

Std. Dwg. No.	Descriptions
	AS CONSTRUCTED
S-0010	SAMPLE AS CONSTRUCTED PLAN
	ACCESS CHAMBERS
	ACCESS CHAMBERS
S-0020	1050mm NOM DIA – INSITU CONSTRUCTION
S-0021	1050mm NOM DIA – PRECAST COMPONENTS (BY PRIOR APPROVAL ONLY)
S-0022	1500mm NOM DIA – INSITU CONSTRUCTION
S-0023	ALTERNATIVE DROPS – INSITU CONSTRUCTION
S-0024	RECTANGULAR INCLUDING CAST IRON COVERS AND FRAMES
S-0025	CAST IRON COVER AND FRAME, CAST IRON CONCRETE FILLED COVER
S-0026	CAST IRON COVER AND FRAME, BOLT DOWN
	HOUSE CONNECTION BRANCHES
S-0030	HOUSE CONNECTION BRANCHES
	PUMP STATIONS
	SUBMERSIBLE SEWAGE PUMPING STATION
S-0050	1800mm DIA & 2400mm DIA PRESSURE GAUGE ARRANGEMENT AIR RELEASE PIPEWORK DETAILS
S-0051	7.2m VENT POLE TERRAIN CAT 2 AND 3
S-0052	12.0m VENT POLE TERRAIN CAT 2 AND 3
S-0057	LIFT STATION SUBMERSIBLE, 1800mm DIA (0-20L/sec)
S-0058	PUMP STATION OVERFLOW
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S-0060	ALUMINIUM COVERS AND FRAMES 2400mm DIA.
	PRESSURE MAINS
S-0070	PRESSURE MAIN DISCHARGE DETAILS
	SEWER CONSTRUCTION
S-0090	SEWER CONSTRUCTION, PIPELINE CONSTRUCTION TYPES
S-0091	PIERING DETAILS FOR BUILDINGS LESS THAN 1.5m TO SEWER LINE

C	GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B	S-0010, S-0020 TO 0024, S-0030, S-0050, S-0059 TO 0060, S-0070 & S-0091 (S-0054 TO 0056 DELETED)	10/3/98
A	ORIGINAL ISSUE	1/3/97
REVISIONS		DATE



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INDEX STANDARD DRAWINGS SEWERAGE

**SEWERAGE
Standard
Drawing
S-0001**

A	B	C	
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BRETT STREET

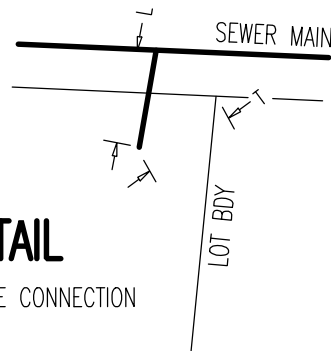
MANHOLE DETAILS

PIT NUMBER	LID LEVEL	OUTLET LEVEL	INLET LEVEL/S
8/12	17.66	16.31	16.78 N, 16.33 S
9/12	18.5	17.28	17.33 E, 17.33 S
10/12	18.56	17.78	17.82
11/12	20.75	19.22	19.27
1/13	19.56	18.33	18.37
1/14	18.56	17.78	17.82

TABLE FORMAT FOR MANHOLE LEVEL DETAILS PREFERRED.
 (LEVELS ON FACE OF PLAN AN ALTERNATE OPTION ONLY IF
 PLAN IS OPEN ENOUGH TO FACILITATE CLEAR INTERPOLATION
 SEE SETOUT OF TEXT AS SHOWN ON THIS SAMPLE PLAN)

DETAIL

TYPE C HOUSE CONNECTION



LEGEND

- Sewers
- Kerb and channel

This standard drawing is indicative of plan presentation only.

LOT 4
 HC 2.5
 TYPE A
 DEPTH 0.5

LOT 5
 HC 20.5
 TYPE A
 DEPTH 0.5

LOT 6
 HC 2.5
 TYPE A
 DEPTH 0.5

LOT 7
 HC 0
 TYPE SP
 DEPTH

M/H TOP
 RL 18.56

LOT 8
 HC 2.5
 TYPE A
 DEPTH 0.5

M/H TOP
 RL 17.66

LOT 1
 HC 3.5
 TYPE A
 DEPTH 0.7

M/H TOP
 RL 18.50

LOT 3
 HC 17.6
 TYPE C
 DEPTH 0.6
 L 2.5
 T 1.8

FUTURE
 HC 38.6
 TYPE C
 DEPTH 0.6
 L 2.3
 T 3.25

LOT 2
 HC 0
 TYPE SP
 DEPTH

M/H TOP
 RL 19.56

PSM 12345
 RL 18.352 A.H.D. (Der.)

EXIST 225Ø uPVC

NOTES:

- All sewer pipes are Ø150 uPVC Class SEH unless shown otherwise.
- Manhole numbering to be obtained from council prior to plan completion
- Level datum to be indicated on plan, including Origin Mark and Level.
- Plan to contain sewerage as-constructed details only.

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
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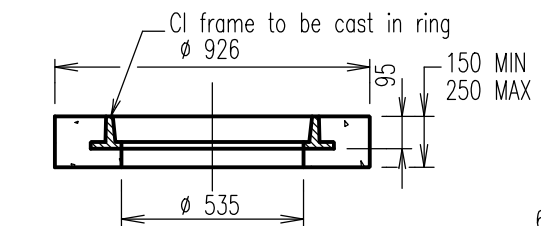
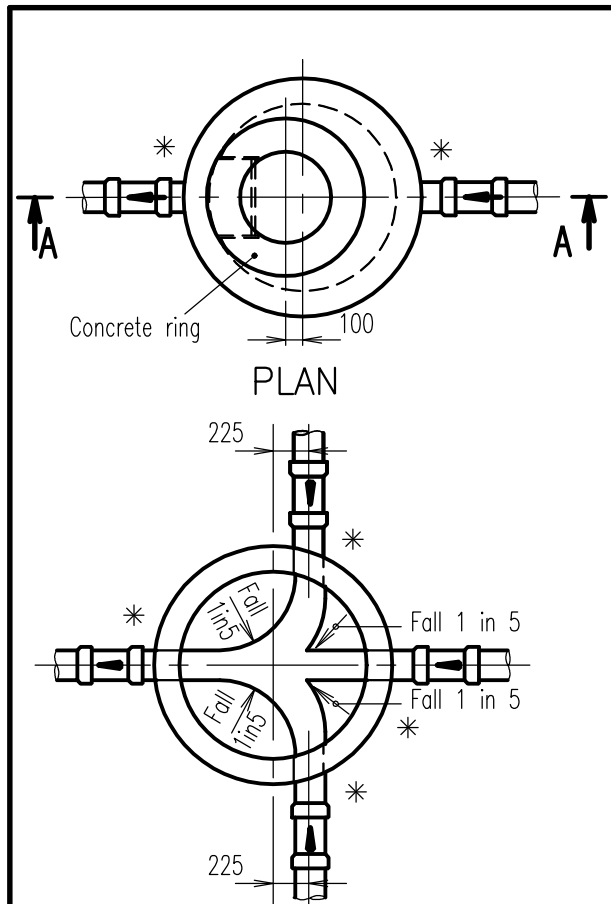
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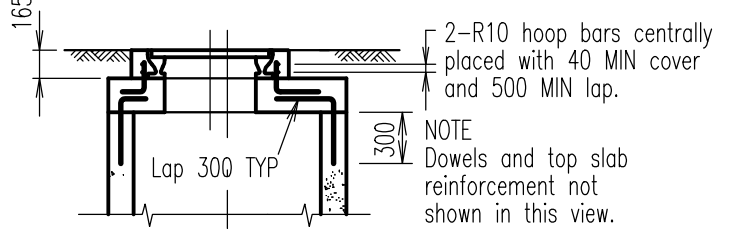
SIMPLE AS CONSTRUCTED PLAN

**SEWERAGE
 Standard
 Drawing
 S-0010**

A B C

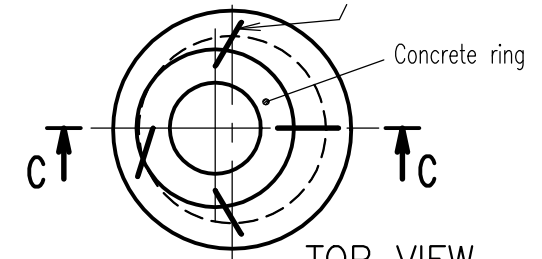


SECTIONAL ELEVATION CONCRETE RING

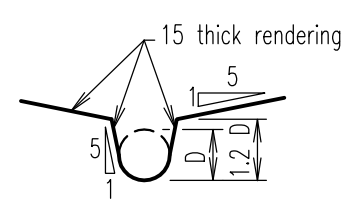


SECTION C - C

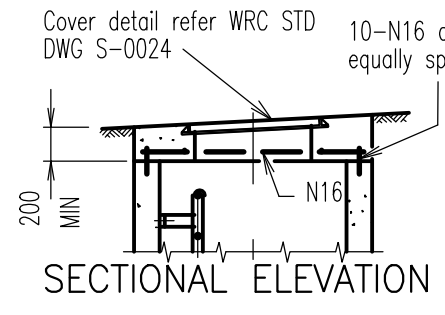
4 - N12 bars equally spaced on centre line of concrete ring with 40 cover to top of hook. (Top of bar to be hooked around 4d pin by approved method).



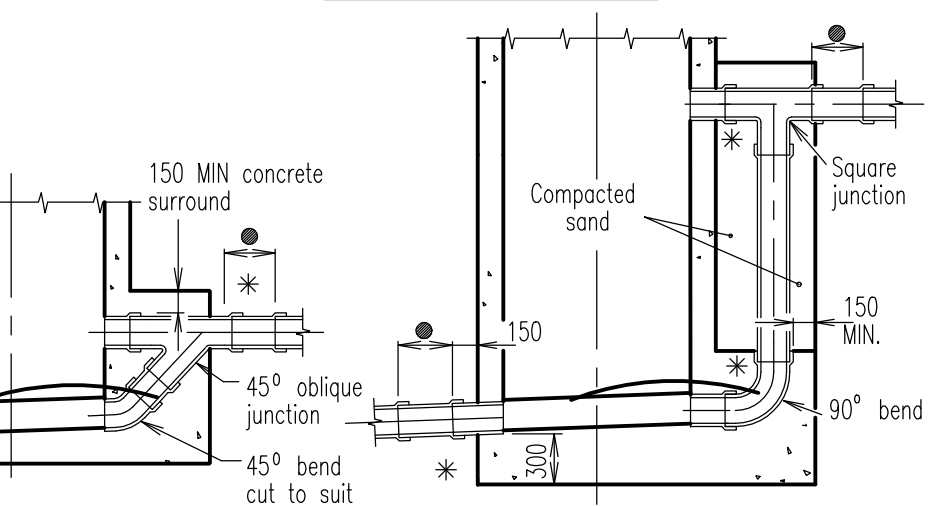
TOP VIEW REINFORCEMENT FOR BOLT DOWN COVER



SECTION B - B



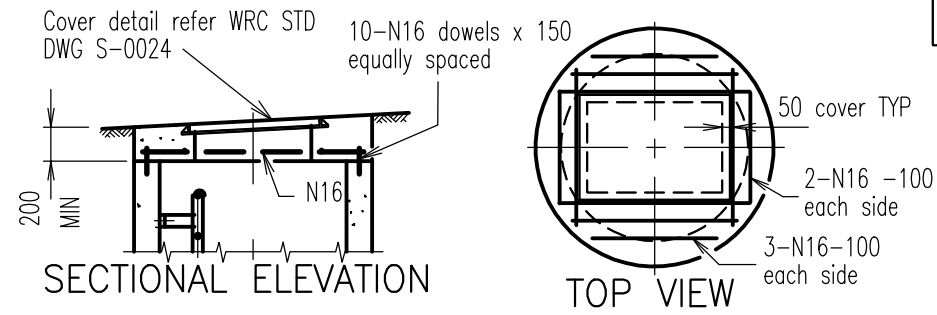
SECTIONAL ELEVATION ALTERNATIVE ROOF



INLET TYPE A

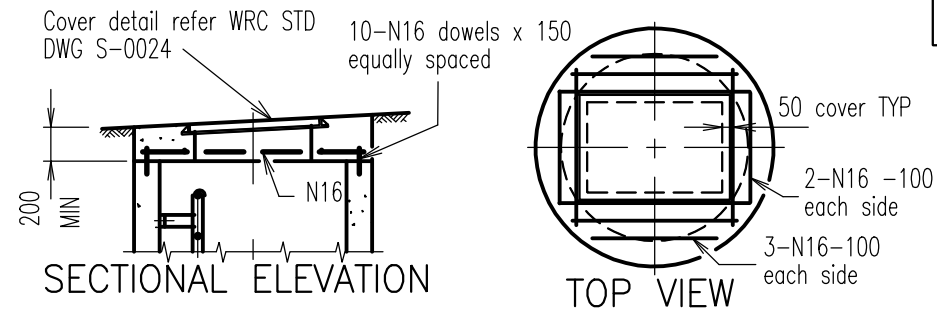
INLET TYPE B

INLET TYPE C



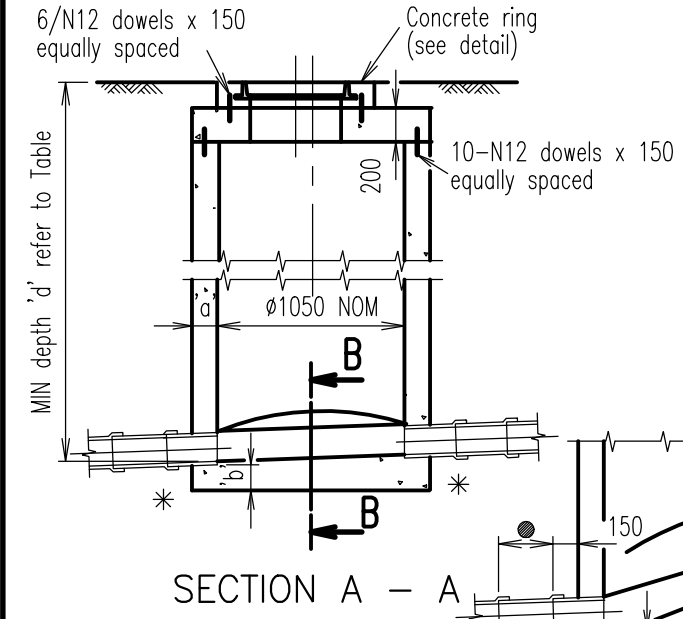
SECTIONAL ELEVATION TOP SLAB REINFORCEMENT

Refer Standard Drawing S-0021 for alternative top slab reinforcement



TOP VIEW ALTERNATIVE ROOF

SECTIONAL PLAN TYPICAL LAYOUT OF CHANNELS



SECTION A - A

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B DETAIL 'A' ADDED	10/3/98
A ORIGINAL ISSUE	1/3/97



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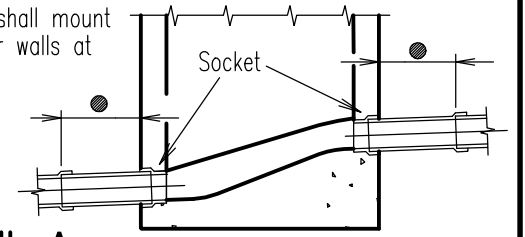
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**ACCESS CHAMBER
1050 NOM. DIA.
INSITU CONSTRUCTION**

**SEWERAGE
Standard
Drawing
S-0020**

A	B	C
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All Access Chamber shall mount sockets into chamber walls at all inlets and outlets.



DETAIL A

CRITICAL DIMENSIONS

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

MINIMUM DEPTHS

Outlet ø	Minimum Depth 'd'
ø150	1500 + (Type A fall - 100)
ø225	1575 + (Type A fall - 100)
ø300	1650 + (Type A fall - 100)
ø375	1725 + (Type A fall - 100)

INLET DROP - DEPTH RANGE

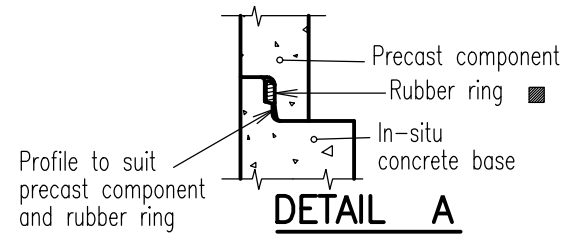
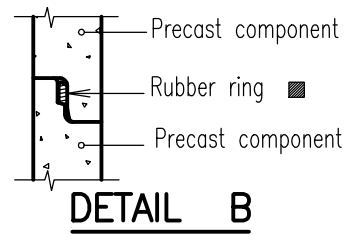
PIPE SIZE	V C PIPE			uPVC PIPE		
	TYPE A	TYPE B	TYPE C	TYPE A	TYPE B	TYPE C
ø150	40 to 300	300 to 600	over 350	40 to 300	300 to 600	over 600
ø225	40 to 300	500 to 800	over 550	40 to 300	500 to 1000	over 1000
ø300	40 to 300	600 to 900	over 700	40 to 300	600 to 1500	over 1500
ø375	40 to 300	700 to 1000	over 900	40 to 300	1000 to 2100	over 2100

NOTES:

- Minimum fall through chamber shall be 40mm.
- Concrete N32 in accordance with AS 1379:2007 and AS 3600:2009.
- All fasteners shall be Grade AS 1444:2007 stainless steel. Unless otherwise noted, fasteners shall be as described below.
(a) Fixing to concrete - bolts shall be approved anchors.
(b) Fixing to metalwork - bolts shall be HEX head bolts.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
- Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into access chamber wall shall be coated or sanded for the length of wall penetration to ensure bonding.
- Roof design to Austroads W7 wheel load, dynamic factor 0.4.
- All dimensions in millimetres.

LEGEND

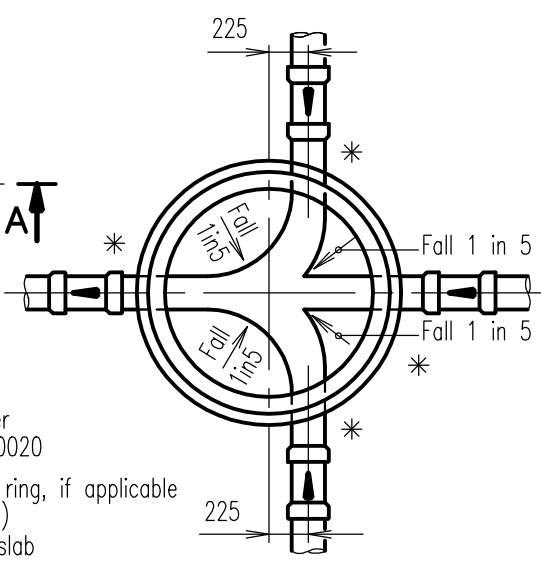
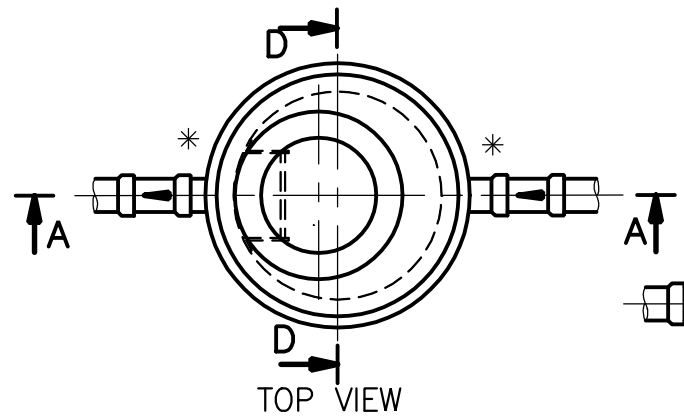
- Length of pipe shall be 3 x DIA of pipe
- * Refer Detail A (above)



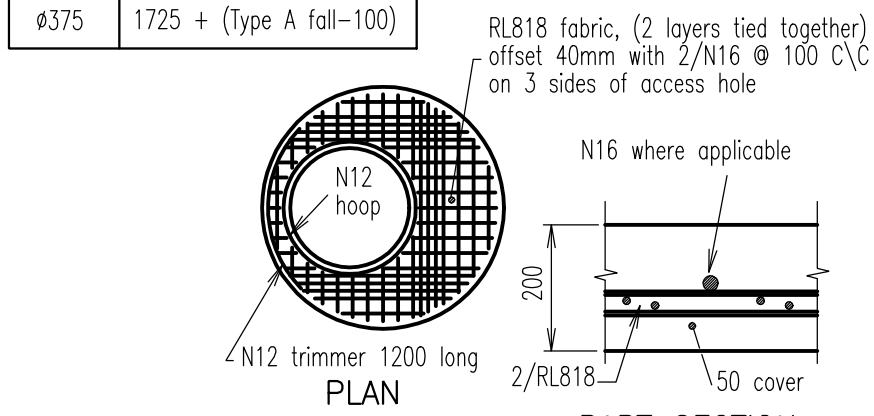
PIPE SIZE	INLET DROP - DEPTH RANGE					
	V C PIPE			uPVC PIPE		
	TYPE A	TYPE B	TYPES C&D	TYPE A	TYPE B	TYPES C & D
Ø150	40 to 300	300 to 600	over 350	40 to 300	300 to 600	over 600
Ø225	40 to 300	500 to 800	over 550	40 to 300	500 to 1000	over 1000
Ø300	40 to 300	600 to 900	over 700	40 to 300	600 to 1500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

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

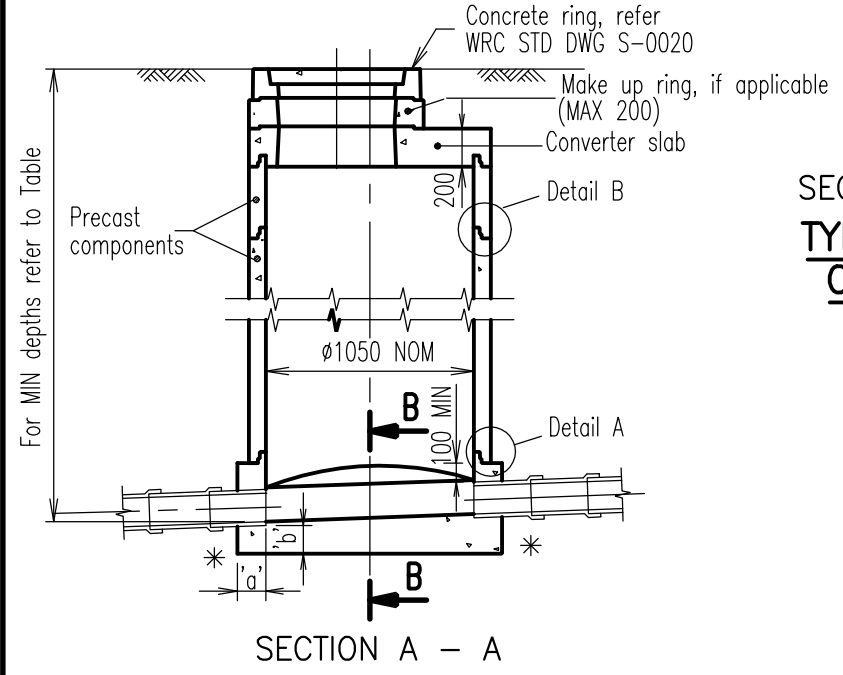
CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	a	b
Minimum to 3000	150	150
3000 to 6000	225	300



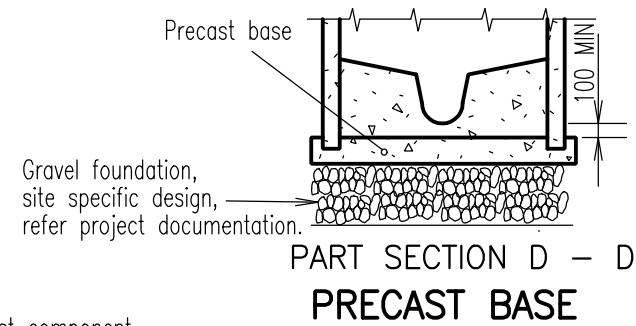
SECTIONAL PLAN
TYPICAL LAYOUT
OF CHANNELS



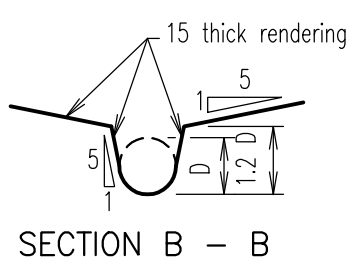
CONVERTER SLAB



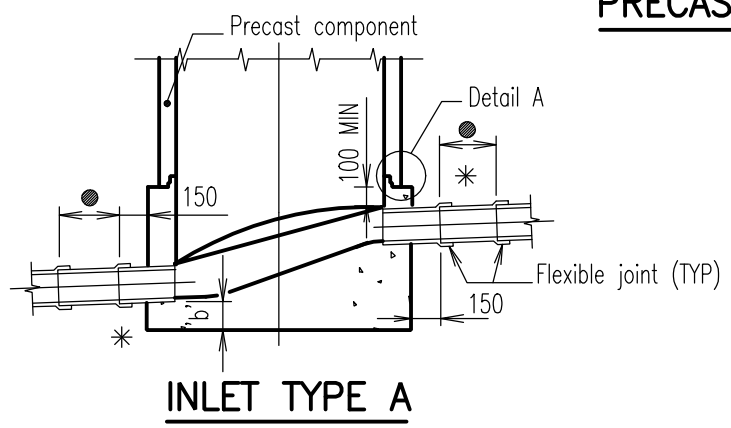
SECTION A - A



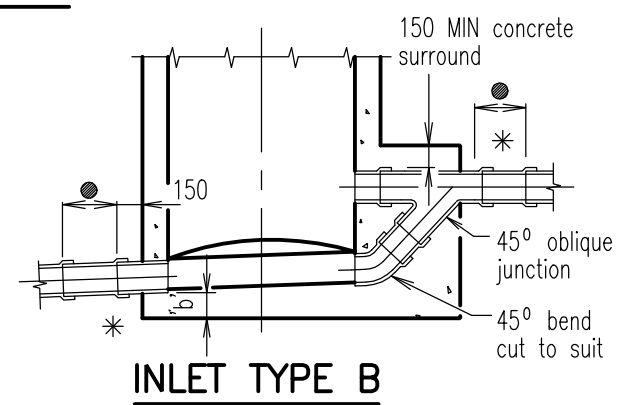
PART SECTION D - D
PRECAST BASE



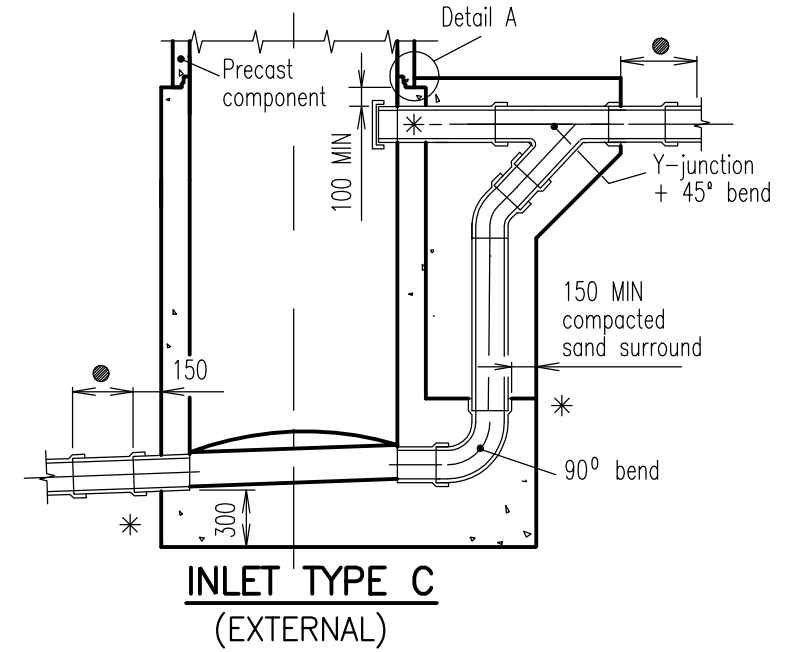
SECTION B - B



INLET TYPE A



INLET TYPE B



INLET TYPE C
(EXTERNAL)

NOTES

- Minimum fall through chambers shall be 40mm.
- Concrete shall be
 - Class N32 for in-situ concrete
 - Class N40 for pre-cast segments both in accordance with AS 1379:2007 and AS 3600:2009.
- All fasteners shall be Grade AS 1444:2007 stainless steel. Unless otherwise noted, fasteners shall be as described below.
 - Fixing to concrete - bolts shall be approved anchors.
 - Fixing to metalwork - bolts shall be HEX head bolts.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
- Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
- Precast chambers shall not be used where :-
 - sewer lines accept pumped flows
 - sewer lines are greater than Ø375
 - chambers are greater than 6.0m in depth
- Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
- All dimensions in millimetres.

LEGEND

- Length of short pipe shall be 2 x DIA of pipe
- Lubricate concrete surface and rubber ring before placing precast components
- * Refer DETAIL 'A' Dwg S-0020

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B MINOR AMMENDMENTS	10/3/98
A ORIGINAL ISSUE	1/3/97



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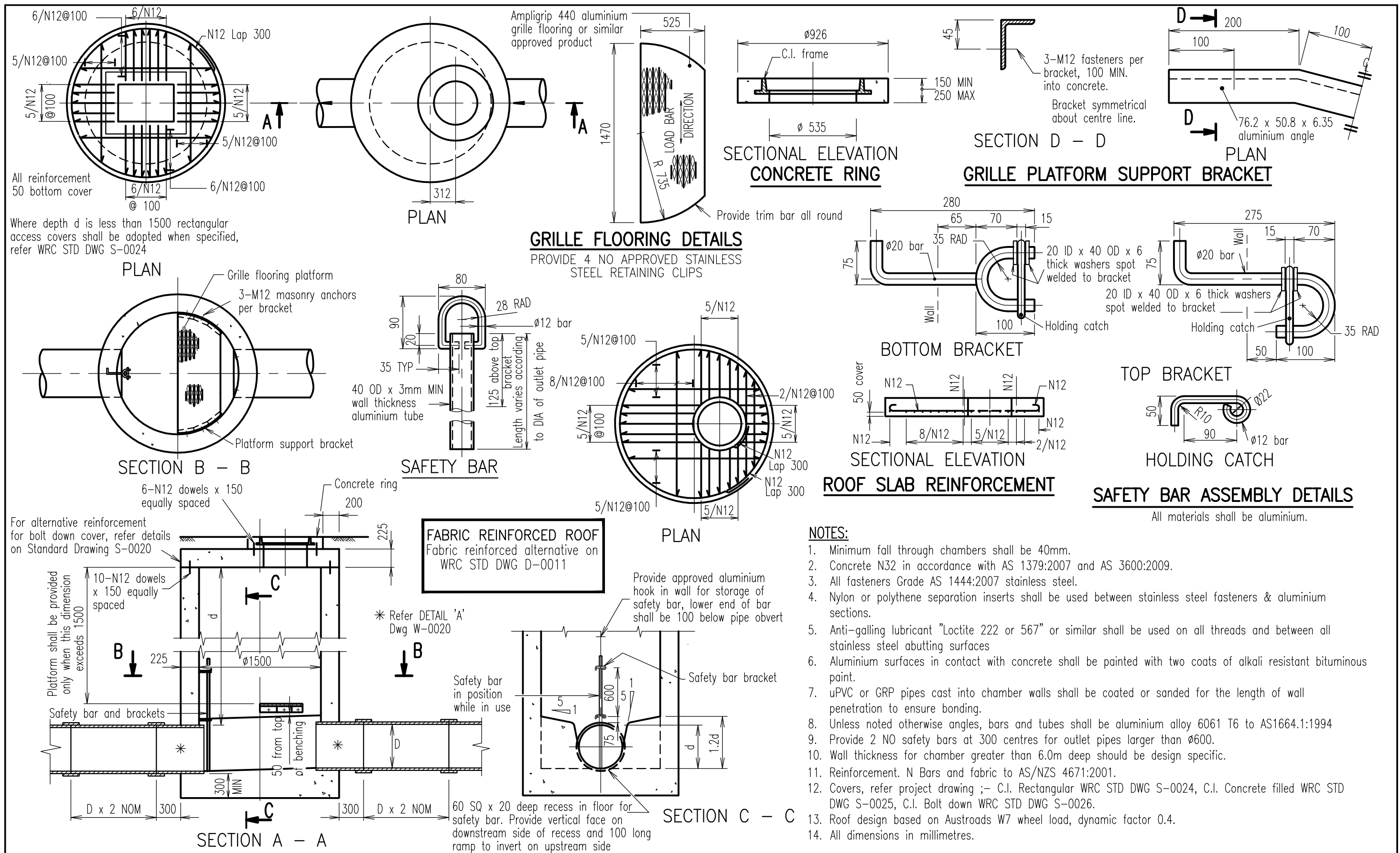
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**ACCESS CHAMBERS
1050mm NOM. DIA.
PRECAST COMPONENTS
(BY PRIOR APPROVAL ONLY)**

**SEWERAGE
Standard
Drawing
S-0021**

A	B	C
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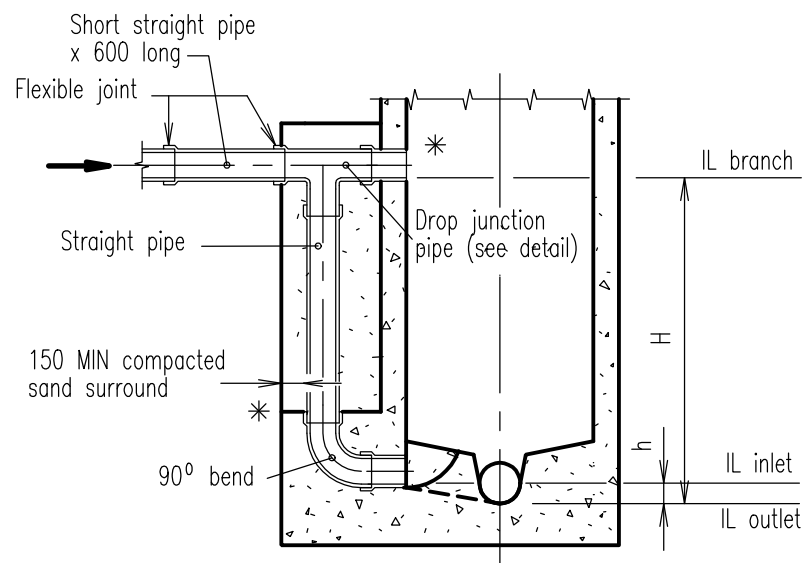
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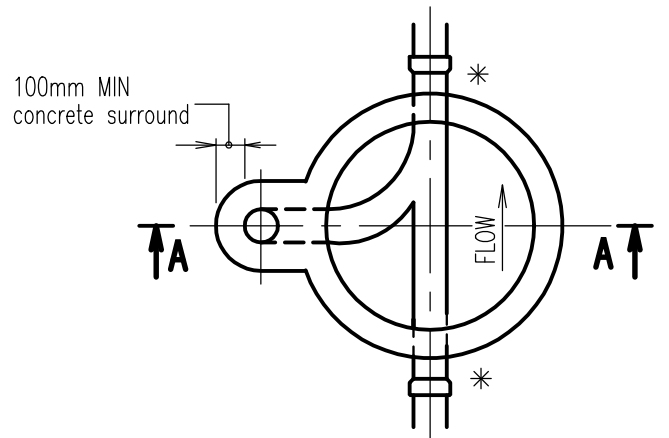
ACCESS CHAMBERS
1500mm DIA.
INSITU CONSTRUCTION

SEWERAGE
Standard
Drawing
S-0022

A B C

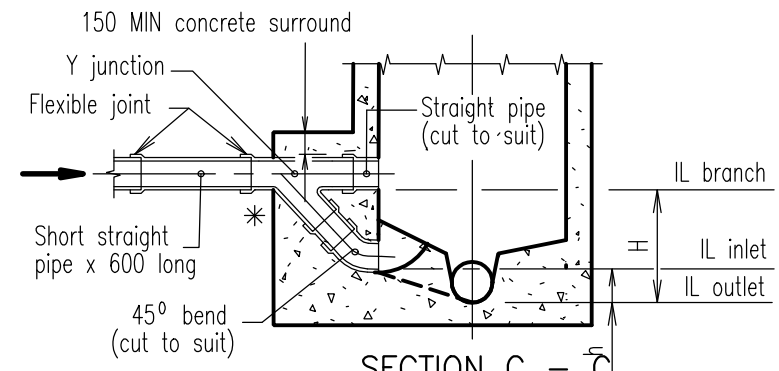


SECTION A - A

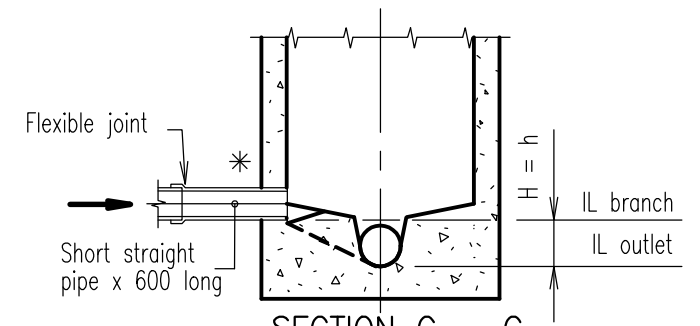


PLAN EXTERNAL VERTICAL DROP

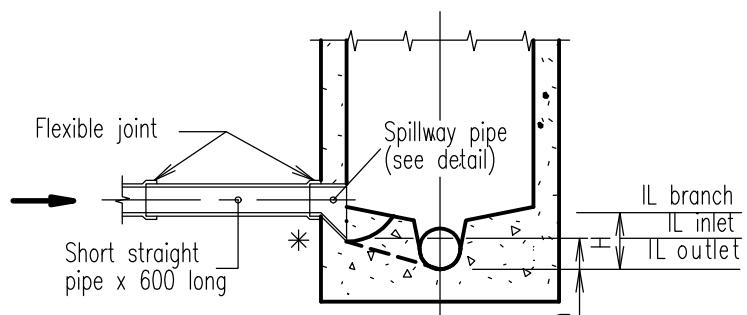
Only to be used where approved or ordered by Service Authority



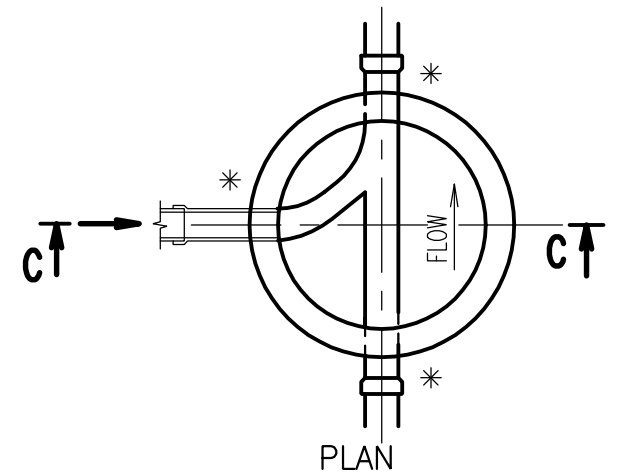
SECTION C - C SHORT SLOPE DROP



SECTION C - C BENCHING ONLY



SECTION C - C SPILLWAY DROP



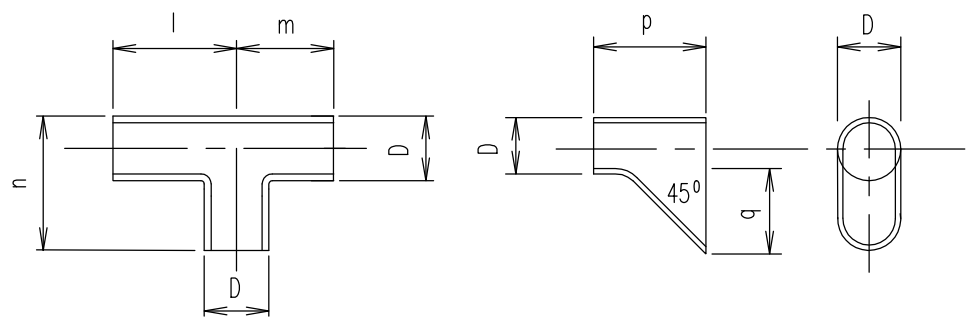
PLAN

* Refer DETAIL 'A' WRC STD DWG W-0020

PIPE DIA D	MAXIMUM DROPS			
	CHAMBER DROP 'H'			
	Normal Benching	Spillway Drop	Short Slope Drop	Vertical Drop
100	Under 250	250 to 350	350 to 600	over 600
150	Under 250	250 to 400	400 to 700	over 700
225	Under 300	300 to 500	500 to 800	over 800
300	Under 350	350 to 650	650 to 1000	over 1000

NOTES:

1. Unless otherwise approved for particular types of sewer pipe used or particular site conditions, short pipes (600mm MAX) to be flexibly jointed to all sections bedded on or surrounded with concrete.
2. All benching to be 1 in 5 MIN.
3. 100mm external uPVC drop to be provided where house drain connection is well above chamber invert.
4. Refer WRC STD DWG S-0020 for 1050 NOM. access chamber insitu construction details.
5. Vertical and short slope drops to be formed using special pipes and standard fittings with couplings & sealing rings.
6. All dimensions in millimetres.



DROP JUNCTION PIPE

SPILLWAY PIPE

SPECIAL PIPES

PIPE DIA D	SPECIAL PIPES				
	Drop Junction			Spillway	
	l	m	n	p	q
100	380	225	300	150	100
150	380	225	300	225	150
225	420	350	425	325	225
300	450	450	525	425	300

MINIMUM DROPS		
Angle Through Chamber	Minimum Drop 'h'	
	Branch Sewer	0° to 30°
30° to 60°		50
60° to 90°		75
Main Sewer	0° to 45°	25
	45° to 90°	40

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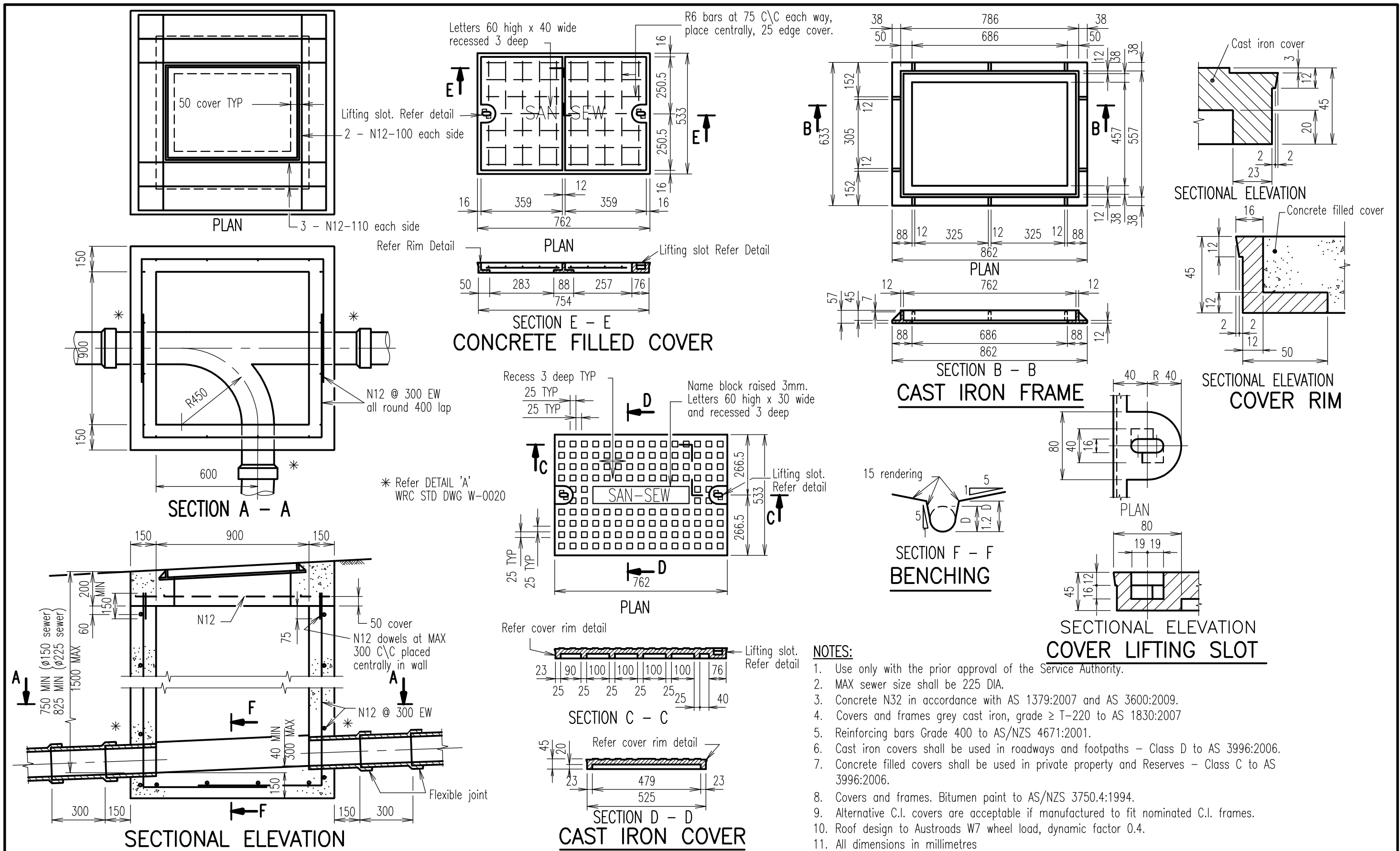
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**ACCESS CHAMBERS
ALTERNATIVE DROPS
INSITU CONSTRUCTION**

**SEWERAGE
Standard
Drawing
S-0023**

A	B	B	
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- NOTES:**
1. Use only with the prior approval of the Service Authority.
 2. MAX sewer size shall be 225 DIA.
 3. Concrete N12 in accordance with AS 1379:2007 and AS 3600:2009.
 4. Covers and frames grey cast iron, grade \geq T-220 to AS 1830:2007
 5. Reinforcing bars Grade 400 to AS/NZS 4671:2001.
 6. Cast iron covers shall be used in roadways and footpaths - Class D to AS 3996:2006.
 7. Concrete filled covers shall be used in private property and Reserves - Class C to AS 3996:2006.
 8. Covers and frames. Bitumen paint to AS/NZS 3750.4:1994.
 9. Alternative C.I. covers are acceptable if manufactured to fit nominated C.I. frames.
 10. Roof design to Austroads W7 wheel load, dynamic factor 0.4.
 11. All dimensions in millimetres

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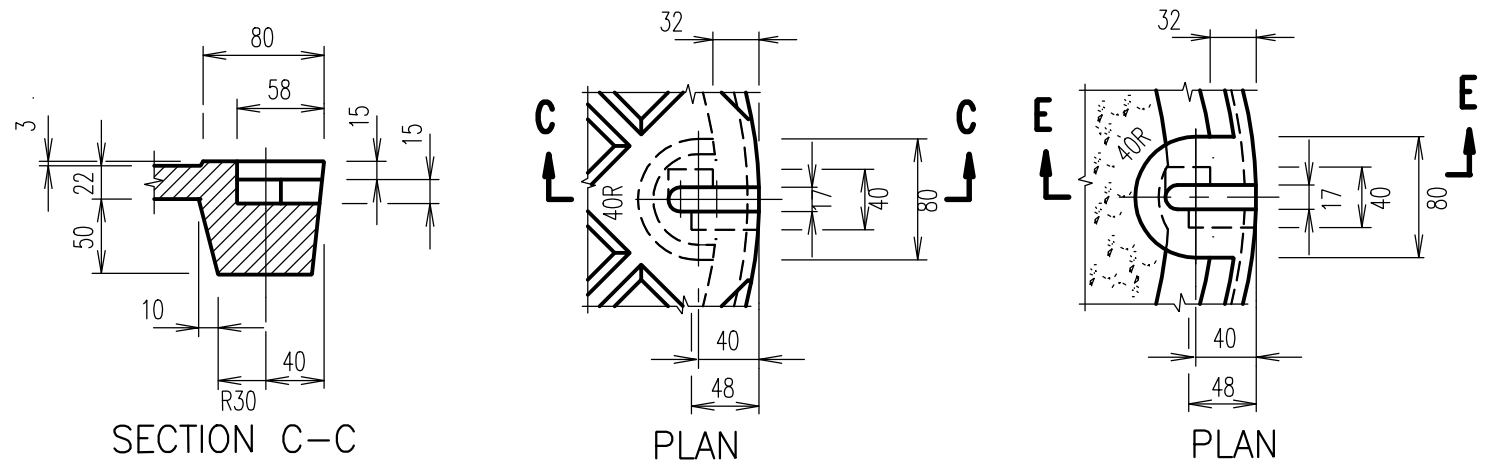
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**ACCESS CHAMBERS
RECTANGULAR INCLUDING
C.I. COVERS & FRAMES**

**SEWERAGE
Standard
Drawing
S-0024**

A	B	C
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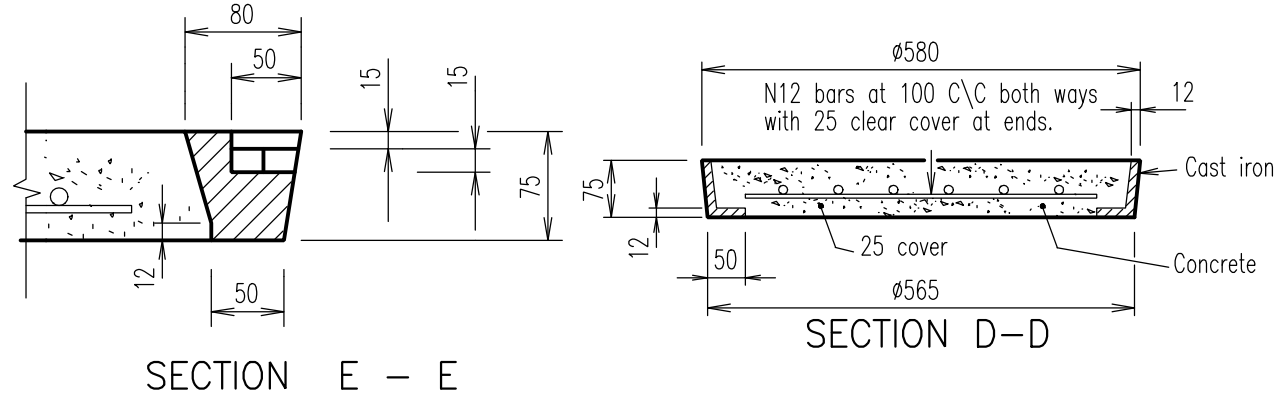
SECTION C-C

LIFTING SLOTS - DETAIL A

PLAN

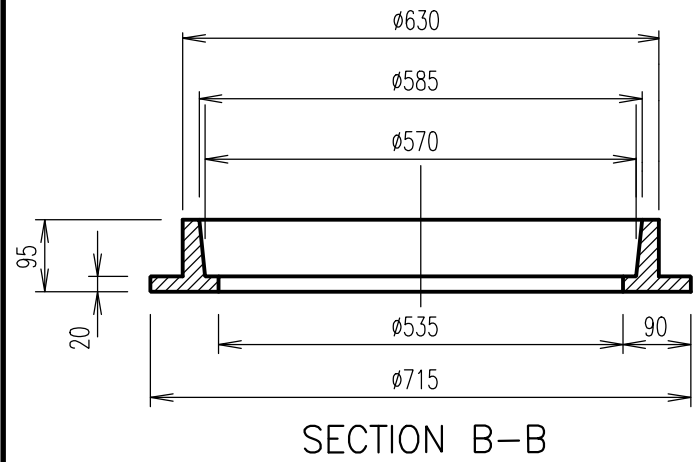
PLAN

SLOTS - DETAIL B

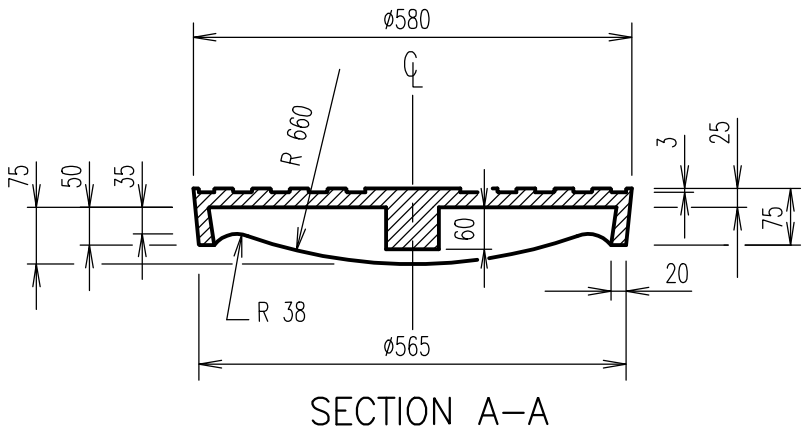


SECTION E - E

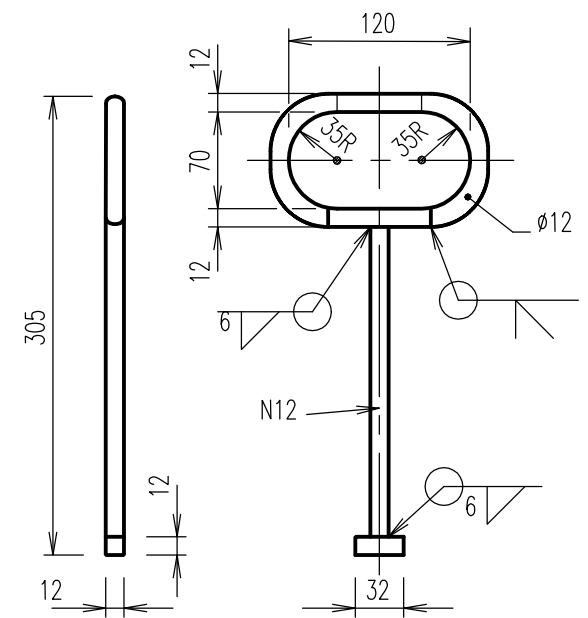
SECTION D-D



SECTION B-B

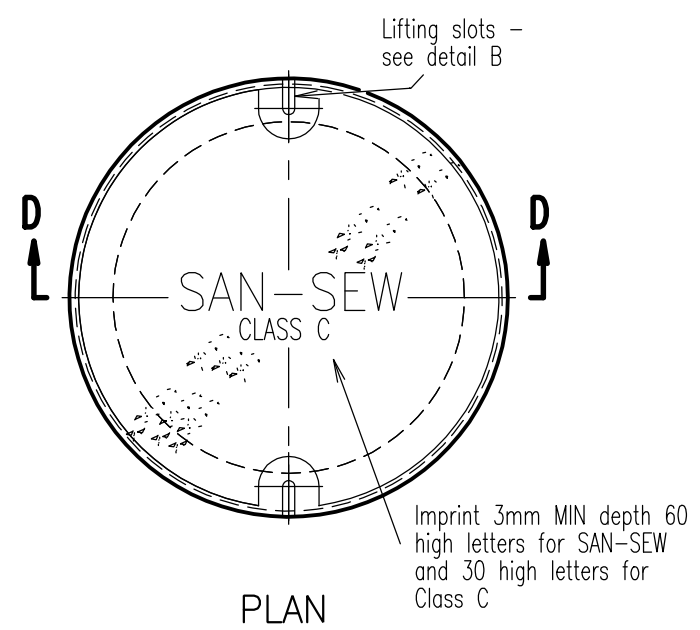


SECTION A-A



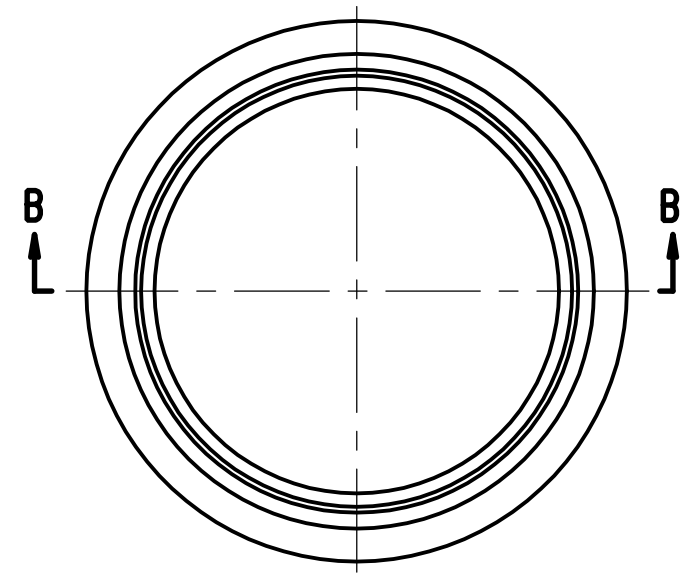
STEEL LIFTING KEY

Hot dip galvanized to AS 4680:2006

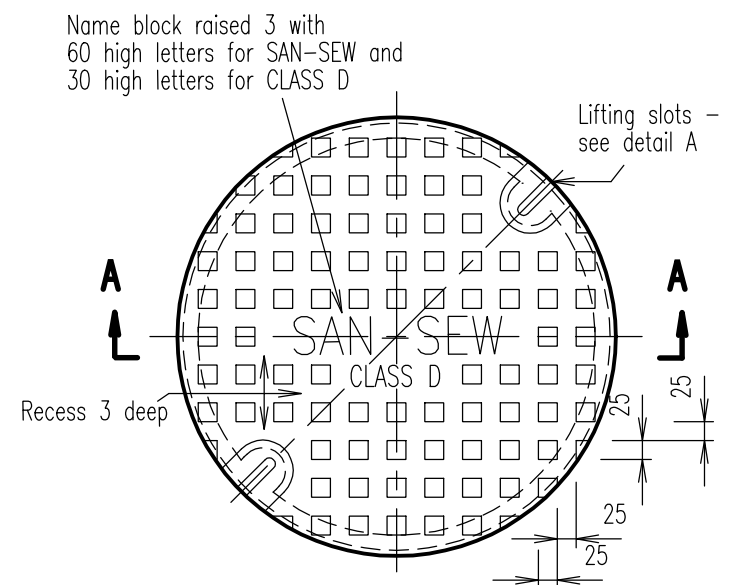


PLAN

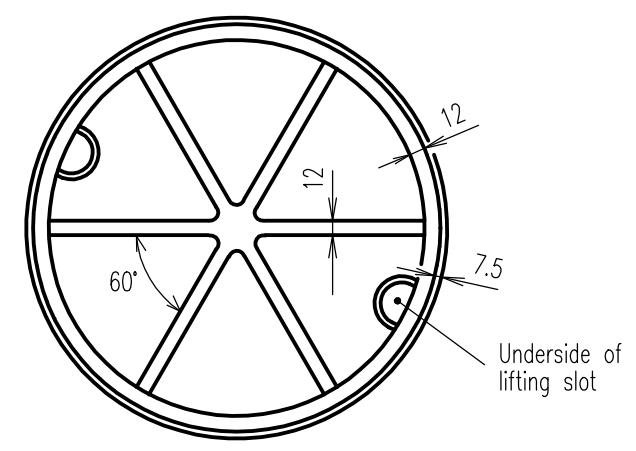
PLAN - C.I. CONCRETE FILLED COVER



PLAN - FRAME



PLAN - C.I. COVER



UNDERSIDE OF C.I. COVER

Name block raised 3 with 60 high letters for SAN-SEW and 30 high letters for CLASS D

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 1830:2007.
4. All steel Grade 400 to AS/NZS 3679.1:2016.
5. Concrete infill N32/10 in accordance with AS 1379:2007 and AS 3600:2009.
6. All welds to AS 1554.1:2014 Welding symbols to AS 1101.3:2005
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 and frame to AS/NZS 3750.4:1994.
9. Covers and frames to AS 3996:2006
10. All dimensions in millimetres.

REVISIONS	DATE
B GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
A ORIGINAL ISSUE	1/3/97



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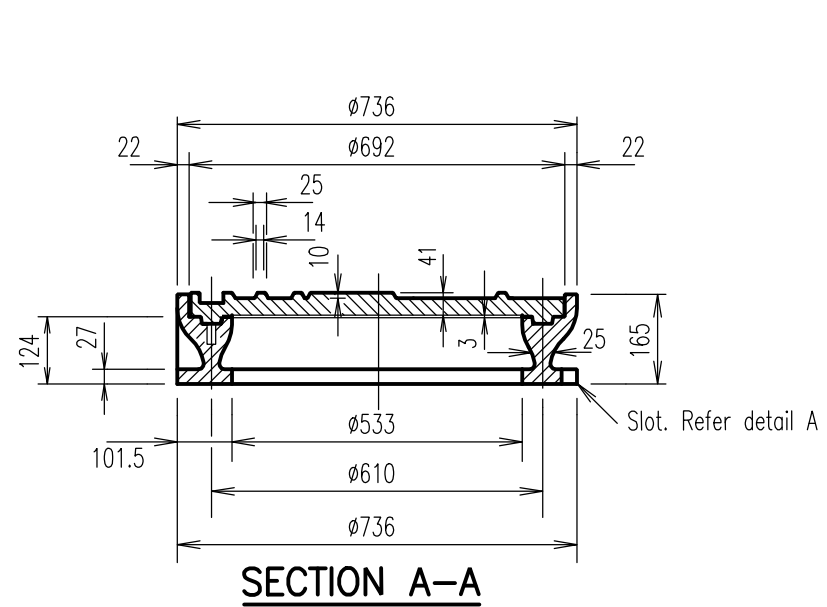
COLLINSVILLE
Cnr Stanley & Conway Sts
Collinsville 4804 Q
Ph 07 4785 5366

PROSERPINE
83-85 Main St
Proserpine 4800 Q
Ph 07 4945 0200

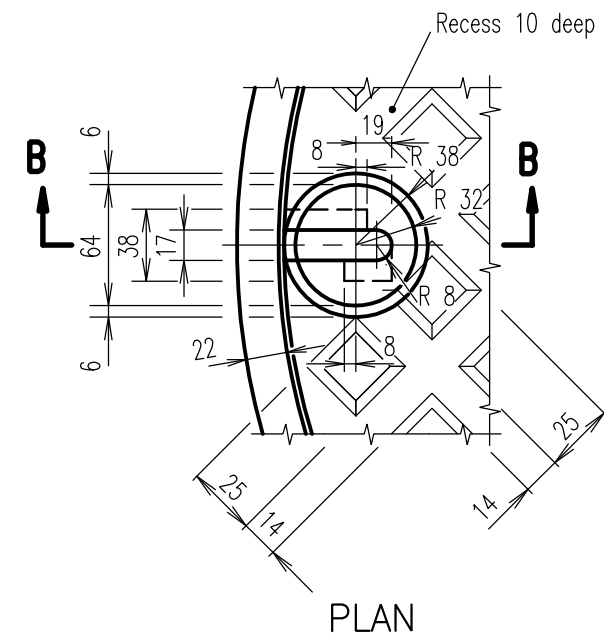
ACCESS CHAMBERS
RECTANGULAR INCLUDING
C.I. COVERS & FRAMES

SEWERAGE
Standard
Drawing
S-0025

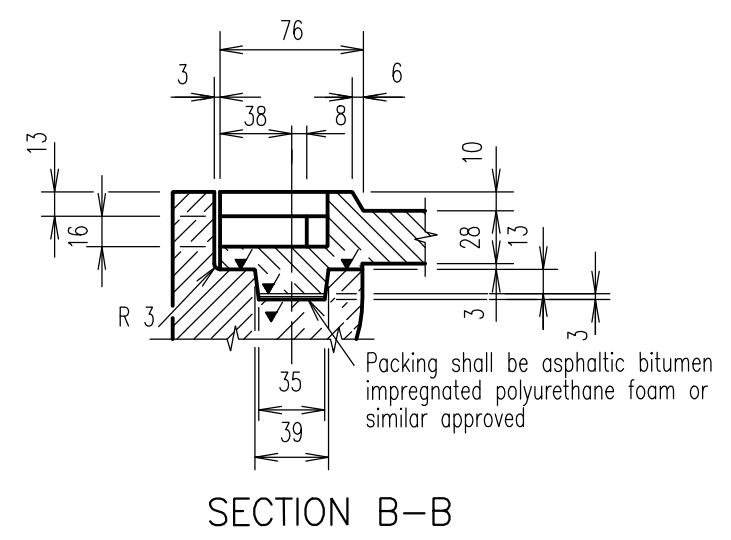
A	B		
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SECTION A-A

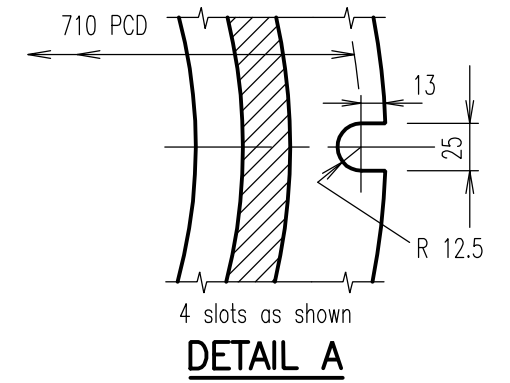


PLAN

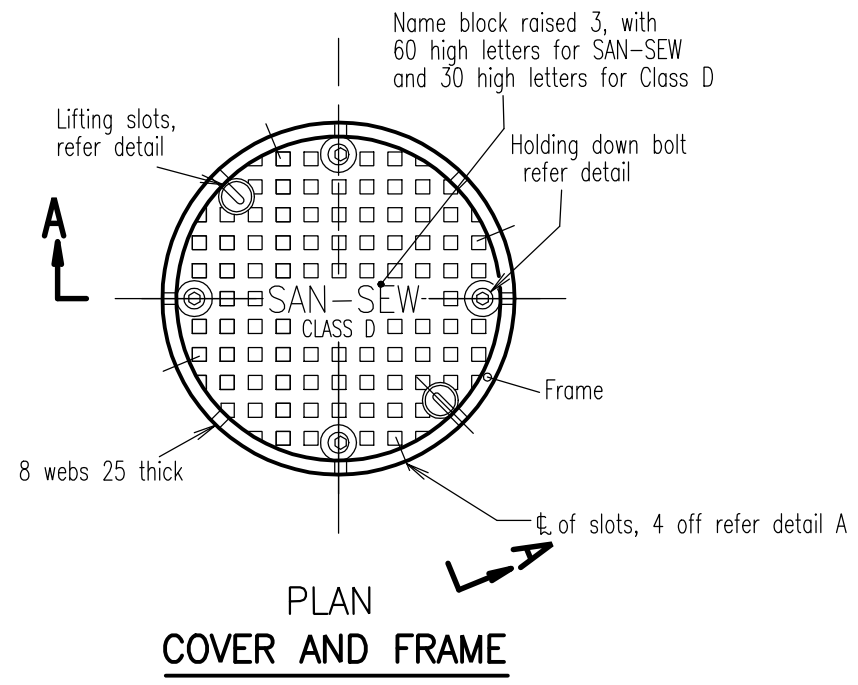


SECTION B-B

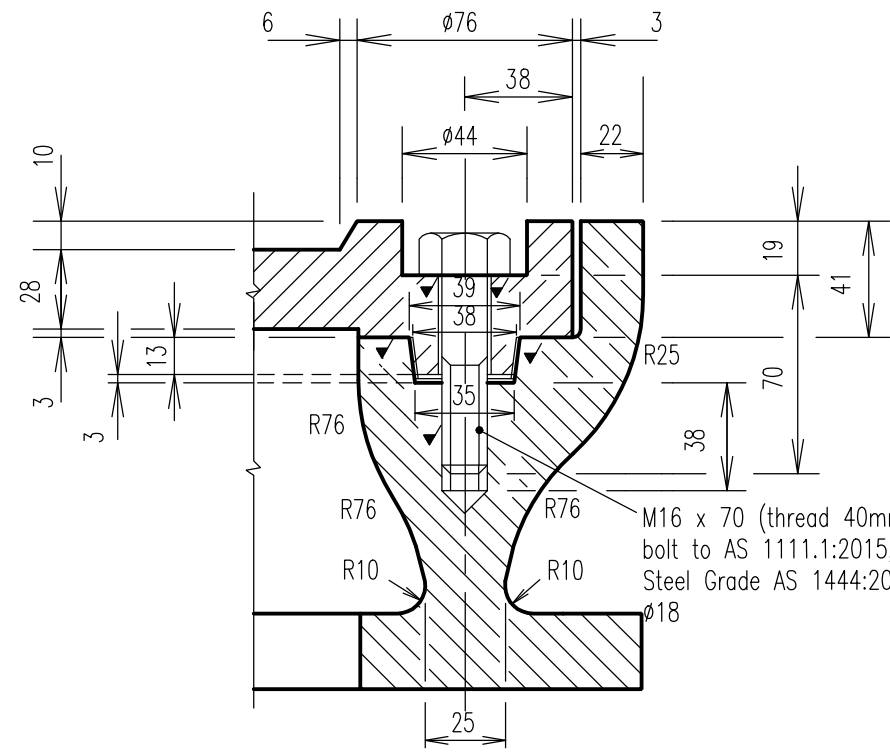
DETAIL AT LIFTING SLOTS



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 \geq T220 to AS 1830:2007.
4. Cover design Class D to AS 3996:2006.
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 point cover & frame to AS/NZS 3750.4:1994.
7. All dimensions in millimetres.

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B GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
A ORIGINAL ISSUE	1/3/97



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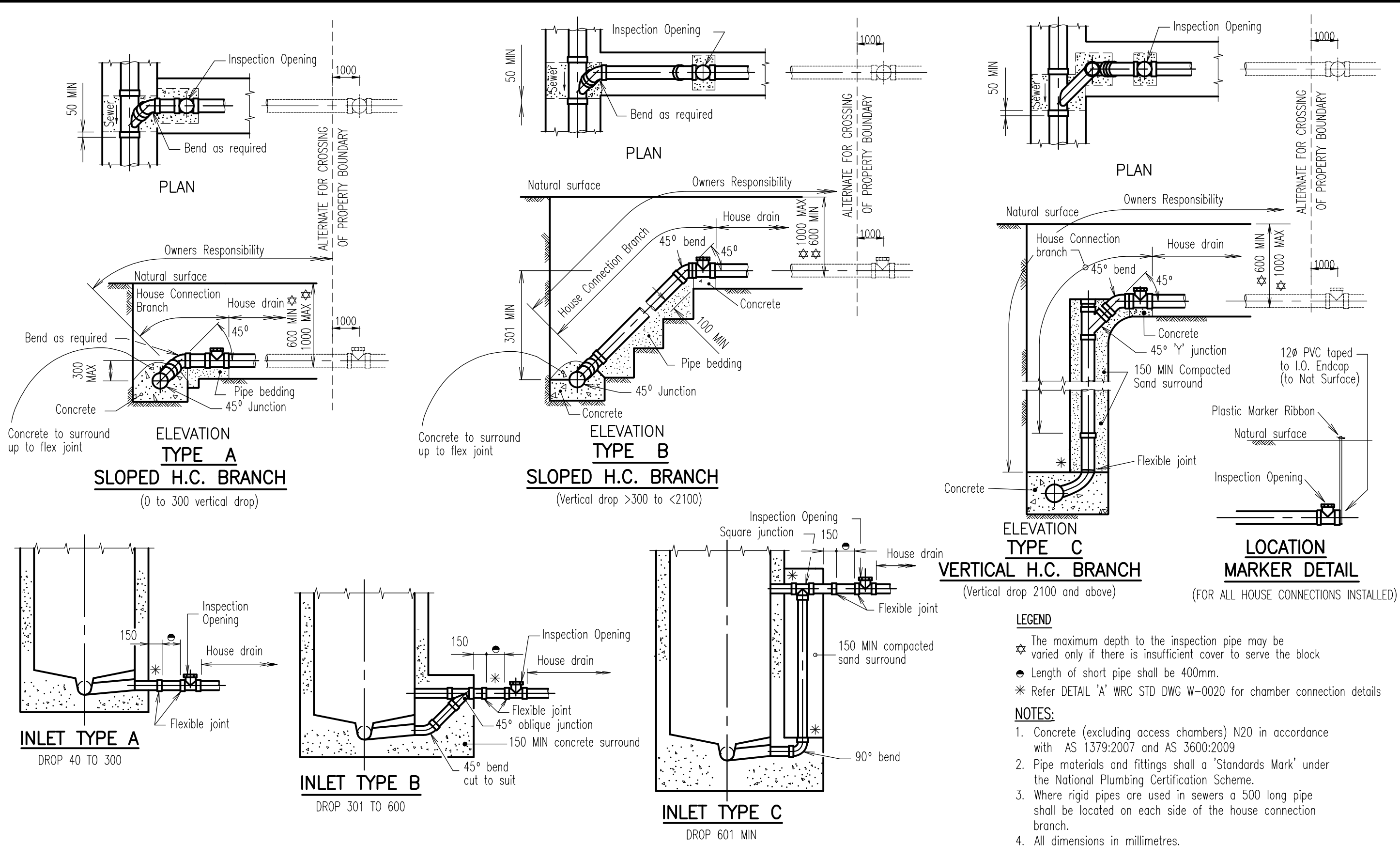
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**ACCESS CHAMBERS
CAST IRON COVER AND FRAME
BOLT DOWN**

**SEWERAGE
Standard
Drawing
S-0026**

A	B		
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LEGEND

- ☆ The maximum depth to the inspection pipe may be varied only if there is insufficient cover to serve the block
- Length of short pipe shall be 400mm.
- * Refer DETAIL 'A' WRC STD DWG W-0020 for chamber connection details

NOTES:

1. Concrete (excluding access chambers) N20 in accordance with AS 1379:2007 and AS 3600:2009
2. Pipe materials and fittings shall have a 'Standards Mark' under the National Plumbing Certification Scheme.
3. Where rigid pipes are used in sewers a 500 long pipe shall be located on each side of the house connection branch.
4. All dimensions in millimetres.

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B MINOR AMENDMENTS	10/3/98
A ORIGINAL ISSUE	1/3/97



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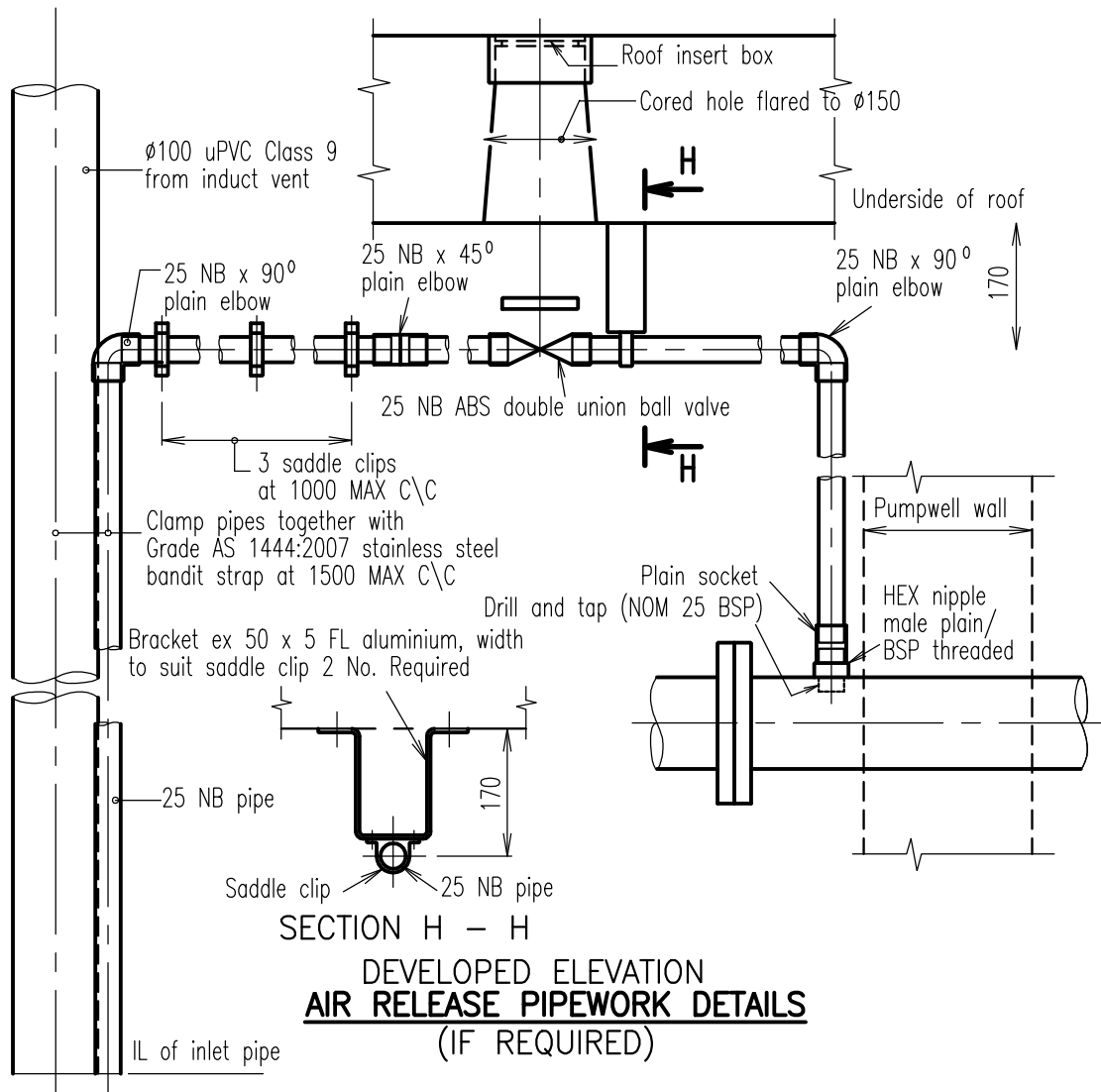
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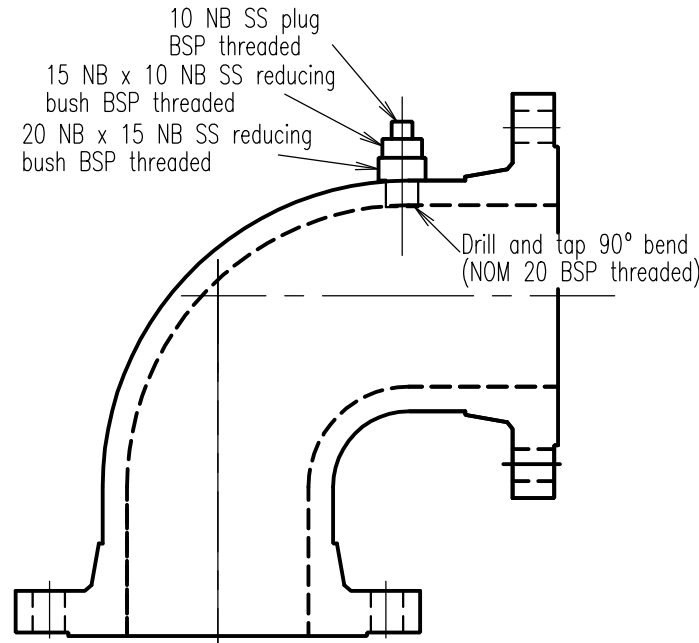
HOUSE CONNECTION BRANCHES

**SEWERAGE
Standard
Drawing
S-0030**

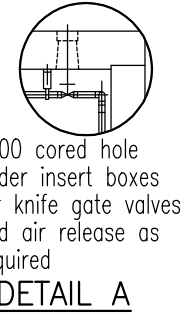
A	B	C
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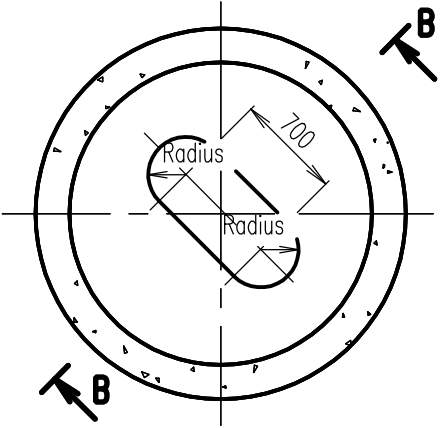
SECTION H - H
DEVELOPED ELEVATION
AIR RELEASE PIPEWORK DETAILS
(IF REQUIRED)



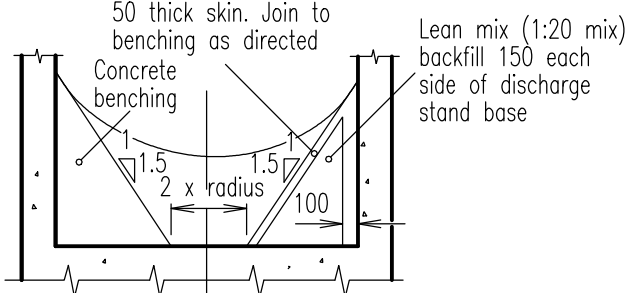
PRESSURE GAUGE ARRANGEMENT
SS INDICATES STAINLESS STEEL GRADE 316



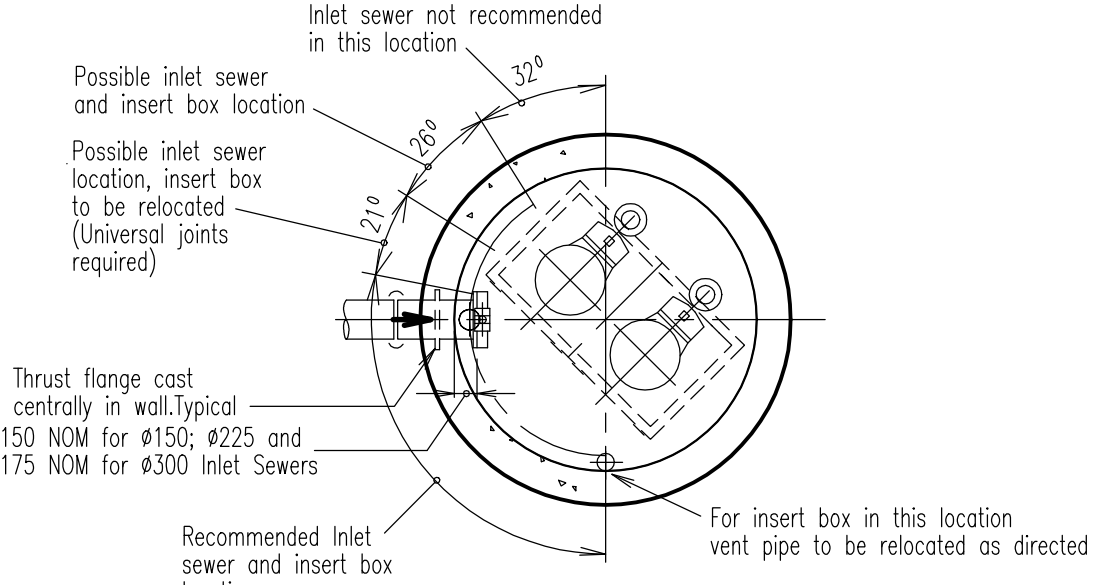
- NOTES:**
- Benching dimensions shall be as directed by the Superintendent. The "Radius" at floor level shall be equal to the pump's volute radius with concurrent centre lines. The 700* dimension shall be adjusted to suit the pump unit spacing. The 50mm thick skin shall be 2:1 fine sand and cement mortar.
 - (a) The isolating valve on the inlet sewer shall be a fully Grade AS 1444:2007 stainless steel lugged knife gate valve including stainless steel superstructure and non-rising spindle adaptor with stainless steel metal to metal seat.
(b) Reflux valves shall be coated internally and externally with a fusion bonded epoxy and shall be counter weighted.
 - All dimensions in millimetres.



PUMPWELL FLOOR
Showing benching only
Refer note 1



SECTION B - B



INLET SEWER LOCATIONS

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B COMBINED PARTS OF S-0050 & S-0054	10/3/98
A ORIGINAL ISSUE	1/3/97



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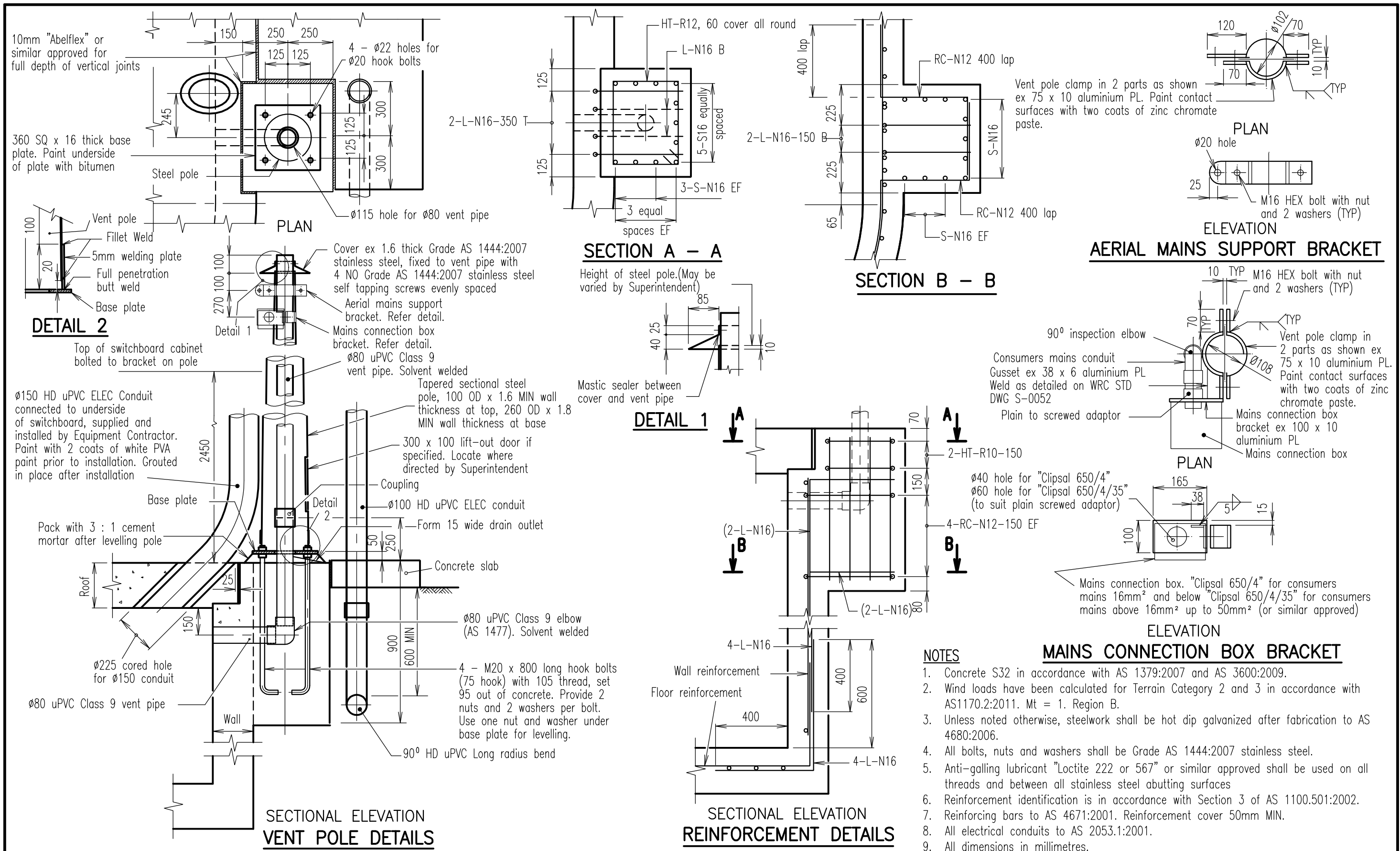
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SUBMERSIBLE SEWAGE PUMPING STATION
1800 mm DIA. & 2400 mm DIA
PRESSURE GAUGE ARRANGEMENT
AIR RELEASE PIPEWORK DETAILS

SEWERAGE Standard Drawing S-0050

A	B	C
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B GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
A ORIGINAL ISSUE	1/3/97

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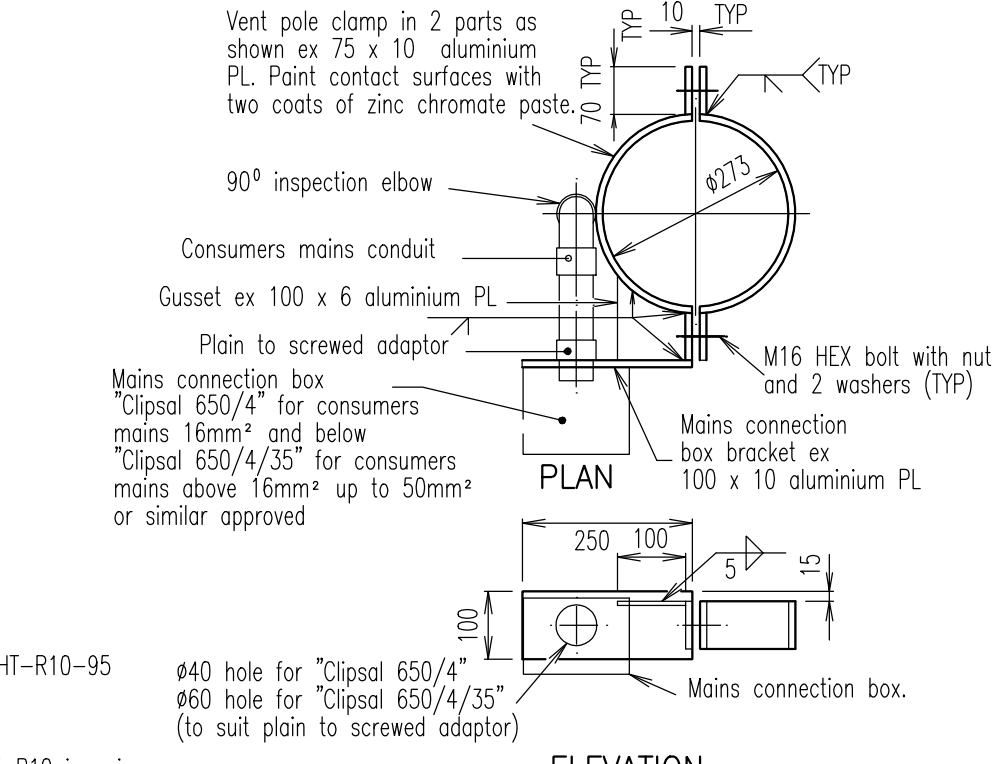
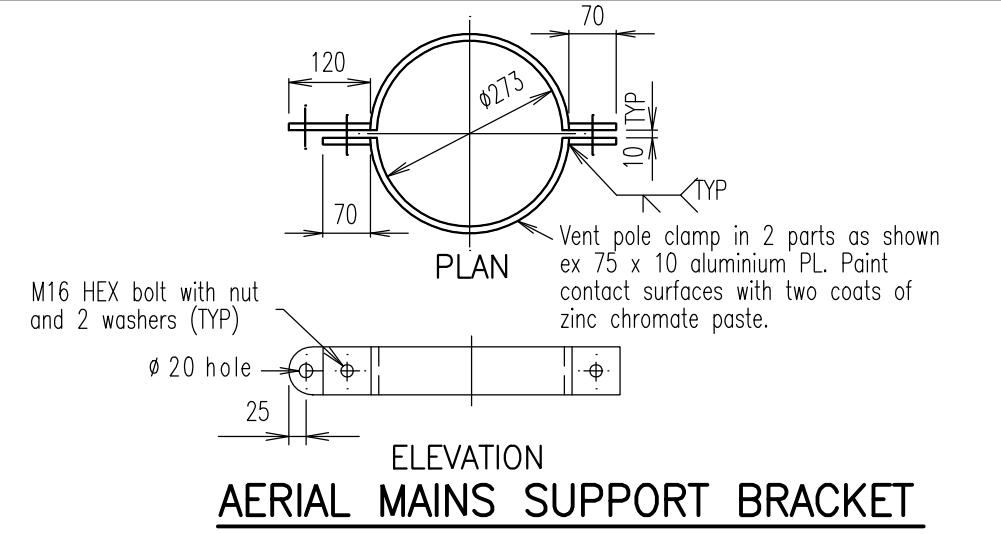
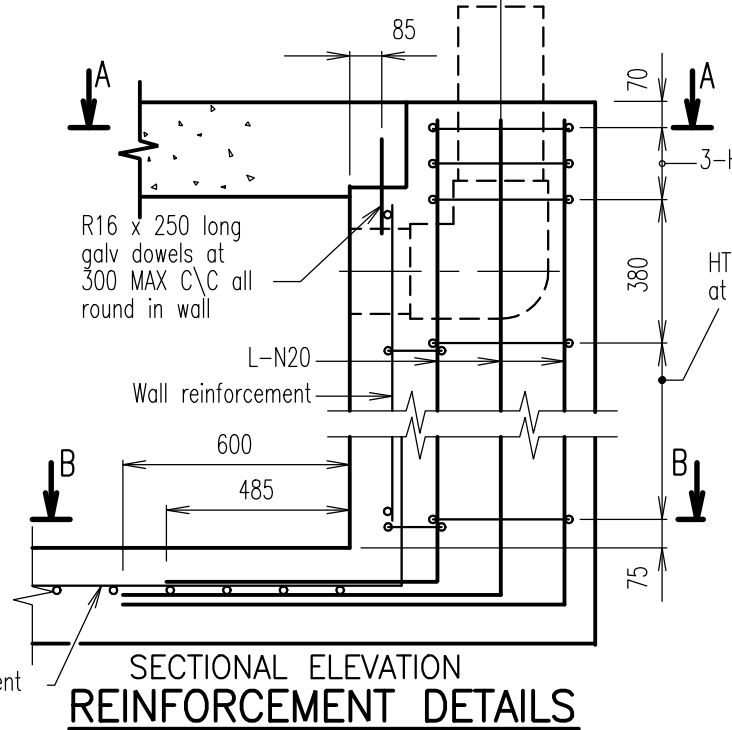
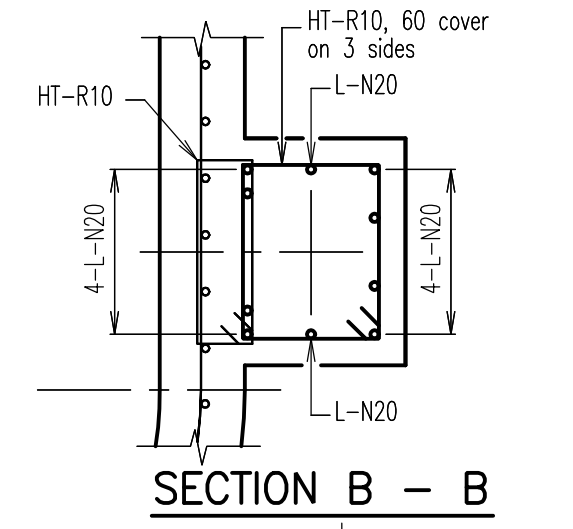
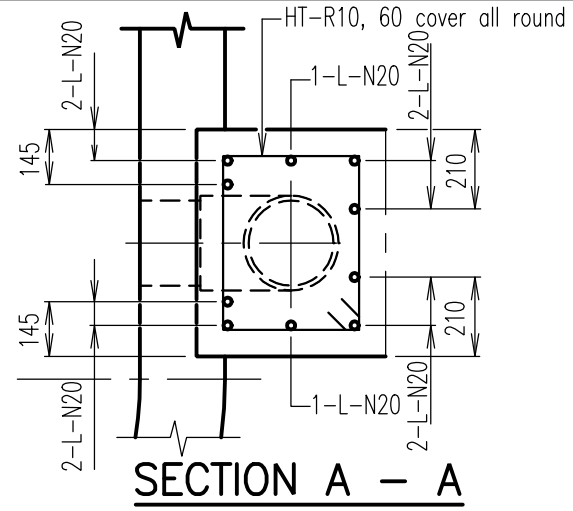
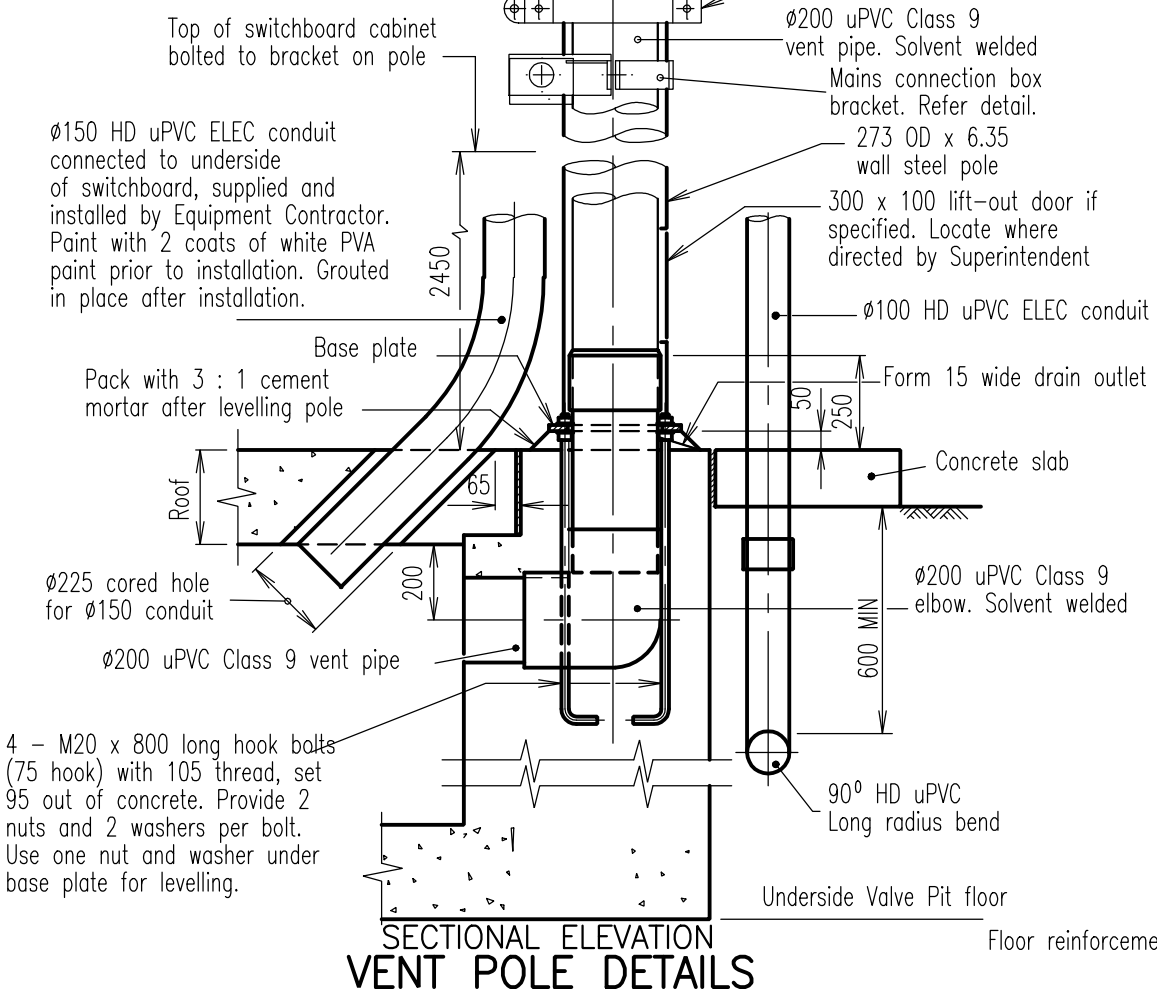
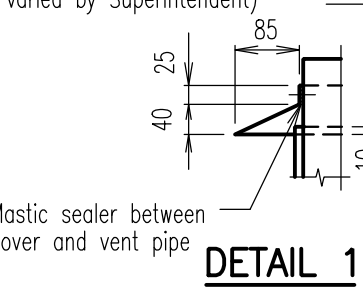
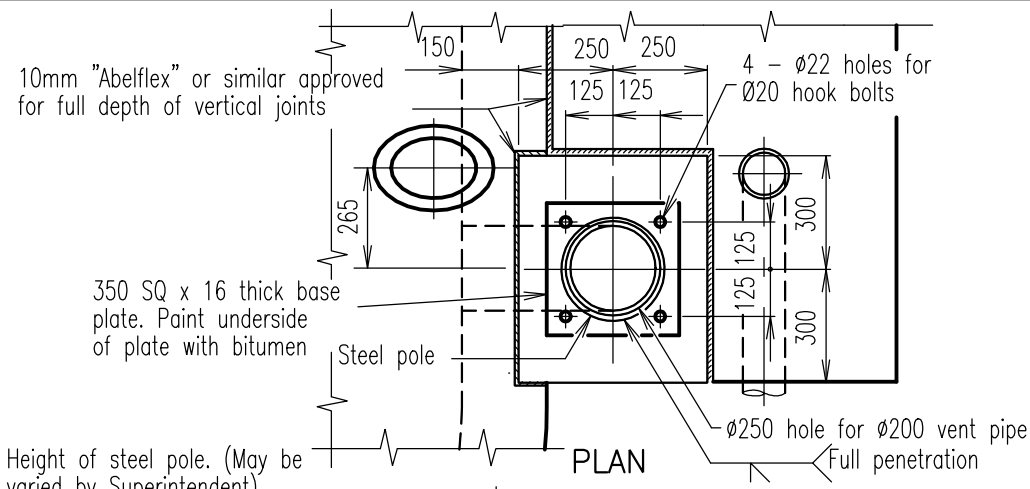
SUBMERSIBLE SEWAGE PUMPING STATION

7.2m VENT POLE

TERRAIN CAT 2 AND 3

SEWERAGE Standard Drawing S-0051

A B



- NOTES:
- Concrete S32 in accordance with AS 1379:2007 and AS 3600:2009.
 - Wind loads have been calculated for Terrain Category 2 and 3 in accordance with AS 1170.2:2011. Mt = 1. Region B.
 - Unless noted otherwise, steelwork shall be hot dip galvanized after fabrication to AS 4680:2006.
 - All bolts, nuts and washers shall be Grade AS 1444:2007 stainless steel.
 - Anti-galling lubricant "Loctite 222 or 567" or similar approved shall be used on all threads and between all stainless steel abutting surfaces
 - Reinforcement identification is in accordance with Section 3 of AS 1100.501:2002.
 - Reinforcing bars to AS 4671:2001. Reinforcement cover 50mm MIN.
 - All electrical conduits to AS 2053.1:2001.
 - All dimensions in millimetres.

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B GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
A ORIGINAL ISSUE	1/3/97



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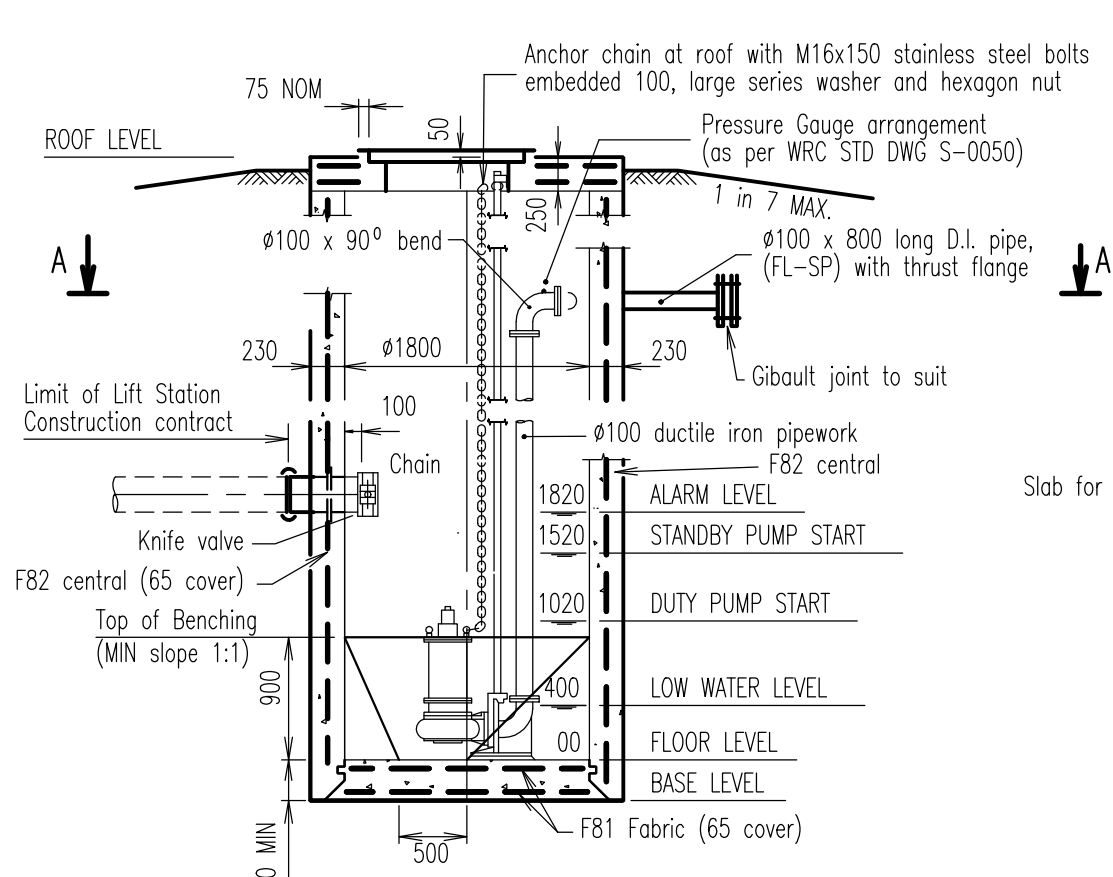
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**SUBMERSIBLE SEWAGE PUMPING STATION
12.0m VENT POLE
TERRAIN CAT 2 AND 3**

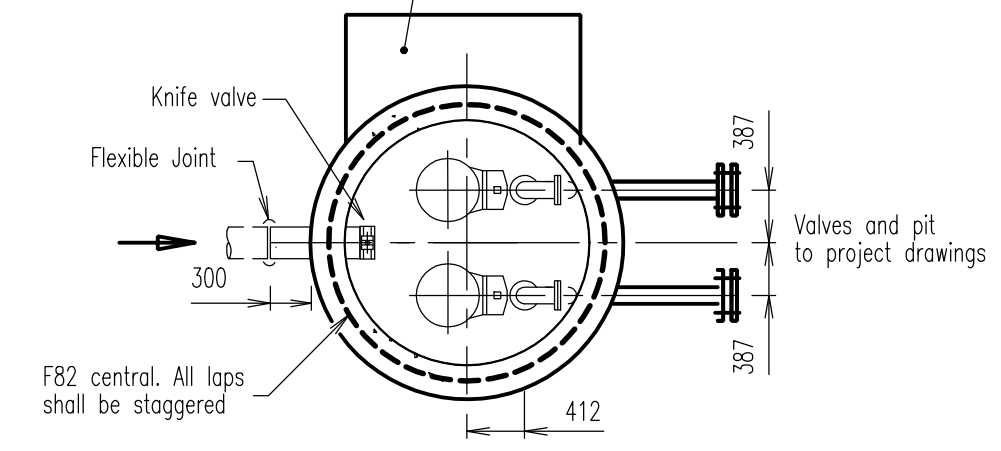
SEWERAGE Standard Drawing S-0052

A	B		
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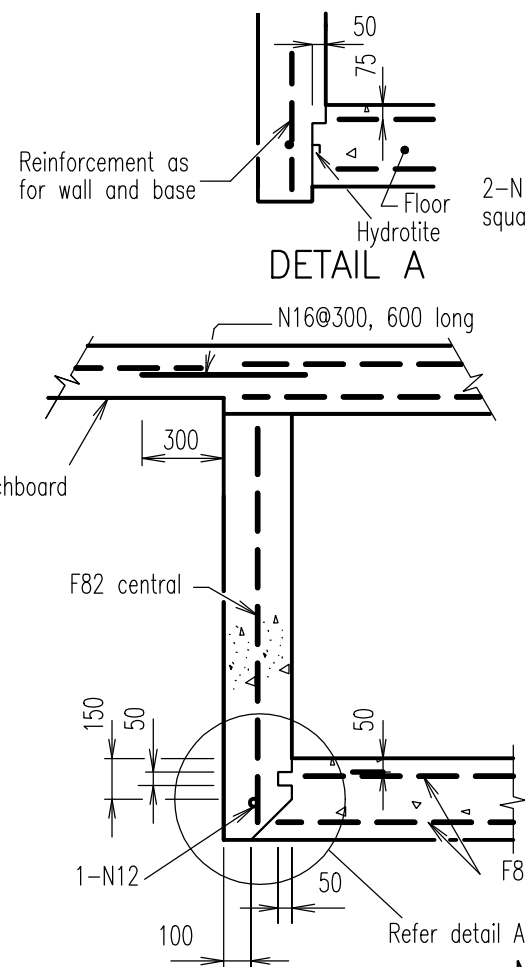


SECTIONAL ELEVATION

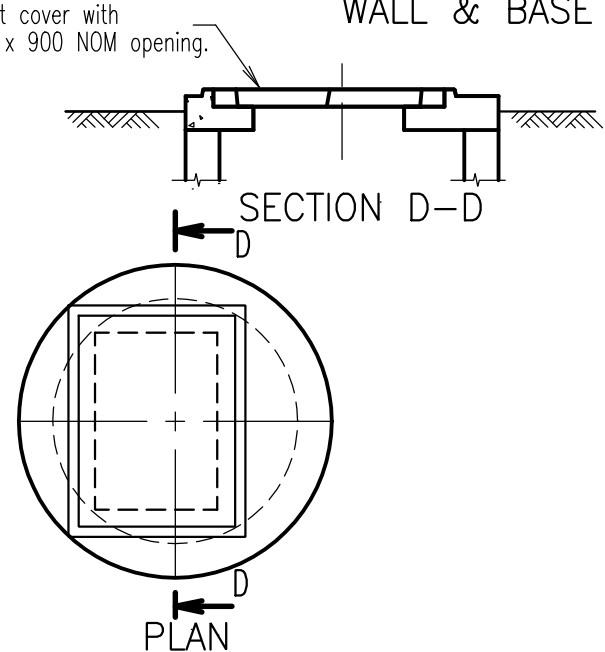
Concrete slab for switchboard 150mm thick reinforced with F82 placed centrally 50 edge cover. Refer project drawings for shape of slab and conduit requirements



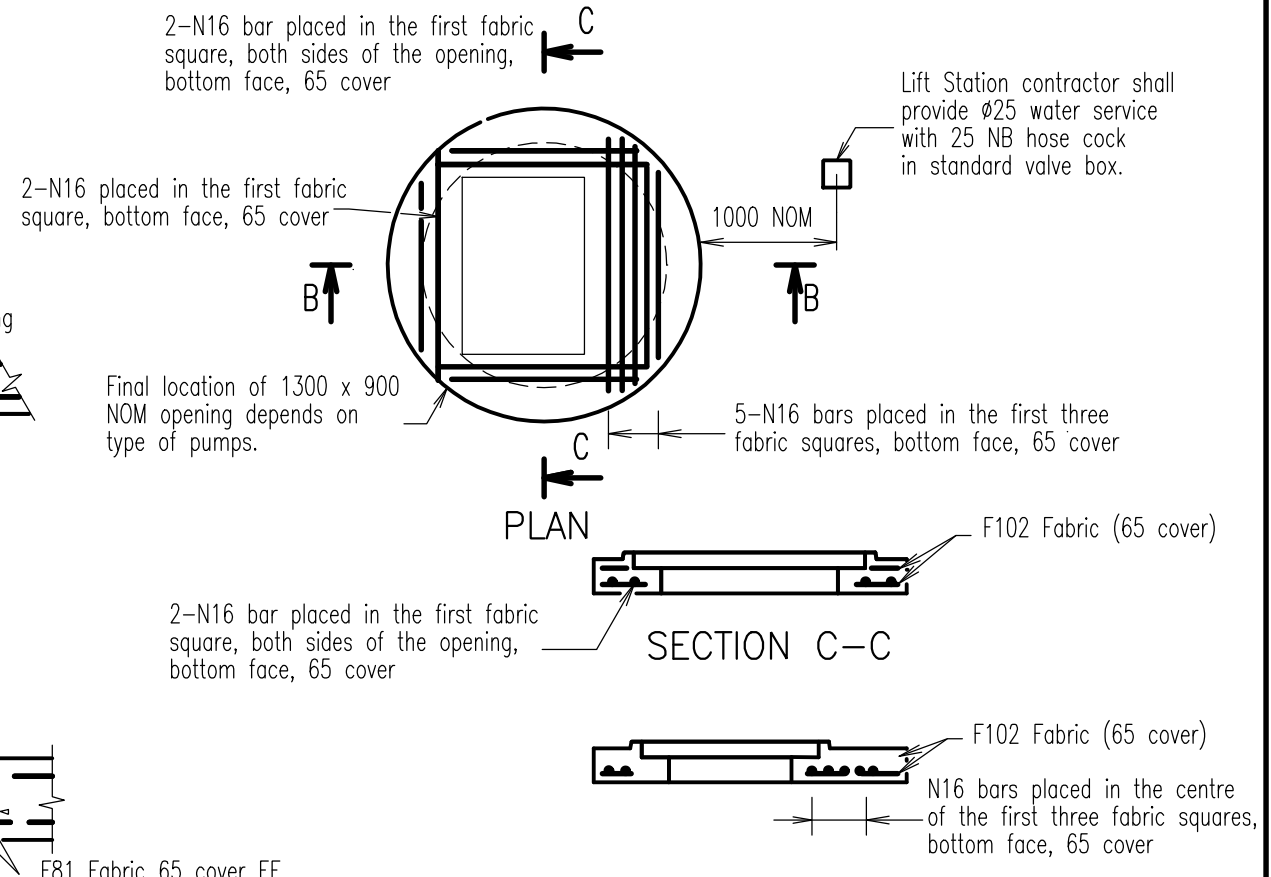
SECTION A-A



WALL & BASE



ALUMINIUM COVERS



SECTION B-B

NOTES: REINFORCEMENT DETAILS

1. Refer project documentation for specific details.
2. Joint between roof and walls shall be well scabbled and roof shall be bedded in mortar containing an approved waterproof adhesive additive to manufacturer's instructions.
3. Concrete S32 in accordance with AS 1379:2007 and AS 3600:2009.
4. Steel reinforcing bars and fabric to AS 4671:2001.
5. All internal surfaces of the pumpwell and valve pit shall be coated with Peerless Emulsion "Epigen 1311" or Wattyl "Sigmaguard CSF75". The concrete surface shall be smooth and free from holes and lightly sandblasted or acid-etched before painting. The concrete surface shall have cured for not less than 28 days. The paint shall be applied in two coats with a total dry film thickness of not less than 600 microns.
6. Floor thicknesses shown are minimum only, thickness to counter flotation of structure shall be determined by the designer.
7. The covers shall be gastight similar to those produced by Halco Engineering. All components of access covers and frames shall be fabricated from aluminium alloy 6061-T6, to AS 2848.1:1998 All embedded surfaces shall be painted with two coats of alkali resistant bitumous paint. The covers shall be designed as a platform in accordance with AS 1657:2003. Fabrication details shall be submitted to the Superintendent for approval prior to manufacture.
8. If covers are subject to vehicular loading, use appropriately rated C.I. covers to AS 3996:2006.
9. All welds to AS 1554.1:2014 All welding symbols comply with AS 1101.3:2005.
10. An overflow shall be provided with the invert level 300 below the surface level of the lowest chamber in the system, subject to the approval by D.E.H.
11. Roof design to Austroads W7 wheel load, dynamic factor 0.4.
12. Wall reinforcement based on well depth of 8m MAX.
13. All dimensions in millimetres.

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B KNIFE VALVES ADDED	10/3/98
A ORIGINAL ISSUE	1/3/97



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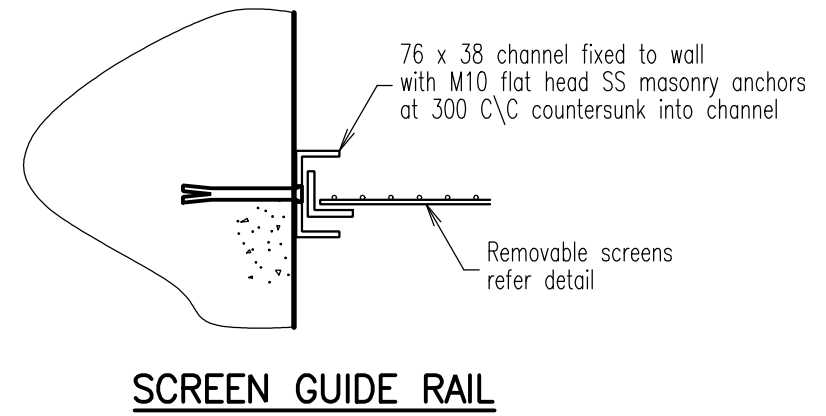
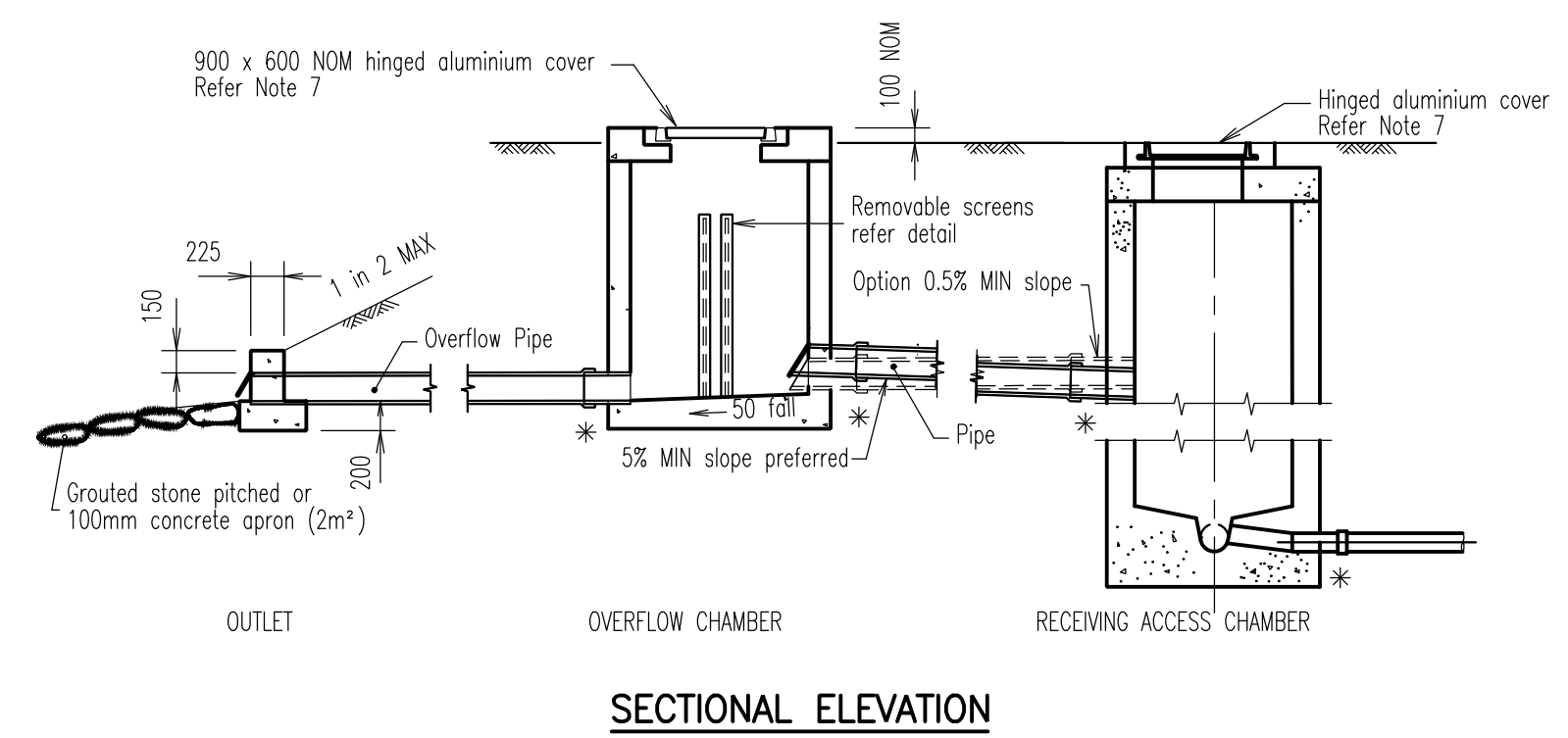
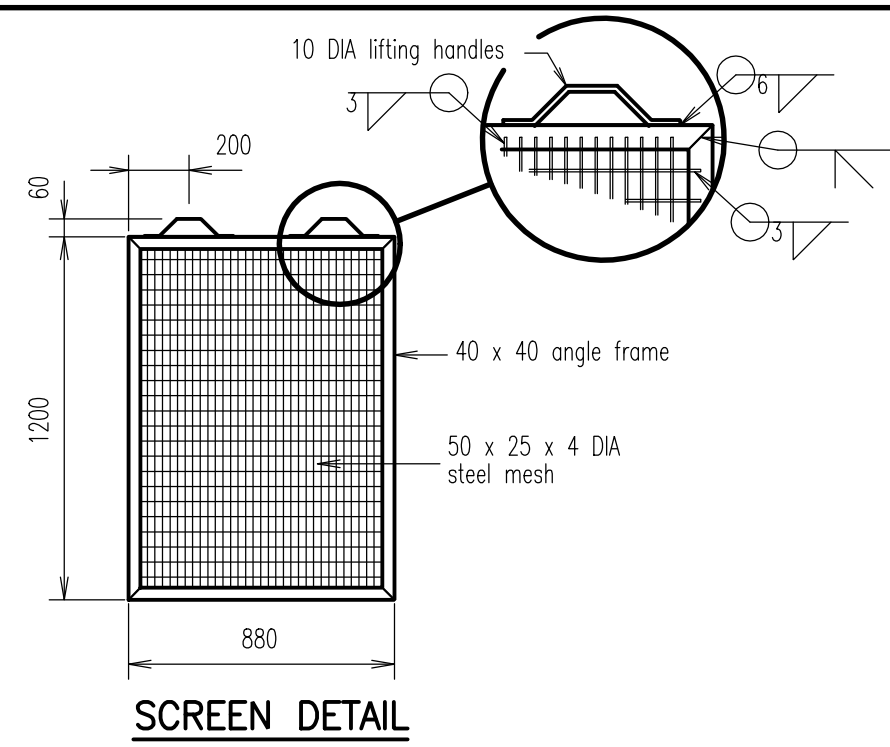
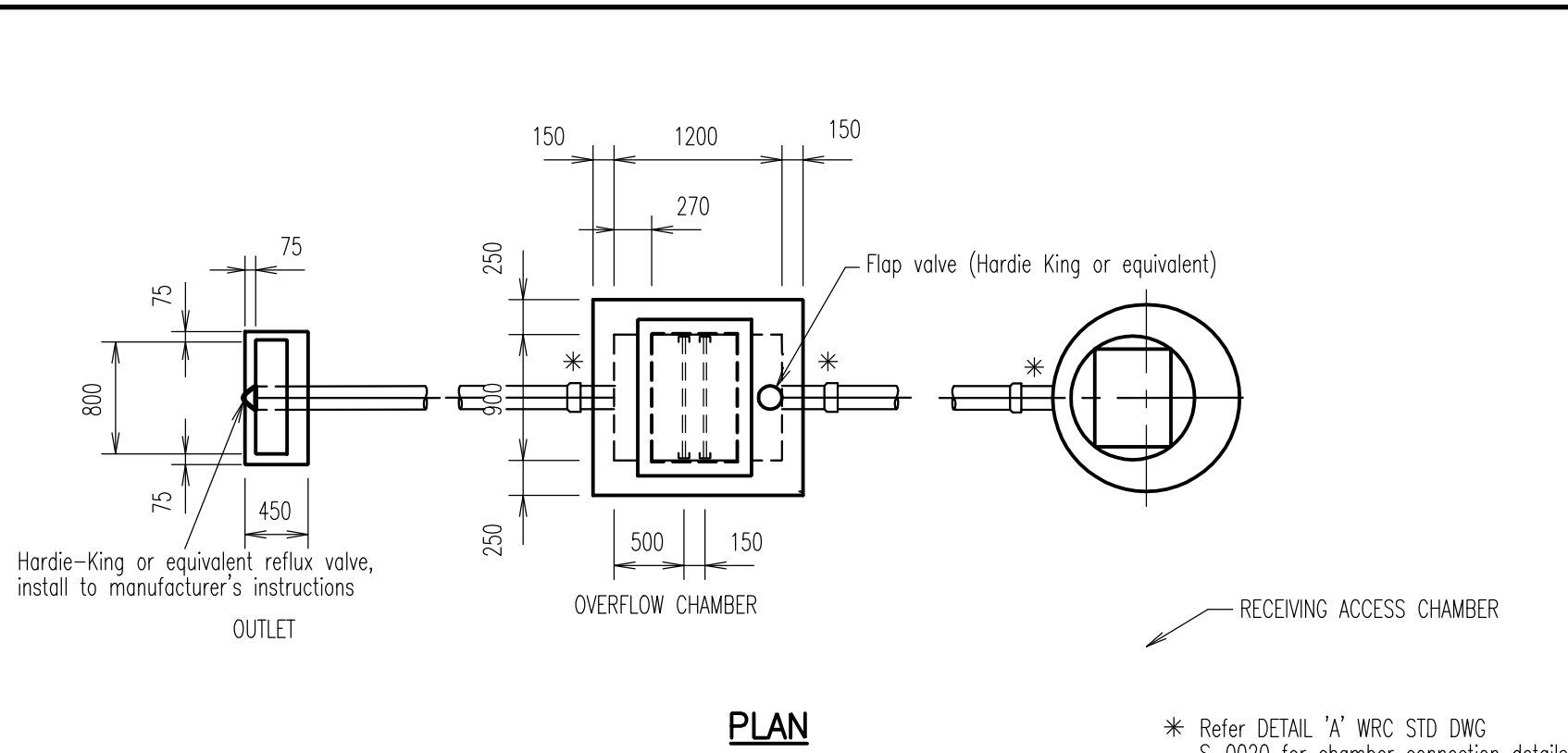
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**LIFT STATION - SUBMERSIBLE
1800mm DIAMETER (0-20L/Sec)**

**SEWERAGE
Standard
Drawing
S-0057**

A	B	C		
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- NOTES:**
1. Pipes shown are diagrammatic only, refer project drawings for layout and levels.
 2. Concrete N32 in accordance with AS 1379:2007 and AS 3600:2009.
 3. All steelwork hot dip galvanised to AS/NZS 4680:2006 after fabrication.
 4. All bars and angles Grade 250 to AS/NZS 3679.1:2016.
 5. All bolts, nuts and washers shall be Grade AS 1444:2007 stainless steel with approved anti-galling compound.
 6. All welds to AS 1554.1:2014 All welding symbols comply with AS 1101.3:2005.
 7. The covers shall be gastight similar to those produced by Hallco Engineering. All components of access covers and frames shall be fabricated from aluminium alloy 6061-T6, to AS 2848.1:1998. All embedded surfaces shall be painted with two coats of alkali resistant bitumous paint. The covers shall be designed as a platform in accordance with AS 1657:2003. Fabrication details shall be submitted to the Superintendent for approval prior to manufacture.
 8. If covers are subject to vehicular loading, use appropriately rated C.I. covers.
 9. All dimensions in millimetres.

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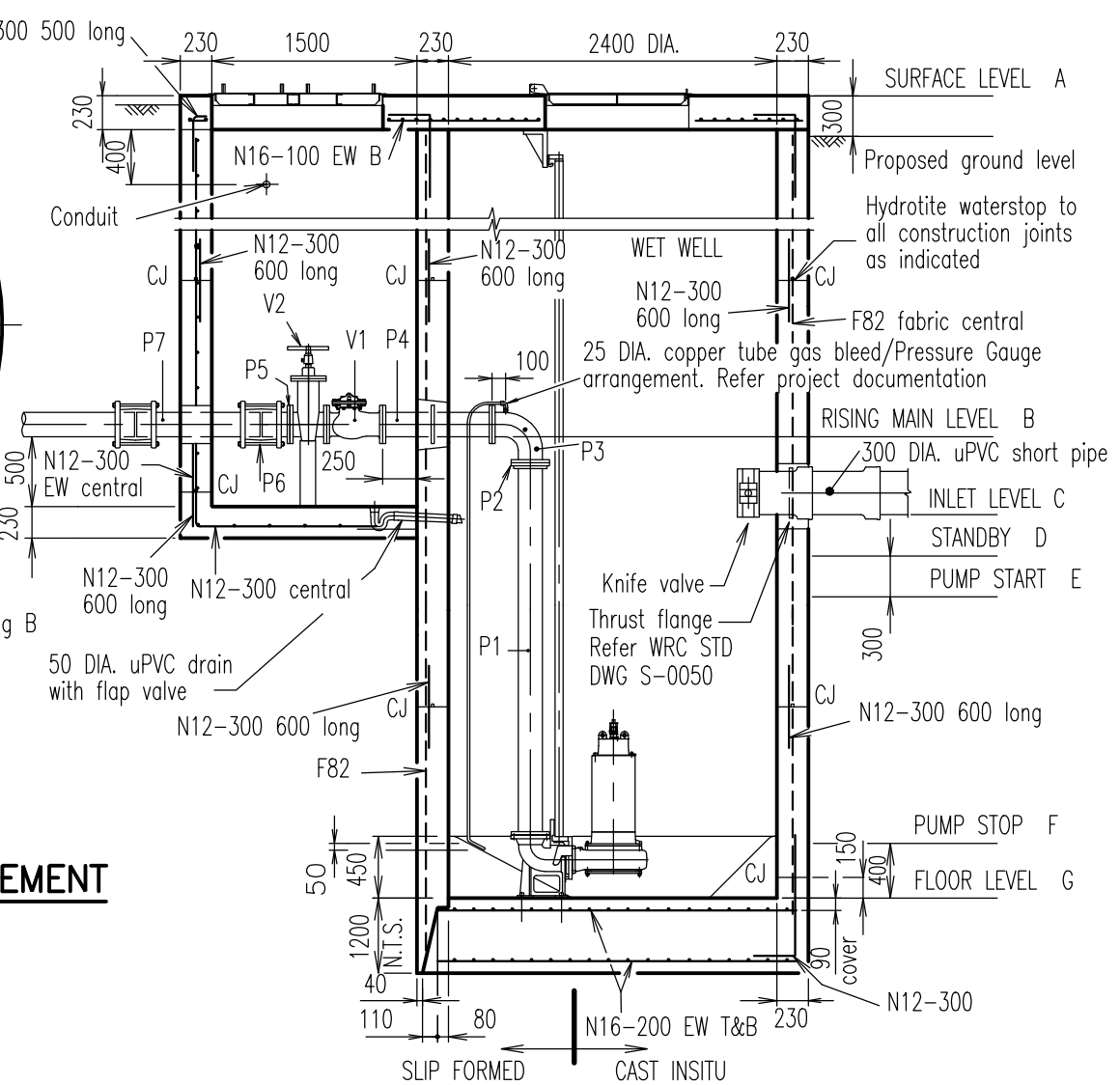
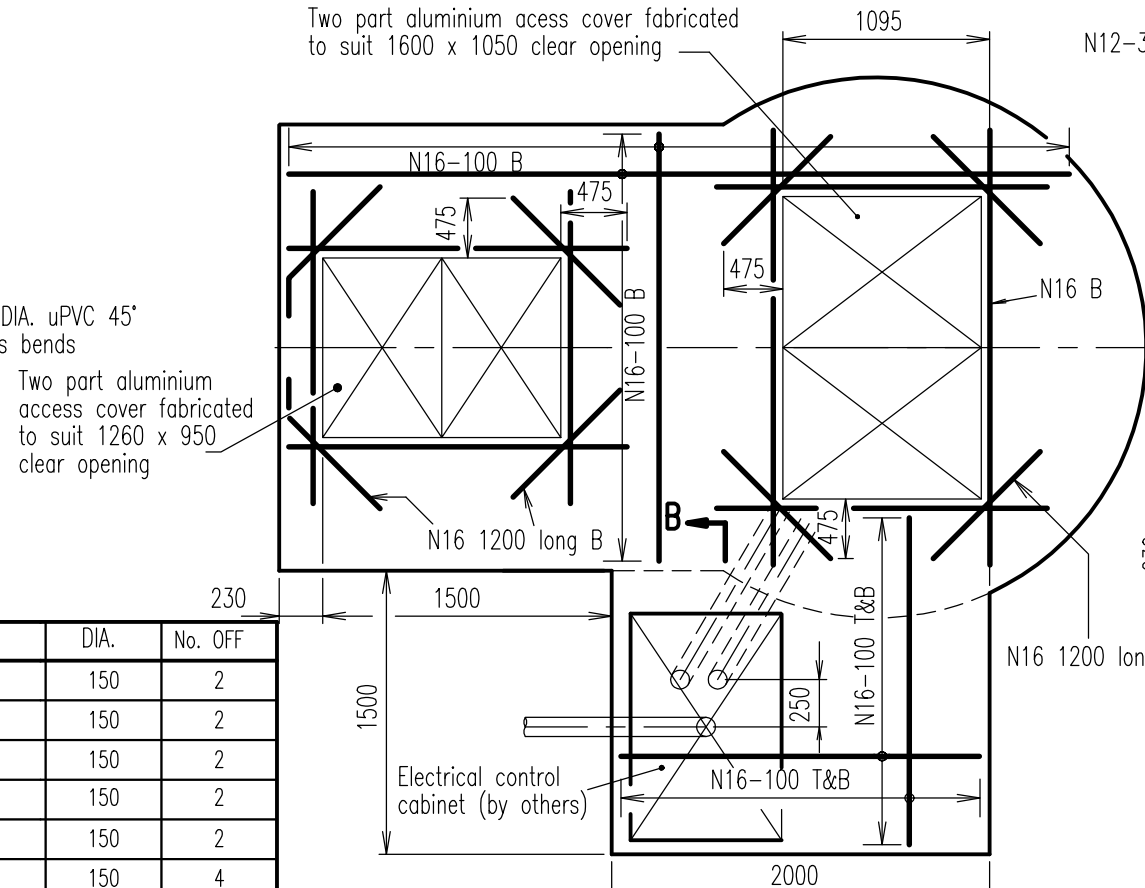
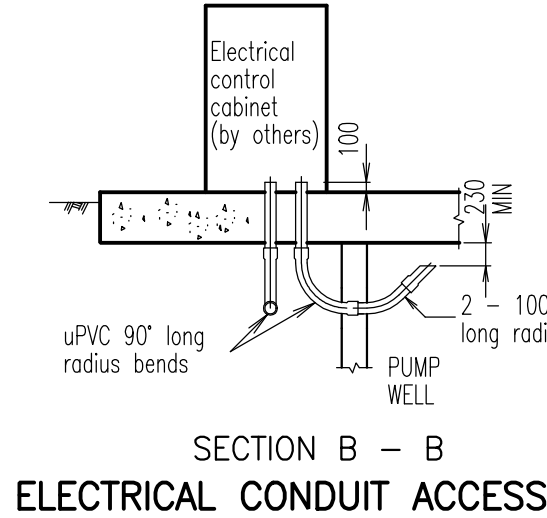
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PUMP STATION OVERFLOW

**SEWERAGE
Standard
Drawing
S-0058**

A	B		
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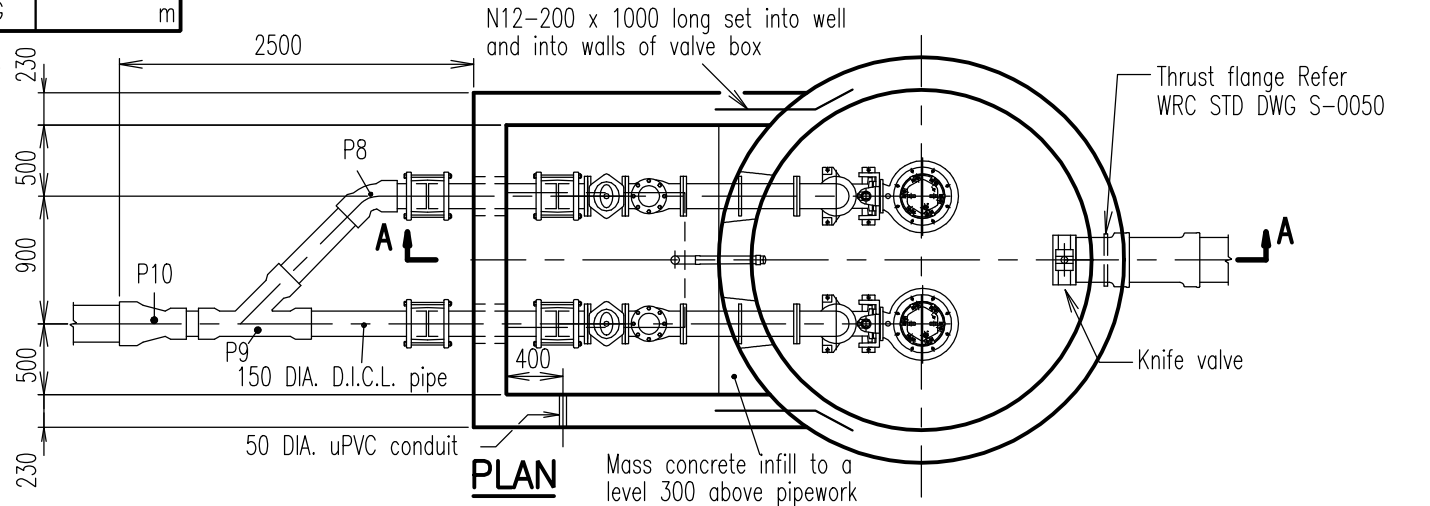
PIPE SCHEDULE

MARK	DESCRIPTION	DIA.	No. OFF
P1	Flange and plain pipe x 3600 - Length cut to suit	150	2
P2	Uniflange	150	2
P3	Flanged 90° bend with 25mm DIA. B.S.P. tapping	150	2
P4	Flanged pipe x 800 long with central thrust flange	150	2
P5	Flange and spigot connector	150	2
P6	Gibault joint (long type)	150	4
P7	Plain pipe x 900 long	150	2
P8	Socketed 45° D.I.C.L. bend	150	1
P9	Socketed 45° D.I.C.L. angle branch	150	1
P10	Socketed D.I.C.L. taper	150x225	1
V1	Flanged reflux valve with counter weight	150	2
V2	Flanged sluice valve with hardwheel	150	2

STATION DATA

Make of pump	
Model number	
Duty flow / head	As specified
Surface Level	A m
Rising Main Level	B m
Inlet Level	C m
Standby Level (300 below C)	D m
Duty Start Level	E m
Pump Stop Level	F m
Floor Level (400 below F)	G m

- NOTES:**
- Concrete S40 in accordance with AS 1379:2007 and AS 3600:2009.
 - Cored holes in well for pipework shall be tapered, being 25 larger in diameter than the flange at the inside face and 50 larger at the outside face.
 - Steel wire fabric to AS/NZS 4671:2001.
 - Steel reinforcing bars Grade 400 to AS/NZS 4671:2001.
 - Laps in reinforcing shall be 300 MIN. for bars and 1 (one) mesh spacing for fabric.
 - Reinforcement cover 65 MIN except where noted otherwise.
 - All internal surfaces of the pumpwell and valve pit shall be coated with Peerless Emulsion "Epigen 1311" or Wattyl "Sigmaguard CSF75". The concrete surface shall be smooth and free from holes and lightly sandblasted or acid-etched before painting. The concrete surface shall have cured for not less than 28 days. The paint shall be applied in two coats with a total dry film thickness of not less than 600 microns.
 - Pumpwell concrete opening size shall be 1600 x 1050 and valve box concrete opening size shall be 1260 x 950 with aluminium covers, refer WRC STD DWG S-0060. (Consult Pump manufacturer)
 - Location of conduits to be confirmed by Superintendent prior to construction of plinth.
 - All dimensions in millimetres unless otherwise specified.



REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B KNIFE VALVES ADDED	10/3/98
A ORIGINAL ISSUE	1/3/97



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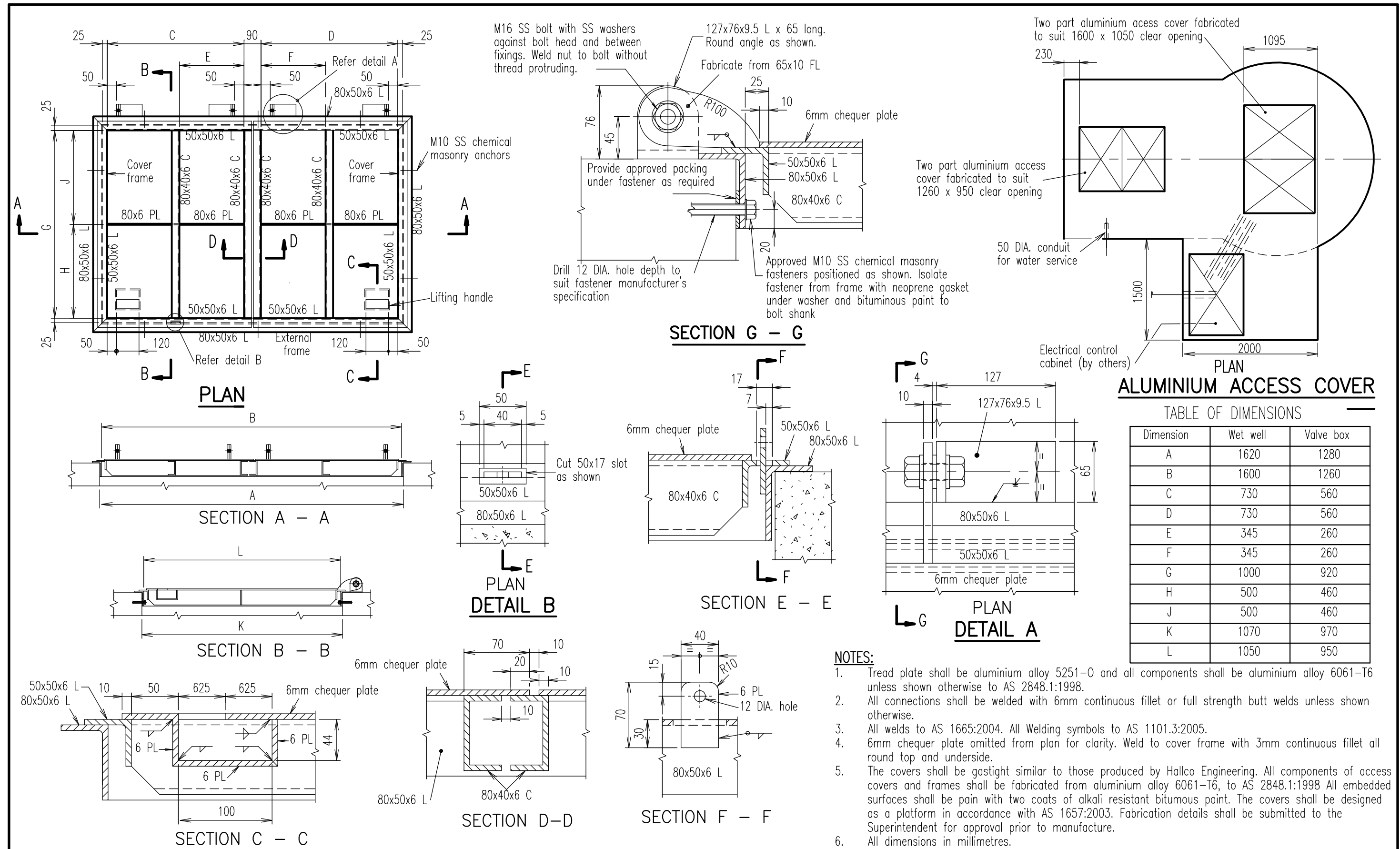
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**SUBMERSIBLE SEWAGE PUMPING STATION
GENERAL ARRANGEMENT -
REINFORCEMENT 2400mm DIA.**

**SEWERAGE
Standard
Drawing
S-0059**

A	B	C
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ALUMINIUM ACCESS COVER

TABLE OF DIMENSIONS

Dimension	Wet well	Valve box
A	1620	1280
B	1600	1260
C	730	560
D	730	560
E	345	260
F	345	260
G	1000	920
H	500	460
J	500	460
K	1070	970
L	1050	950

- NOTES:**
- Tread plate shall be aluminium alloy 5251-0 and all components shall be aluminium alloy 6061-T6 unless shown otherwise to AS 2848.1:1998.
 - All connections shall be welded with 6mm continuous fillet or full strength butt welds unless shown otherwise.
 - All welds to AS 1665:2004. All Welding symbols to AS 1101.3:2005.
 - 6mm chequer plate omitted from plan for clarity. Weld to cover frame with 3mm continuous fillet all round top and underside.
 - The covers shall be gastight similar to those produced by Halco Engineering. All components of access covers and frames shall be fabricated from aluminium alloy 6061-T6, to AS 2848.1:1998 All embedded surfaces shall be pain with two coats of alkali resistant bituminous paint. The covers shall be designed as a platform in accordance with AS 1657:2003. Fabrication details shall be submitted to the Superintendent for approval prior to manufacture.
 - All dimensions in millimetres.

REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B NOTE 5 ADDED	10/3/98
A ORIGINAL ISSUE	1/3/97

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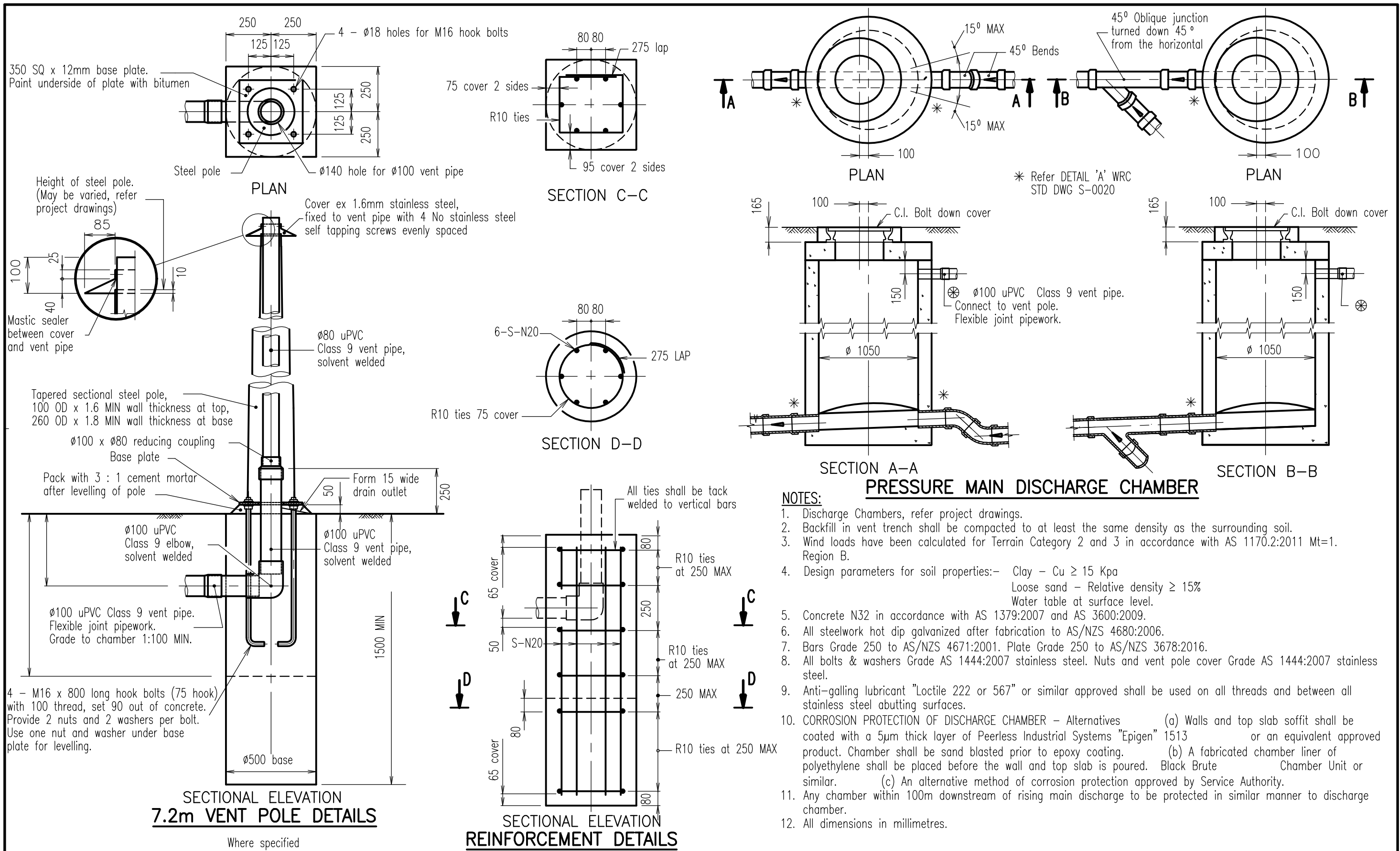
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SUBMERSIBLE SEWAGE PUMPING STATION ALUMINIUM COVERS AND FRAMES 2400mm DIA.

SEWERAGE Standard Drawing S-0060

A B C



REVISIONS	DATE
C GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
B MINOR AMENDMENTS	10/3/98
A ORIGINAL ISSUE	1/3/97



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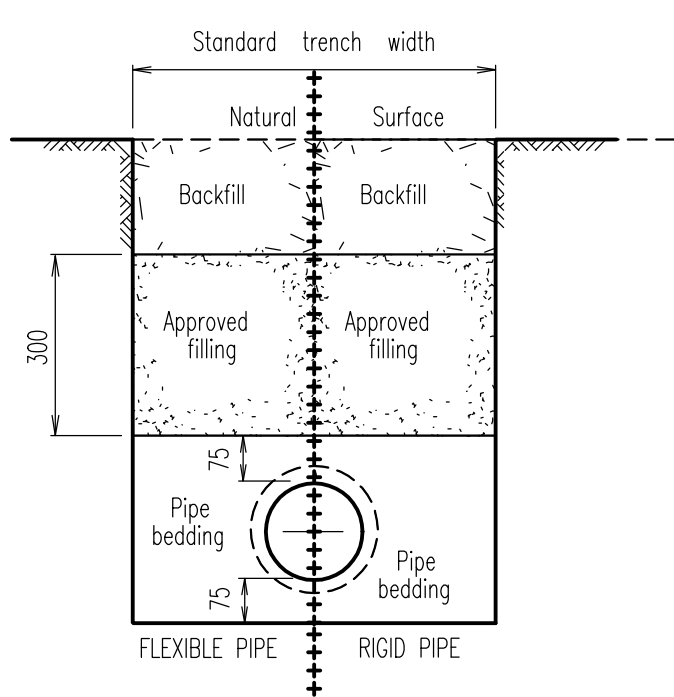
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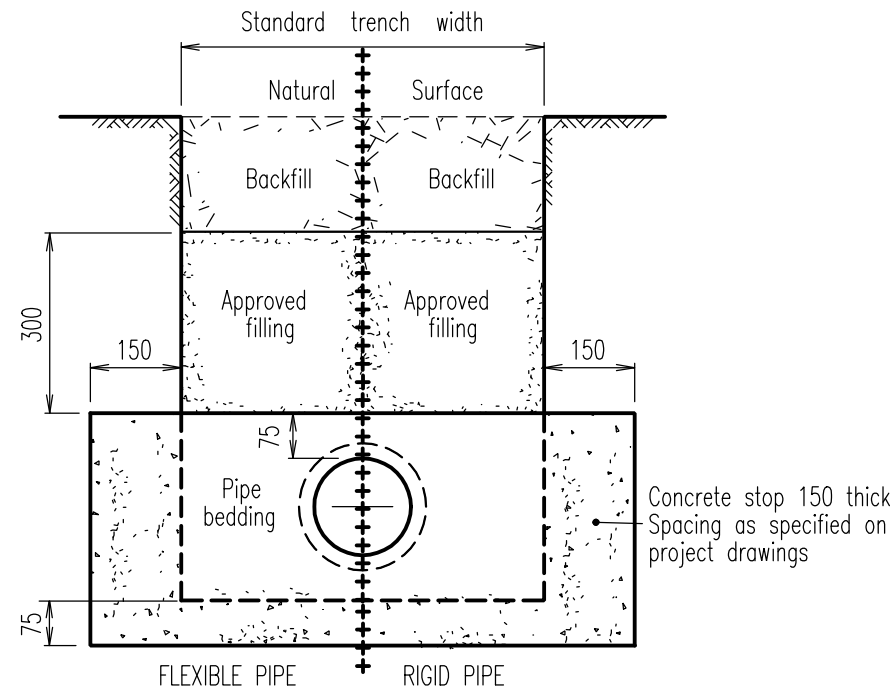
PRESSURE MAIN DISCHARGE DETAILS

SEWERAGE Standard Drawing S-0070

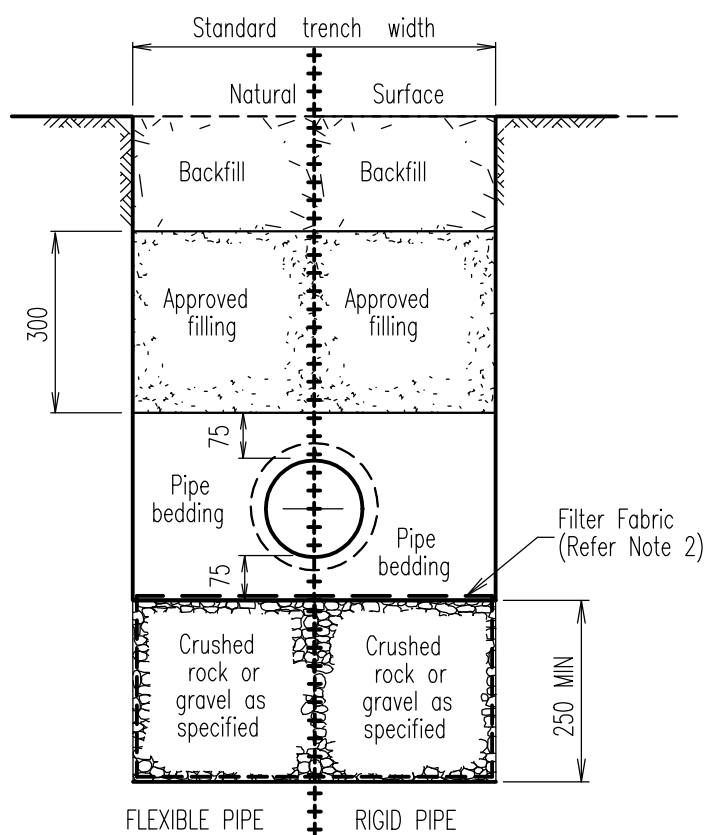
A	B	C
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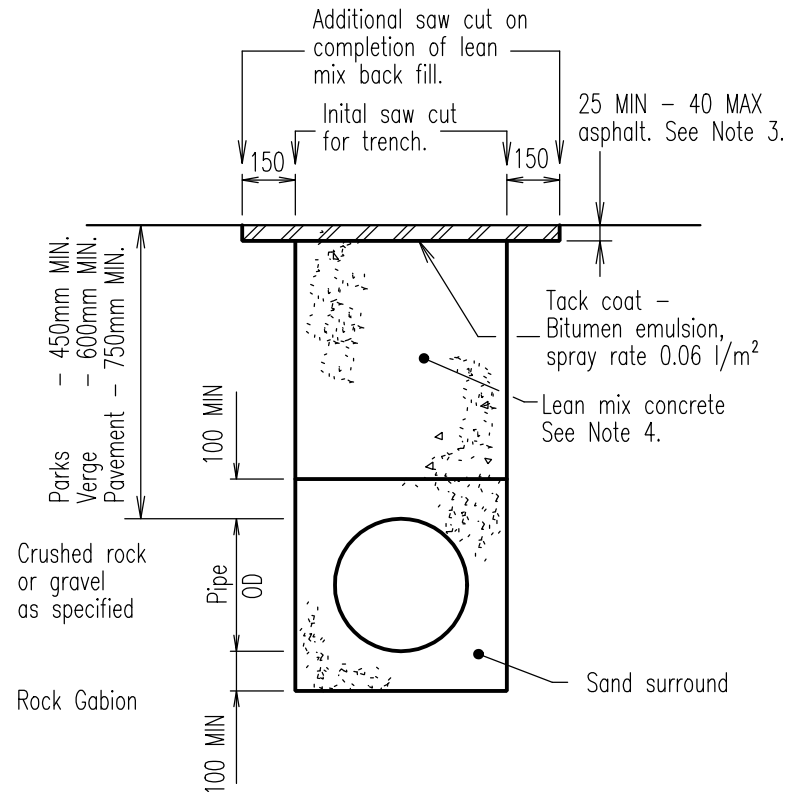
TYPICAL BEDDING



TRENCH STOP/BULKHEAD



TYPICAL BEDDING IN POOR GROUND



TYPICAL BEDDING UNDER EXISTING ROADS

Refer to WSA-02 for bedding and backfill details where conditions vary from these shown hereon.

NOTES:

- Pipe bedding classification
 - Rigid Pipes : Vitrified clay, steel, ductile iron, fibre cement and concrete.
 - Flexible Pipes : Unplasticised polyvinyl chloride, glass filament reinforced thermosetting plastics, acrylonitrile butadiene styrene and polyethylene.
- An approved geotextile fabric shall be used in all trenches around crushed rock pipe bedding.
- The road surface finish shall be asphaltic concrete or other surface specified in the project drawings or by the Superintendent.
- Backfilling under roads shall be lean mix (1:20) low slump concrete (or an approved equivalent) compacted in lifts of 125 to 150mm.
- Sand surround (compacted in 150mm layers) > 70% D.I. or 95% standard compaction in bedding and side support. Density index (D.I.) as per AS 1289.5.6.1:1998 Standard compaction as per AS 1289.5.1.1:2003.
- Concrete N20 in accordance with AS 1379:2007 and AS 3600:2009.
- All dimensions in millimetres.

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

B	GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
A	ORIGINAL ISSUE	1/3/97
REVISIONS		DATE



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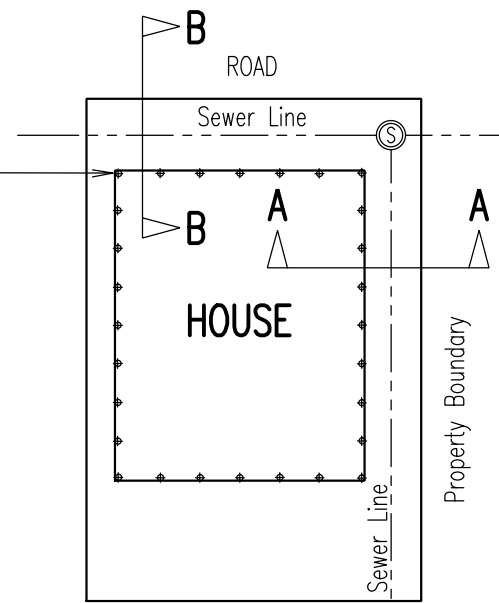
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**SEWER CONSTRUCTION
PIPELINE CONSTRUCTION TYPES**

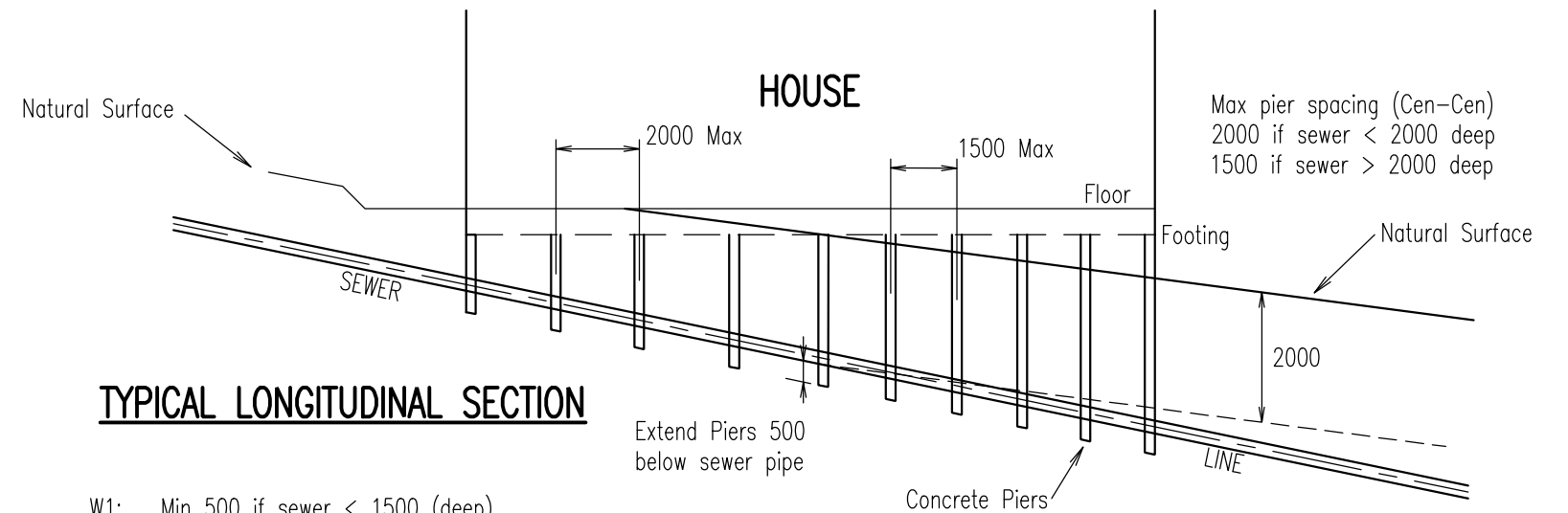
**SEWERAGE
Standard
Drawing
S-0090**

A	B		
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Concrete Piers
 Max pier spacing (Cen-Cen)
 2000 if sewer < 2000 deep
 1500 if sewer > 2000 deep



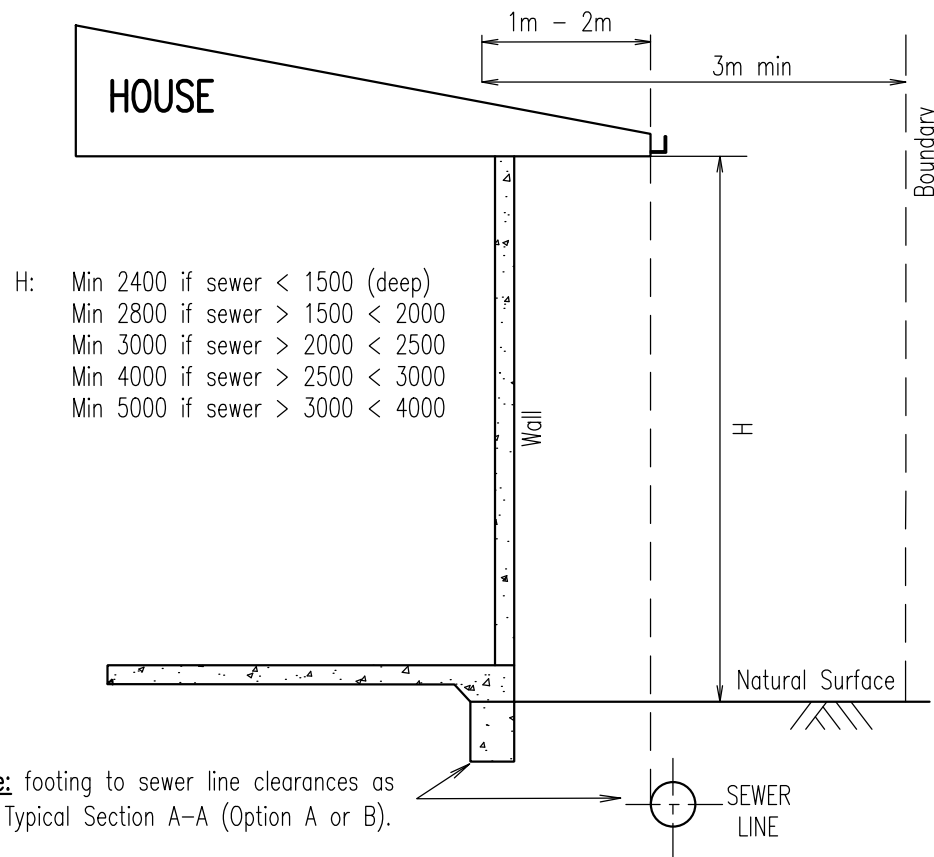
TYPICAL SITE PLAN



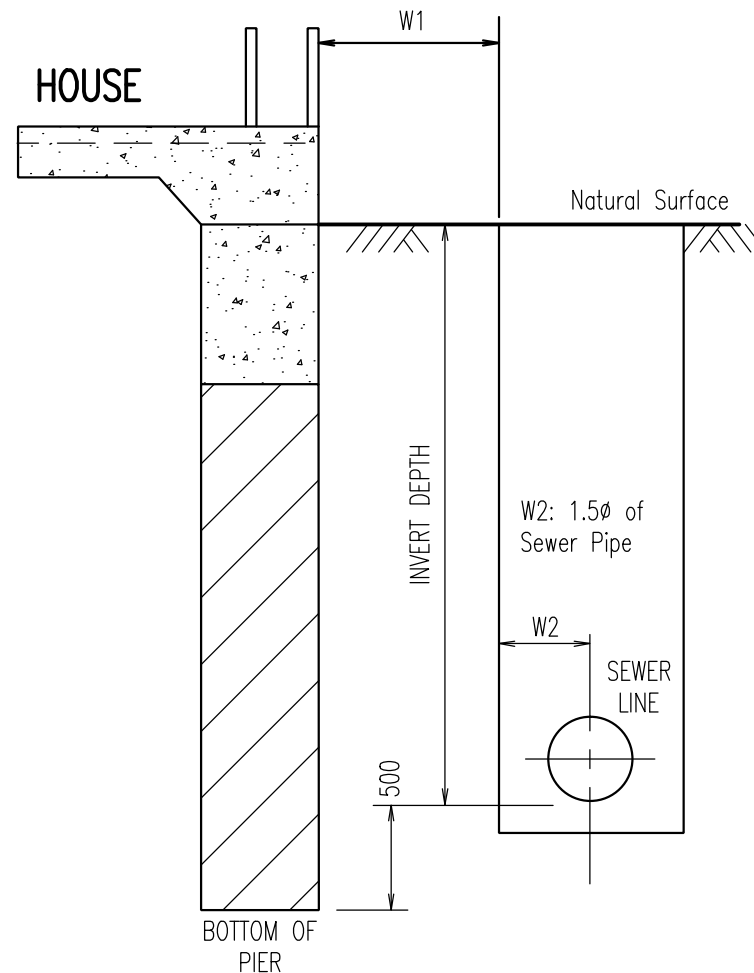
TYPICAL LONGITUDINAL SECTION

W1: Min 500 if sewer < 1500 (deep)
 Min 800 if sewer > 1500 < 2000
 Min 1000 if sewer > 2000 < 2500
 Min 1200 if sewer > 2500

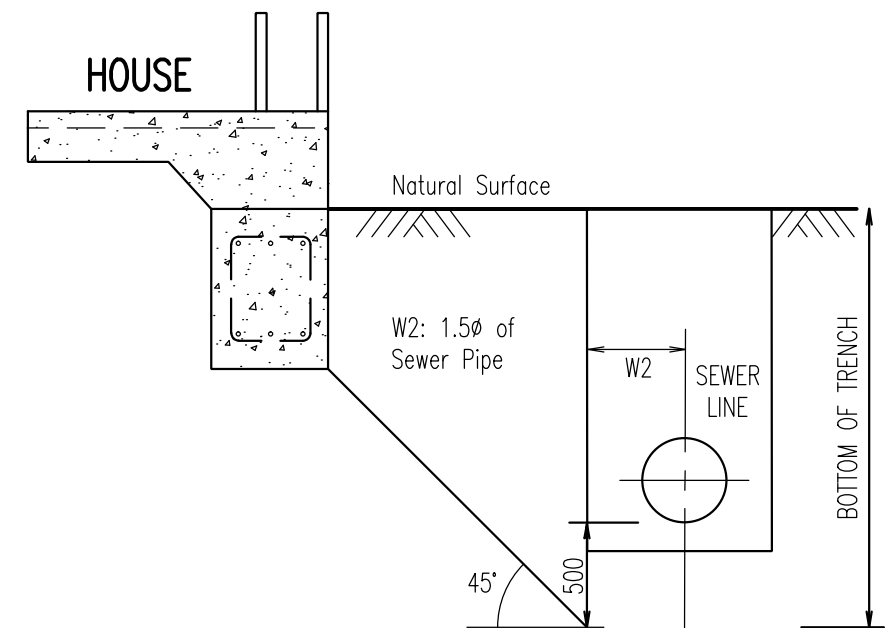
Note: Invert Depths of conc piers sewer pipe to be supplied with building plans



TYPICAL SECTION B-B ROOF EAVE CLEARANCE



TYPICAL SECTION A-A OPTION A (PIERS)
 Where line of influence cannot be achieved



TYPICAL SECTION A-A OPTION B (RING BEAM)

• Alternatively provide soil analysis, specifically pressure bulb testing.

NOTES:

- Design to be Certified as providing for adequate support to building in the event of maintenance excavation to adjacent sewer pipeline.
- All dimensions in millimetres.

REVISIONS	DATE
F GENERAL UPDATES AND STANDARD REFERENCING AMENDMENTS	6/5/16
E DIMENSIONAL CHANGES, EAVE CLEARANCE ADDED	25/8/10
D MINOR DIMENSIONAL CHANGES	06/9/07
C 1500 MIN CHANGE	15/6/98
B DIMENSIONAL CHANGES	10/3/98
A ORIGINAL ISSUE	1/3/97



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**PIER DETAILS FOR BUILDINGS
 IN CLOSE VICINITY TO SEWER LINE**

**SEWERAGE
 Standard
 Drawing
 S-0091**

B C D E F