAN 5% SCREENED COMPOSTED ORGANIC MATTER, MINIMUM HYDRAULIC CONDUCTIVITY OF 5-25cm/hr AND A MINIMUM CEC (CATHION EXCHANGE CAPACITY) OF 20meq/100g, AND PH RANGE OF 5-6.5.
6. CENTRE MEDIANS SHOULD BE ASSESSED FOR LIKELY PEDESTRIAN TRAFFIC AND IF NECESSARY, BOLLARDS OR SAFETY BARRIERS SHOULD BE INSTALLED AROUND RAISED GRATES WHERE LANDSCAPED BUFFERS ARE NOT PROVIDED.
7. CONCRETE N25 IN ACCORDANCE WITH *AS1379* AND *AS3600*
8. MEDIAN SWALES TO MEET MINIMUM FREEBOARD REQUIREMENTS FOR CROSS ROAD AS PER QUDM SECTION 9.3.4.
9. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA) BIORETENTION SWALE (MEDIAN TYPE) FIELD INLET DETAIL

PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8337
ORIGINAL SIZE	A3
REVISION	A



STA SWALE - CARPARK BIO-RETENTION - SECTION

GENERAL NOTES & SPECIFICATION

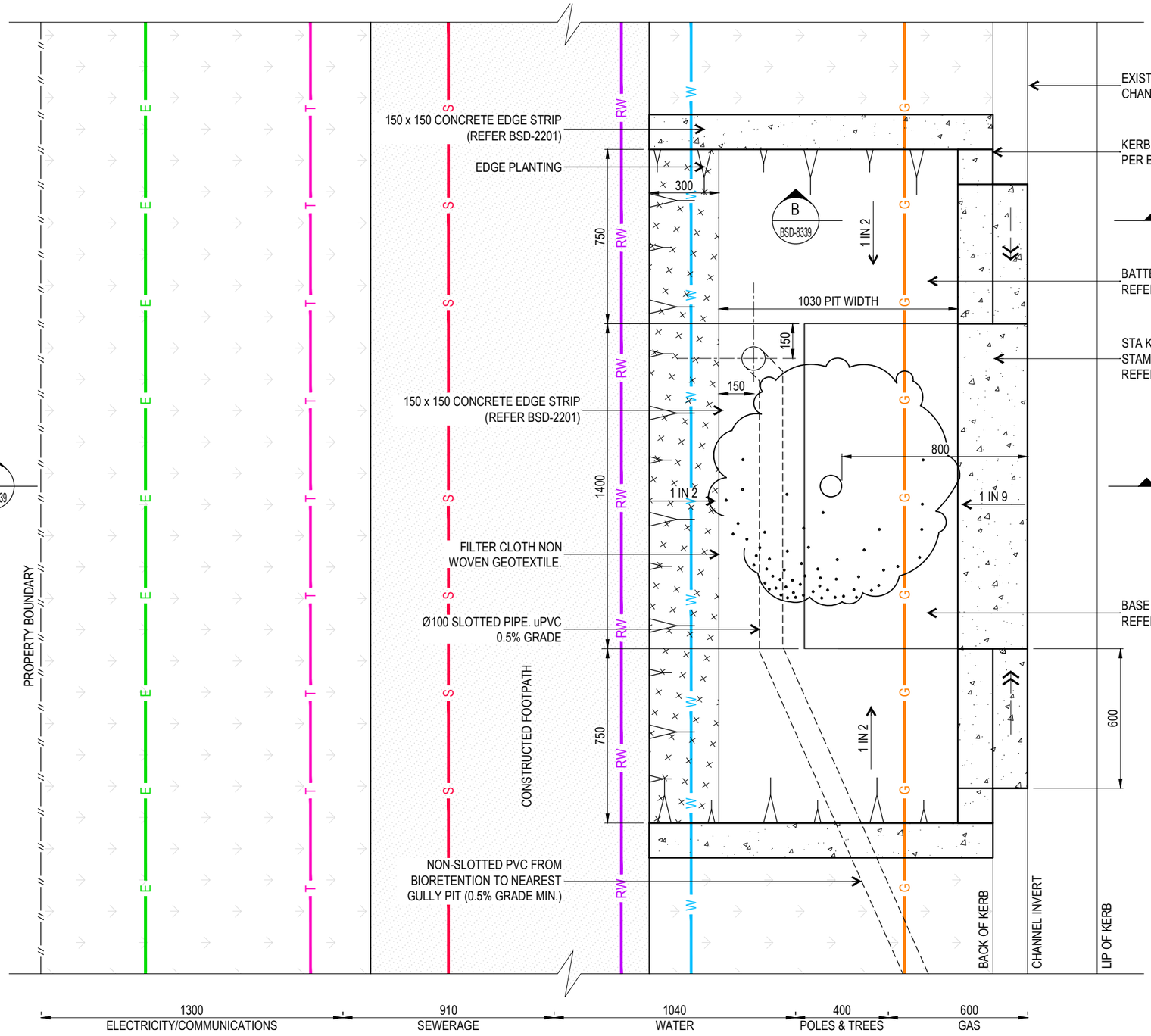
1. GENERAL DESIGN: STA BIORETENTION SYSTEM TO BE DESIGNED IN ACCORDANCE WITH “BIORETENTION TECHNICAL DESIGN GUIDELINES” (WATER BY DESIGN).
2. CONSTRUCTION: STA BIORETENTION SYSTEM TO BE CONSTRUCTION IN ACCORDANCE WITH “CONSTRUCTION AND ESTABLISHMENT GUIDELINES” (WATER BY DESIGN).
3. ENSURE SWALES ARE LOCATED IN ACCORDANCE WITH PARKS CHAPTER OF INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY.
4. SWALE DESIGN TO PROVIDE FOR SAFE CONVEYANCE OF MINOR FLOWS (2 YEAR ARI) AND NON-DAMAGING FLOW VELOCITIES IN MAJOR FLOODS (50 YEAR ARI).
5. SWALE DIMENSIONS AND/OR FIELD INLET LEVEL OF PIT TO PROVIDE STORAGE CAPACITY FOR 3 MONTH ARI OR AS OTHERWISE SPECIFIED BY HYDRAULIC ENGINEER.
6. AVOID TRIP HAZARD BY CAREFUL PLACEMENT OF COBBLES AROUND FIELD INLETS.
7. ENSURE EVEN GRADE FALLS MIN. 1:50 TO SWALE FROM CARPARK PAVEMENTS.
8. ENSURE SWALES ARE LOCATED IN ACCORDANCE WITH DETAILED LANDSCAPE PLAN, AND SUBDIVISION AND DEVELOPMENT GUIDELINES.
9. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).- PLACE A SINGLE BIDIM A24 GEOFABRIC LAYER (OR APPROVED EQUIVALENT) OVER THE INSITU BASE MATERIAL AND AGGREGATE. THE 200 SAND FILTER CAN THEN BE BACKFILLED.
10. WHEN BACKFILLING THE BIO-RETENTION FACILITY, FIRST PLACE 80 TO 100 OF PLANTING SOIL OVER THE SAND THEN CULTIVATE/TILL THE SAND/PLANTING SOIL TO CREATE A GRADUATION ZONE.
11. BACKFILL THE REMAINDER OF THE PLANTING SOIL TO FINAL GRADE. PLANTING SOIL IS TO BE PLACED IN 300 TO 450 LIFTS AND LIGHTLY COMPACTED.
12. DRAINAGE PIPES SHALL BE FLUSH JOINTED SLOTTED FRC. ENSURE MINIMUM LONGITUDINAL GRADE OF 1:50.
13. DRAIN TO LANDSCAPE OR TO STORMWATER INLET LOCATION SHOWN ON PLAN. FIELD INLET AND CONNECTION TO STORM WATER LINE TO HYDRAULIC ENGINEERS SPECIFICATIONS.
14. PROVIDE PIPE CLEANOUT OR RODDING POINTS AT MINIMUM 60m CENTRES.
15. VEGETATION: PLANT SPECIES, TO BE DETERMINED ON A PROJECT BY PROJECT BASIS. PLANT SPECIFICATION AND DENSITY SHALL BE IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN) AND BRISBANE CITY COUNCIL'S INFRASTRUCTURE DESIGN PLANNING SCHEME POLICY. TREE SPECIES TO BE SELECTED AS PER THE CENTRES DETAIL DESIGN MANUAL AND ALSO CONSIDERING THEIR SUITABILITY FOR WET AND DRY CONDITIONS. VEGETATION TO BE INSTALLED ON 300 MINIMUM TOPSOIL LAYER.
16. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA)
BIORETENTION SWALE
CARPARK

PUBLISH DATE	JUN 2023
SCALE	1:20
DRAWING NUMBER	BSD-8338
ORIGINAL SIZE	A3
REVISION	A



STANDARD SERVICE ALIGNMENTS ARE SHOWN BASED ON BSD-1013 AND BSD-1015

PLAN

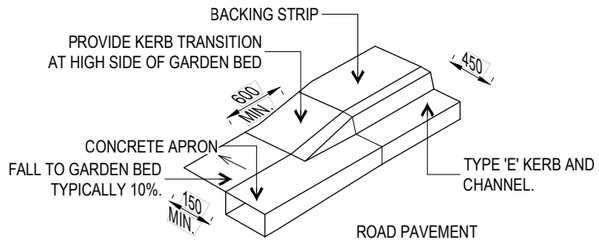
VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

SERVICES LEGEND

S	SEWERAGE
T	COMMUNICATIONS
G	GAS
W	WATER MAIN
RW	RECYCLED WATER MAIN
E	ELECTRICITY
	DENOTES SLOPE DOWN

NOTES:

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH BSD-8340
2. DETAIL TO BE INCORPORATED IN DEVELOPMENTS WHERE SERVICES/PERMITS/GRADES ENABLE THE CONSTRUCTION OF THE TREE PIT AND WHERE THE UNDER-DRAIN CAN BE CONNECTED TO GULLY.
3. REFER TO BSD-8340 FOR NOTES ON FILTER MEDIA, VEGETATION, UNDER-DRAINS, FILTER CLOTH, SLOTTED PIPE, GENERAL CONSTRUCTION AND SERVICES.
4. THE STA KERB SHOWN IS ONLY SUITABLE FOR STREET TREE PITS AND SMALL RAIN GARDENS. LARGER SYSTEMS (e.g. TREE TRENCHES) MAY NEED SPECIFIC INLET DESIGN OR MULTIPLE INLETS.
5. TREE PITS ARE TO BE LOCATED UPSTREAM OF GULLY PITS.
6. STAMP CONCRETE WITH THE FOLLOWING TEXT "THIS GARDEN FILTERS STORMWATER AND PROTECTS OUR WATERWAYS". TEXT TO BE 50 HIGH AND STYLE AVENIR (SANS SERIF) OR ARIAL (SANS SERIF) IN LINE WITH THE BRISBANE CITY COUNCIL CORPORATE STYLE GUIDE.
7. IF A SERVICE (i.e. GAS) WILL CROSS THE STA TREE PIT, PROVIDE A CONDUIT FOR FUTURE USE. SERVICE SIZE TO BE CONFIRMED WITH SERVICE PROVIDER.
8. STEEP VERGE OR ROAD GRADES MAY LIMIT THE FEASIBILITY OF STREETSCAPE BIORETENTION.
9. FOR KERB BACKING STRIP DETAILS REFER TO BSD-8340.
10. CONCRETE EDGE-STRIP (150 x 150) REQUIRED AT BACK EDGE OF DEVICE WHERE NO FOOTPATH IS PROPOSED.
11. MAXIMUM LENGTH OF DEVICE IS TO BE SIZED TO ALLOW ADEQUATE SPACE FOR DRIVEWAY CROSSOVERS AND WASTE PICKUP. TYPICAL MAXIMUM LENGTH IS 3 METRES.
12. BASED ON STANDARD 4.25m VERGE ALIGNMENT.
13. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).



KERB TRANSITION DETAIL

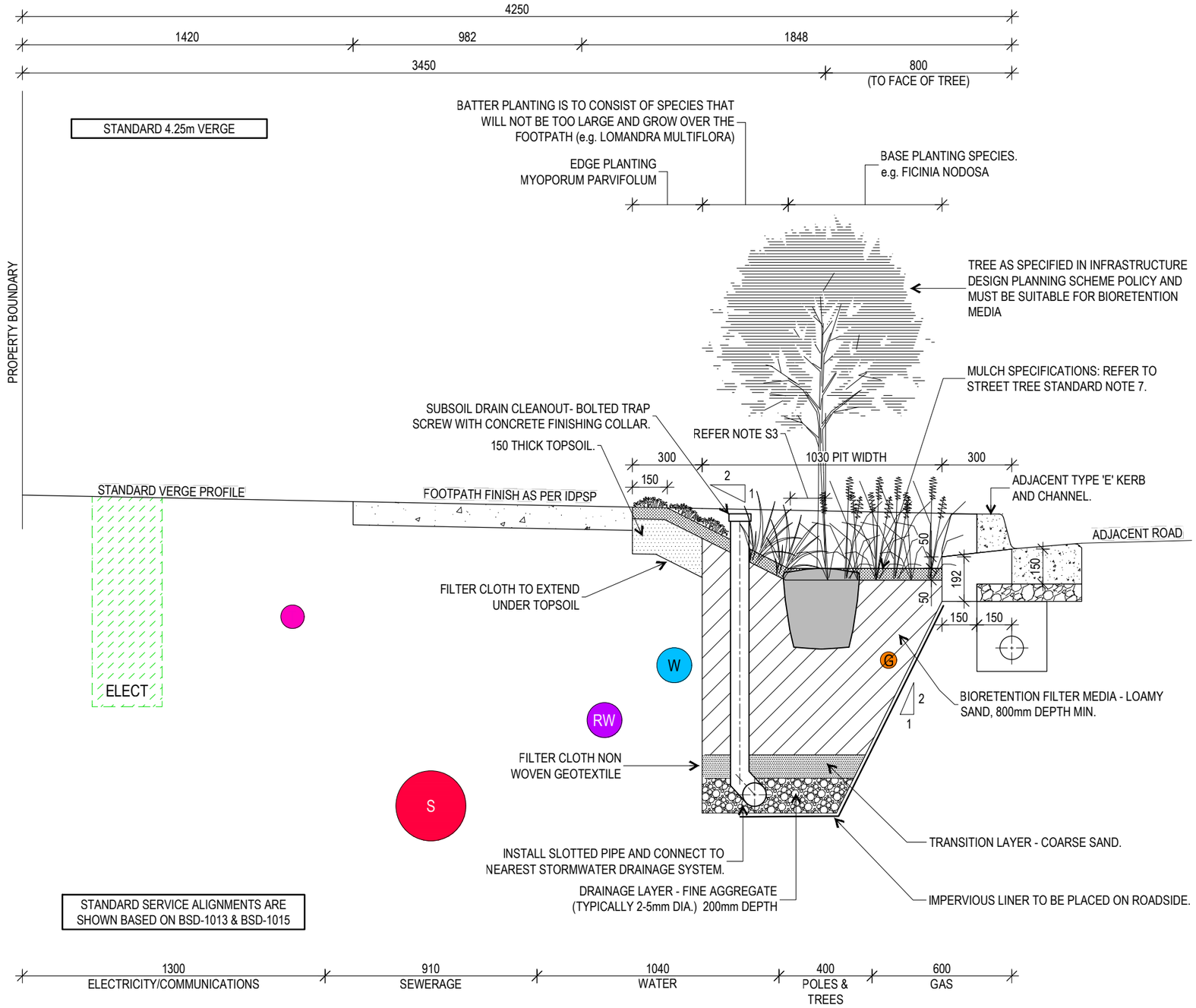
THE PURPOSE OF THIS STANDARD DRAWING IS TO PROVIDE TYPICAL DETAILS THAT SUPPORT THE DESIRED OUTCOMES OF THE BRISBANE CITY PLAN 2014 AND ASSOCIATED PLANNING SCHEME POLICIES. THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHOULD BE ASSESSED AND ACCEPTED BY AN APPROPRIATELY QUALIFIED DESIGNER AND/OR REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

BRISBANE CITY

BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA) TREE WITHIN TURF PLAN

PUBLISH DATE	JUN 2023
SCALE	NOT TO SCALE
DRAWING NUMBER	BSD-8339
ORIGINAL SIZE	A3
REVISION	A



A BSD-8338 STA - BIORETENTION TREE POD WITHIN TURF - TYPICAL SECTION

NOTES:

STREET TREE STANDARD NOTES

1. SYSTEM TO CONSTRUCTED IN ACCORDANCE WITH THE WATER BY DESIGN 'CONSTRUCTION AND ESTABLISHMENT GUIDELINES'.
2. STORMWATER KERB OPENING TO BE TEMPORARILY BLOCKED DURING CONSTRUCTION.
3. FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYER IN ACCORDANCE WITH "APPENDIX C: GUIDELINES FOR FILTER MEDIA IN STORMWATER BIOFILTRATION SYSTEMS" PUBLISHED BY THE COOPERATIVE RESEARCH CENTRE FOR WATER SENSITIVE CITIES (CRC WSC).
4. UNDER-DRAIN, SLOTTED RIGID PIPE (uPVC/HDPE SIMILAR TO *AS2439.1*) OR APPROVED EQUIVALENT, 0.5% MINIMUM GRADE. DIAMETER TYPICALLY 100mm. PIPE JOINS SHALL BE GLUED WITH PLUMBING CEMENT. PIPE SHALL NOT BE INSTALLED WITH A SOCK SURROUNDING PIPE. UNDER-DRAINAGE PIPES SHALL BE SEALED INTO PITS USING GROUTS OR OTHER APPROVED WATERTIGHT SEAL. MINIMUM 50mm DRAINAGE LAYER OVER UNDER-DRAINAGE PIPE.
5. FILTER CLOTH - NON-WOVEN GEOTEXTILE. FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. IMPERVIOUS LINER MAY BE REQUIRED ADJACENT TO ROADS AND MAY ALSO BE REQUIRED SUBJECT TO SOIL TESTING REQUIREMENTS IN ACCORDANCE WITH THE "WATER SENSITIVE URBAN DESIGN TECHNICAL GUIDELINES" (WATER BY DESIGN).
6. VEGETATION: PLANT SPECIES STREET FURNITURE AND LAYOUT TO BE DETERMINED ON A PROJECT BY PROJECT BASIS. PLANT SPECIFICATION AND DENSITY SHALL BE IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN) AND BRISBANE CITY COUNCIL'S 'INFRASTRUCTURE PLANNING SCHEME POLICY'. TREE SPECIES TO BE SELECTED AS PER THE INFRASTRUCTURE PLANNING SCHEME POLICY AND ALSO CONSIDERING THEIR SUITABILITY FOR WET AND DRY CONDITIONS. REFER TO NEW PLANTING STANDARDS DRAWING.
7. MULCH: 75mm MULCH LAYER TO BE ORGANIC AND FRIABLE, SUCH AS SUGARCANE MULCH. MULCH TO BE SECURED WITH JUTE MESH TO MANUFACTURER'S SPECIFICATIONS.
8. ALL DIMENSIONS IN MILLIMETRES (U.N.O.).

SECTION NOTES:

S1. THIS PLAN TO BE READ IN CONJUNCTION WITH BSD-9034. REFER TO BSD-9034 FOR PLAN VIEW DETAILS AND NOTES.

S2. PROVISION FOR SAFETY OF PEDESTRIANS AND OTHER USERS SHALL BE IN ACCORDANCE WITH AUSTROADS REQUIREMENTS SUCH AS LIMITING DEPTH OF VERTICAL DROPS.

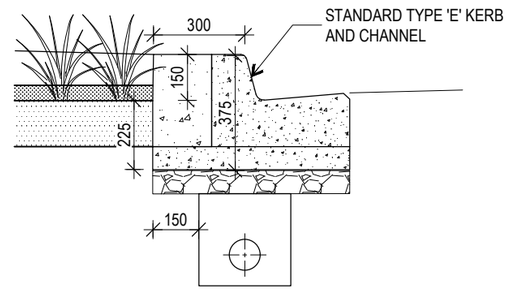
S3. MAINTAIN 50-100mm RADIUS SEPARATION BETWEEN MULCH AND STEM OF TREE.

S4. DROP FROM KERB BACKING STRIP TO FILTER SURFACE NOT TO EXCEED 250mm.

S5. KERB ADAPTORS ARE NOT TO BE DIRECTLY PLUMBED INTO SYSTEM.

S6. TREE PITS MAY BE LINKED VIA SUITABLY SIZRD DRAINAGE PIPE WHERE DISTANCE TO NEAREST GULLY EXCEEDS 30m.

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.



B BSD-8338 KERB BACKING STRIP DETAILS

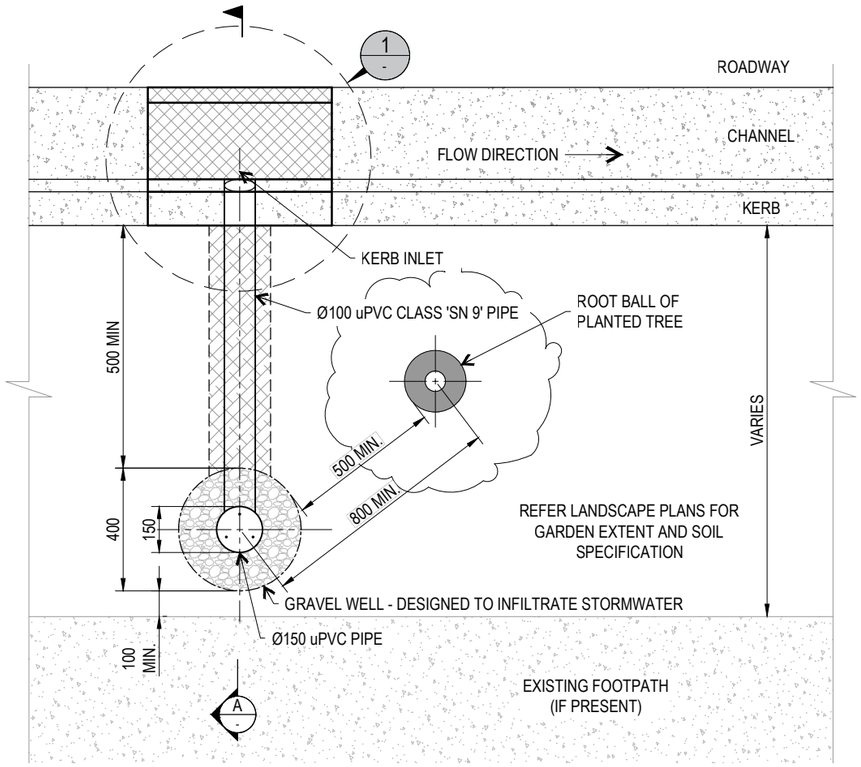
THE PURPOSE OF THIS STANDARD DRAWING IS TO PROVIDE TYPICAL DETAILS THAT SUPPORT THE DESIRED OUTCOMES OF THE BRISBANE CITY PLAN 2014 AND ASSOCIATED PLANNING SCHEME POLICIES. THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHOULD BE ASSESSED AND ACCEPTED BY AN APPROPRIATELY QUALIFIED DESIGNER AND/OR REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

BRISBANE CITY

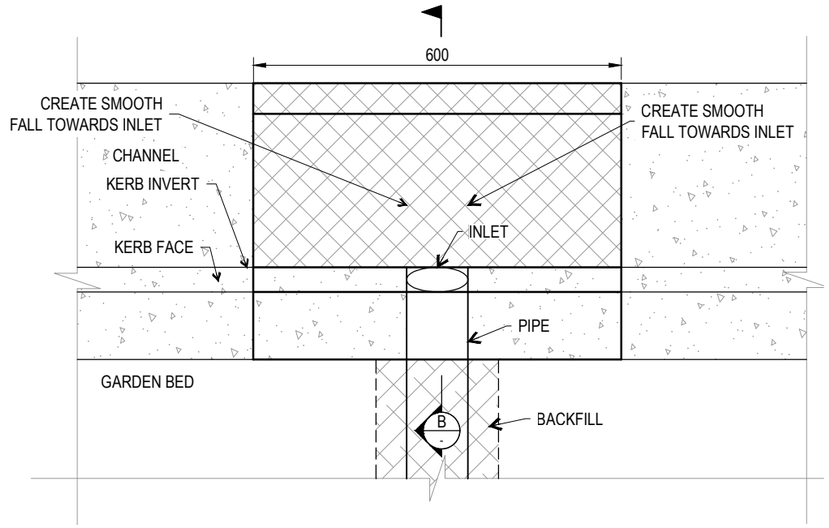
BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREATMENT ASSET (STA)
TREE WITHIN TURF
SECTION

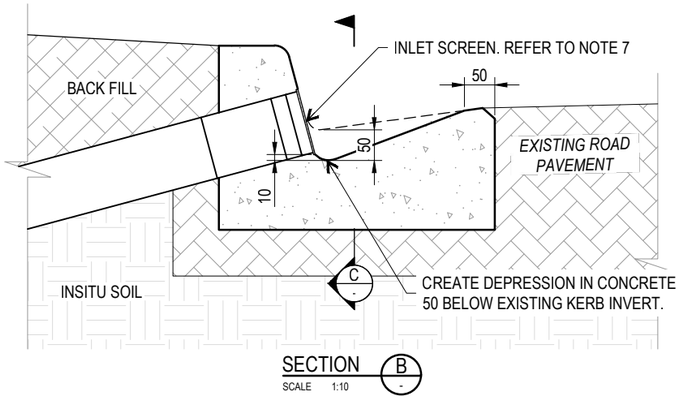
PUBLISH DATE: JUN 2023
SCALE: NOT TO SCALE
DRAWING NUMBER: BSD-8340
ORIGINAL SIZE: A3
REVISION: A



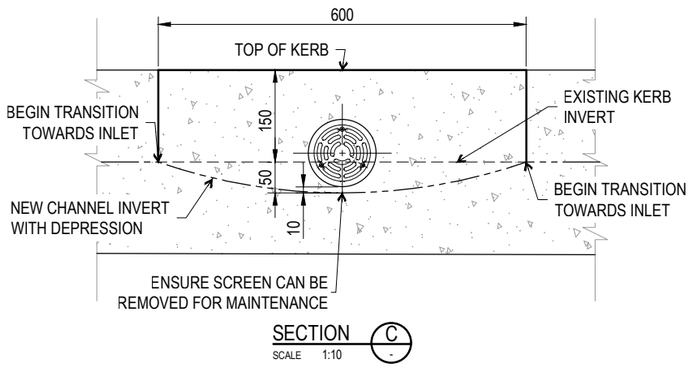
PLAN
SCALE 1:20



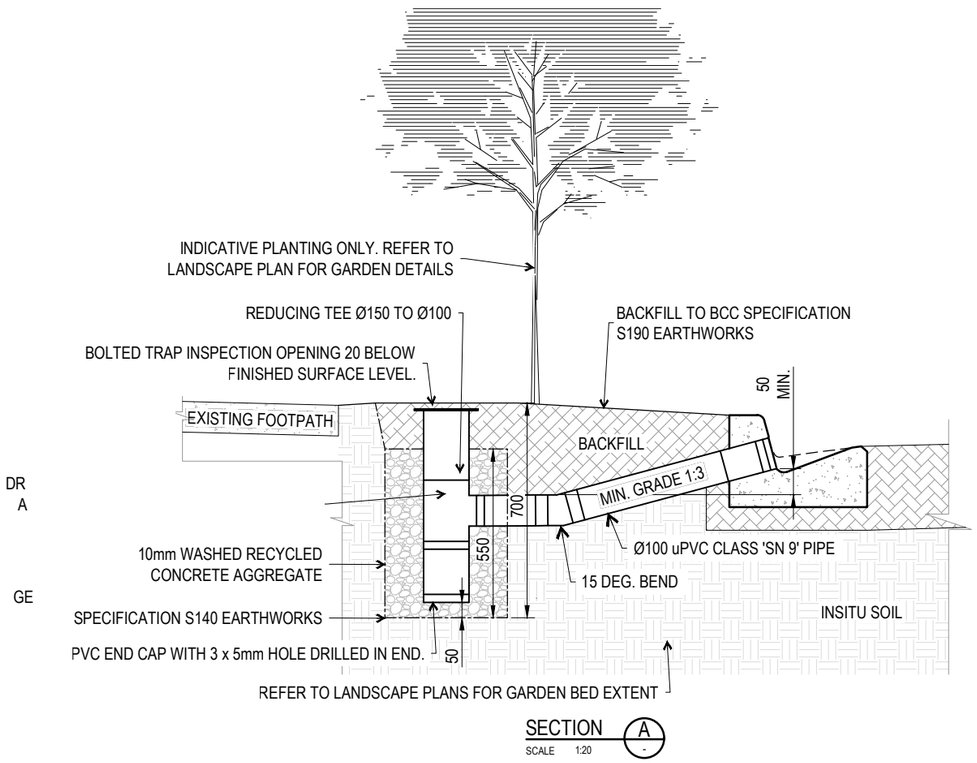
KERB INLET DETAIL 1
SCALE 1:10



SECTION B
SCALE 1:10



SECTION C
SCALE 1:10



SECTION A
SCALE 1:20

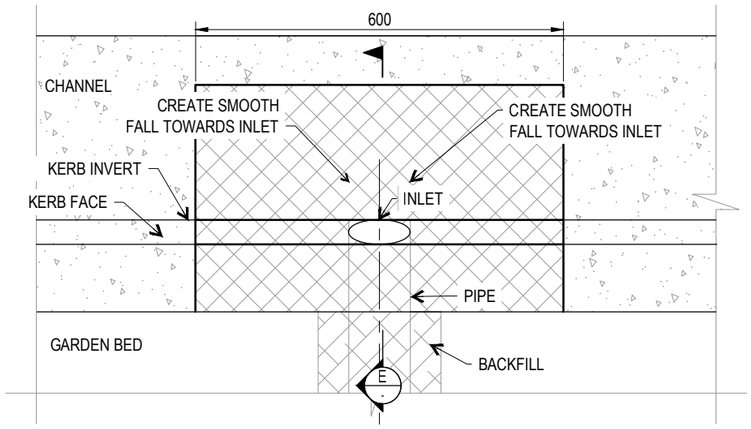
NOTES:

1. THE INTENT OF THE DESIGN IS TO IMPROVE DROUGHT RESILIENCE AND TREE HEALTH BY INFILTRATING STORMWATER FROM THE KERB. THIS DESIGN IS INTENDED FOR APPLICATIONS SUCH AS INDIVIDUAL TREES OR BETWEEN TWO TREES. PLACE EVERY 3m IN GARDEN BEDS FOR PASSIVE IRRIGATION.
2. NOT INTENDED FOR STORMWATER QUALITY OR QUANTITY TREATMENT.
3. REFER TO BSD-8342 WHEN INSTALLING KERB INLET INTO EXISTING BARRIER KERB OR LAYBACK KERBS.
4. LOCATION AND VERIFICATION OF EXISTING SERVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. UNDERTAKE A SERVICES SEARCH FOR LOCATIONS PRIOR TO COMMENCEMENT OF WORKS.
5. USE NON-DESTRUCTIVE DIGGING METHODS WHEN PLACING ADJACENT TO TREES.
6. WHEN INSTALLING AS A RETROFIT TO AN EXISTING TREE CONSULT AN ARBORIST FOR APPROVAL. PLACE SOAK WELL AT DRIP LINE OF EXISTING TREE, RATHER THAN MIN DISTANCE.
7. INLET SCREEN IS TO BE Ø110mm 316 STAINLESS STEEL OR SIMILAR.
8. ENSURE SCREEN CAN BE REMOVED FOR MAINTENANCE.
9. SECURE PIPES IN PLACE WITH PVC SEALANT (SIKASEAL OR SIMILAR).
10. CONCRETE FOR KERB TO BE HAND PLACED MINIMUM GRADE 32MPa.
11. REFER TO SITE-SPECIFIC LANDSCAPE PLANS AND OTHER DESIGN DRAWINGS FOR VEGETATION AND SOIL TYPES (EXCLUDED FROM THIS DRAWING). IF INSTALLING A TREE IN HIGH CLAY SOILS, SELECT A TREE THAT CAN WITHSTAND WET SOIL CONDITIONS.
12. FINISHED SURFACE LEVELS TO FOLLOW GRADE OF THE GARDEN BED OR VERGE OR AS SPECIFIED IN SITE-SPECIFIC PLANS (EXCLUDED FROM THIS DRAWING).
13. NOT SUITABLE FOR DISPERSIVE SOILS.
14. ALL WORK TO BE IN-ACCORDANCE WITH PLUMBING AND DRAINAGE AUSTRALIAN STANDARDS.
15. MINIMUM CATCHMENT AREA OF 50m^2 IS RECOMMENDED.
16. DIMENSIONS IN MILLIMETRES (U.N.O).

BRISBANE CITY COUNCIL STANDARD DRAWING

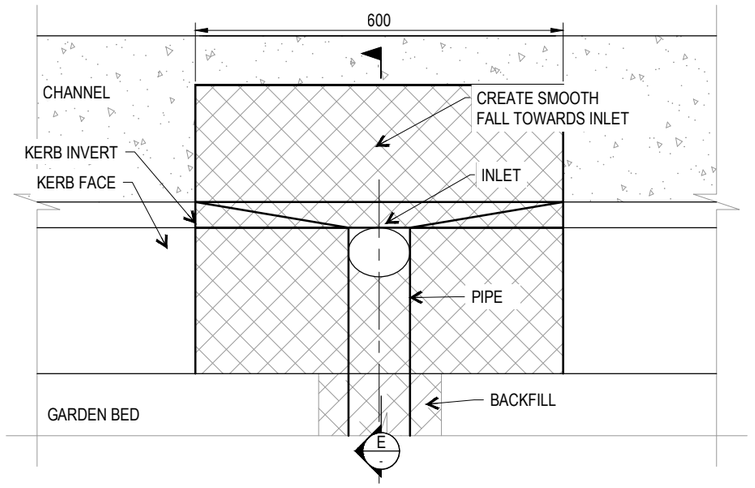
STORMWATER TREAMENT ASSET (STA)
STREET TREE
PASSIVE IRRIGATION WELL

PUBLISH DATE	JUN 2023
SCALE	AS SHOWN
DRAWING NUMBER	BSD-8341
ORIGINAL SIZE	A3
REVISION	A



DETAIL 2: TYPE 'E' (BARRIER) KERB INLET

SCALE 1:10

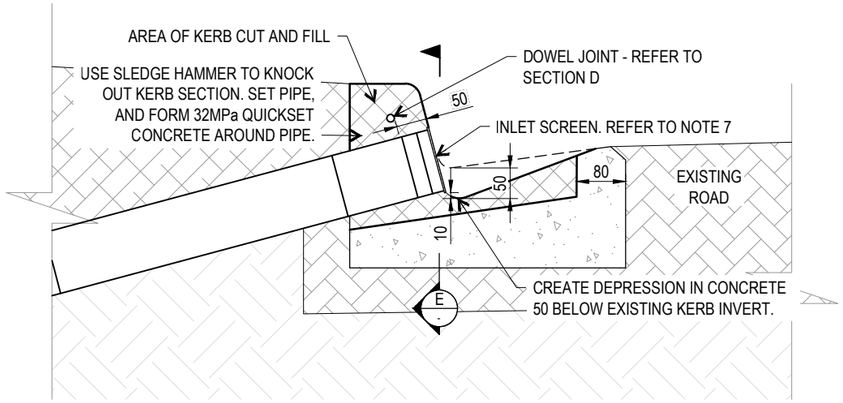


DETAIL 1: TYPE 'D' (LAYBACK) KERB INLET

SCALE 1:10

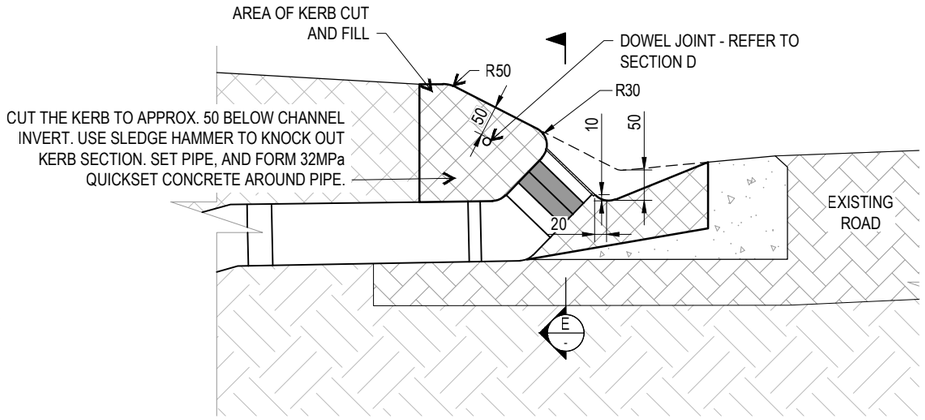
NOTES:

1. DETAILS ON THIS PAGE REFER TO THE INSTALLATION OF A RETROFIT KERB INLET FOR PASSIVE IRRIGATION VERGE SYSTEMS BSD-8341. RETROFIT APPLICATIONS ARE WHERE THE KERB AND CHANNEL ARE EXISTING. THE INLETS PROVIDE A LOWER COST OPTION TO INSTALL THE KERB INLET, AS PART OF THE KERB CAN BE RETAINED.
2. DETAILS ON THIS PAGE ARE TO BE READ IN CONJUNCTION WITH BSD-8341.
3. LOCATION AND VERIFICATION OF EXISTING SERVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. UNDERTAKE A SERVICES SEARCH (DIAL BEFORE YOU DIG) FOR LOCATIONS PRIOR TO COMMENCEMENT OF WORKS.
4. USE NON-DESTRUCTIVE DIGGING METHODS WHEN PLACING ADJACENT TO TREES.
5. DO NOT CONSTRUCT IN WET WEATHER.
6. INLET SCREEN IS TO BE Ø110mm 316 STAINLESS STEEL. ENSURE SCREEN CAN BE REMOVED FOR MAINTENANCE WHEN SETTING IN CONCRETE KERB.
7. SECURE PIPES IN PLACE WITH PVC SEALANT (SIKASEAL OR SIMILAR).
8. CONCRETE FOR KERB TO BE HAND PLACED MINIMUM GRADE 32MPa. BRUSH CONCRETE INTO ANY OVERCUT SAW CUTS FOR A CLEAN FINISH.
9. FINISHED SURFACE LEVELS TO FOLLOW GRADE OF THE GARDEN BED AS SPECIFIED IN SITE-SPECIFIC PLANS (EXCLUDED FROM THIS DRAWING).
10. ALL WORK TO BE IN-ACCORDANCE WITH PLUMBING AND DRAINAGE AUSTRALIAN STANDARDS
11. DIMENSIONS IN MILLIMETERS (U.N.O).



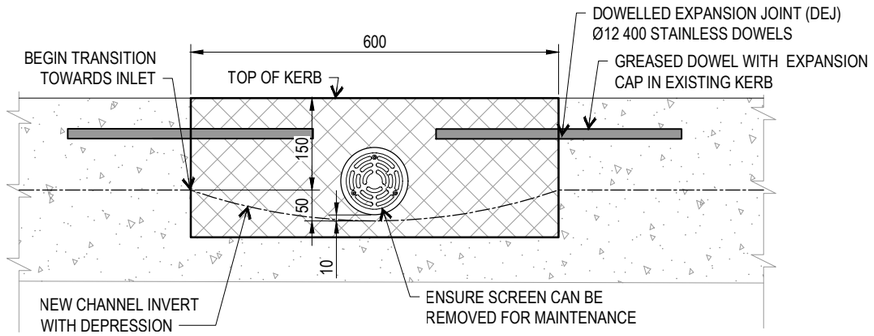
SECTION C

SCALE 1:10



SECTION E

SCALE 1:10



SECTION D

SCALE 1:10

THE PURPOSE OF THIS STANDARD DRAWING IS TO PROVIDE TYPICAL DETAILS THAT SUPPORT THE DESIRED OUTCOMES OF THE BRISBANE CITY PLAN 2014 AND ASSOCIATED PLANNING SCHEME POLICIES. THE FITNESS FOR PURPOSE OF THIS STANDARD DRAWING FOR A SPECIFIC PROJECT SHOULD BE ASSESSED AND ACCEPTED BY AN APPROPRIATELY QUALIFIED DESIGNER AND/OR REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ).

BRISBANE CITY COUNCIL STANDARD DRAWING

STORMWATER TREAMENT ASSET (STA) STREET TREE - PASSIVE IRRIGATION RETROFIT KERB INLET DETAILS

PUBLISH DATE	Mmm 'YY
SCALE	AS SHOWN
DRAWING NUMBER	BSD-8342
ORIGINAL SIZE	A3
REVISION	A