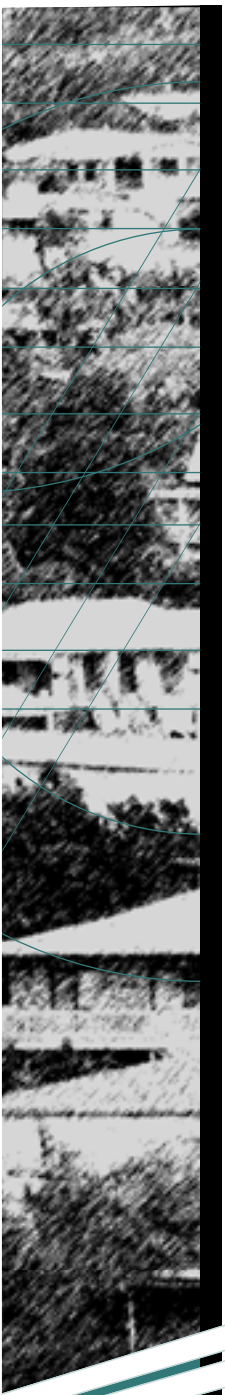
Gladstone
City Council



Drainage

Access Chamber Roof Slabs DIA 1050 - 1500

Access Chamber Roof Slabs EXTENDED 600 and 900

Access Chamber Roof Slabs RECTANGULAR

Access Chamber Cast Iron Cover and Frame C.I. Concrete Filler Cover

Access Chamber Cast Iron Cover and Frame Bolt Down

Excavation, Bedding and Backfilling of Concrete / Fibre Reinforced Drainage Pipes

Excavation, Bedding and Backfilling of Precast Box Culverts

Standard - Gully Trap Precast Headstone (Faston Grate) for Barrier & Mountable Kerb & Channel

Concrete Gully C-M Concrete RGU – Recessed Type Roadway Type Precast Inlet Units

Drainway Stormwater Inlet Components

Drainway Stormwater Inlet Cast Iron Grate, Cover & Frame

Drainway Stormwater Inlet Construction Setting Out Barrier/Mountable Kerb & Channel

Gully - Anti-Ponding Depressed 17mm

Precast Concrete Gully Pit BROPIT Gully System General Arrangement Product Details

Precast Concrete Gully Pit BROPIT Gully System Extended Chamber Product Details

Precast Concrete Gully Pit BROPIT Gully System Manhole Cover Product Details

Precast Concrete Gully Pit BROPIT Gully System Trough Product Details

Precast Concrete Gully Pit BROPIT Gully System Trough Ends Product Details

Standard Gully Pit {Field Type}

R.C.P. Pipe Culverts Precast Concrete Headwall 45° Wingwalls Product Details

Roofwater Inspection Chamber

Kerb & Channel Anti-Ponding Stormwater Mini Pit

Concrete Strip Footpaths

Bikepath Slowdown Control Reverse Curve

Bikepath Pavement Joints

Bikepath Entrance to Road Reserves

Bikepath Slowdown Control Z Chicane

Bikepath Slowdown Control Offset Chicane

Erosion Control Sediment Trap & Sediment Fence

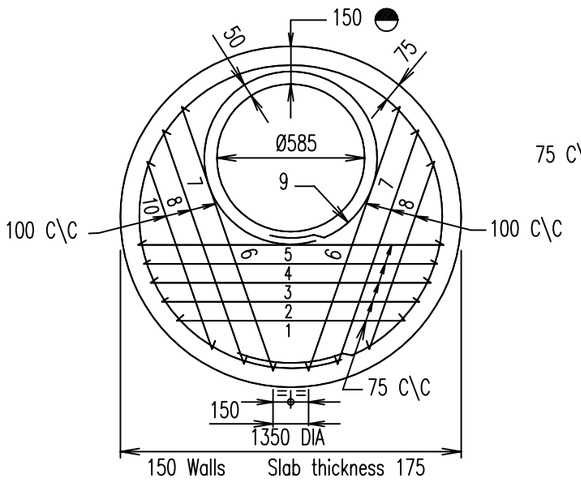
Erosion Control Inlet Sediment Traps, Straw Bale Traps & Banks, Check Dams

Pedestrian Foot Bridge

Bubbler System for Stormwater Dispersal

Related Topics

Return to Contents Page

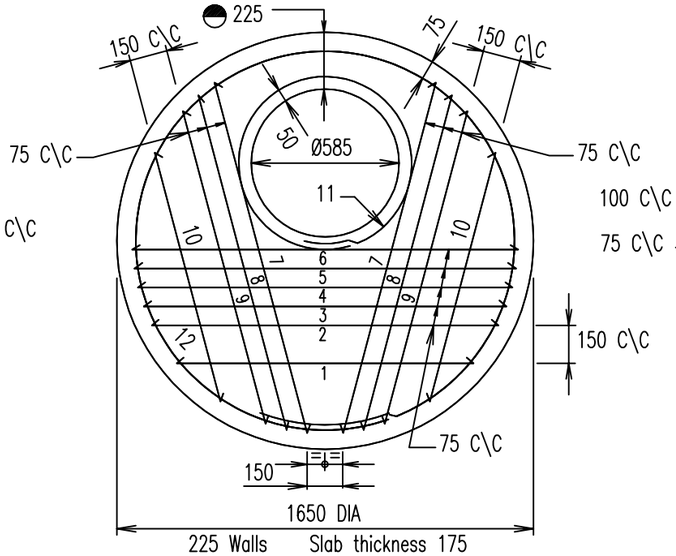


150 Walls Slab thickness 175

BAR No.	SHAPE	'a'/'b'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		937	1175	1	1175
2		1030	1255	1	1255
3		1125	1350	1	1350
4	'a'	1175	1400	1	1400
5		1225	1450	1	1450
6		1125	1350	2	2700
7		1000	1225	2	2450
8		812	1050	2	2100
9	'b'	685	2550	1	2550
10		1200	4200	1	4200
				TOTAL	20630

STEEL MASS : 19kg
CONCRETE : 0.20m³
TOTAL MASS : 508kg

1050 DIA ACCESS CHAMBER

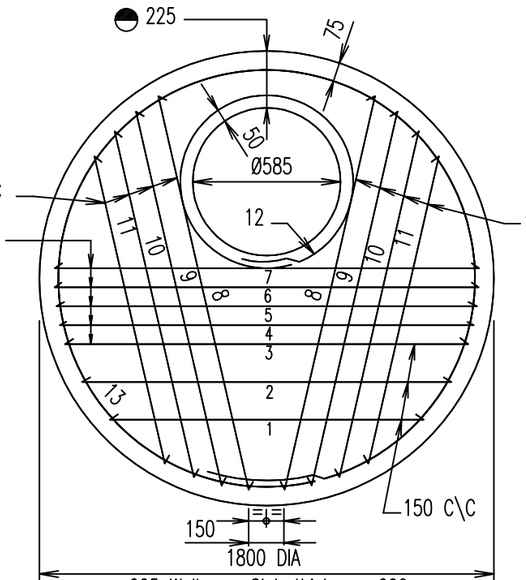


225 Walls Slab thickness 175

BAR No.	SHAPE	'a'/'b'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		1200	1425	1	1425
2		1400	1625	1	1625
3		1450	1675	1	1675
4		1500	1725	1	1725
5	'a'	1520	1745	1	1745
6		1537	1775	1	1775
7		1450	1675	2	3350
8		1375	1600	2	3200
9		1300	1525	2	3050
10		1050	1275	2	2550
11	'b'	685	2550	1	2550
12		1500	5150	1	5150
				TOTAL	23200

STEEL MASS : 27kg
CONCRETE : 0.33m³
TOTAL MASS : 818kg

1200 DIA ACCESS CHAMBER

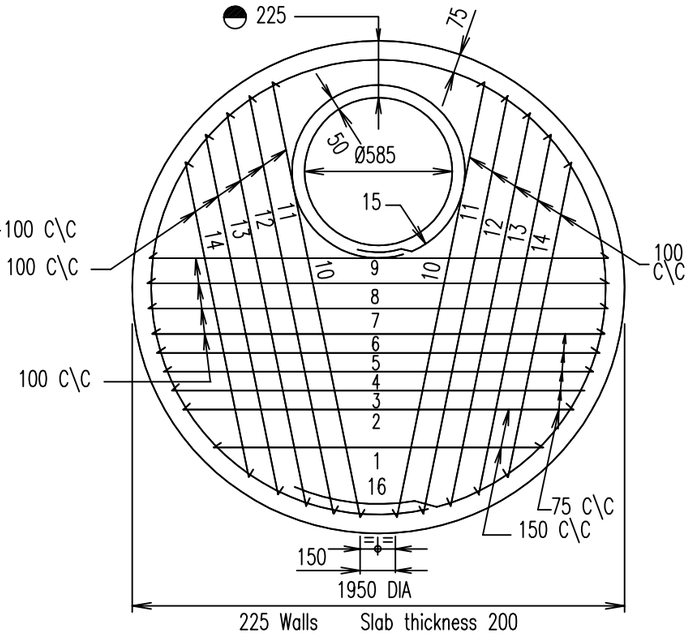


225 Walls Slab thickness 200

BAR No.	SHAPE	'a'/'b'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		1275	1500	1	1500
2		1488	1725	1	1725
3		1612	1850	1	1850
4		1645	1870	1	1870
5	'a'	1675	1900	1	1900
6		1675	1900	1	1900
7		1675	1900	1	1900
8		1600	1825	2	3650
9		1525	1750	2	3500
10		1412	1650	2	3300
11		1262	1500	2	3000
12	'b'	685	2550	1	2550
13		1650	5625	1	5625
				TOTAL	34270

STEEL MASS : 31kg
CONCRETE : 0.45m³
TOTAL MASS : 1138kg

1350 DIA ACCESS CHAMBER

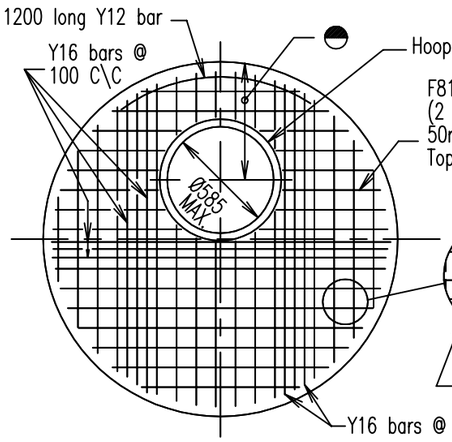


225 Walls Slab thickness 200

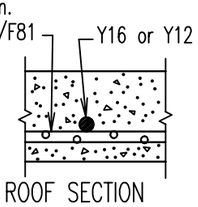
BAR No.	SHAPE	'a'/'b'	OVERALL LENGTH	No. OFF	TOTAL LENGTH
1		1337	1575	1	1575
2		1575	1800	1	1800
3		1645	1870	1	1870
4		1712	1950	1	1950
5	'a'	1756	1980	1	1980
6		1800	2025	1	2025
7		1825	2050	1	2050
8		1837	2075	1	2075
9		1825	2050	1	2050
10		1762	2000	2	4000
11		1700	1925	2	3850
12		1600	1825	2	3650
13		1462	1700	2	3400
14		1275	1500	2	3000
15	'b'	685	2550	1	2550
16		1800	6100	1	6100
				TOTAL	43925

STEEL MASS : 39kg
CONCRETE : 0.55m³
TOTAL MASS : 1360kg

1500 DIA ACCESS CHAMBER



FABRIC REINFORCMENT ALTERNATIVE



FABRIC REINFORCED SLAB

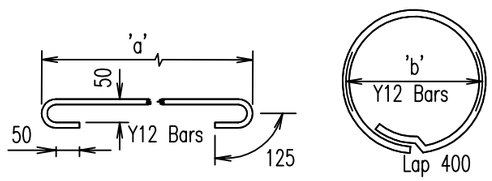
NOM CHAMBER DIA	ROOF THICKNESS
1050	175
1200	175
1350	200
1500	250

LEGEND

Offset to access hole varies :-
a) Hole in line with chamber wall, or
b) Hole offset from wall 460mm
(refer Alternative 2 on Standard Drawing D-001).

NOTES

1. Concrete N40 in accordance with AS 1379 and AS 3600.
2. Reinforcement cover 30 MIN (bottom cover)
3. Reinforcement :- F81 Fabric to AS 1304
   Bars Y12 and Y16, Grade 400 to AS 1302.
4. For lifting anchor locations and details, refer Standard Drawing D-001.
5. Roof design based on Austroads bridge code, W7 wheel load, dynamic factor 0.4.
6. All dimensions in millimetres.



REINFORCEMENT DIMENSIONS

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-001

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

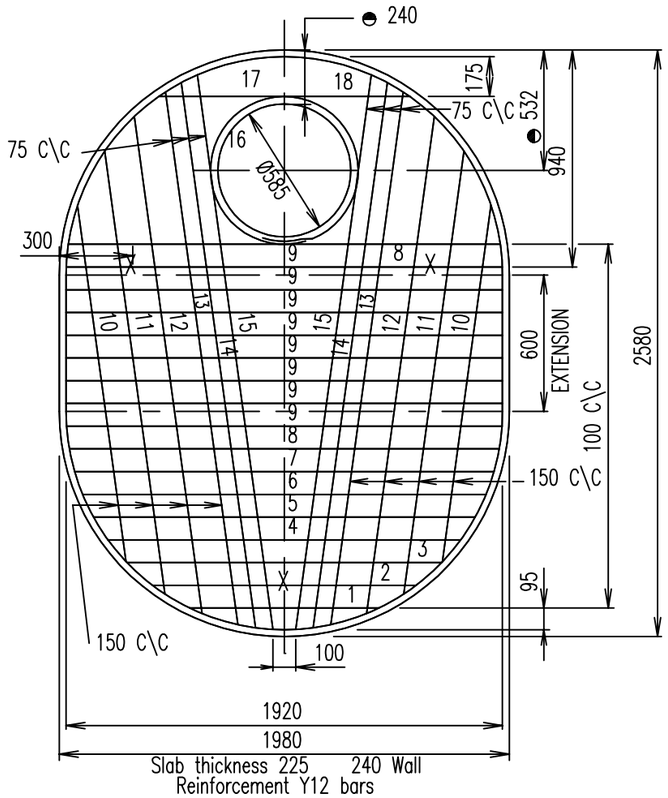
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

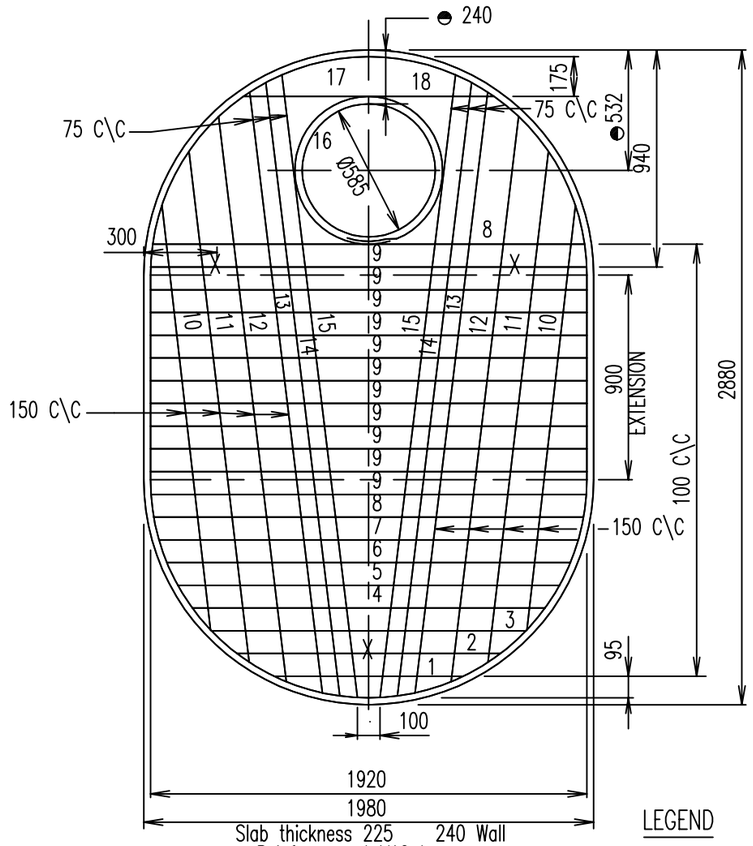
GLADSTONE CITY COUNCIL

ACCESS CHAMBER
ROOF SLABS
DIA 1050 - 1500

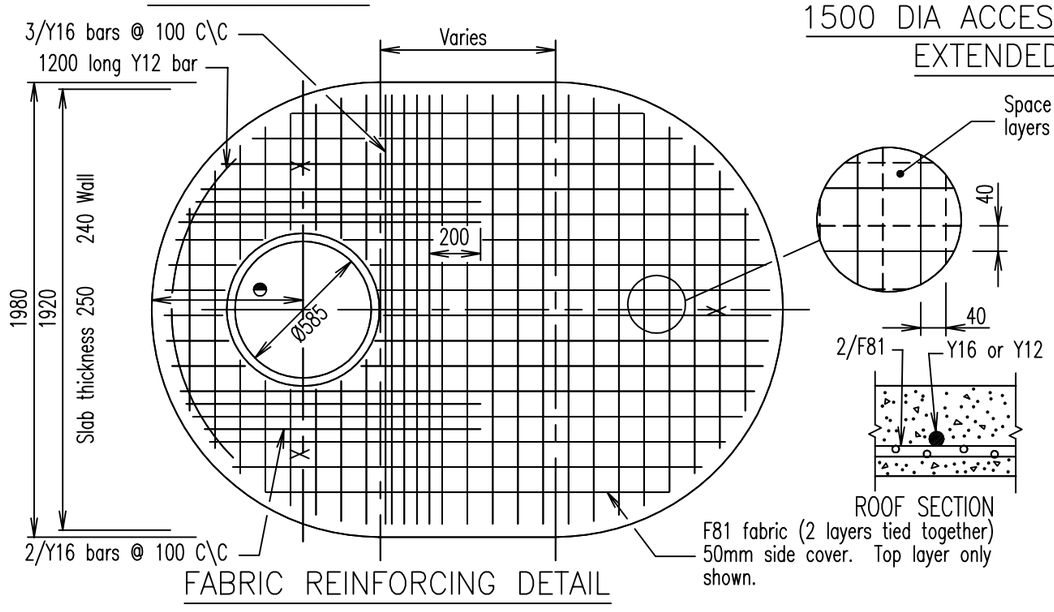
STANDARD DRAWING
DRAINAGE
D 002



1500 DIA ACCESS CHAMBER
EXTENDED 600



1500 DIA ACCESS CHAMBER
EXTENDED 900



FABRIC REINFORCING DETAIL

ROOF SECTION

F81 fabric (2 layers tied together) 50mm side cover. Top layer only shown.

LEGEND

- Offset to access hole varies :-
  a) Hole in line with chamber wall, or
  b) Hole offset from wall 460mm (refer Alternative 2 on Standard Drawing D-001).

NOTES

1. Roof design based on Austroads Bridge code, W7 wheel load, dynamic factor 0.4.
2. Concrete N40 in accordance with AS 1379 and AS 3600.
3. Reinforcement cover 30 MIN (bottom face).
4. Reinforcement :- F81 Fabric to AS 1304
   Bars Y12 and Y16, Grade 400 to AS 1302.
5. Refer Standard Drawing D-002 for 'reinforcement dimensions'.
6. Lifting anchors to be "swiftlift" or equivalent. 1.8 tonne, galvanized to AS 1650 and fitted to manufacturer's specification at points shown 'X'.
7. Lifting capacity of mechanical devices to be no less than 4 tonnes.
8. All dimensions in millimetres.

1500 DIA ACCESS CHAMBER
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		2375	2	4750
15		2450	2	4900
16		2550	1	2550
17		7195	1	7195
18		1105	1	1105
			TOTAL LENGTH	65770

Steel Mass 59 kg
Concrete Volume 0.90 m³
Total Mass 2250 kg

1500 DIA ACCESS CHAMBER
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		2700	2	5400
15		2750	2	5500
16		2550	1	2550
17		7795	1	7795
18		1105	1	1105
			TOTAL LENGTH	75720

Steel Mass 67 kg
Concrete Volume 1.03 m³
Total Mass 2575 kg

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0012

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99
DESIGN APPROVED	
M.D.	.....
Date	.....

Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
D.T.S. ..... Date .....

GLADSTONE CITY COUNCIL

ACCESS CHAMBER
ROOF SLABS
EXTENDED 600 AND 900

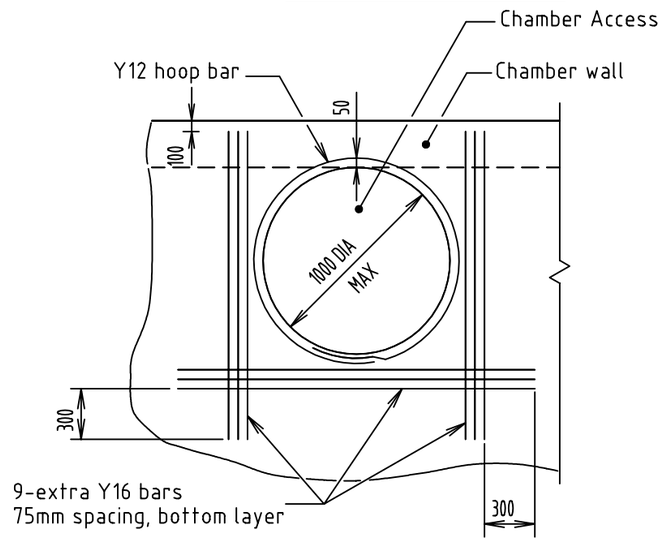
STANDARD DRAWING
DRAINAGE
D 003

SHORT SPAN \ LONG SPAN	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	SLAB DEPTH
1200	Y12 AT 150	Y16 AT 200	Y16 AT 200	Y16 AT 200	Y16 AT 175	Y16 AT 175	Y16 AT 175	Y16 AT 150	Y16 AT 150	Y16 AT 150	200
1400		Y12 AT 150	Y16 AT 200	Y16 AT 200	Y16 AT 175	Y16 AT 175	Y16 AT 150	Y16 AT 150	Y16 AT 150	Y16 AT 150	200
1600			Y12 AT 150	Y16 AT 200	Y16 AT 200	Y16 AT 175	Y16 AT 150	Y16 AT 150	Y16 AT 150	Y16 AT 150	200
1800				Y12 AT 150	Y16 AT 200	Y16 AT 200	Y16 AT 200	Y16 AT 175	Y16 AT 175	Y16 AT 175	225
2000					Y12 AT 150	Y16 AT 200	Y16 AT 200	Y16 AT 200	Y16 AT 175	Y16 AT 175	225
2200						Y12 AT 150	Y16 AT 200	Y16 AT 200	Y16 AT 175	Y16 AT 175	225
2400							Y16 AT 200	Y16 AT 200	Y16 AT 200	Y16 AT 175	225
2600								Y16 AT 200	Y16 AT 200	Y16 AT 175	250
2800									Y16 AT 200	Y16 AT 175	250
3000										Y16 AT 175	250

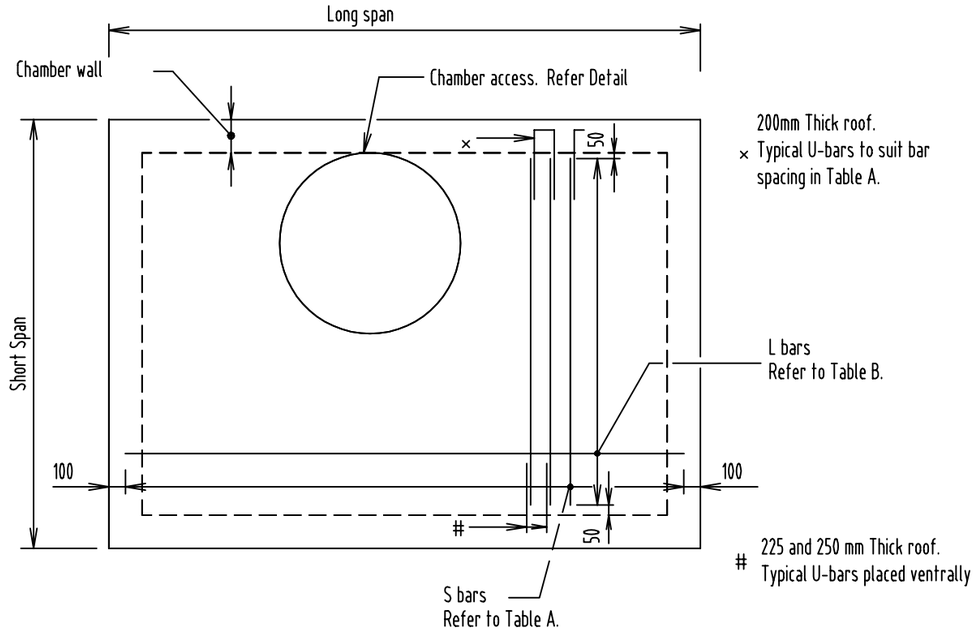
TABLE A : S BARS

SHORT SPAN \ LONG SPAN	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	SLAB DEPTH
1200	Y12 AT 150	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	200
1400		Y12 AT 150	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	200
1600			Y12 AT 150	Y12 AT 150	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	200
1800				Y12 AT 150	Y12 AT 150	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	225
2000					Y12 AT 150	Y12 AT 150	Y12 AT 200	Y12 AT 200	Y12 AT 200	Y12 AT 200	225
2200						Y12 AT 150	Y12 AT 150	Y12 AT 150	Y12 AT 200	Y12 AT 200	225
2400							Y16 AT 200	Y12 AT 150	Y12 AT 150	Y16 AT 150	225
2600								Y16 AT 200	Y16 AT 200	Y16 AT 200	250
2800									Y16 AT 200	Y16 AT 200	250
3000										Y16 AT 175	250

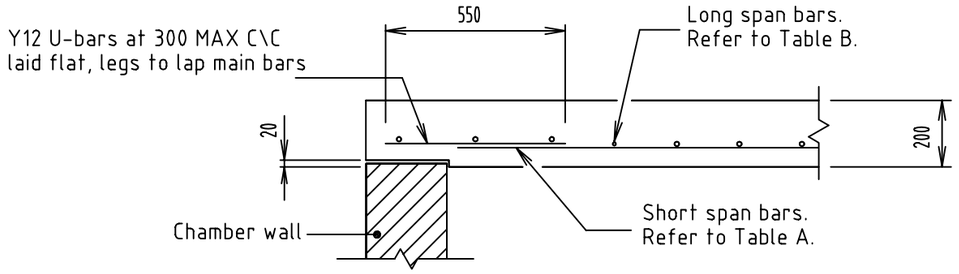
TABLE B : L BARS

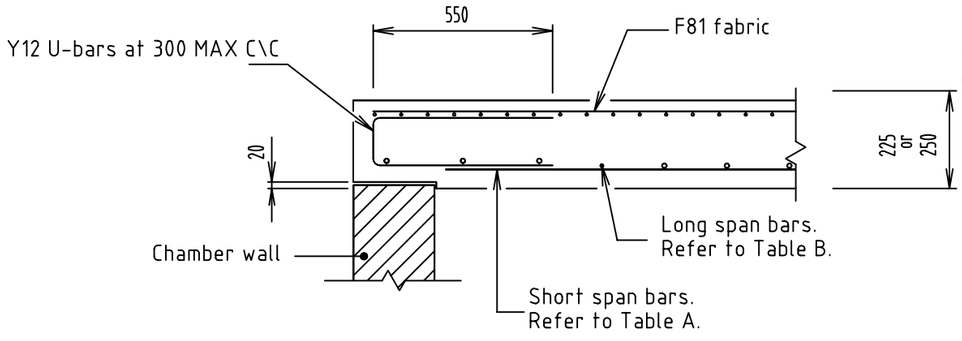


SLAB REINFORCEMENT AROUND CHAMBER ACCESS



TYPICAL SLAB REINFORCEMENT





TYPICAL SECTIONS

NOTES

1. Concrete N32/20 in accordance with AS 1379 and AS 3600.
2. Reinforcement :- F81 Fabric to AS 1304
   Bars Y12 and Y16, Grade 400 to AS 1302.
3. All laps in reinforcment shall be :-
   Y12 - 300, Y16 - 400
4. Formwork in accordance with AS 3610.
5. Designed to Austroads Bridge Code, W7 wheel load, dynamic factor 0.4.
6. Maximum fill over roof slab shall be 3000mm.
7. Reinforcement cover 45 MIN.
8. Refer Service Authority for access hole diameter to be adopted.
9. Refer project drawings for details of chamber walls and floors.
10. For sections at chamber access refer Standard Drawing D001.
11. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0013

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

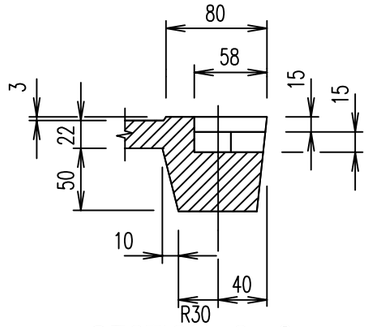
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

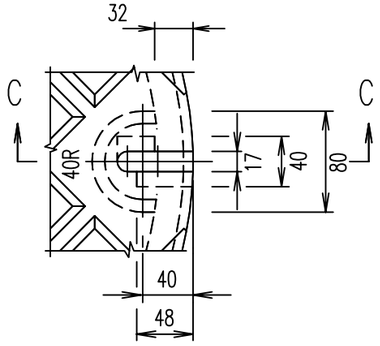
GLADSTONE CITY COUNCIL

ACCESS CHAMBER
ROOF SLAB
RECTANGULAR

STANDARD DRAWING
DRAINAGE
D 004

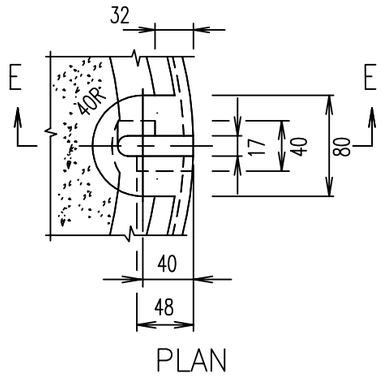


SECTION C–C



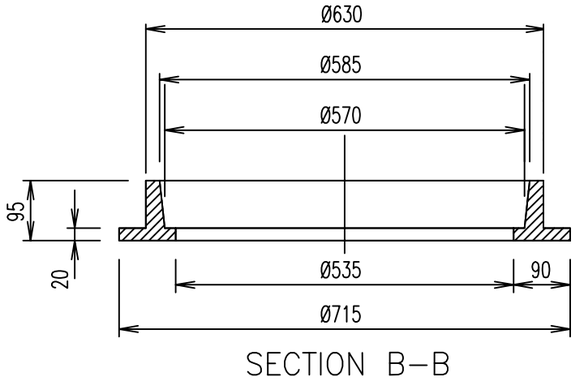
PLAN

LIFTING SLOTS – DETAIL A

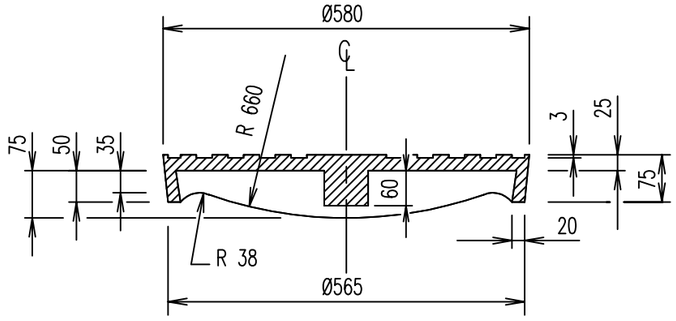


PLAN

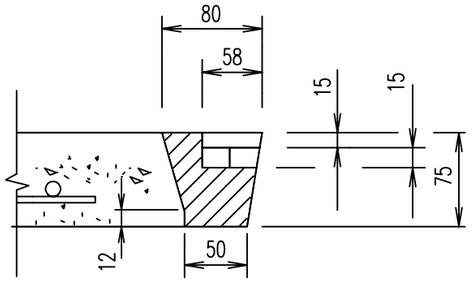
SLOTS – DETAIL B



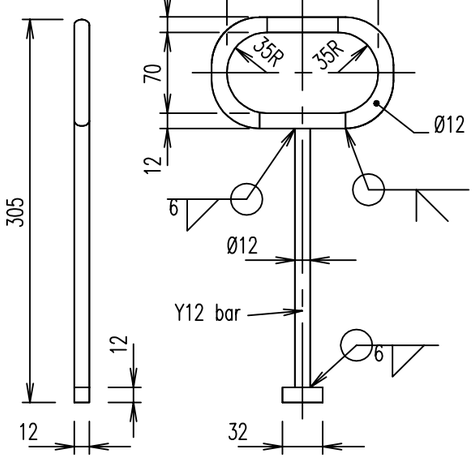
SECTION B–B



SECTION A–A

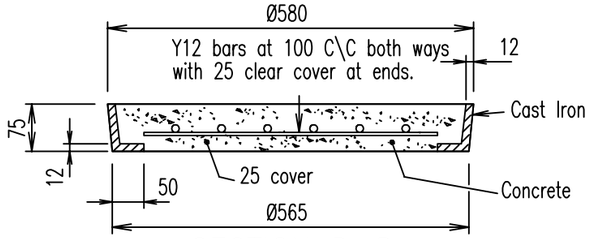


SECTION E – E

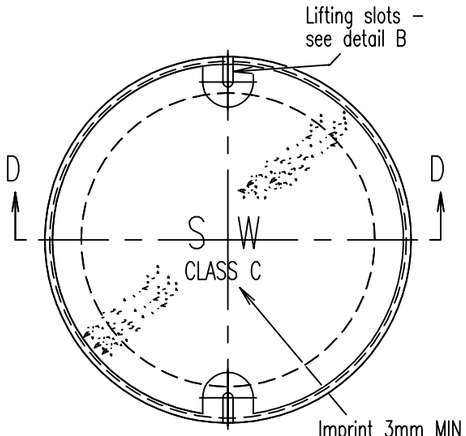


STEEL LIFTING KEY

Hot dip galvanized to AS 1650

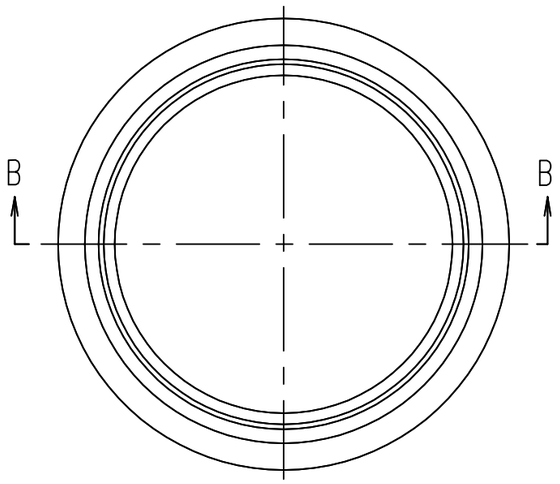


SECTION D–D

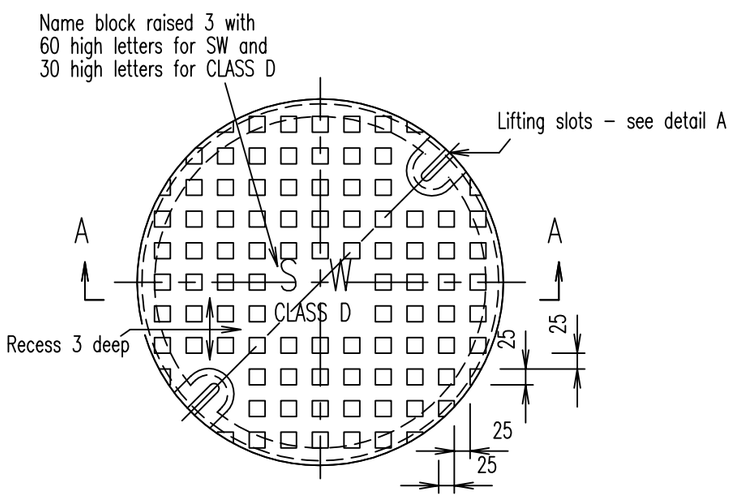


PLAN

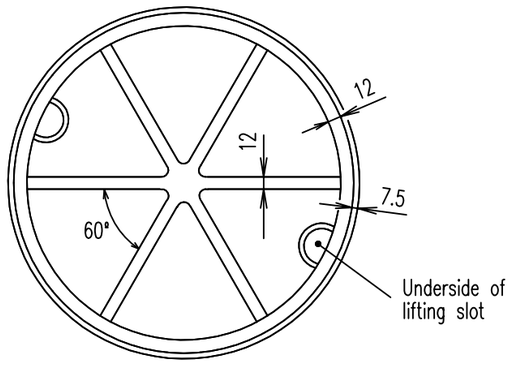
PLAN – C.I. CONCRETE FILLED COVER



PLAN – FRAME



PLAN – C.I. COVER



UNDERSIDE OF C.I. COVER

NOTES:

1. Mass of C.I. frames = 42 kg approx.
2. Mass of C.I. cover = 46 kg approx.
3. Cover and frame, grey cast iron, Grade ≥ T220 to AS 1830
4. All steel Grade 400 to AS 3679.
5. Concrete infill N32/10 in accordance with AS 1379 and AS 3600.
6. All welds to AS 1554. Welding symbols to AS1101.3.
7. Alternative C.I. covers designed to Austroads bridge code, W7 wheel loads are acceptable if manufactured to fit nominated C.I. frames.
8. Bitumen paint cover & frame to AS/NZS 3750.4.
9. Covers and frames to AS 3996.
10. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0014

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

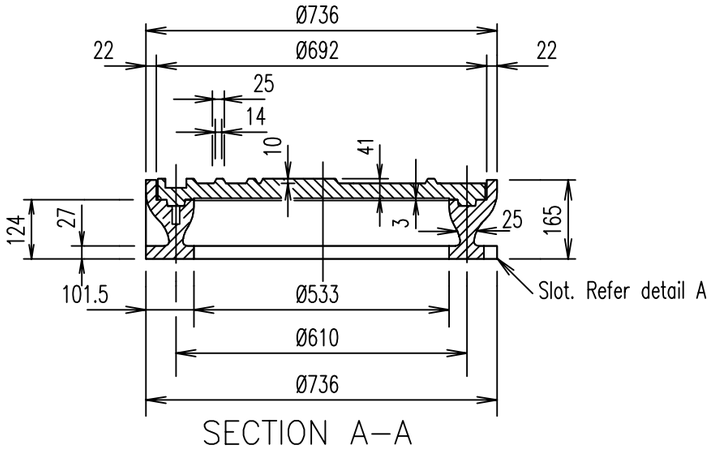
GLADSTONE CITY COUNCIL

ACCESS CHAMBER
CAST IRON COVER AND FRAME
C.I. CONCRETE FILLED COVER

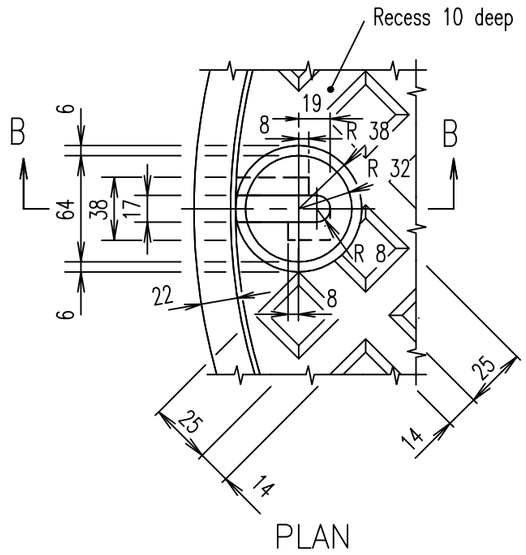
STANDARD DRAWING

DRAINAGE

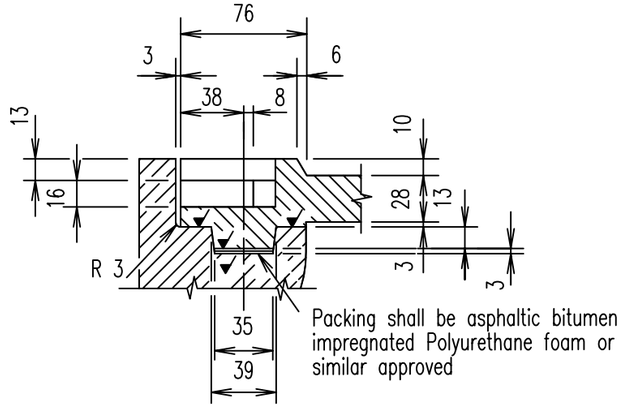
D 005



SECTION A–A

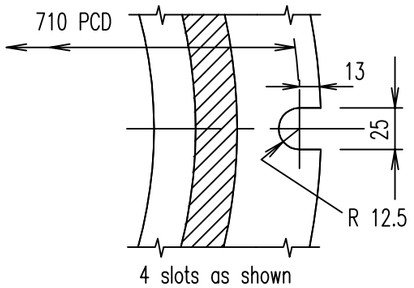


PLAN



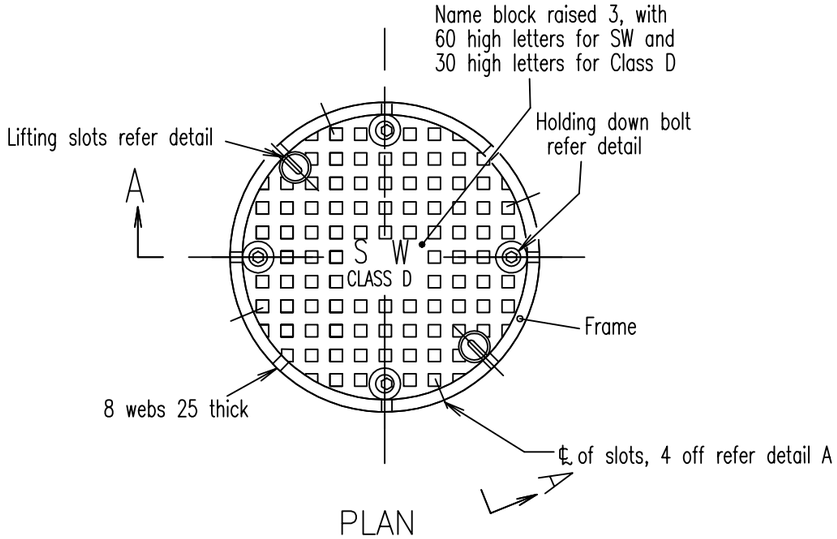
SECTION B–B

DETAIL AT LIFTING SLOTS



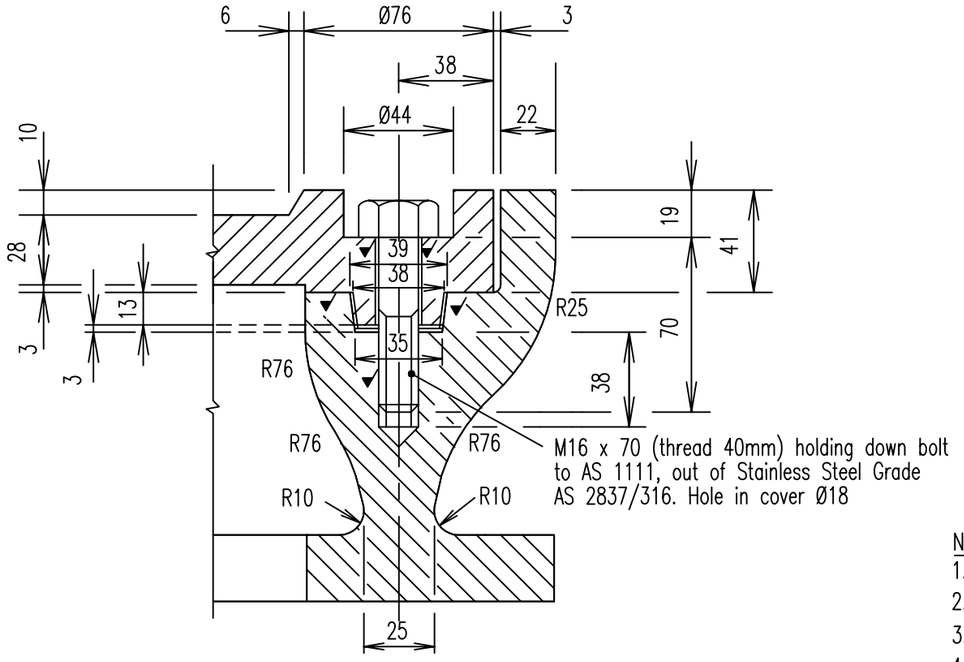
4 slots as shown

DETAIL A



PLAN

COVER AND FRAME



DETAIL OF HOLDING DOWN BOLTS

LEGEND

✔ Denotes machined surface.

NOTES:

1. Mass of cover = 66 kg approx.
2. Mass of frame = 100 kg approx.
3. Cover and frame, grey cast iron Grade ≥ T220 to AS 1830.
4. Cover design Class D to AS 3996.
5. Alternative C.I. covers designed to Austroads bridge code, W7 wheel loads are acceptable if manufactured to fit nominated C.I. frames.
6. Bitumen paint cover & frame to AS/NZS 3750.4.
7. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0015

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

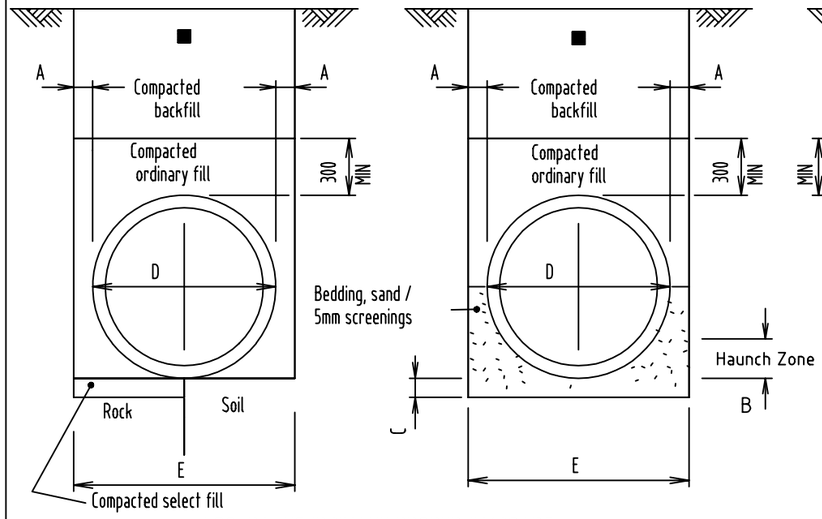
GLADSTONE CITY COUNCIL

ACCESS CHAMBER
CAST IRON COVER AND FRAME
BOLT DOWN

STANDARD DRAWING

DRAINAGE

D 006



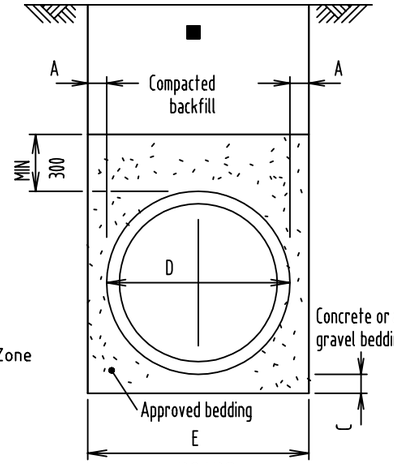
FOOTPATHS/PRIVATE PROPERTY/ROADS

TYPE 1

Conforms to Support Type U AS 3725

TYPE 2

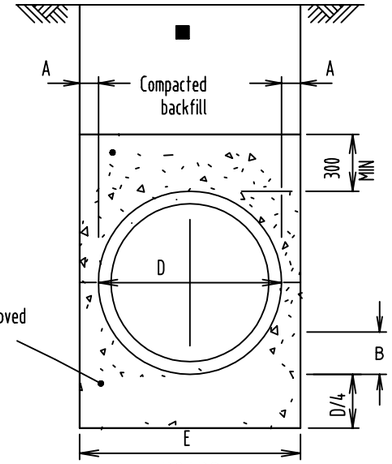
Conforms to Support Type H1 AS 3725



ROADS

TYPE 3

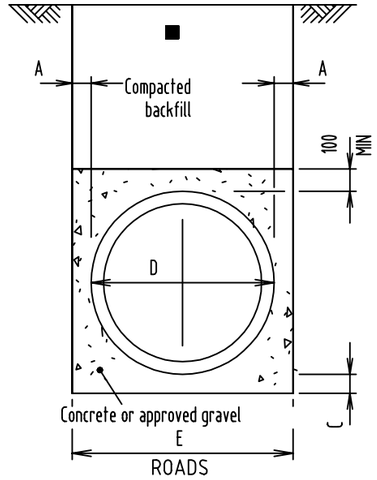
SAND SURROUND



ROADS

TYPE 4

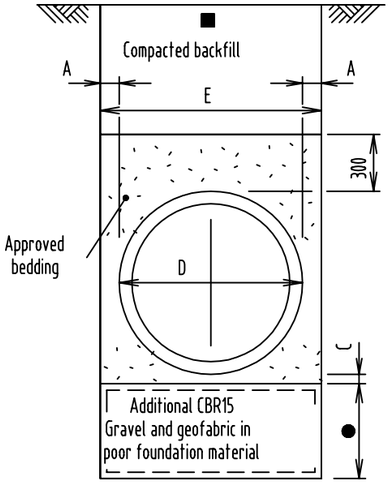
CONCRETE OR GRAVEL SURROUND



ROADS

TYPE 5

CONCRETE OR GRAVEL ENCASEMENT

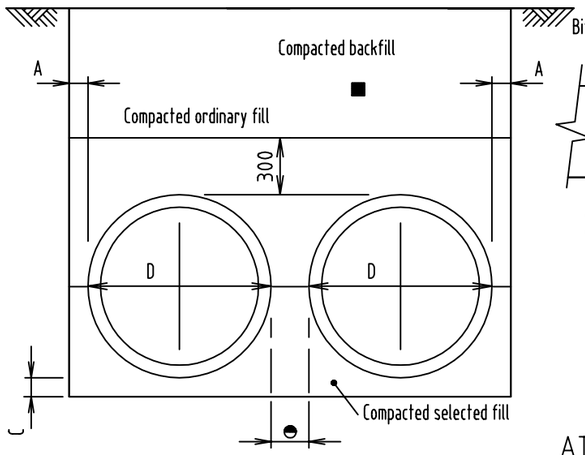


Footpath / Private Property / Roads

TYPE 6

BEDDING IN POOR GROUND

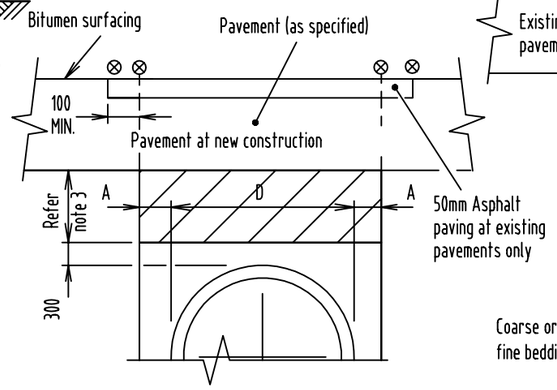
NOMINAL Ø culvert D(mm)	MINIMUM width A (mm)	HAUNCH depth B	Bedding depth C	Allowable width,E(m)	
				DES	MAX
300	300	36	100	1.0	1.1
375	300	45	100	1.1	1.2
450	300	53	100	1.1	1.3
525	300	61	100	1.2	1.5
600	300	69	100	1.3	1.6
750	300	85	100	1.5	1.8
900	300	103	100	1.6	1.9
1050	300	120	100	1.8	2.1
1200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



TYPE 7

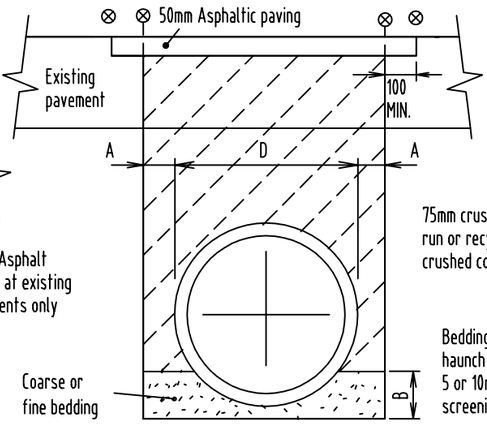
BEDDING OF MULTIPLE PIPES

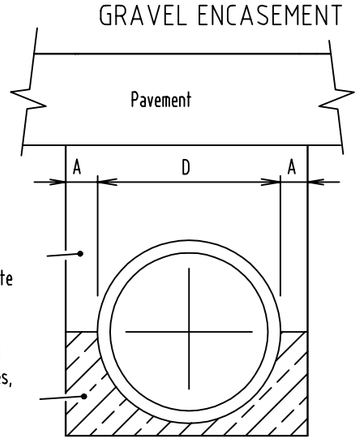
Conforms to Support Type H1



ALTERNATIVE A

AT NEW PAVEMENTS ON RESIDENTIAL STREETS & RURAL ROADS AND EXISTING SEALED PAVEMENTS





ALTERNATIVE B ALTERNATVE C

AT EXISTING SURFACED PAVEMENTS ON INDUSTRIAL, TRUNK COLLECTOR, SUB-ARTERIAL & ARTERIAL STREETS / ROADS

Bedding & Haunch material (Gravel, loam, sand or mixture) grading

AS Sieve Size	% Passing by mass
19.0	100
2.36	40 - 100
0.425	15 - 70
0.075	3 - 30

LEGEND

⊗ Saw cut at existing pavement

◓ Pipes : 300 when NOMINAL D<600
600 when NOMINAL D 600 - 1800
900 when NOMINAL D >1800

■ Refer Alternative A, B and C for backfill requirements at existing and new pavements.

● Depth to be approved by the D.T.S

Gravel (MIN CBR15) backfill

Lean mix concrete backfill (1 : 15 mix)

NOTES:

1. Selected backfill in all cases shall be carried through to the wings and continued 300 thick for the length and height of wings.
2. Bedding compaction (Compacted selected fill / sand bedding)
   Cohesive material - 95% standard compaction
   Non-cohesive material - density index of 70 MIN, refer AS 1289.E5.1
   Sand - compact by flooding and use of vibrators.
3. Backfill compaction
   Compacted gravel (300mm) layer under road pavement 95% standard compaction.
   Compacted ordinary fill / CBR15 Gravel 90% standard compaction - below 300mm zone.
   Compacted backfill - at footpaths / private property 90% standard compaction.
   MAX. densities determined by standard compaction tests to AS 1289.5.1.1.
4. Refer project drawings for types and/or alternatives to be adopted.
5. Type U & Type H1 to conform to AS 3725.
6. Dimension A can be reduced to 150 MIN for non mechanical compaction of backfill
7. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0030

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M.
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

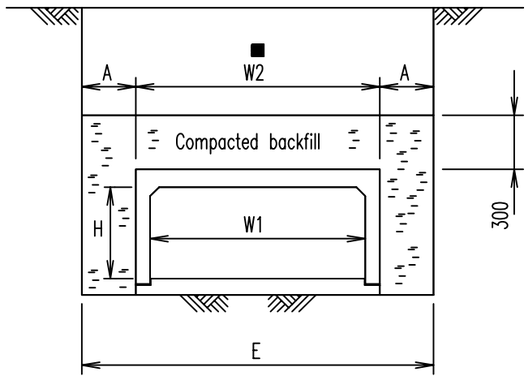
GLADSTONE CITY COUNCIL

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

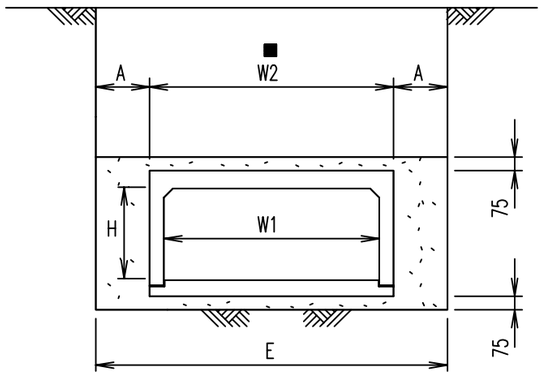
STANDARD DRAWING

DRAINAGE

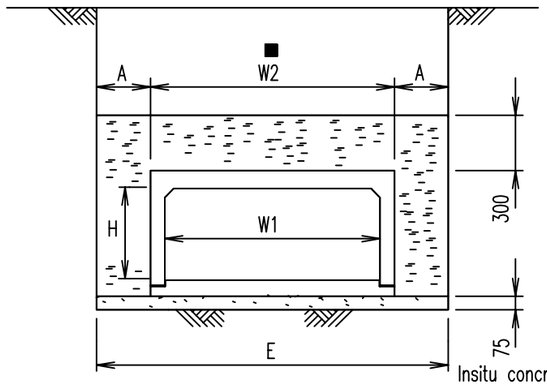
D 012



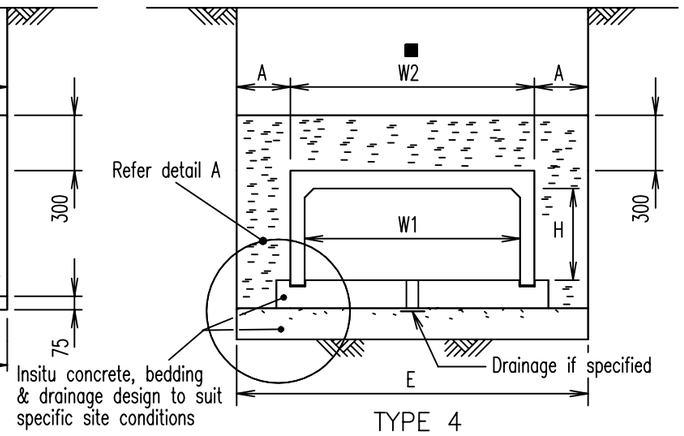
TYPE 1
NATURAL BEDDING



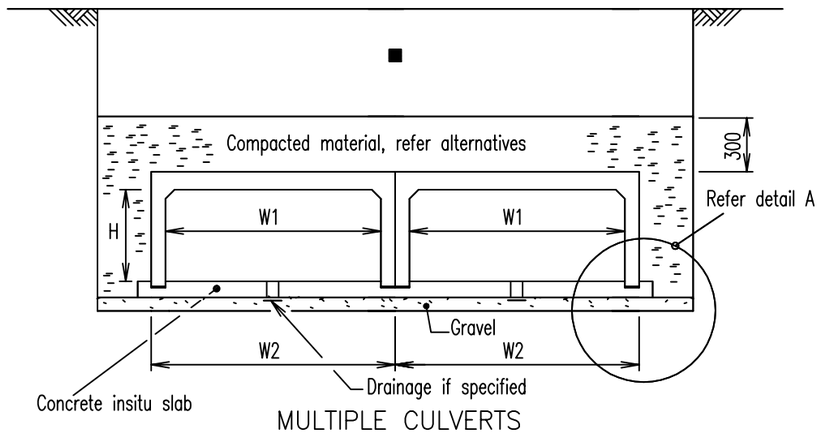
TYPE 2
SAND SURROUND



TYPE 3
SAND BEDDING



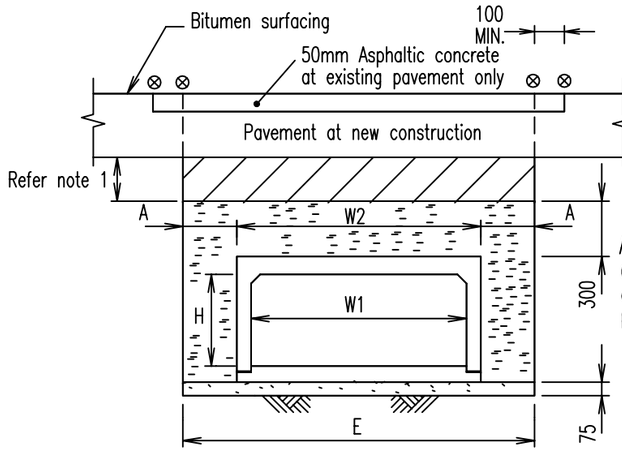
TYPE 4
INSITU BASE SLAB



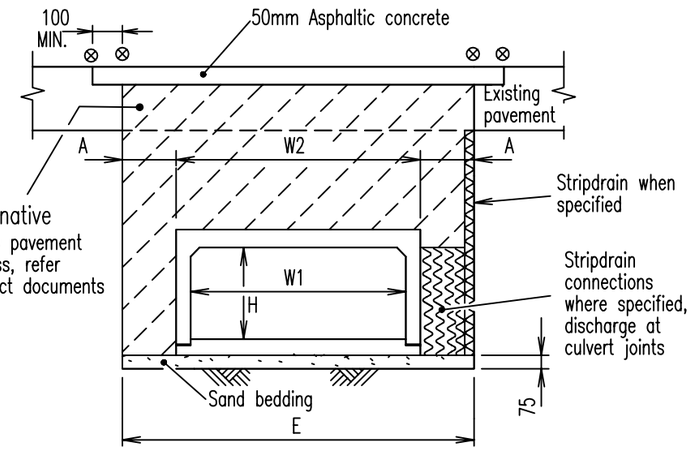
MULTIPLE CULVERTS

W1	W2	E NOM.
300	420	1000
375	500	1100
450	570	1200
600	730	1300
750	890	1500
900	1050	1700
1200	1360	2000
1520	1700	2300
1820	2010	2600
2130	2340	3000
2440	2670	3300

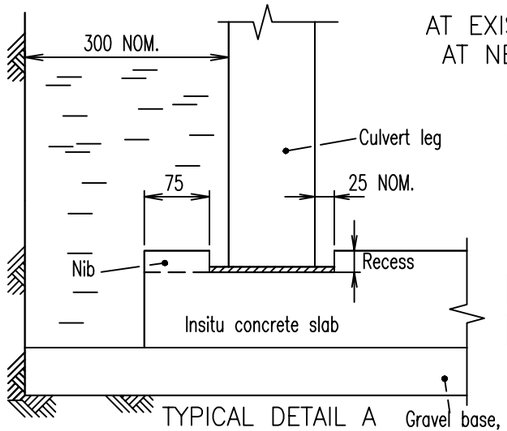
EXCAVATION WIDTH



ALTERNATIVE A
AT EXISTING SURFACED PAVEMENTS OR
AT NEW PAVEMENTS ON RESIDENTIAL
STREETS & RURAL ROADS



ALTERNATIVE B
AT EXISTING SURFACED PAVEMENTS
ON INDUSTRIAL, TRUNK COLLECTOR,
SUB–ARTERIAL & ARTERIAL STREETS / ROADS



TYPICAL DETAIL A

LEGEND

- A 300mm NOMINAL
- ■ Refer Alternative A for backfill requirements at new pavement
- ⊗ Saw cut at existing pavement
- Gravel (MIN CBR15) or 75mm crusher run backfill
- Lean mix concrete backfill (1:15 mix)
- 10mm Cement mortar bed, 1:3 mix

NOTES:

1. Backfill compaction
   Approved fill / approved bedding / compacted backfill / CBR15 Gravel 90%
   Compacted gravel (300mm layer) under road pavement 95%
   Compacted fill – at footpaths / private property 90%
   MAX. densities determined by Standard compaction tests to AS 1289.E5.1.
2. Tape all joints with 75mm wide Denso (600) Tape or equivalent.
3. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD
DRAWING D-0031

NOTE: MINOR MODIFICATIONS TO THIS
DRAWING HAVE BEEN MADE TO SUIT
COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

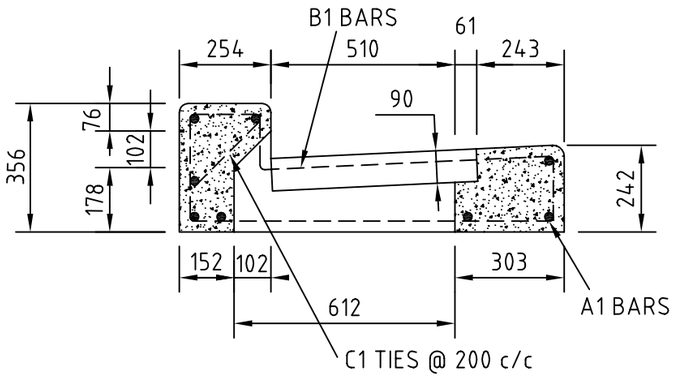
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

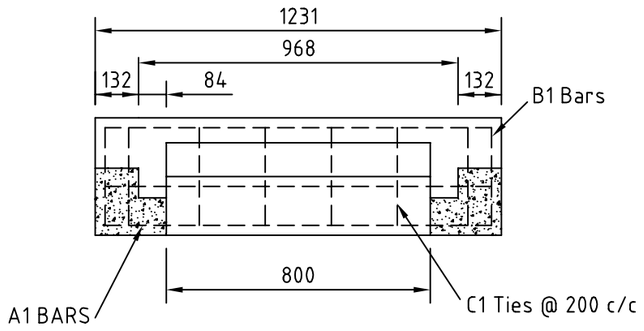
GLADSTONE CITY COUNCIL

EXCAVATION, BEDDING
AND BACKFILLING OF
PRECAST BOX CULVERTS

STANDARD DRAWING
DRAINAGE
D 013



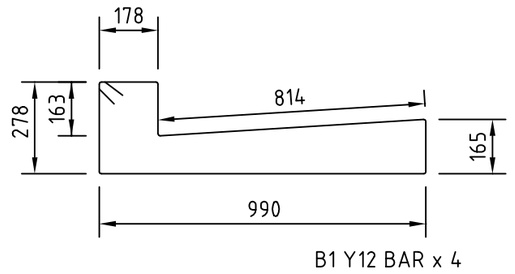
SECTION A - A



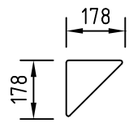
SECTION B - B

NOTES:

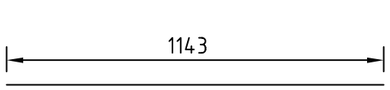
1. Grates to be "FASTON" HYDROFLOW SWING TYPE KCG/003 OF KCG/003-DD.
2. Headstone to be 30 MPa concrete at 28 days unless otherwise specified.
3. Unformed surfaces shall have steel trowel finish.
4. All measurement to reinforcement shall be to outside of bar.
5. 30 mm clear cover to all reinforcement.



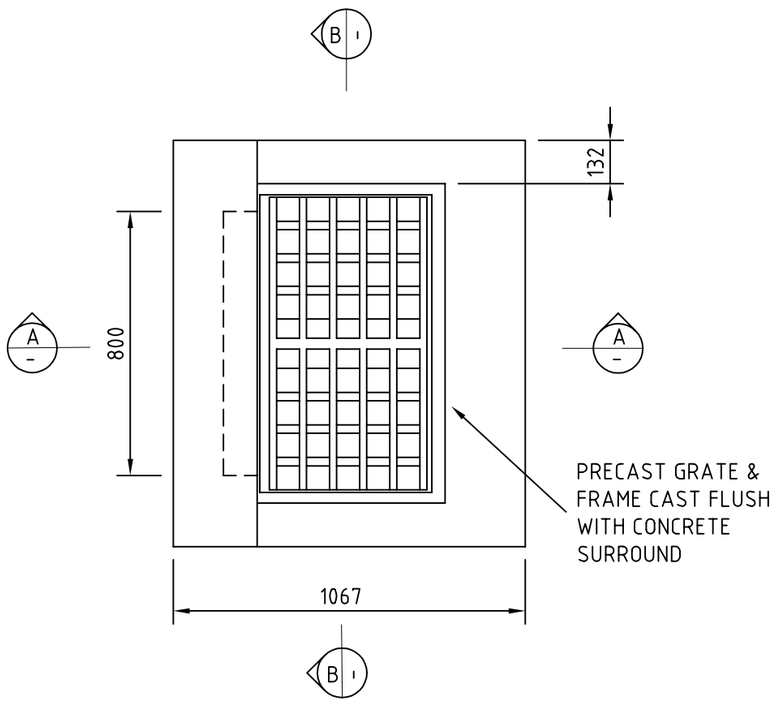
B1 Y12 BAR x 4



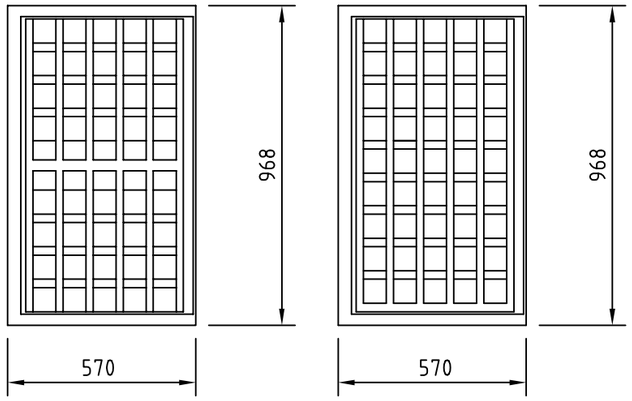
C1 W8 Ties x4



A1 Y12 Bar x 9



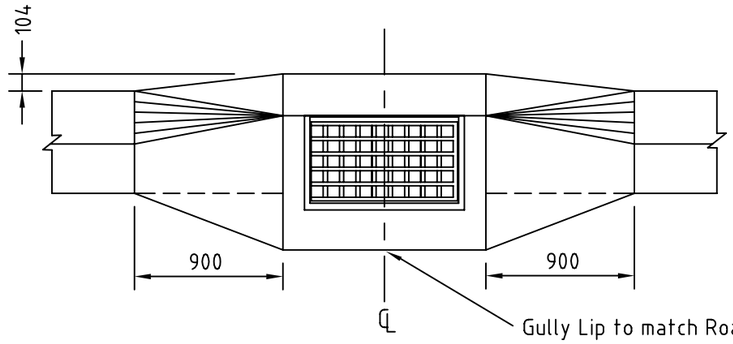
PLAN



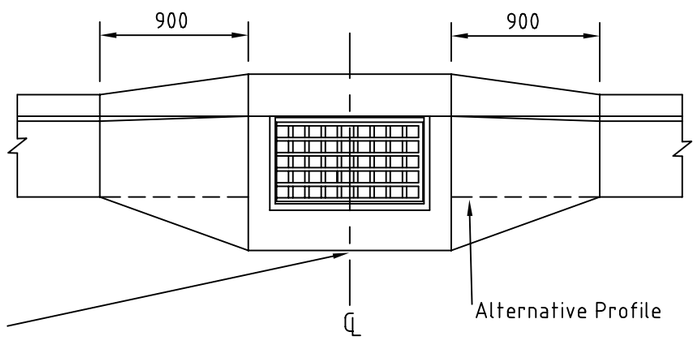
FASTON KCG/SS3-DD (DUEL-DIRECTIONAL)

FASTON KCG/SS3 (UNI-DIRECTIONAL)

GRATE PLAN



MOUNTABLE KERB & CHANNEL



BARRIER KERB & CHANNEL

PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	J.D.M
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

D.T.S. ..... Date .....

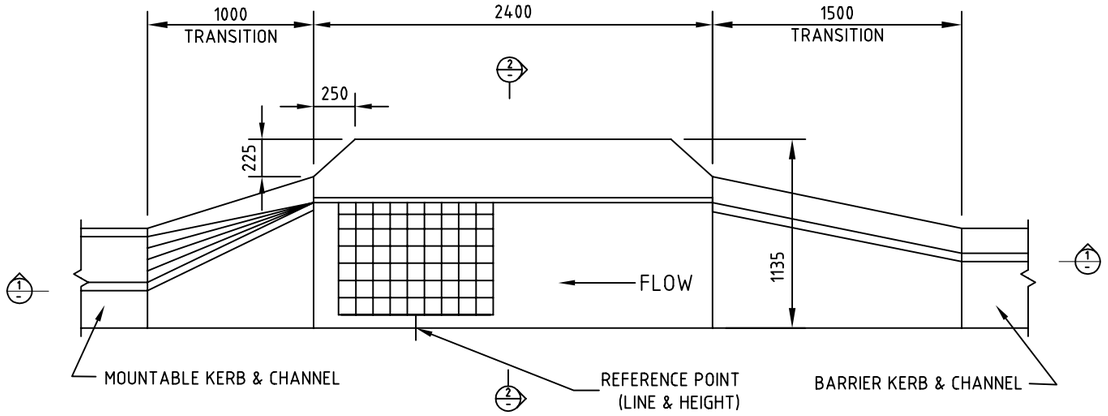
GLADSTONE CITY COUNCIL

STANDARD - GULLY TRAP
PRECAST HEADSTONE (FASTON GRATE)
FOR BARRIER & MOUNTABLE
KERB & CHANNEL

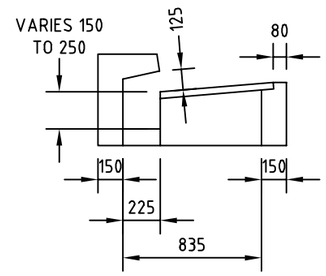
STANDARD DRAWING

DRAINAGE

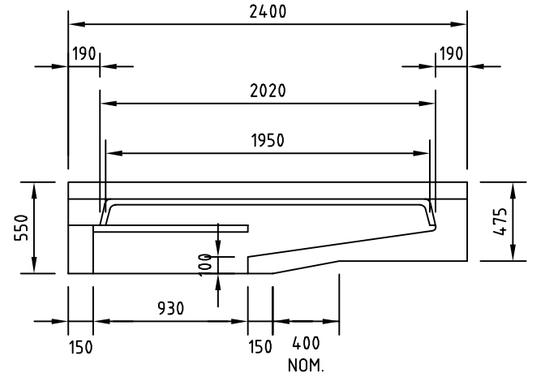
D 015



PLAN

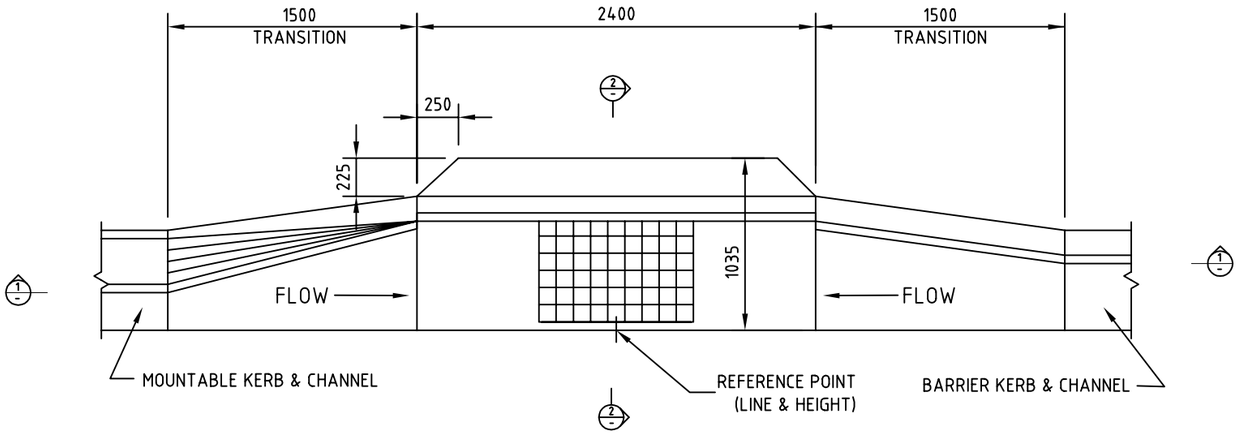


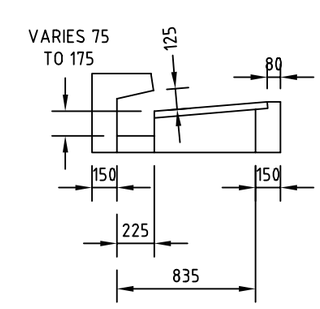
SECTION 2

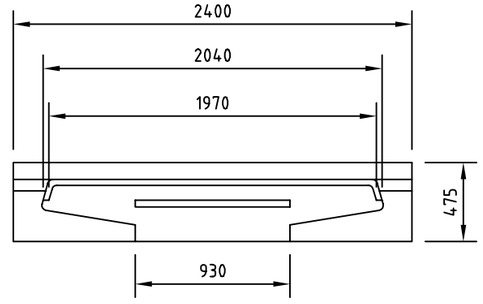


SECTION 1

MODEL SHOWN IS R24R - L24R IS JUST OPPOSITE HAND







MODEL SHOWN IS C24R

NOTES:

1. Precast concrete units shall be approved by superintendant prior to use
2. Provide 10mm mortar (1 cement : 3 fine sand) joint between gully pit and precast units
3. All dimensions in millimeters

PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	JMV
Drawn	JMV
Checked	RGP
Date	FEB 2002

DESIGN APPROVED

M.D. .....
Date .....

Scales:

1 : 25

APPROVED FOR CONSTRUCTION

....
D.T.S. Date

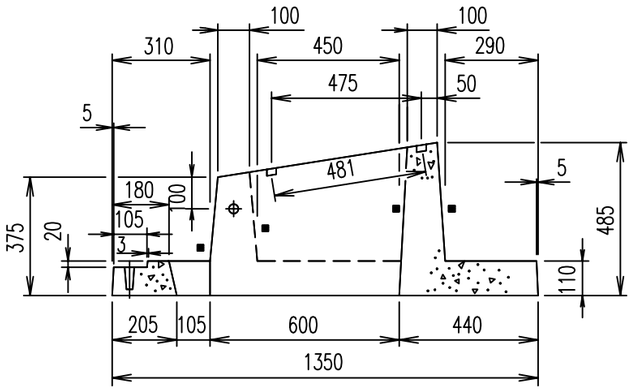
GLADSTONE CITY COUNCIL

CONCRETE GULLY
C-M CONCRETE RGU - RECESSED TYPE
ROADWAY TYPE
PRECAST INLET UNITS

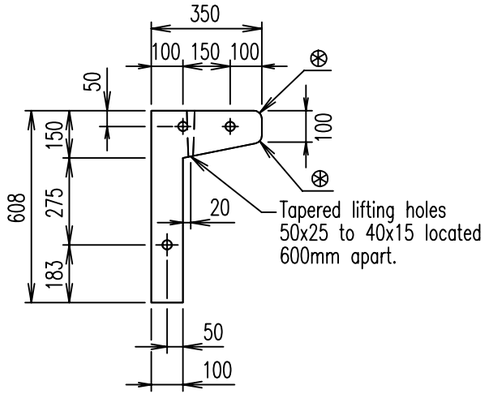
STANDARD DRAWING

ROAD

D 016

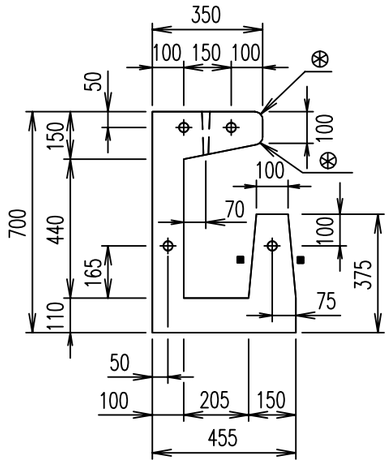


SECTION A–A



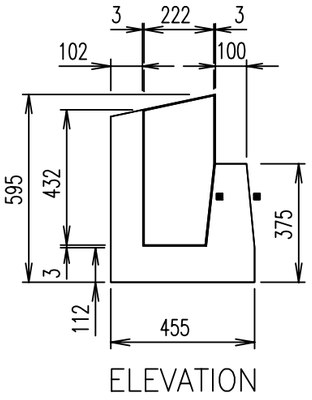
LINTEL DETAILS

1.35m long

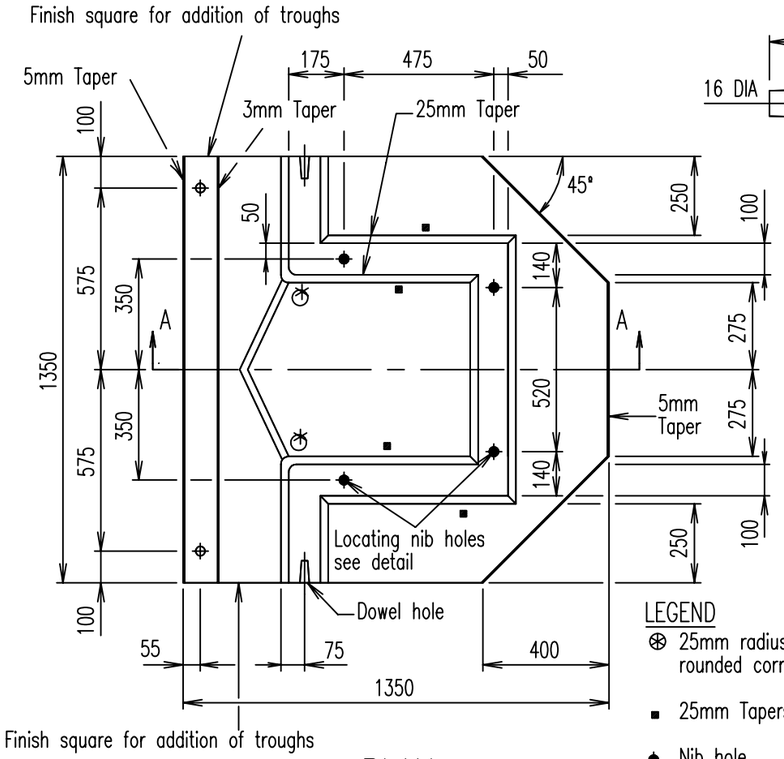


TROUGH DETAILS

1.35m long

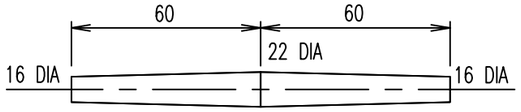


ELEVATION

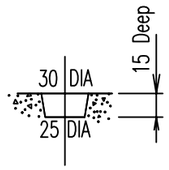


PLAN

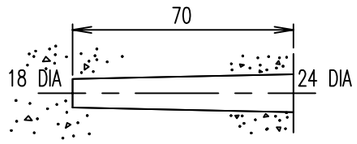
CHAMBER DETAILS



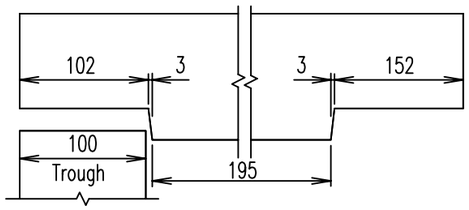
DOWEL PIN



LOCATING NIB HOLE



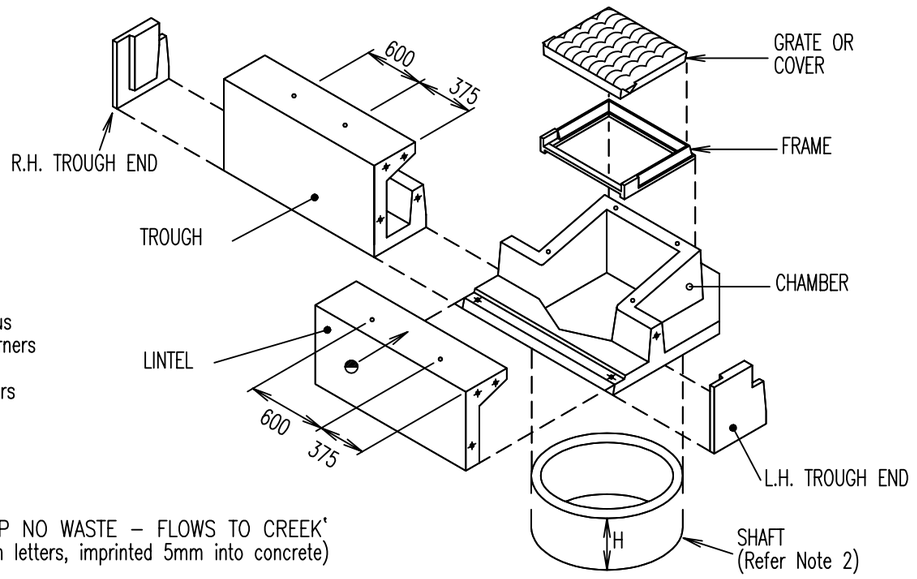
DOWEL HOLE



PLAN

TROUGH END

R.H.S.
L.H.S. Similar



LEGEND

- 25mm radius rounded corners
- 25mm Tapers
- Nib hole
- Dowel hole
- Text 'DUMP NO WASTE – FLOWS TO CREEK' (40mm high letters, imprinted 5mm into concrete)

NOTES

1. Alternative arrangements for various components may be approved subject to the sectional dimensions and overall external dimensions remaining unchanged.
2. The standard internal diameter of the shaft shall be 1050mm nominal, either insitu or precast. Where larger shafts are used, converter slabs may be required between the shaft and chamber. Refer project drawings for value of 'H'.
3. Minimum concrete cover to reinforcement shall be 20mm, where the cover is less than 40mm, the maximum aggregate size shall be 12mm.
4. Concrete N40 in accordance with AS 1379 and AS 3600.
5. Dowel pin, Grade 250 steel to AS 3679, hot–dip galvanized to AS1650.
6. Refer project drawings for layout and grate/cover requirements.
7. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0064

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

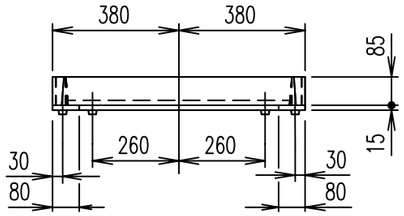
GLADSTONE CITY COUNCIL

DRAINWAY STORMWATER INLET COMPONENTS

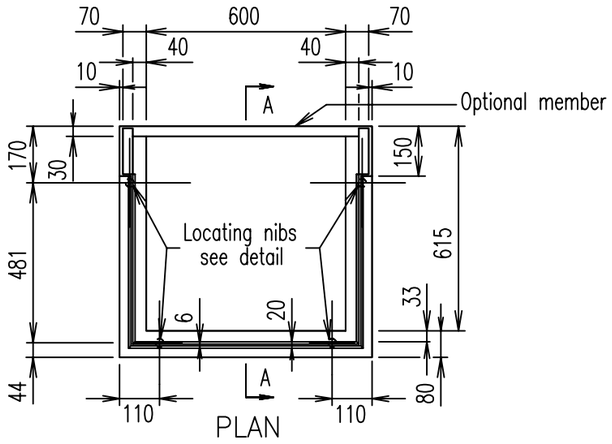
STANDARD DRAWING

DRAINAGE

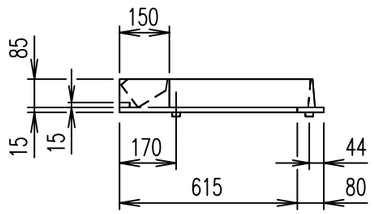
D 021



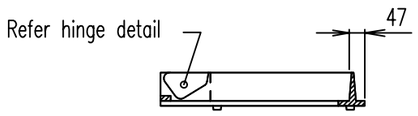
FRONT ELEVATION



PLAN

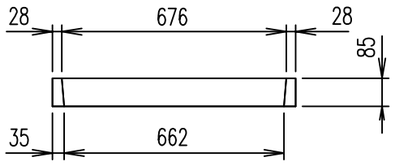


END ELEVATION

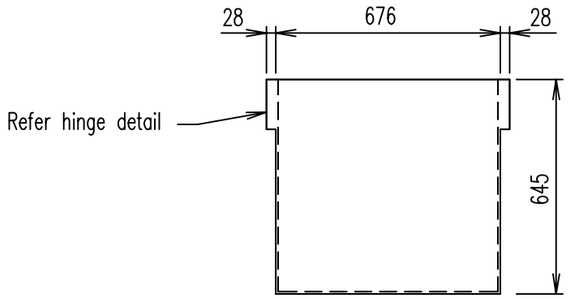


SECTION A–A

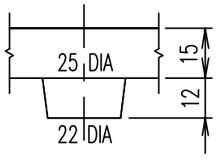
FRAME FIXING DETAILS



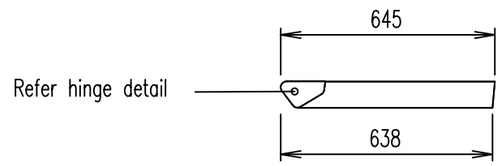
FRONT ELEVATION



PLAN

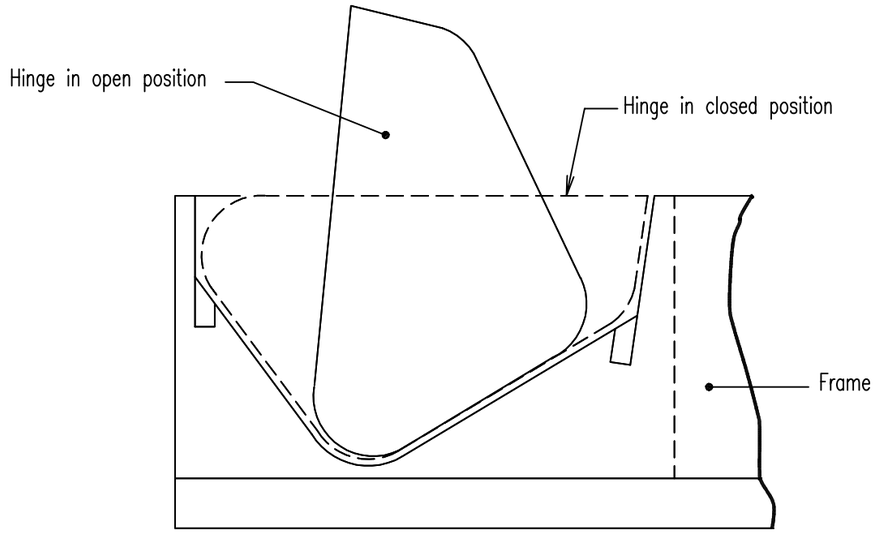


DETAIL OF LOCATING NIB



END ELEVATION

CAST IRON GRATE OR COVER DETAILS



HINGE DETAIL

Refer Note 7

NOTES

1. Frame grey cast iron, Grade ≥ T220 to AS1830.
2. Grate or cover type shall be specified in project drawings.
3. Grate or cover design Class D to AS 3996
   Minimum Design Load – 210 kN
   Minimum Proof Test Load – 210 kN
   Covers shall be tested prior to concrete infilling.
4. Bitumen paint frame, grate and cover to AS/NZS 3750.4.
5. Concrete infill N32/10 concrete in accordance with AS 1379 and AS 3600.
6. Lifting hole details for cast iron grating/cover must suit lifting key on Standard Drawing D–005
7. THE HINGE SHOWN ON THIS DRAWING IS SUBJECT TO A PATENT APPLICATION No. 24810/95 FOR HUMES LIMITED.
   HUMES LIMITED WILL GRANT NON–EXCLUSIVE LICENCE AGREEMENTS FOR THE MANUFACTURE AND MARKETING OF THE HINGES.
8. All Dimensions in millimeters.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0065

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

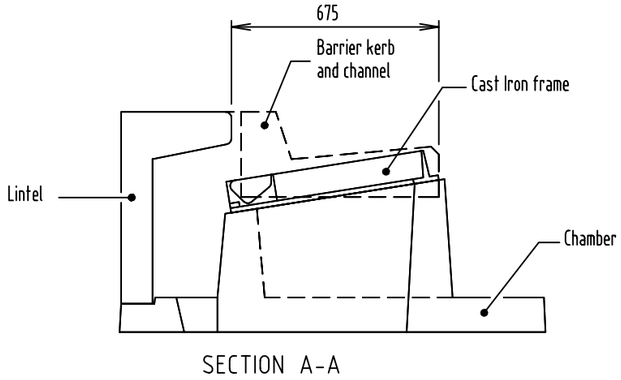
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

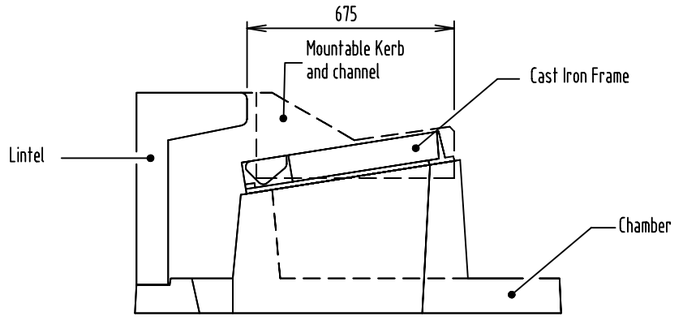
GLADSTONE CITY COUNCIL

DRAINWAY STORMWATER INLET
CAST IRON GRATE,
COVER AND FRAME

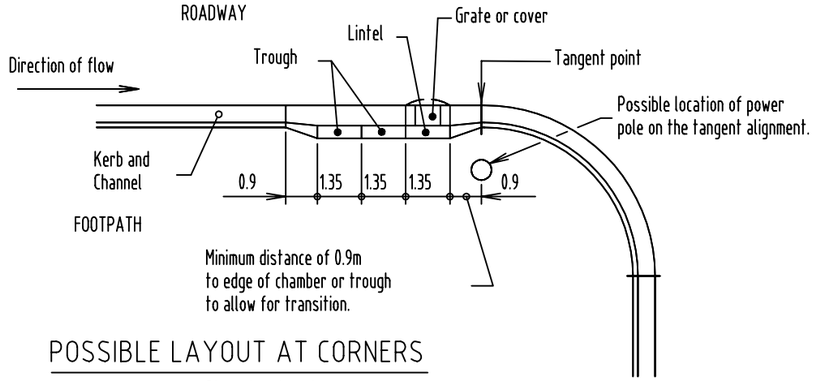
STANDARD DRAWING
DRAINAGE
D 022



SECTION A-A

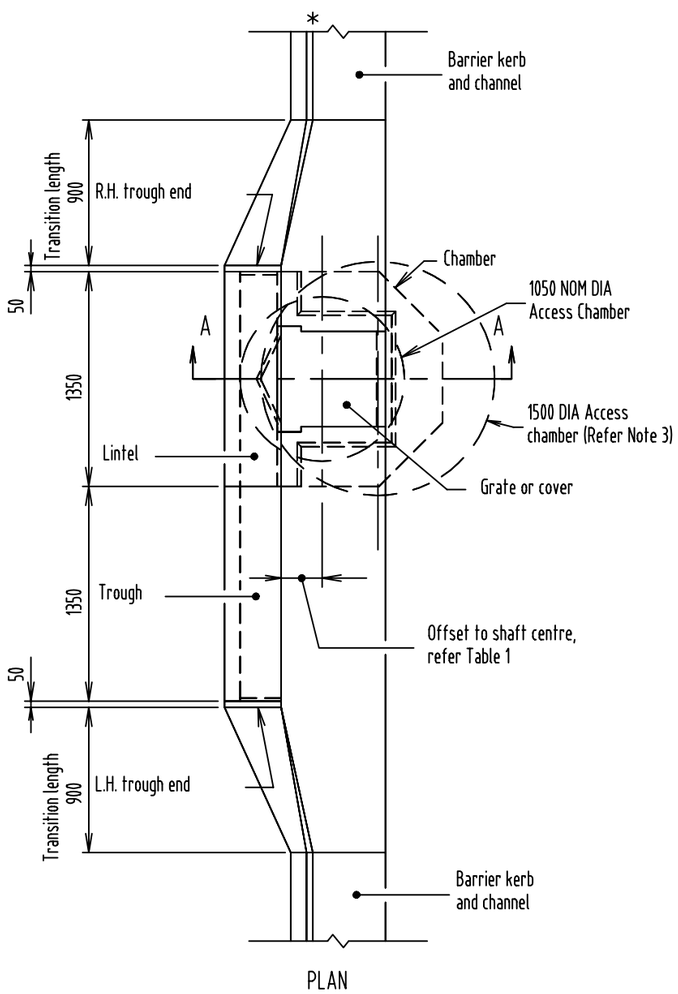


SECTION B-B



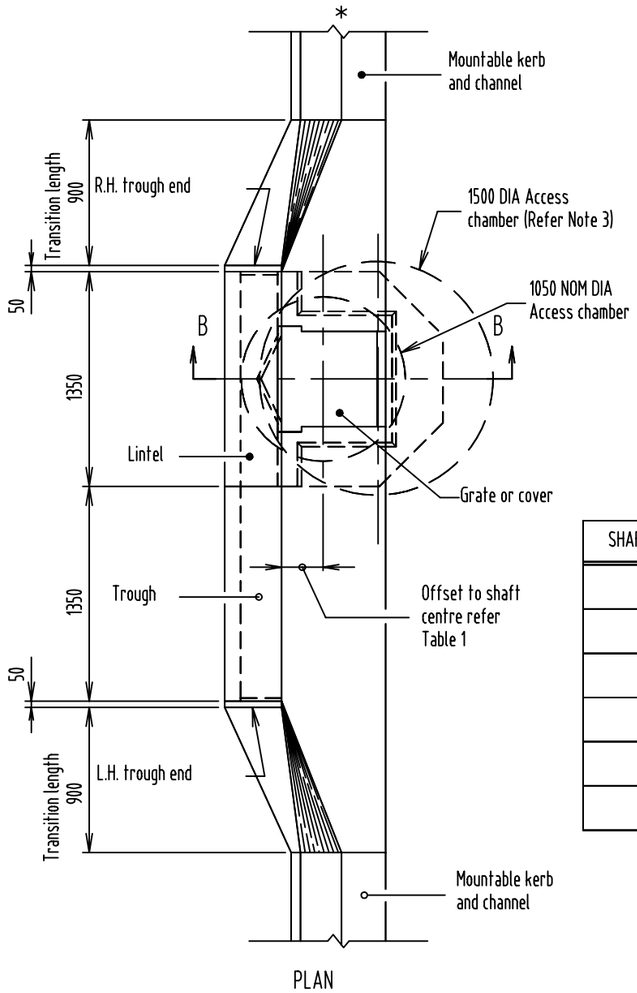
POSSIBLE LAYOUT AT CORNERS

Dimensions in metres



PLAN

BARRIER KERB AND CHANNEL



PLAN

MOUNTABLE KERB AND CHANNEL

LEGEND

* The Nominal kerb line or face for measuring purpose, refer to Standard Drawing R-0080.

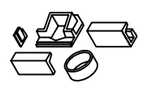
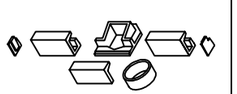
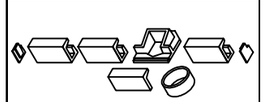
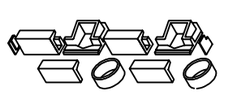
H Shaft height refer Standard Drawing D-0064

NOTES

1. Precast components shall be connected by means of dowel pins.
2. Joints between components shall be sealed (with approved mortar or taping) to prevent ingress of backfill material.
3. An approved access chamber converter slab shall be used under the chamber for shaft diameters larger than 1050mm NOM.
4. Storm water pipes parallel to kerb and channel shall be located no closer to the footpath than the back face of kerb unless specifically approved.
5. All dimensions in millimetres unless shown otherwise.

SHAFT DIA	OFFSET
1050	400
1200	475
1350	550
1500	625
1800	775
2100	925

TABLE 1

SYSTEM	NO SHAFT	SHAFT 'H' 450	SHAFT 'H' 600	SHAFT 'H' 900	SHAFT 'H' 1200
	0TCS0	0TCS4.5	0TCS6	0TCS9	0TCS12
	1TCS0	1TCS4.5	1TCS6	1TCS9	1TCS12
	2TCS0	2TCS4.5	2TCS6	2TCS9	2TCS12
	3TCS0	3TCS4.5	3TCS6	3TCS9	3TCS12
	2T2CS0	2T2CS4.5	2T2CS6	2T2CS9	2T2CS12

TERMINOLOGY - TABLE 2

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0067

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

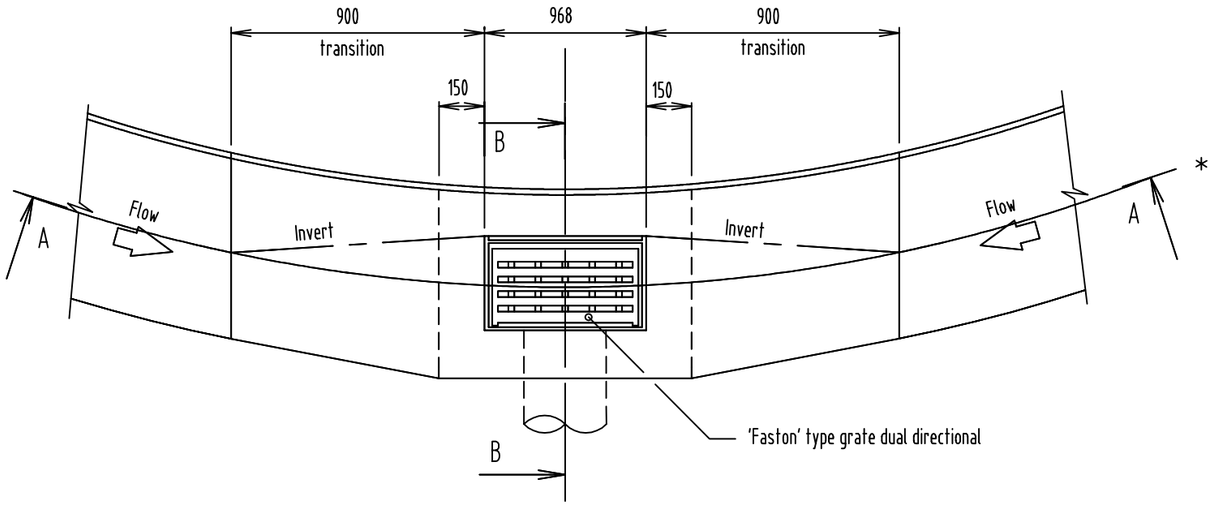
GLADSTONE CITY COUNCIL

DRAINWAY STORMWATER INLET CONSTRUCTION SETTING OUT BARRIER/MOUNTABLE KERB AND CHANNEL

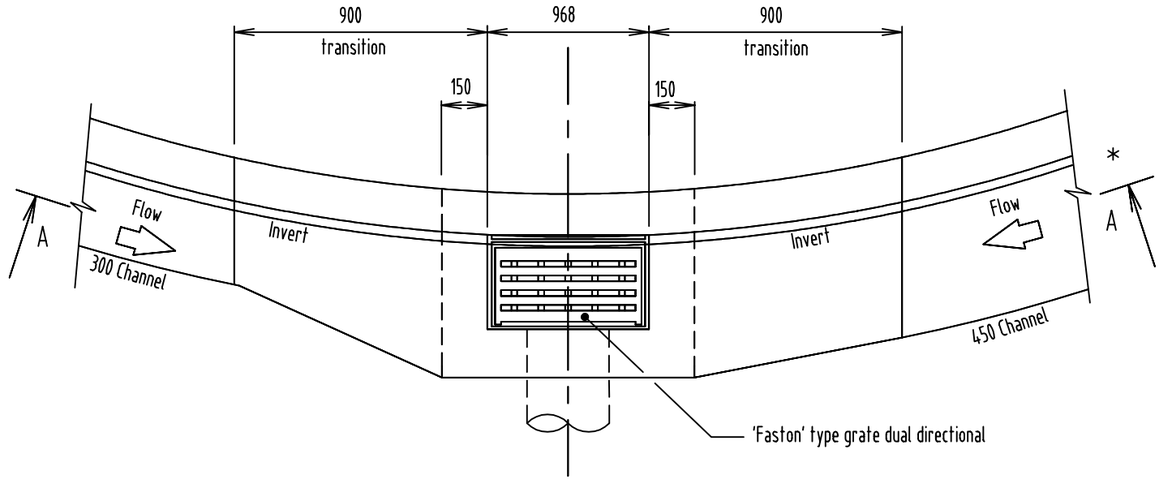
STANDARD DRAWING

DRAINAGE

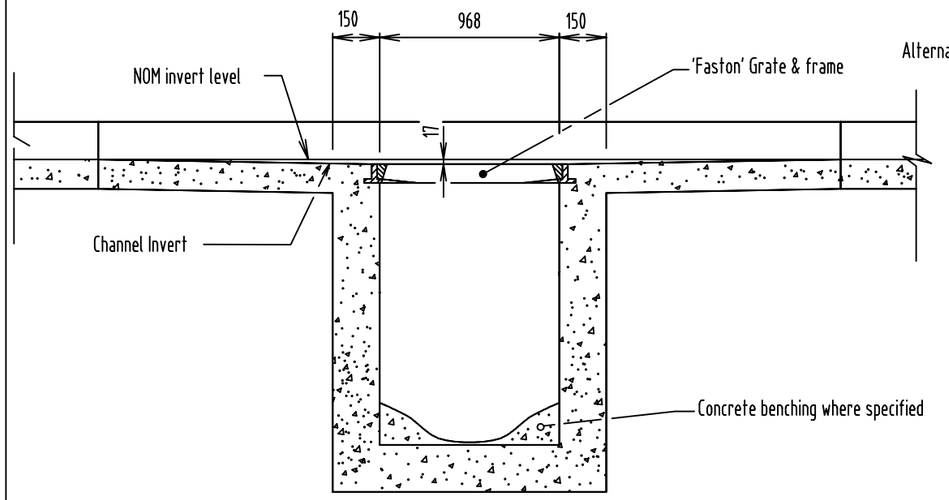
D 024



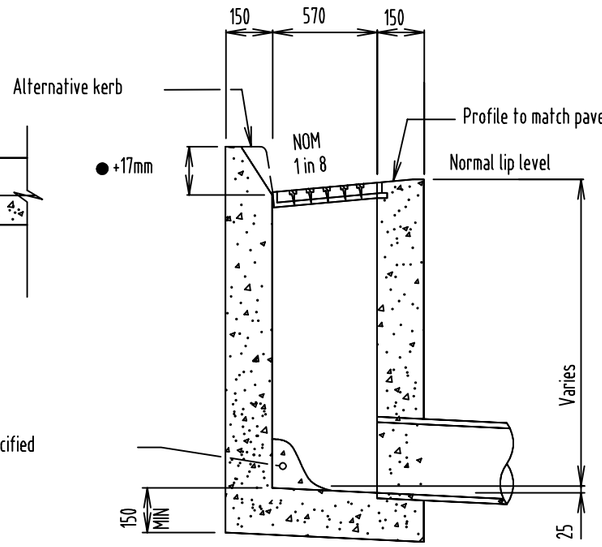
MOUNTABLE KERB AND CHANNEL
PLAN



BARRIER KERB AND CHANNEL
PLAN



SECTION A - A



SECTION B - B

ANTI-PONDING GULLY

LEGEND

* NOM kerb line

● NOMINAL kerb height, see note 6.

NOTES

1. Dimensions of grate and frame may be varied subject to approval.
2. Design load for grate and frame shall be in accordance with AUSTROADS Bridge Design Specification, W7 wheel load.
3. All grates bicycle safe to AS 3996.
4. Grate and frame, 'Faston' type dual directional
   Refer Standard Drawing D015
5. Concrete : Benching N10, Structural N20 in accordance with AS 1379 and AS 3600.
6. Examples indicates Mountable Kerb and Channel and Barrier Kerb and Channel
7. Bitumen paint C.I. cover and frame to AS/NZS 3750.4.
8. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0068

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

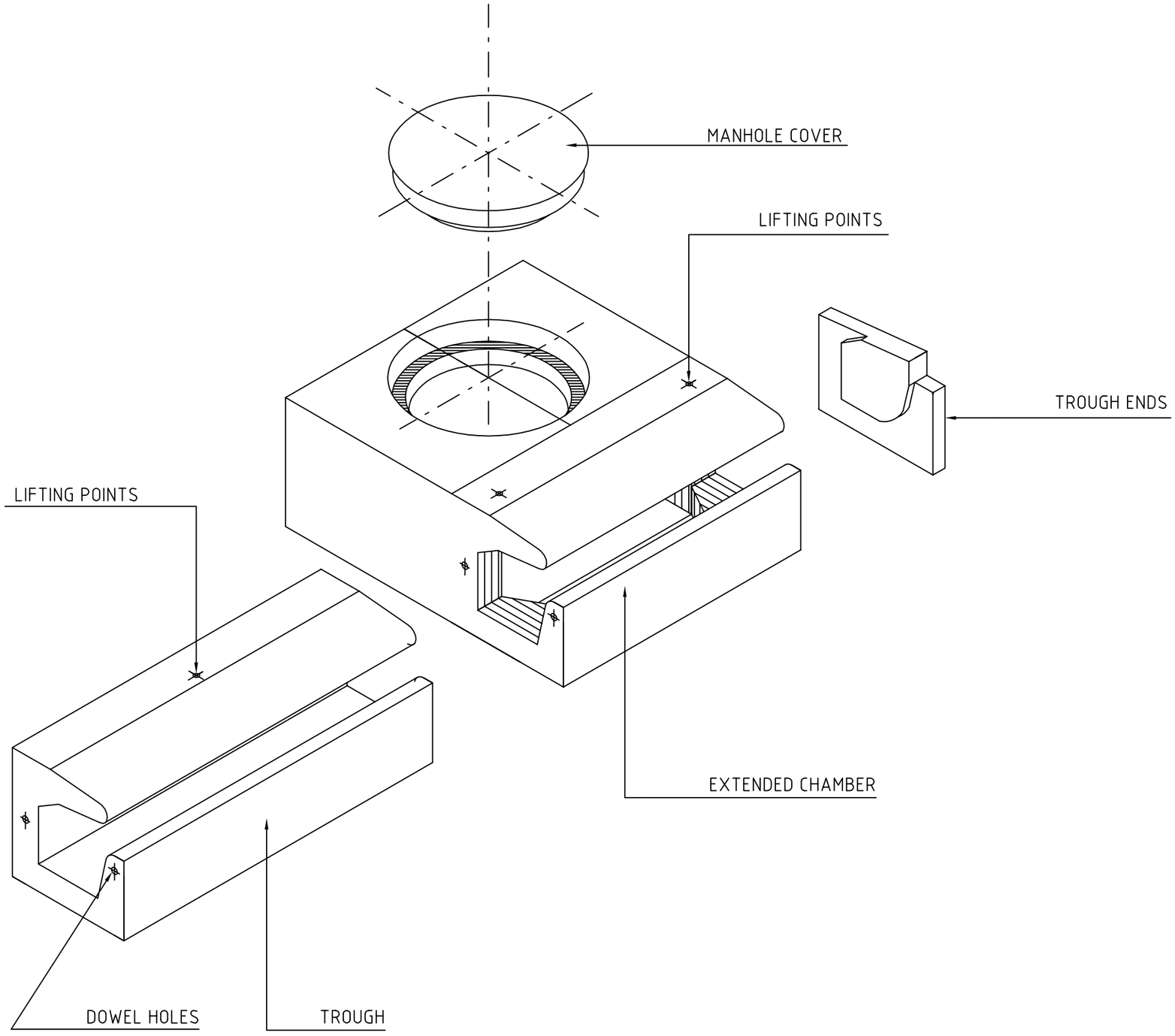
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

GLADSTONE CITY COUNCIL

GULLY - ANTI-PONDING
DEPRESSED 17mm

STANDARD DRAWING
DRAINAGE
D 025



PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

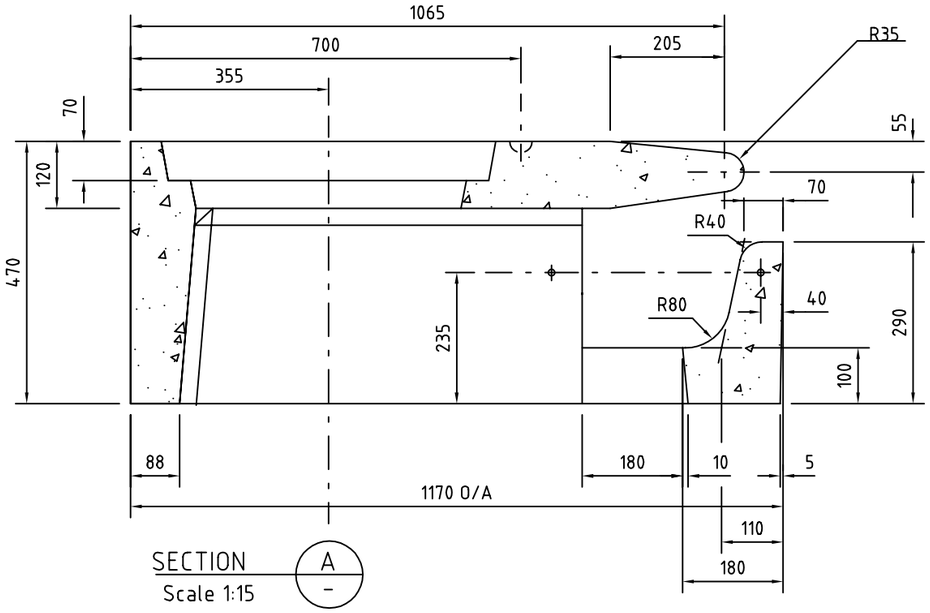
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

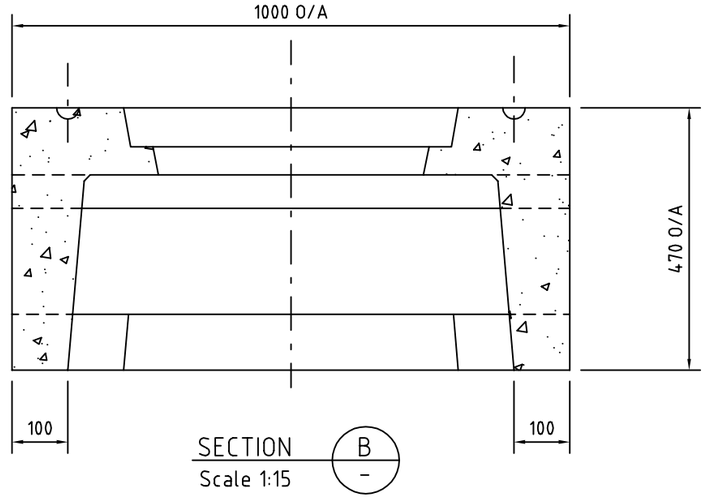
GLADSTONE CITY COUNCIL

PRECAST CONCRETE GULLY PIT
BROPIT GULLY SYSTEM
GENERAL ARRANGEMENT
Product Details

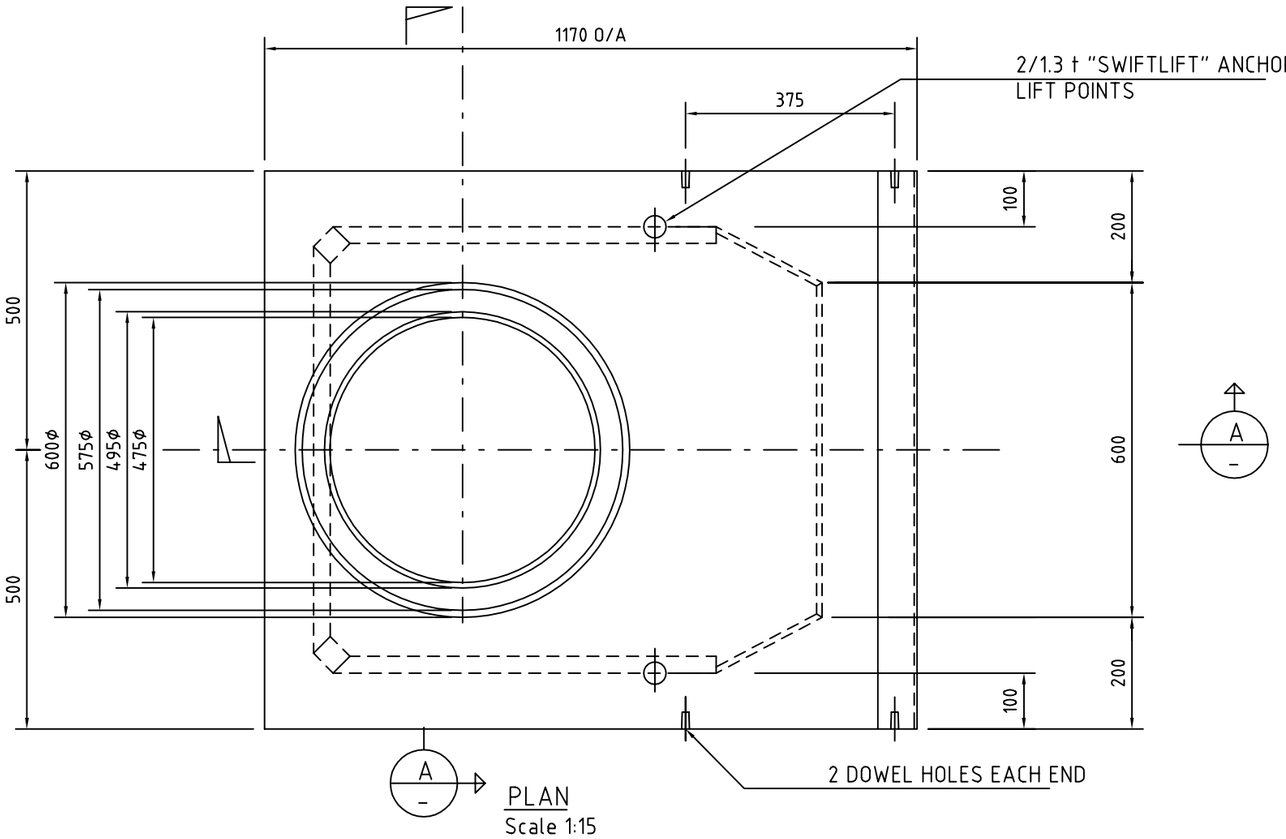
STANDARD DRAWING
DRAINAGE
D 026



SECTION A
Scale 1:15



SECTION B
Scale 1:15



PLAN
Scale 1:15

PLAN REFERENCE:

THIS DRAWING HAS BEEN REPRODUCED WITH THE AUTHORITY OF CSR HUMES JULY 1997.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

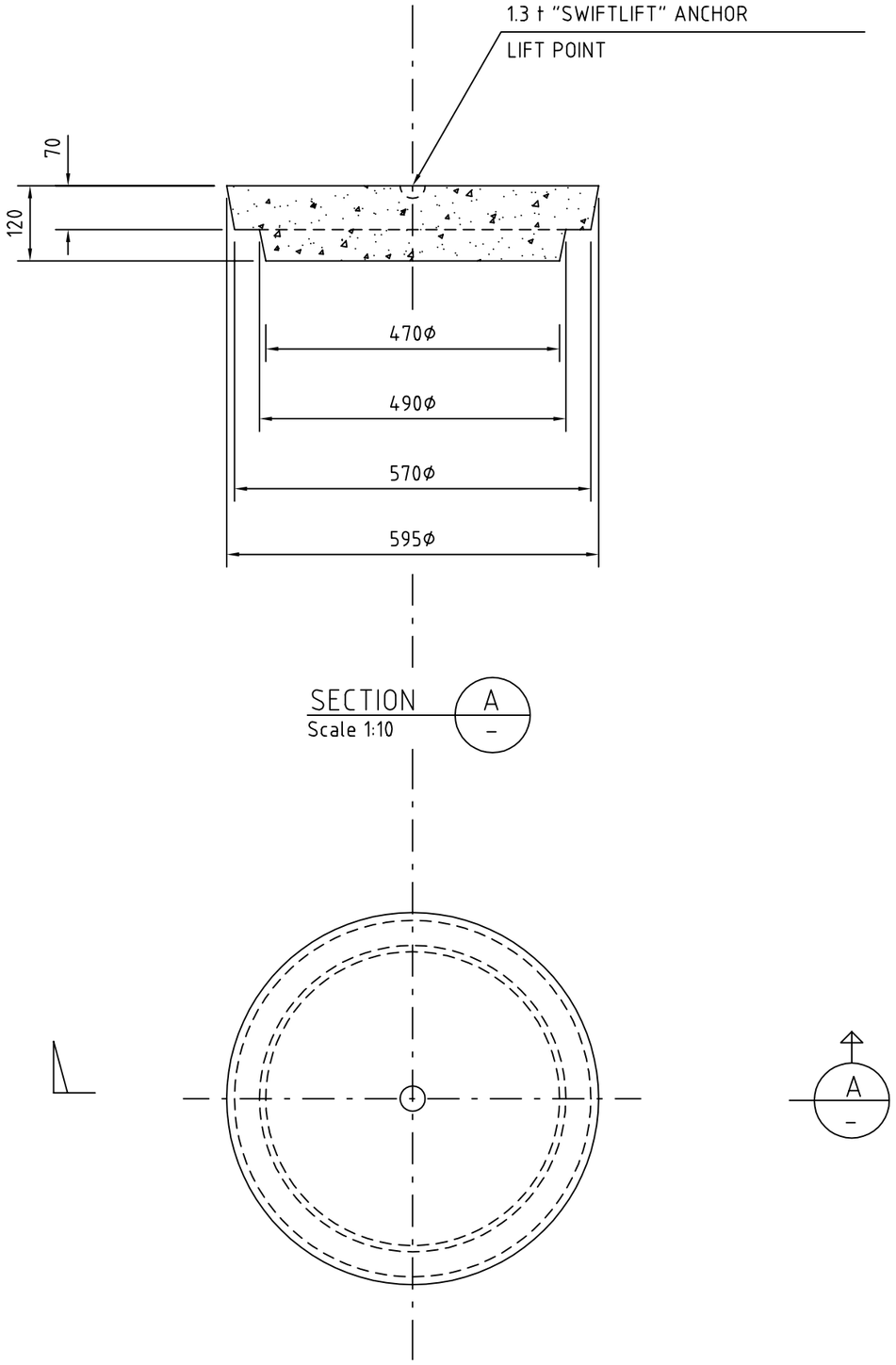
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

GLADSTONE CITY COUNCIL

PRECAST CONCRETE GULLY PIT
BROPIT GULLY SYSTEM
EXTENDED CHAMBER
Product Details

STANDARD DRAWING
DRAINAGE
D 027



PLAN REFERENCE:

THIS DRAWING HAS BEEN REPRODUCED WITH THE AUTHORITY OF CSR HUMES JULY 1997.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

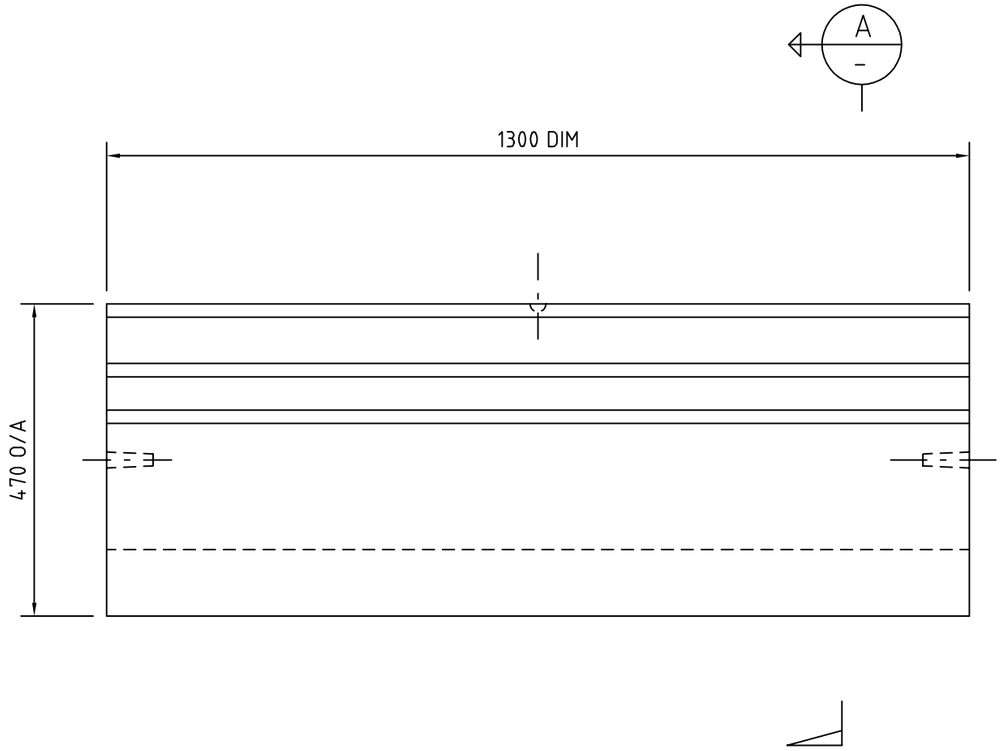
Scales:
1 : 10

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

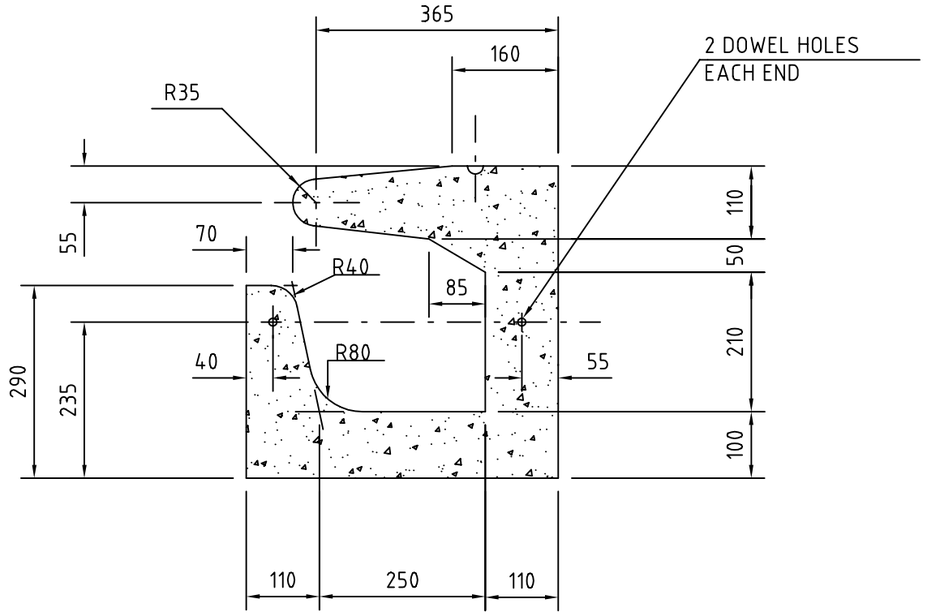
GLADSTONE CITY COUNCIL

PRECAST CONCRETE GULLY PIT
BROPIT GULLY SYSTEM
MANHOLE COVER
Product Details

STANDARD DRAWING
DRAINAGE
D 028



ELEVATION
Scale 1:10



SECTION A–A
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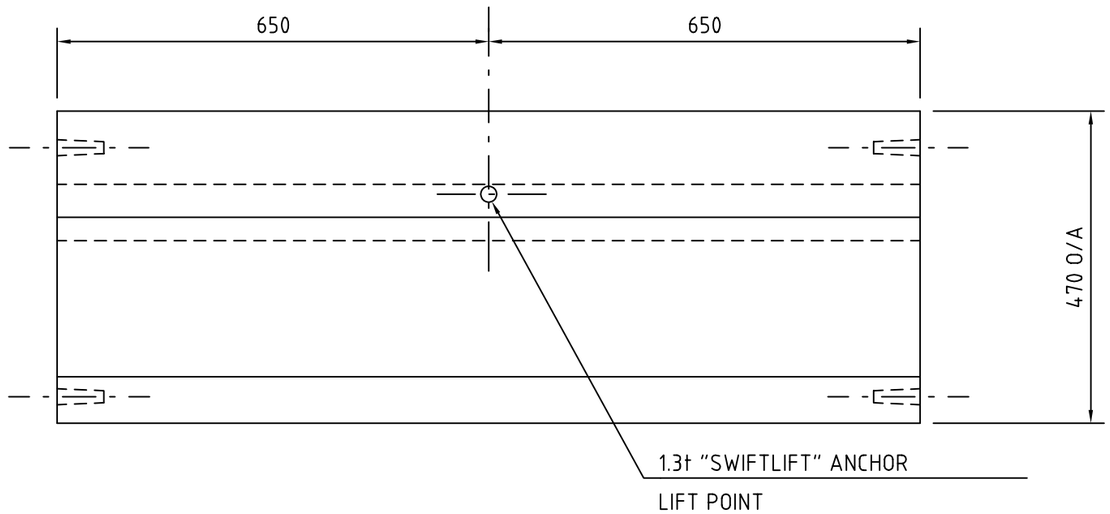
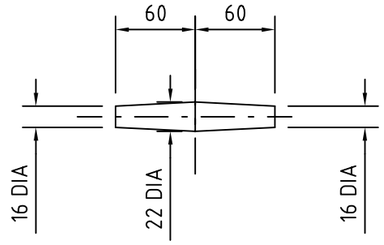
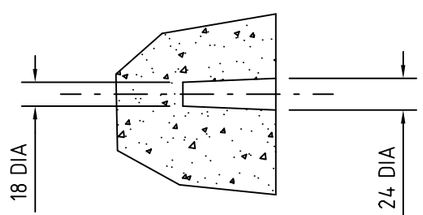


PLAN
Scale 1:10



DOWEL PIN DETAIL
Scale 1:5



DOWEL HOLE
Scale 1:5

PLAN REFERENCE:

THIS DRAWING HAS BEEN REPRODUCED WITH THE AUTHORITY OF CSR HUMES JULY 1997.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

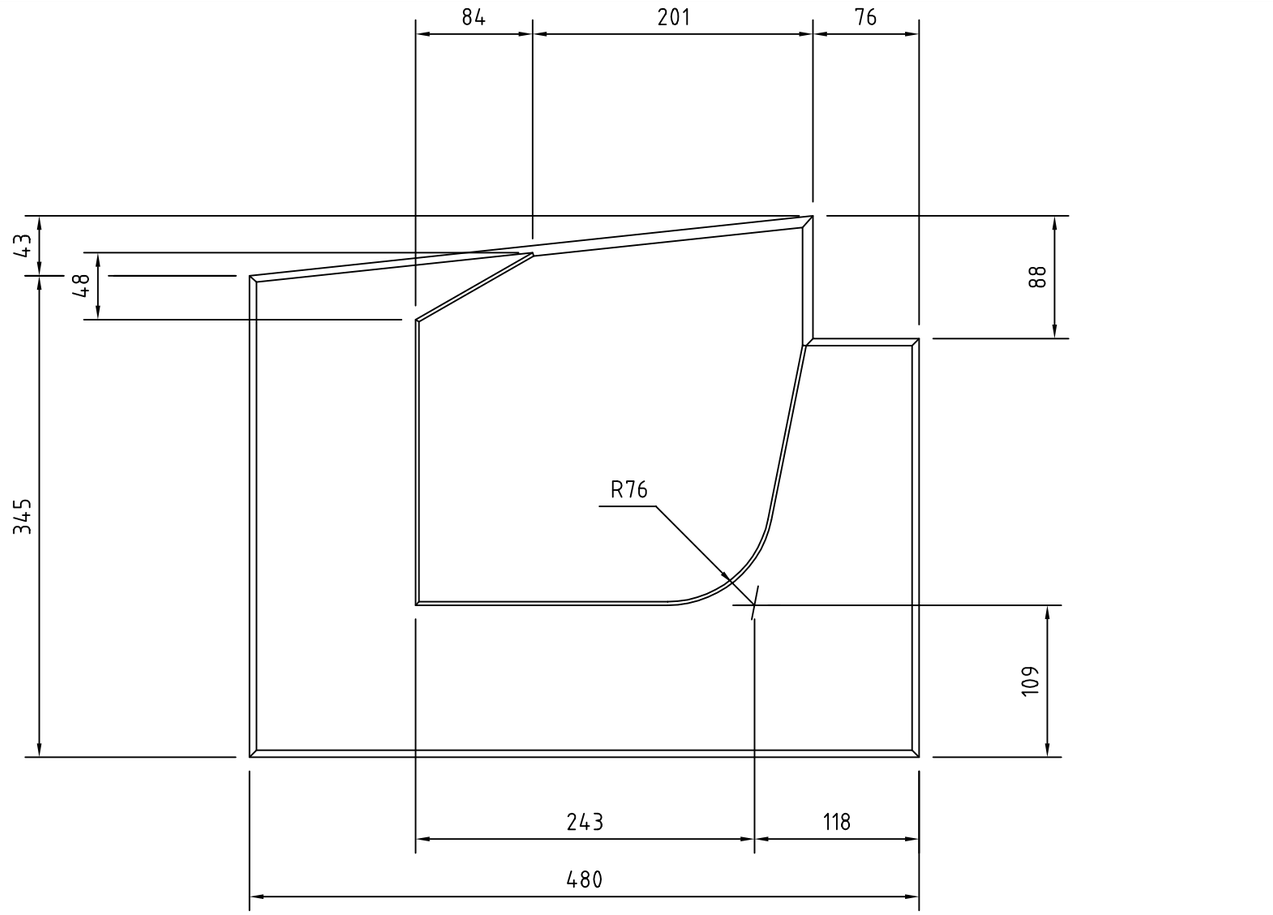
Scales:
1 : 10

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

GLADSTONE CITY COUNCIL

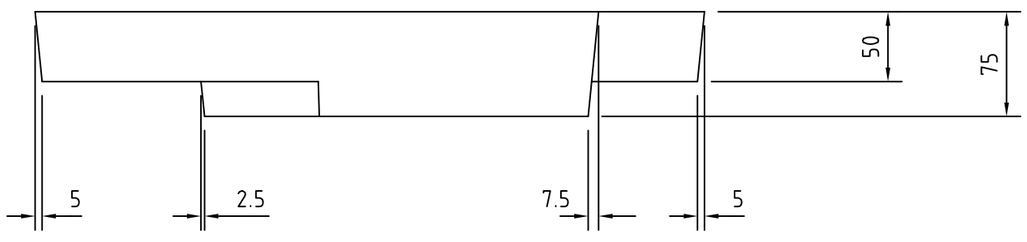
PRECAST CONCRETE GULLY
PIT BROPIT GULLY SYSTEM
TROUGH
Product Details

STANDARD DRAWING
DRAINAGE
D 029



ELEVATION

Scale 1:5



PLAN

Scale 1:5

PLAN REFERENCE:

THIS DRAWING HAS BEEN REPRODUCED WITH THE AUTHORITY OF CSR HUMES JULY 1997.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....
Date .....

Scales:

Not to Scale

APPROVED FOR CONSTRUCTION

....
D.T.S. Date

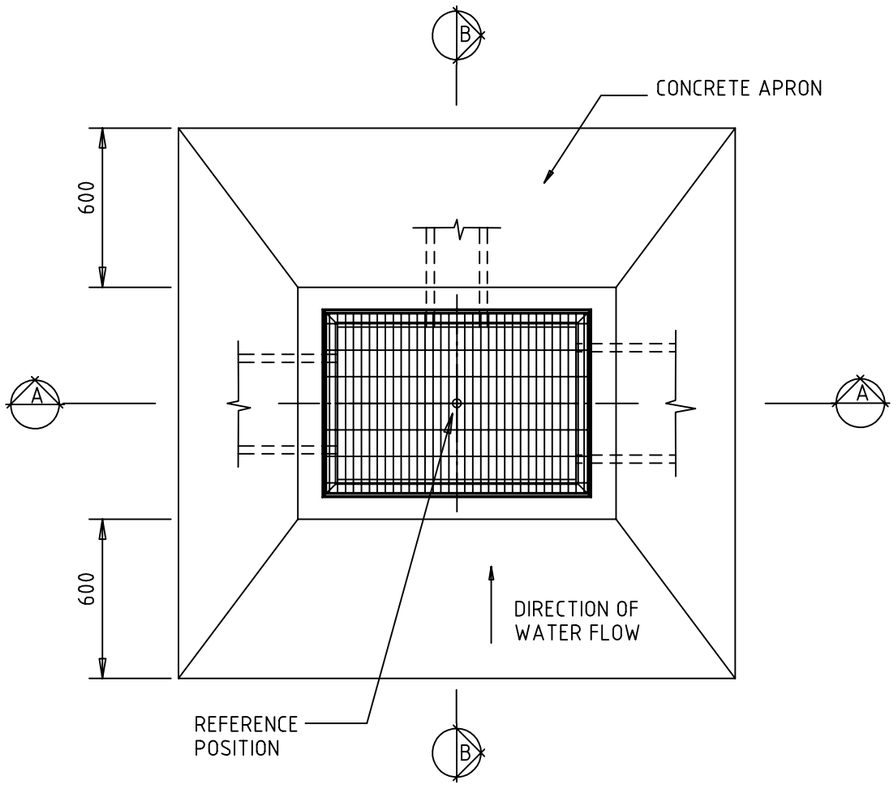
GLADSTONE CITY COUNCIL

PRECAST CONCRETE GULLY PIT
BROPIT GULLY SYSTEM
TROUGH ENDS
Product Details

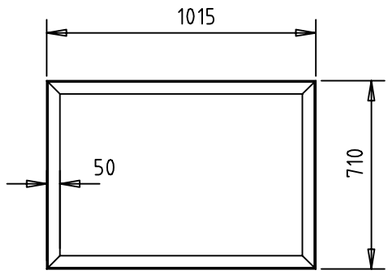
STANDARD DRAWING

DRAINAGE

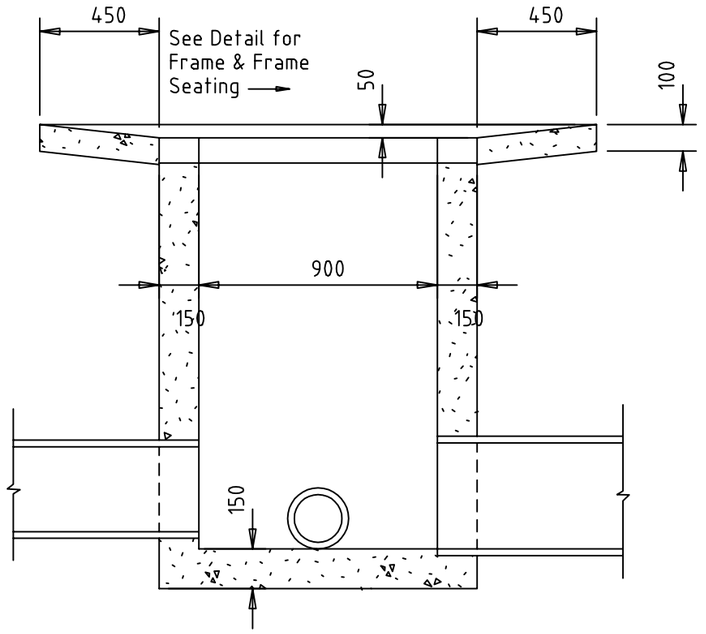
D 030



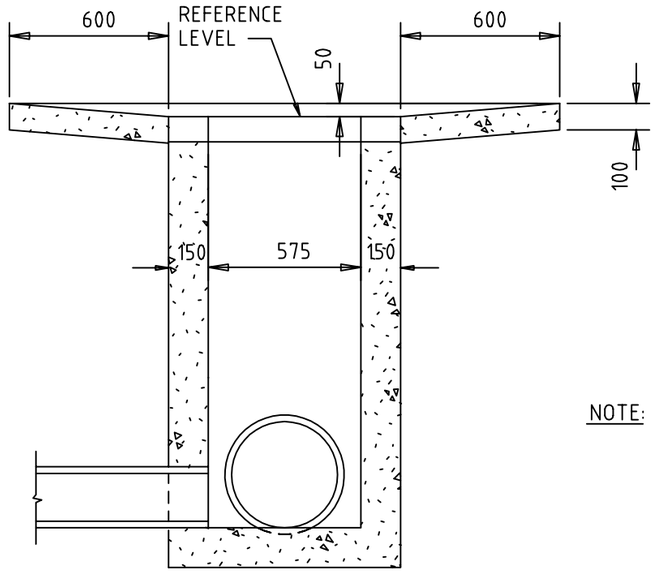
PLAN



PLAN
FRAME



SECTION A-A



SECTION B-B

NOTE:
1. GRATE AND FRAME ARE TO BE 'WEBFORGE WHSG 69H HINGED GRATE AND FRAME UNLESS OTHERWISE SPECIFIED BY SITE ENGINEER
2. ALTERNATE TYPE 1 REFER TO IMEAQ DWG. D-00500 SUBJECT TO APPROVAL BY D.T.S.

PLAN REFERENCE:

Amend.	Description	Checked	Date
A	THIS DRAWING SUPERSEDES COUNCIL DRAWING D3005/A	R.G.P	5/97

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

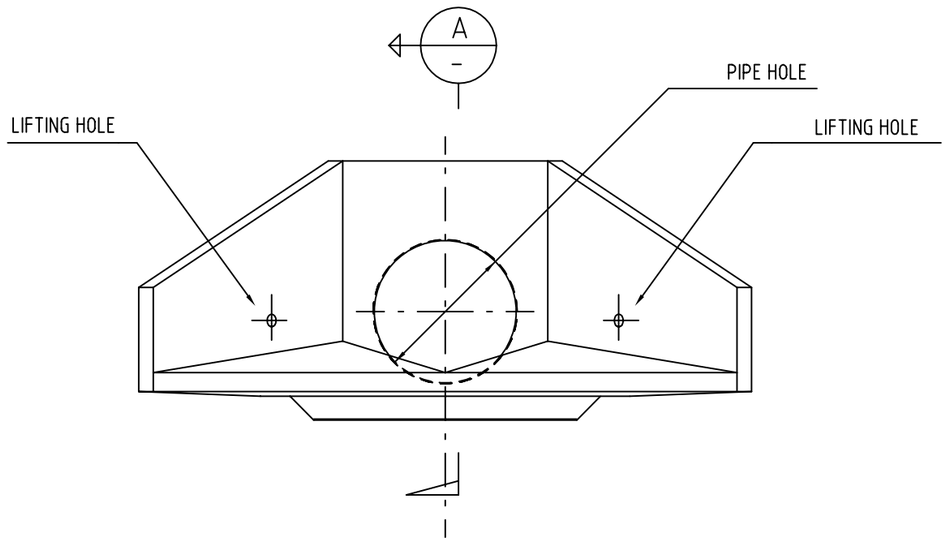
Scales:
1 : 25

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

GLADSTONE CITY COUNCIL

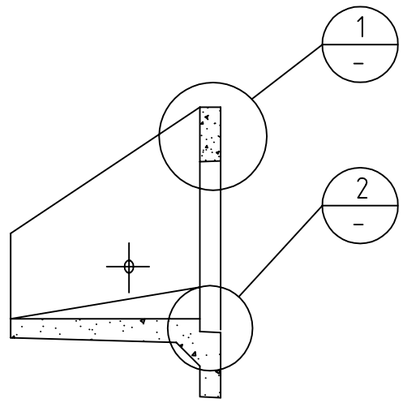
STANDARD GULLY PIT (FEILD TYPE)

STANDARD DRAWING
DRAINAGE
D 031
A



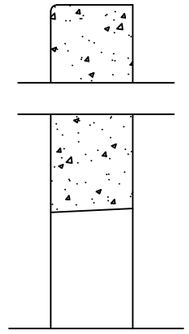
ELEVATION

Scale 1:20



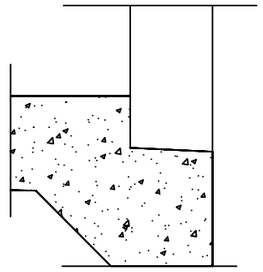
SECTION A –

Scale 1:20



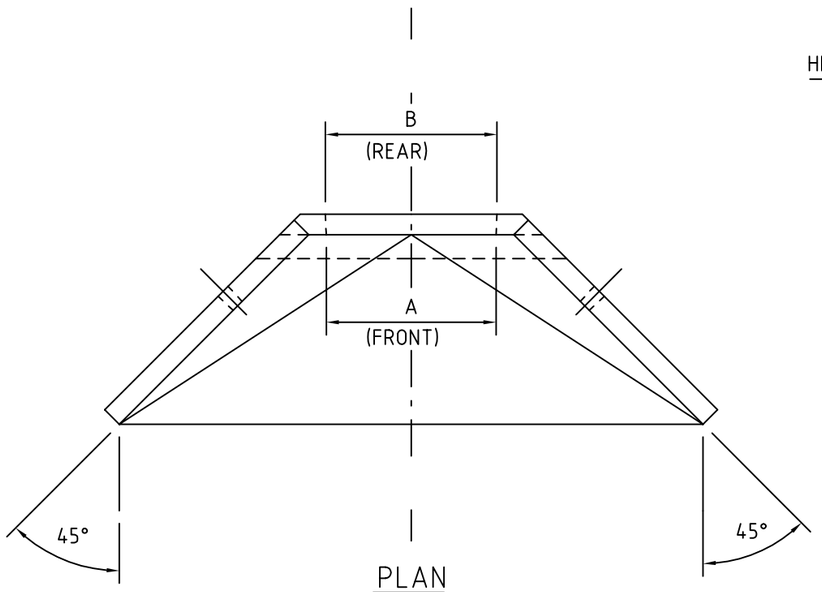
DETAIL 1 –

Scale 1:5



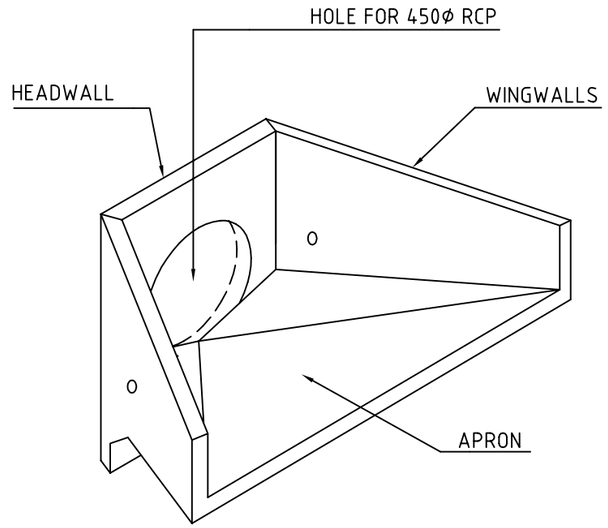
DETAIL 2 –

Scale 1:5



PLAN

Scale 1:20



ISOMETRIC VIEW

NOT TO SCALE

NOTES:

1. Design Loading is retained earth fill at 20 kN/cu.m.
2. Concrete to be Type S40 to AS1379.
   Minimum cement content 350 kg/cu.m
   Concrete mass 2500 kg/cu.m
3. Cover to reinforcement to be 20mm,-0+5

PIPE HOLE DIMENSIONS							
DIA	300ø	375ø	450ø	525ø	600ø	675ø	750ø
A	450	450	538	620	702	786	890
B	456	456	544	626	708	792	896

PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	J.D.M
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

SCALE AS SHOWN

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

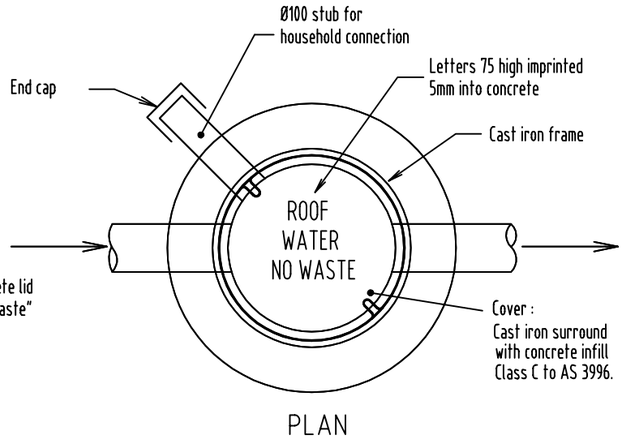
GLADSTONE CITY COUNCIL

R.C.P. PIPE CULVERTS
PRECAST CONCRETE HEADWALL
45° Wingwalls
Product Detail

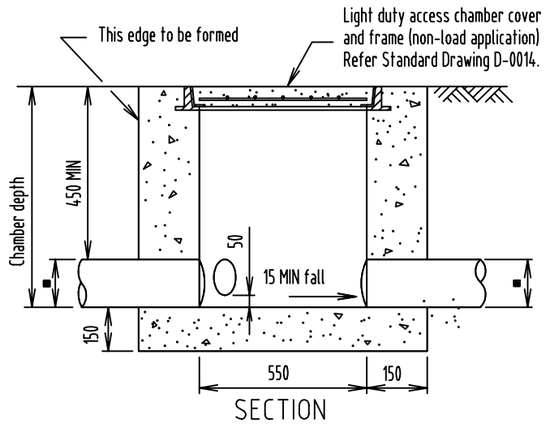
STANDARD DRAWING

DRAINAGE

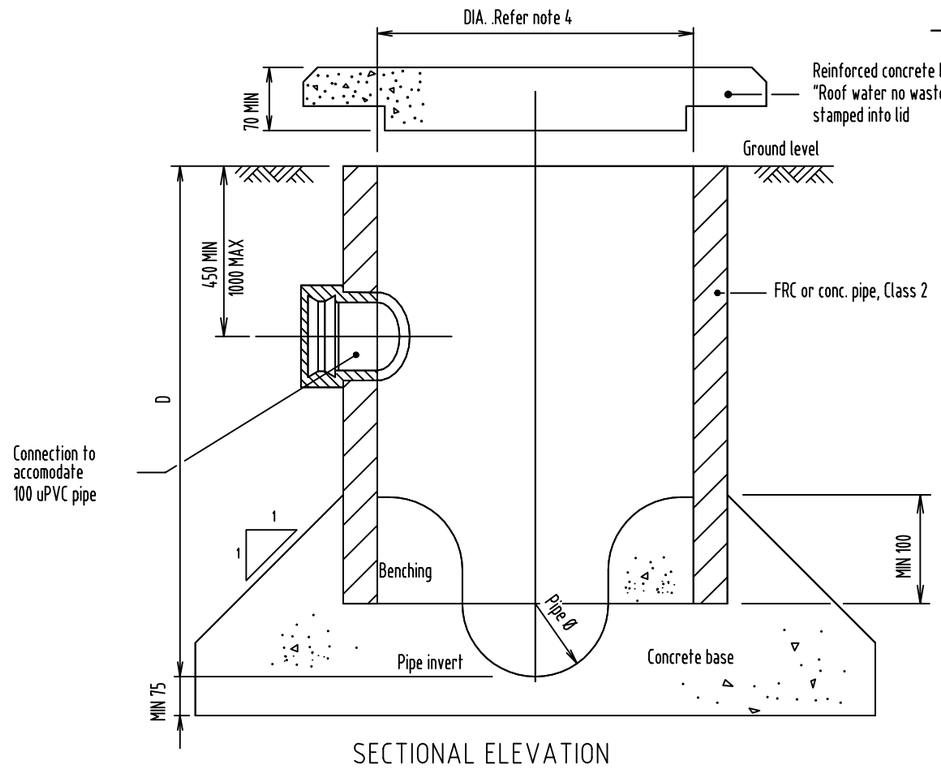
D 040



PLAN



SECTION



SECTIONAL ELEVATION

TYPE 1
CAST INSITU

TYPE 2
PRECAST / INSITU

LEGEND

- ▪ Refer project drawings for pipe diameter and type
- • At Ø900 chambers adopt roof design off Standard Drawing D-0011.

NOTES

1. Roofwater systems are to be connected to stormwater gullies or access chambers. Where the system is to be connected to kerb and channel one property can be connected via a 100 Class SH uPVC pipe or a 100 x 75 galvanized R.H.S. to a kerb adaptor. A maximum of two properties can be connected via a 200 x 75 galvanized R.H.S.
2. The pipe materials and joint types shall be as follows :

Material	Aust. Std	Joint Type	Restrictions
Fibre reinforced, Class 2	AS 4139	Rubber ring	N/A
Concrete, Class 2	AS 1342	Rubber ring	N/A
uPVC, sewer Class SH	AS 1260	Solvent welded	Not to be used in easements

3. Minimum cover to roofwater pipes to be 450mm except where less cover is necessary to discharge to kerb and channel.
4. The access chamber depths and minimum diameters shall be as follows :
   Depth < 600 – MIN Ø300, Depth 600 – 750 – MIN Ø550, Depth > 750 – MIN Ø900•
5. Alternative designs, materials and methods of construction will be considered for approval including precast roofwater chambers available from various manufacturers. Alternative precast units will require to be bedded and encased in 150 thick concrete (Grade N25) up to 150 above crown of the inlet pipe with all subsequent backfill compacted to 95% MDD (modified compaction to AS 1289) to ensure stability and robustness.
6. Alternative covers and frames proposed for approval must be circular, and be designed as Class C to AS 3996.
7. Concrete, base N25, cover infill N32 in accordance with AS 1379 and AS 3600.
8. The roofwater drainage system shall be shown on the stormwater drainage plans for the development.
9. The following 'as constructed' infomation shall be submitted to Superintendent, refer Sewerage Sample as constructed plan S-0010.
   - Offsets of the main line to property boundary
   - The locations of access chambers and Y junctions measured from the property boundary.
10. Where individual lots can directly discharge to the kerb and channel, kerb adaptors shall be used. Refer Standard Drawing R-020.
11. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0110

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

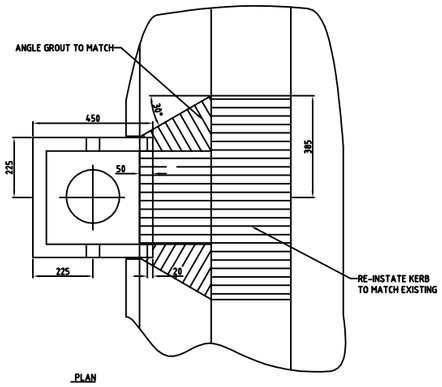
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

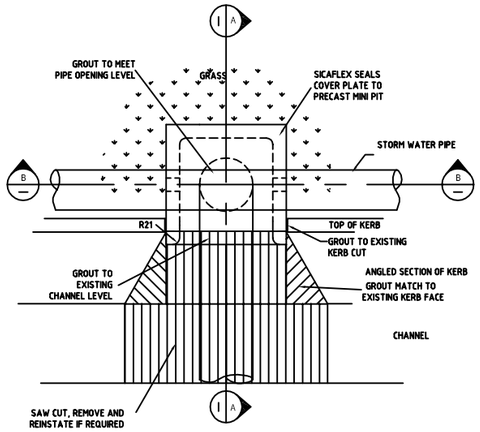
GLADSTONE CITY COUNCIL

ROOFWATER
INSPECTION CHAMBER

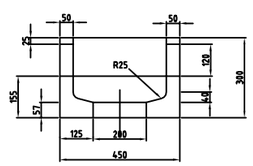
STANDARD DRAWING
DRAINAGE
D 060



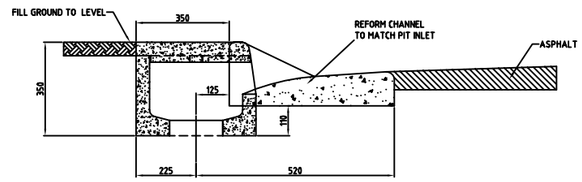
PLAN



INSTALLATION PLAN
BARRIER KERB & CHANNEL

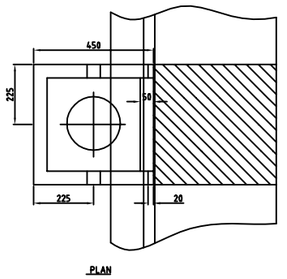


SIDE ELEVATION

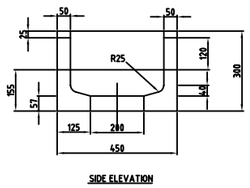


SECTION A-A

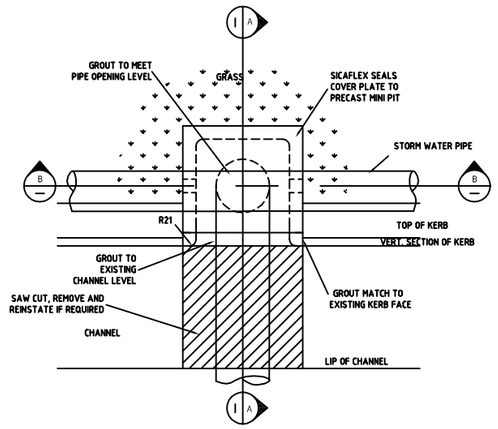
STANDARD MOUNTABLE KERB AND CHANNEL



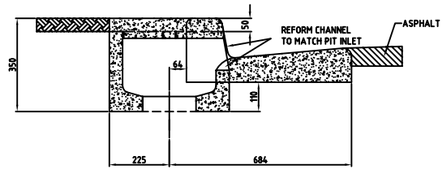
PLAN



SIDE ELEVATION

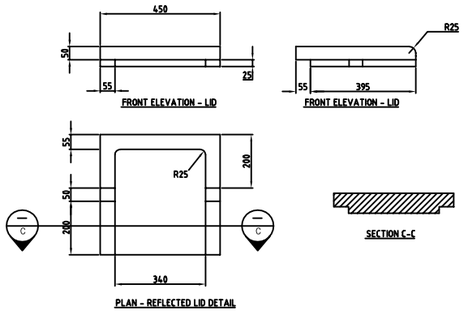


INSTALLATION PLAN
BARRIER KERB & CHANNEL

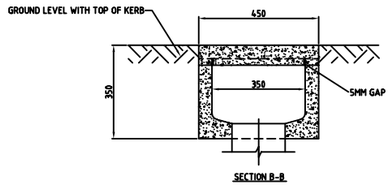


SECTION A-A

BARRIER KERB AND CHANNEL



PLAN - REFLECTED LID DETAIL



SECTION B-B

PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	
Drawn	P.L
Checked	R.P
Date	SEP 2000
DESIGN APPROVED	
M.D.	
Date	

Scales:

20 : 1

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

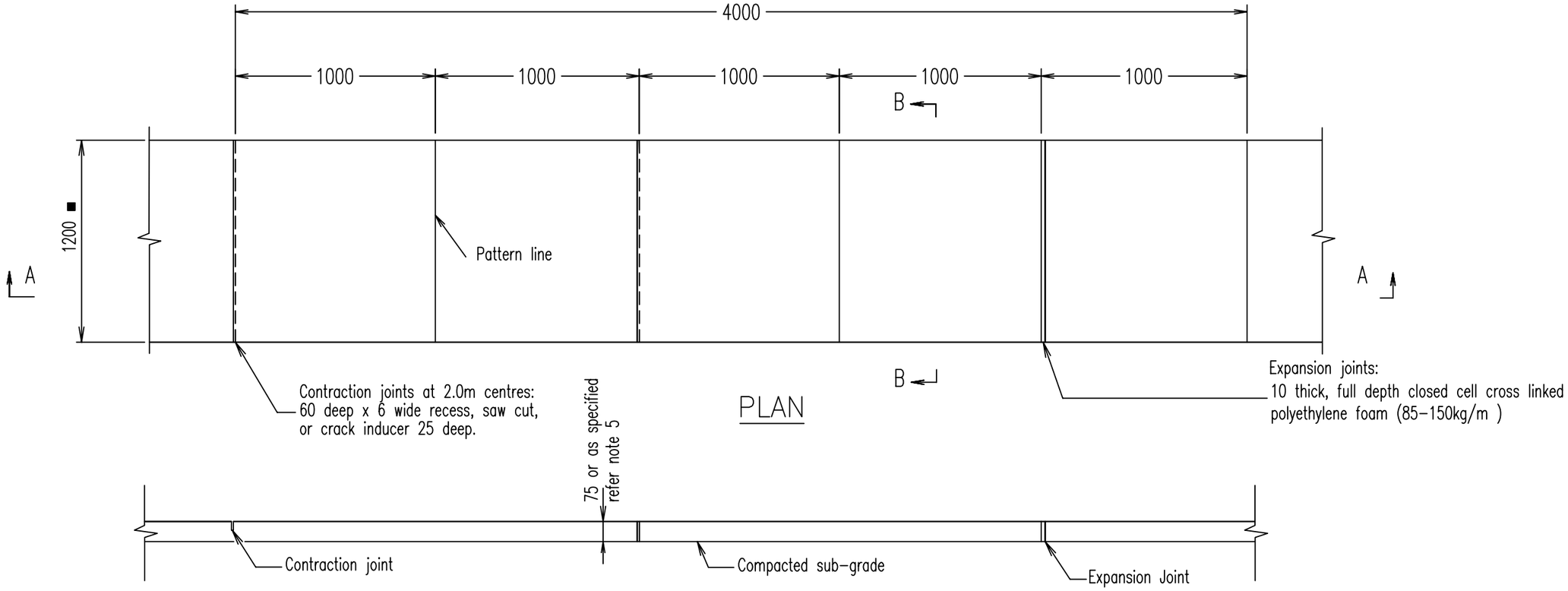
GLADSTONE CITY COUNCIL

KERB & CHANNEL ANTI - PONDING
STORMWATER MINI PIT

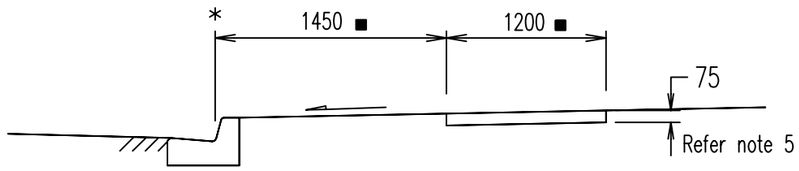
STANDARD DRAWING

Drainage

D 061

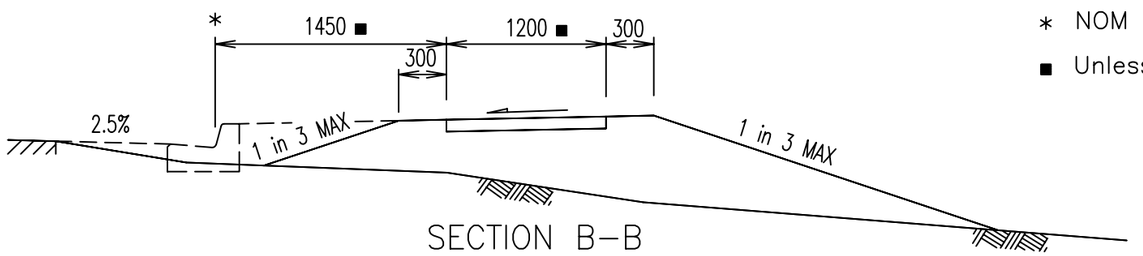


SECTION A – A



SECTION B–B

(Where kerb & channel exists)



SECTION B–B

(Where no kerb & channel exists)

LEGEND

* NOM kerb line.

■ Unless otherwise specified.

NOTES

1. Concrete N25 in accordance with AS 1379 and AS 3600.
2. All concrete to be broom finished.
3. Contraction/expansion joints, 2m MAX spacing.
4. Finished surface tolerance to be maximum $^{+6mm}_{-0mm}$ relative to kerb level and crossfall specified.
5. Thickness to be increased to 125mm at residential vehicular crossings. Reinforce with F62 MIN fabric, 50mm top and edge cover. Provide a contraction or expansion joint at both ends of thickened section.
6. Pattern lines to be square to sides and finished with an approved grooving tool
7. Concrete footpaths, adjoining existing driveways are to be transitioned over a minimum 5.0m length.
8. A street opening approval must be obtained from Council, seek approval of location and levels prior to excavation.
9. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING R-0065

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

D.T.S. ..... Date .....

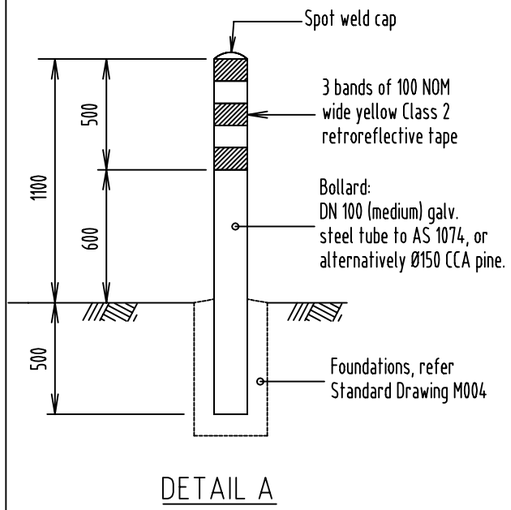
GLADSTONE CITY COUNCIL

CONCRETE STRIP FOOTPATHS

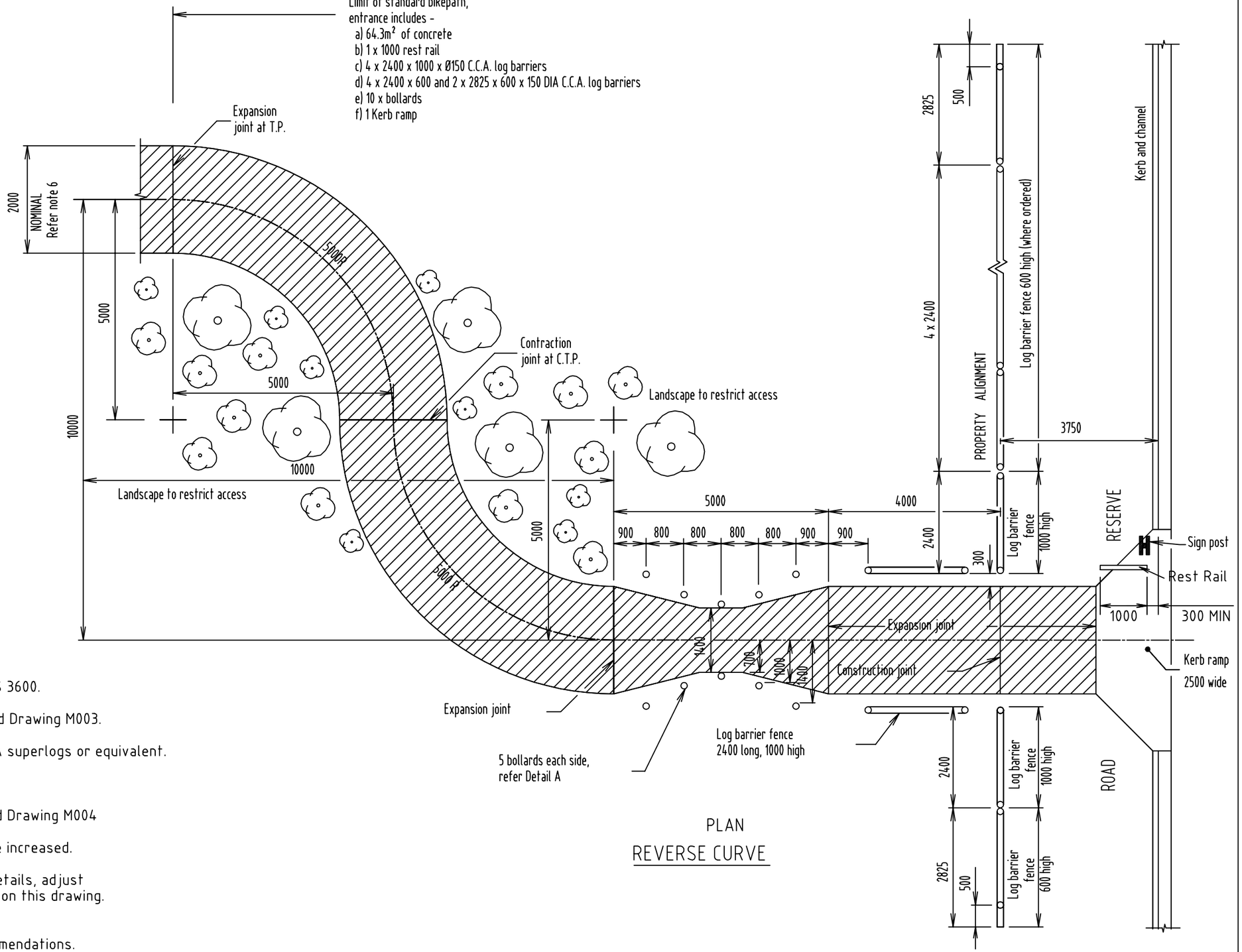
STANDARD DRAWING

MISCELLANEOUS

M 001



DETAIL A



PLAN

REVERSE CURVE

NOTES

1. Concrete N25 in accordance with AS 1379 and AS 3600.
2. Concrete slab to be 100mm thick, refer Standard Drawing M003.
3. C.C.A. log barrier to be 150mm diameter, Grade A superlogs or equivalent.
4. Kerb ramp details refer Standard Drawing R014
5. Rest rails, refer project drawings and Standard Drawing M004
6. The nominal 2000 bikepath width may need to be increased.
7. Refer Standard Drawing M004 for log barrier details, adjust location of posts and height to suit dimensions on this drawing.
8. Retroreflective tape to AS/NZS 1906.1. Apply in accordance with manufacturer's recommendations.
9. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING P-0013

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales: Not To Scale

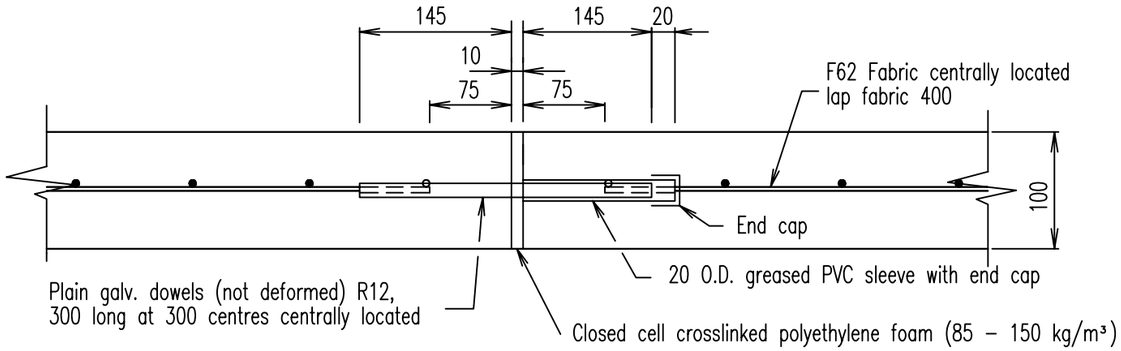
APPROVED FOR CONSTRUCTION

D.T.S. ..... Date .....

GLADSTONE CITY COUNCIL

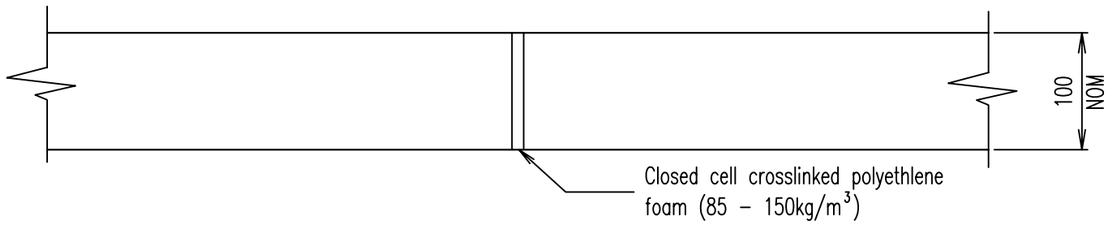
BIKEPATH
SLOWDOWN CONTROL
REVERSE CURVE

STANDARD DRAWING
MISCALLANEOUS
M 002



EXPANSION JOINT

Spacing 16m



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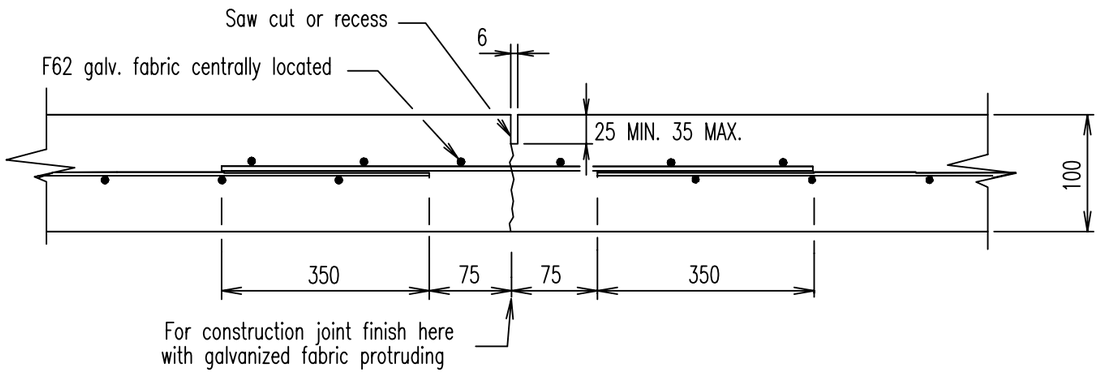
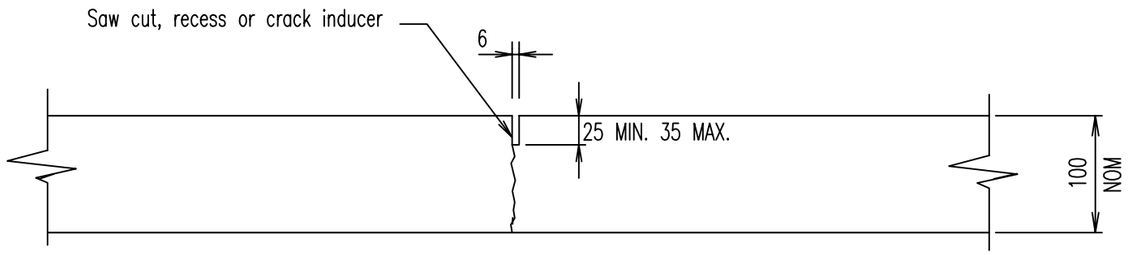


CONTRACTION JOINT

Spacing 4m

REINFORCED



CONTRACTION JOINT

Spacing 2m

NON REINFORCED

NOTES:

1. Concrete N25 in accordance with AS 1379 and AS 3600.
2. Reinforcement and dowels to be used, if specified, when bikepath is placed on fill or on poor subgrade.
3. Bikepath thickness may be reduced to 75mm in good ground conditions.
4. Dowels Grade 250 steel to AS 1302. Fabric to AS 1304.
5. Galvanizing to AS 1650.
6. All dimensions in millimetres.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING P-0012

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

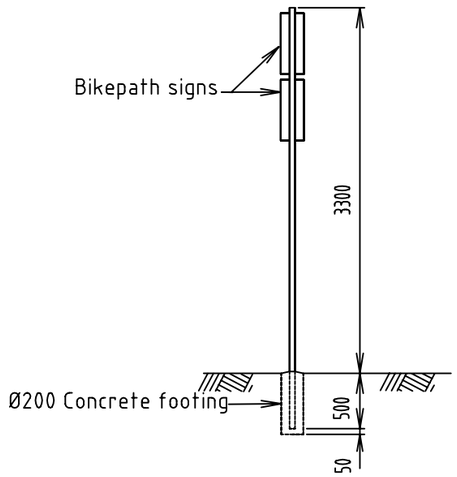
GLADSTONE CITY COUNCIL

BIKEPATH
PAVEMENT JOINTS

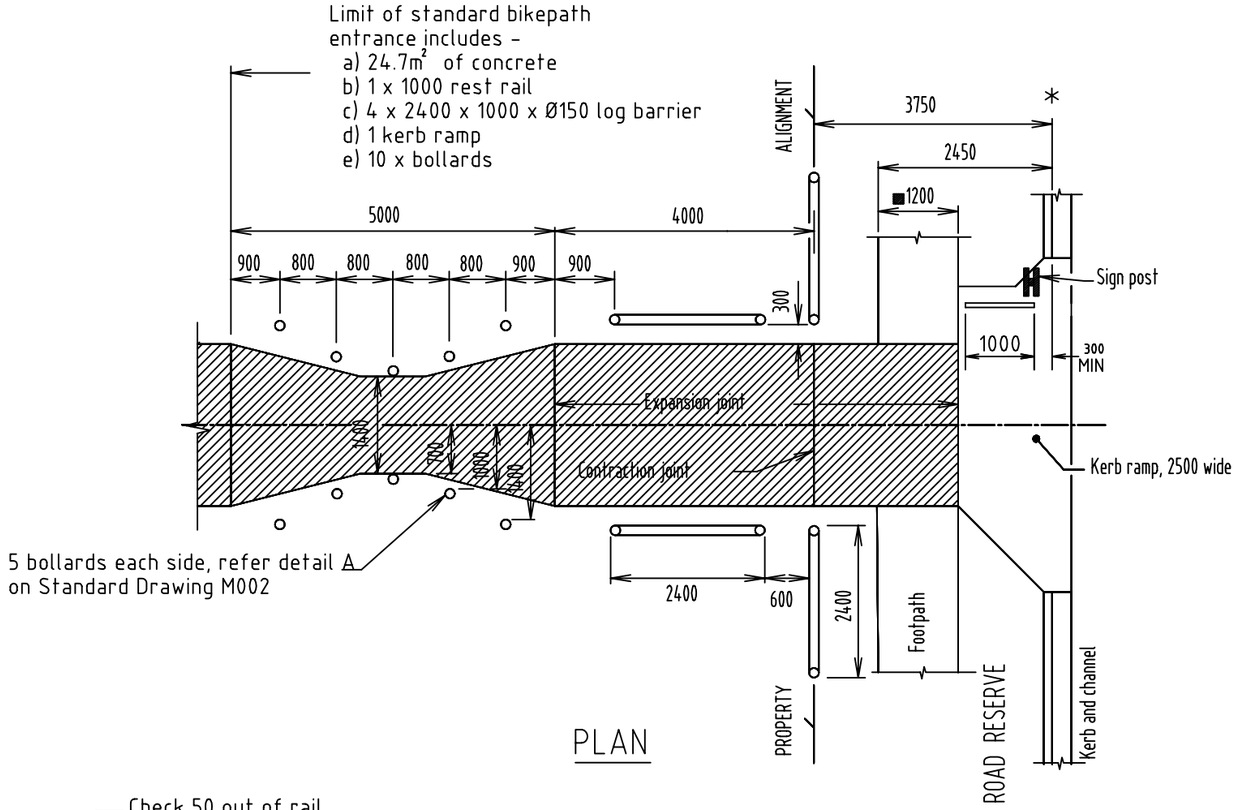
STANDARD DRAWING

MISCELLANEOUS

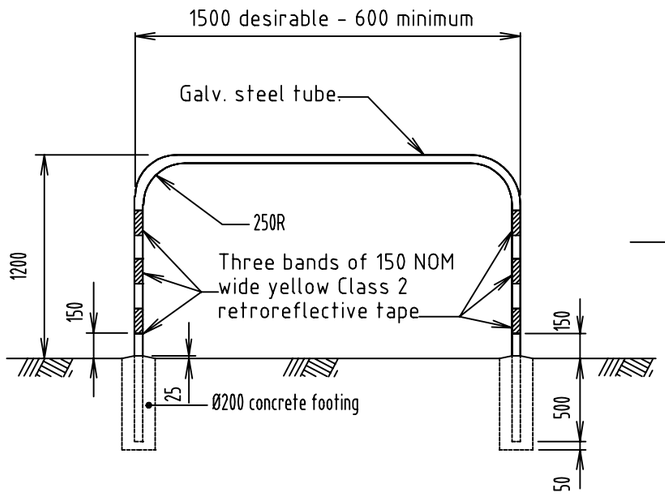
M 003



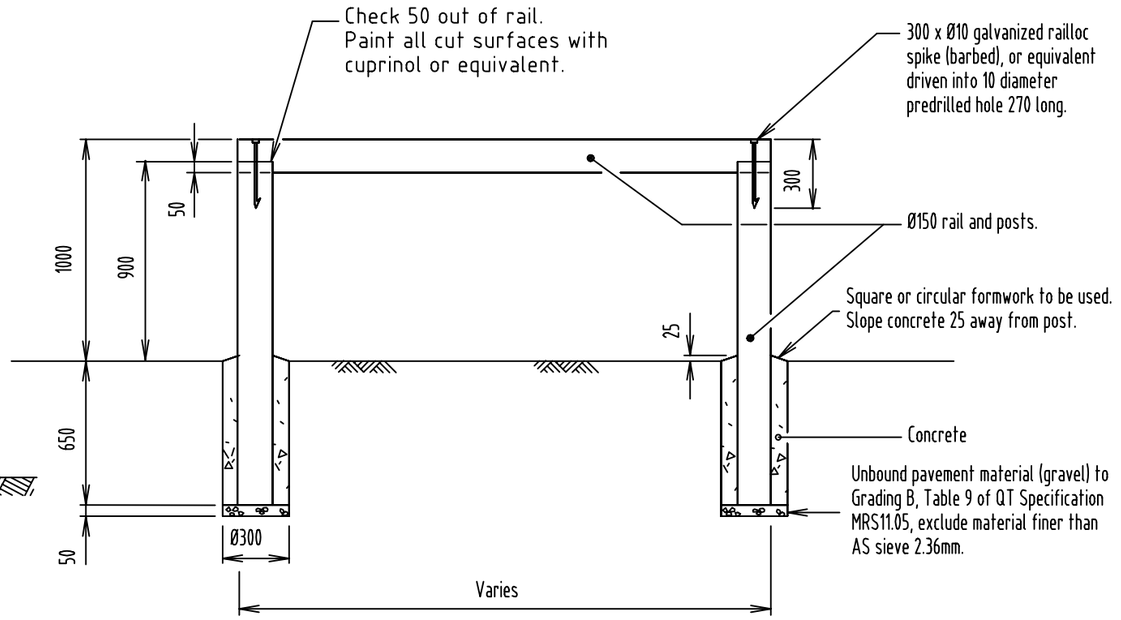
SIGN POST DETAIL



PLAN



REST RAIL DETAIL



LOG BARRIER FENCE DETAIL

LEGEND

■ Unless otherwise specified

* NOM kerb line

NOTES

1. Concrete N25 in accordance with AS 1379 and AS 3600.
2. Concrete slab to be 100mm thick, refer Standard Drawing M003
3. C.C.A. log barriers to be Ø150, Grade A superlogs or equivalent.
4. Kerb ramp details as per Standard Drawing R014
5. Rest rail to be 60.3 x 3.6 CHS in accordance with AS 1163/C250.
6. Galvanizing to AS 1650.
7. Clear opening in log barrier fence along the property alignment to be 4700 where a lockrail if specified.
8. The nominal 2000 bikepath width may need to be increased for high use areas.
9. All dimensions in millimetres

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING P-0010

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales:

Not To Scale

APPROVED FOR CONSTRUCTION

....

D.T.S. Date

GLADSTONE CITY COUNCIL

BIKEPATH
ENTRANCE TO ROAD RESERVE

STANDARD DRAWING

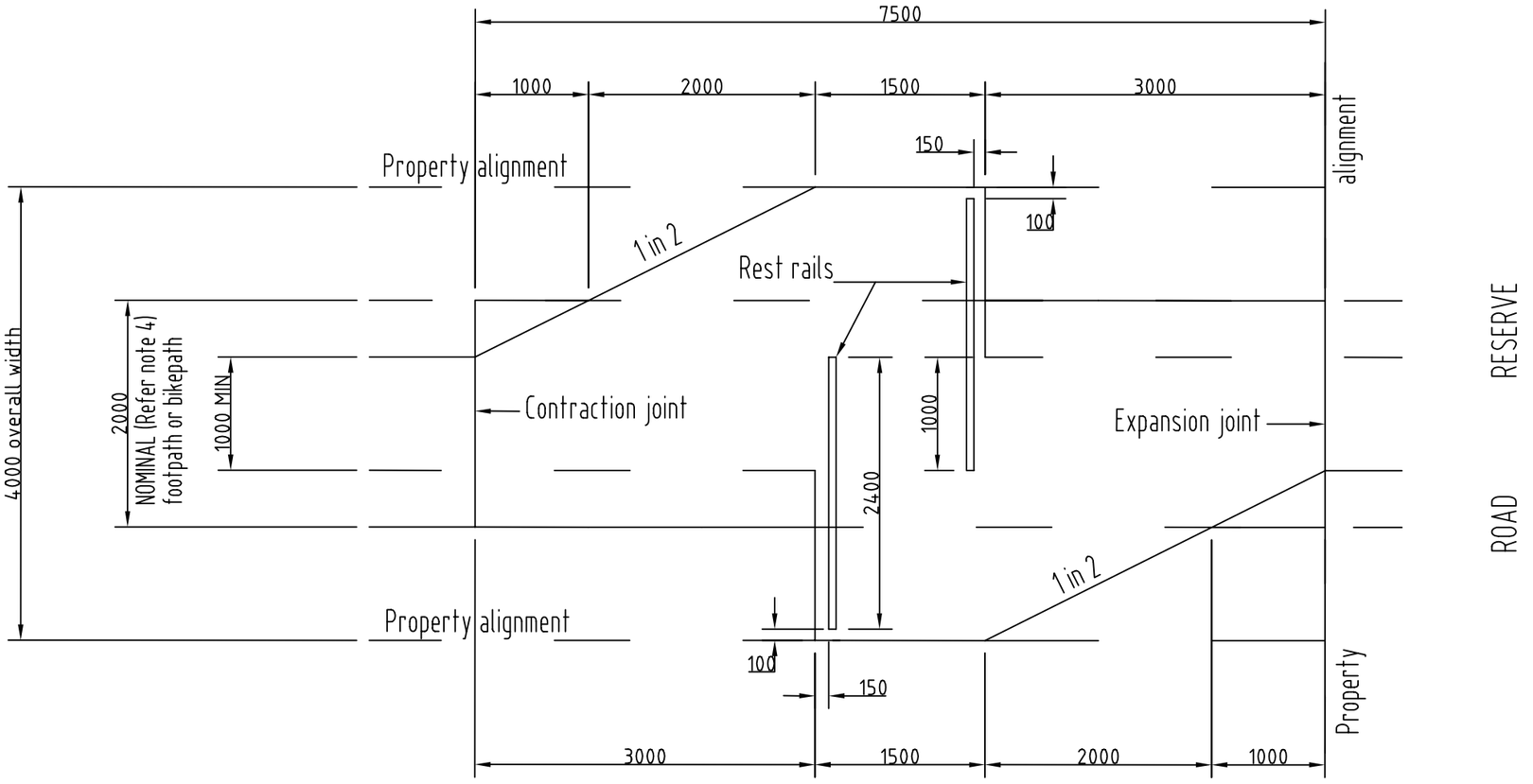
MISCELLANEOUS

M 004

Limit of 'Z' chicane slowdown includes :

a) 20.0m² concrete

b) 2 x 2350 rest rails without sign



NOTES: Where the overall width available varies from 4000 wide, adjust the rest rail length to suit.

Z CHICANE

Notes

1. Concrete N25 in accordance with AS 1379 and AS 3600.
2. Concrete slab to be 100mm thick, refer Standard Drawing M003.
3. Rest rails refer Standard Drawing M004
4. The nominal 2000 bikepath width may need to be increased for high use areas.
5. All dimensions in millimetres.

PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	
Drawn	
Checked	
Date	

DESIGN APPROVED

M.D. .....

Date .....

Scales:

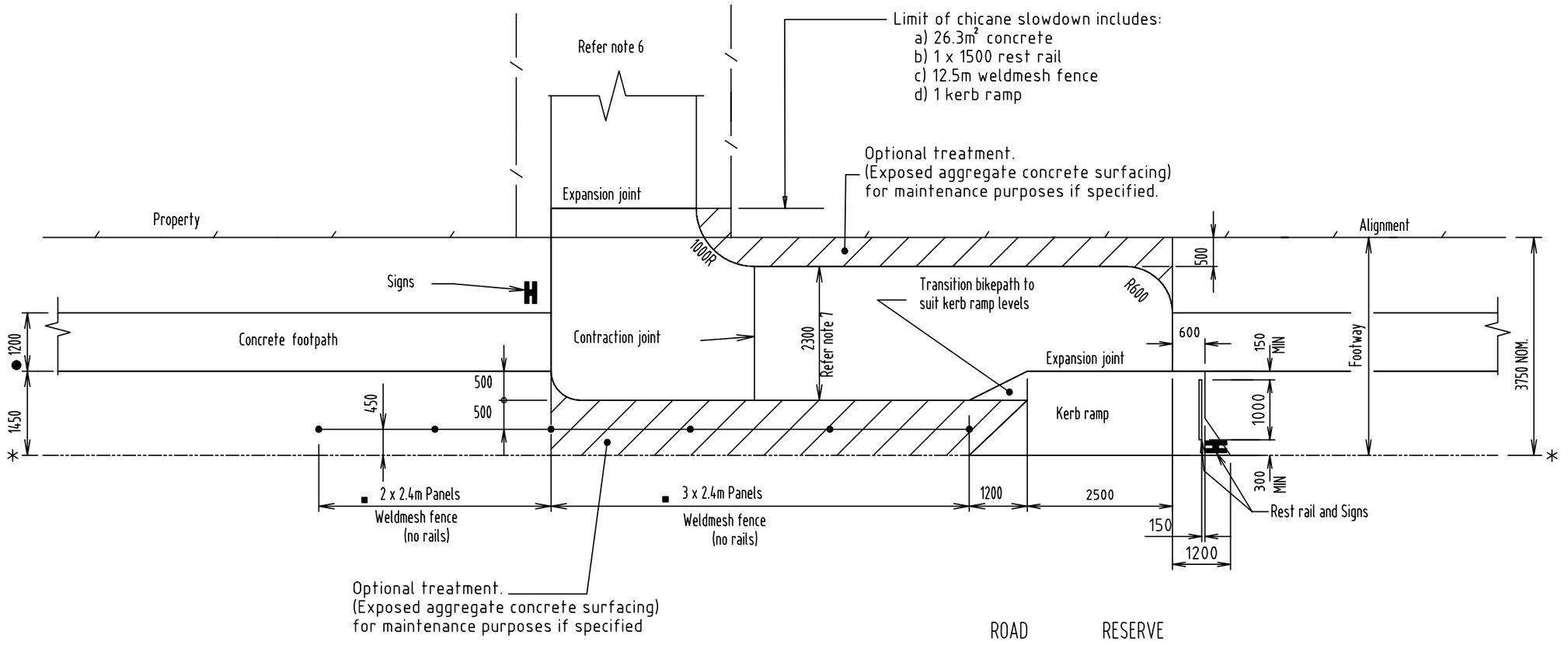
APPROVED FOR CONSTRUCTION

....

D.T.S. Date

GLADSTONE CITY COUNCIL

STANDARD DRAWING



OFFSET CHICANE

- For use where reverse curve is not practical
- Recommended for areas with high primary school traffic

LEGEND

- ∗ NOM. kerb line
- ▪ Each section may be reduced by 1 panel, refer project drawings
- ● Unless otherwise specified

NOTES

1. Concrete N25 in accordance with AS 1379 and AS 3600.
2. Concrete slab to be 100mm thick, refer Standard Drawing M003.
3. Weldmesh fence details as approved by D.T.S
4. Kerb ramp details as per Standard Drawing R014.
5. Rest rails, refer project drawing and Standard Drawing M004
6. The nominal 2000 bikepath width may need to be increased for high use areas.
7. Bikepath width may need to be reduced to suit available footway.
8. All dimensions in millimetres, unless shown otherwise.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING P-0015

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

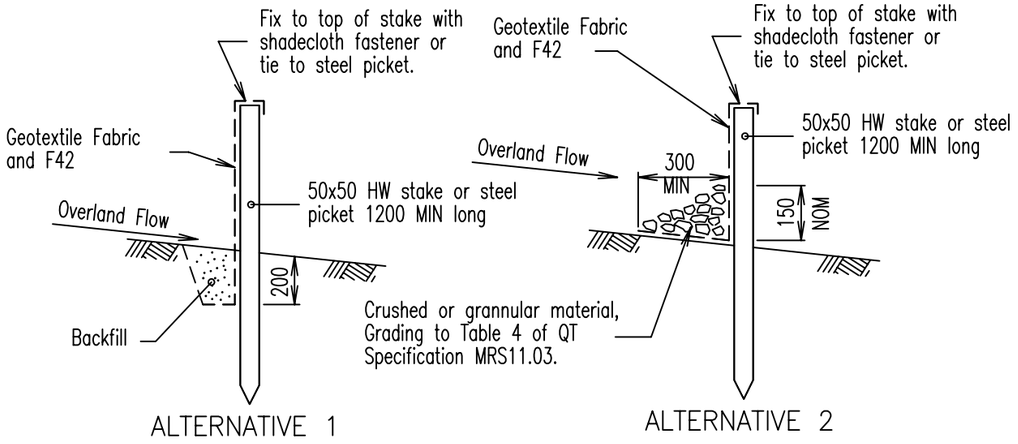
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

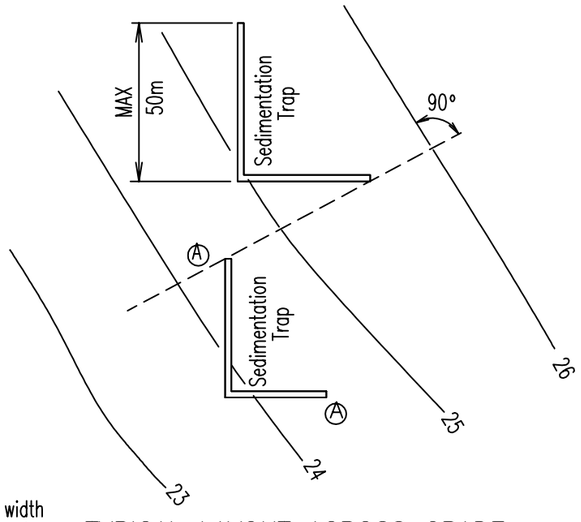
GLADSTONE CITY COUNCIL

BIKEPATH
SLOWDOWN CONTROL
OFFSET CHICANE

STANDARD DRAWING
MISCELLANEOUS
M 006

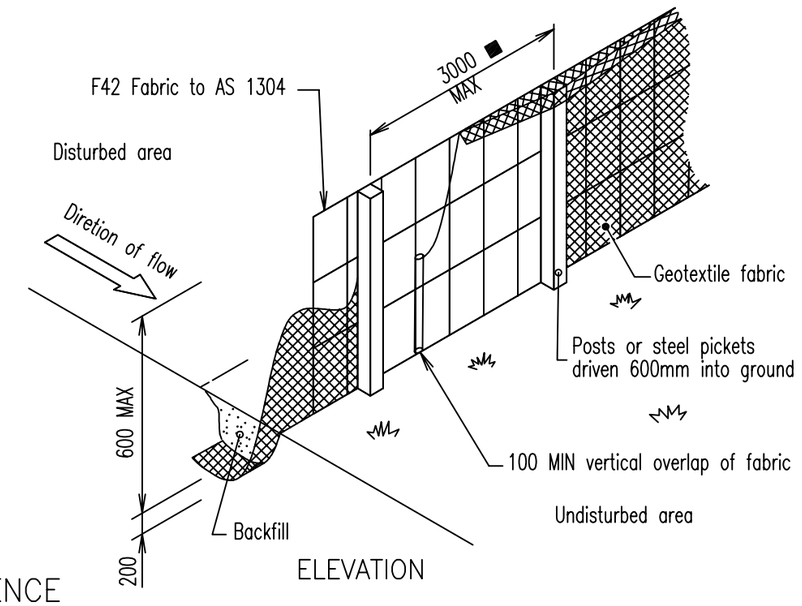


ALTERNATIVE 1 ALTERNATIVE 2



TYPICAL LAYOUT ACROSS GRADE

Points A at same elevation



ELEVATION

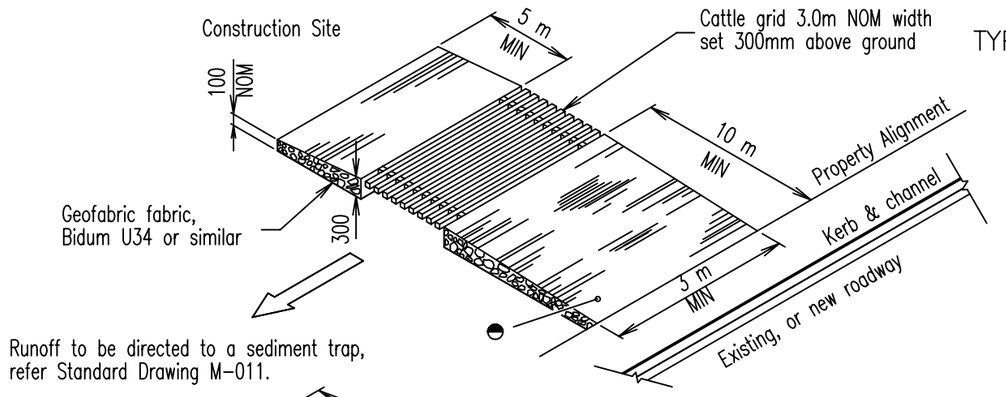
SEDIMENT FENCE

LEGEND

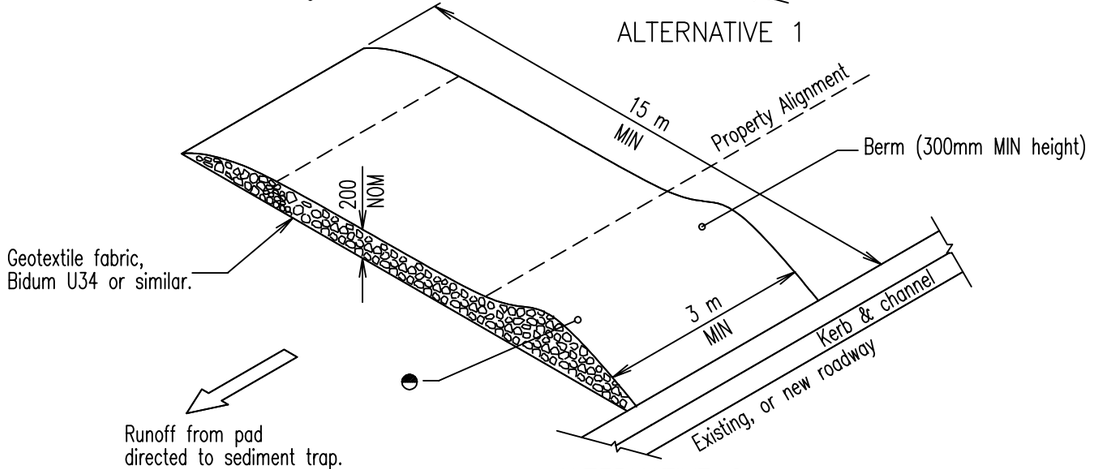
- ◓ Unbound pavement material (gravel) to Grading B, Table 9 of QT Specification MRS11.05, exclude material finer than AS sieve 2.36mm.
- ■ Without F42 fabric, 2000 MAX C\C

NOTES

1. General
   - (a) Temporary drainage control. Flow should be diverted around the work site where possible.
   - (b) All drainage, erosion and sediment controls to be installed and be operational before commencing up-slope earthworks.
   - (c) All control measures to be inspected at least weekly and after significant runoff producing storms.
   - (d) Control measures may be removed when on-site erosion is controlled and 70% permanent soil coverage is obtained over all upstream disturbed land.
   - (e) In areas where runoff turbidity is to be controlled, exposed surfaces to be either mulched, covered with erosion control blankets or turfed if earthworks are expected to be delayed for more than 14 days.
   - (f) Straw bale sediment traps are a secondary option which generally should not be used if other options are available.
2. Sediment Fence
   - (a) Not to be located in areas of concentrated flow.
   - (b) Normally located along the contour with a maximum catchment area 0.6 ha per 100m length of fence.
   - (c) Woven fabrics are preferred, non-woven fabrics may be used on small work sites, i.e. operational period less than 6 months or on sites where significant sediment runoff is not expected.
   - (d) Where fences need to be located across the contour the layout shall conform to 'Typical Layout Across Grade'.
   - (e) Fences are required 2m MIN from toe of cut or fill batters, where not practical one fence can be at the toe with a second fence 1m MIN away. Fence should not be located parallel with toe if concentration of flow will occur behind the fence.
3. Temp Construction Entry/Exit Sediment Trap.
   - (a) Adjacent stormwater runoff to be diverted away from entry/exit.
   - (b) Wheel – wash or spray unit may be required during wet weather.
4. Safety issues must be considered at all times, incorporate traffic control devices to the satisfaction of the D.T.S.
5. All dimensions in millimetres unless indicated otherwise.



ALTERNATIVE 1



ALTERNATIVE 2

TEMPORARY CONSTRUCTION ENTRY / EXIT SEDIMENT TRAP

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0040

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales: Not To Scale

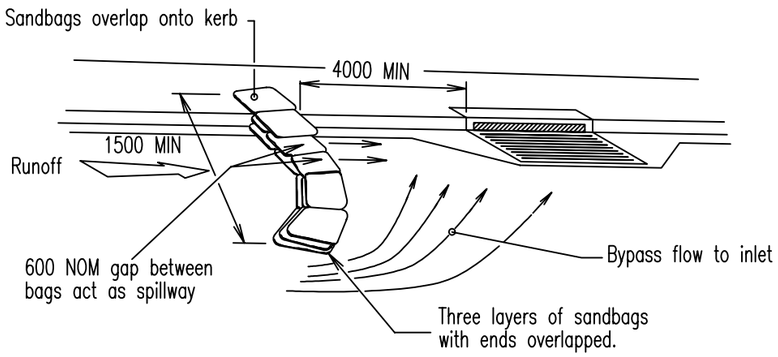
APPROVED FOR CONSTRUCTION

D.T.S. ..... Date .....

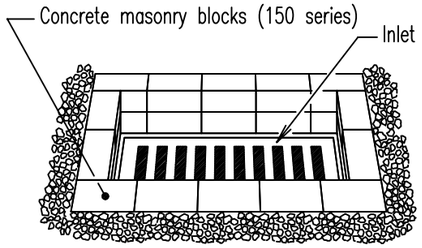
GLADSTONE CITY COUNCIL

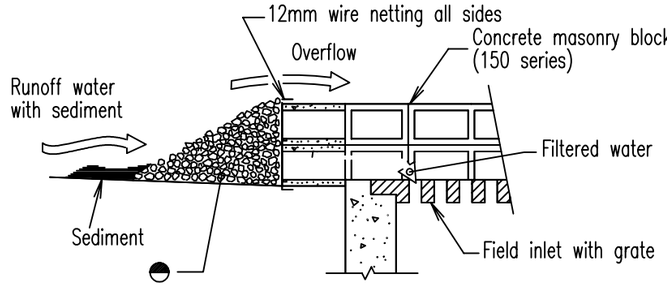
EROSION CONTROL
SEDIMENT TRAP & SEDIMENT FENCE

STANDARD DRAWING
MISCELLANEOUS
M 010

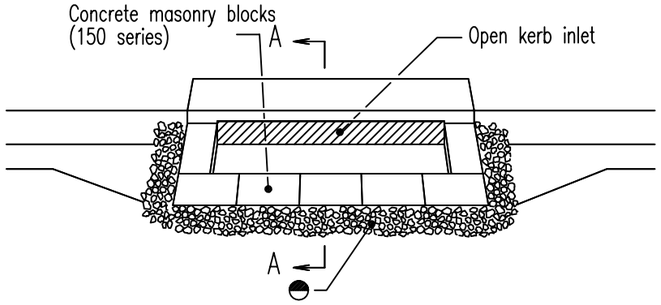


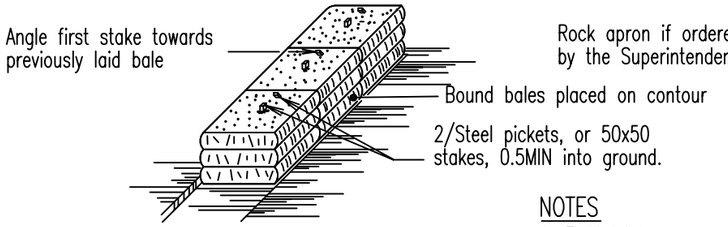
ON GRADE KERB INLET SEDIMENT TRAP



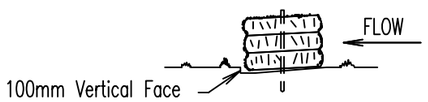


FIELD INLET SEDIMENT TRAP



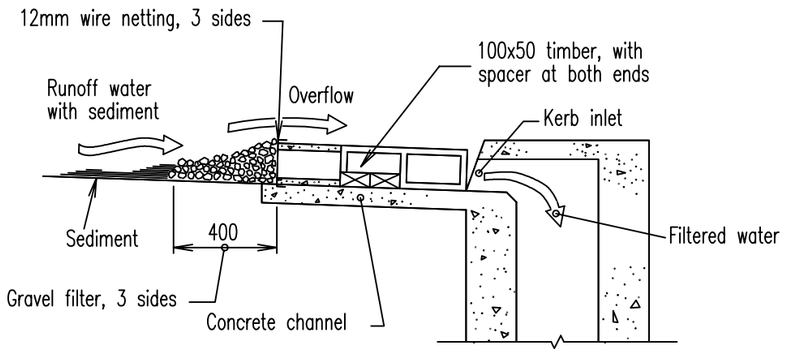


ANCHORING DETAIL



BEDDING DETAIL

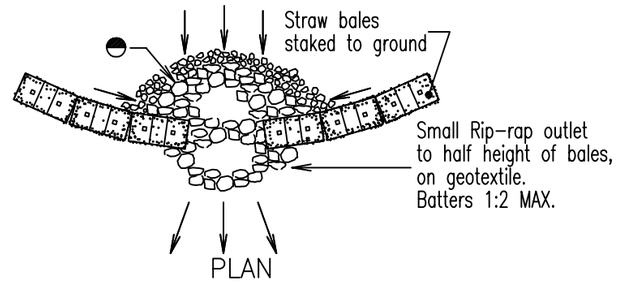
STRAW BALE BANK SEDIMENT CONTROL



SECTION A–A

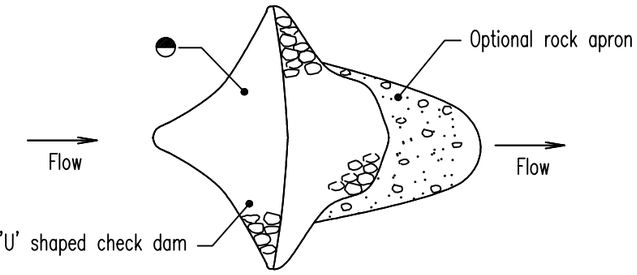
SAG INLET SEDIMENT TRAP

A stabilised bypass 'overland flow path' should exist adjacent to inlet in genuine sags.

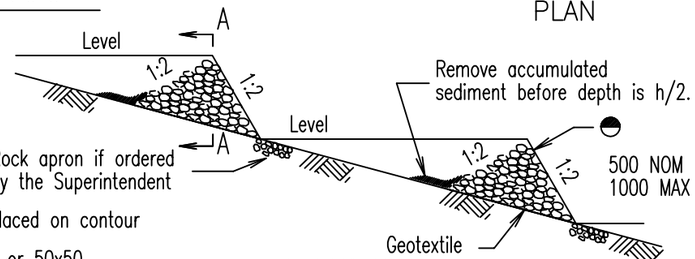


PLAN

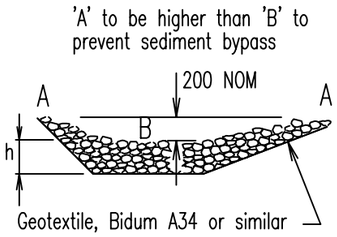
STRAW BALE AND STONE TRAP SEDIMENT CONTROL – CONCENTRATED FLOW



PLAN



ELEVATION



SECTION A–A

CHECK DAMS FLOW CONTROL

NOTES

1. Field Inlet
   a) A stabilised bypass overland flow path should exist adjacent to the field inlet.
   b) Water level control perimeter banks may be required.
   c) Blocks to be restrained by a horizontal timber rail at block joint height fixed to timber stakes at corners.
2. Check Dams
   a) Catchment area limited to 4 ha.
   b) Use in minor open drains only, (velocity control), sediment collection is a secondary purpose.
3. Straw Bale Banks
   a) Bales shall be placed at the toe of a slope or on the contour,in a row with ends tighly abutting the adjacent bales.
   b) Each bale shall be embedded in the soil a minmum of 100mm on the downstream side and placed so the bindings are horizontal.
   c) Bales shall be securely anchored in place with either two stakes or steel pickets driven through the bale. The first stake in each bale shall be driven toward the previously laid bale at an angle to force the bales together.
   d) Inspections shall be frequent and repair or replacement shall be made promptly as needed. Replace at least 3 monthly.
4. Safety issues must be considered at all times, incorporate traffic control devices to the satisfaction of the D.T.S.
5. All dimensions in millimetres.

LEGEND

◓ Gravel filter, refer Grading B, Table 9 of QT Specification MRS11.05, exculde material finer then AS sieve 2.36mm.

PLAN REFERENCE:

COPIED FROM IMEAQ STANDARD DRAWING D-0041

NOTE: MINOR MODIFICATIONS TO THIS DRAWING HAVE BEEN MADE TO SUIT COUNCIL REQUIREMENTS.

Amend.	Description	Checked	Date

Designed	
Drawn	J.D.M
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED

M.D. .....

Date .....

Scales: Not To Scale

APPROVED FOR CONSTRUCTION

D.T.S. ..... Date .....

GLADSTONE CITY COUNCIL

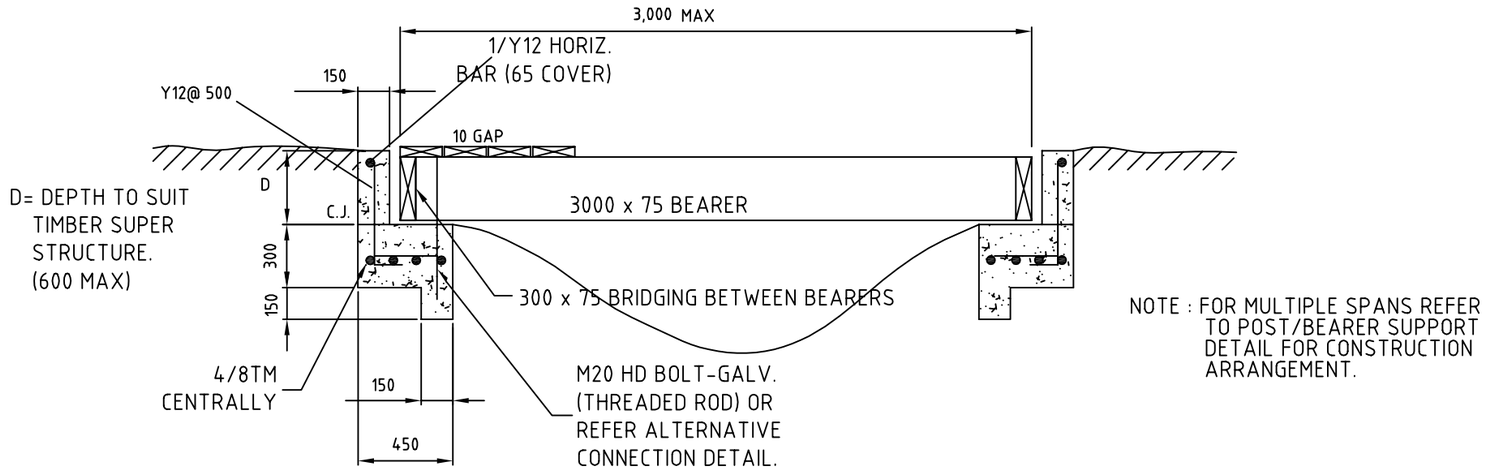
EROSION CONTROL

INLET SEDIMENT TRAPS, STRAW BALE TRAPS & BANKS, CHECK DAMS

STANDARD DRAWING

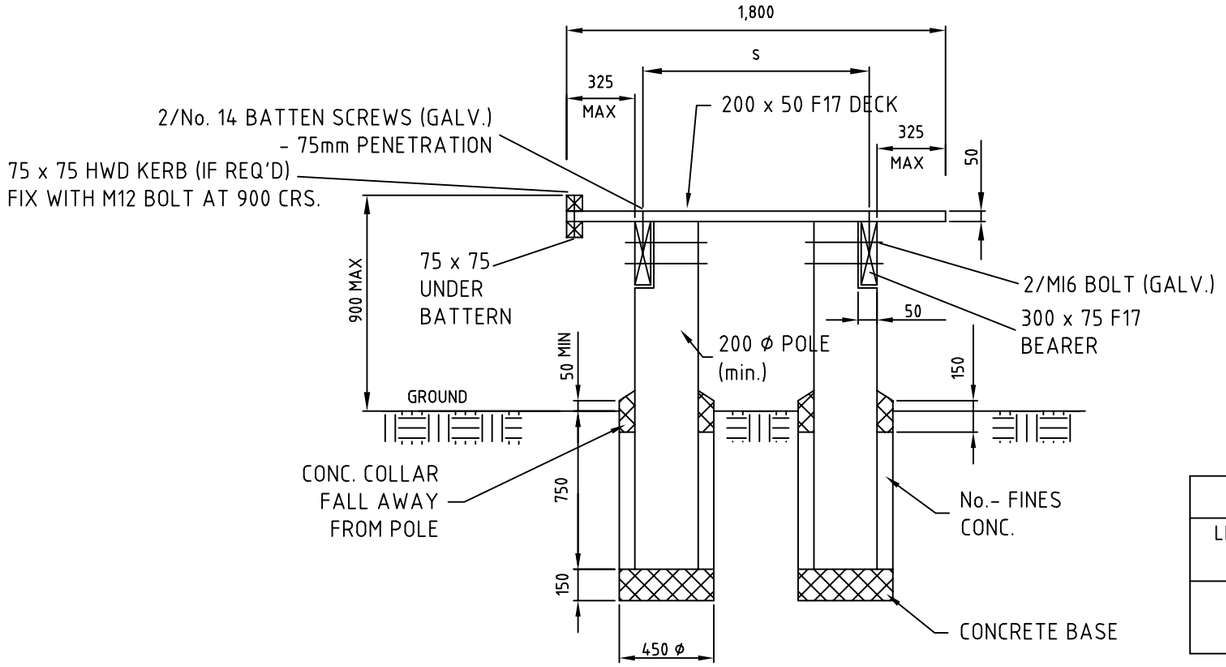
MISCELLANEOUS

M 011

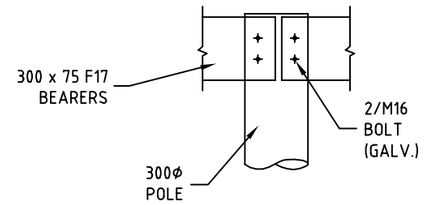


NOTE : FOR MULTIPLE SPANS REFER TO POST/BEARER SUPPORT DETAIL FOR CONSTRUCTION ARRANGEMENT.

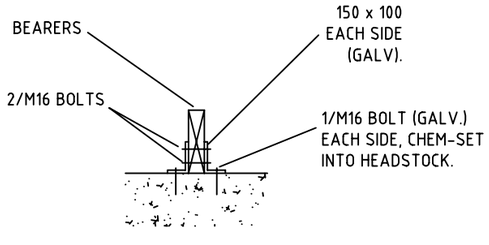
TYPICAL SECTION- PEDESTRIAN BRIDGE (SINGLE SPAN)



POST/BEARER DETAIL (MULTIPLE SPANS)



SIDE VIEW POST/BEARER DETAIL



ALTERNATIVE BEARER/HEADSTOCK CONNECTION DETAIL

BEARER SPACING 'S'		
LIGHT PEDESTRIAN TRAFFIC	HEAVY PEDESTRIAN TRAFFIC	LIGHT VEHICULAR TRAFFIC
1000	500	400

PLAN REFERENCE:

Amend.	Description	Checked	Date

Designed	S.E.G
Drawn	S.E.G
Checked	R.G.P
Date	MAR '99

DESIGN APPROVED
M.D. .....
Date .....

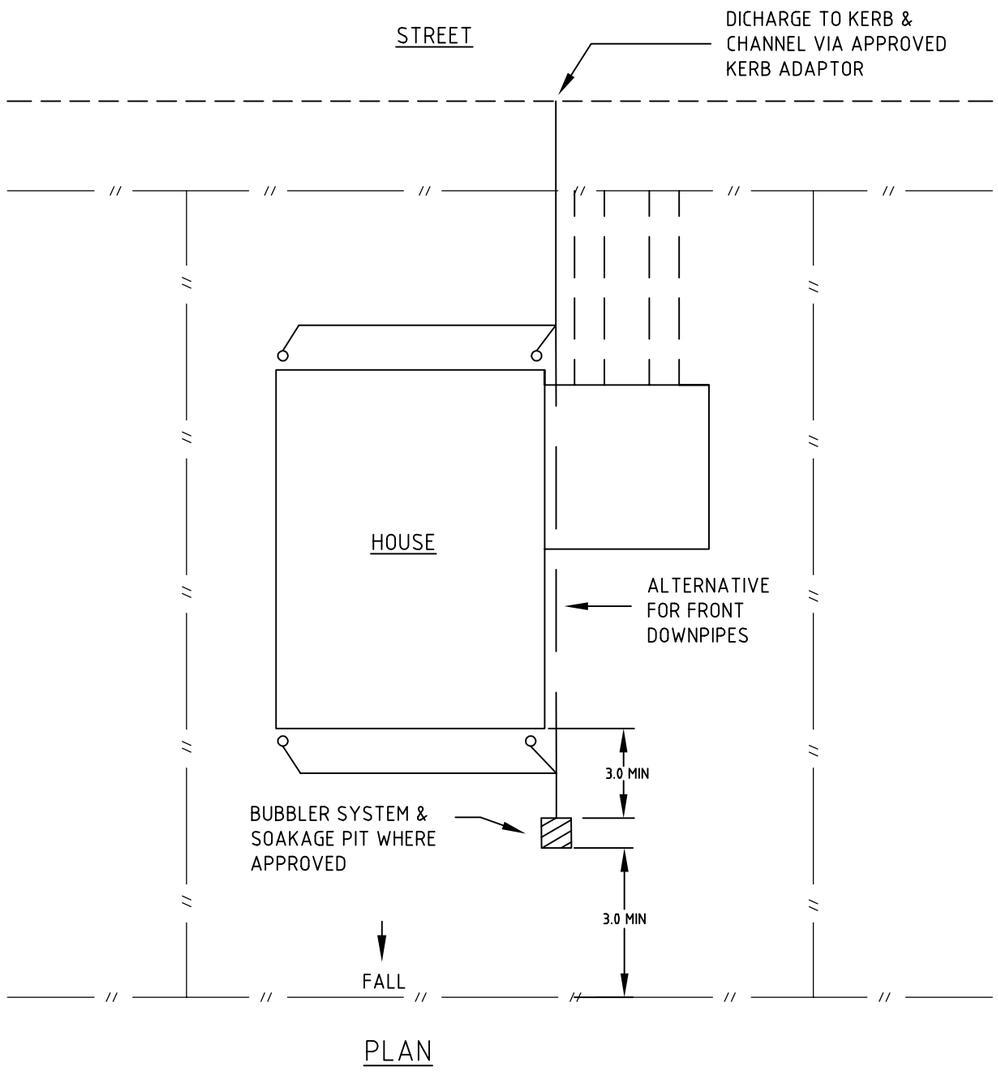
Scales:
Not To Scale

APPROVED FOR CONSTRUCTION
....
D.T.S. Date

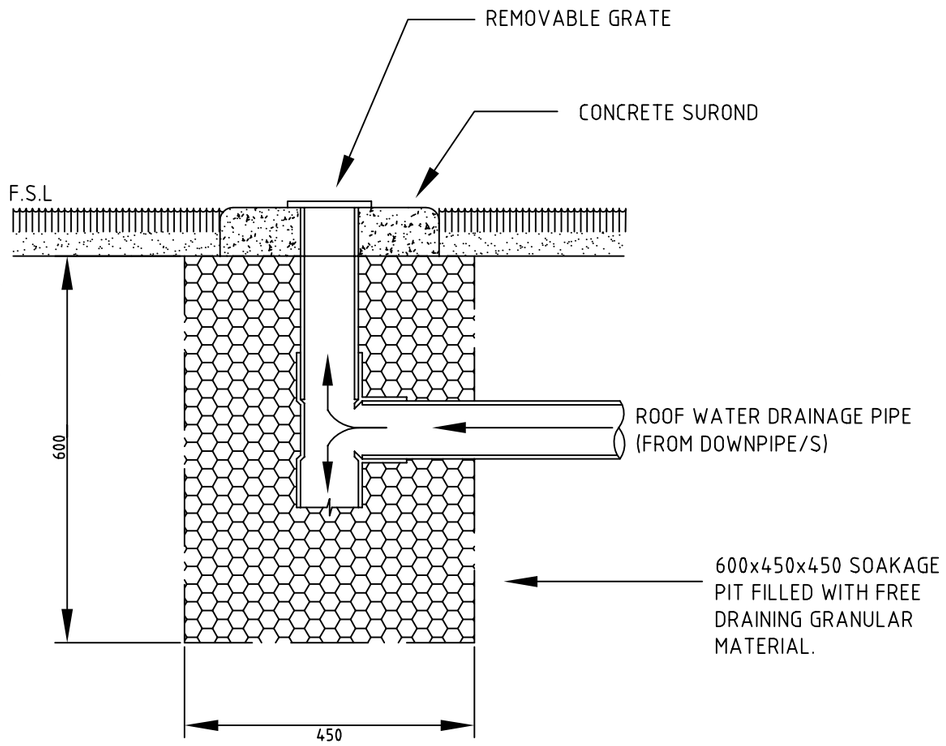
GLADSTONE CITY COUNCIL

PEDESTRIAN FOOT BRIDGE

STANDARD DRAWING
MISCELLANEOUS
M 012



PLAN



BUBBLER DETAILS

SCALE: 1:100

NOTES

1. POSITION BUBBLER MINIMUM 3m FROM BOUNDRY AND 3m AWAY FROM FOUNDATIONS
2. SOAKAGE PIT SIZE SHOWN IS FOR SINGLE DOWN-PIPE ONLY, INCREASE SIZE PROPORTIONALLY FOR 2 OR MORE DOWNPIPS.
3. BUBBLER SYSTEM WILL ONLY BE PERMITTED FOR USE WHEN IT IS NOT POSSIBLE TO DISCHARGE TO KERB AND CHANNEL OR TO ROOFWATER DRAINAGE SYSTEM OR UNLESS OTHERWISE APPROVED BY COUNCIL.

PLAN REFERENCE:

V:\Archive
?

Amend.	Description	Checked	Date

Designed	
Drawn	SLP
Checked	RGP
Date	01/09/04

DESIGN APPROVED

M.D. .....
Date .....

Scales:
NTS
NTS

APPROVED FOR CONSTRUCTION

....
D.T.S. Date

GLADSTONE CITY COUNCIL

BUBBLER SYSTEM FOR
STORMWATER DISPERSAL

Sheet 1 of 1 sheets

M	013	1