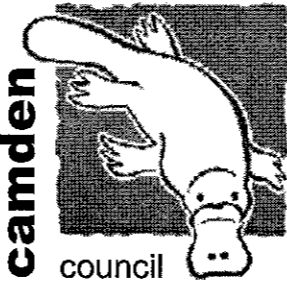
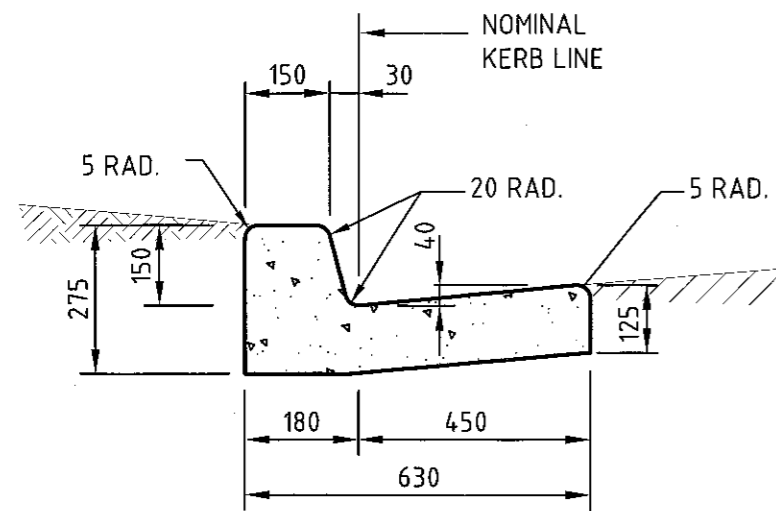
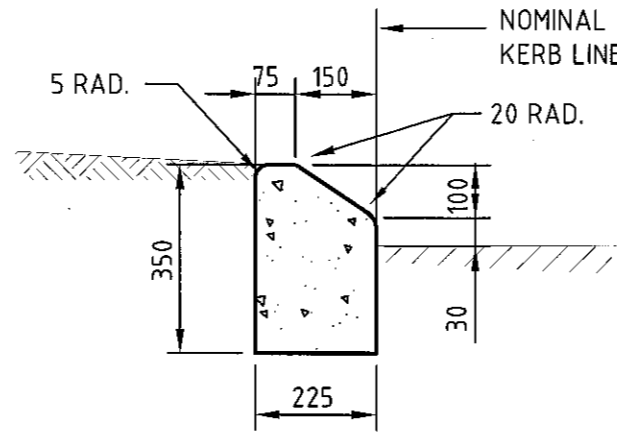


NOTE: DIMENSIONS SHOWN ARE INDICATIVE ONLY AND SHALL BE IN ACCORDANCE WITH THE RELEVANT SECTION OF THE DEVELOPMENT CONTROL PLAN / DEVELOPMENT CONSENT

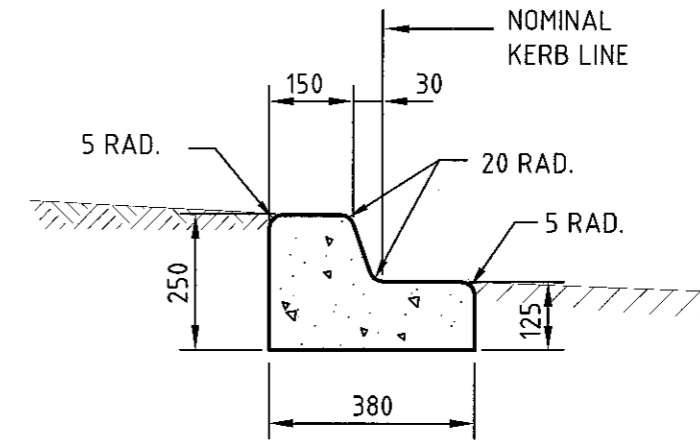
					TITLE	SCALE
					TYPICAL ROAD CROSS SECTIONS	NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009
					DRAWING No.	REV
					SD01	A



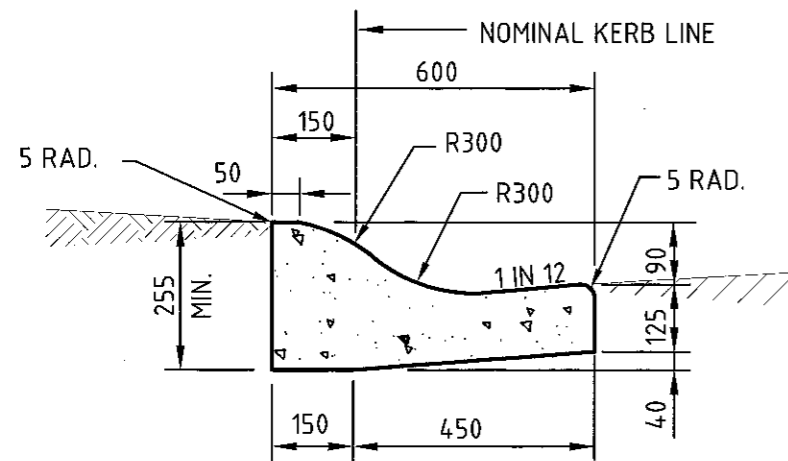
**KERB AND GUTTER**



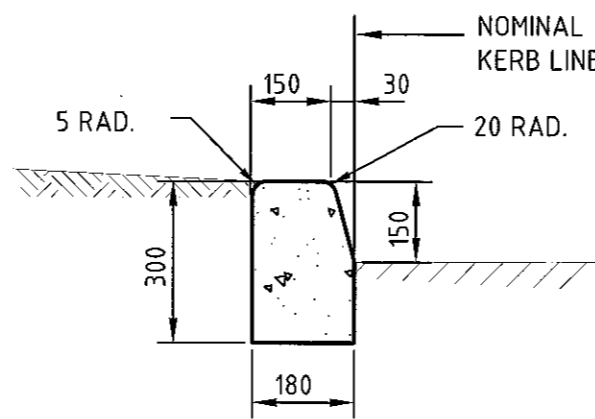
**MOUNTABLE KERB**



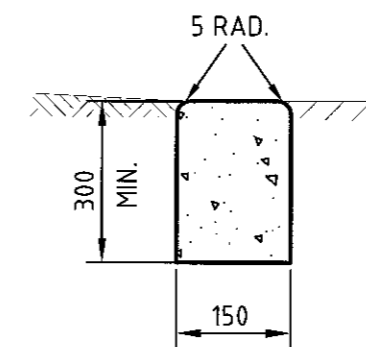
**KERB WITH TOE**



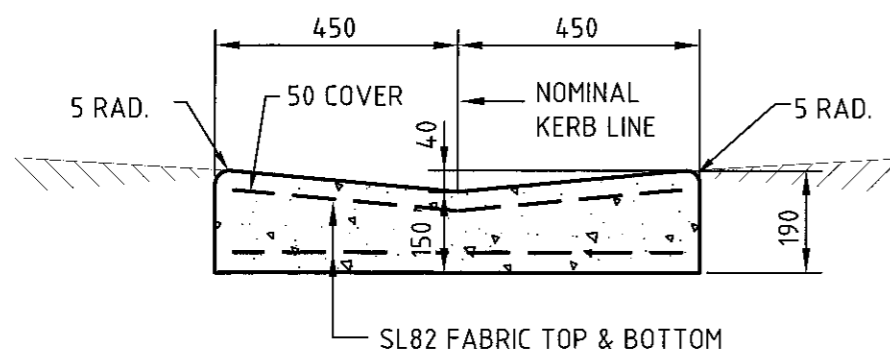
**ROLL KERB**



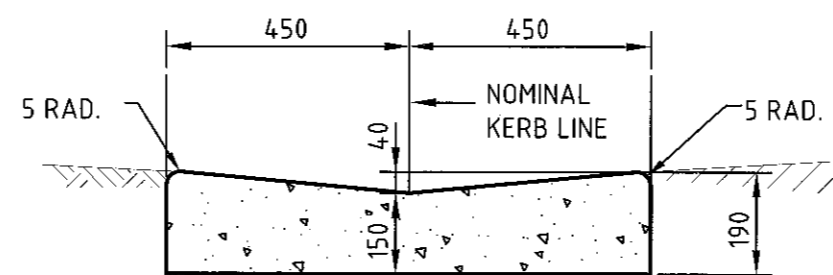
**KERB ONLY**



**EDGE STRIP**



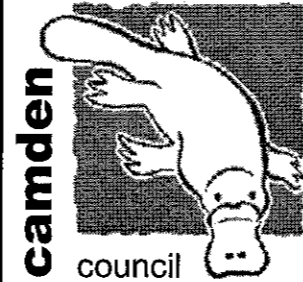
**DISH CROSSING**

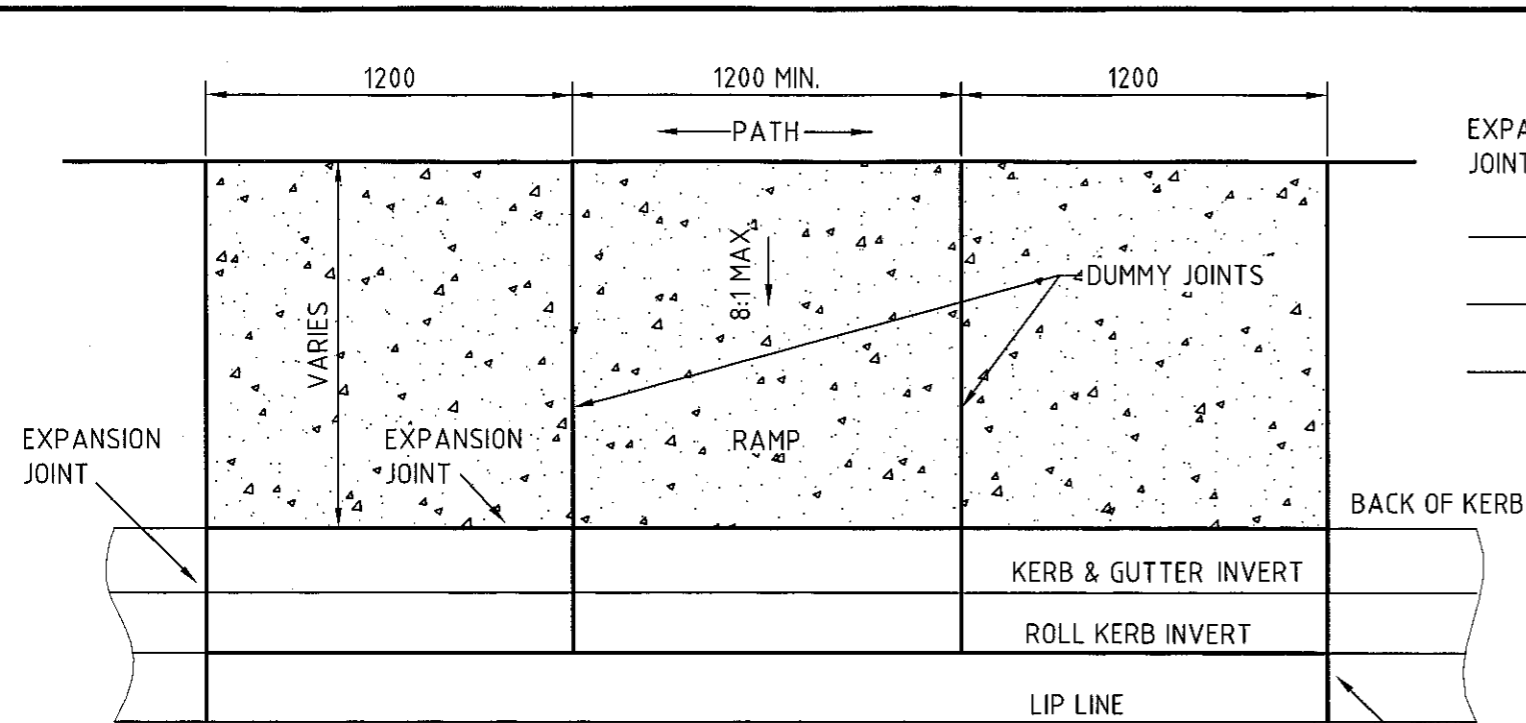


**TABLE DRAIN**

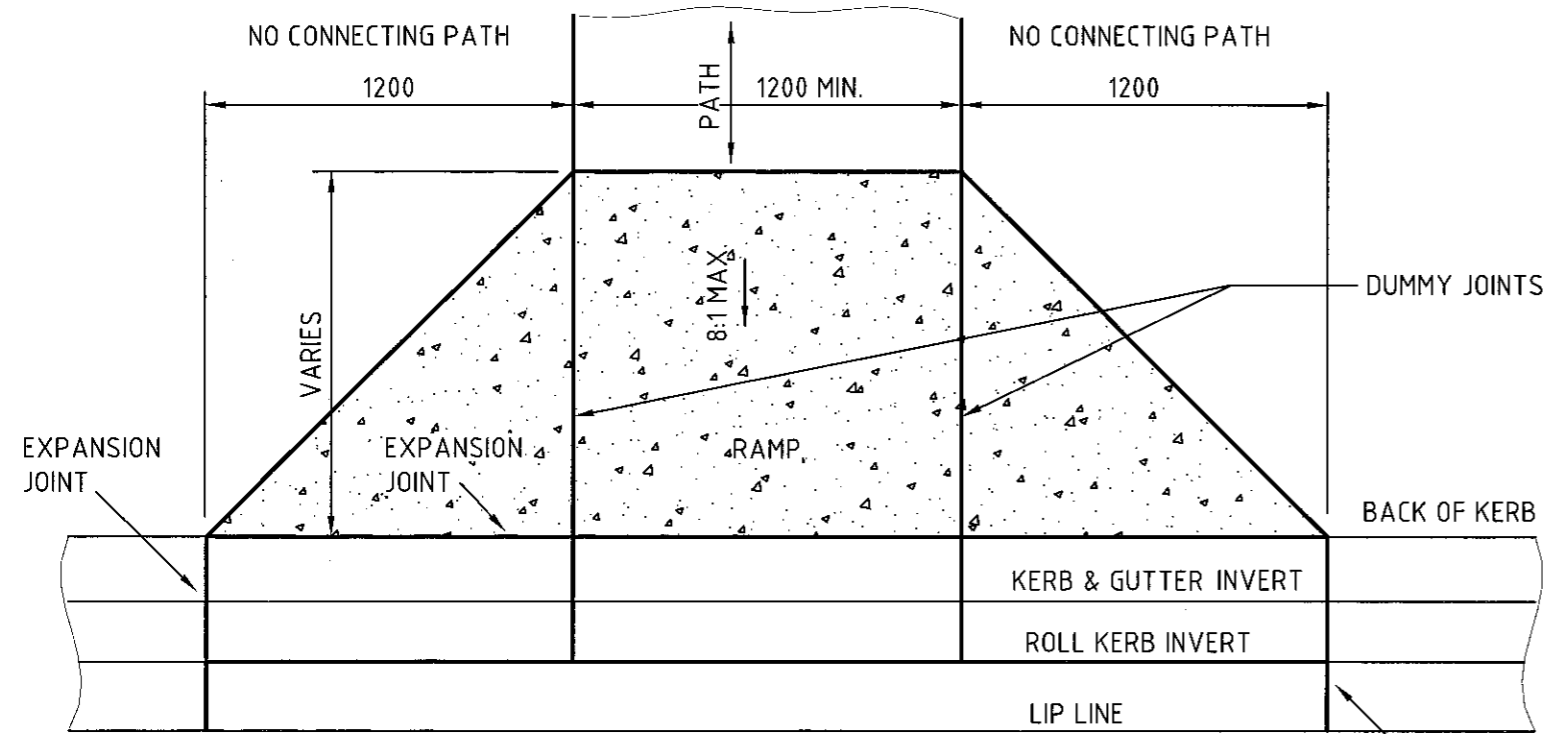
**NOTES:**

1. ROAD SUB BASE SHALL BE EXTENDED BENEATH KERBS, GUTTERS AND DISH CROSSINGS 150 BEHIND REAR OF KERB A MIN. DEPTH OF 175.
2. CONCRETE SHALL BE OF 25 MP<sub>a</sub> COMPRESSIVE STRENGTH (F'c) AT 28 DAYS WITH NO SLUMP MIX FOR KERBS AND GUTTERS, DISH CROSSINGS, KERBS AND EDGE STRIPS.
3. REINFORCEMENT PROVISIONS TO COMPLY WITH THE SPECIFICATION AND AT THE DIRECTION OF THE PCA/COUNCIL
4. CONDUIT LOCATIONS SHALL BE MARKED ON KERB FACES WITH AN APPROVED TOOL OR AS OTHERWISE DIRECTED BY THE PCA/COUNCIL
5. ALL DIMENSIONS ARE IN MILLIMETRES.

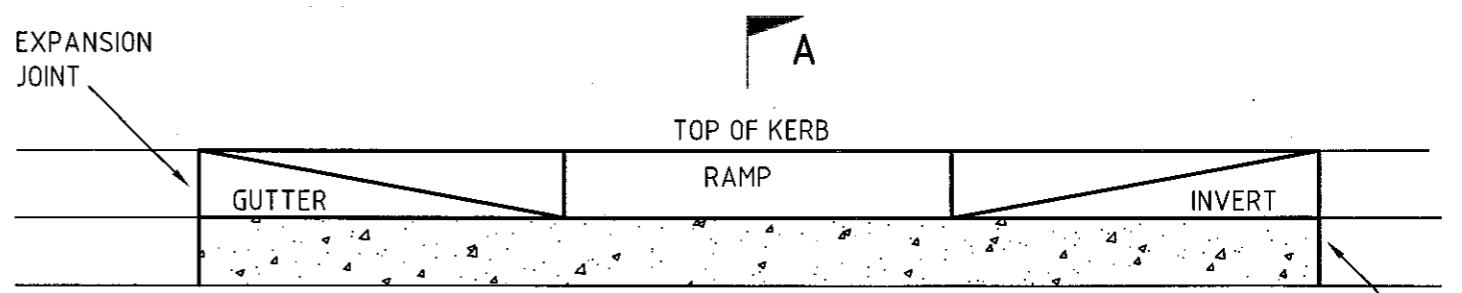
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						KERB PROFILES		NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD02	A



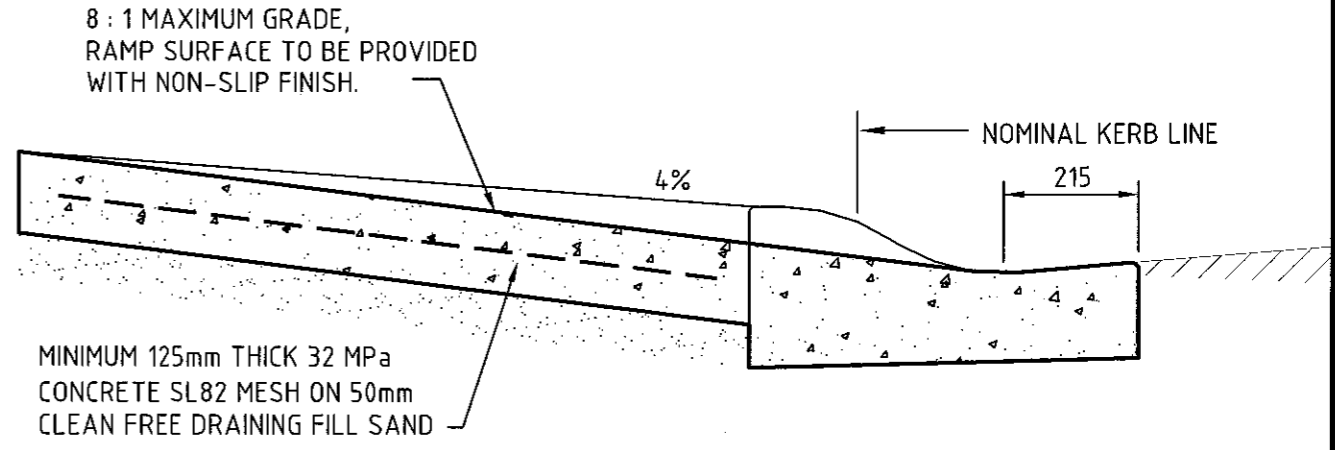
**PLAN**  
(PATH PARALLEL TO KERB)



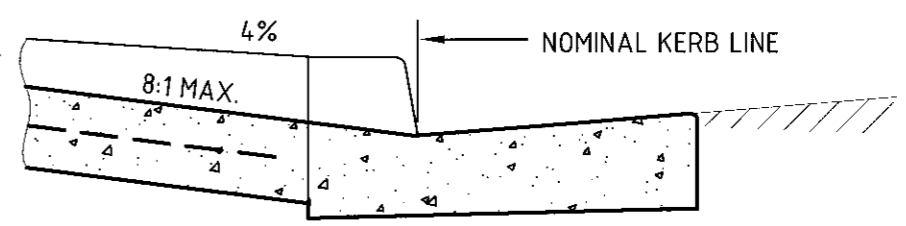
**PLAN**  
(PATH PERPENDICULAR TO KERB)



**ELEVATION**



**SECTION A - A**  
(ROLL KERB)

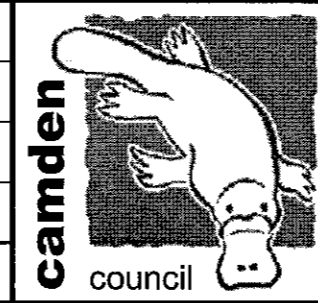


**SECTION A - A**  
(KERB & GUTTER)

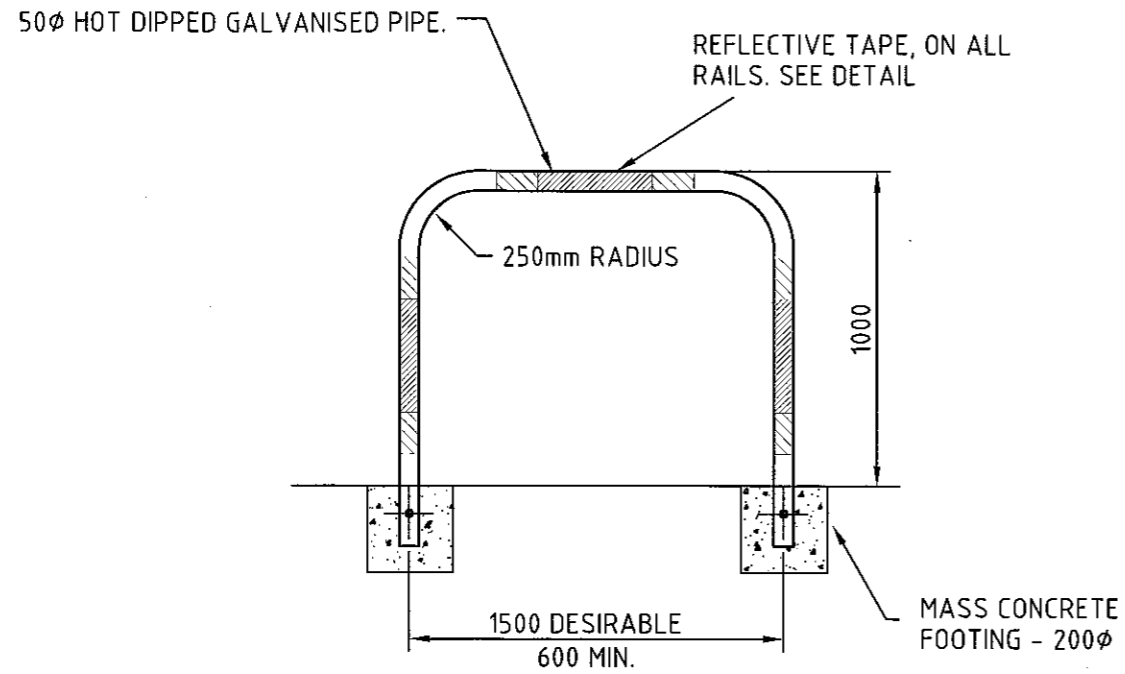
**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL KERB RAMPS ARE TO BE ALIGNED WITH THE DESIRED DIRECTION OF PEDESTRIAN TRAVEL AND BE A MINIMUM OF 1200 WIDE.
3. EXPANSION JOINTS TO BE PROVIDED WHERE ENDS OF KERB RAMP ABUTS KERB AND GUTTER.
4. KERB AND GUTTER TO BE SAWCUT FOR RAMPS PLACED IN EXISTING KERB

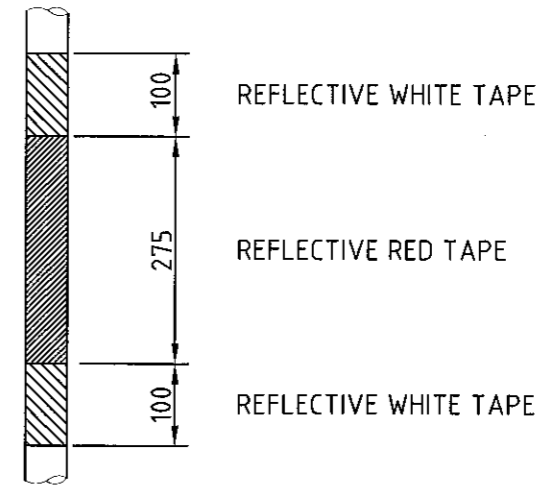
REVISION	DATE	DESCRIPTION	DRAWN.	APP.
A	JAN 2009	FIRST ISSUE	A.P.	C.M.



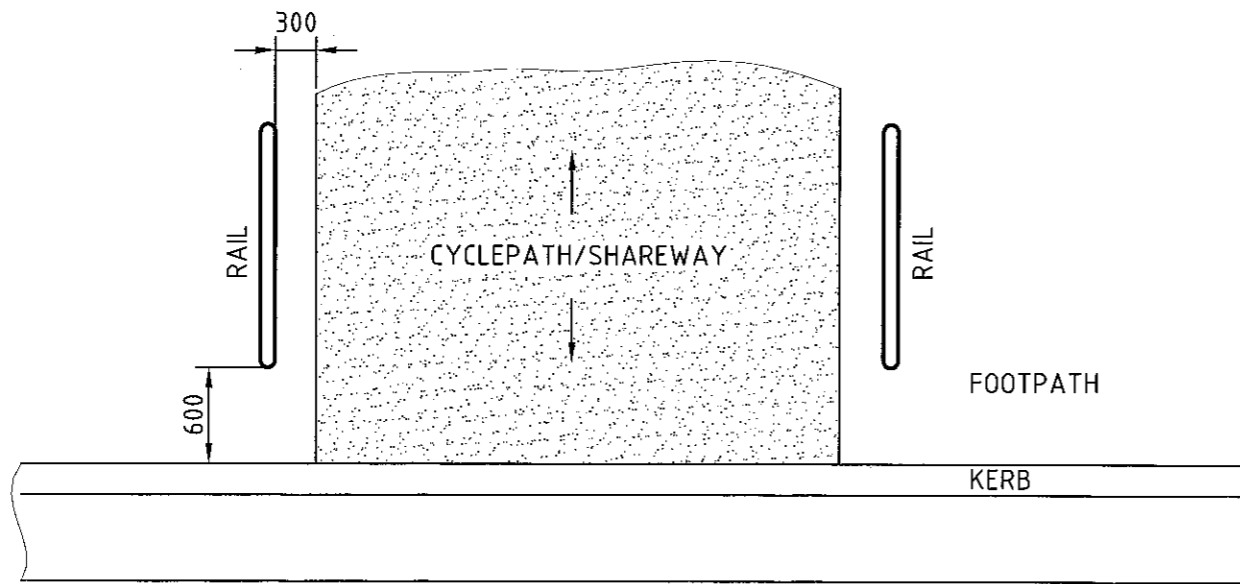
TITLE <b>KERB RAMP</b>			SCALE NTS
APPROVED C. McINTYRE	DATE JAN 2009	DRAWING No. <b>SD03</b>	REV <b>A</b>



**ELEVATION**



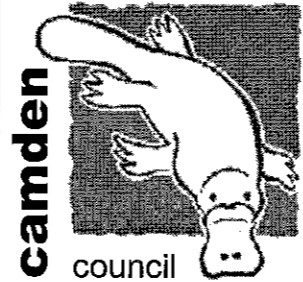
**REFLECTIVE TAPE DETAIL**

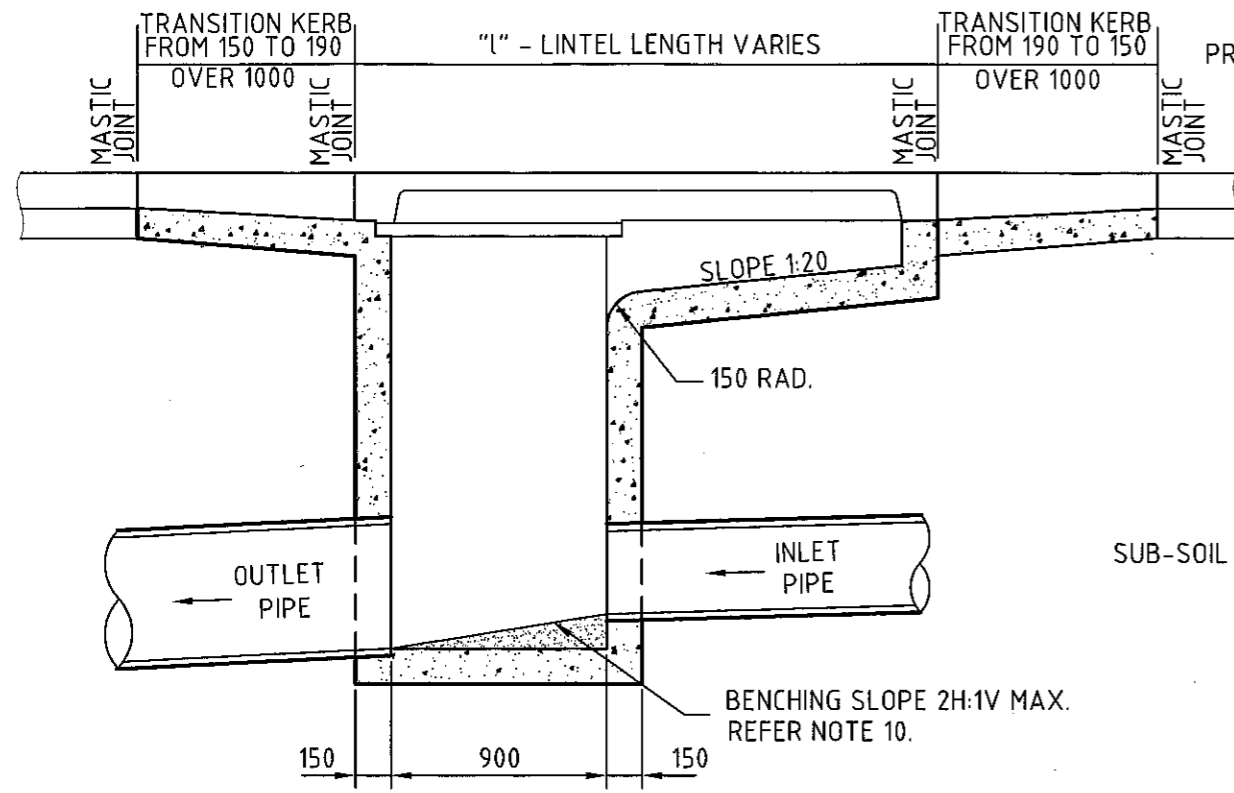


**PLAN**

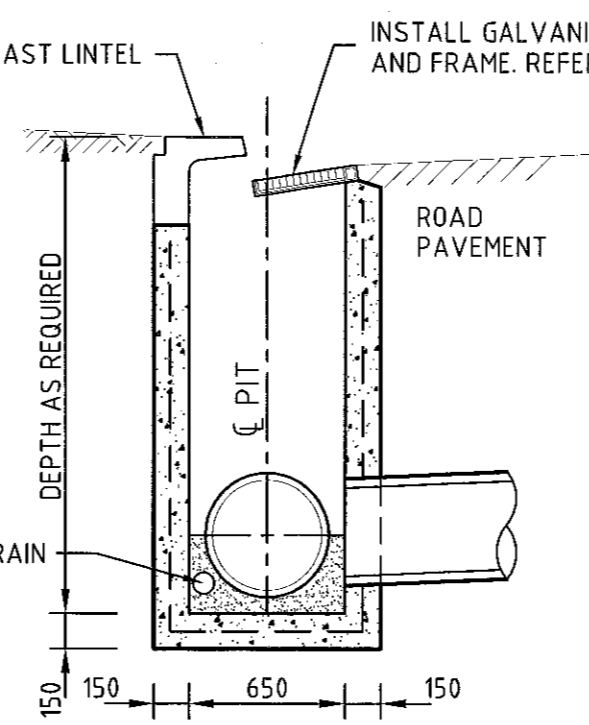
**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. PLACE N12 BAR 150mm LONG IN HOLE BEFORE FIXING INTO PLACE
3. CONCRETE TO BE 25MPa @ 28 DAYS.
4. ALL STEELWORK TO BE HOT DIPPED GALVANISED.
5. WHERE DIRECTED BY THE PCA/COUNCIL, ADDITIONAL/ALTERNATE RAILS MAY BE REQUIRED
6. ANY RAIL INSTALLATION SHALL BE IN ACCORDANCE WITH AUSTRROADS PART 14 - BICYCLES.
7. REFLECTIVE TAPE TO BE CLASS 1 (AS1906.1).

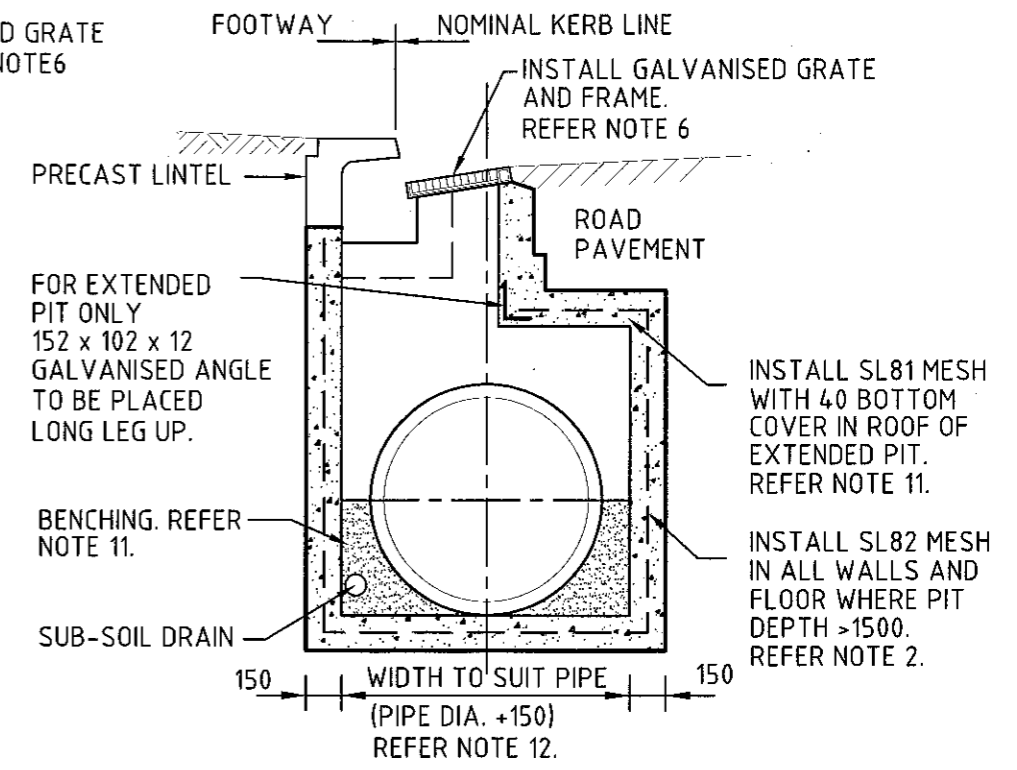
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						PATHWAY RAILS		NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD06	A



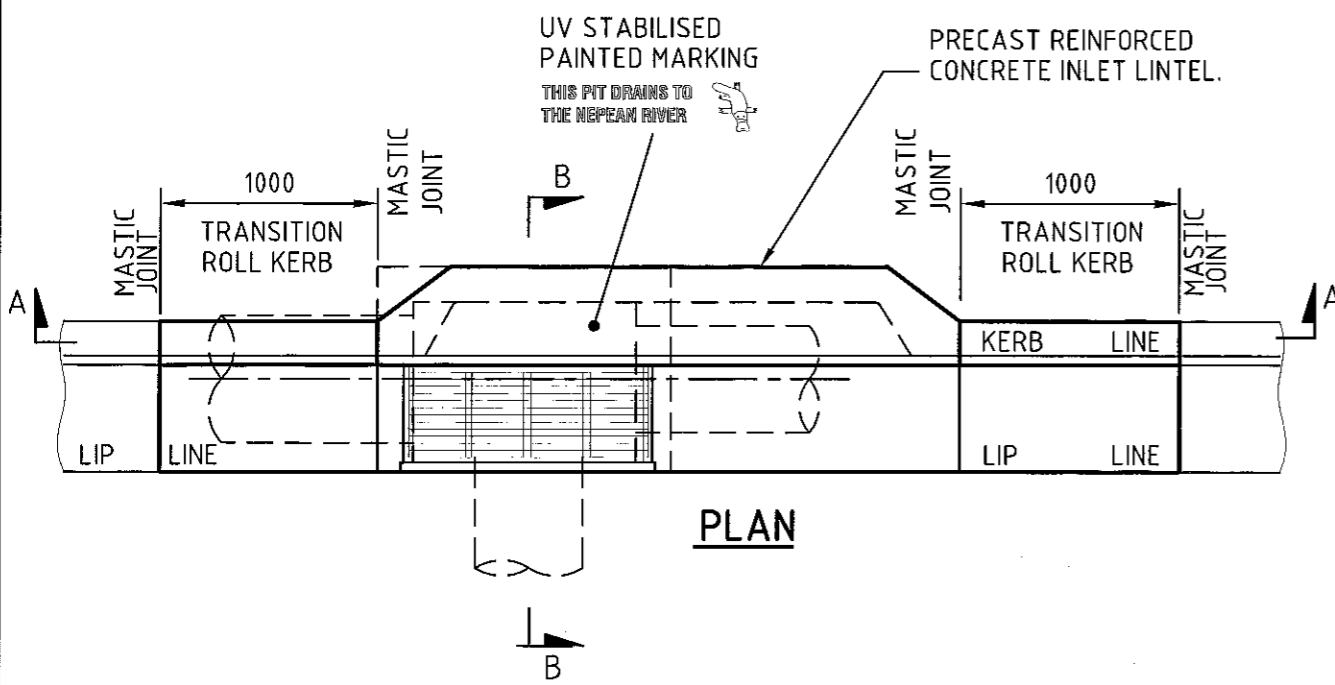
**SECTION A - A**



**SECTION B - B**



**SECTION B - B (EXTENDED PIT CHAMBER)**

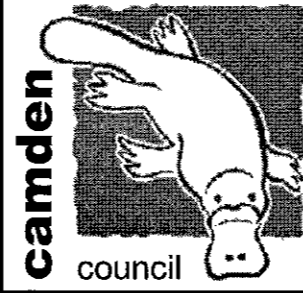


PRECAST LINTEL SIZES.	
NOMINAL OPENING SIZE METRES	OVERALL LENGTH "L" mm
0.9	1825
1.2	1825
1.8	2438
2.4	3048
3.0	3657
3.6	4267
4.2	4877
4.8	5486

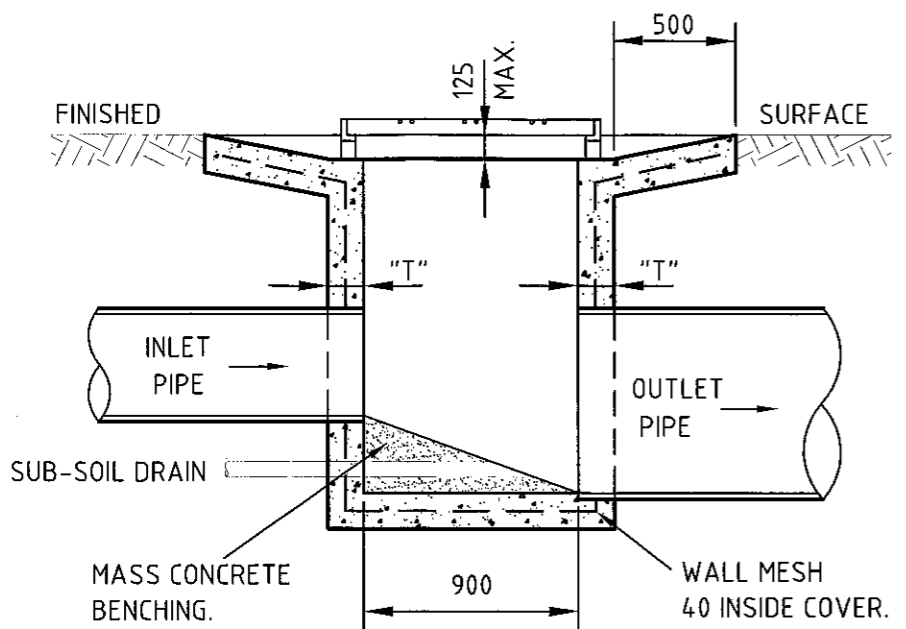
**NOTES**

1. CONCRETE TO BE 32MPa MINIMUM AT 28 DAYS.
2. WHERE DEPTH OF PIT EXCEEDS 1500, WALLS AND BOTTOM TO BE REINFORCED IN ALL DIRECTIONS WITH SL82 MESH AT 40 COVER TO INSIDE FACE WITH N12 CORNER BARS 300 LEGS AT 400 CTRS. PITS DEEPER THAN 2000 SHALL BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
3. SAG PITS TO HAVE LINTEL LOCATED CENTRALLY OVER PIT.
4. BACKFILL ADJACENT TO PITS TO BE APPROVED GRANULAR MATERIAL.
5. A 3m LENGTH OF APPROVED "FILTER FABRIC" WRAPPED 100mm SUB-SOIL DRAIN OR EQUIVALENT IS TO BE PROVIDED AND CONNECTED TO THE UPSTREAM PIT WALL.
6. PIT GRATE AND FRAME TO BE "WELDLOK" GG78-50 FOR RESIDENTIAL ROADS AND GG78-42A FOR INDUSTRIAL ROADS, FITTED WITH A LOCKABLE "J" BOLT.
7. STEP IRONS WHERE THE PIT EXCEEDS 1200 IN DEPTH. AS PER SDS09.
8. THE CENTRE LINES OF INTERSECTING PIPES ARE TO MEET AT THE DOWNSTREAM FACE OF THE PIT WHERE POSSIBLE.
9. WHERE ENTERING PIPE EXCEEDS 525 IN DIAMETER, EXTENDED PIT CHAMBER, AS SHOWN
10. FLOOR OF PIT TO BE BENCHED TO MID POINT OF OUTLET PIPE WHERE OUTLET PIPE IS >600 DIAMETER
11. WHERE EXTENDED CHAMBER WIDTH EXCEEDS 1200, ROOF REINFORCEMENT TO BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
12. CONTRACTOR TO ENSURE CLEARANCE BETWEEN LINTEL AND OPENED GRATE.
13. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
14. PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED
15. PIT MARKING STENCILS ARE AVAILABLE FROM COUNCIL
16. LIFTING LUGS TO BE FILLED AFTER INSTALLATION

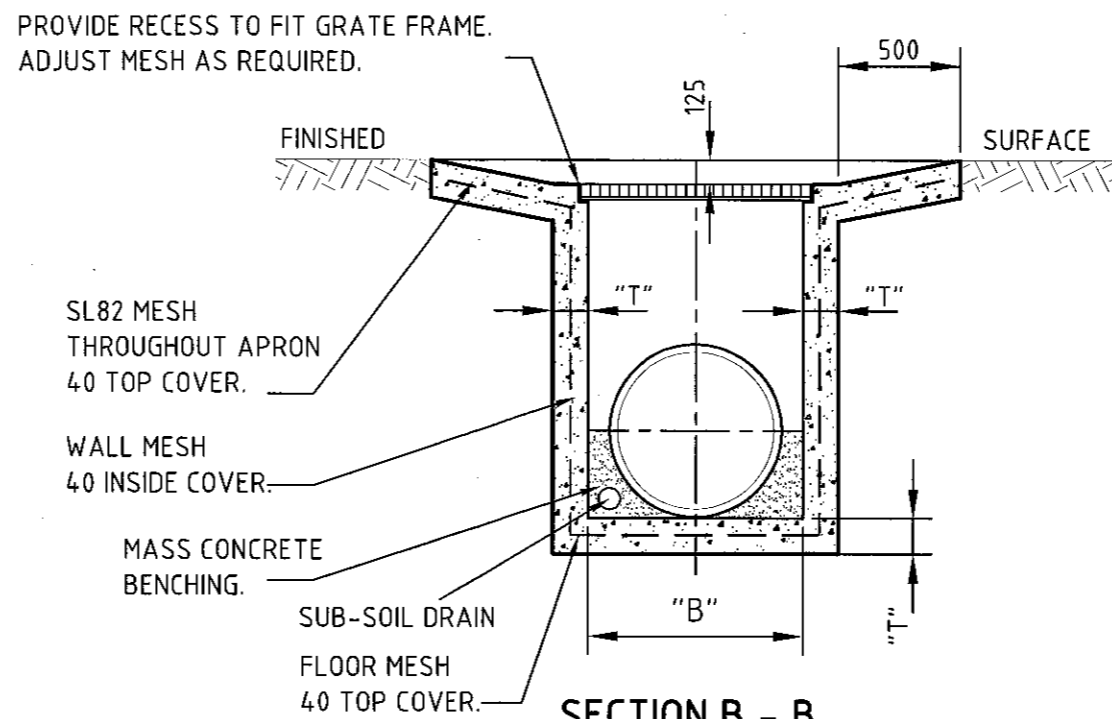
REVISION	DATE	DESCRIPTION	DRAWN.	APP.
A	JAN 2009	FIRST ISSUE	A.P.	C.M.



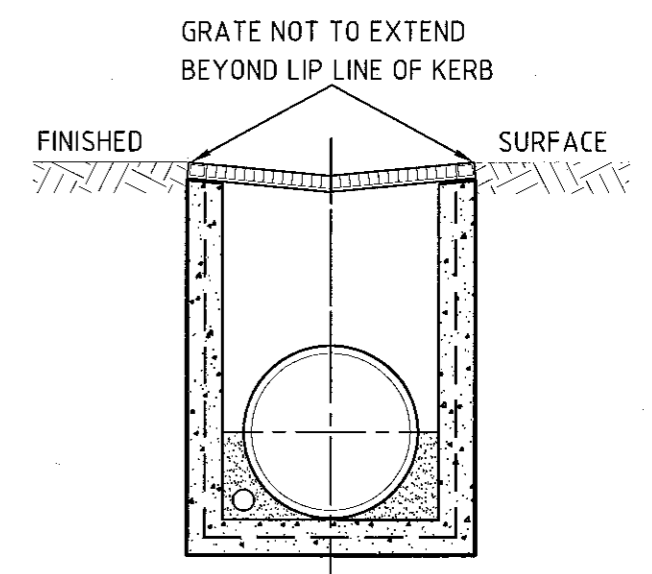
TITLE <b>GRATED GULLY PIT</b>			SCALE NTS
APPROVED C. McINTYRE	DATE JAN 2009	DRAWING No. <b>SD12</b>	REV A



**SECTION A - A**  
(PIT TYPE A - RAISED GRATE)

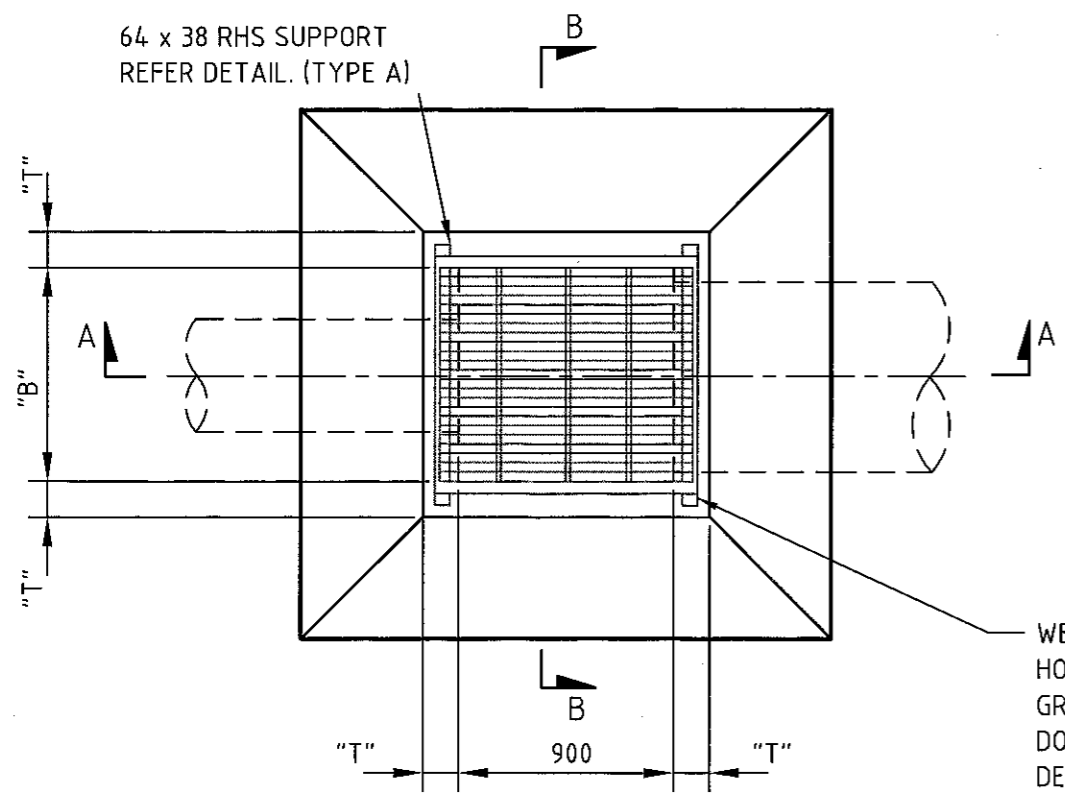


**SECTION B - B**  
(PIT TYPE B - FLUSH GRATE)



**SECTION B - B**  
(PIT TYPE C - V GRATE)

64 x 38 RHS SUPPORT REFER DETAIL. (TYPE A)



**PLAN - PIT TYPE A and B**  
(SUIT PIPES UP TO 1500mm DIA.)

PIT TYPE C - V GRATE FOR USE IN DISH CROSSINGS AND TABLE DRAINS

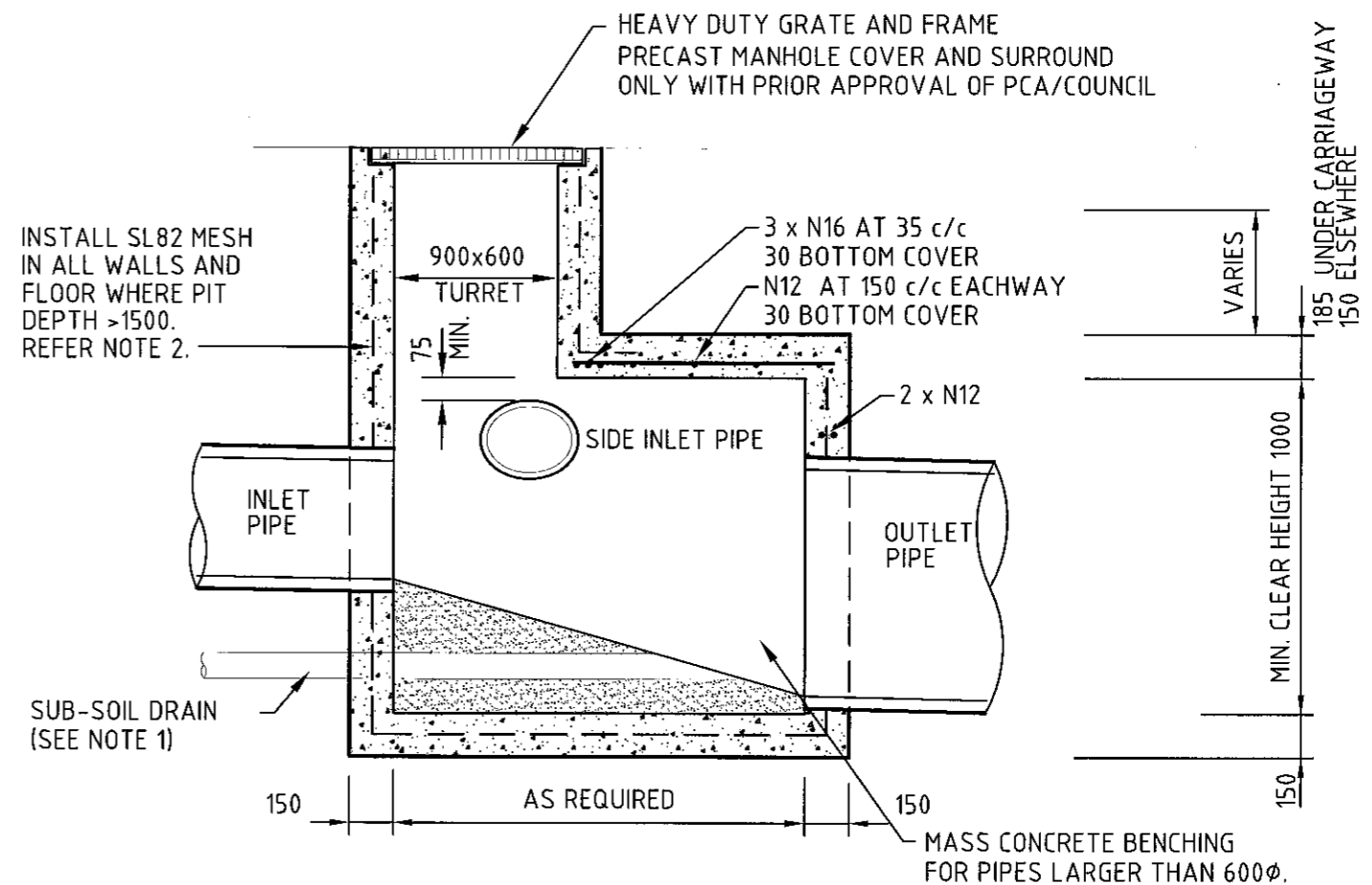
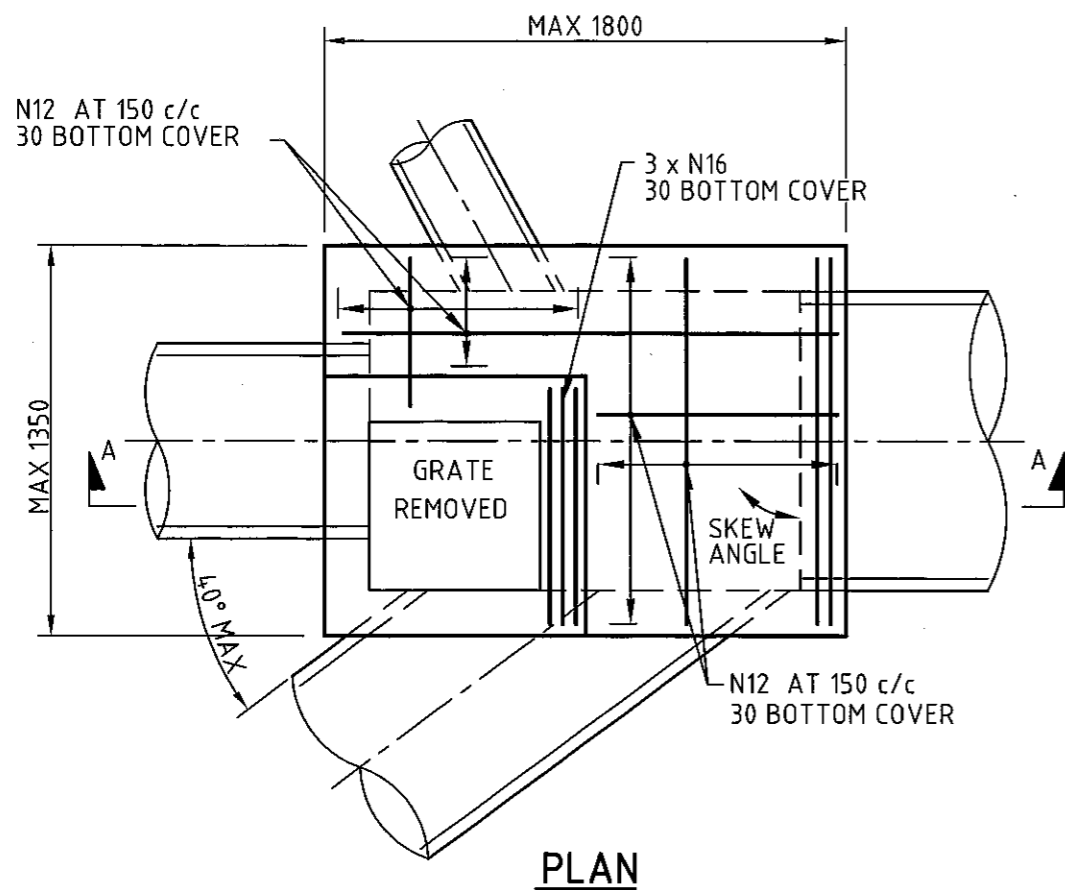
PIT DIMENSIONS and MESH			
LARGEST PIPE CONNECTED TO PIT	DIMENSION "B"	DIMENSION "T"	MESH (WALLS and FLOOR ONLY)
UP TO 525	600	150	SL82
UP TO 750	900	150	SL82
825 - 900	1000	150	SL82
1050 - 1200	1400	150	SL82
1350	1550	200	SL82
1500	1700	200	SL102

NOTWITHSTANDING THE ABOVE TABLE, PITS DEEPER THAN 2000 TO INVERT SHALL BE STRUCTURALLY DESIGNED.

**NOTES.**

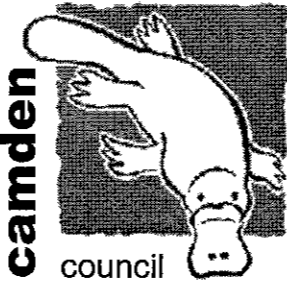
1. CONCRETE TO BE 32MPa MINIMUM AT 28 DAYS.
2. APPROVED STEP IRONS SHALL BE PROVIDED WHERE THE PIT EXCEEDS 1200 IN DEPTH. REFER TO SD20
3. GRATES MUST BE CLASS C FOR NON-ROAD INSTALLATION AND CLASS D FOR ROAD INSTALLATION. CLASSES AS DEFINED IN A.S.3996.
4. GRATE LEGS TO BE WELDED TO FRAME PRIOR TO GALVANISING. (TYPE A)
5. ALL CONCRETE WORK TO BE A MINIMUM OF 150 THICK.
6. MASS CONCRETE BENCHING TO PIPE CENTRELINE MUST BE PROVIDED AS INDICATED.
7. WHERE SITE CONDITIONS DICTATE, THE PCA/COUNCIL MAY INCLINE THE PIT TOPS TO AN UPPER LIMIT OF 1 VERT. in 4 HORIZ. NO ALTERATION TO REINFORCEMENT IS REQUIRED, HOWEVER, THE ENTIRE PIT ROOF (AND ACCOMPANYING APRONS) ARE TO REMAIN PLANAR.
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
9. PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED.

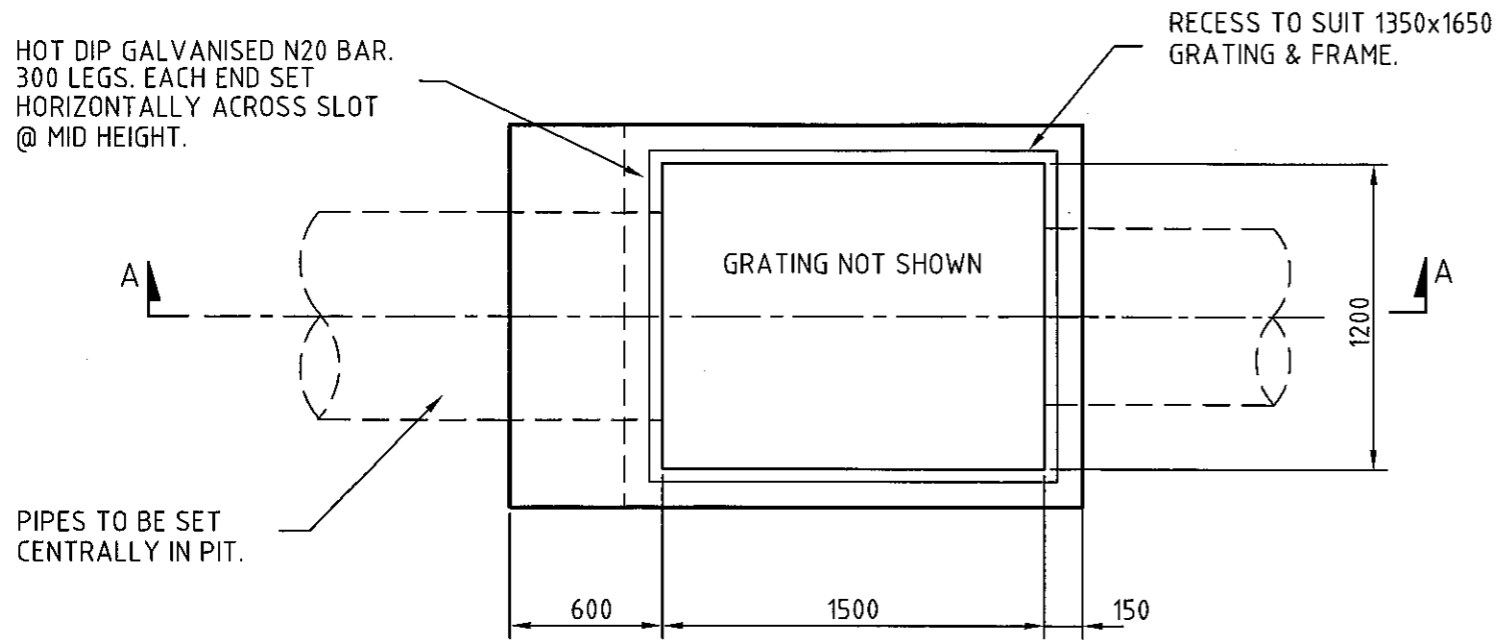
						TITLE		SCALE
						SURFACE INLET PIT		NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD13	A



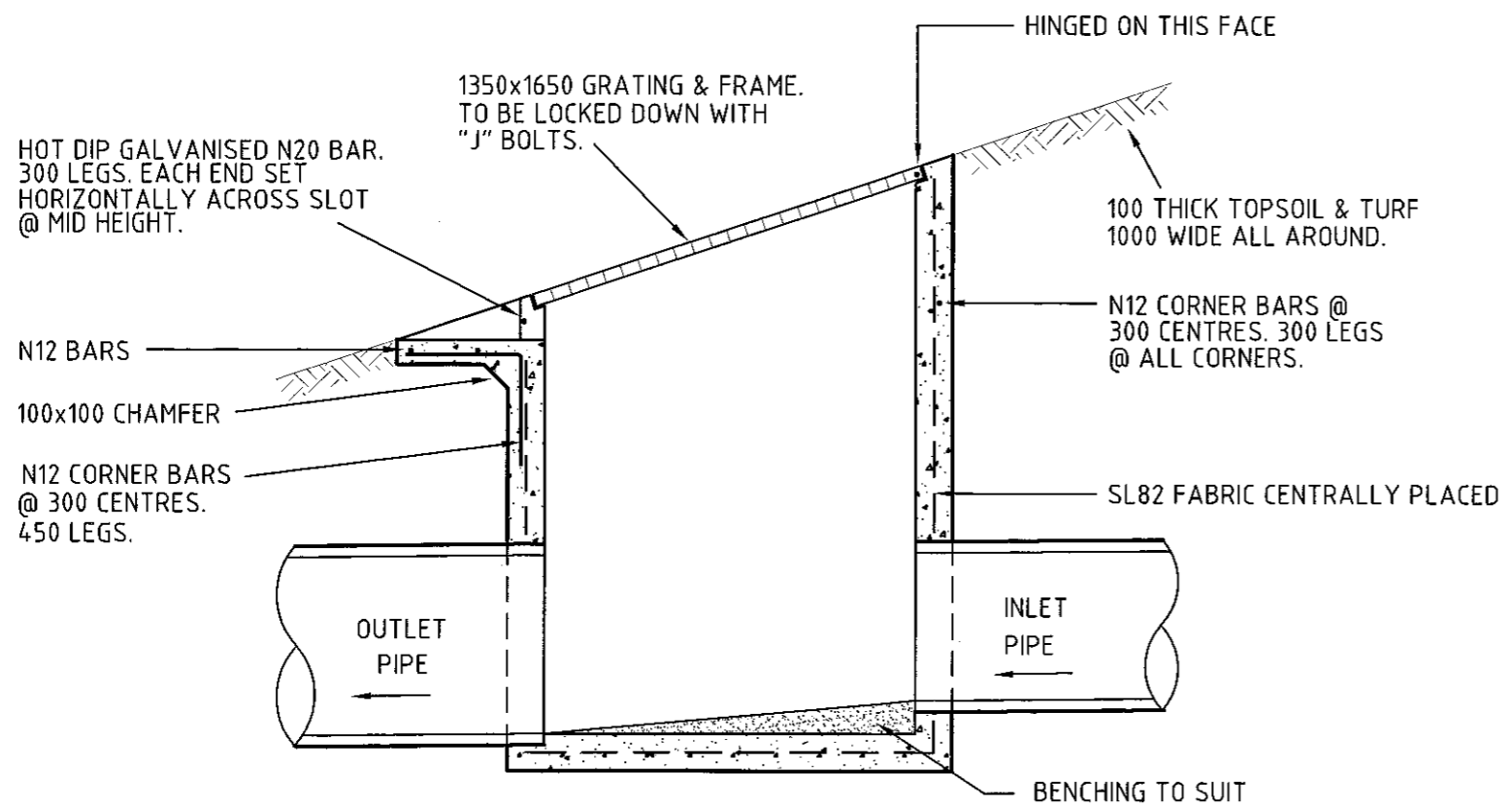
**NOTES:**

1. PROVIDE  $\phi 100$  SUB-SOIL DRAINAGE PIPE, 3000 LONG, WRAPPED IN FABRIC SOCK ADJACENT TO INLET PIPES.
2. MAXIMUM OUTLET PIPE ON STRAIGHT  $\phi 900$
3. MAXIMUM OUTLET PIPE ON SKEW  $\phi 825$
4. MAXIMUM SIDE ENTRY PIPE  $\phi 825$  AT APPROX.  $40^\circ$  SKEW.
5. MINIMUM INTERNAL DIMENSIONS - LENGTH 900  
- WIDTH 700  
- HEIGHT 1000.
6. CAST IN SITU CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32MPa AT 28 DAYS.
7. WHERE PITS ARE DEEPER THAN 1200 PROVIDE STEP IRONS. REFER TO SD20
8. PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH ONE LAYER OF SL82 TO FLOOR AND WALLS FOR THE FULL DEPTH. PITS DEEPER THAN 2000 SHALL BE STRUCTURALLY DESIGNED.
9. PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED.

					TITLE	SCALE
					JUNCTION PIT	NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009
					DRAWING No.	REV
					SD14	A



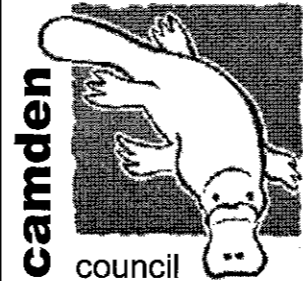
**PLAN**



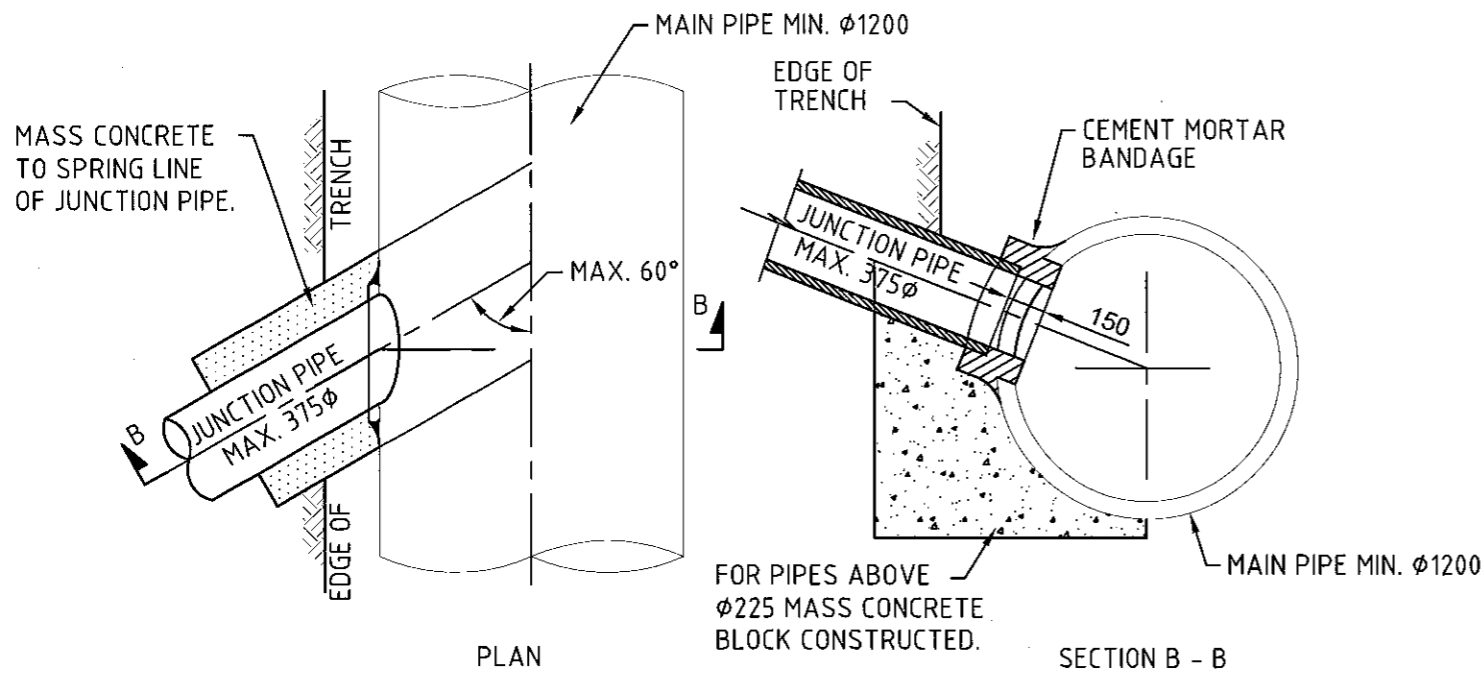
**SECTION A - A**

**NOTES**

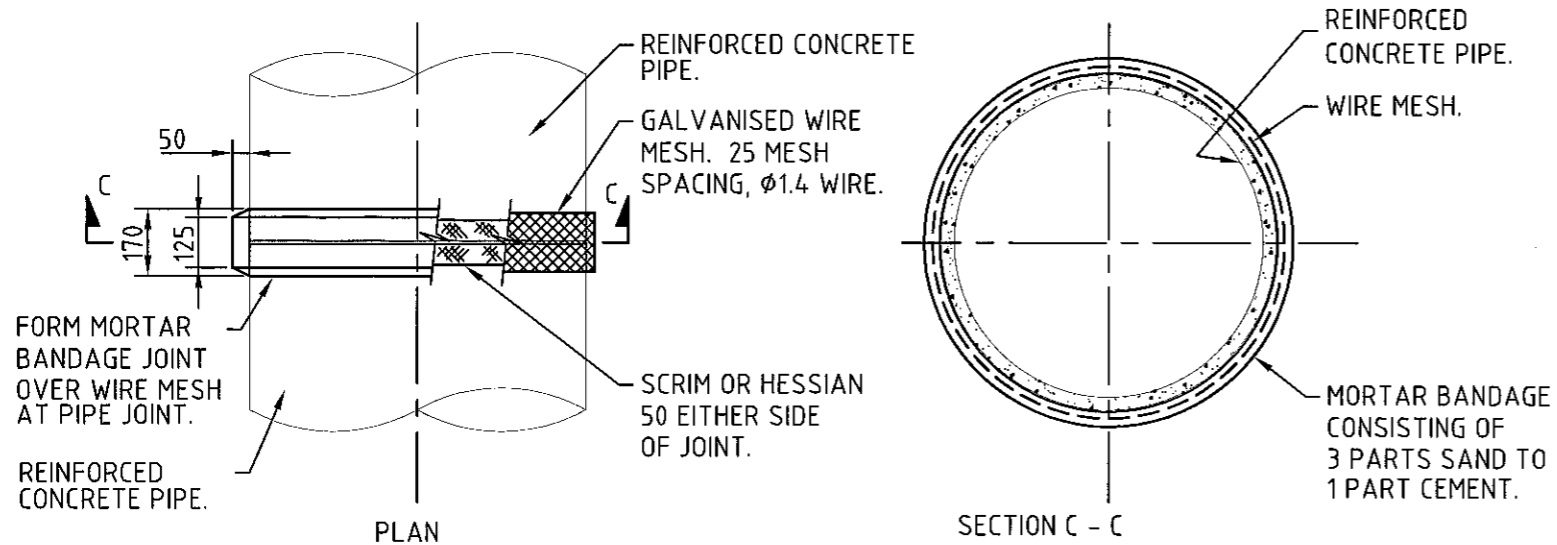
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. CONCRETE TO BE 32MPa @ 28 DAYS.
3. ALL REINFORCEMENT TO BE CENTRALLY LOCATED.
4. ALL PIT WALLS AND BASE TO BE MIN 150 THICK.
5. STREAMLINE BASE OF PIT TO SUIT.
6. PITS GREATER THAN 2000 IN DEPTH SHALL BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
7. WHERE DIRECTED PROVIDE 3000 OF 100φ CORRUGATED P.V.C. SUBSOIL DRAIN ON INLET SIDE OF PIT. SUBSOIL DRAIN TO BE SURROUNDED BY MIN 300 OF 5mm AGGREGATE.
8. PROVIDE STEP IRONS AS PER SD20 FOR PITS DEEPER THAN 1200.
9. PITS IN AREAS OF SALINITY HAZARDS SHALL BE APPROPRIATELY DESIGNED.

						TITLE		SCALE
						SURCHARGE PIT		NTS
APPROVED		DATE		DRAWING No.		REV		
C. McINTYRE		JAN 2009		SD16		A		
REVISION	DATE	DESCRIPTION	DRAWN.	APP.				
A	JAN 2009	FIRST ISSUE	A.P.	C.M.				





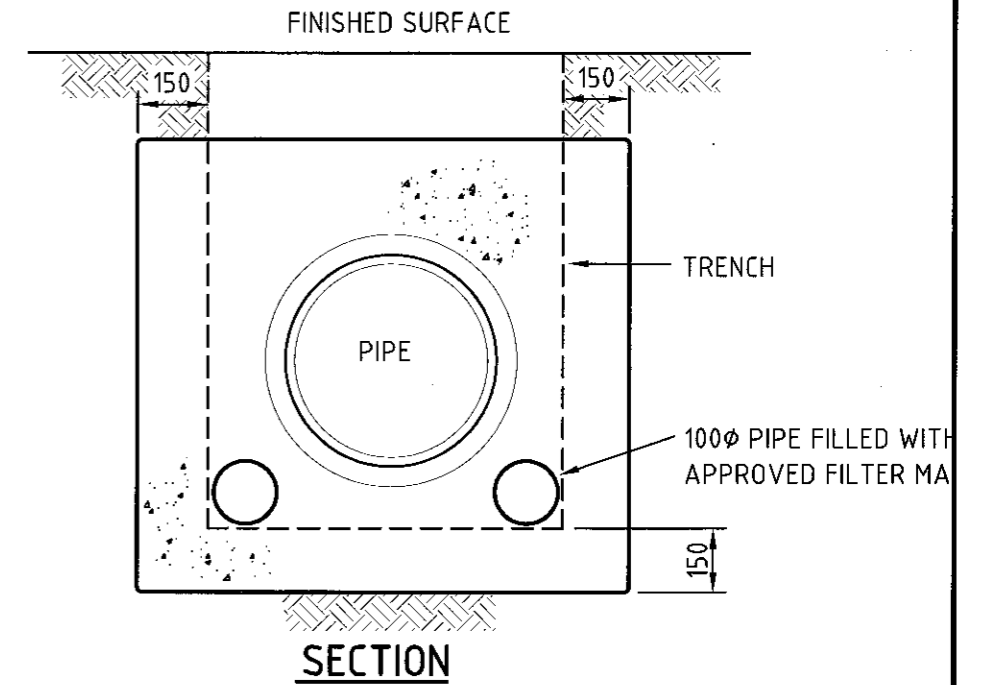
**TYPICAL DIRECT CONNECTION OF SMALL PIPE AND LARGE PIPE**



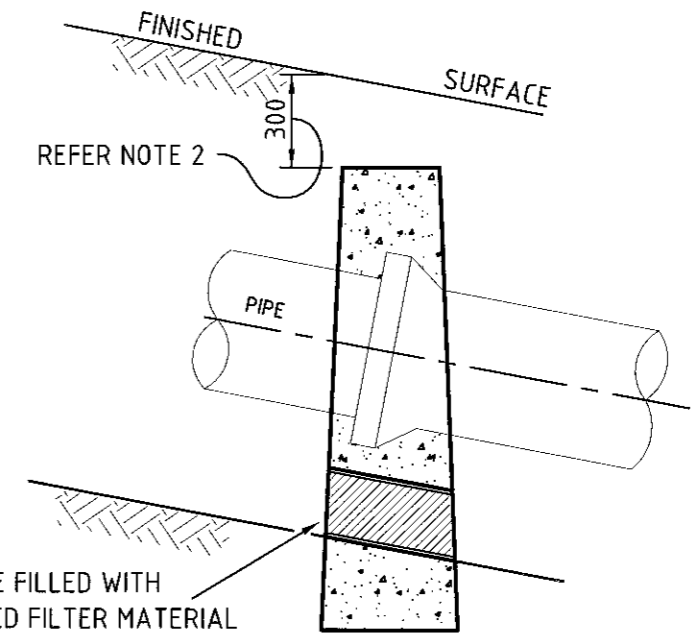
**BANDAGE JOINT DETAILS**

**NOTES:**

1. COMPRESSIVE STRENGTH  $F'c$  FOR CAST IN SITU CONCRETE TO BE A MIN. 32 MPa AT 28 DAYS.
2. ALL DIMENSION ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.



**SECTION**

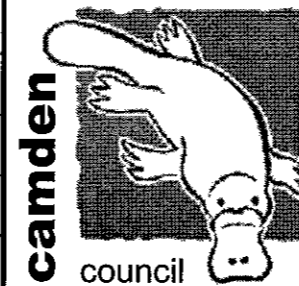


**ELEVATION CONCRETE BULKHEAD**

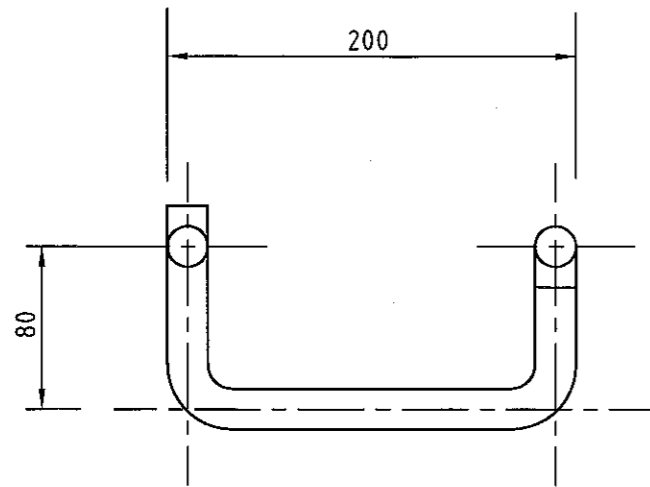
**NOTES:**

1. COMPRESSIVE STRENGTH  $F'c$  FOR CAST IN SITU CONCRETE TO BE A MIN. 32 MPa AT 28 DAYS.
2. WHERE THE PIPELINE IS UNDER ROAD PAVEMENT THE TOP OF THE BULKHEAD SHALL EXTEND TO THE SUBGRADE LEVEL.
3. BULKHEADS ARE TO BE PLACED AT EACH COLLAR JOINT FOR PIPELINE GRADES GREATER THAN 16%

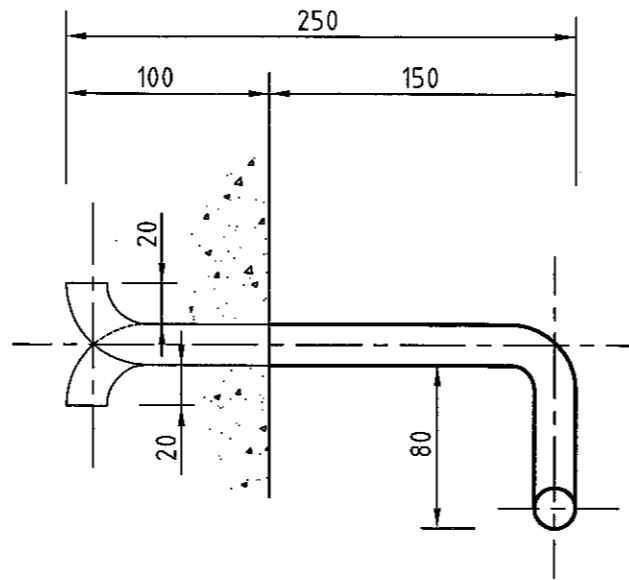
REVISION	DATE	DESCRIPTION	DRAWN.	APP.
A	JAN 2009	FIRST ISSUE	A.P.	C.M.



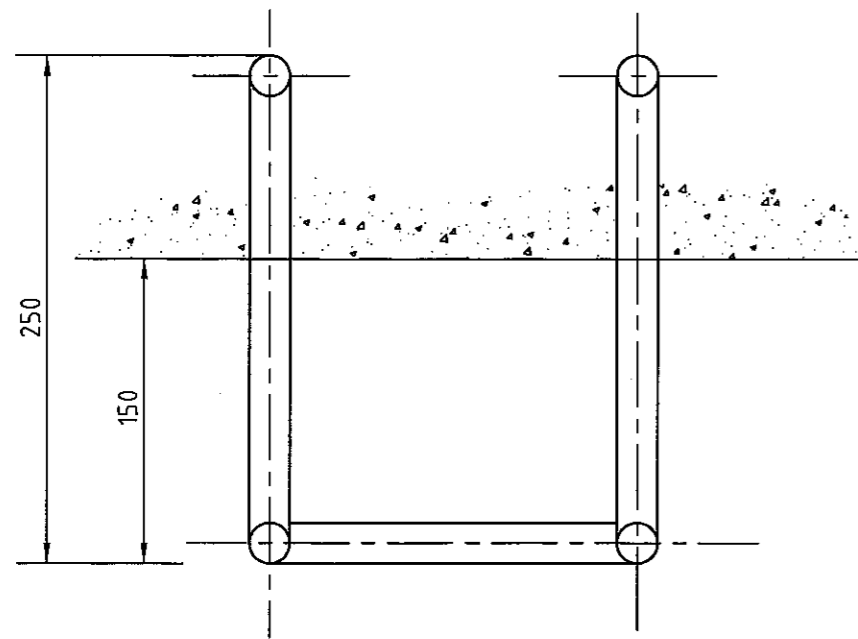
TITLE		SCALE	
MINOR DRAINAGE CONNECTIONS		NTS	
APPROVED	DATE	DRAWING No.	REV
C. McINTYRE	JAN 2009	SD17	A



**FRONT ELEVATION**



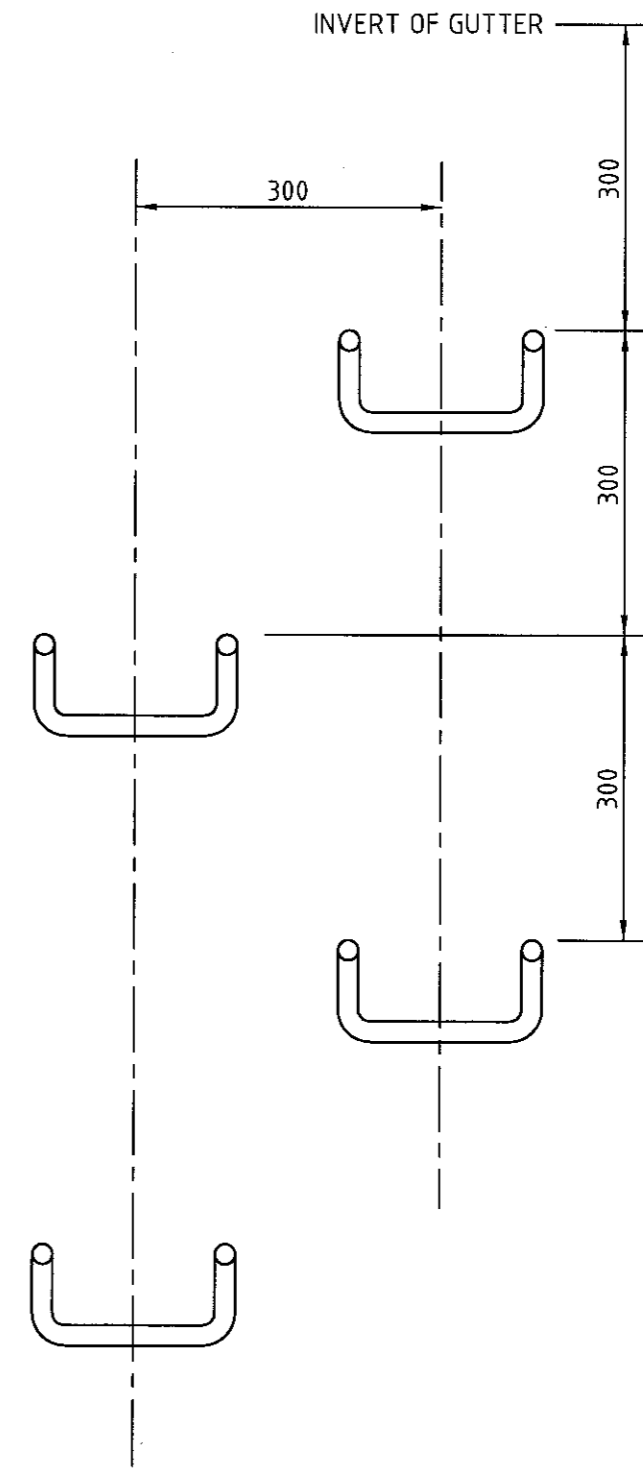
**SIDE ELEVATION**




**PLAN**

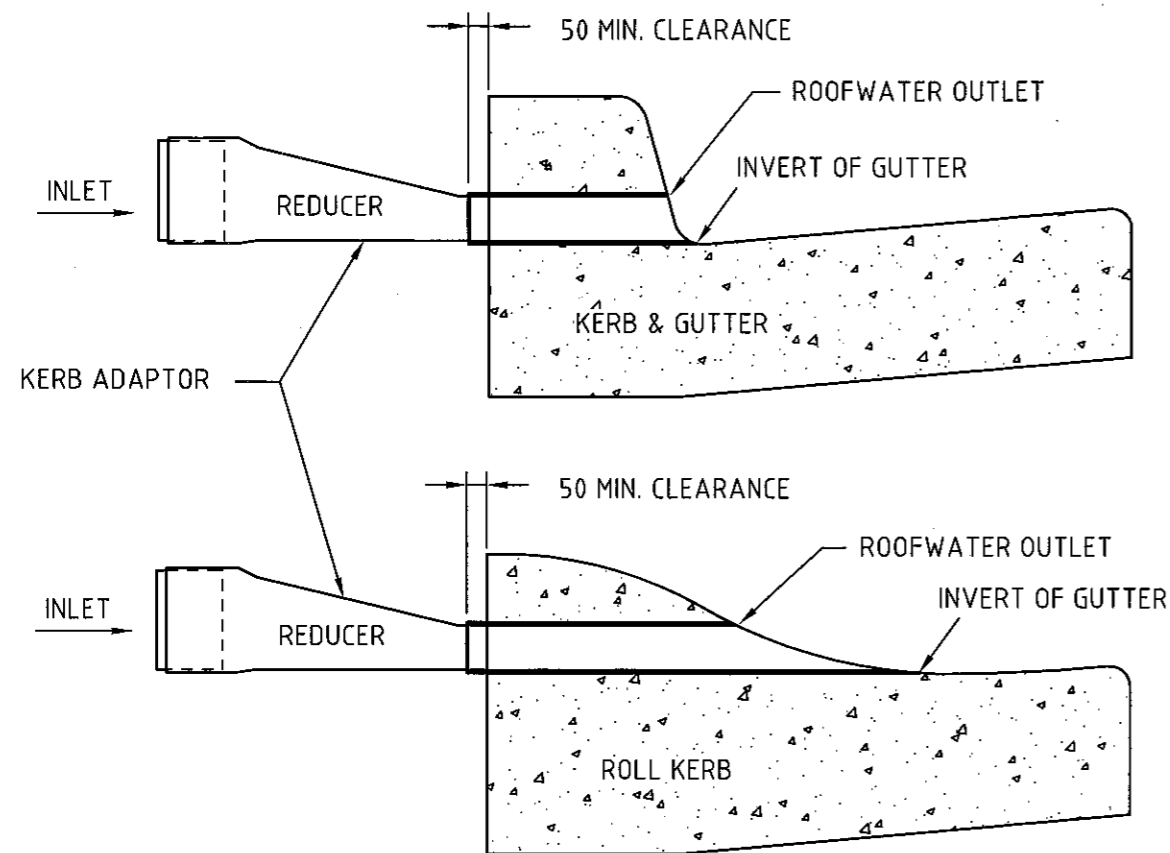
**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. STEP IRONS TO BE FABRICATED FROM  $\phi 20$  M.S. BARS
3. ALL BENDS TO BE FORMED AROUND  $\phi 12$  PIN
4. STEP IRONS TO BE HOT DIPPED GALVANISED
5. PITS LESS THAN 1200mm (MEASURED FROM THE TOP OF KERB) TO HAVE ONE STEP IRON LOCATED 600mm BELOW INVERT OF GUTTER



**STEP IRON PLACEMENT DIAGRAM**

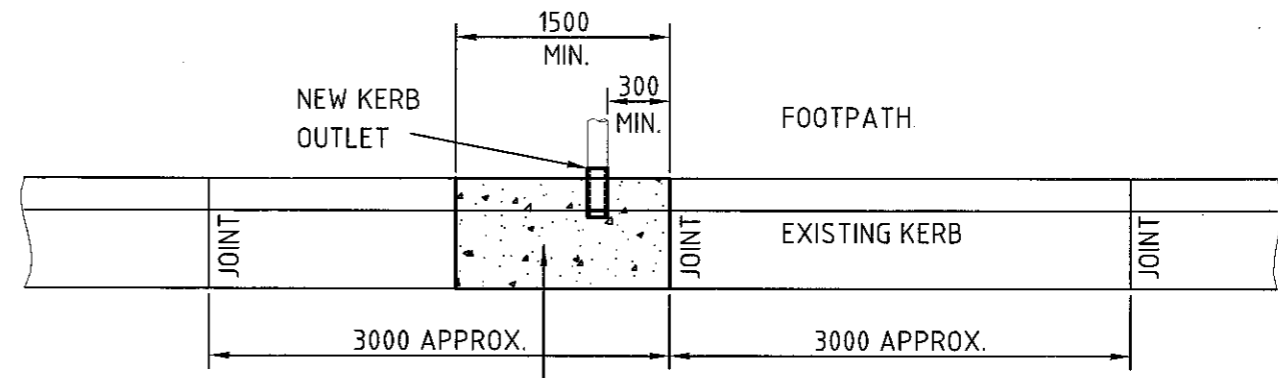
					TITLE			SCALE
					STEP IRONS			NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD20	A



**TYPICAL CROSS SECTION**

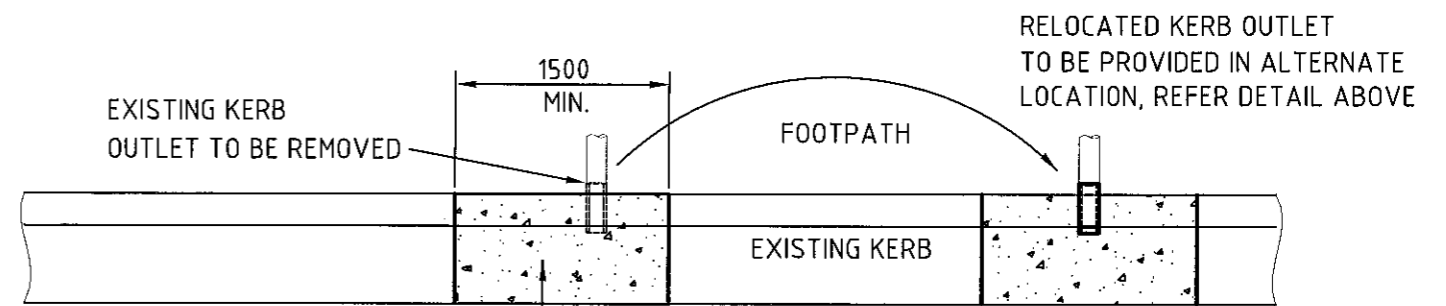
**NOTES:**

1. KERB OUTLETS TO BE MANUFACTURED FROM 150 X 50 X 4 HOT DIPPED GAL. MILD STEEL, TO SUIT KERB TYPE, AND TO EXTEND MIN. 50mm BEHIND REAR OF KERB.
2. SEAL JOINT BETWEEN ADAPTOR & OUTLET WITH APPROVED SILICON SEALANT.
3. ALL OUTLETS, ADAPTORS & REDUCERS TO BE FROM AN APPROVED MANUFACTURER AND ALL JOINTS TO BE SEALED & WATERTIGHT.



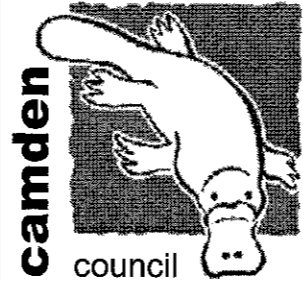
CONSTRUCT INTEGRAL KERB & GUTTER OR ROLL KERB TO MATCH EXISTING

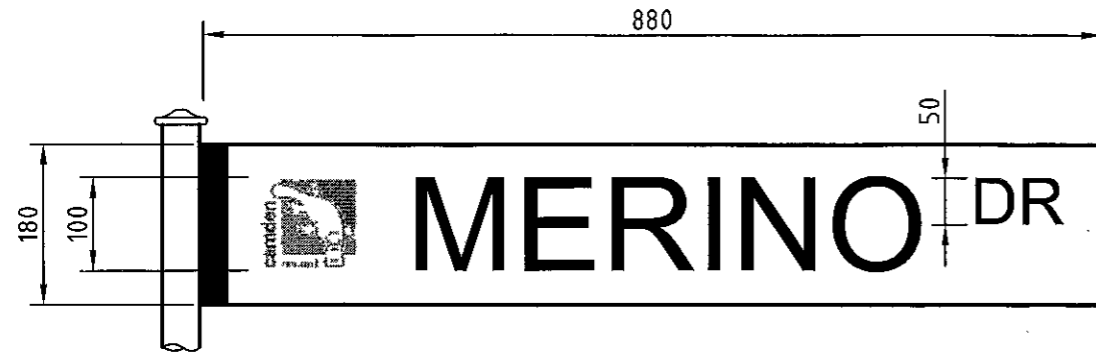
**NEW KERB OUTLET INSTALLATION**



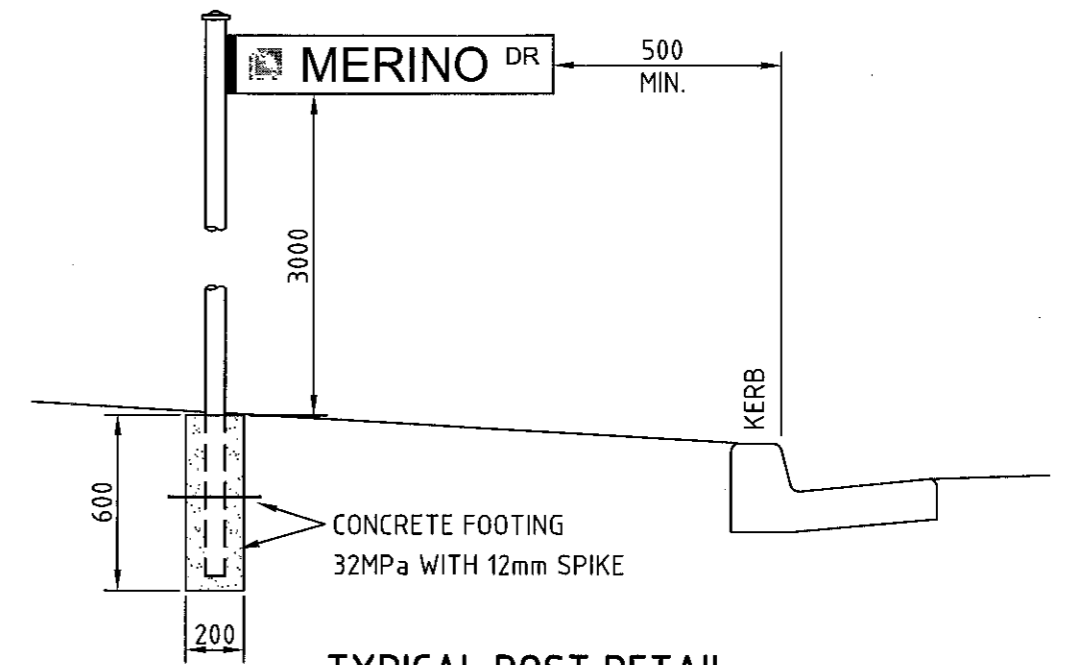
RE-CONSTRUCT INTEGRAL KERB & GUTTER OR ROLL KERB TO MATCH EXISTING

**RE-CONSTRUCTED KERB OUTLET INSTALLATION**

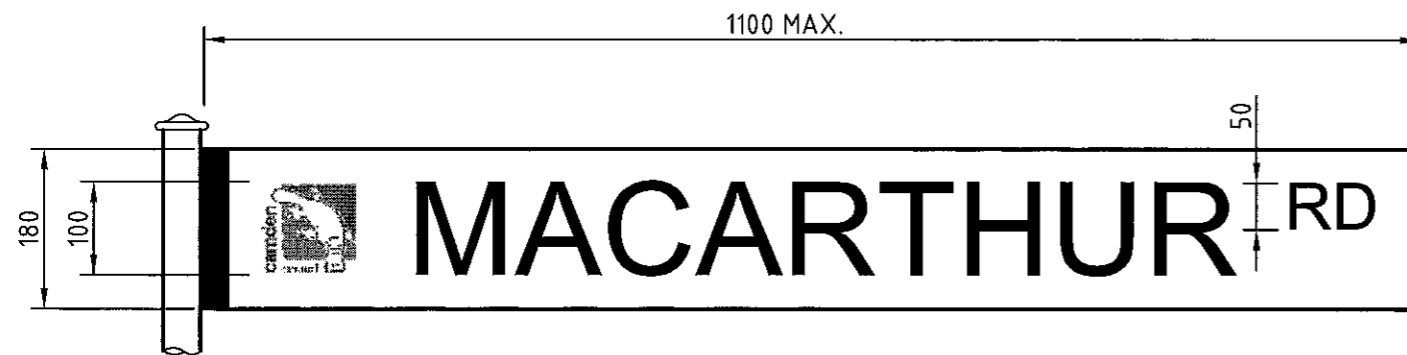
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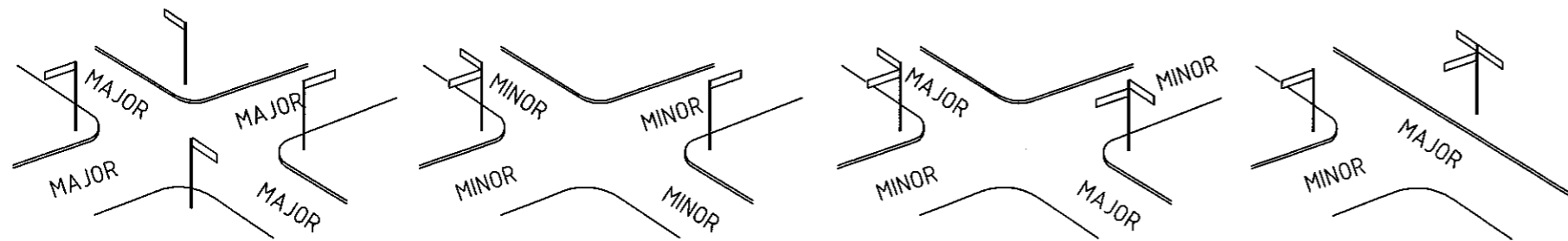
SHORT SIGNS



TYPICAL POST DETAIL



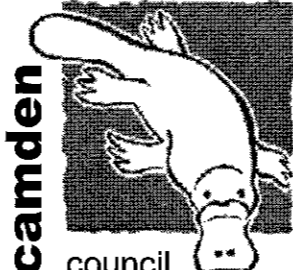
LONG SIGNS

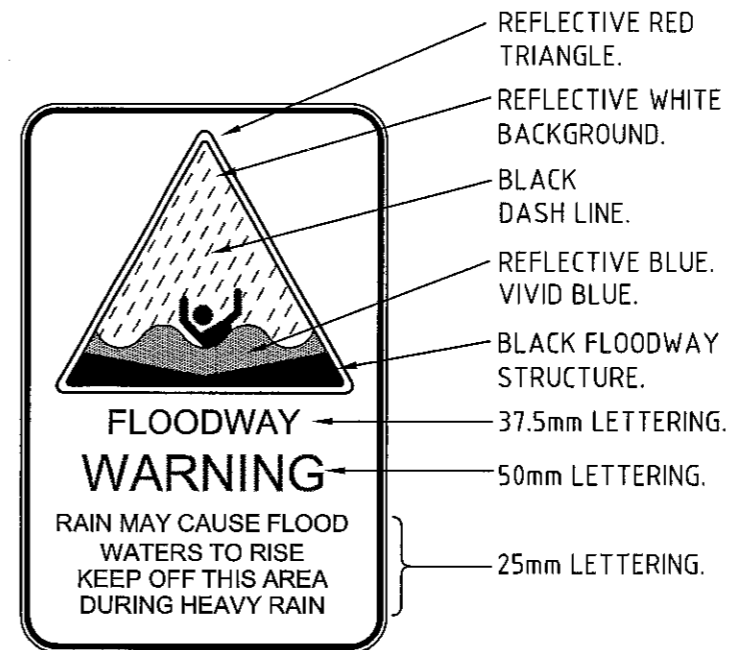
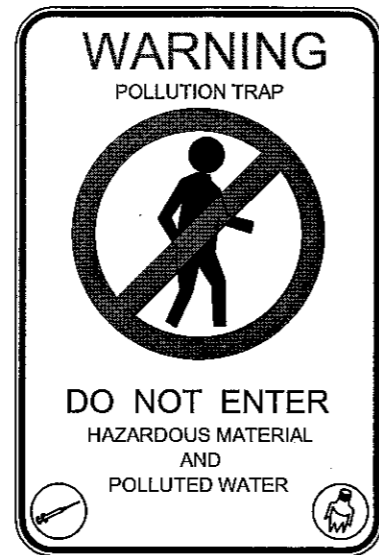
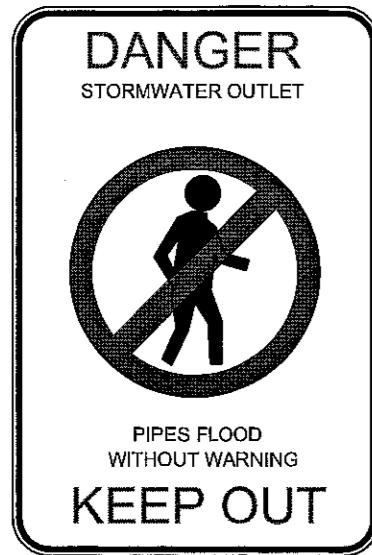


POST CONFIGURATION PLANS

**NOTES:**

1. ALL COLOURS TO MATCH CAMDEN COUNCILS CORPORATE COLOURS - BLUE - PMS PROCESS BLUE, GREEN - PMS 348C, RED - PMS202C
2. ALL TEXT AND BACKGROUNDS TO BE REFLECTIVE
3. FONT TO BE ARIAL BOLD FOR SHORT NAMES ARIAL BOLD CONDENSED FOR LONG NAMES
4. CAMDEN COUNCIL LOGO TO ALWAYS BE POSITIONED CLOSEST TO THE POLE
5. PANELS TO BE 880 OR 1100 LONG, BUT NO LONGER
7. LOWER EDGE OF SIGNS TO BE 3000mm ABOVE GROUND LEVEL.
8. SIGNS TO BE BOLTED TO POST THROUGH STRENGTHENING BARS WITH CADMIUM PLATED BOLTS AND NUTS.
9. ALL POSTS ARE TO BE GALVANISED

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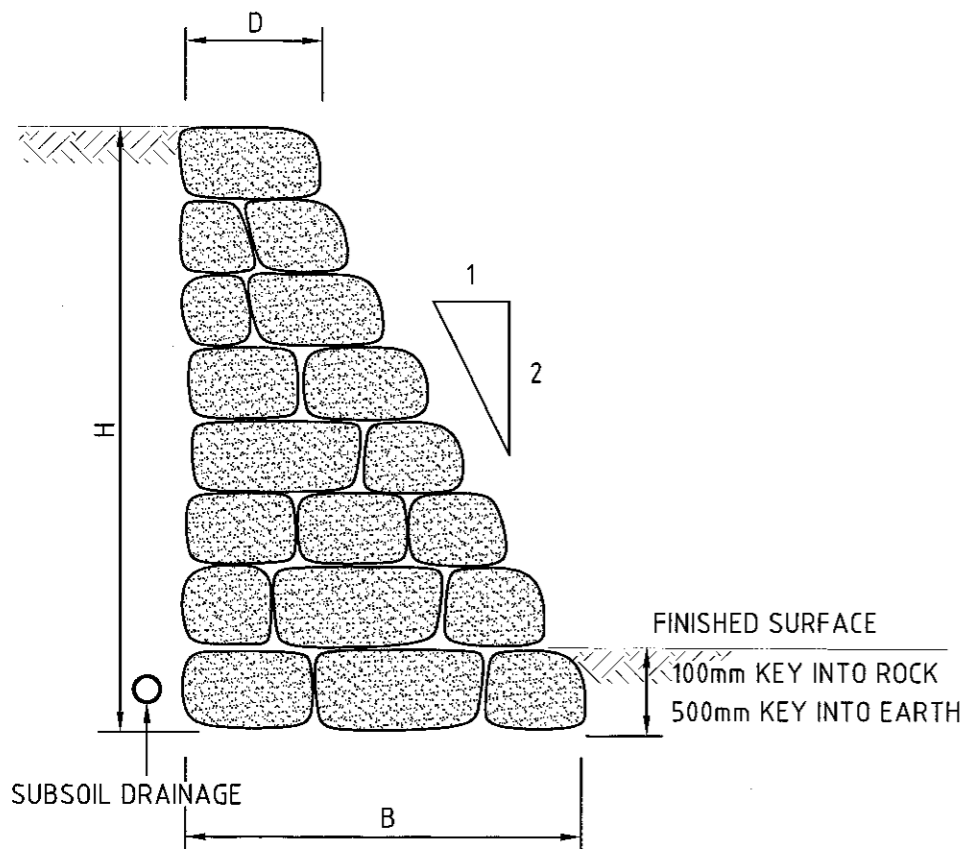
**NOTES**

1. SIGN TO CONSIST OF 3mm THICK ALUMINIUM & TO BE IN CORPORATE COLOURS ON A DIAMOND GRADE, WHITE REFLECTIVE PLATE, UV TREATED COVERED IN ANTI-GRAFFITI FILM AND COMPLY WITH A.S.1743.
2. LETTERING "WARNING" TO BE RED AND OTHERS IN BLACK.
3. THE GRAPHIC CONSISTS OF AN OUTLINE SKETCH OF THE PEDESTRIAN AND A RED SYMBOLIC SIGN "PROHIBITED ENTRY" OVER THE SKETCH.
4. COLOUR OF GRAPHIC SHALL BE BLACK.
5. THE SIGN SHALL BE 900 HIGH BY 600 WIDE WITH CORNER RADII OF 60.
6. SIGN POST SHALL BE HOT DIPPED GALVANISED, 101.6 x 5.0 CHS, 3100 LONG WITH HOT DIPPED GALVANISED TOP END CAP. POST TO BE SET 600 DEEP INTO Ø300 MASS CONCRETE. GROUND CLEARANCE TO SIGN TO BE MINIMUM 2000.

**NOTES**

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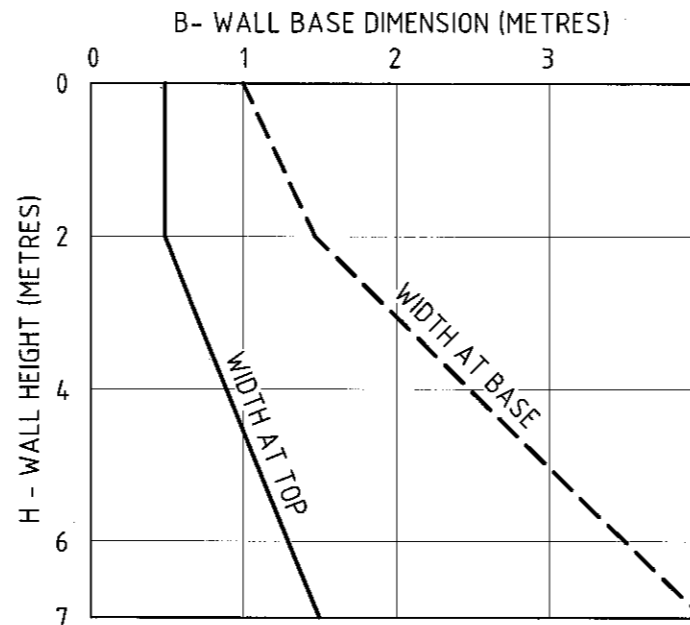
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**ROCK WALL SECTION**  
NTS

**NOTES**

1. THE NORMAL LOADING CONDITION ASSUMES THAT THE WATER TABLE IS BELOW THE BASE OF THE WALL
2. BACKFILL MATERIALS TO BE ESSENTIALLY GRANULAR FREE DRAINING MATERIAL;
3. THE RETAINED SURFACE IS HORIZONTAL
4. WHERE THE SURFACE SLOPE OF THE RETAINED MATERIAL IS BETWEEN 1(V) TO 10(H), THE WALL BASE DIMENSION IS TO BE INCREASED BY 0.5M.
5. WHERE THE NATURAL SURFACE BEHIND THE WALL IS TO CARRY SURCHARGE LOADING THE WALL GEOMETRY SHALL BE AMENDED TO ALLOW FOR AN EQUIVALENT WALL HEIGHT EQUAL TO THE TRUE HEIGHT PLUS 0.5M FOR EACH 10KPA OF SURCHARGE. A 20KPA SURCHARGE ADEQUATELY COVERS THE B99 VEHICLE (AS/NZS 2830), FULLY LADEN. ALL SURCHARGES IN EXCESS OF 20KP WILL REQUIRE SITE SPECIFIC DESIGN.
6. WHERE WALL HEIGHTS EXCEED 2.5M THE WALL SHALL BE FOUNDED ON BEDROCK. WALLS OF LESS THAN 2.5M IN HEIGHT MAY BE PLACED ON SUITABLE SOIL FOUNDATIONS. SUITABLE FOUNDING SOILS WOULD NORMALLY BE RESIDUAL SANDSTONE OR OTHER DENSE CLAYEY SANDS. CLEAN SANDS, SILTY SANDS OR HIGH CLAY CONTENT SOILS SUCH AS RESIDUAL SHALE ARE GENERALLY UNACCEPTABLE AS FOUNDING MATERIALS FOR ROCK RETAINING WALLS. NOTWITHSTANDING THE ABOVE A FOUNDATION SAFE BEARING CAPACITY OF 200KPA MUST BE ACHIEVED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
7. DRAINAGE OF THE WALL FOUNDATION SHALL BE ACHIEVED BY INSTALLING A CONTINUOUS A 100MM
8. DIAMETER SUBSOIL DRAIN AT THE REAR OF THE WALL WHERE THE WALL FOUNDATION CONSISTS OF SOIL.



**ROCK WALL DESIGN CHART**

9. ALL SURFACE RUNOFF SHALL BE DIRECTED AWAY FROM THE BACK OF THE WALL SO AS TO PREVENT INFILTRATION OF SUCH SURFACE RUNOFF INTO THE GRANULAR BACKFILL. IN THE CASE OF WALLS FOUNDED ON SOIL THE SURFACE RUNOFF SHALL BE DIRECTED SO AS TO PREVENT EROSION AND POSSIBLE UNDERCUTTING ALONG THE TOE OF THE WALL.
10. MATERIALS USED FOR CONSTRUCTION OF THE WALL SHALL BE LARGE, DURABLE BOULDERS, IN GENERAL AT LEAST 0.5 SQUARE METERS IN AREA.
11. WHERE THE WALL IS FOUNDED ON BEDROCK THE PREPARATION OF THE FOUNDATION SHALL INCLUDE THE REMOVAL OF ALL LOOSE ROCK AND SOIL. ANY IRREGULARITIES IN THE LEVEL OF THE BEDROCK SHALL BE FILLED WITH MASS CONCRETE OR RIPPED ROCK COMPACTED TO A MINIMUM DRY DENSITY OF 98% STANDARD.
12. WHERE THE WALL MAY BE FOUNDED ON SOIL THE EXPOSED FOUNDATION SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 300MM, WETTED TO BRING IT NEAR TO THE STANDARD OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM DRY DENSITY RATION OF 95% STANDARD. ANY AREA WHICH REMAINS SOFT OR SPONGY AFTER THE COMPACTION, SHALL BE EXCAVATED AND FILLED.
13. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250MM AND COMPACTED IN THE MANNER DESCRIBED ABOVE. THE BASE LAYER OF BOULDERS SHALL BE SET IN CONCRETE OR MORTAR PLACED ON THE PREPARED SOIL FOUNDATION WITHIN THE KEY EXCAVATION. WHERE THE ROCK SURFACE FALLS AWAY BELOW THE TOE OF THE WALL, PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE WALL IS FOUNDED ON INTACT BEDROCK AND NOT ON A FOUNDATION OF FLOATERS.
14. WHERE THE WALL IS TO BE FOUNDED ON BEDROCK THE BASE OF THE WALL SHALL BE NOTCHED IN SOUND, INSITU ROCK A MINIMUM DEPTH OF 100MM BELOW THE FINISHED SURFACE LEVEL AT THE TOE OF THE WALL. WHERE ADDITIONAL RESISTANCE TO SLIDING IS REQUIRED THE BASE OF THE WALL SHALL BE LAID INTO THE FOUNDATION ROCK BY CONCRETING THE BASECOURSE OF BOULDERS.
15. WHERE THE WALL IS TO BE FOUNDED ON A COMPACTED SOIL THE BASE OF THE WALL SHALL BE AT A LEVEL WHICH IS A MINIMUM DEPTH OF 450MM BELOW THE FINISHED SURFACE LEVEL AT THE TOE OF THE WALL.
16. ROCK IS TO BE PLACED TO ENSURE THAT INDIVIDUAL BLOCKS ARE INTERLOCKING. TO ACHIEVE THIS, BLOCKS SHOULD BE LAID ROUGHLY COURSED AND BEDDED ON THEIR BROADEST BASES. ALL VERTICAL JOINTS BETWEEN BLOCKS SHALL BE BROKEN. FILTER CLOTH SHALL BE PLACED BEHIND THE ROCK WALL AND UNDER THE BASE.
17. MATERIALS USED FOR BACKFILLING BEHIND THE WALL SHALL BE ESSENTIALLY GRANULAR FREE MATERIAL.
18. ANY COMPACTION OF FILL PLACED BEHIND THE WALL SHALL BE CAREFULLY CARRIED OUT TO MINIMISE THE INDUCED LATERAL STRESS AGAINST THE WALL.
19. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250MM AND COMPACTED TO A DRY DENSITY RATIO OF NOT LESS THAN 95% BASED ON STANDARD COMPACTION.
20. WHERE PAVEMENT CONSTRUCTION IS TO TAKE PLACE USING THE BACKFILL AS SUBGRADE MATERIAL, NEAR SURFACE COMPACTION OF THE BACKFILL SHALL BE CARRIED OUT IN ACCORDANCE WITH PAVEMENT COMPACTION REQUIREMENTS AND SURCHARGE LOADS BY COMPACTION MACHINERY.
21. WHERE THE POTENTIAL EXISTS FOR SIGNIFICANT SURFACE RUNOFF OR SUBSURFACE GROUNDWATER FLOW, SUFFICIENT DRAINAGE MEASURES SHALL BE INCORPORATED TO ENSURE THAT WATER PRESSURE DOES NOT DEVELOP IN THE MATERIAL RETAINED BY THE WALL.
22. WHERE REQUIRED THE OVERALL STABILITY OF THE SLOPE AND ROCK WALL SHALL BE EVALUATED. SUCH AN EVALUATION MUST BE CARRIED OUT BY A SUITABLY QUALIFIED CIVIL ENGINEER, PRACTICING GEOTECHNICAL ENGINEERING, PRIOR TO COMMENCING PLACEMENT OF THE WALL ROCK.
23. WHERE PIPES ARE TO PASS THROUGH OR BENEATH THE ROCK WALL THEY SHALL BE ENCASED IN CONCRETE TO ENSURE THAT THE BASE OF THE WALL IS FOUNDED IN COMPETENT MATERIAL.
24. THE NON STANDARD CONDITIONS THAT WARRANT SPECIAL DESIGN CONSIDERATION ARE:
  - (i) BACKFILL SLOPE STEEPER THAN 1(V) IN 4(H)
  - (ii) UNIFORM SURCHARGE GREATER THAN 20KPA OR LARGE ISOLATED LOADS WITHIN A DISTANCE OF ONE WALL HEIGHT OF THE EDGE OF THE WALL
  - (iii) BUILDINGS WITHIN A DISTANCE OF ONE WALL HEIGHT OF THE EDGE OF THE WALL
  - (iv) FOUNDATION CONDITIONS OUTSIDE THOSE SET OUT IN NOTE 4
  - (v) WALLS HIGHER THAN 7M
  - (vi) WALLS IN DESIGNATED LANDSLIP AREAS.
  - (vii) WALLS WHERE THE SITE CONDITIONS ARE SUCH THAT THE BACKFILL WILL NOT BE FULLY DRAINED

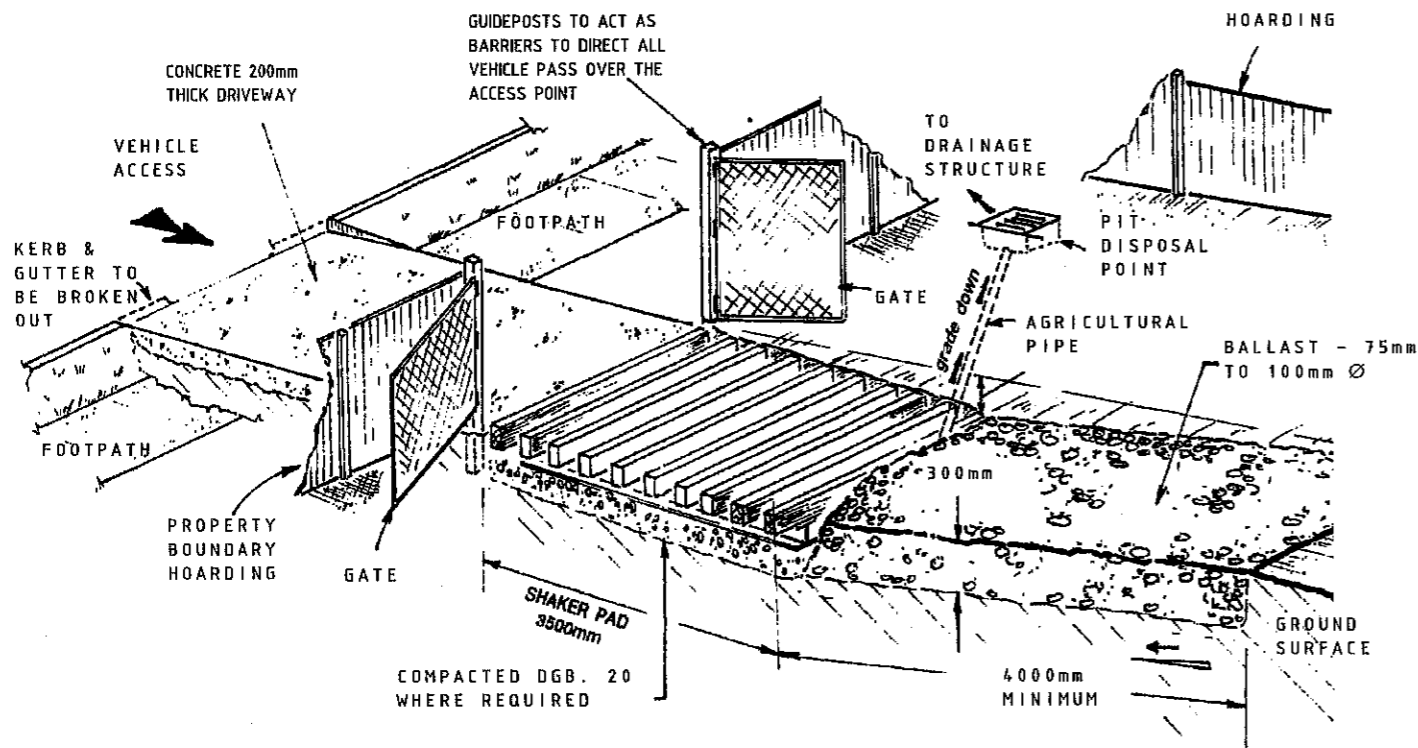
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## STABILISED ACCESS POINT

### TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

### STABILISED ACCESS POINT - TYPE 2



## NOTES

IN BOTH TYPE I AND TYPE II SAPS, THE TEMPORARY VEHICULAR CROSSING MUST:

CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE KERB AND GUTTER EXIST). IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJACENT KERB SECTION ONLY.

CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.

## SHAKER PAD (CATTLE-GRID)

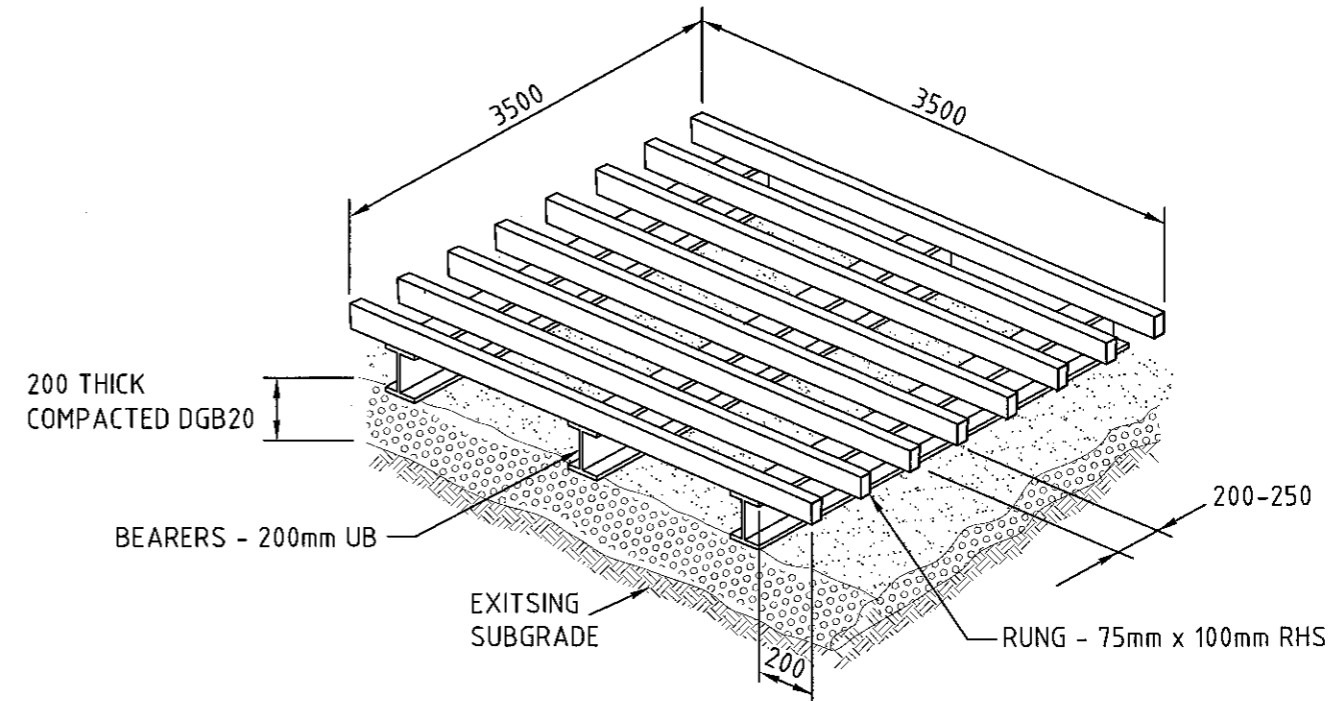
A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFER FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSORY IN TYPE II SAP'S).

SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.

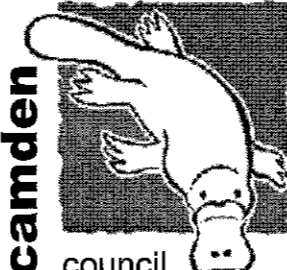
### THE SHAKER PAD:

- MUST BE DESIGNED AND CERTIFIED BY A PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVANT APPLICATION
- CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL
- MUST BE LOCATED ON A SUITABLY PREPARED AND COMPACTED SUB-GRADE/BASE MATERIAL
- MUST BE SITUATED SUCH THAT THE RUNGS OF THE SHAKER PAD ARE LEVEL WITH THE ADJOINING NATURAL SURFACE
- MUST BE A MINIMUM 3.5M IN LENGTH
- MUST BE A MINIMUM 3.5M IN WIDTH
- MUST HAVE CLEAR SPACING BETWEEN RUNGS OF 200 - 250MM
- RUNGS MUST HAVE A MAXIMUM WIDTH (BEARING AREA) OF 75MM
- MUST HAVE A MINIMUM CLEAR DEPTH OF 300MM IE FROM THE TOP OF THE RUNG TO THE FINISHED SUB-GRADE/BASE LEVEL

THE SHAKER PAD MUST BE PROVIDED WITH SUITABLE BARRIERS AT THE SIDES TO ENSURE THAT ALL TYRES OF VEHICLES LEAVING THE SITE TRAVERSE THE DEVICE.



## SHAKER PAD (CATTLE-GRID)

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