

# Appendix G

Standard Detail Drawings

# STANDARD DETAIL DRAWINGS

# STANDARD DETAIL DRAWINGS

*General*

- G1 Private Right of Ways
- G2 Non-residential/Business Private Ways Construction

*Roading*

- R1 Road Name Sign
- R2 Services Layout Berm Cross Section Urban Situation
- R4 Vehicle Crossing (Urban) Footpath Adjacent to Kerb
- R5 Vehicle Crossing (Urban) Footpath Away from Kerb
- R6 Vehicle Crossing (Urban) for High Speed Turnoff
- R7 Vehicle Crossing Commercial
- R8 Vehicle Crossing (Urban) for Use When Drainage is via Grass Berm
- R9 Typical Vehicle Crossing Slope Details (Urban) Non-Standard Berm
- R11 Intersection Sight Distance Requirements
- R12 Variation of Carriageway Location
- R13 Urban Street Dimension of Cul-de-Sac head
- R14 Alternative Cul-de-sac Heads
- R16 Typical Dimensions for Kerb and Channel
- R17 Typical Cesspit Details
- R18 Back Inlet Catchpit
- R19 Recess Catchpit
- R21 Concrete Footpath Wheelchair Ramp Kerb Crossing
- R22 Pedestrian Crossing Standard Refuge Crossing Point Approach Details
- R23 Pedestrian Crossing Standard Refuge Island Details
- R24 Indented Bus Bays
- R25 Armco Flexrail Fixing Details
- R28 Rural Roding Typical Cross Section
- R29 Standard Rural Property Entrance (Residential Use)
- R31 Private Access Heavy Vehicles (e.g. Tankers)
- R32 Sand for Use in Replacement of Undercuts in Road Works
- R33 Typical Cross Sections Sheet 1
- R34 Typical Cross Sections Sheet 2
- R35 Typical Cross Sections Sheet 3
- R36 Typical Cross Sections Sheet 4

*Water*

- W1 Watermain Locations at Intersections
- W2 Principal Main to Rider Main Connections
- W3 Scour Valve Detail for 50mm Dia Rider mains
- W4 Standard Fire Hydrant Installation
- W5 Standard Valve Installation
- W6 Valve Marking
- W7 Hydrant Marking – Urban Areas
- W8 Hydrant Markings – Rural Areas
- W9 Service Connection Installation
- W10 Ducted Water Connection
- W11 Reinstatement and Pipe Bedding Details within Road Boundaries, Metalled and Grassed Areas
- W12 Reinstatement and Pipe Bedding Details within Road Boundaries, Concrete and Hotmix Footpaths.
- W13 Reinstatement and Pipe Bedding Details, Concrete Carriageways and Vehicle Crossings
- W14 Reinstatement and Pipe Bedding Details, Chip Seal and Hotmix Carriageways

*Storm Water*

SW1	Daily Rainfall Depth 20% AEP
SW2	Daily Rainfall Depth 5% AEP
SW3	Daily Rainfall Depth 1% AEP
SW4	Design Rainfall Curves Pukekohe
SW5	Design Rainfall Curves Waiuku
SW6	Design Rainfall Curves Tuakau
SW11	Storm Water Manhole Details
SW12	Inlet and Outlet Structures
SW13	Field Cesspit
SW14	Storm Water House Connections
SW15	Pipe Bedding
SW16	Anchor Block Details
SW17	Private Rural Sediment Detention Pond -Layout Plan
SW18	Private Rural Sediment Detention Pond - Cross Section Detail
SW19	Soakage System Inlet Details
SW20	Standard Soakage System Details
SW21	Aquatunnel Soakage - System Details
SW22	Rainsmart Tanks Soakage - System Details

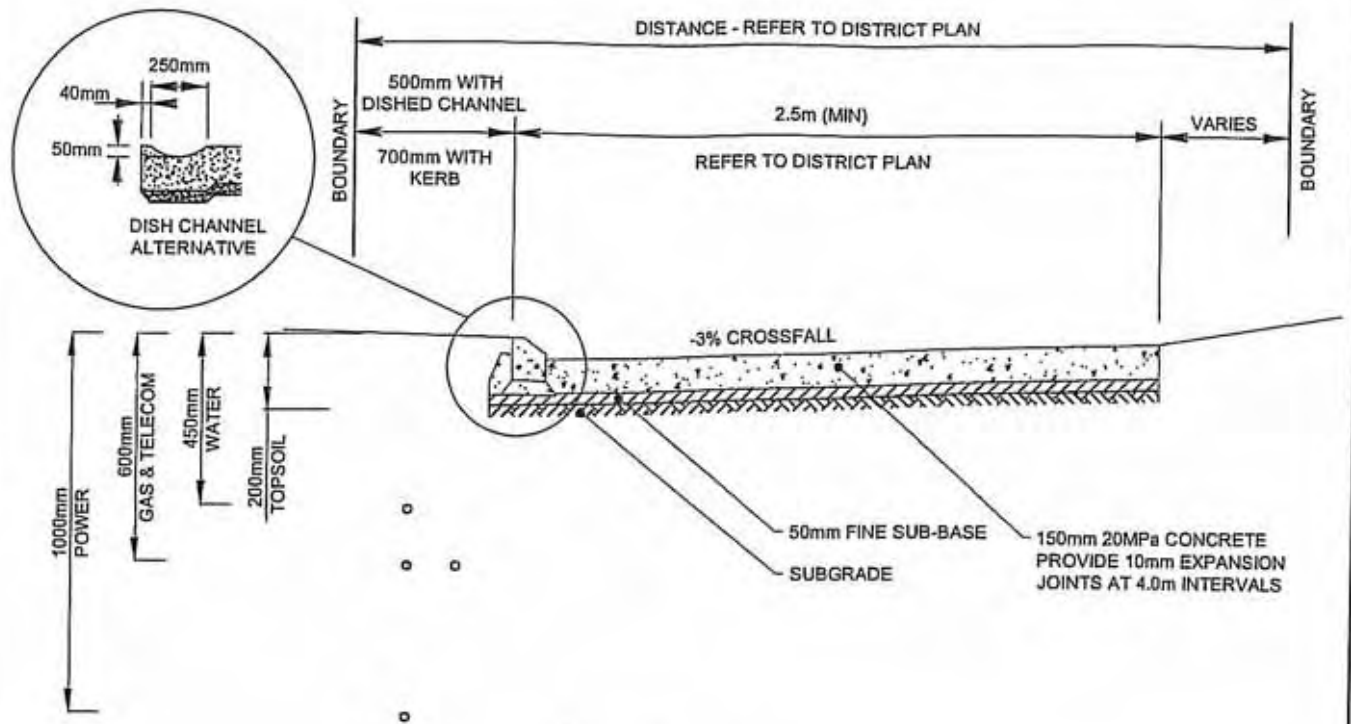
*Sanitary Sewer*

SS1	Manhole Details
SS2	Shallow Manhole Details
SS3	Manhole Fittings Details
SS4	House Connections and Ramped Risers
SS5	Anti-Scour Blocks for Steep Sewer Lines
SS6	Pipe Bridge for 150Ø - 200Ø Pipe
SS7	Sewage Pump Station Switchboard – 2 Pump Layout
SS8	Sewage Pump Station Switchboard – 2 Pump Layout
SS9	Sewage Pump Station Switchboard – 4 Pump Layout
SS10	Sewage Pump Station Switchboard – 4 Pump Layout

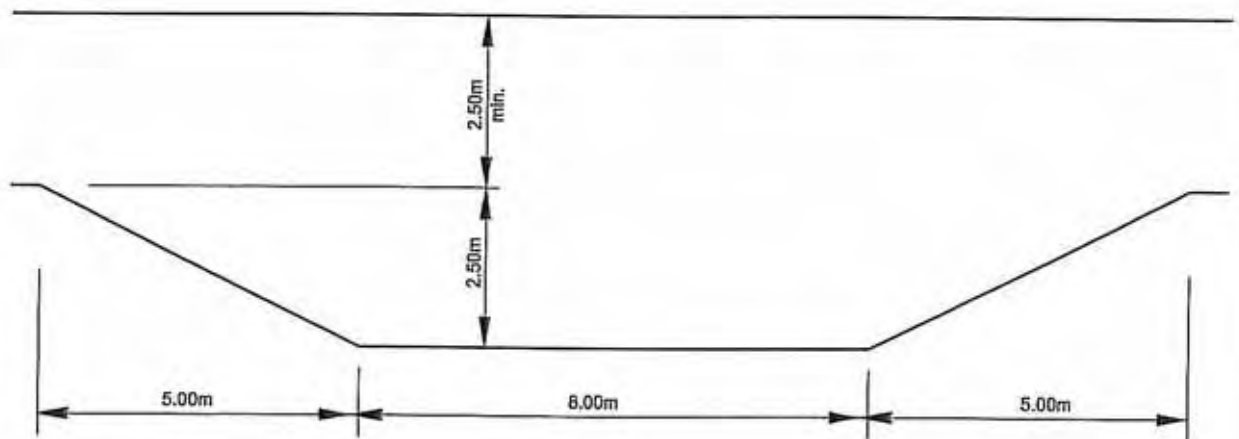
*Parks and Reserves*

P1	Pedestrian Accessway
P2	Pedestrian Accessways
P3	Standard Park Barriers
P4	Standard Berm Cross Section With Envelopes for Tree Landscaping
P5	Preferred Street Tree Placement
P6	Pedestrian Safety Handrail Details
P7	Pedestrian Safety Handrail Baseplate Details





CROSS SECTION



PASSING BAY

NOTES:

1. CARRIAGEWAY WIDTHS SHALL BE TO DISTRICT PLAN REQUIREMENTS.
2. CONCRETE CONSTRUCTION SHALL BE AS SPECIFIED IN NZS 3109 AND NZS 3114



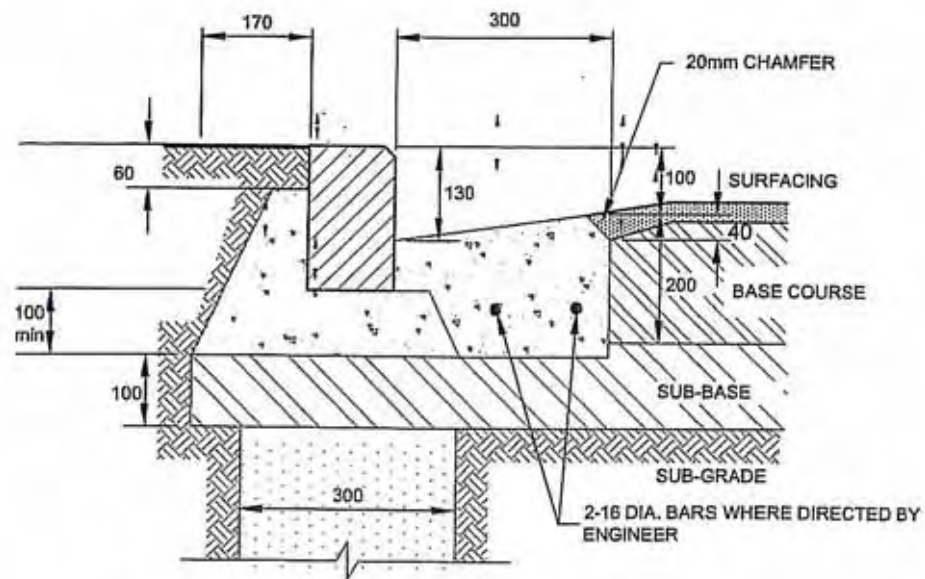
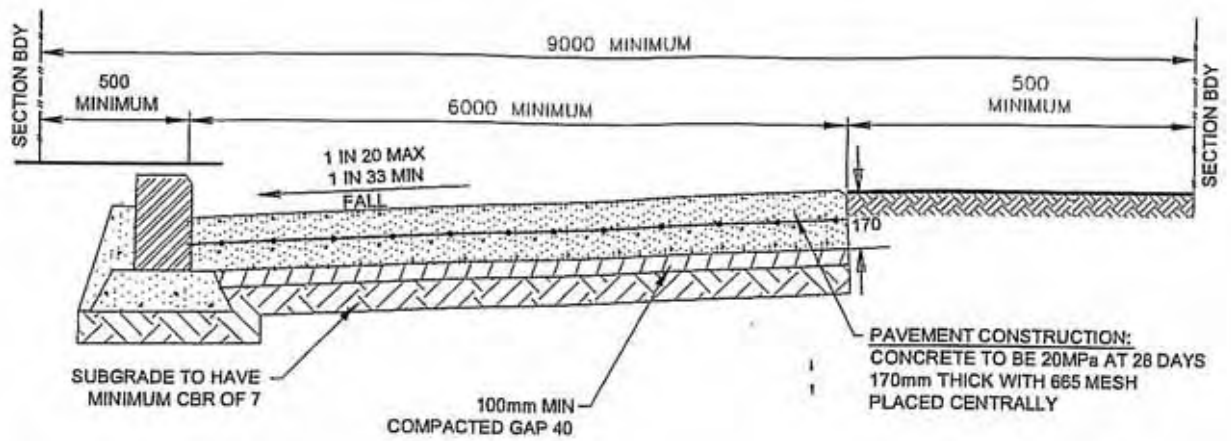
**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

PRIVATE RIGHT OF WAYS

DATE: APRIL 2009

No: G 1



**PRECAST KERB**

**NOTE:**

1. ALTERNATIVE PAVEMENT CONSTRUCTION WILL BE PERMITTED, PROVIDED, CONSTRUCTION MEETS STRUCTURAL CRITERIA FOR TYPE D ROADS ON DRAWING R3 FOR NON-RESIDENTIAL/BUSINESS PRIVATE WAYS. LIGHT COMMERCIAL PRIVATE WAYS SHALL MEET TYPE B OR C STRUCTURAL CRITERIA (DEPENDING ON TRAFFIC)
2. MAXIMUM GRADE 1 IN 8.
3. TURNING MOVEMENTS, OF AN 8m TRUCK TO BE ACCOMMODATED.
4. BERM TO BE MINIMUM 500mm WIDTH.



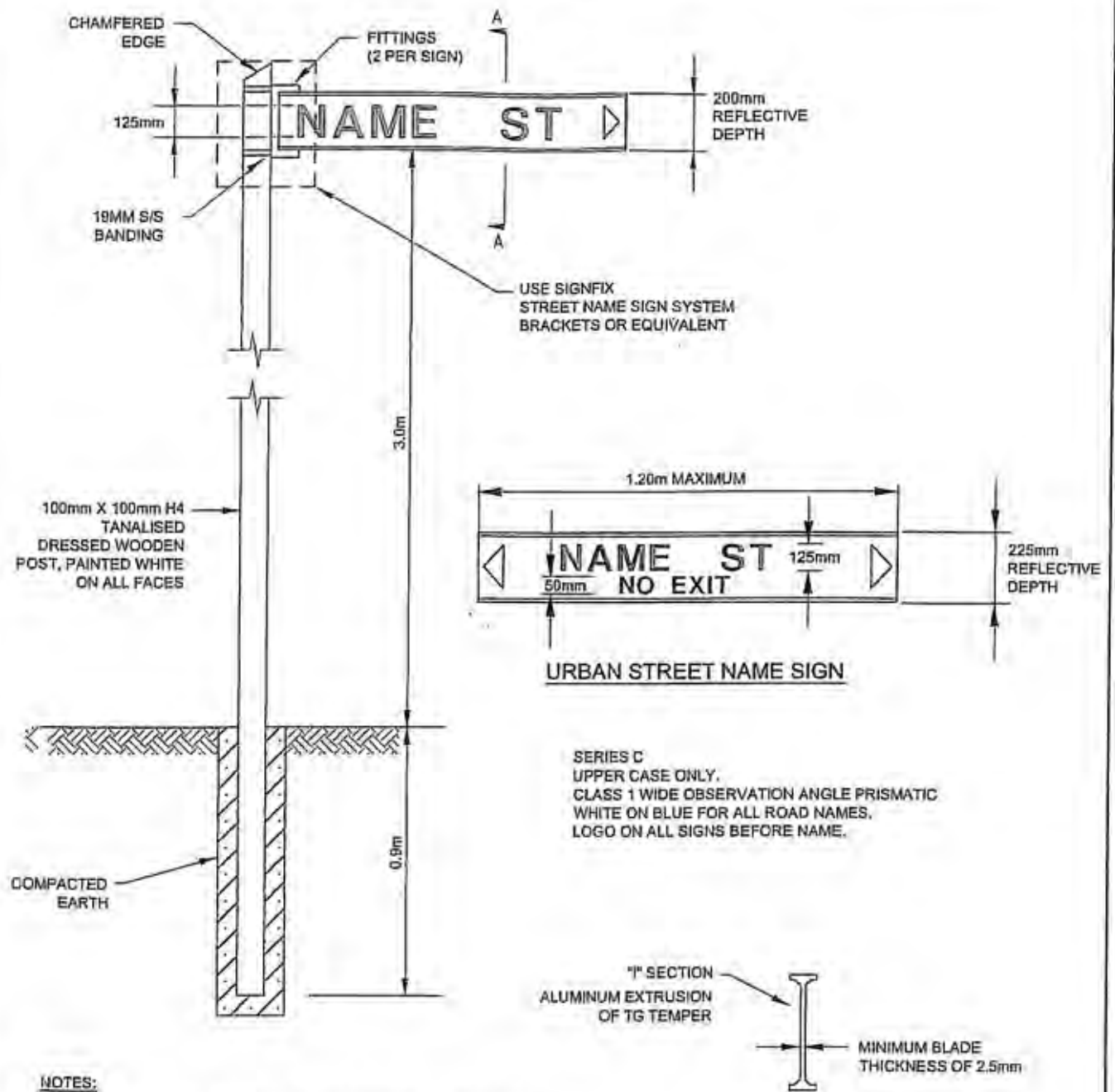
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

**NON-RESIDENTIAL/ BUSINESS  
PRIVATE WAYS CONSTRUCTION**

DATE: APRIL 2009

No: G2



**NOTES:**

1. THE REFLECTIVE MATERIAL SHALL BE PLACED ON BLADE BEFORE BLUE BACKGROUND TO ENSURE NO EDGES OF THE REFLECTIVE MATERIAL IS SUSCEPTIBLE TO ELEMENTS.
2. REFLECTIVE DEPTH IS THE FLAT SURFACE AVAILABLE FOR THE APPLICATION OF THE REFLECTORISED SIGN BACKGROUND.
3. MID MOUNTED SIGNS SHALL BE INSTALLED ONLY WHEN REQUESTED AND APPROVED BY THE ENGINEER.

**SECTION A-A**



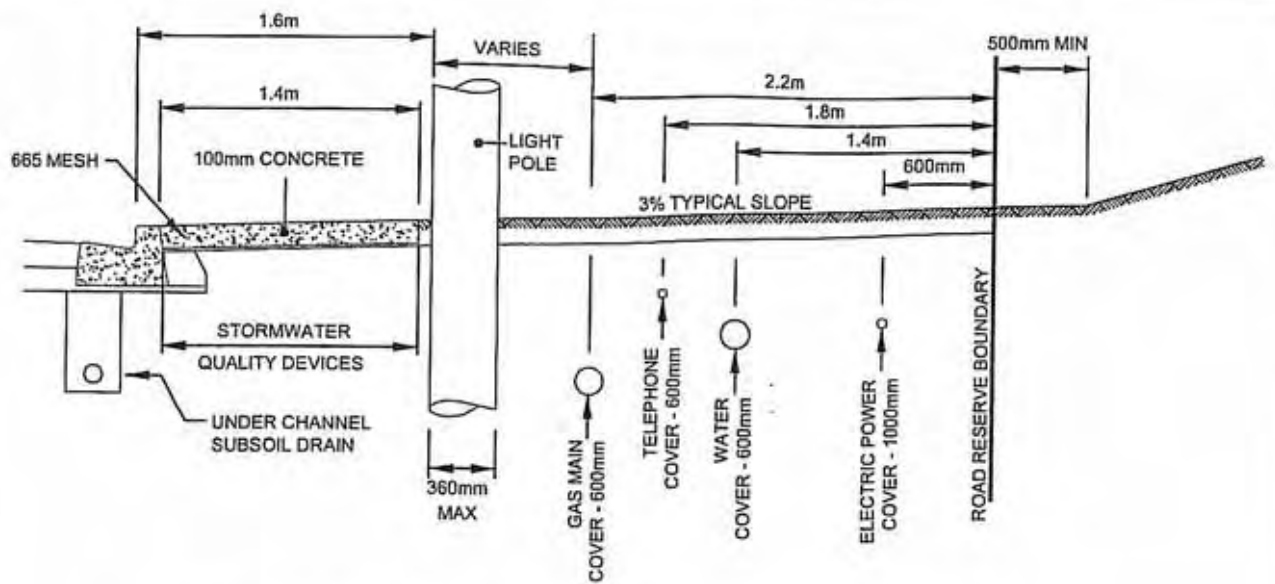
**STANDARD DETAIL**

DATE: APRIL 2009

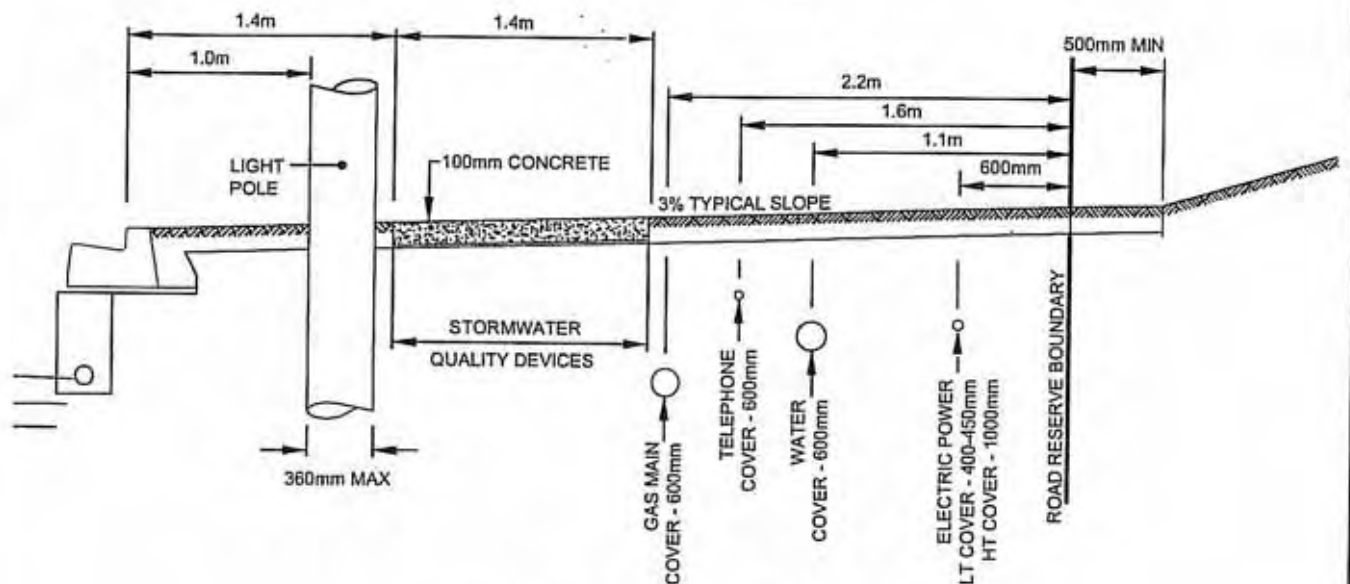
**ROAD NAME SIGN**

No: R1





**PATH NEXT TO KERB - IN MULTIPLE SINGLE CORE ELECTRICAL CABLE AREAS ( e.g P.N.K )**



**PATH SEPARATED FROM KERB**

**NOTES:**

1. THE FOOTPATH SEPARATED FROM THE KERB IS THE PREFERRED LOCATION
2. ALL TRENCHES CUT IN ROAD PAVEMENT SHALL BE BACKFILLED WITH TNZ M4 BASECOURSE AGGREGATE. THE BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH NZUAG STANDARDS FOR BACKFILL AND SHALL BE CONSTRUCTED SUCH THAT WATER SHALL NOT POND IN THE BACKFILLED TRENCH. A SUBSOIL PIPE OUTLET MAY BE REQUIRED.
3. WHERE A MEDIUM DENSITY DEVELOPMENT IS PROPOSED, SERVICE LOCATIONS WILL BE SPECIFICALLY DESIGNED WITH REFERENCE TO SERVICE AUTHORITY REQUIREMENTS AND LOCAL CONSIDERATIONS AS APPROVED BY COUNCIL. THIS MAY INCLUDE SEWER AND STORMWATER SERVICES WITHIN THE ROAD CORRIDOR.
4. WHERE SPACE PERMITS THE LIGHT POLES MAY BE POSITIONED ON THE PROPERTY SIDE OF THE FOOTPATH.



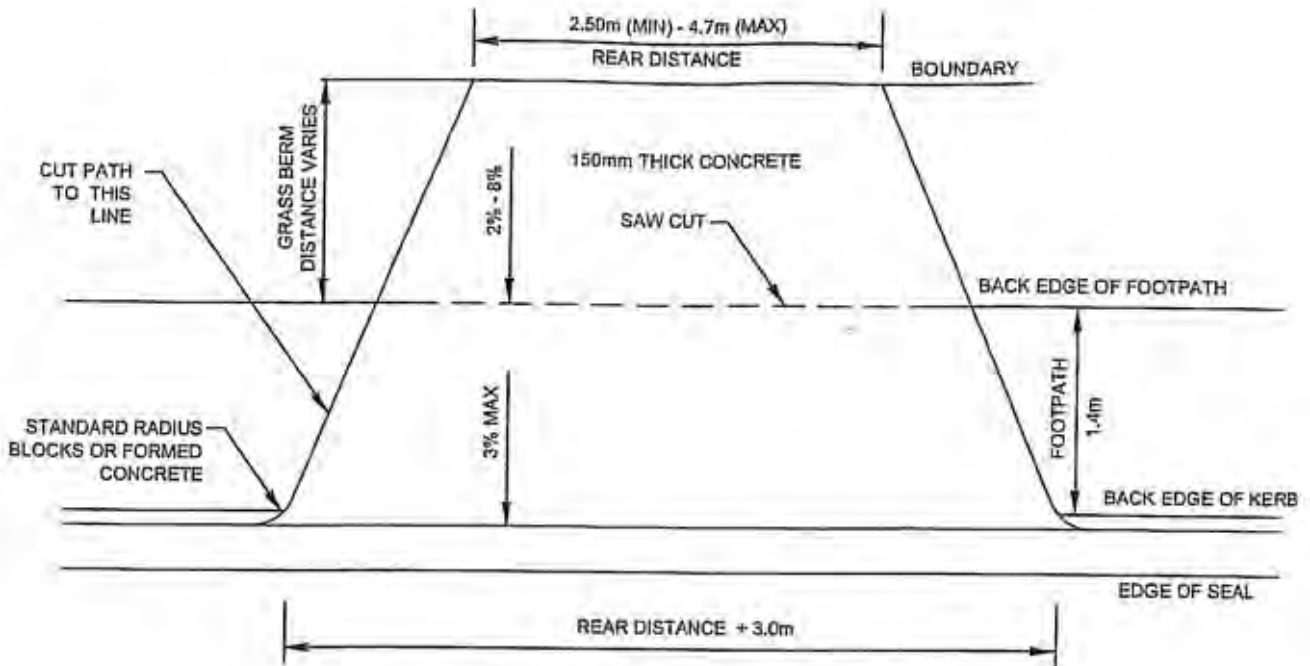
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

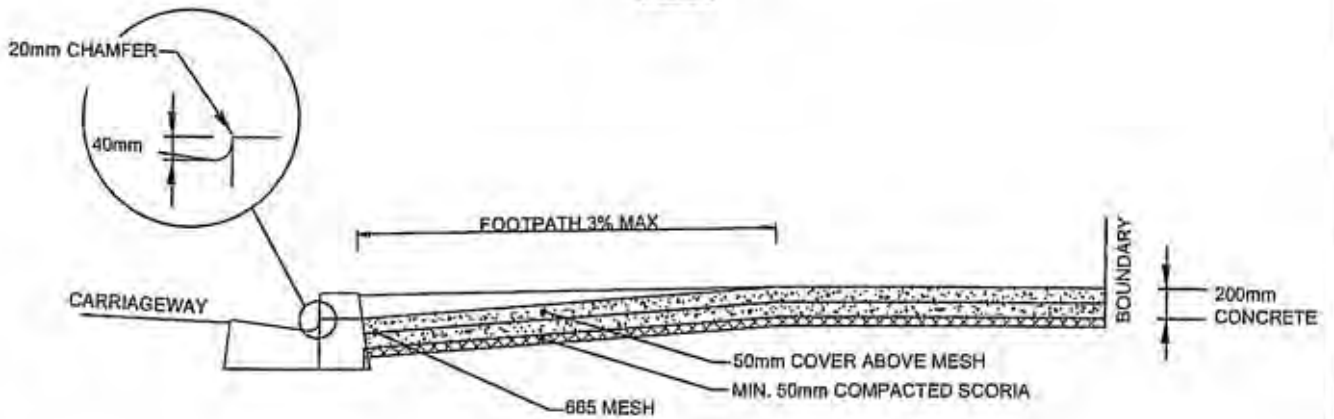
**SERVICES LAYOUT BERM  
CROSS-SECTION URBAN  
SITUATION**

DATE: APRIL 2009

No: R 2



**PLAN**



**SECTION**

**NOTES:**

1. MAXIMUM REAR DISTANCE SHALL BE CONSISTENT WITH THE ACCESSWAY/CARRIAGEWAY WIDTHS SPECIFIED IN SCHEDULE 9A OF THE DISTRICT PLAN.
2. CONCRETE STRENGTH SHALL BE 20 MPa AT 28 DAYS.
3. EXCAVATION SHALL BE FENCED AND LIT AT NIGHT.
4. EXISTING CONCRETE TO BE CUT OUT NEATLY AND REMOVED.
5. COMMERCIAL CROSSING PLAN DIMENSIONS TO BE SPECIFICALLY DESIGNED (REFER TO FDC STANDARD R7).
6. RESIDENTIAL CROSSING TO BE MIN. 150mm THICK. ONE LAYER OF 665 MESH TO BE USED.
7. REFER ALSO TO FDC STANDARD DRAWING R9 - TYPICAL VEHICLE CROSSING SLOPE DETAILS (URBAN).



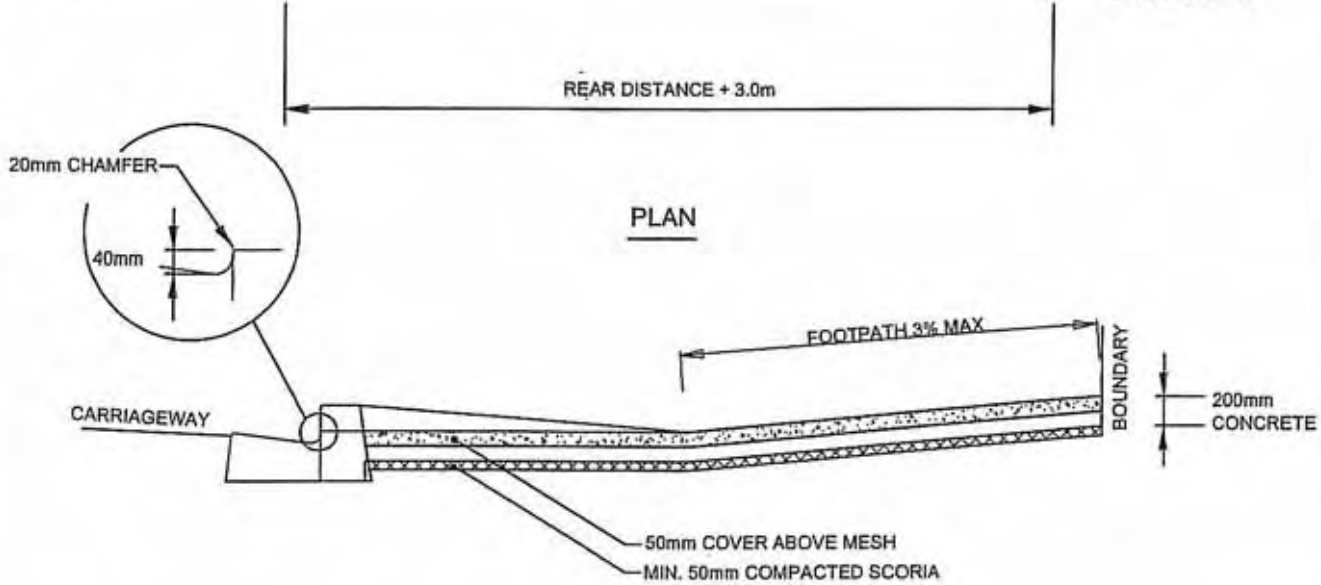
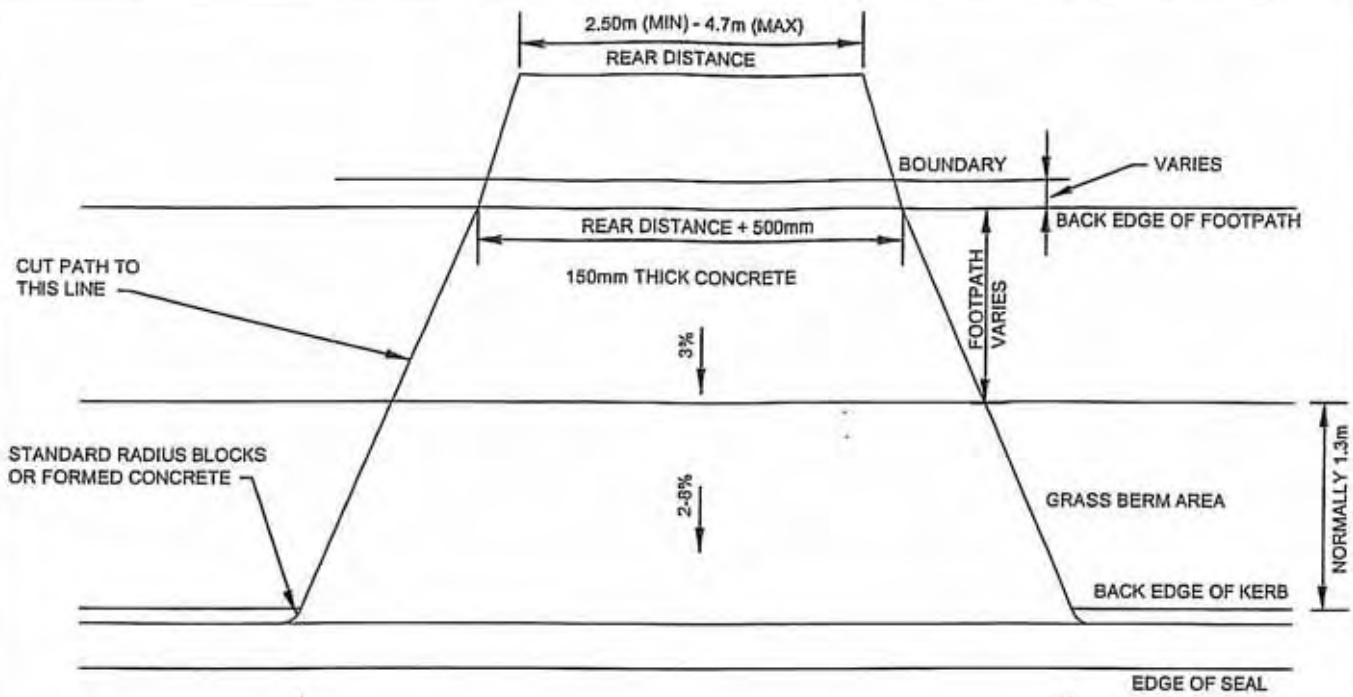
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

**VEHICLE CROSSING (URBAN)  
(FOOTPATH ADJACENT TO KERB)**

DATE: APRIL 2009

No: R 4



**SECTION**

**NOTES:**

1. MAXIMUM REAR DISTANCE SHALL BE CONSISTENT WITH THE ACCESSWAY/CARRIAGEWAY WIDTHS SPECIFIED IN SCHEDULE 9A OF THE DISTRICT PLAN.
2. CONCRETE STRENGTH SHALL BE 20 MPa AT 28 DAYS.
3. EXCAVATION SHALL BE FENCED AND LIT AT NIGHT.
4. EXISTING CONCRETE TO BE CUT OUT NEATLY AND REMOVED.
5. COMMERCIAL CROSSING PLAN DIMENSIONS TO BE SPECIFICALLY DESIGNED (REFER TO FDC STANDARD R7).
6. RESIDENTIAL CROSSING TO BE MIN. 150mm THICK. ONE LAYER OF 665 MESH TO BE USED.
7. REFER ALSO TO FDC STANDARD DRAWING R9 - TYPICAL VEHICLE CROSSING SLOPE DETAILS (URBAN).



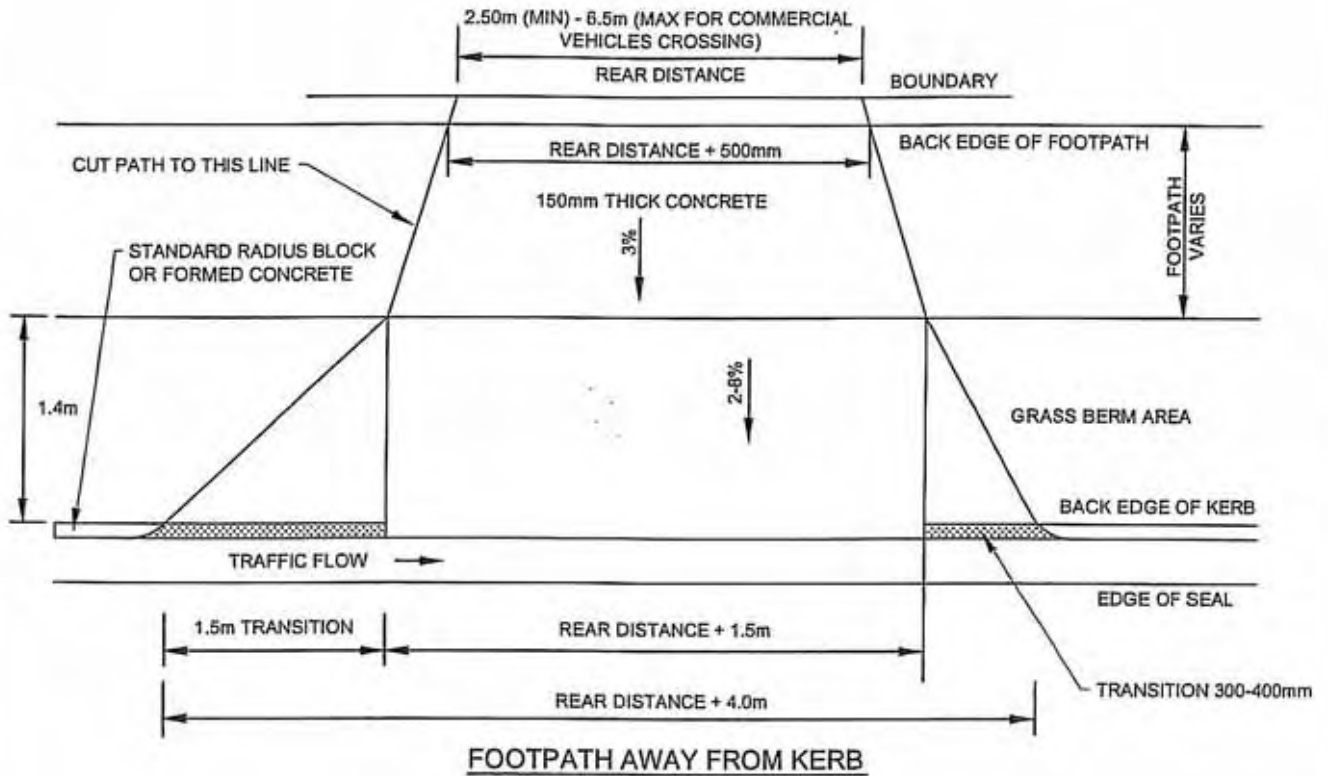
**STANDARD DETAIL**

**VEHICLE CROSSING (URBAN)  
(FOOTPATH AWAY FROM KERB)**

DATE: APRIL 2009

No: R 5





**NOTE**

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH FDC STANDARD DRAWINGS R4, R5 & R9



**Franklin**  
DISTRICT COUNCIL

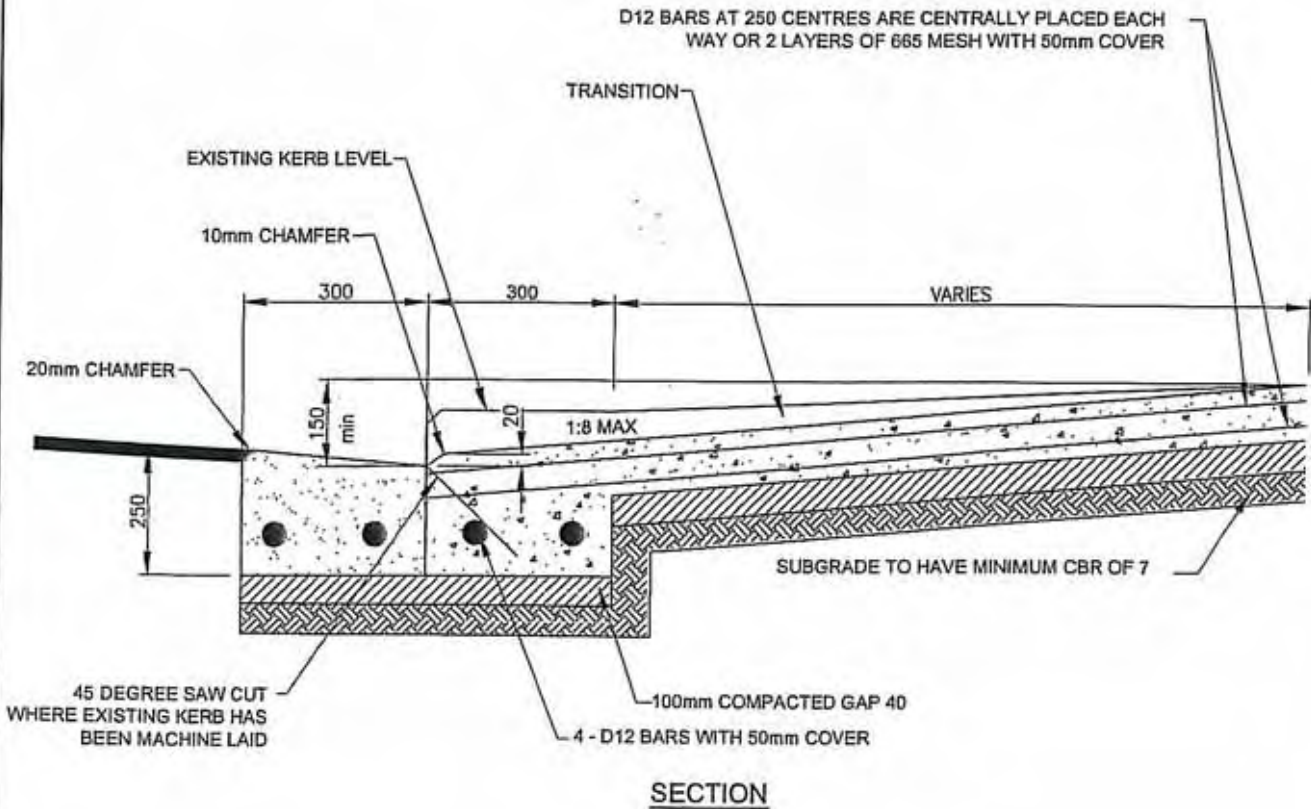
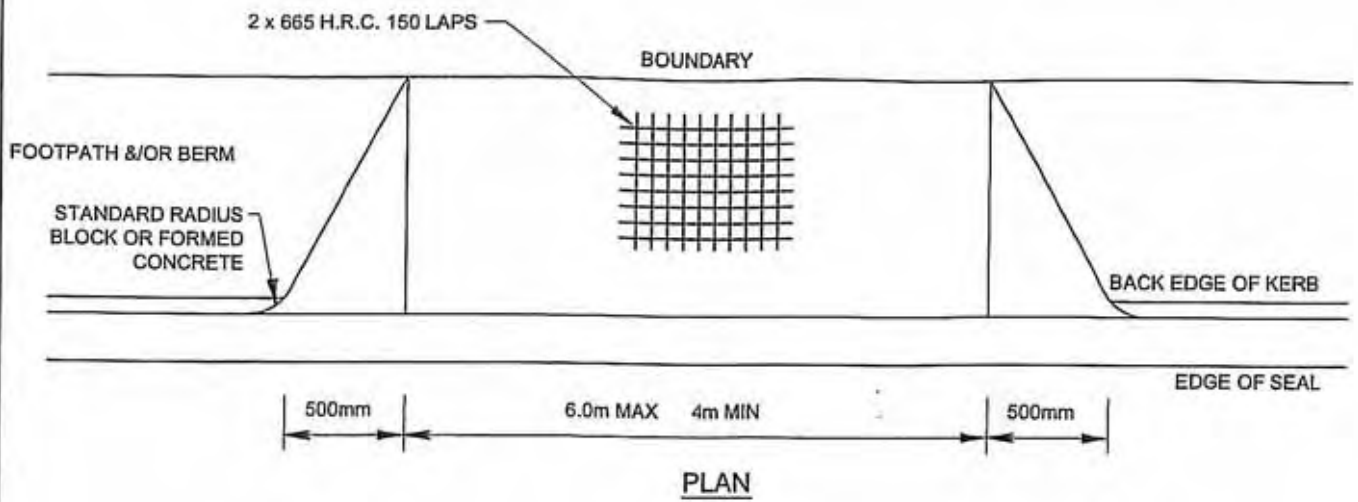
**STANDARD DETAIL**

**VEHICLE CROSSING (URBAN)  
(FOR HIGH SPEED TURNOFF)**

DATE: APR 2009

No: R 6





**NOTES:**

1. ALL CONCRETE TO BE 20 MPa AND CONSTRUCTED IN ACCORDANCE WITH NZS 3109 WITH A BROOM FINISH.
2. CONCRETE POUR MUST TAKE PLACE WITHIN 48 HRS OF EXCAVATION OF ROAD RESERVE & FOOTPATH AT INSPECTION TIME
3. SAW CUT EXPANSION JOINTS AT 4m CENTRES.
4. MOUNTABLE KERBS TO BE CUT OUT BEFORE CONCRETE PLACEMENT.
5. VEHICLE CROSSINGS SHALL BE DESIGNED TO ENABLE THE 90 PERCENTILE CAR TO USE THEM WITHOUT THE GROUNDING OF ANY PART OF THE VEHICLE.
6. THE PREFERRED FOOTPATH LOCATION IS SEPARATED FROM THE KERB AND CHANNEL.



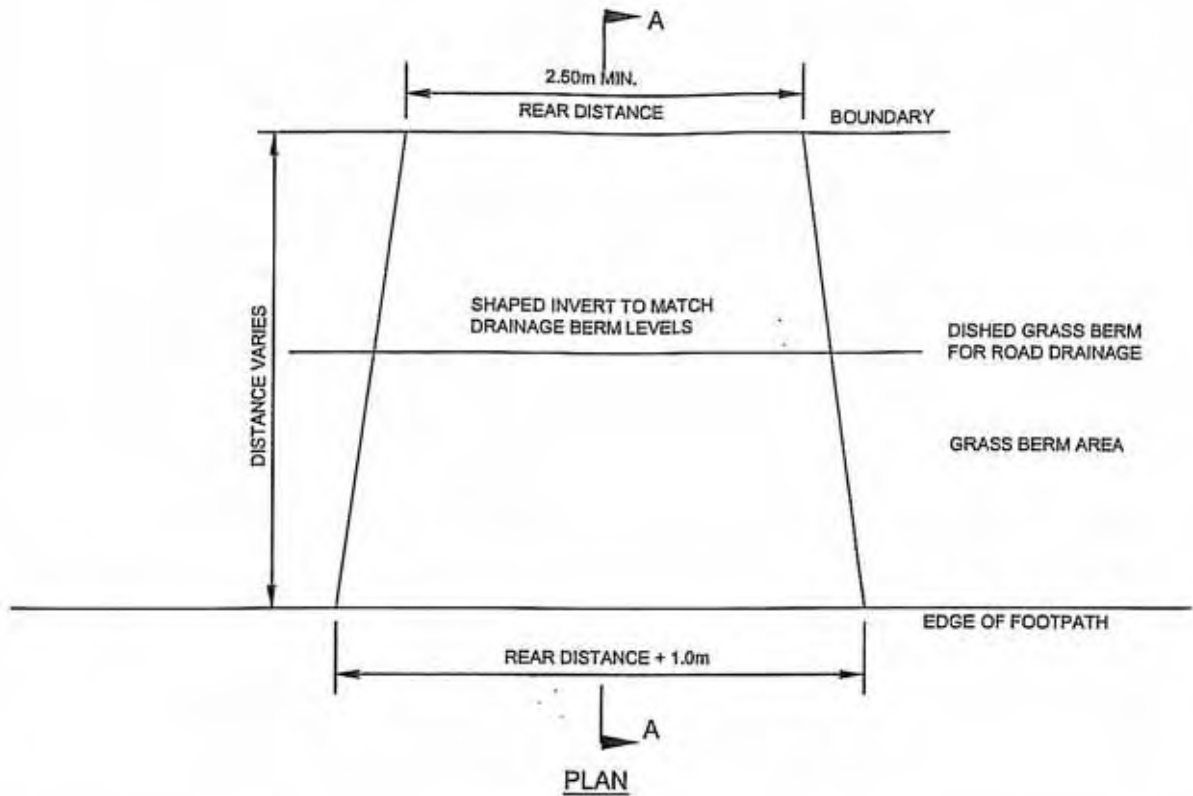
**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

VEHICLE CROSSING  
(COMMERCIAL)

DATE: APRIL 2009

No: R 7



TYPICAL SECTION A - A

**NOTES:-**

1. WORK MUST BE INSPECTED BY THE COUNCIL REPRESENTATIVE BEFORE ANY CONCRETE IS POURED.
2. CONCRETE STRENGTH SHALL BE 20 MPA AT 28 DAYS.
3. EXCAVATION SHALL BE FENCED AND LIT AT NIGHT.
4. EXISTING CONCRETE TO BE CUT OUT NEATLY AND REMOVED.
5. COMMERCIAL CROSSING DIMENSIONS TO BE SPECIFICALLY DESIGNED.
6. RESIDENTIAL CROSSING TO BE MIN. 150MM THICK, ONE LAYER OF 665 MESH TO BE USED.
7. COMMERCIAL CROSSING SHALL BE MINIMUM OF 150MM WITH THICK 2 LAYERS 665 MESH.
8. REFER ALSO TO FDC STANDARD DRAWING R 9 - TYPICAL VEHICLE CROSSING SLOPE DETAILS.(URBAN)



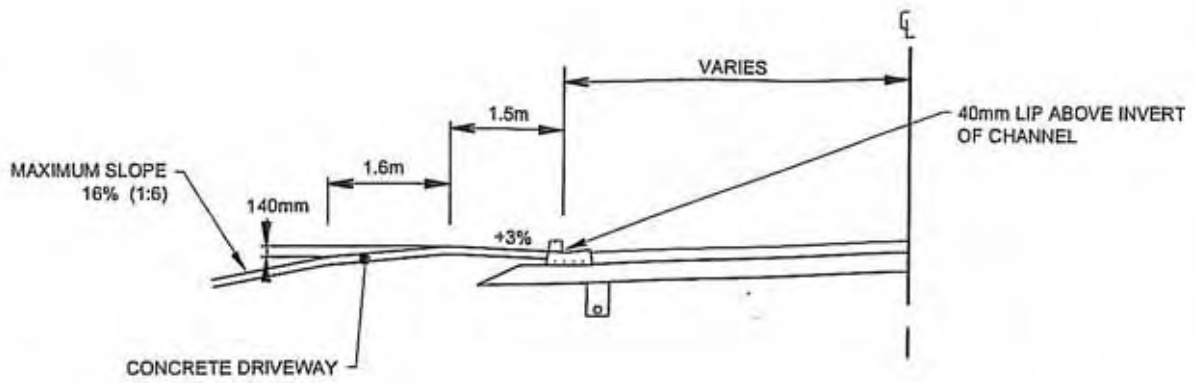
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

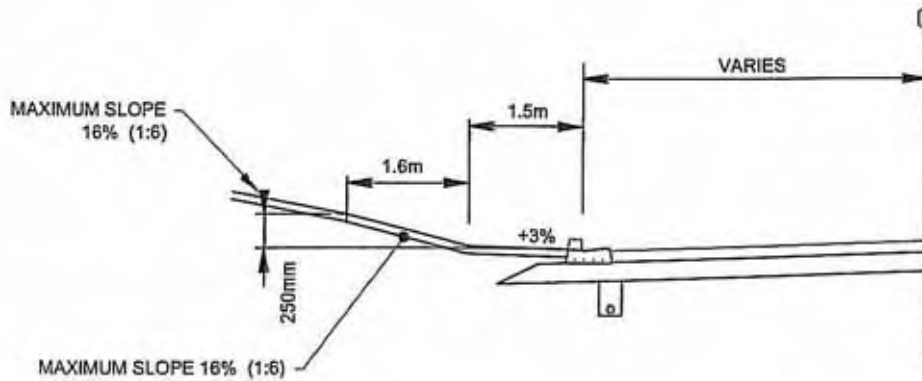
**VEHICLE CROSSING (URBAN) FOR  
USE WHERE ROAD DRAINAGE IS VIA  
GRASS BERM**

DATE: APRIL 2009

No: R 8




TYPICAL DRIVEWAY DETAIL - DESCENDING



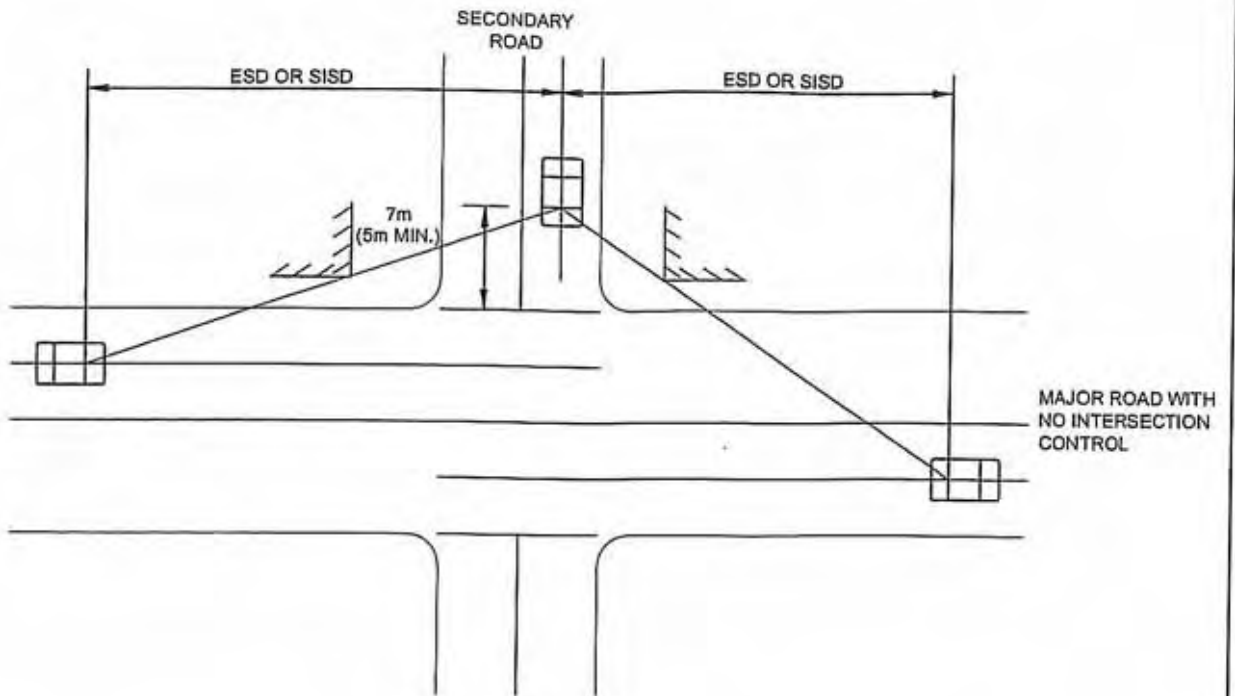
TYPICAL DRIVEWAY DETAIL - ASCENDING

**NOTES:-**

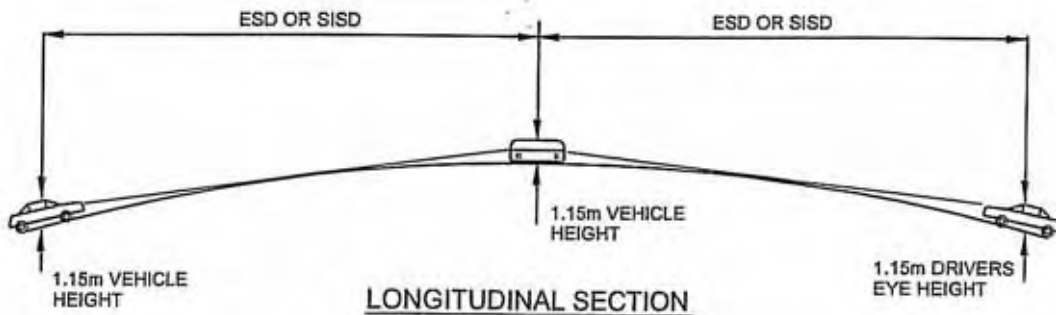
1. THIS DESIGN IS THE ABSOLUTE LIMIT IN SLOPE SHAPE TO GIVE A 90 PERCENTILE VEHICLE ACCESS TO PROPERTY WITHOUT SCRAPING THE UNDERSIDE OF THE VEHICLE.

 <p><b>Franklin</b> DISTRICT COUNCIL</p>	<p><b>STANDARD DETAIL</b></p>
	<p><b>TYPICAL VEHICLE CROSSING SLOPE DETAILS (URBAN) (NON STANDARD BERM)</b></p>
<p>DATE: APR 2009</p>	
<p>No: R 9</p>	





PLAN



LONGITUDINAL SECTION

DESIGN SPEED (Km/h)	ENTERING SIGHT DISTANCE (m)	SAFE INTERSECTION SIGHT (m)	
		RURAL	URBAN
40	100	70	60
50	125	90	80
60	160	115	105
70	220	140	130
80	305	175	165
90	400	210	
100	500	250	
110	500	290	
120	500	330	

**NOTES**

1. IT IS DESIRABLE THAT PLANTS ARE PLACED FAR ENOUGH BACK FROM THE INTERSECTION SO THAT EVEN WHEN MATURE THE ENTERING SIGHT DISTANCE (ESD) IS MAINTAINED.
2. IN ALL CASES SAFE INTERSECTION SIGHT DISTANCES (SISD) MUST BE MET.
3. SEE TRANSIT NEW ZEALAND'S GUIDELINES FOR PLANTING FOR ROAD SAFETY FOR MORE DETAILS.



**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

INTERSECTION SIGHT  
DISTANCE REQUIREMENTS

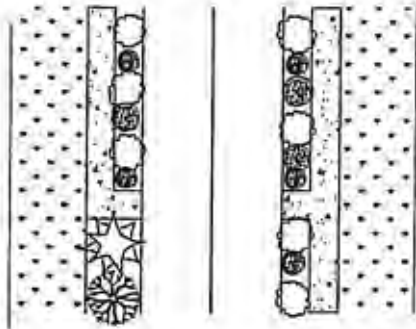
DATE: APR 2009

No: R 11



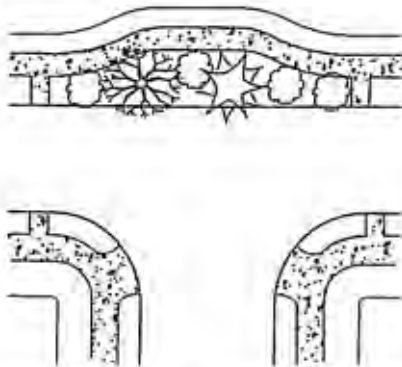
**1. NORMAL LOCATION**

Carriageway in centre of road reserve.  
Width of berms and service strip varies with carriageway width. (Refer District Plan for minimum criteria).



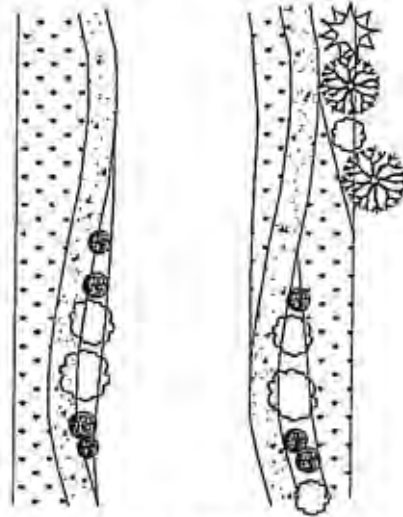
1.3m verge permits only small trees pruned up as standards.  
Shrubs are unsuitable due to obstruction to vision.  
Elimination of one footpath gives 2.7m width for normal growth of medium sized trees.

**3. ROAD RESERVE WIDENED eg. AT INTERSECTION**



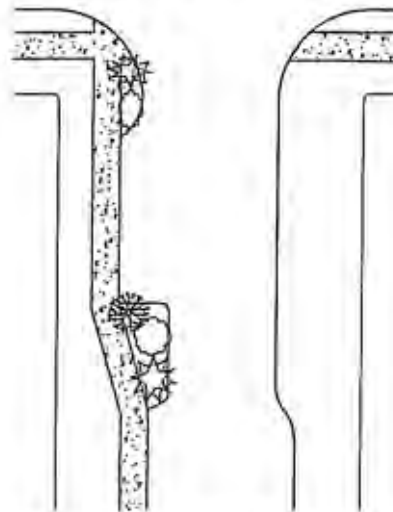
Increase in area may allow significant trees which give visual emphasis to the intersection, close view to houses beyond and screen these from headlights.

**2. VARIATION OF CARRIAGEWAY LOCATION. Allows a planting area on one side of the road.**



If alongside the boundary planting may join with that on private property. Footpath between trees and service strip reduces interference to services. Service strip adjacent to carriageway acts as a buffer between vehicles and pedestrians. Service strip alongside property boundary extends usable lawn and garden area. Footpaths adjoining carriageway are an advantage at points where pedestrians cross.

**4. VARIATION OF WIDTH OF CARRIAGEWAY eg. with short cul-de-sac.**



Widened road allows parking without restriction to heavy traffic. Road may be narrowed to 3.0m width as speed restricting device while also increasing planting area.



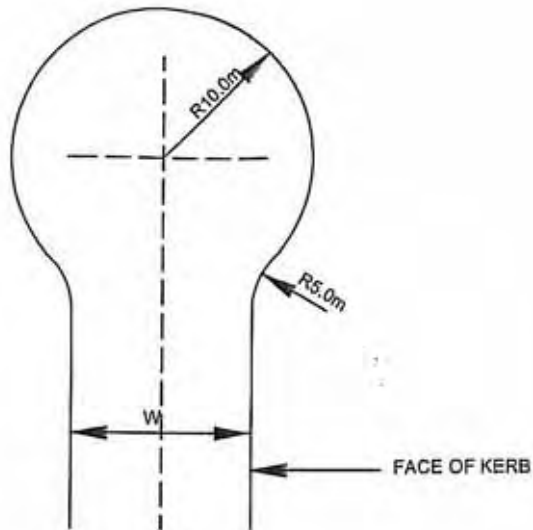
**Franklin**  
DISTRICT COUNCIL

DATE: DEC 1999

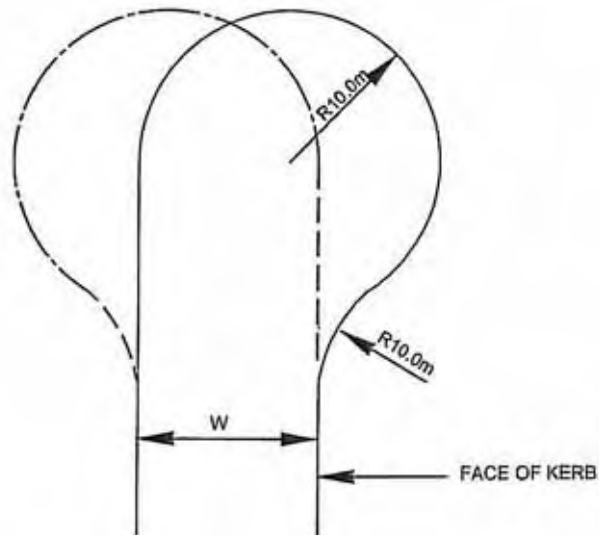
No: R 12

**STANDARD DETAIL**

**VARIATION OF CARRIAGEWAY LOCATION**



CIRCULAR TURNING AREA FOR RESIDENTIAL CUL-DE-SAC



R=10.0m FOR WIDTH <7.8m  
R=12.0m FOR WIDTH >7.8m

OFFSET CIRCULAR TURNING AREA FOR RESIDENTIAL CUL-DE-SAC

NOTES:-

1. THE TURNING AREA DIMENSIONS SHOWN ARE MINIMUM.
2. INDUSTRIAL OR COMMERCIAL AREAS, THE RADIUS OF THE CUL-DE-SAC TURNING AREAS SHALL BE 12.5m.
3. THE 10.0m RADIUS MAY INCLUDE THE FOOTPATH WIDTH IF THE FOOTPATH IS BUILT TO THE SAME STANDARDS AS COMMERCIAL CROSSINGS, AND MOUNTABLE KERBING IS USED.



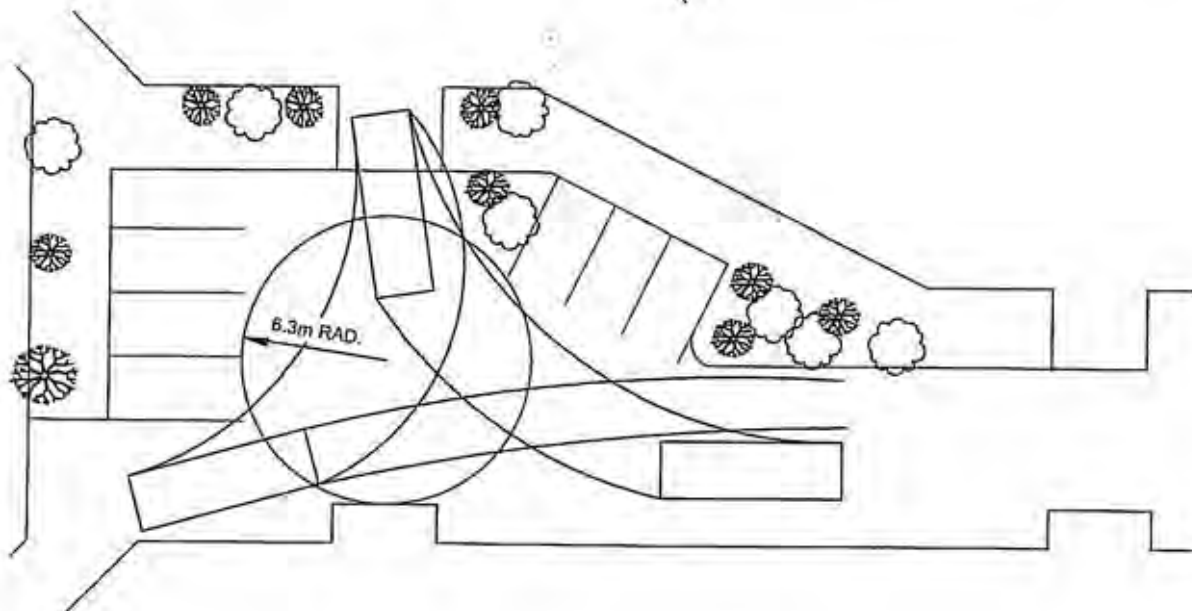
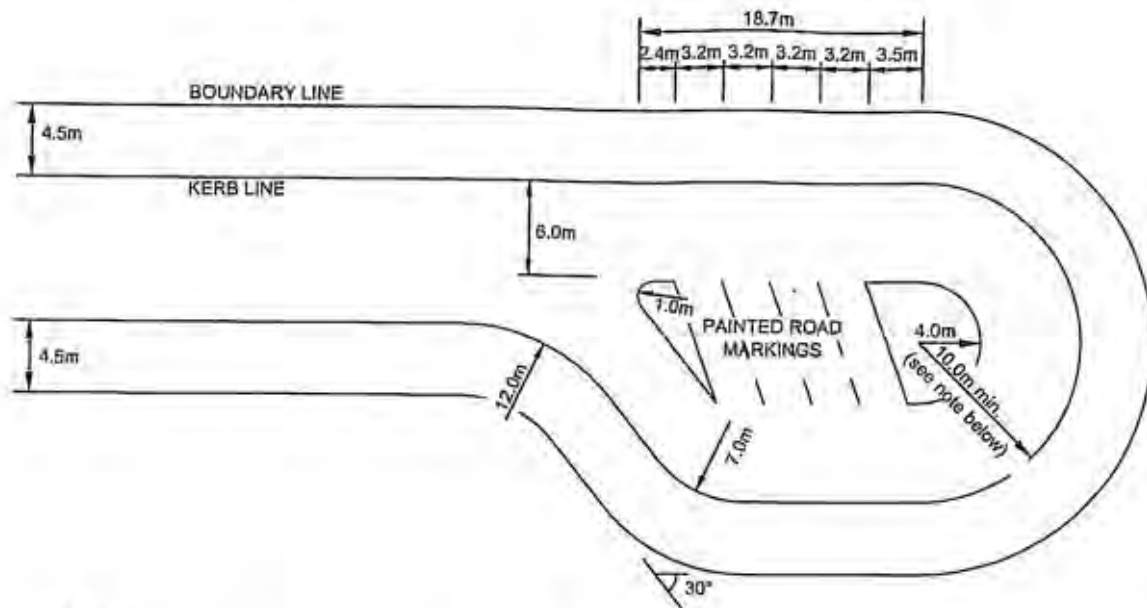
**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

URBAN STREET DIMENSION  
OF CUL-DE-SAC HEAD

DATE: APRIL 2009

No: R 13



**EXAMPLE OF CUL-DE-SAC HEAD ILLUSTRATING:**

- MINIMUM TURNING CIRCLE
- KERBSIDE CROSSING ALLOWING THREE POINT TURN FOR HEAVY VEHICLES
- REDUCED CARRIAGEWAY WHERE PARKING AND PASSING PROVISION SPECIFICALLY DESIGNED

**NOTES:**

1. THE 10.0M RADIUS MAY INCLUDE THE FOOTPATH WIDTH IF THE FOOTPATH IS BUILT TO THE SAME STANDARDS AS COMMERCIAL VEHICLE CROSSINGS, AND MOUNTABLE KERBING IS USED.
2. IF VEHICLE CROSSINGS ARE USED IN TURNING MOVEMENTS THEY SHALL BE CONSTRUCTED TO COMMERCIAL STANDARDS.



**Franklin**  
DISTRICT COUNCIL

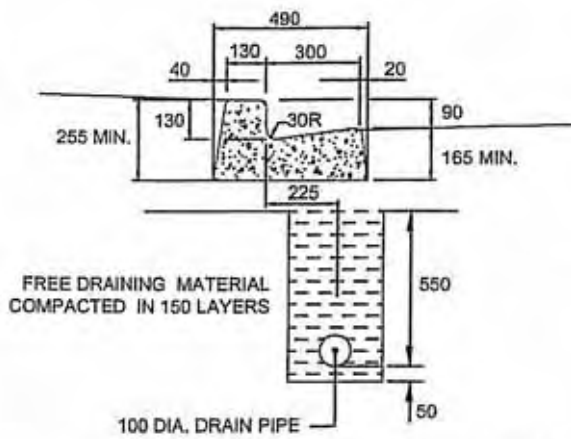
**STANDARD DETAIL**

**ALTERNATIVE CUL-DE-SAC  
HEADS**

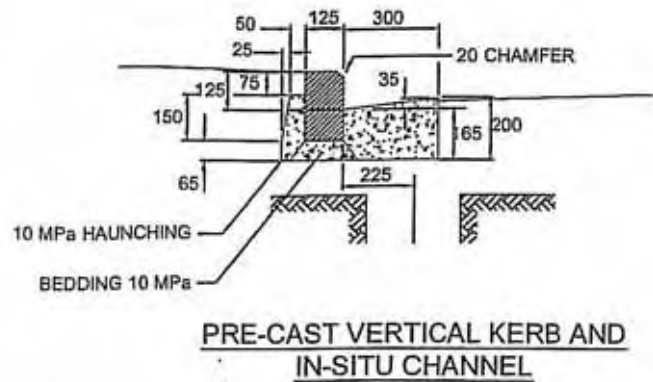
DATE: APRIL 2009

No: R 14

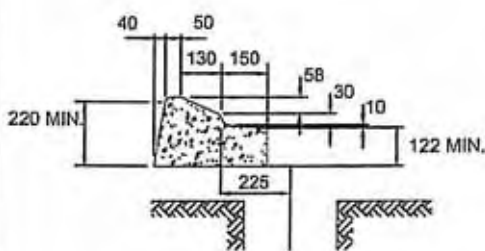




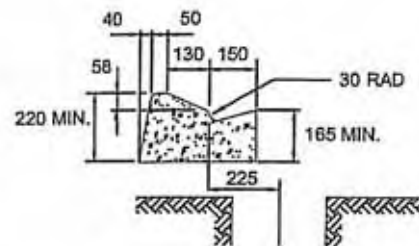
**SLIP-FORMED VERTICAL KERB AND CHANNEL WITH UNDER CHANNEL DRAIN**



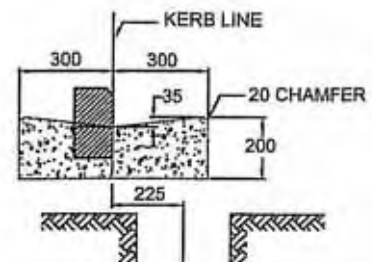
**PRE-CAST VERTICAL KERB AND IN-SITU CHANNEL**



**SLIP-FORMED LOW PROFILE KERB AND NIB**



**SLIP-FORMED LOW PROFILE KERB AND CHANNEL**



**DISH CHANNEL - PARKING BAYS**

**NOTES:-**

1. CONCRETE GRADES: PRECAST KERB BLOCKS - 20 MPa; IN-SITU CHANNEL AND EDGING STRIP - 20 MPa; SLIP FORMED CONCRETE - 20 MPa
2. UNDER CHANNEL DRAINS SHALL BE APPROVED DRAIN PIPE OF 100mm INTERNAL DIAMETER UNLESS SPECIFIED OR SCHEDULED OTHERWISE. DEPTH BELOW SUB-GRADE 550mm OR TO SPECIFIC DESIGN.
3. JOINTING PRE-CAST KERBS - 10 mm MIN. NEATLY POINTED WITH CEMENT MORTAR. SLIP-FORMED KERBS - CRACKING CONTROL JOINTS SAW CUT AT MAX. 5m INTERVALS (WHERE FOOTPATH ADJOINS KERB, CONTROL JOINT TO COINCIDE WITH EVERY SECOND FOOTPATH JOINT).



**Franklin**  
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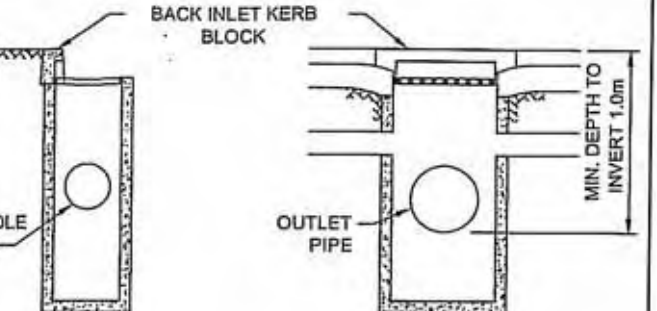
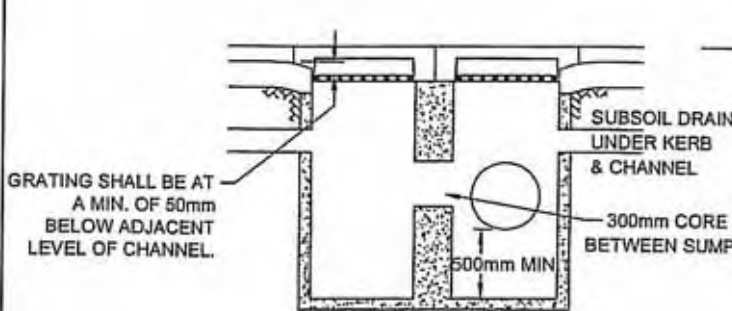
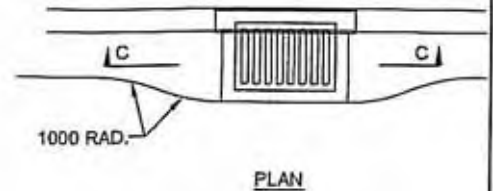
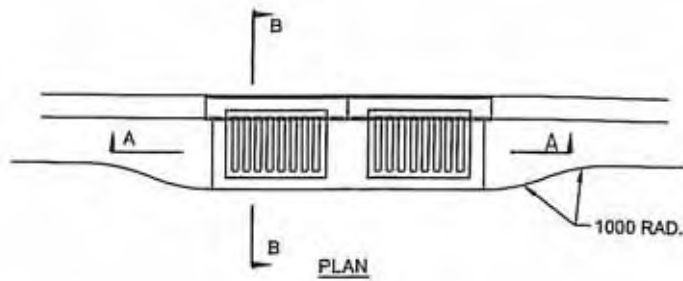
**STANDARD DETAIL**

**TYPICAL DIMENSIONS FOR KERB AND CHANNEL**

DATE: APRIL 2009

No: R 16





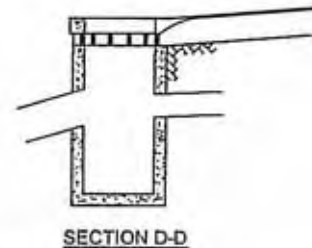
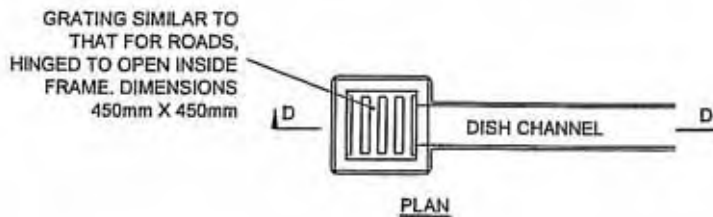
SECTION A-A

SECTION B-B

SECTION C-C

DOUBLE SUMP WITH BACK INLET KERB BLOCK

SINGLE SUMP WITH BACK INLET KERB BLOCK



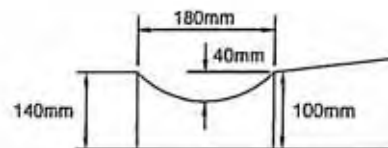
GRATING SIMILAR TO THAT FOR ROADS, HINGED TO OPEN INSIDE FRAME. DIMENSIONS 450mm X 450mm

PLAN

SECTION D-D

**NOTES**

1. CONCRETE TO BE 20 MPa. AT 28 DAYS



DISHED CHANNEL - FOOTPATH

STANDARD DETAIL

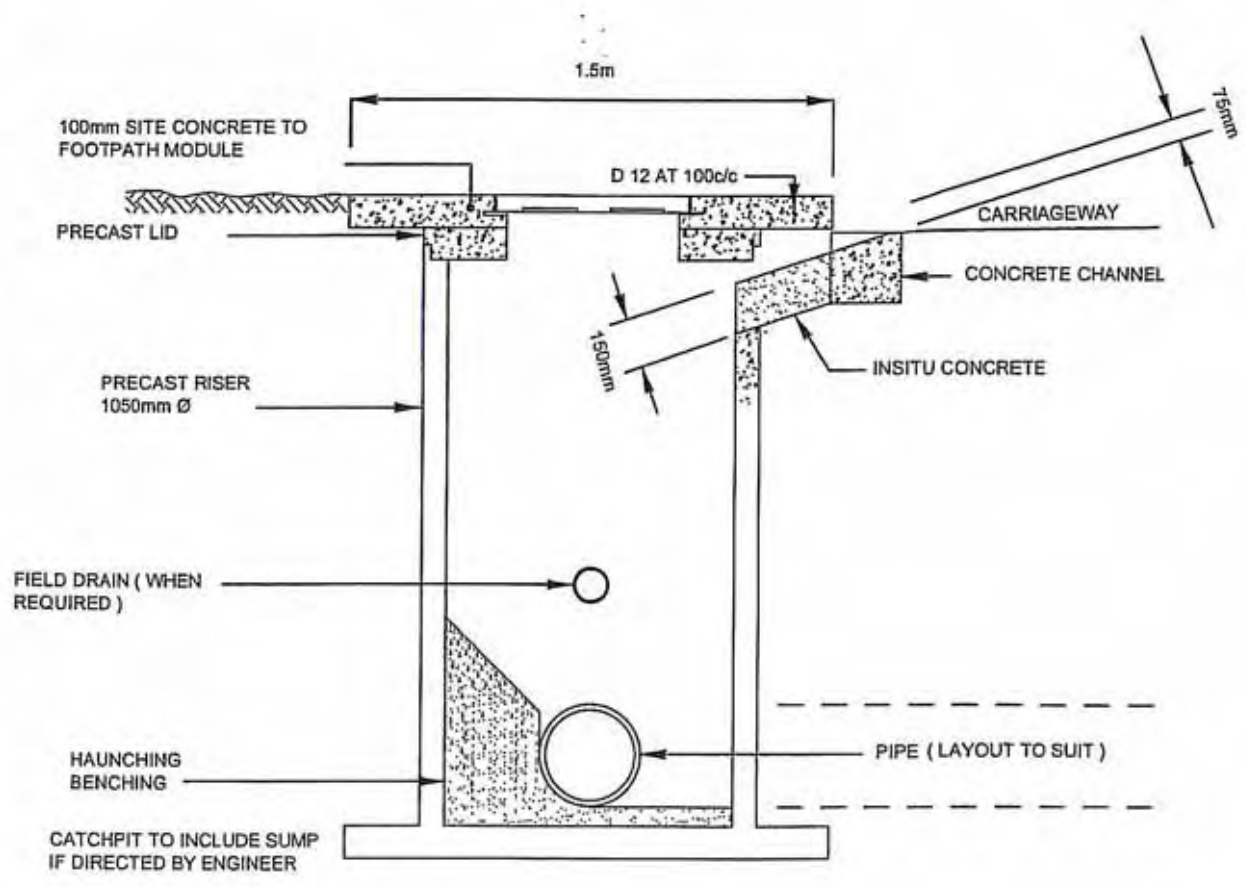
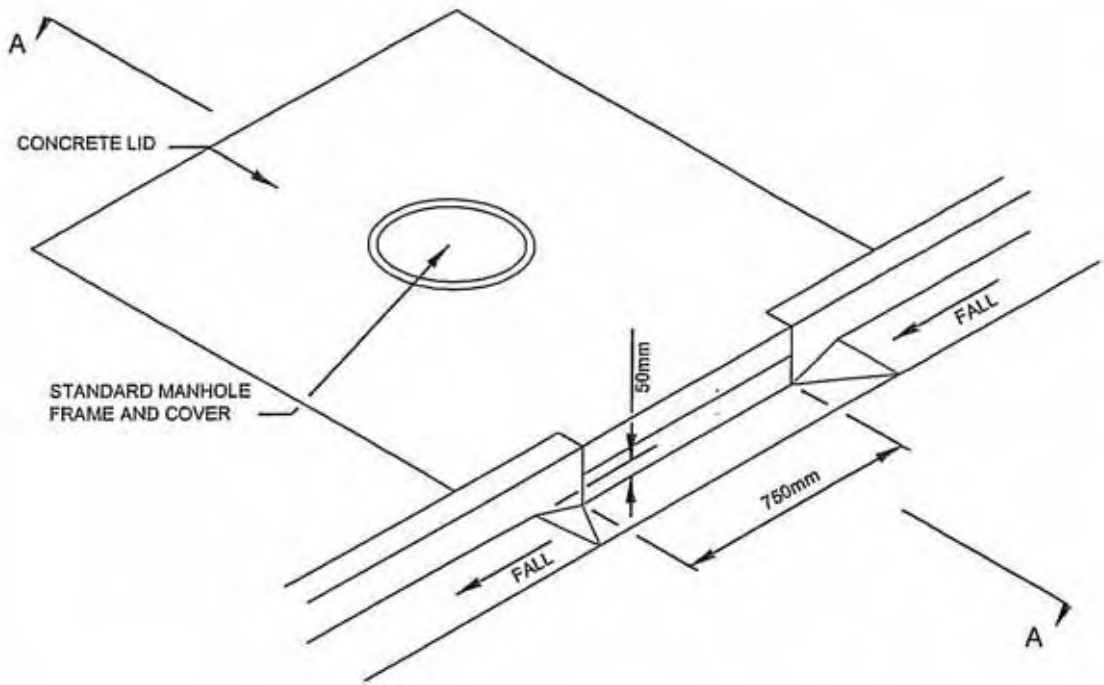
TYPICAL CATCHPIT DETAILS



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DATE: APR 2009

No: R 17



SECTION A-A



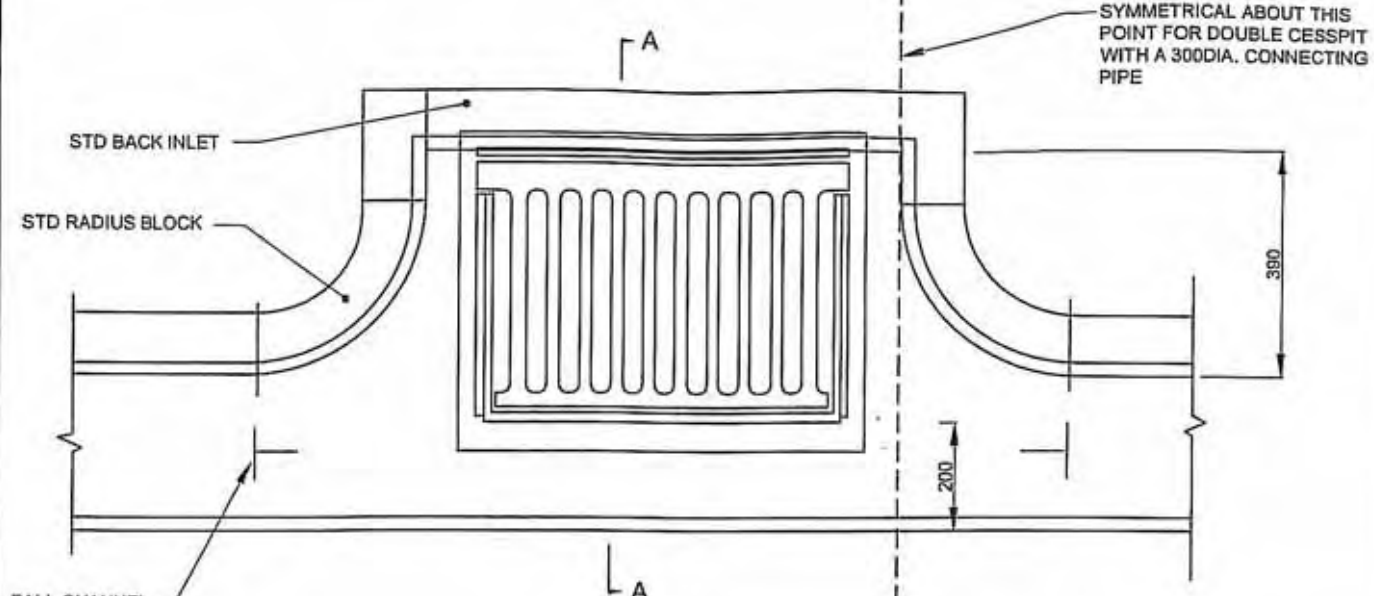
**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

BACK INLET CATCHPIT

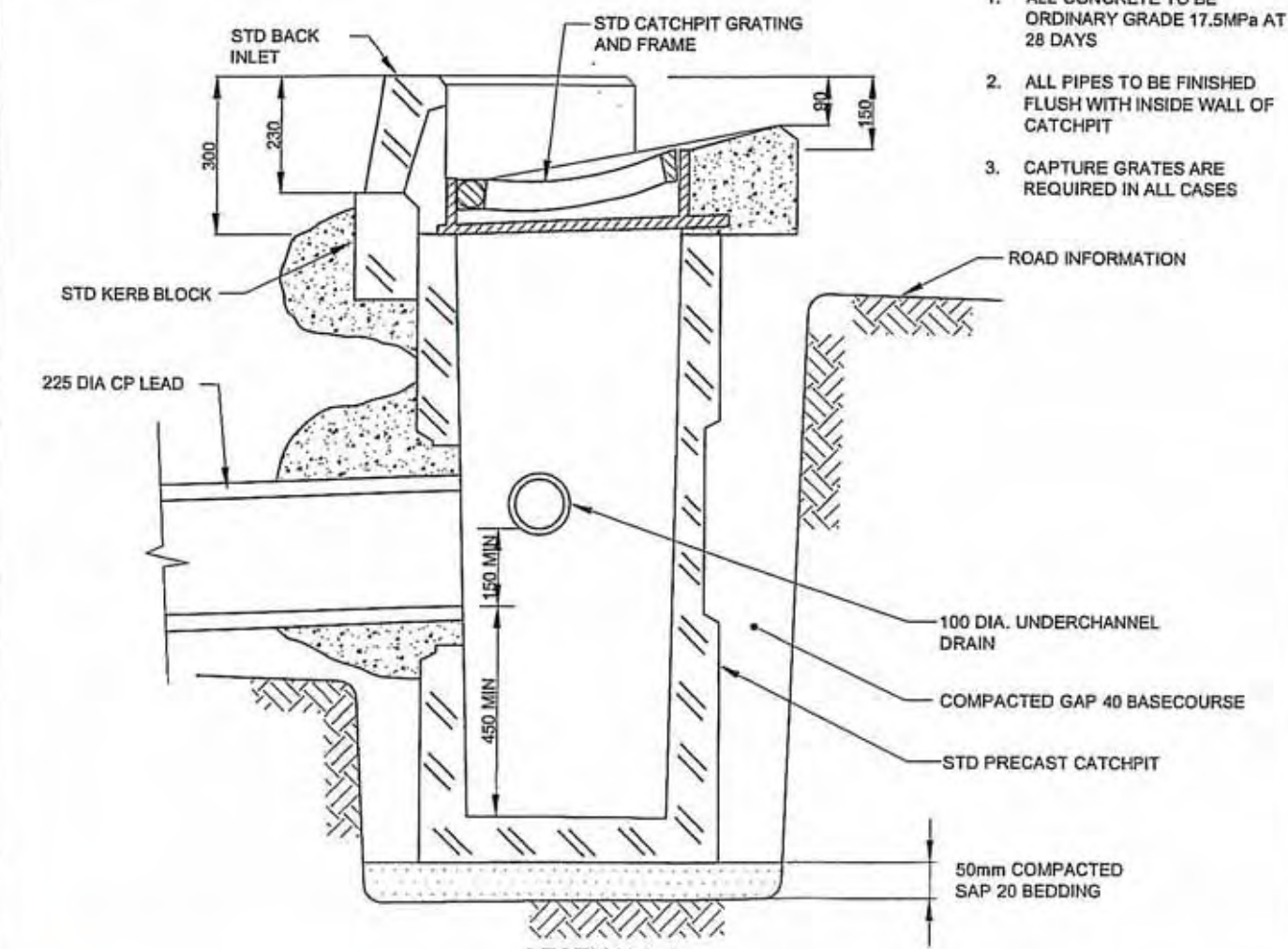
DATE: APRIL 2009

No: R 18



PLAN

- NOTES:-
1. ALL CONCRETE TO BE ORDINARY GRADE 17.5MPa AT 28 DAYS
  2. ALL PIPES TO BE FINISHED FLUSH WITH INSIDE WALL OF CATCHPIT
  3. CAPTURE GRATES ARE REQUIRED IN ALL CASES



SECTION A-A



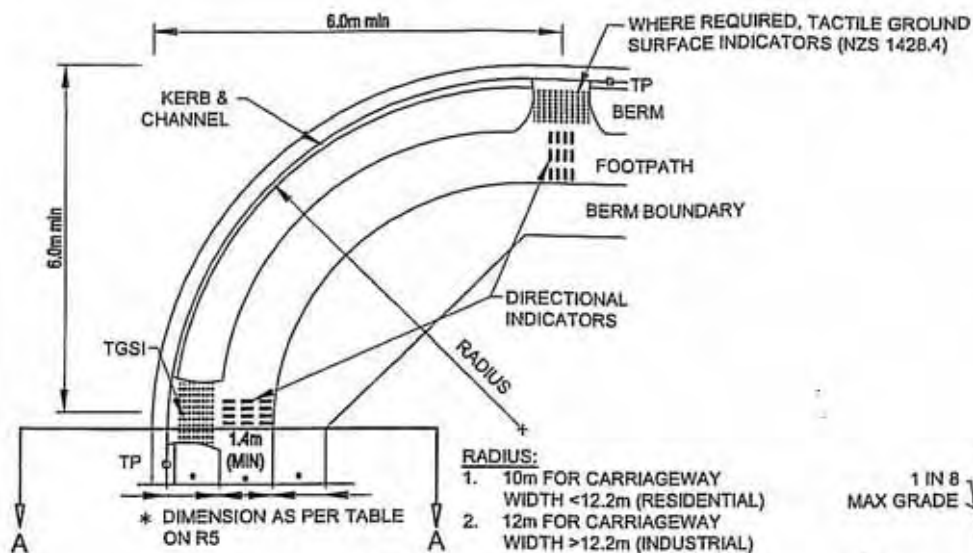
STANDARD DETAIL

DATE: APRIL 2009

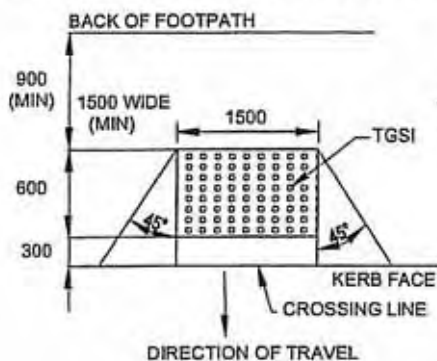
No: R 19

RECESS CATCHPIT

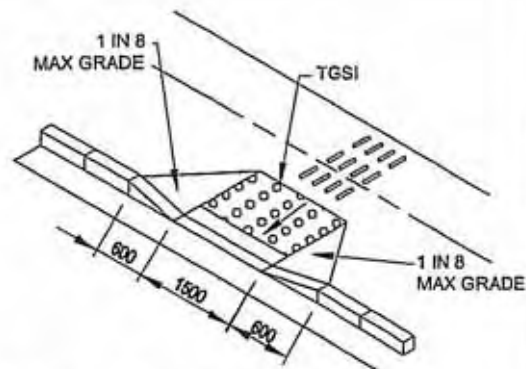




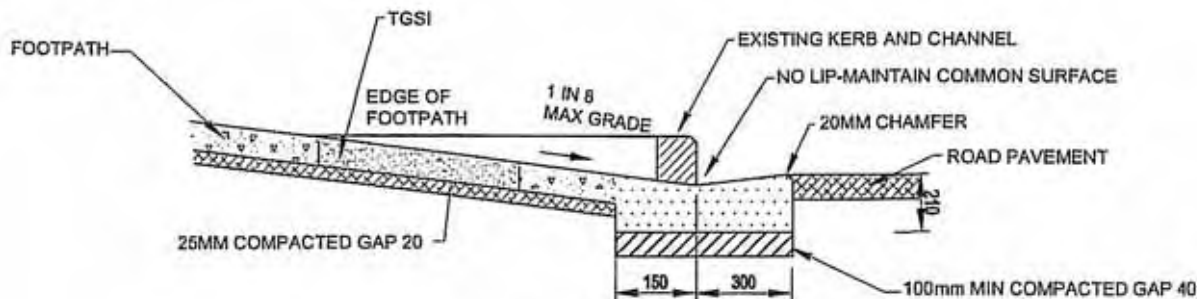
**PLAN**  
**UNSIGNALISED INTERSECTIONS**



**PLAN**



**SURFACE FINISH TO KERB RAMPS**



**TYPICAL SECTION (A-A)**

**NOTES:**

1. ALL CONCRETE TO BE 20MPa, CONSTRUCTED IN ACCORDANCE WITH NZS 3109 WITH U3 BROOM FINISH TO NZS 3114.
2. TACTILE GROUND SURFACE INDICATORS SHALL BE YELLOW IN COLOUR, MANUFACTURED AND INSTALLED IN ACCORDANCE WITH AS/NZS 1428.4 AND LTNZ RTS 14.
3. TACTILE GROUND SURFACE INDICATORS TO EXTEND FULL WIDTH OF DROP SECTION.
4. TACTILE GROUND SURFACE INDICATORS TO BE ALIGNED WITH DIRECTION OF TRAVEL.
5. DIRECTIONAL INDICATORS 600mm (MIN) USED WHERE CROSSING IS OFFSET FROM PATH OF TRAVEL.
6. CATCHPITS SHALL BE LOCATED A MINIMUM OF 1m CLEAR UPSTREAM OF PRAM CROSSINGS.



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**STANDARD DETAIL**

**CONCRETE FOOTPATH  
WHEELCHAIR RAMP  
KERB CROSSING**

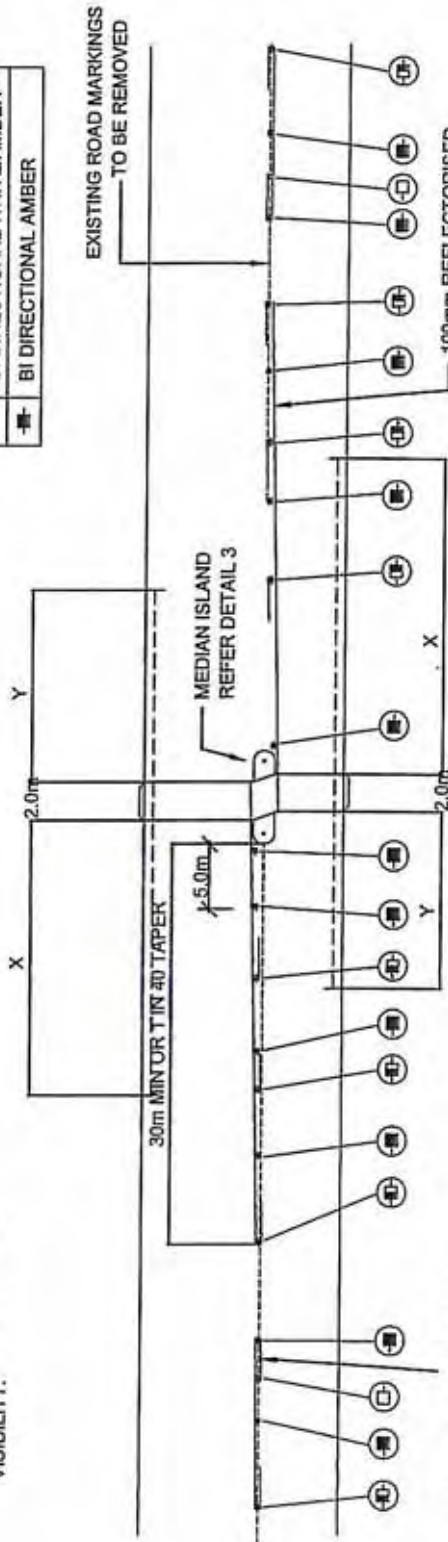
DATE: APRIL 2009

No: R 21

**REFLECTORISED RAISED PAVEMENT MARKERS**

□	MONO DIRECTIONAL WHITE
■	MONO DIRECTIONAL AMBER
◻	BI DIRECTIONAL WHITE/AMBER
◼	BI DIRECTIONAL AMBER

NOTE: CONSIDERATION MUST BE GIVEN TO PARKING SITUATION AND IT MAY BE THAT LONGER NO STOPPING LENGTHS WOULD NEED TO BE PROVIDED TO ACCOMMODATE ADEQUATE VISIBILITY.



3 - 13m x 100mm REFLECTORISED YELLOW ADVANCED NO OVERTAKING WARNING LINES 100mm TO LEFT OF 100mm INTERMITTENT WHITE LINES

100mm REFLECTORISED YELLOW NO OVERTAKING LINE 100mm TO LEFT OF 100mm INTERMITTENT WHITE LINE. FOR MULTI-LINE HIGHWAY SITUATION APPROACH SHOULD BE MARKED WITH DOUBLE YELLOW

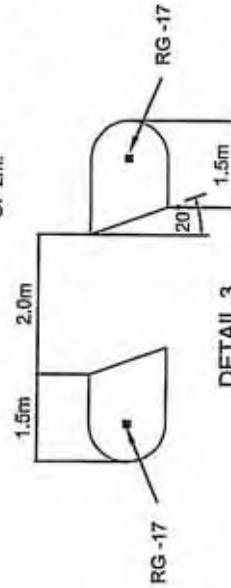
NO STOPPING DISTANCES NECESSARY TO ACHIEVE MINIMUM AND DESIRABLE VISIBILITY DISTANCES.

ROADWAY	X		Y	
	MIN.	DES	MIN.	DES
ROADS WITHOUT SIDE ISLANDS	19m	29m	5m	13m

MIN. DISTANCES SHOULD NOT BE USED IF THERE IS A HIGH INCIDENCE OF HEAVY GOODS VEHICLE PARKING.

ADDITIONAL LENGTHS OF 'NO STOPPING' MAY ALSO BE NECESSARY FOR ROADS OF LESS THAN 8m TO ALLOW FOR SAFE VEHICLE SIDE SHIFT AROUND MEDIAN ISLAND.

MIN RECOMMENDED WIDTH 1.4m. THIS SHOULD BE WIDER WHERE CARRIAGEWAY WIDTH PERMITS UP TO A MAX OF 2m.



DETAIL 3

REFER SECTION A-A SHEET 20

REFER TRANSIT NEW ZEALAND MANUAL OF TRAFFIC SIGNS AND MARKINGS PART II



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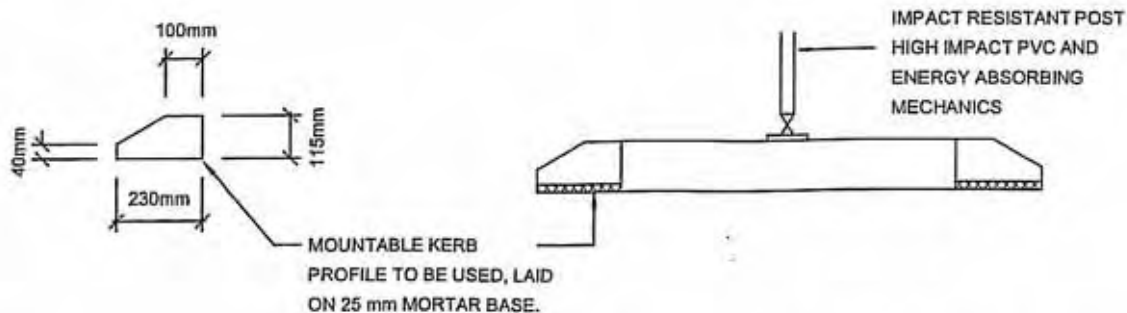
DATE: DEC 1999

No: R 22

**STANDARD DETAIL**

**PEDESTRIAN CROSSING  
STANDARD REFUGE CROSSING  
POINT APPROACH DETAILS**

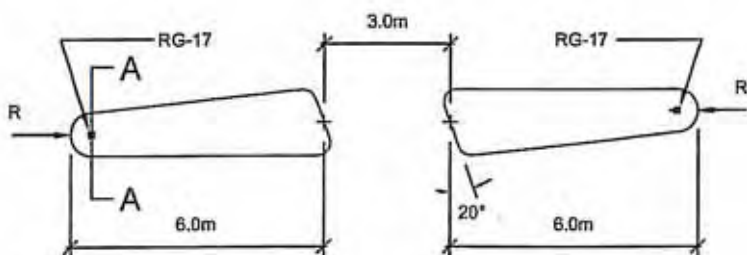




**NOTE**  
 FOR ALL DETAILS KERBS  
 TO BE PAINTED WITH  
 REFLECTORISED WHITE PAINT

INFILL TRAFFIC ISLANDS WITH FINE McCALLUM'S  
 CONCRETE, EXPOSED SURFACE.  
 FOR LARGER ISLANDS IN EXCESS OF 2m <sup>3</sup>  
 INFILL WITH REGULAR CONCRETE AND SURFACE  
 WITH FINE McCALLUM'S CONCRETE, EXPOSED  
 SURFACE.

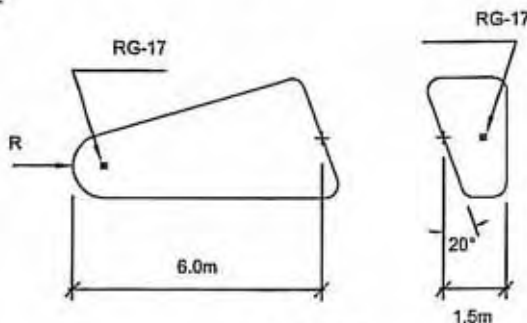
**SECTION A - A**



DIMENSION TO BE  
 ADJUSTED AS REQUIRED  
 TO ACCOMMODATE  
 ACCESSES AND PRIVATE  
 DRIVES ETC.

**DETAIL 1**

**DETAIL 1 AND 2**  
 MINIMUM RECOMMENDED WIDTH 1.4 m.  
 THIS SHOULD BE WIDER WHERE  
 CARRIAGEWAY WIDTH PERMITS UP TO A  
 MAX. OF 3 m, WHEN ASSOCIATED WITH A  
 RIGHT TURN POCKET MIN. WIDTH SHOULD  
 BE 2.5 m.



**DETAIL 2**

R = 0.5 m RADIUS UP  
 TO 2 m WIDE  
 ISLAND AND 0.8 m  
 ABOVE

**NOTE:**  
 PRECAST KERB BLOCKS MAY BE USED.



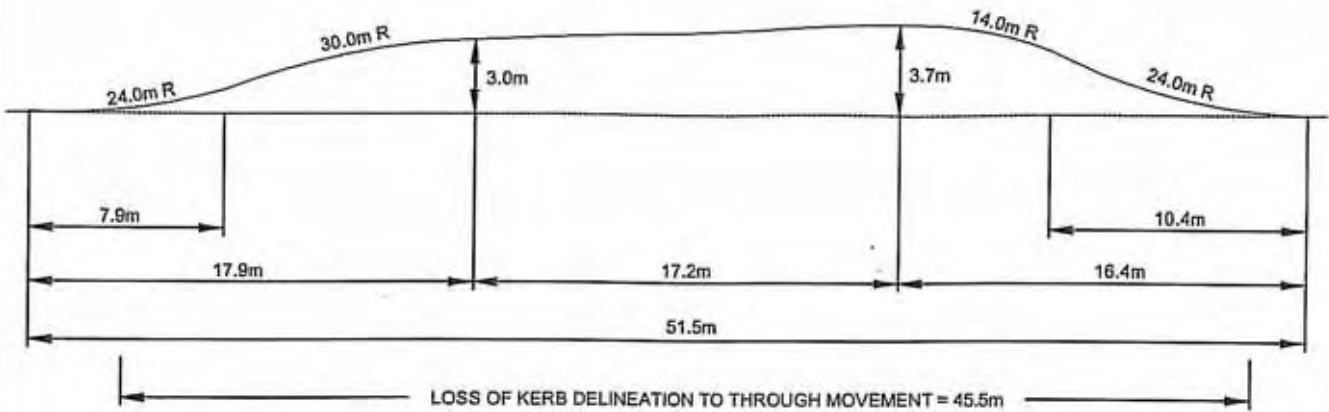
**STANDARD DETAIL**

**PEDESTRIAN CROSSING  
 STANDARD REFUGE  
 ISLAND DETAILS**

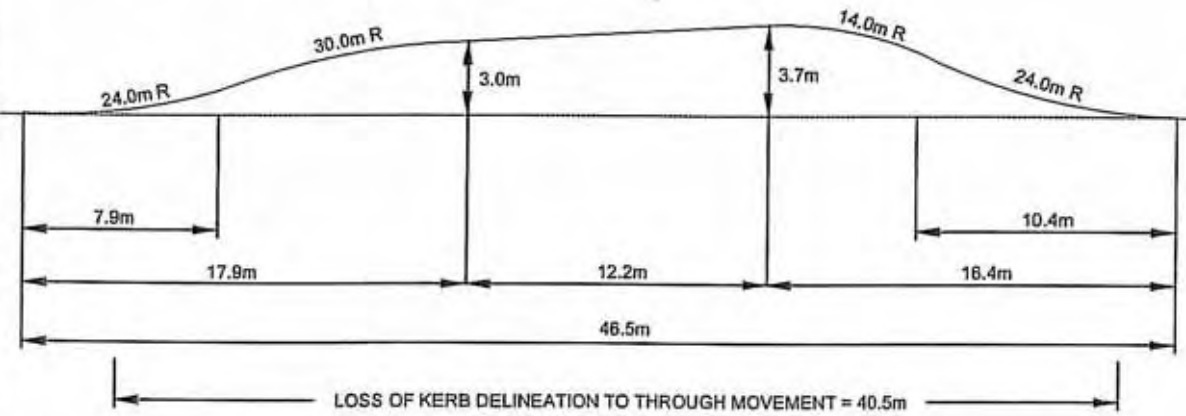
DATE: AUGUST 2010

No: R 23





ARTICULATED BUS BAY



SINGLE BUS BAY

**NOTES:-**

1. FOR BUSES LOADING INDEPENDENTLY ADD 12.2M TO LENGTH OF 3.7M PARALLEL BAY.
2. BUS BAY TO BE OF CONCRETE CONSTRUCTION WITH A MINIMUM OF 225MM THICKNESS AND 2 LAYERS OF 665 MESH (75MM COVER TO UNDERSIDE AND 50MM COVER TO TOP).
3. CONCRETE STRENGTH SHALL BE 20 MPA AT 28 DAYS MINIMUM.



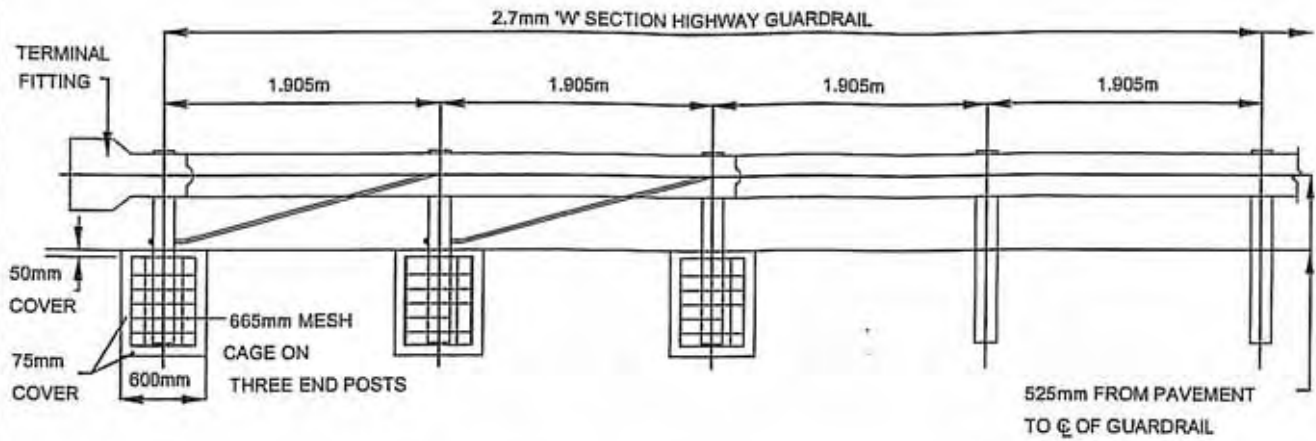
**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

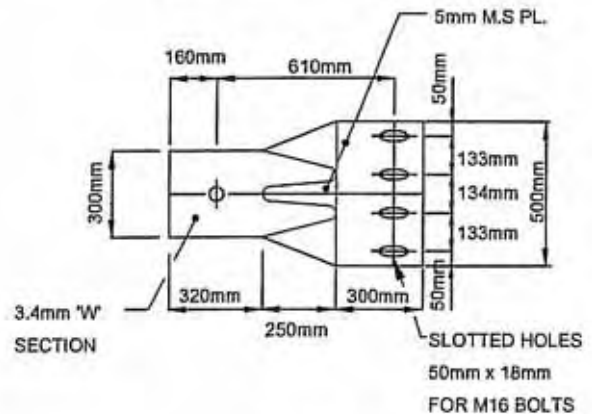
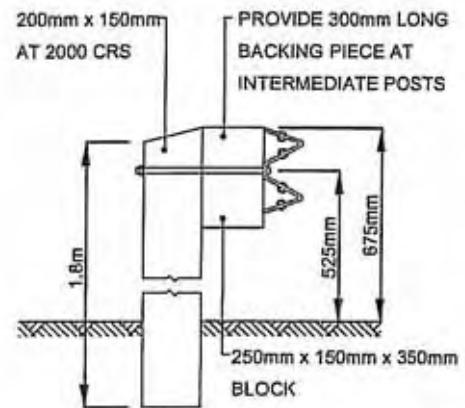
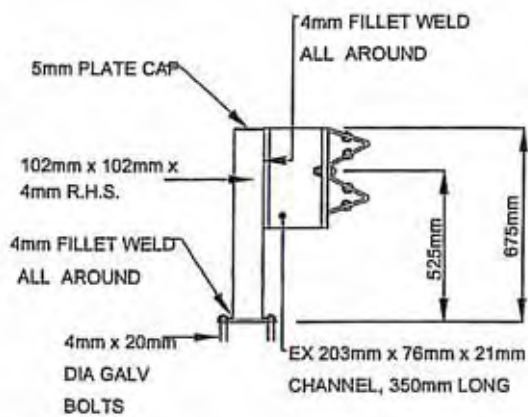
DATE: DEC 1999

No: R 24

INDENTED BUS BAYS



ELEVATION BREAKAWAY CABLE TERMINAL



BRIDGE END POST ATTACHMENT DETAIL

**NOTES:-**

1. WHERE SPECIFIED THE LAST 4.00m SECTION OF RAIL SHALL BE FACTORY BENT TO 10.50m RADIUS (TRAFFIC FACE CONVEX) TO PROVIDE APPROXIMATELY 750mm SET BACK ON END POST. STANDARD TERMINAL ENDS SHALL BE FITTED.
2. FOR FABRICATION AND ASSEMBLY OF STANDARD GUARDRAILS AND HANDRAILS FOR HIGHWAY BRIDGES AND BRIDGE APPROACHES SEE TNZ P/15P



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**STANDARD DETAIL**

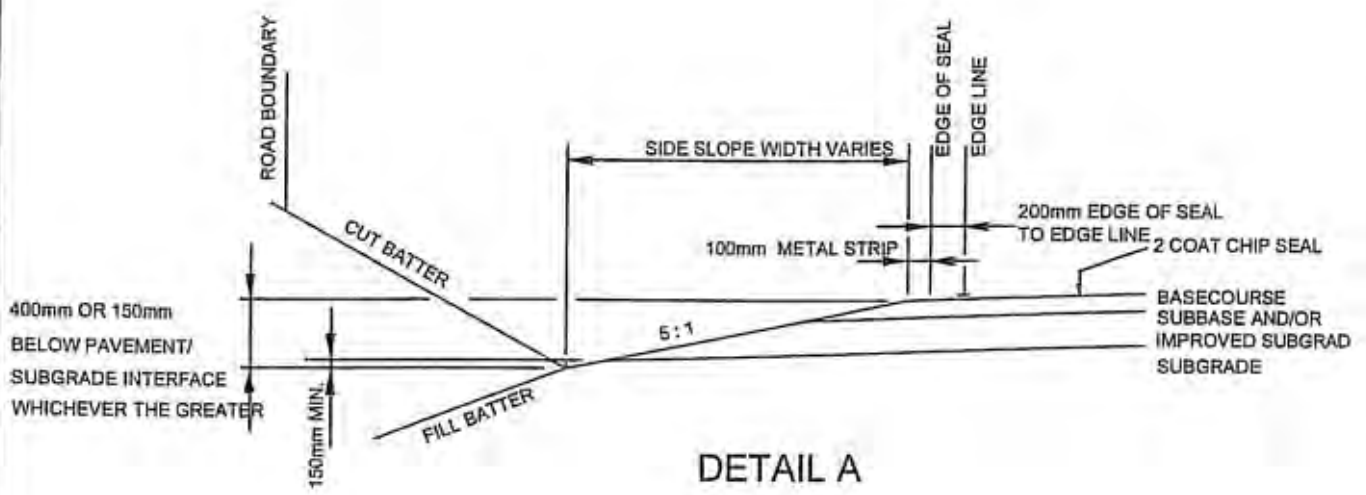
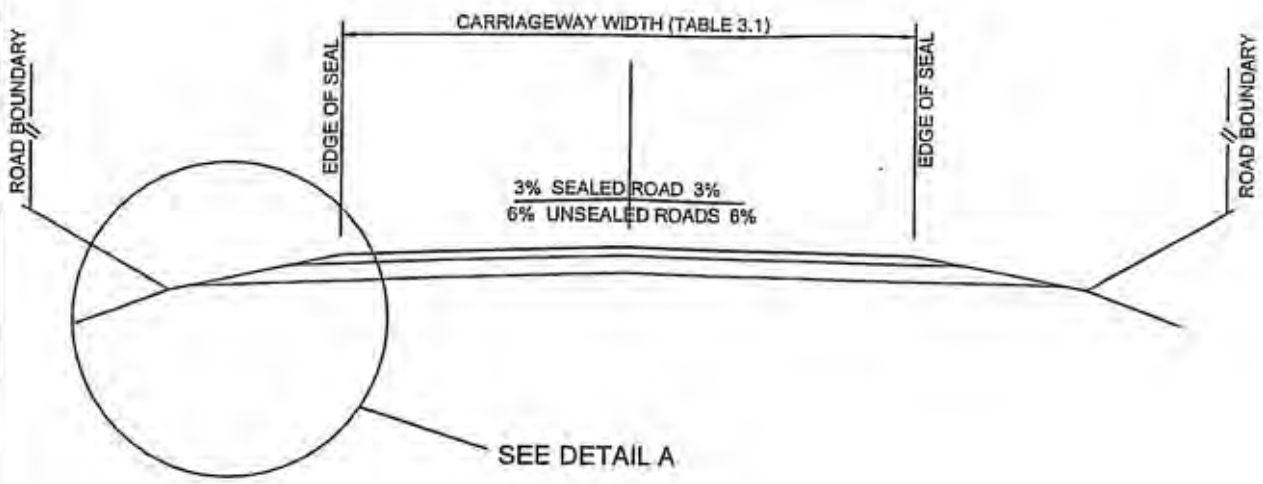
**ARMCO FLEXRAIL  
FIXING DETAILS**

DATE:

DEC 1999

No:

R 25



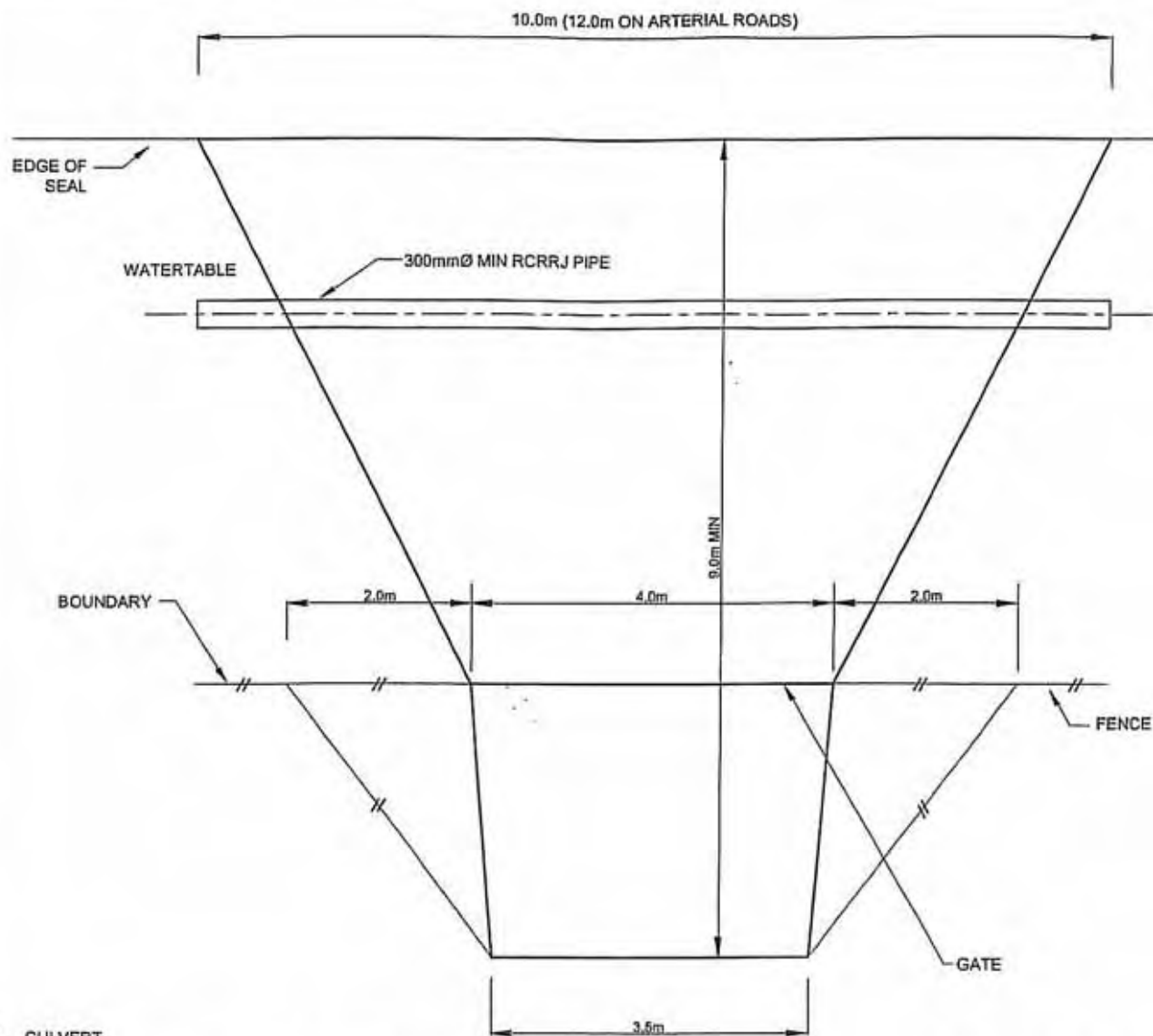
STANDARD DETAIL

RURAL ROADING TYPICAL  
CROSS SECTION

DATE: DEC 1999

No: R 28





### 1. CULVERT

- 1.1. IF THE PROPERTY ENTRANCE CROSSES A ROADSIDE WATERTABLE A CULVERT PIPE SHALL BE INSTALLED. THE CULVERT PIPE SHALL BE OF SUFFICIENT SIZE TO CARRY THE FLOWS ARISING FROM THE UPSTREAM CATCHMENT AND SHALL HAVE A MINIMUM DIAMETER OF 300mm. A RCRRJ CLASS X PIPE SHALL BE USED.
- 1.2. ANY UNSUITABLE BEDDING MATERIAL SHALL BE REMOVED AND REPLACED WITH SAND OR GAP 40.
- 1.3. ALL CULVERTS SHALL BE LAID STRAIGHT AND AT A CONSTANT GRADE WITH THE SOCKET END AT THE UPSTREAM INLET. THE ENDS OF THE CULVERT PIPE SHALL EXTEND A MINIMUM OF 0.5 METRES BEYOND THE METAL FORMATION.
- 1.4. THE APPLICANT SHALL BE RESPONSIBLE FOR ENSURING THAT THE CULVERT PIPE IS FULLY OPEN AT ALL TIMES.
- 1.5. IF THE PROPERTY ENTRANCE CROSSES A DRAIN OR WATERCOURSE THE APPLICANT SHALL OBTAIN APPROVAL FROM THE APPROPRIATE DRAINAGE BOARD OR REGIONAL COUNCIL PRIOR TO COMMENCING CONSTRUCTION.

### 2. PAVEMENT

- 2.1. A MINIMUM OF 100mm OF GOOD QUALITY GAP 40 BASECOURSE METAL SHALL BE PLACED, TRIMMED AND COMPACTED FROM THE EDGE OF SEAL TO THE GATE. A SUB-BASE LAYER MAY ALSO BE REQUIRED IF POOR SUB-GRADE CONDITIONS ARE ENCOUNTERED.
- 2.2. THE BASECOURSE METAL SHALL BE TRIMMED TO PROVIDE A CROWN IN THE CENTRE OF THE ENTRANCE TO ENSURE ADEQUATE SURFACE DRAINAGE TO PREVENT PONDING.
- 2.3. THE GRADE OF THE ENTRANCE SHALL NOT EXCEED 1 IN 8.

### 3. SURFACING

- 3.1. ALL NEW PROPERTY ENTRANCES ON ARTERIAL ROADS SHALL BE SEALED FROM THE EDGE OF THE SEALED CARRIAGEWAY TO THE GATE.
- 3.2. SEALING OF PROPERTY ENTRANCES ON OTHER ROADS MAY ALSO BE REQUIRED IF THERE IS A RISK OF AGGREGATE MIGRATION ONTO THE SEALED CARRIAGEWAY.



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## STANDARD DETAIL

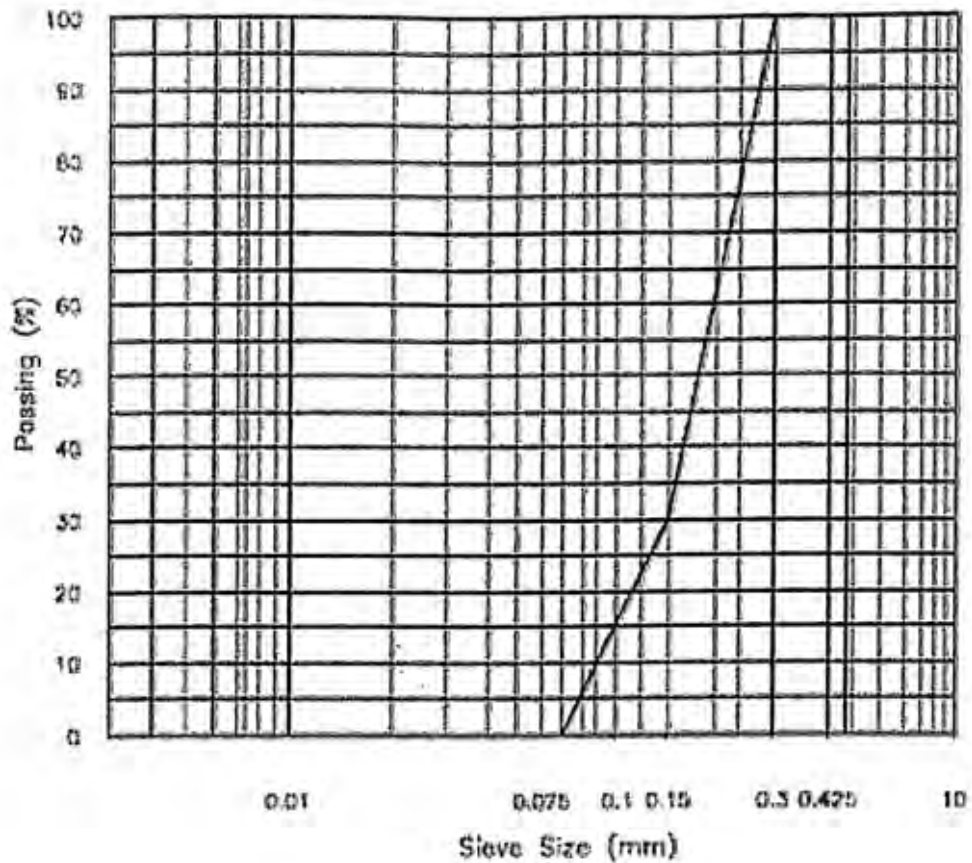
### STANDARD RURAL PROPERTY ENTRANCE (RESIDENTIAL USE)

DATE: APRIL 2009

No: R 29



## GRADING ENVELOPE



**NOTES:**

1. THIS APPROVAL IS FOR WOODHILL SAND AS SUPPLIED BY WINSTONE AGGREGATES LTD.
2. THE SAND SHALL BE A FINE GRAINED SILTY BLACK SAND WITHOUT A CLAY FRACTION.
3. PROPERTIES OF SAMPLE TESTED ON 16 MARCH 1995

SIEVE SIZE (um)	PERCENTAGE PASSING
425	100
300	99
150	32
75	0

4. CBR: 50% AT MAX, DENSITY OF 1.90/m (TO ASTM D2049 - 69), PERMEABILITY: AVERAGE 1.337x10 m/sec TO BS 1377.



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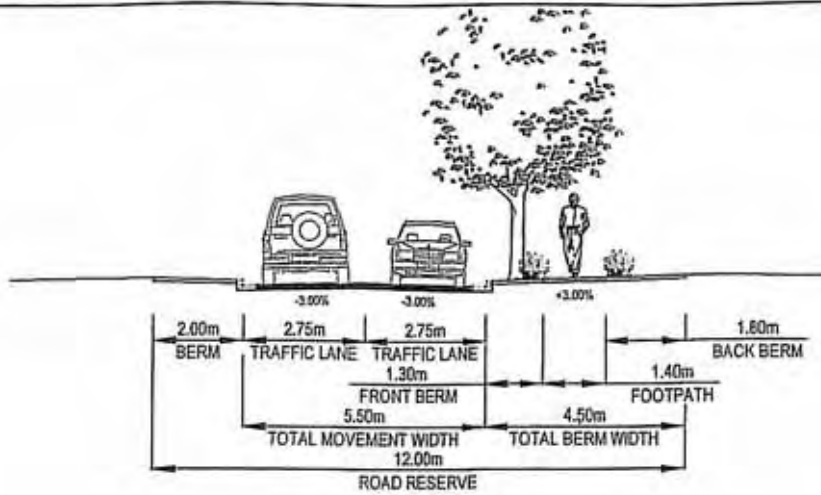
## STANDARD DETAIL

SAND FOR USE IN REPLACEMENT OF  
UNDERCUTS IN ROADWORKS

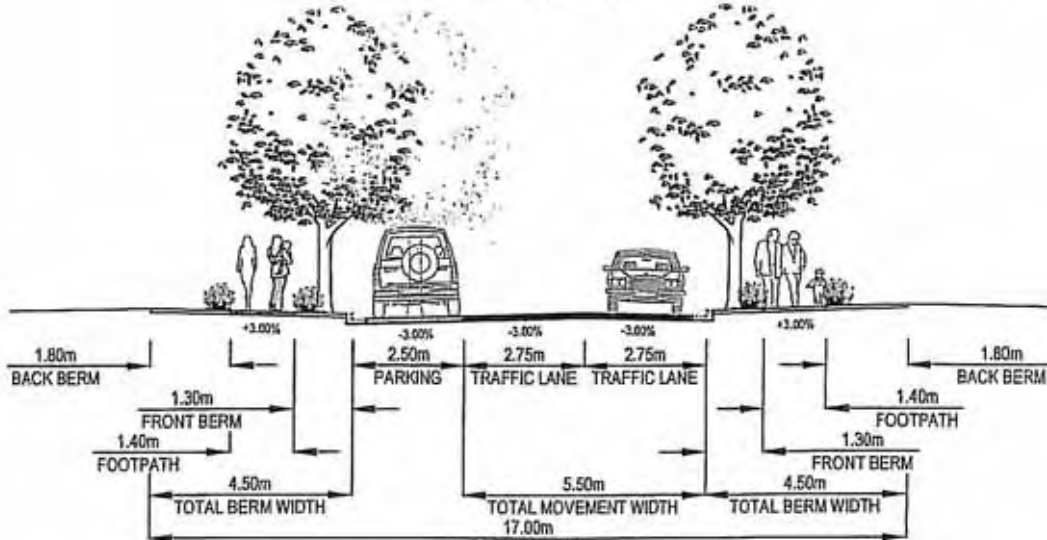
DATE: APRIL 2009

No: R 32

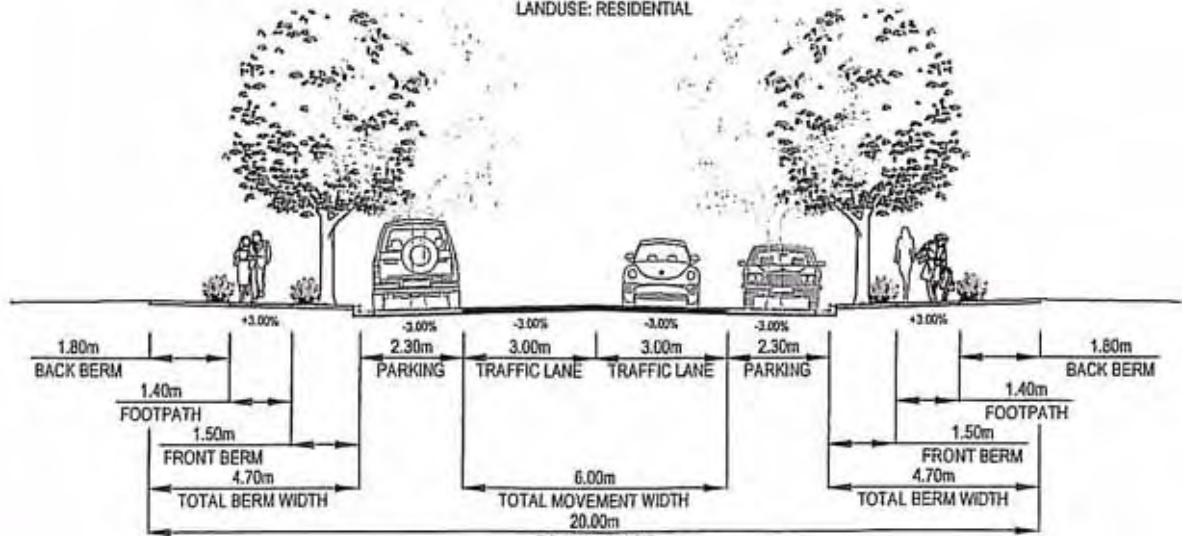




**A1: REAR LANE**  
LANDUSE: RESIDENTIAL



**A2: CUL-DE-SAC**  
LANDUSE: RESIDENTIAL



**A3: LINK ROAD**  
LANDUSE: RESIDENTIAL

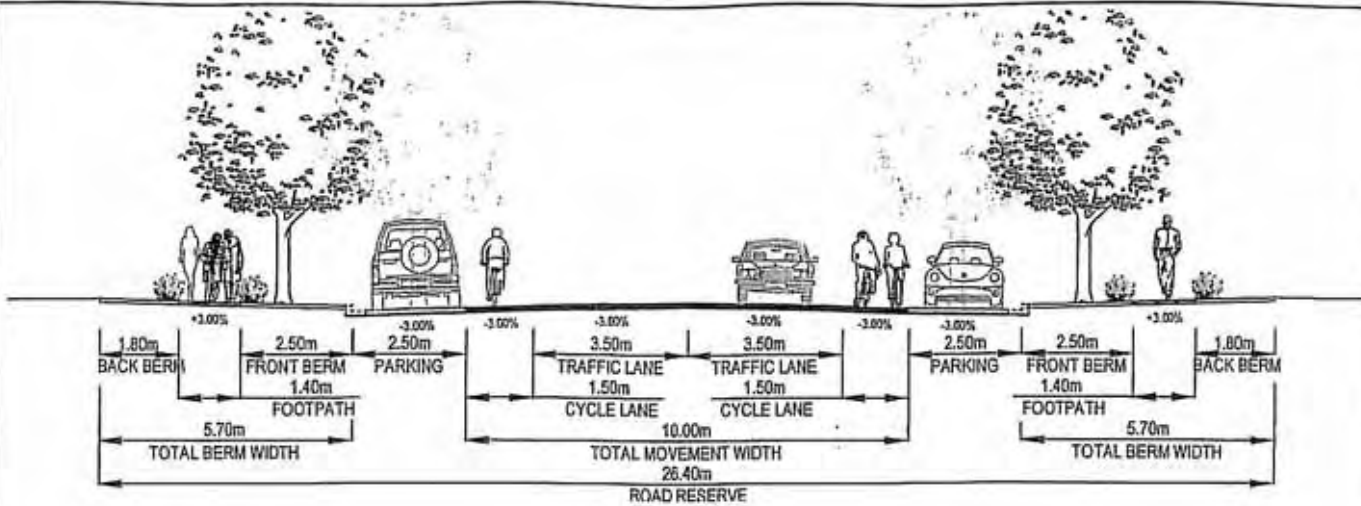


## STANDARD DETAIL

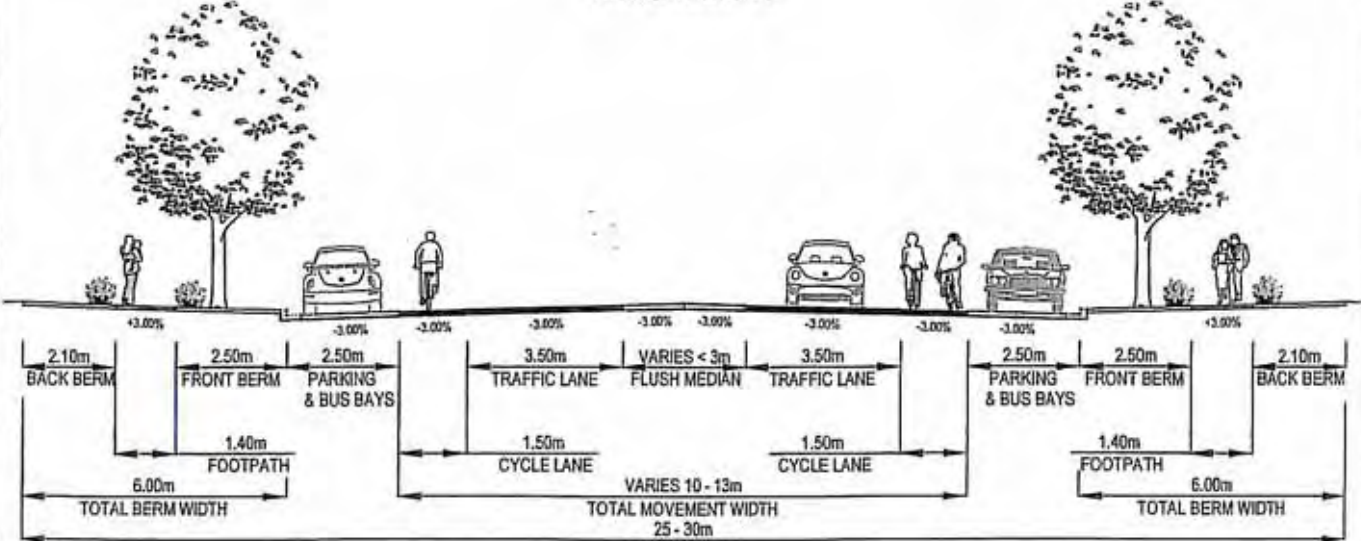
### TYPICAL CROSS SECTIONS SHEET 1

DATE: AUGUST 2010

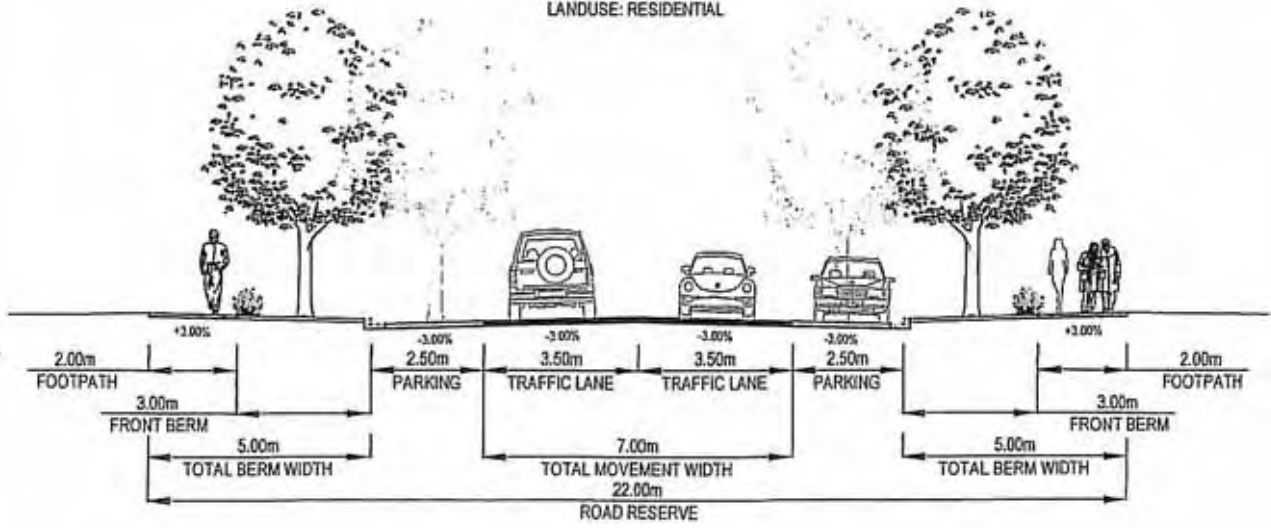
No: R33



**A4: COLLECTOR**  
LANDUSE: RESIDENTIAL



**A5: ARTERIAL**  
LANDUSE: RESIDENTIAL



**B1: LINK ROAD**  
LANDUSE: BUSINESS (INDUSTRIAL)

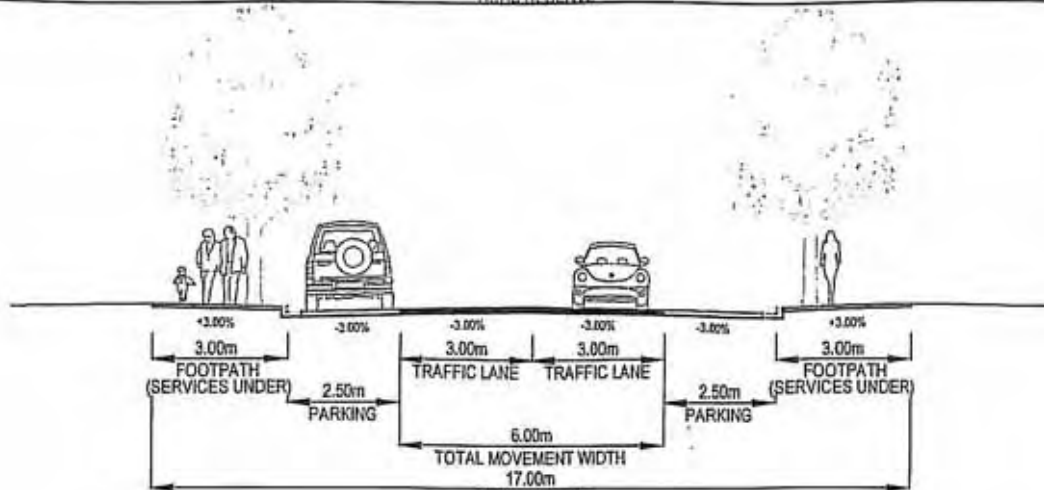


**STANDARD DETAIL**

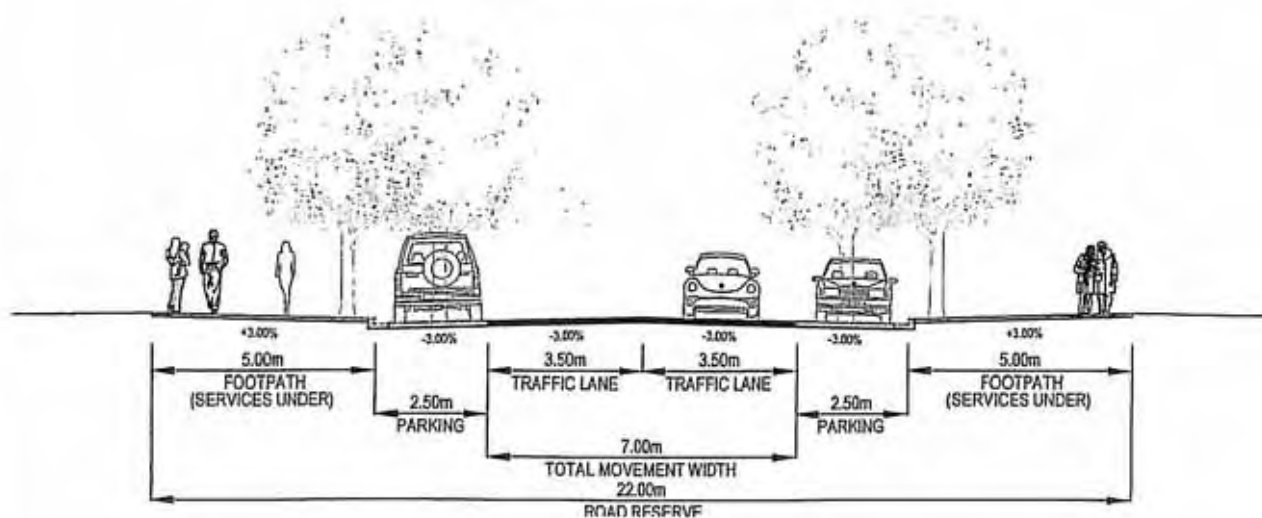
**TYPICAL CROSS SECTIONS  
SHEET 2**

DATE: AUGUST 2010  
No: R34

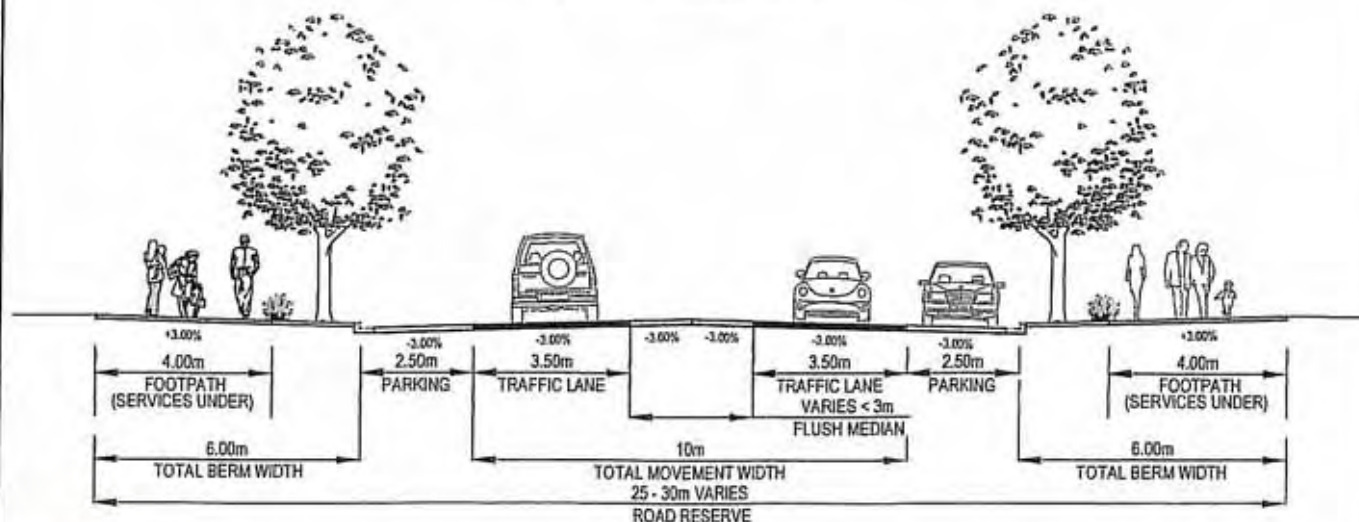




**C1: CUL-DE-SAC**  
LANDUSE: BUSINESS (COMMERCIAL)



**C2: LINK ROAD**  
LANDUSE: BUSINESS (COMMERCIAL)



**C3: COLLECTOR**  
LANDUSE: BUSINESS (COMMERCIAL)



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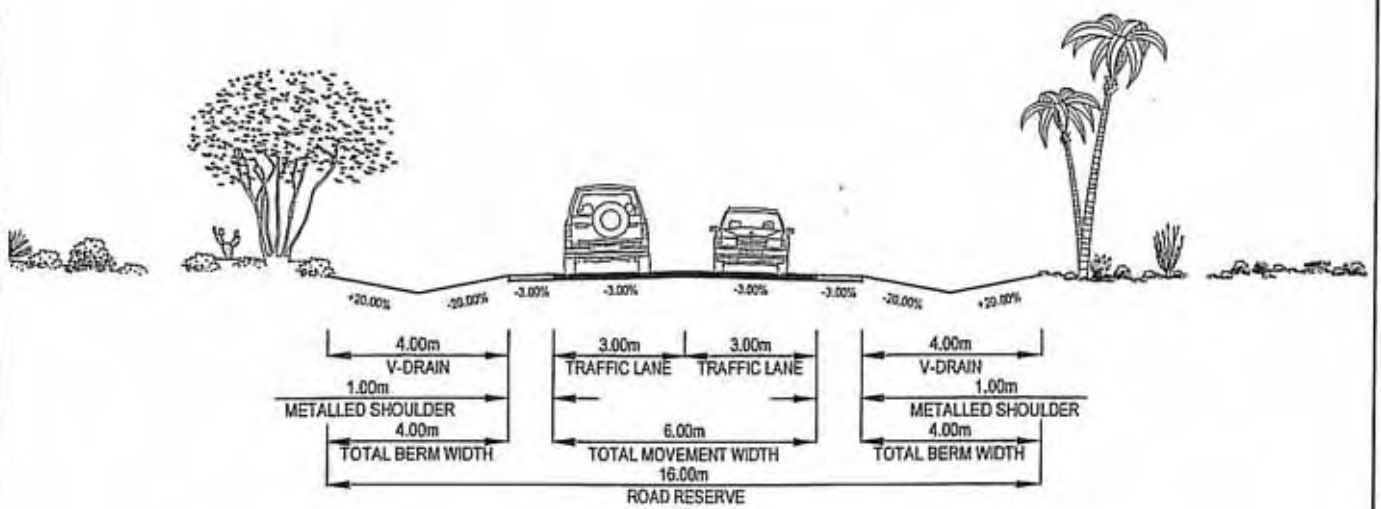
**STANDARD DETAIL**

**TYPICAL CROSS SECTIONS  
SHEET 3**

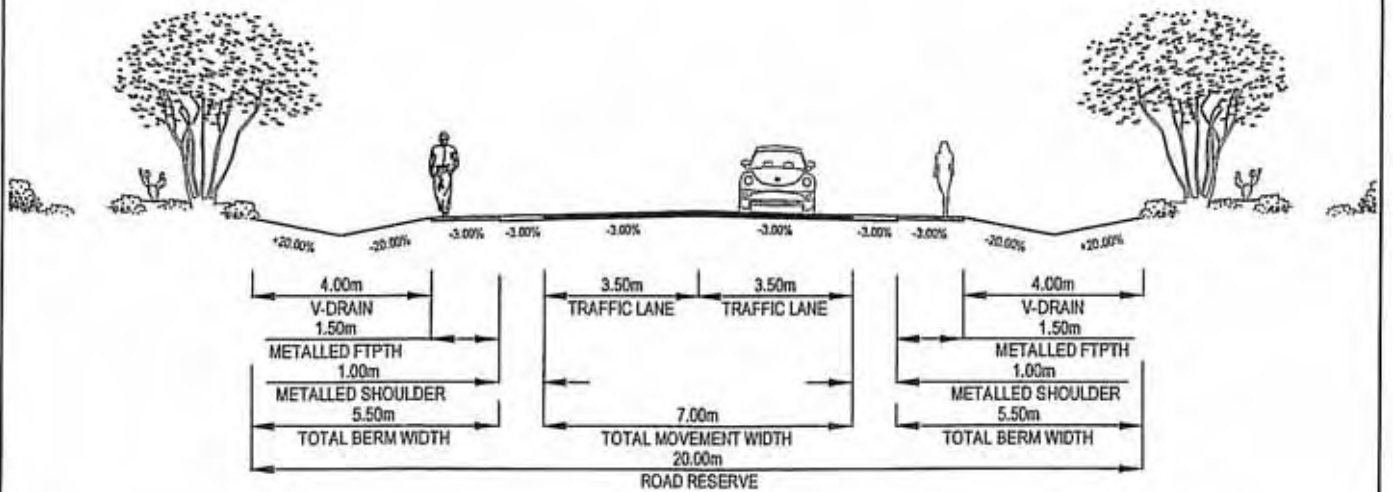
DATE: AUGUST 2010

No: R35





**D1: CUL-DE-SAC**  
LANDUSE: RURAL



**D2: LOCAL ROAD**  
LANDUSE: RURAL

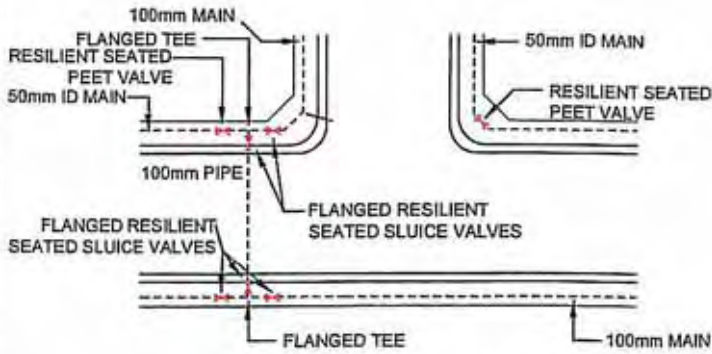


STANDARD DETAIL

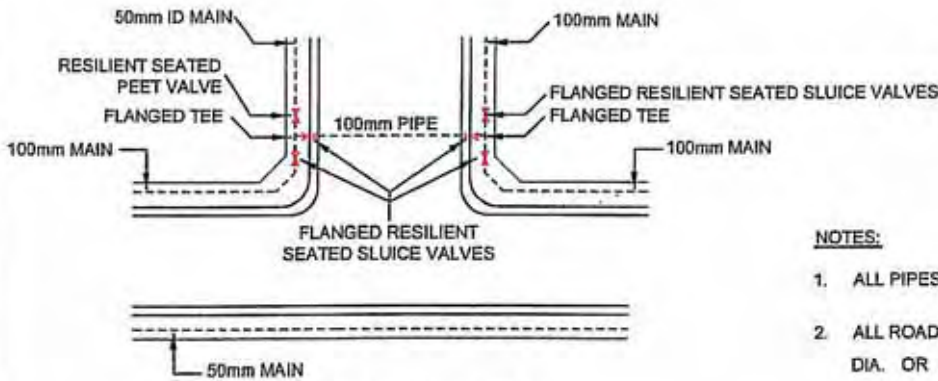
TYPICAL CROSS SECTIONS  
SHEET 4

DATE: AUGUST 2010

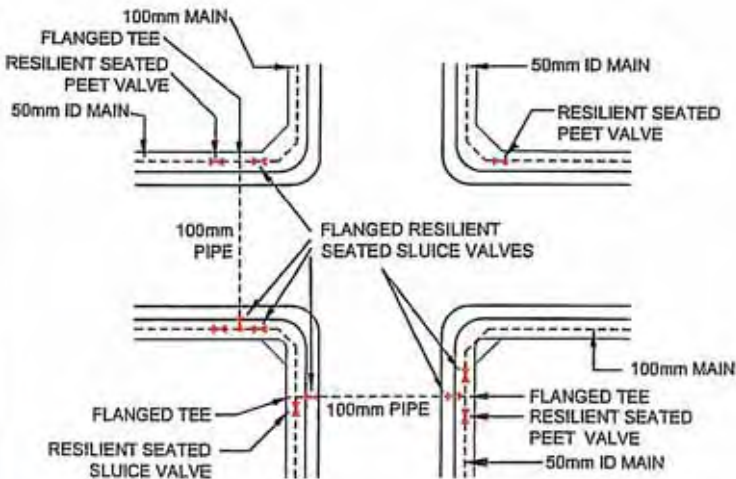
No: R36



**TEE INTERSECTION 1**



**TEE INTERSECTION 2**



**CROSS INTERSECTION**

**NOTES:**

1. ALL PIPES 1.4m FROM BOUNDARY.
2. ALL ROAD CROSSINGS SHALL BE 100mm DIA. OR LARGER EXTENDING FROM MAIN TO MAIN.
3. BENDS ARE TO BE LONG RADIUS BENDS OR FLANGED BENDS WITH FLANGE ADAPTORS.
4. ALL JOINTS IN STEEL PIPES UNDER ROADS TO BE EITHER FIELD WELD BANDS OR FLANGED JOINTS (WRAPPED IN APPROVED PROTECTIVE LAPS).
5. PVC PIPES MAY BE LAID UNDER ROAD BUT DEPTH SHALL BE INCREASED UNDER CARRIAGEWAY TO 900mm COVER.
6. THESE DETAILS APPLY TO 100mm AND 150mm ID. PRINCIPAL MAINS - LARGER DIA. MAINS SHALL GENERALLY PASS STRAIGHT THROUGH INTERSECTIONS.



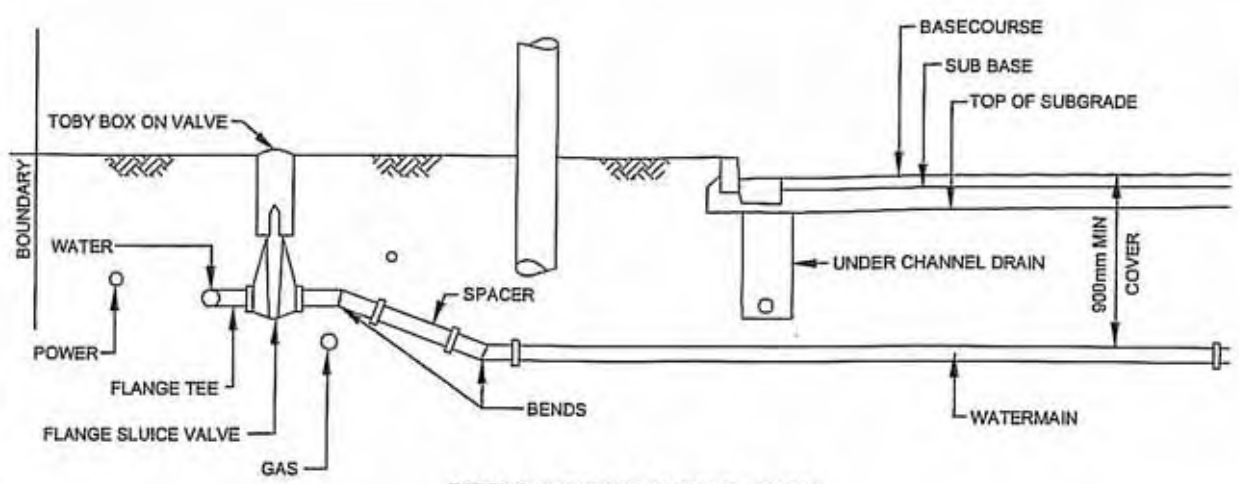
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

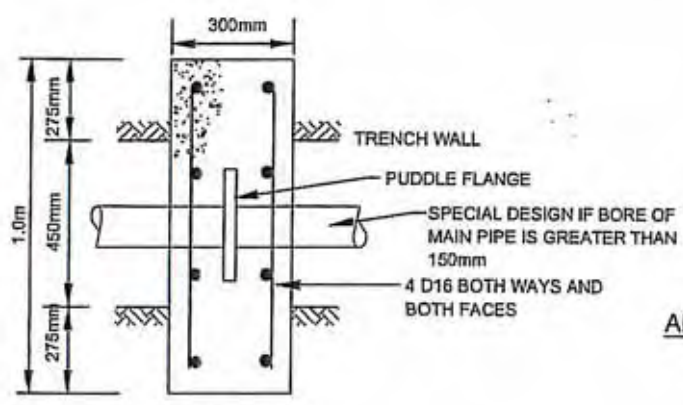
**WATERMAIN LOCATIONS  
AT INTERSECTIONS**

DATE: AUGUST 2010

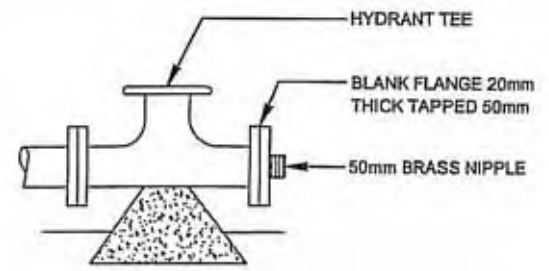
No: W 1



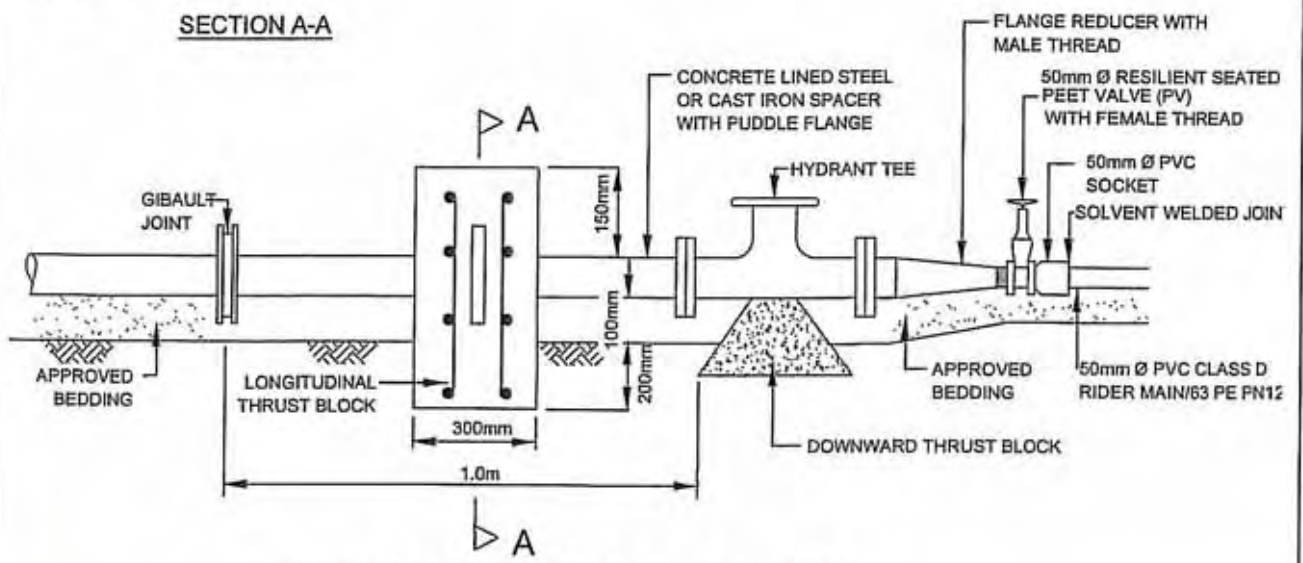
**PIPE CROSSING UNDER ROAD**



**SECTION A-A**



**ALTERNATIVE TO A FLANGED REDUCER**



**TYPICAL REDUCTION TO A 50mm RIDER MAIN**

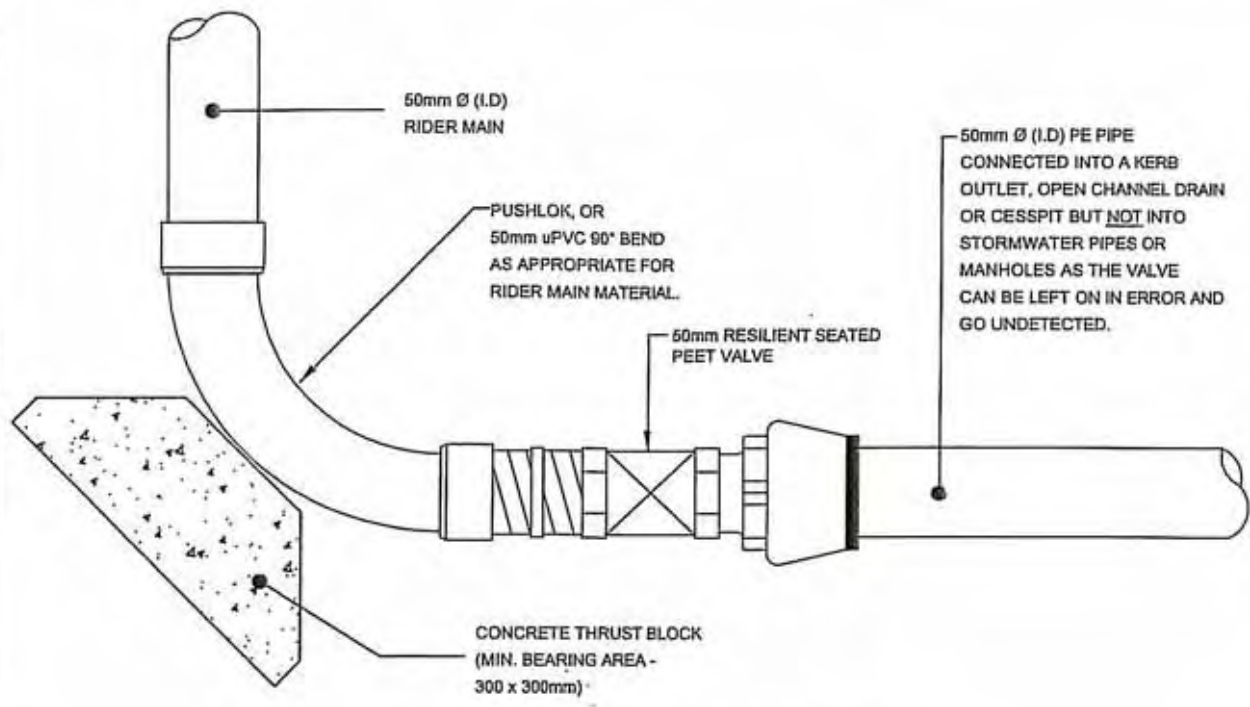


**STANDARD DETAIL**

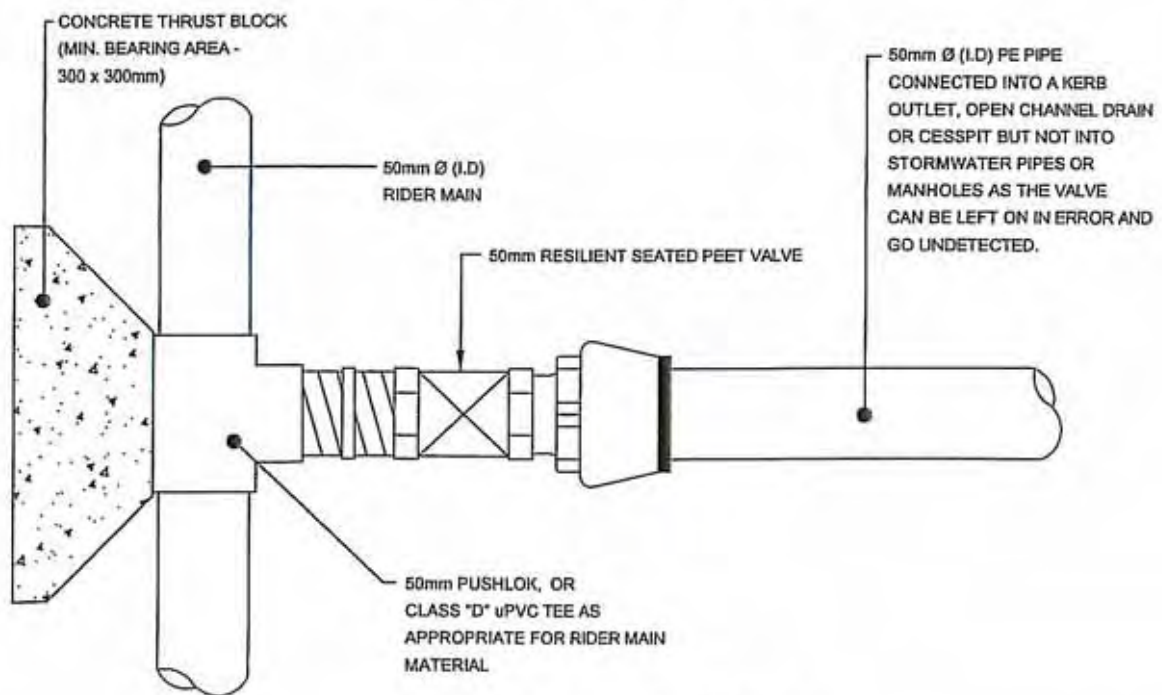
**PRINCIPAL MAIN TO RIDER MAIN CONNECTIONS**

DATE: AUGUST 2010  
 No: W 2





**DEAD END SCOUR VALVE DETAIL**



**ON LINE SCOUR VALVE DETAIL**

**NOTES:**

1. GATE VALVE TO BE KEPT CLOSED AND POST, KERB LID ETC. TO BE PAINTED RED.
2. VALVE TO BE LABELLED AS "SCOUR VALVE - KEEP CLOSED" ON ALL PLANS.

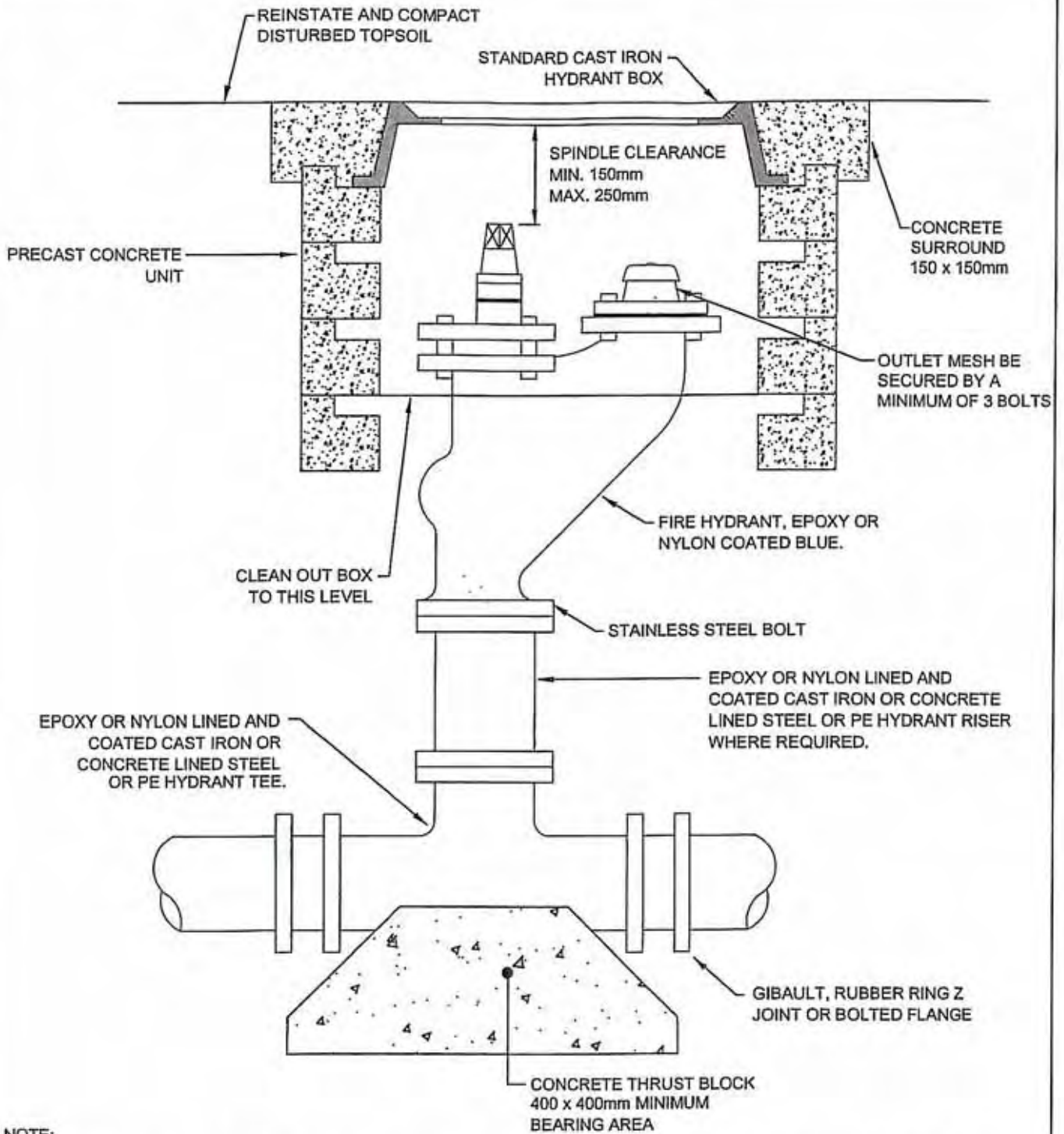


**STANDARD DETAIL**

**SCOUR VALVE DETAIL FOR  
50mm DIA RIDERMAINS**

DATE: AUGUST 2010

No: W 3



**NOTE:**

1. FIRE HYDRANTS SHALL BE TALL OR MEDIUM PATTERN CLOCKWISE CLOSING IN ACCORDANCE WITH NZS/BS 750:1984.
2. THRUST BLOCKS TO BE CONSTRUCTED USING 20 MPa CONCRETE.
3. CONCRETE LINED STEEL FITTINGS MUST BE WRAPPED WITH AN APPROVED FORM OF PROTECTIVE COATING.
4. HYDRANT MARKINGS SHALL BE AS PER STANDARD DETAIL W7.
5. HEAVY DUTY LIDS TO BE USED IN ALL TRAFFICKED AREAS.
6. IN BERM AREAS POLYETHYLENE FIRE HYDRANT BOXES MAY BE USED.
7. ALL BOLTS USED ON GIBALTS OR FLANGE MUST BE 316 STAINLESS STEEL AND WRAPPED IN DENSO TAPE



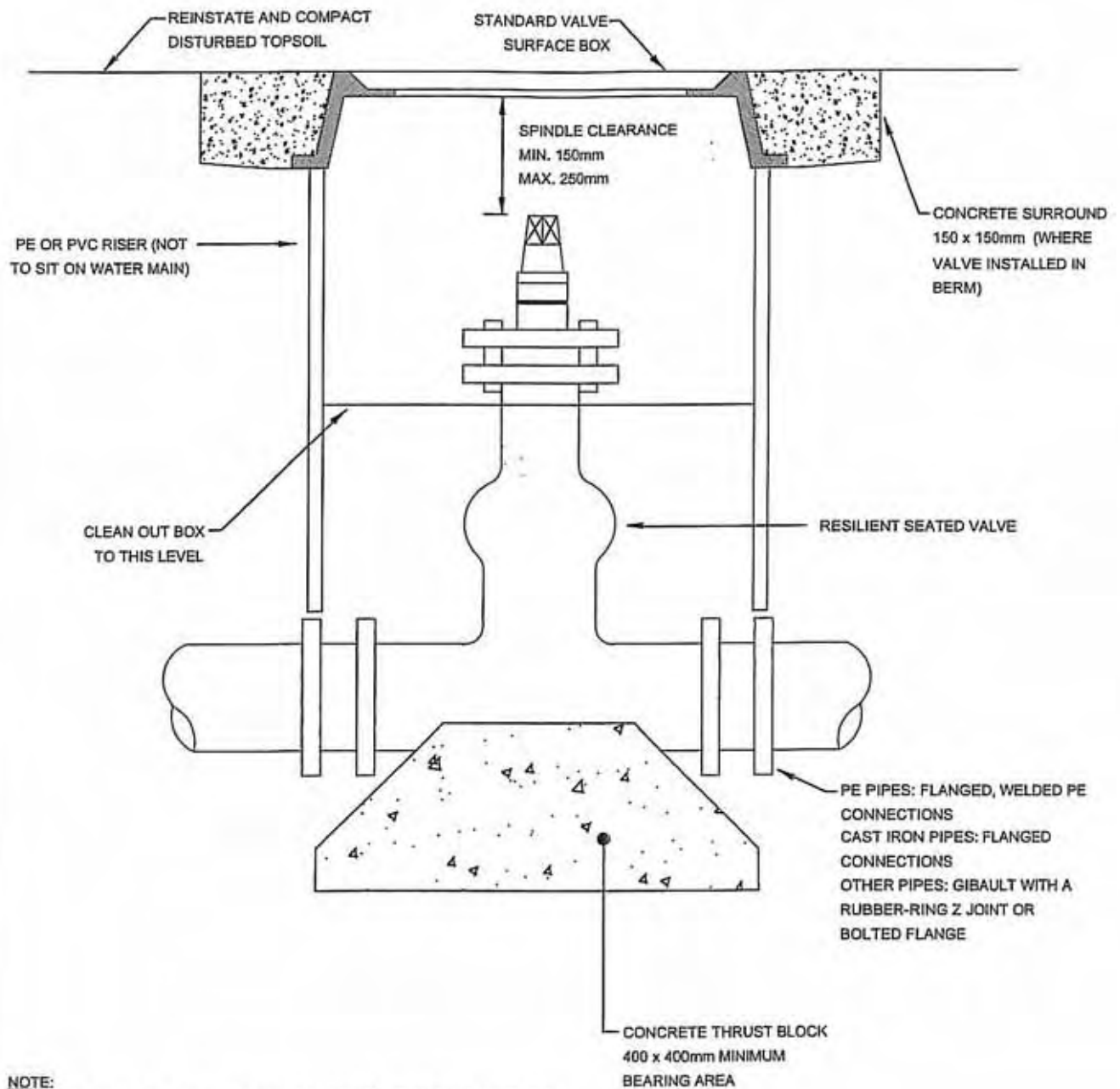
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

**STANDARD FIRE HYDRANT  
INSTALLATION**

DATE: DEC 1999

No: W 4



**NOTE:**

1. VALVES SHALL BE ANTI-CLOCKWISE CLOSING WITH NON - RISING STEM
2. VALVES TO BE CLASS 1 CONFORMING TO BS 5163 & PN 16.
3. THRUST BLOCKS TO BE CONSTRUCTED USING 17.5 MPa CONCRETE.
4. CONCRETE LINED STEEL FITTINGS MUST BE WRAPPED WITH AN APPROVED FORM OF PROTECTIVE COATING.
5. HEAVY DUTY LIDS TO BE USED IN ALL TRAFFICKED AREAS.
6. ALL BOLTS USED ON GIBALTS OR FLANGE MUST BE 316 STAINLESS STEEL AND WRAPPED IN DENSO TAPE
7. ALL VALVE SURFACES TO BE EPOXY OR THERMAL BONDED POLYMER COATED
8. VALVE SPINDLE DEEPER THAN 650mm SHALL HAVE A FIXED SPINDLE EXTENSION



**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

**STANDARD VALVE  
INSTALLATION**

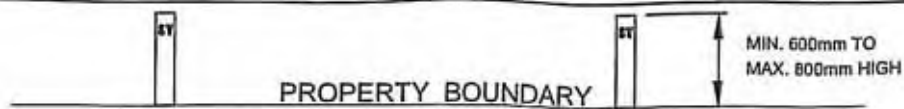
DATE:

AUGUST 2010

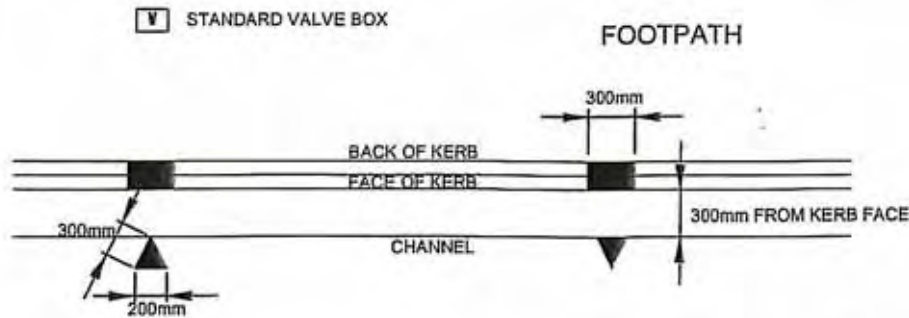
No:

W 5





**V** STANDARD VALVE BOX  
150mm CONCRETE SURROUND



**V** STANDARD VALVE BOX

FOOTPATH

THE LETTER 'V' MUST BE CUT INTO TOP OF KERB WITH POINT OF 'V' POINTING TOWARDS VALVE

**SV** STANDARD RECTANGULAR VALVE BOX IN ROAD

VALVE MARKINGS - RURAL AREAS

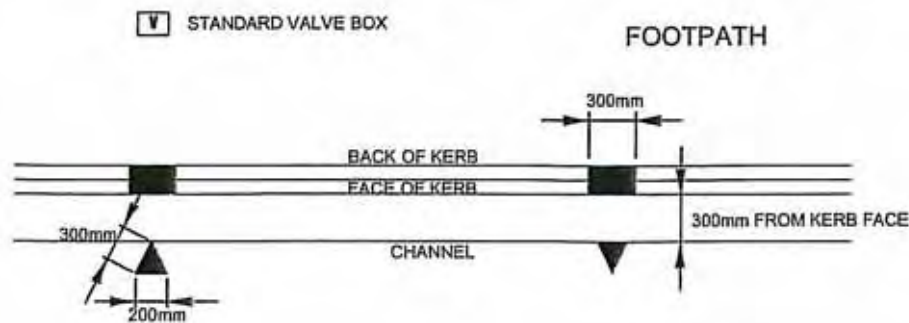
MARKER POST MAY BE OMITTED IF VALVE BOX IS IN SEALED FOOTPATH - AS DIRECTED BY ENGINEER.

PAINT USED FOR ALL MARKINGS SHALL BE NZTA 'ROAD MARKING PAINT' AS FOLLOWS:

- HYDRANTS - YELLOW PROTECTIVE PAINTS LTD.- WAY CODE 880-403 OR RESENE M7-W
- VALVES (PV, SV) - WHITE PROTECTIVE PAINTS LTD.- WAY CODE 885-703
- AV'S AND SPECIAL CONTROL VALVES (SHUT) - RED/BROWN PROTECTIVE PAINTS LTD.- WAY CODE 885-620

PROPERTY BOUNDARY

**V** STANDARD VALVE BOX  
150mm CONCRETE SURROUND



**V** STANDARD VALVE BOX

FOOTPATH

'V' ON LID TO ALIGN WITH DIRECTION OF MAIN

**SV** STANDARD RECTANGULAR VALVE BOX IN ROAD

VALVE MARKINGS - URBAN AREAS

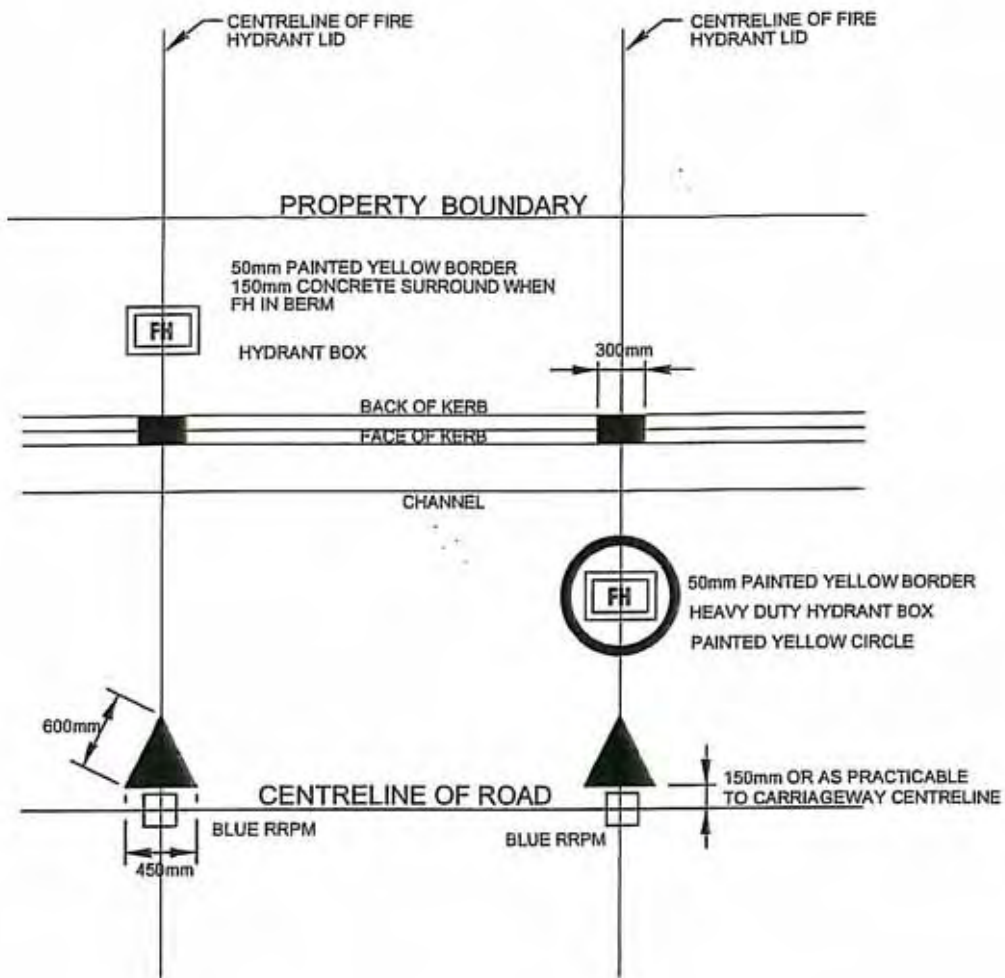


STANDARD DETAIL

DATE: AUGUST 2010

VALVE MARKING

No: W 6



**NOTES:**

1. PAINT USED FOR ALL MARKINGS SHALL BE YELLOW NZTA 'ROAD MARKING PAINT'. (SEE ALSO W6)
2. THERMOPLASTIC YELLOW ISOCELES TRIANGLE MUST BE APPLIED TO CARRIAGEWAY
3. LETTER 'H' MUST BE CUT INTO TOP OF KERB



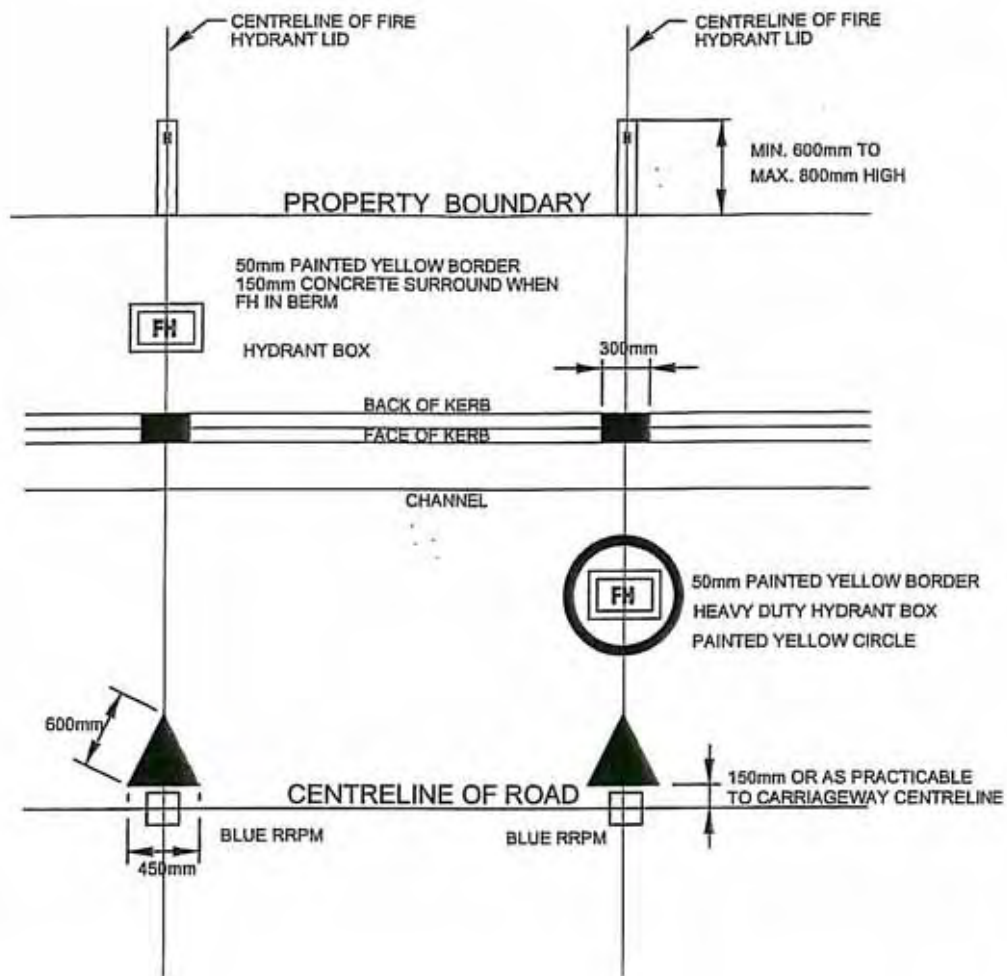
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

**HYDRANT MARKING  
- URBAN AREAS**

DATE: AUGUST 2010

No: W 7



**NOTES:**

1. PAINT USED FOR ALL MARKINGS SHALL BE YELLOW NZTA 'ROAD MARKING PAINT'. (SEE ALSO W6)
2. THERMOPLASTIC YELLOW ISOSCELES TRIANGLE MUST BE APPLIED TO CARRIAGEWAY
3. LETTER 'H' MUST BE CUT INTO TOP OF KERB
4. MARKER POST MAY BE OMITTED IF VALVE BOX IS SEALED IN FOOTPATH - AS DIRECTED BY ENGINEER



**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

**HYDRANT MARKING  
- RURAL AREAS**

DATE: AUGUST 2010

No: W 8



POLYETHYLENE REVERSE TAPER METER BOX, ALLOW MINIMUM OF 10mm CLEARANCE BETWEEN METER BOX AND ROTATING VALVE HANDLES

15mmØ KENT METER CLASS C

ACUFLO DIAPHRAGM VALVE

PUSH LOK CONNECTOR

GUNMETAL (LG2) FERRULE (OR PE FERRULE MAY BE USED ON PE MAINS ONLY)

PUSHLOK CONNECTOR

DUAL CHECK VALVE TO AS/NZS 2845.1

STD BRASS METER TAIL-PIECE

REDUCER

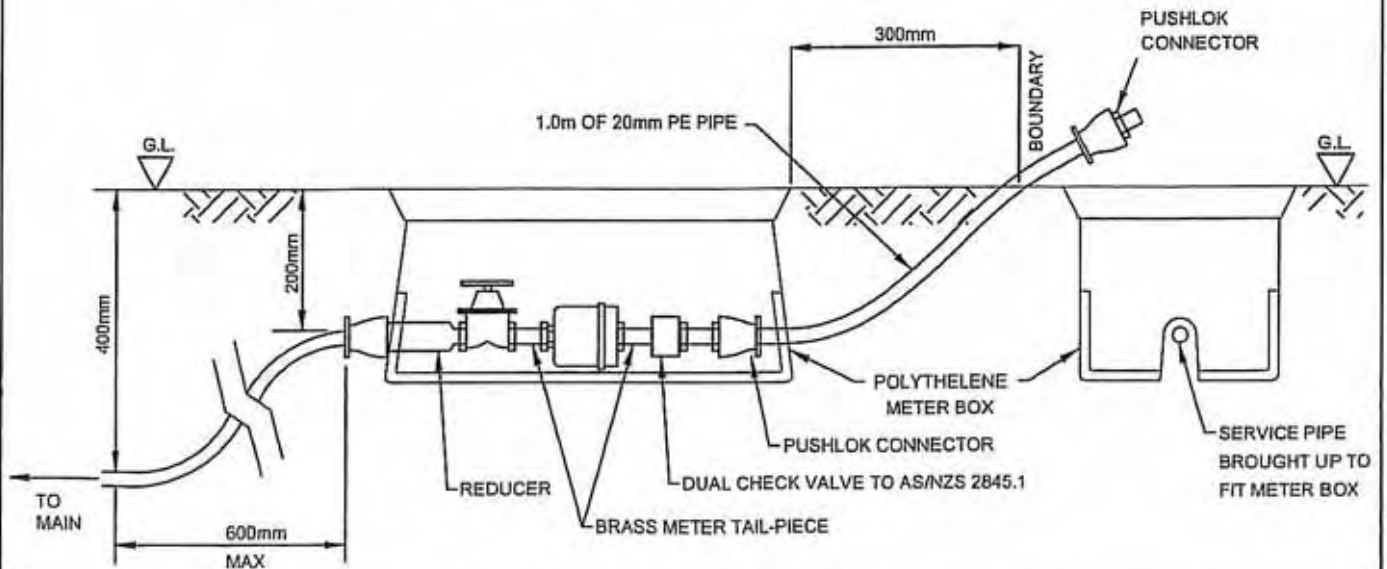
PUSHLOK CONNECTOR

20 OR 25 Ø (I.D) PE (BLUE) SERVICE PIPE MINIMUM COVER 400mm EXCEPT AT METER BOX WHERE THE COVER MAY BE REDUCED TO 200mm

PRINCIPAL OR RIDER MAIN

GUNMETAL (LG2) TAPPING BAND (OR PE TAPPING BAND MAY BE USED ON PE MAINS ONLY)

**NOTE:**  
THE DIAPHRAGM VALVE AND BACKFLOW PREVENTION DEVICE SHALL BE THE SAME DIAMETER AS THE WATER METER.



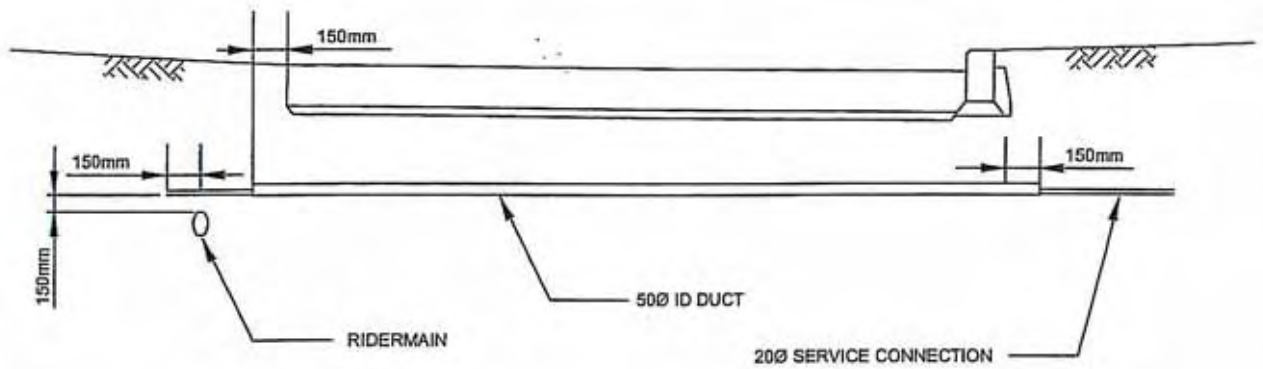
**Franklin**  
DISTRICT COUNCIL

## STANDARD DETAIL

## SERVICE CONNECTION INSTALLATION

DATE: AUGUST 2010

No: W 9



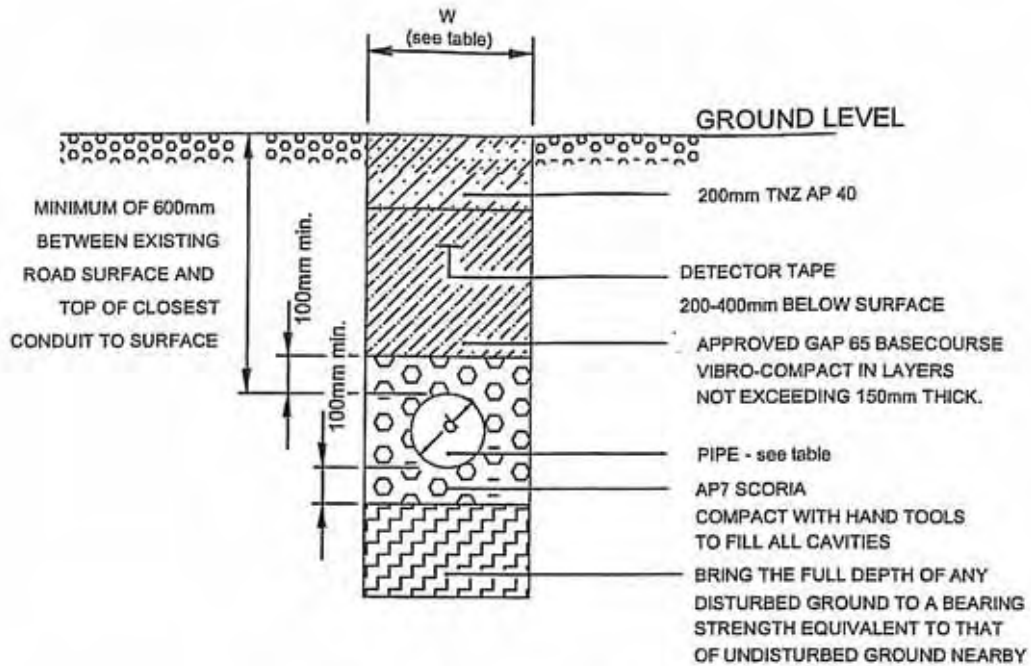
**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

DUCTED WATER CONNECTION

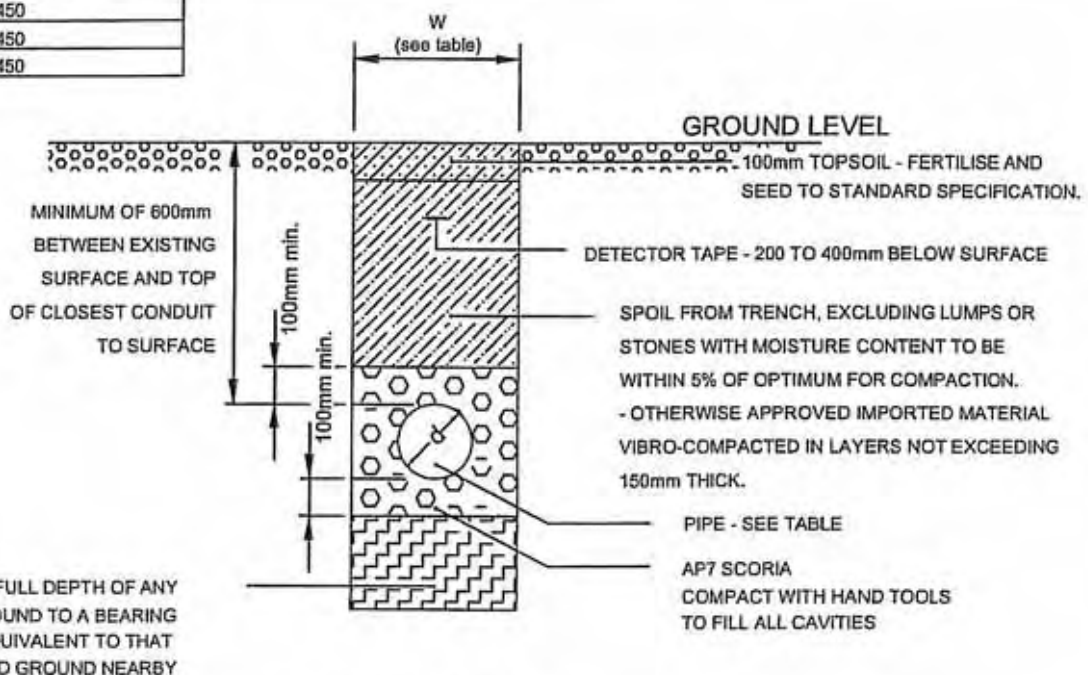
DATE: APRIL 2009

No: W 10



### METALLED SURFACE AREAS

PIPE Ø (D)	TRENCH WIDTH (W)
50	300
100	450
150	450
200	450



### GRASSED AREAS



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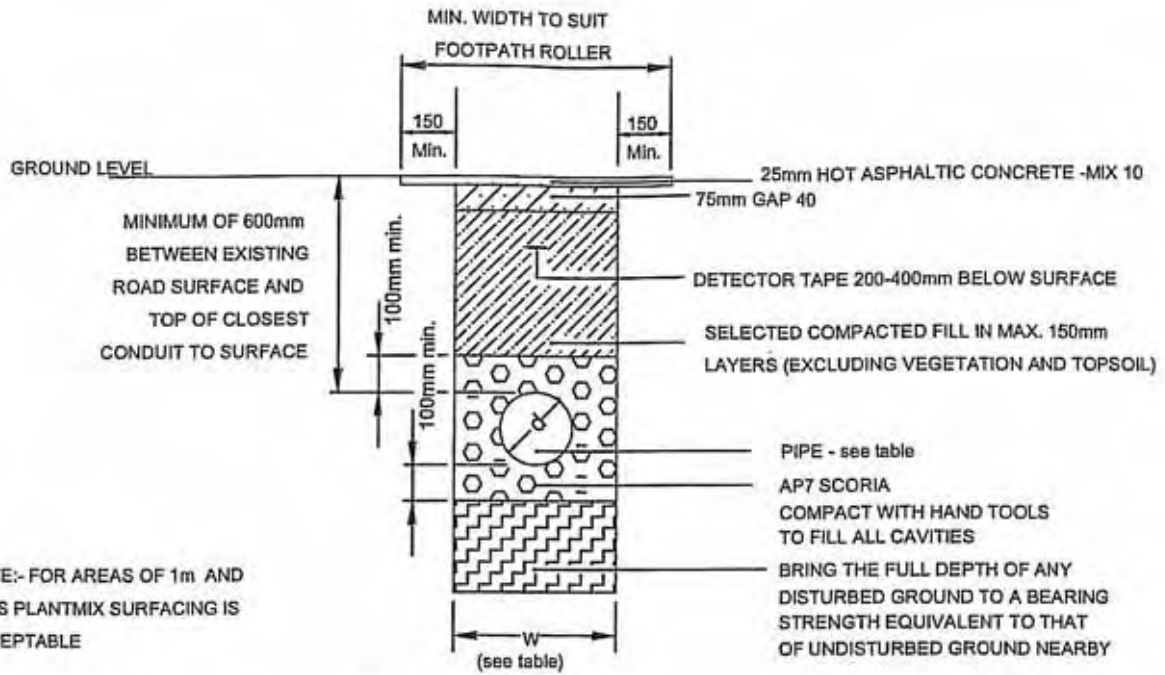
## STANDARD DETAIL

### REINSTATEMENT AND PIPE BEDDING DETAILS WITHIN ROAD BOUNDARIES, METALLED & GRASSED AREAS

DATE: APRIL 2009

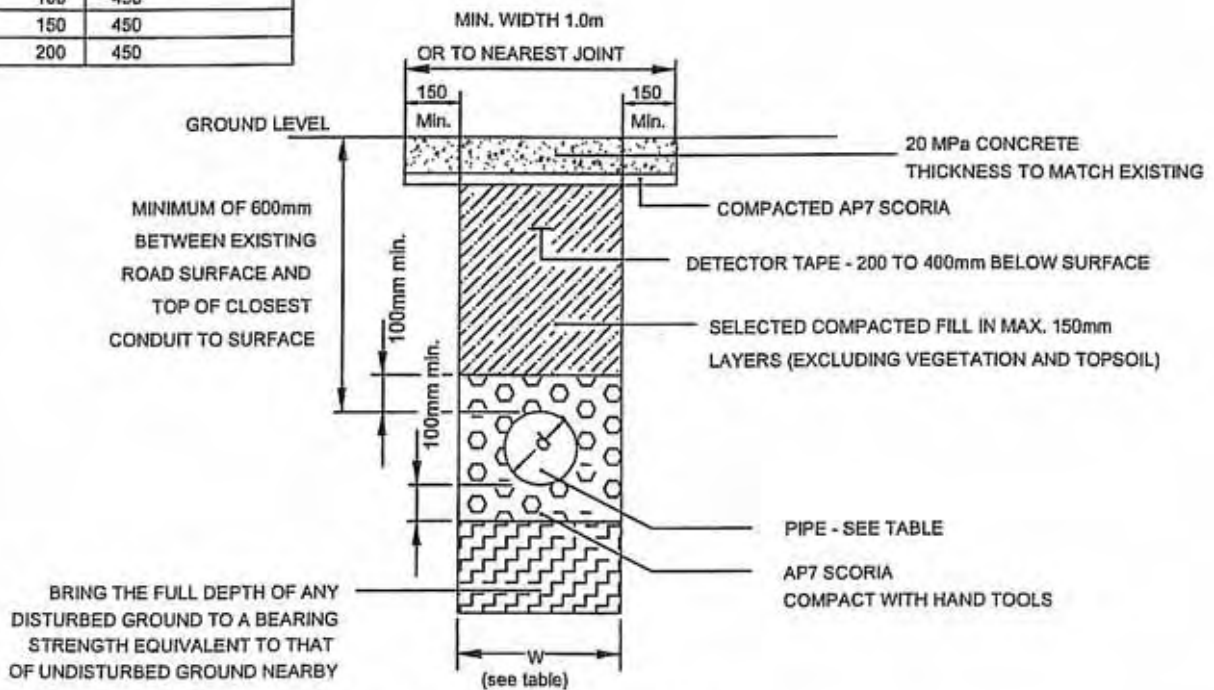
No: W 11





### HOTMIX FOOTPATHS

Pipe Ø (d)	Trench Width (W)
50	300
100	450
150	450
200	450



### CONCRETE FOOTPATHS



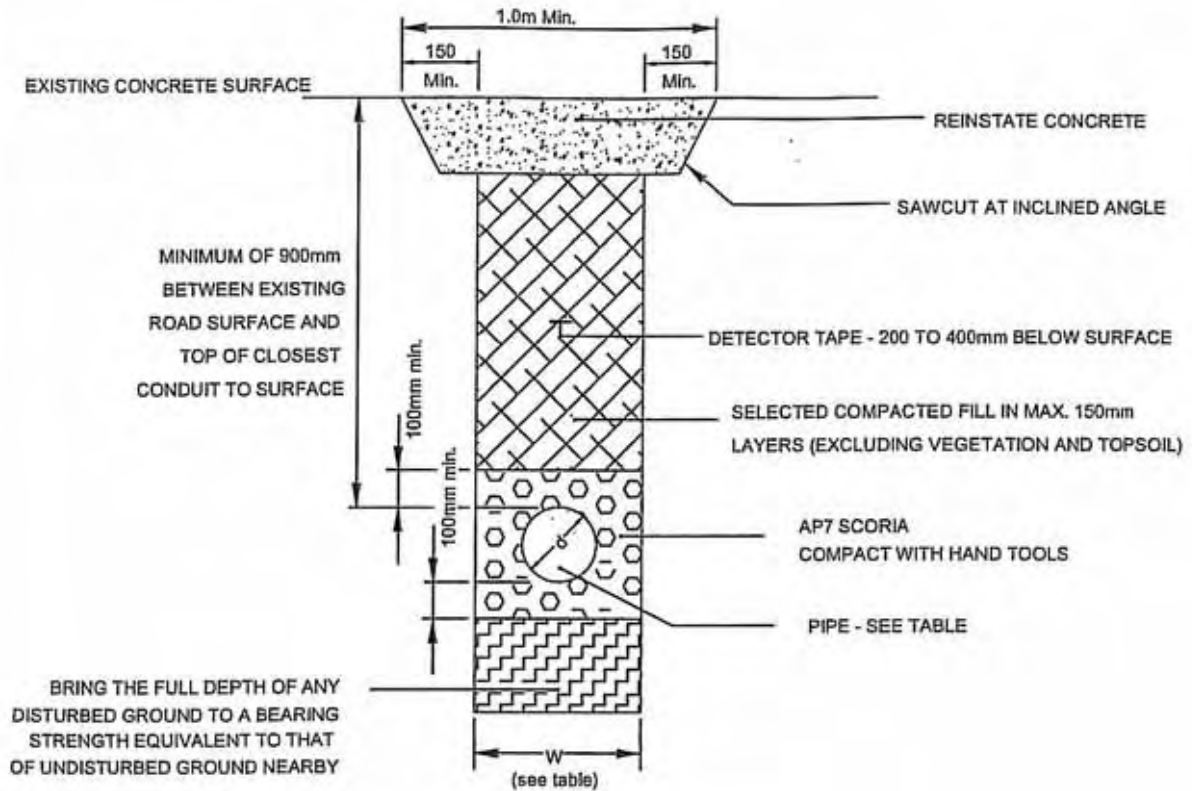
**Franklin**  
DISTRICT COUNCIL

## STANDARD DETAIL

REINSTATEMENT AND PIPE  
BEDDING DETAILS WITHIN ROAD  
BOUNDARIES. CONCRETE &  
HOTMIX FOOTPATHS.

DATE: APRIL 2009

No: W 12



**CONCRETE VEHICLE CROSSINGS**

PIPE Ø (D)	TRENCH WIDTH (W)
50	300
100	450
150	450
200	450



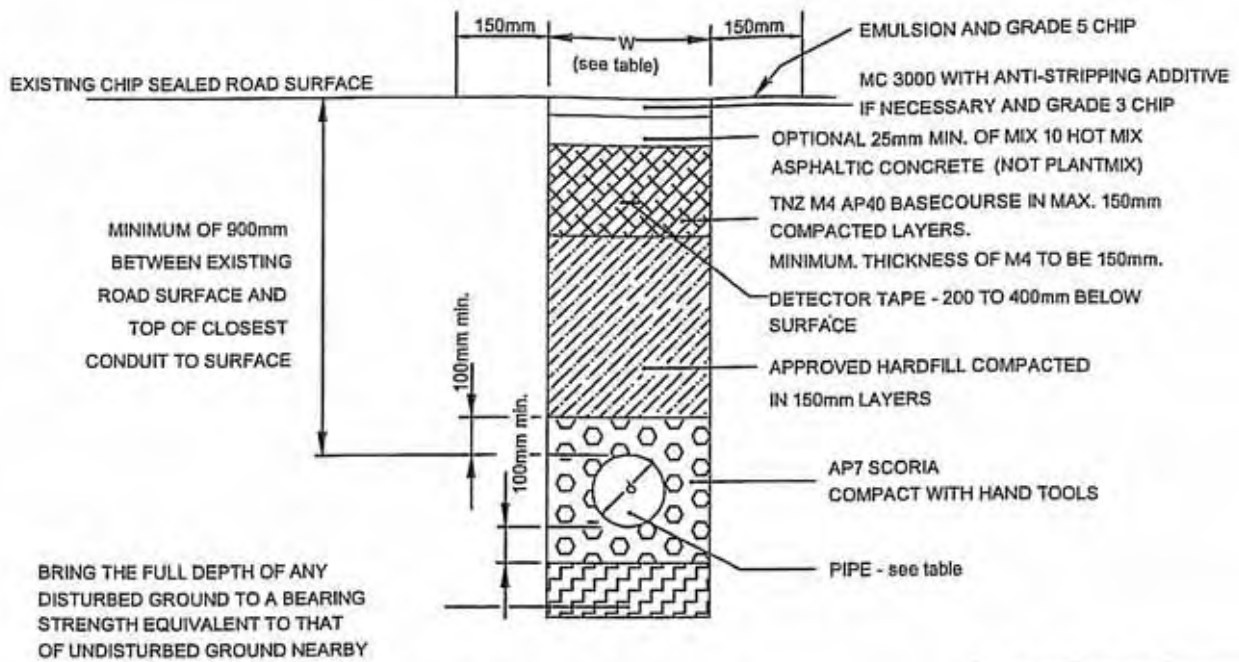
**STANDARD DETAIL**

**REINSTATEMENT AND PIPE  
BEDDING DETAILS - CONCRETE  
CARRIAGEWAYS AND VEHICLE  
CROSSINGS**

DATE: APRIL 2009

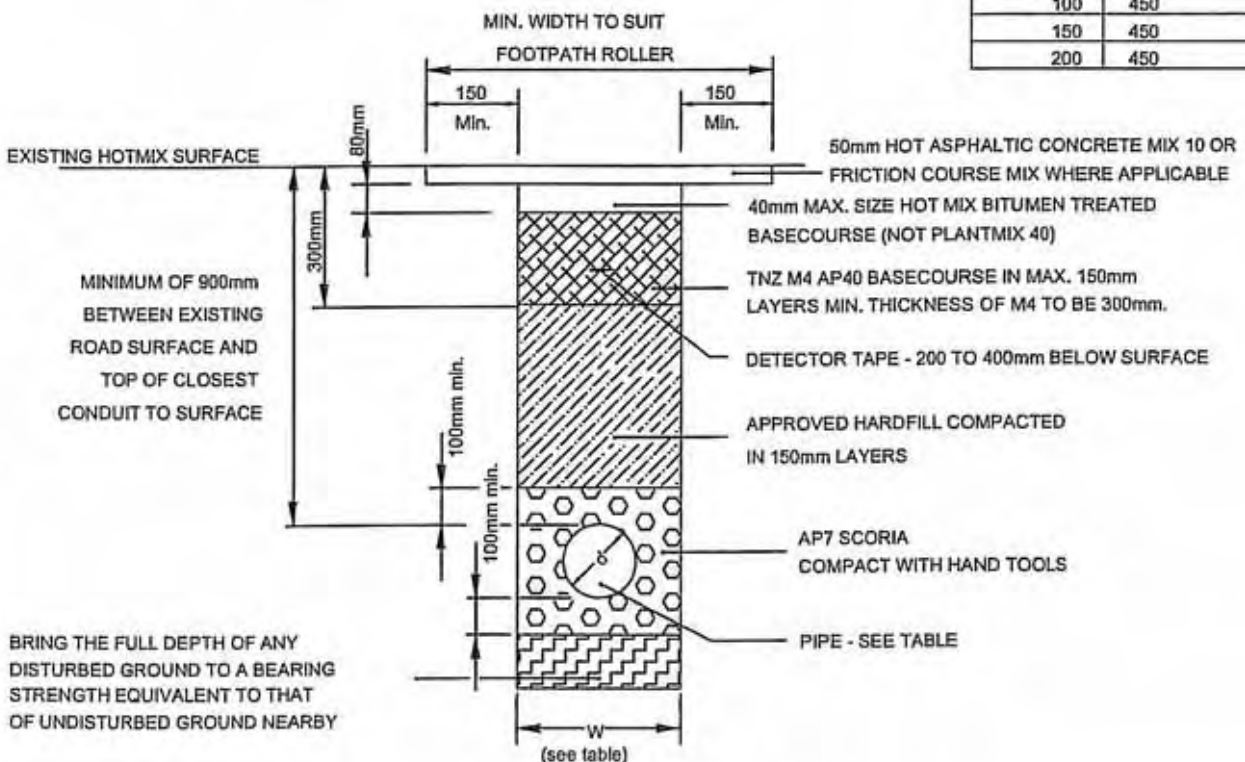
No: W 13





### CHIP SEALED CARRIAGEWAYS

PIPE Ø (D)	TRENCH WIDTH (W)
50	300
100	450
150	450
200	450



### HOTMIX CARRIAGEWAYS



## STANDARD DETAIL

### REINSTATEMENT AND PIPE BEDDING DETAILS: CHIP SEAL AND HOTMIX CARRIAGEWAYS.

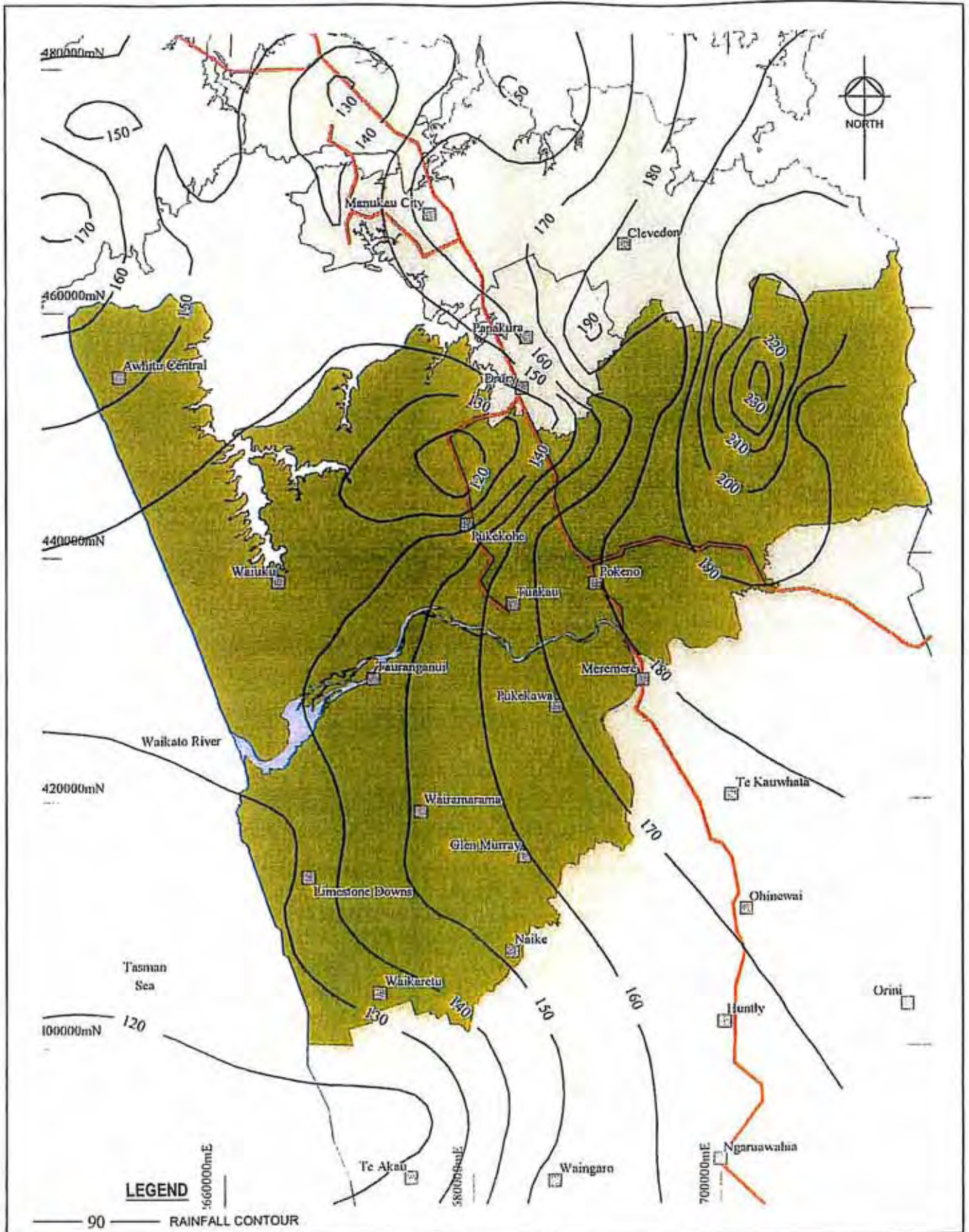
DATE: APRIL 2009

No: W 14









**Franklin**  
DISTRICT COUNCIL

## STANDARD DETAIL

DAILY RAINFALL DEPTH  
5% AEP

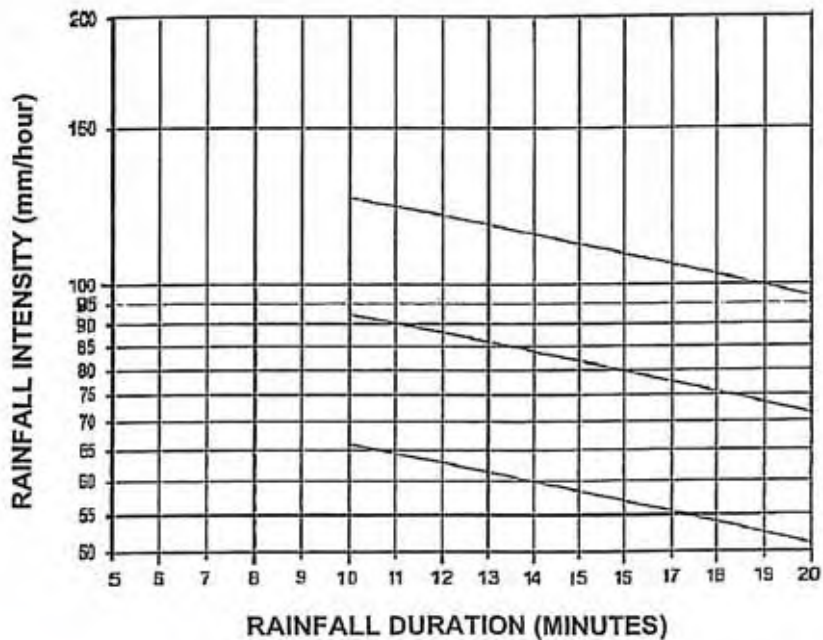
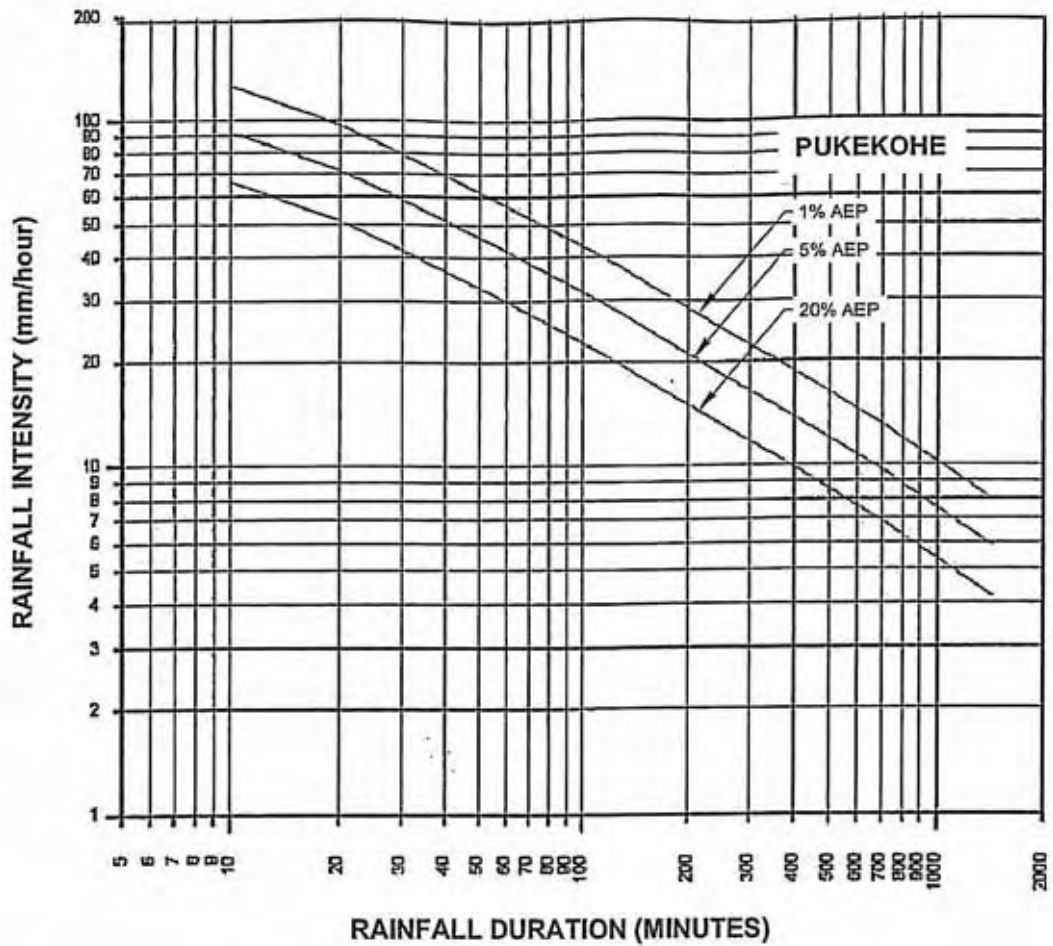
DATE: AUGUST 2010

No: SW 2









SOURCE:  
TP 108 RAINFALL STUDY  
BECA CARTER  
FEB 2000



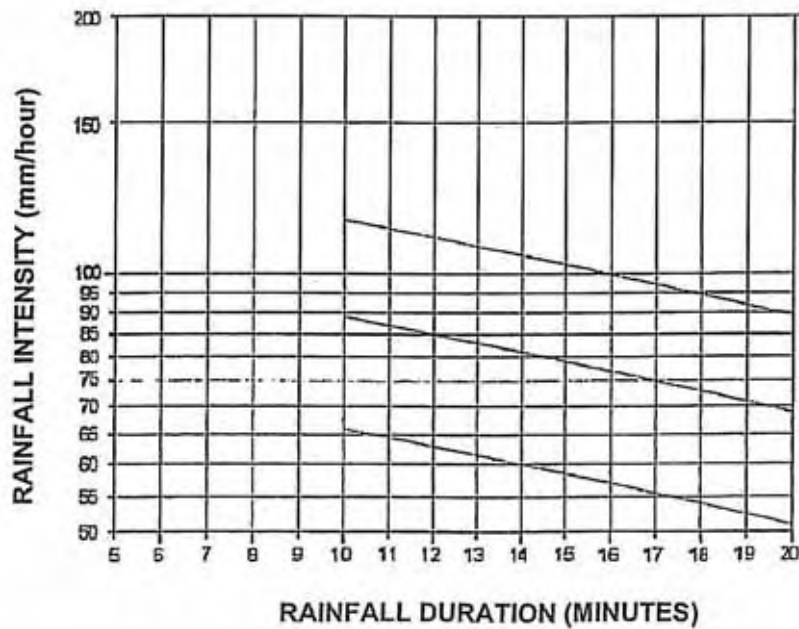
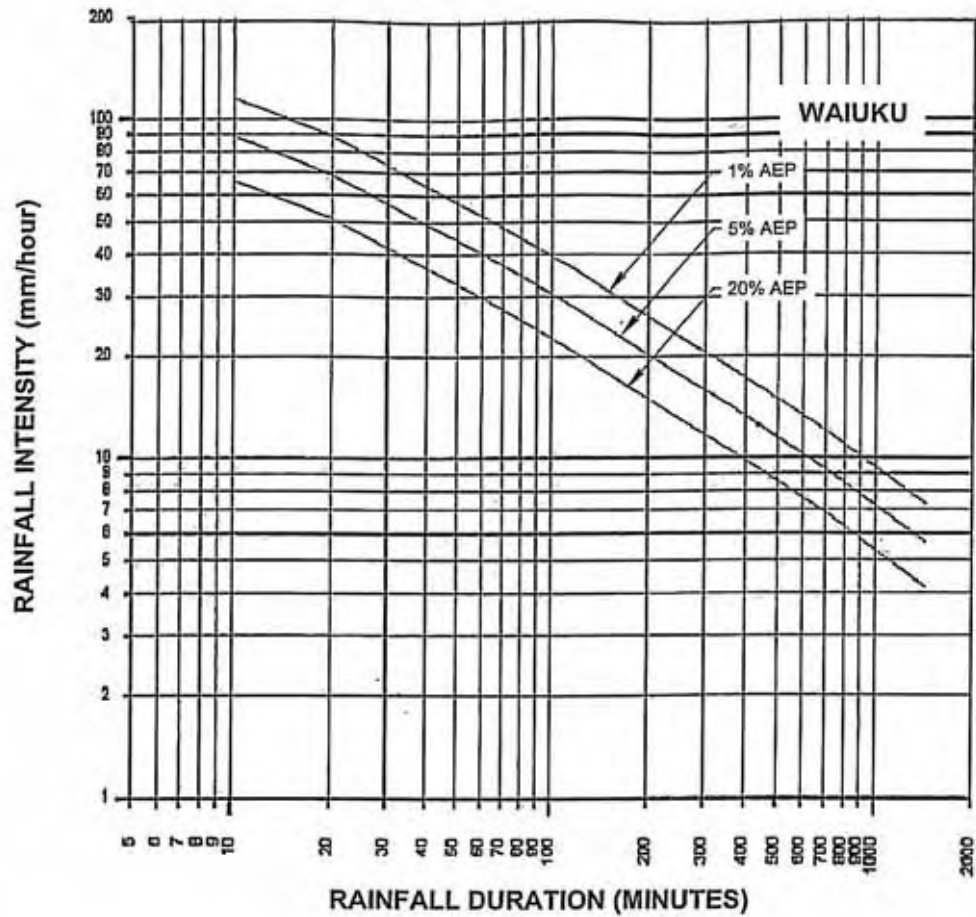
**Franklin**  
DISTRICT COUNCIL

## STANDARD DETAIL

### DESIGN RAINFALL CURVES PUKEKOHE

DATE: AUGUST 2010

No: SW4



SOURCE:  
TP 108 RAINFALL STUDY  
BECA CARTER  
FEB 2000

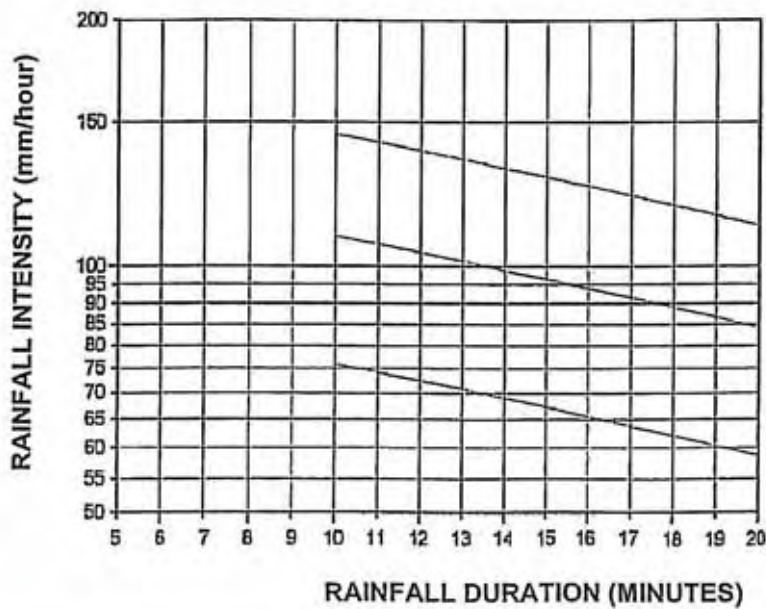
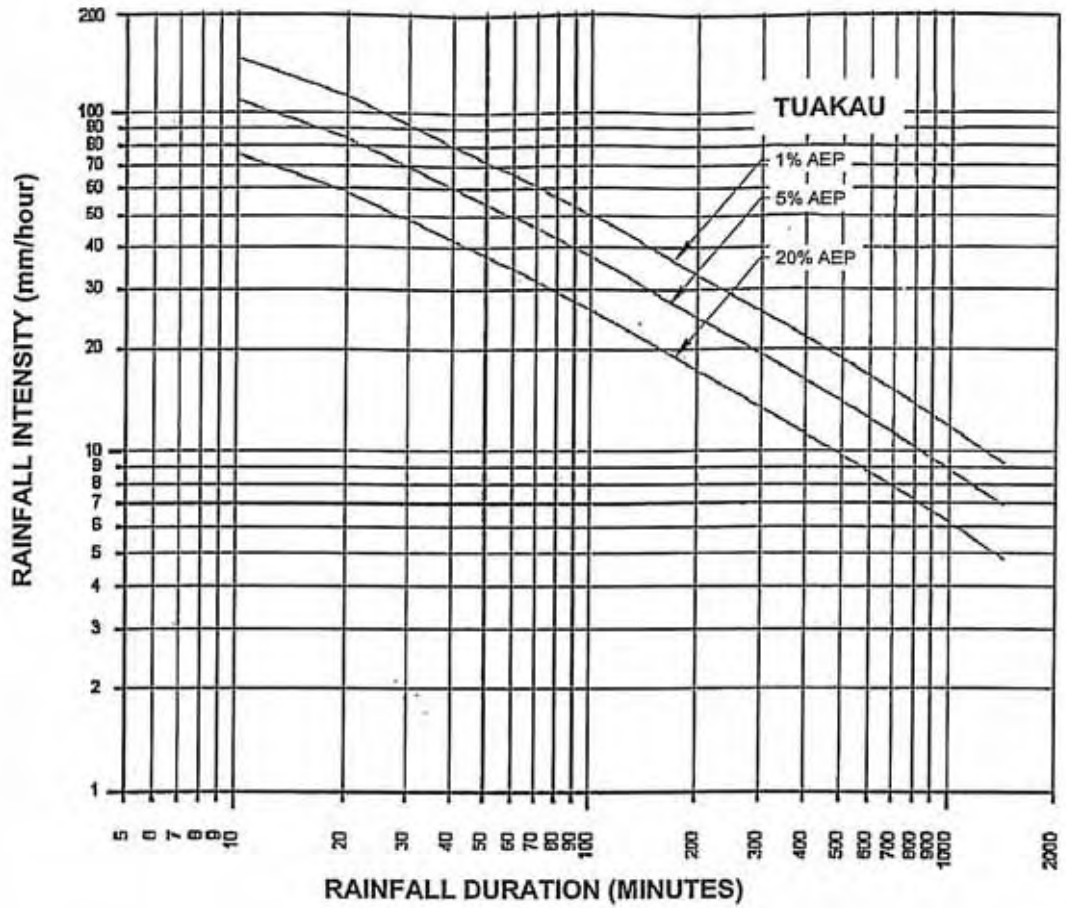


## STANDARD DETAIL

## DESIGN RAINFALL CURVES WAIUKU

DATE: AUGUST 2010

No: SW5



SOURCE:  
TP 106 RAINFALL STUDY  
BECA CARTER  
FEB 2000



**Franklin**  
DISTRICT COUNCIL

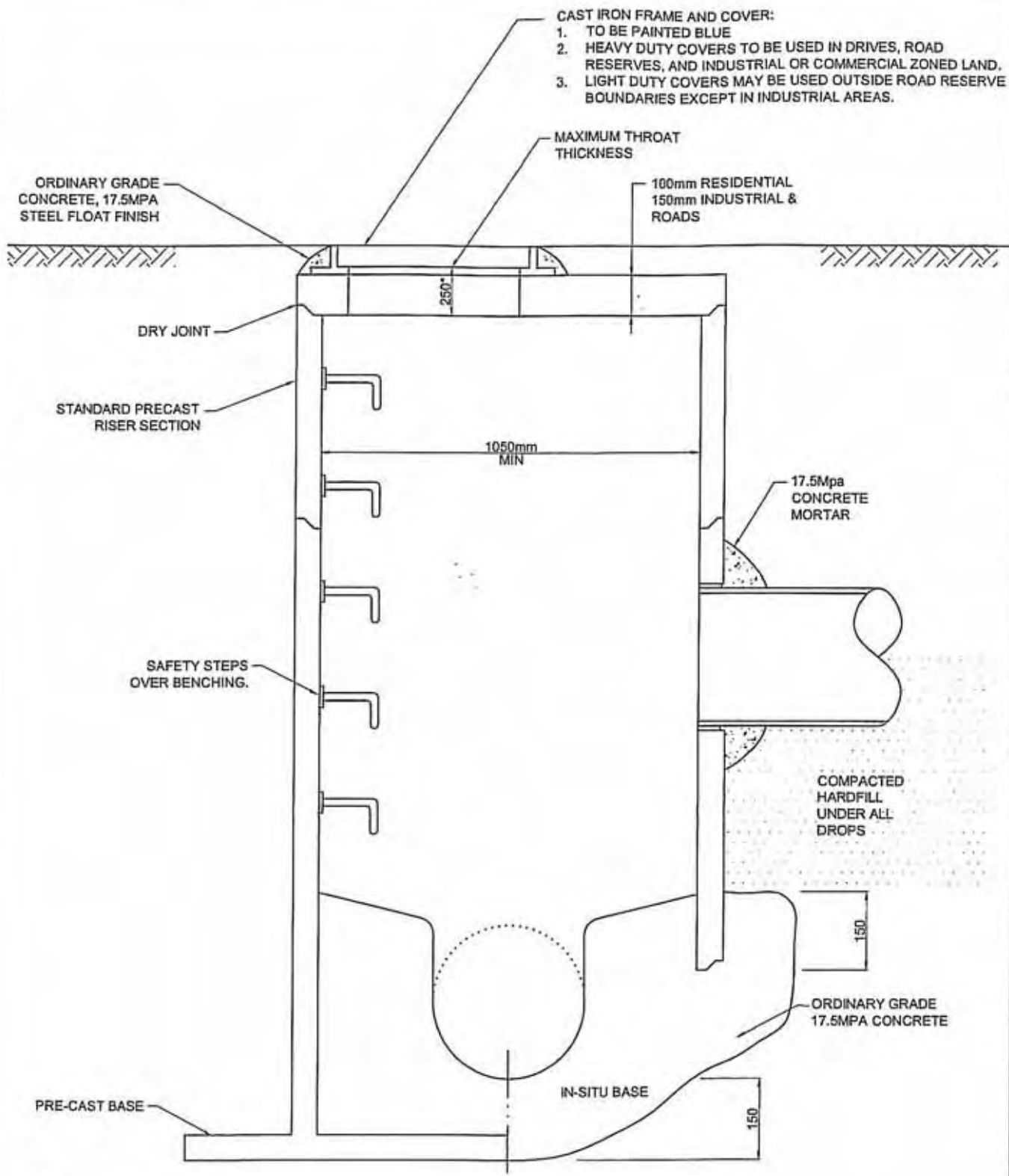
STANDARD DETAIL

DESIGN RAINFALL CURVES  
TUAKAU

DATE: AUGUST 2010

No: SW6





CAST IRON FRAME AND COVER:  
 1. TO BE PAINTED BLUE  
 2. HEAVY DUTY COVERS TO BE USED IN DRIVES, ROAD RESERVES, AND INDUSTRIAL OR COMMERCIAL ZONED LAND.  
 3. LIGHT DUTY COVERS MAY BE USED OUTSIDE ROAD RESERVE BOUNDARIES EXCEPT IN INDUSTRIAL AREAS.

ORDINARY GRADE CONCRETE, 17.5MPA STEEL FLOAT FINISH

100mm RESIDENTIAL  
 150mm INDUSTRIAL & ROADS

DRY JOINT

STANDARD PRECAST RISER SECTION

1050mm MIN

17.5Mpa CONCRETE MORTAR

SAFETY STEPS OVER BENCHING.

COMPACTED HARDFILL UNDER ALL DROPS

ORDINARY GRADE 17.5MPA CONCRETE

PRE-CAST BASE

IN-SITU BASE

NOTES:-

1. FOR PIPES GREATER THAN 600mm Dia, MANHOLES ARE TO BE SPECIFICALLY DESIGNED.
2. FOR PIPES 1200mm Dia & GREATER, MANHOLES TO BE FACTORY FABRICATED, BENDS WITH RISER OFF-TAKER.

\* MAY INCREASE TO 350 WITH HEAVY DUTY LIDS WHERE FIXED SURFACE LEVELS ARE TO BE MATCHED.



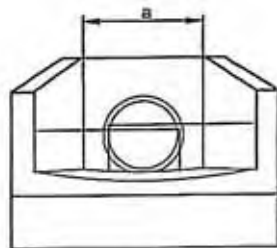
**Franklin**  
 DISTRICT COUNCIL

STANDARD DETAIL

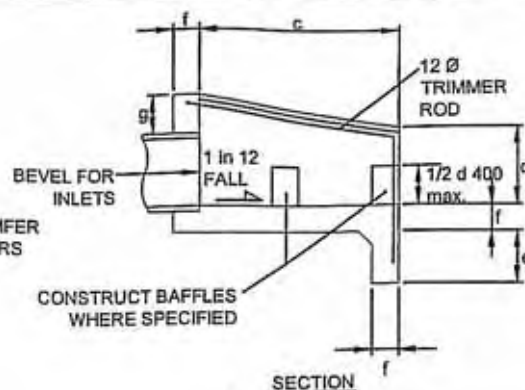
STORMWATER MANHOLE DETAILS

DATE: APRIL 2009

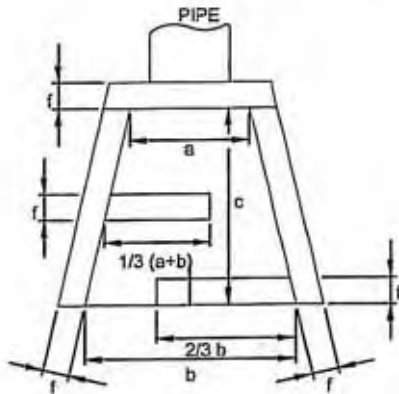
No: SW 11



END ELEVATION



SECTION

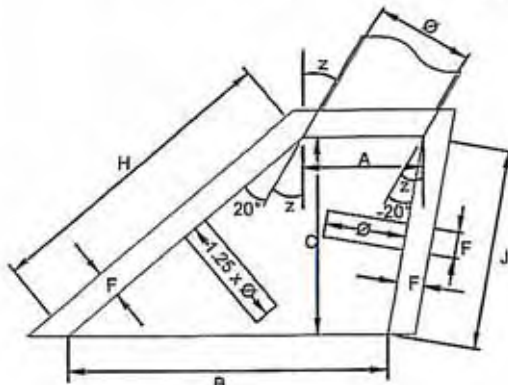


PLAN

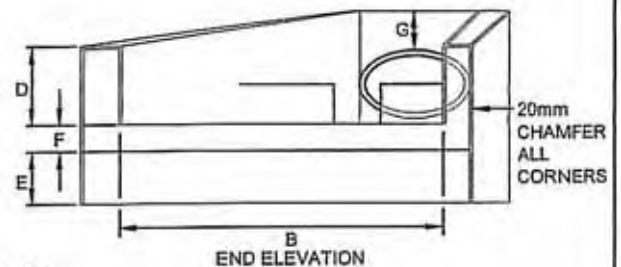
PRINCIPAL DIMENSIONS (mm)

Di. OF PIPE	a	b	c	d	e	f	g
150	300	450	600	200	150	100	150
230	380	600	700	250	200	100	150
300	450	750	750	300	200	100	150
375	550	900	850	350	200	100	150
450	630	1100	900	400	230	150	230
525	700	1200	1000	450	230	150	230
600	800	1400	1100	550	230	150	230
750	1000	1700	1200	600	300	150	300
900	1170	2000	1450	650	300	150	300
1050	1380	2300	1700	750	450	150	300
1200	1520	2600	2100	750	450	150	450
1350	1680	2800	2400	750	450	150	450

NORMAL STRUCTURE



PLAN



END ELEVATION

SKewed STRUCTURE

**NOTES:**

1. REINFORCED FLOOR & WALLS WITH: 150 - 375Ø 665 MESH; 600Ø 663 MESH OR 10mm Ø RODS @ 250mm CRS; 450 - 900Ø 12mm Ø RODS @ 250mm CRS; 675 - 1350Ø 12mm Ø RODS @ 150mm CRS 1050.
2. ALL REINFORCEMENT SHALL BE PLACED CENTRALLY IN WALLS AND FLOOR, AND SHALL BE CONTINUOUS BETWEEN WALLS AND FLOOR.
3. LAPS IN STRUCTURAL GRADE BARS TO BE 300mm MIN.
4. THERE SHALL BE AT LEAST TWO BARS - WHETHER MESH OR M.S. OVER TOP OF PIPE.
5. CONCRETE IS TO BE ORDINARY GRADE (20 MPa) IN ACCORDANCE WITH NZS 3109 AND NZS 3114.
6. BAFFLES ARE TO BE CONSTRUCTED AS SHOWN WHEN OUTLET VELOCITIES AND SOIL CONDITIONS DICTATE, IN EXTREME CASES SPECIFIC DESIGN MAY BE REQUIRED BY THE ENGINEER.
7. INLET STRUCTURES SHALL HAVE REVERSE APRON FALL AND NO BAFFLES.
8. FOR PIPE SIZES GREATER THAN 1350Ø, INLET AND OUTLET STRUCTURES SHALL BE SPECIFICALLY DESIGNED.

**PRINCIPAL DIMENSIONS**

- A. SEC (z x (a) IN THE TABLE ABOVE
- B. C X TAN (z + 20°) + (A-C TAN (z - 20°))
- C. SEE (c) TABLE ABOVE
- D. SEE (d) TABLE ABOVE
- E. SEE (e) TABLE ABOVE
- F. SEE (f) TABLE ABOVE
- G. SEE (g) TABLE ABOVE
- H. C x SEC (z + 20°)
- I. C x SEC (z - 20°)

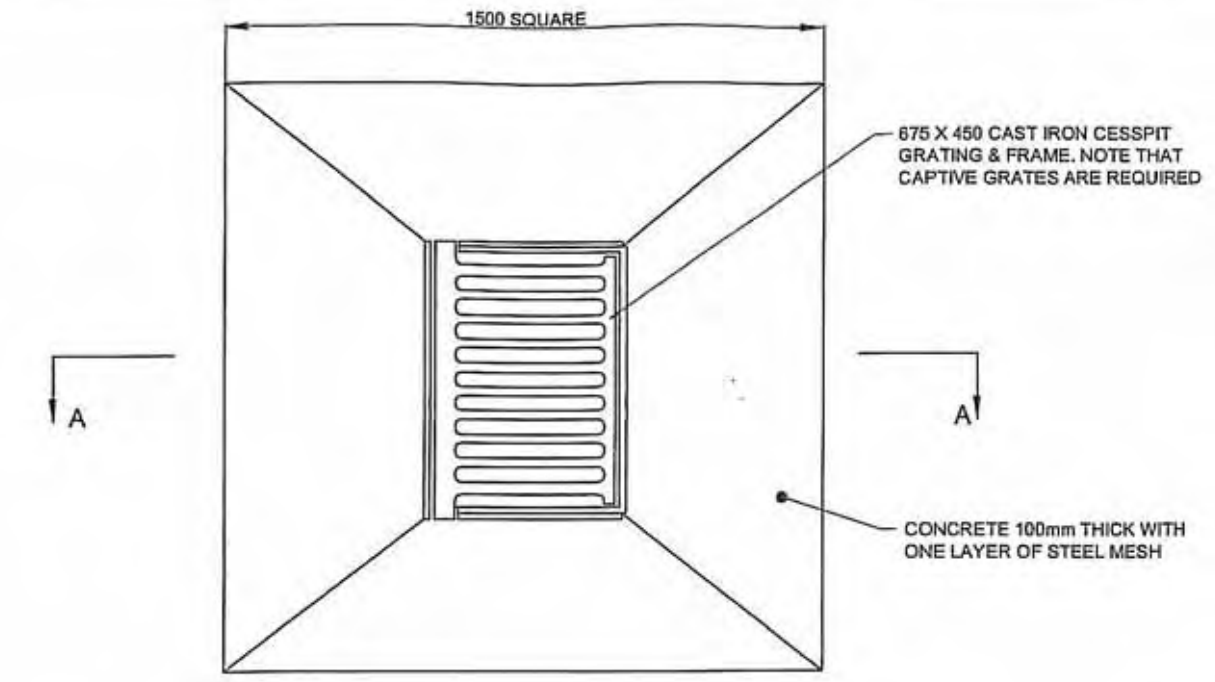


STANDARD DETAIL

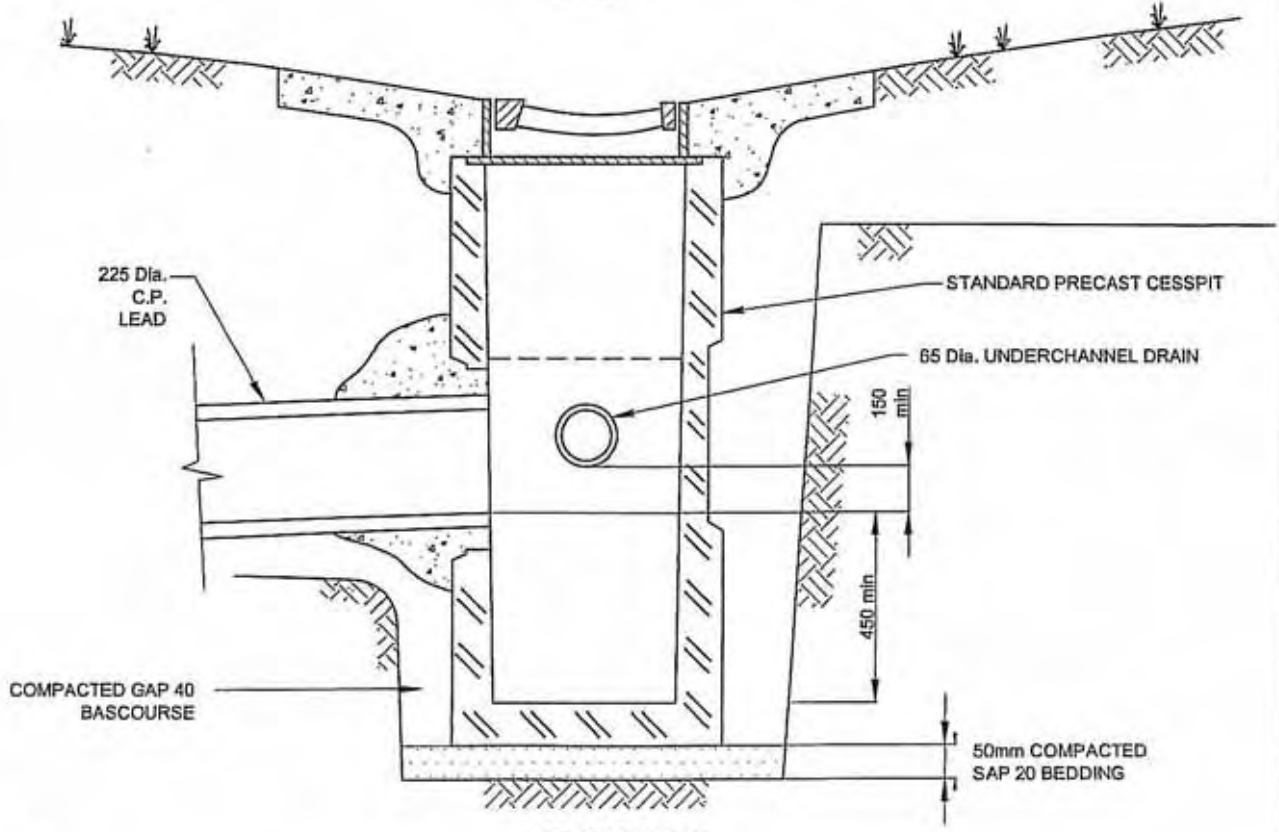
INLET AND OUTLET STRUCTURES

DATE: APRIL 2009

No: SW 12



PLAN



SECTION A-A

**NOTES:**

1. ALL CONCRETE TO BE ORDINARY GRADE, 17.5MPa AT 28 DAYS
2. ALL PIPES TO BE FINISHED FLUSH WITH INSIDE WALL OF CESSPIT.



**Franklin**  
DISTRICT COUNCIL

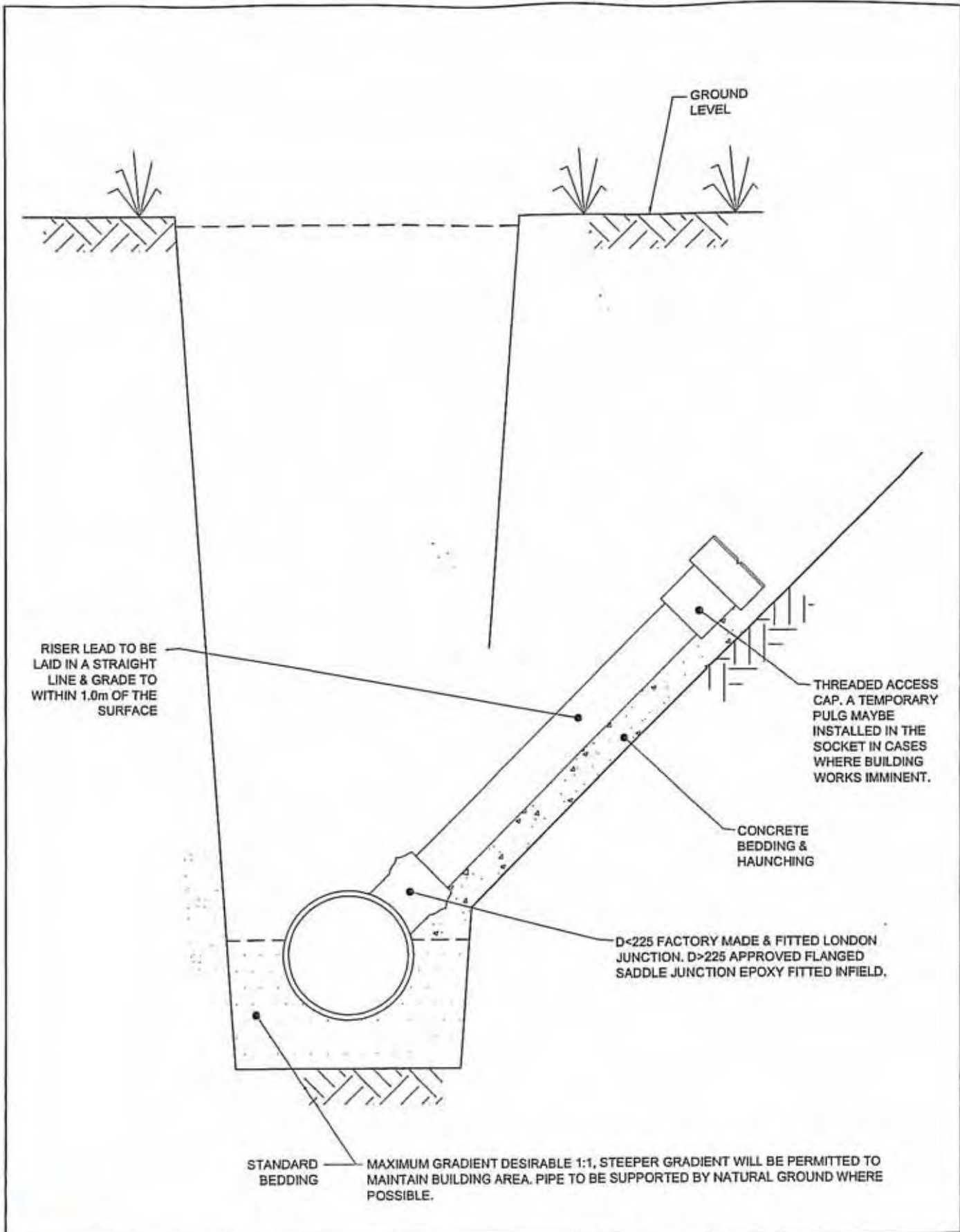
STANDARD DETAIL

FIELD CESSPIT

DATE: APRIL 2009

No: SW 13





**Franklin**  
DISTRICT COUNCIL

## STANDARD DETAIL

## STORMWATER HOUSE CONNECTIONS

DATE: APRIL 2009

No: SW 14

PIPE BEDDING IN TRENCH CONDITIONS

PIPE BEDDING	TYPE OF FOUNDATION		TYPE OF FOUNDATION	
	EARTH (1)	ROCK OR ROCKY SOIL (2)	EARTH (1)	ROCK OR ROCKY SOIL(2)
TYPE A CONTINUOUS CONCRETE CRADLE	<p>7.5 MPa WEAK CONCRETE BEDDING</p>		<p>20 MPa CONCRETE COMPACTED SELECTED CLEAN FILL OR APPROVED GRANULAR MATERIAL AS SPECIFIED GRANULAR OR WEAK CONCRETE BEDDING (7MPa)</p>	
TYPE B MATERIAL COMPACTED GRANULAR	<p>COMPACTED GRANULAR BEDDING</p>		<p>TYPE E</p> <p>PROTECTIVE SLAB FOR PIPE LAID WITH LESS THAN 500 COVER</p> <p>BACKFILL 500 MIN FILTER FABRIC TO APPROVAL OF THE ENGINEER GRANULAR BEDDING</p>	
TYPE C SOIL BEDDING	<p>COMPACTED SOIL FREE FROM LARGE STONES</p>		<p>TYPE F</p> <p>FILTER FABRIC ENCASUREMENT FOR PIPE LAID ON WEAK FOUNDATION</p>	
TYPE D SURROUND FOR U.P.V.C. PIPES. COMPACTED GRANULAR BEDDING &	<p>COMPACTED APPROVED GRANULAR BEDDING AND SURROUND</p>		<p>NOTE:</p> <ol style="list-style-type: none"> <li>1. EARTH : ALL MATERIAL OTHER THAN ROCK.</li> <li>2. ROCK: AN UNYIELDING NATURAL FOUNDATION MATERIAL INCLUDES EARTH FOUNDATION CONTAINING STONE LARGER THAN 50mm.</li> <li>3. CONTINUOUS CONCRETE CRADLE MEANS CONTINUOUS UNDER EACH PIPE LENGTH ONLY UNLESS THE PIPELINE INCLUDING CONCRETE CRADLE IS SPECIFICALLY DESIGNED FOR LOSS OF FLEXIBILITY AT PIPE JOINTS.</li> <li>4. THE WIDTH OF THE TRENCH AT THE TOP OF OF THE PIPE BARREL (B) SHALL BE NO GREATER THAN D + 400 UNLESS SPECIFIED BY THE ENGINEER. ALL DIMENSIONS ON THIS PLAN ARE SHOWN IN MILLIMETRES</li> </ol>	



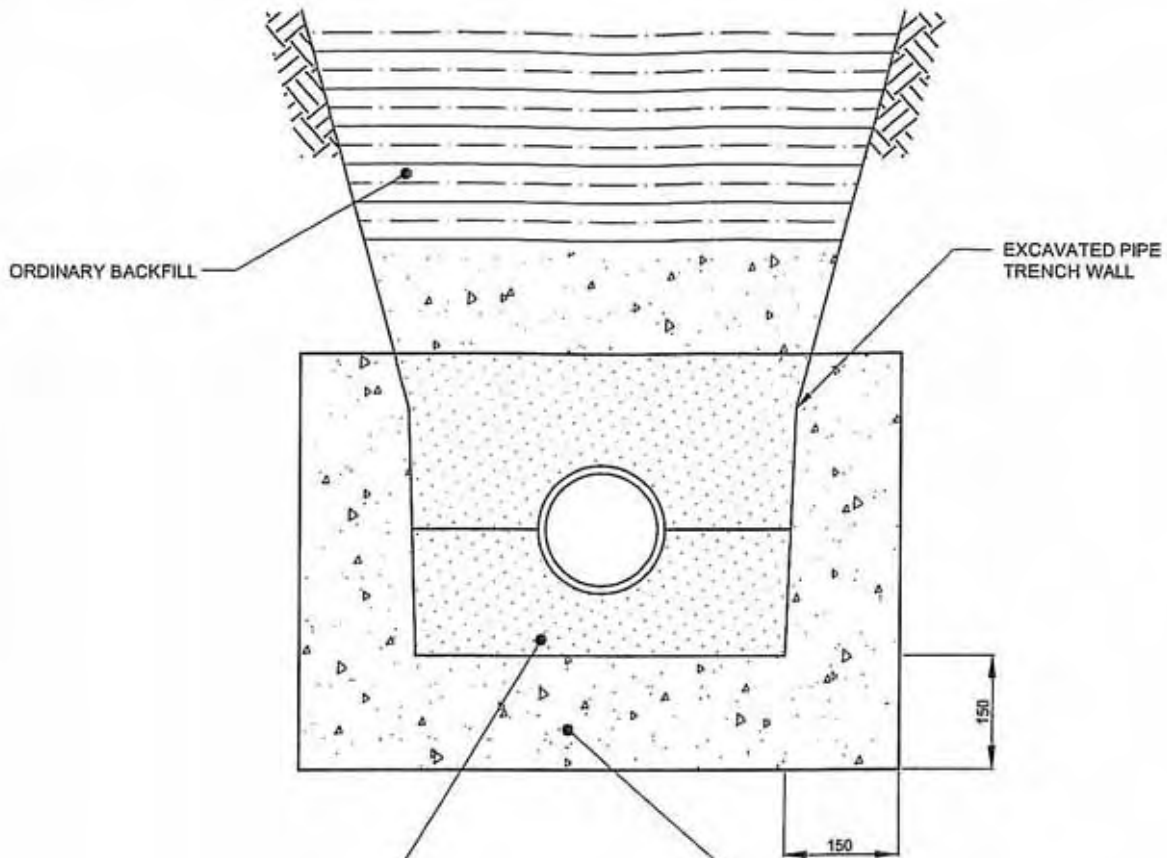
STANDARD DETAIL

PIPE BEDDING

DATE: APIRL 2009

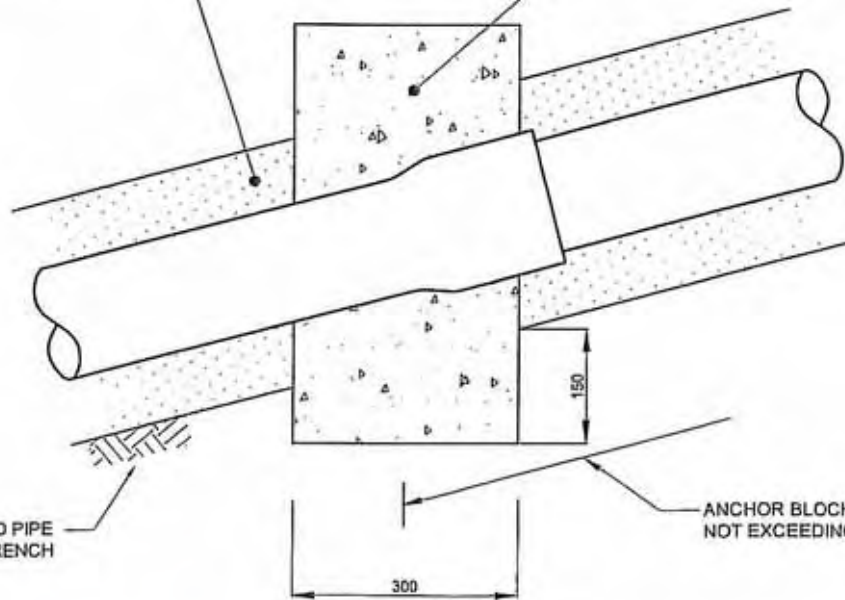
No: SW 15





LOW GRADE CONCRETE (5MPa) SCORIA. CONCRETE TO MATCH STANDARD PIPE BEDDING FOR PIPE MATERIAL USE.

17.5MPa CONCRETE ANCHOR BLOCKS EXTENDING 150mm FROM TRENCH WALL & BASE, CAST IN SITU AT PIPE JOINT.



**Franklin**  
DISTRICT COUNCIL

STANDARD DETAIL

ANCHOR BLOCK DETAILS

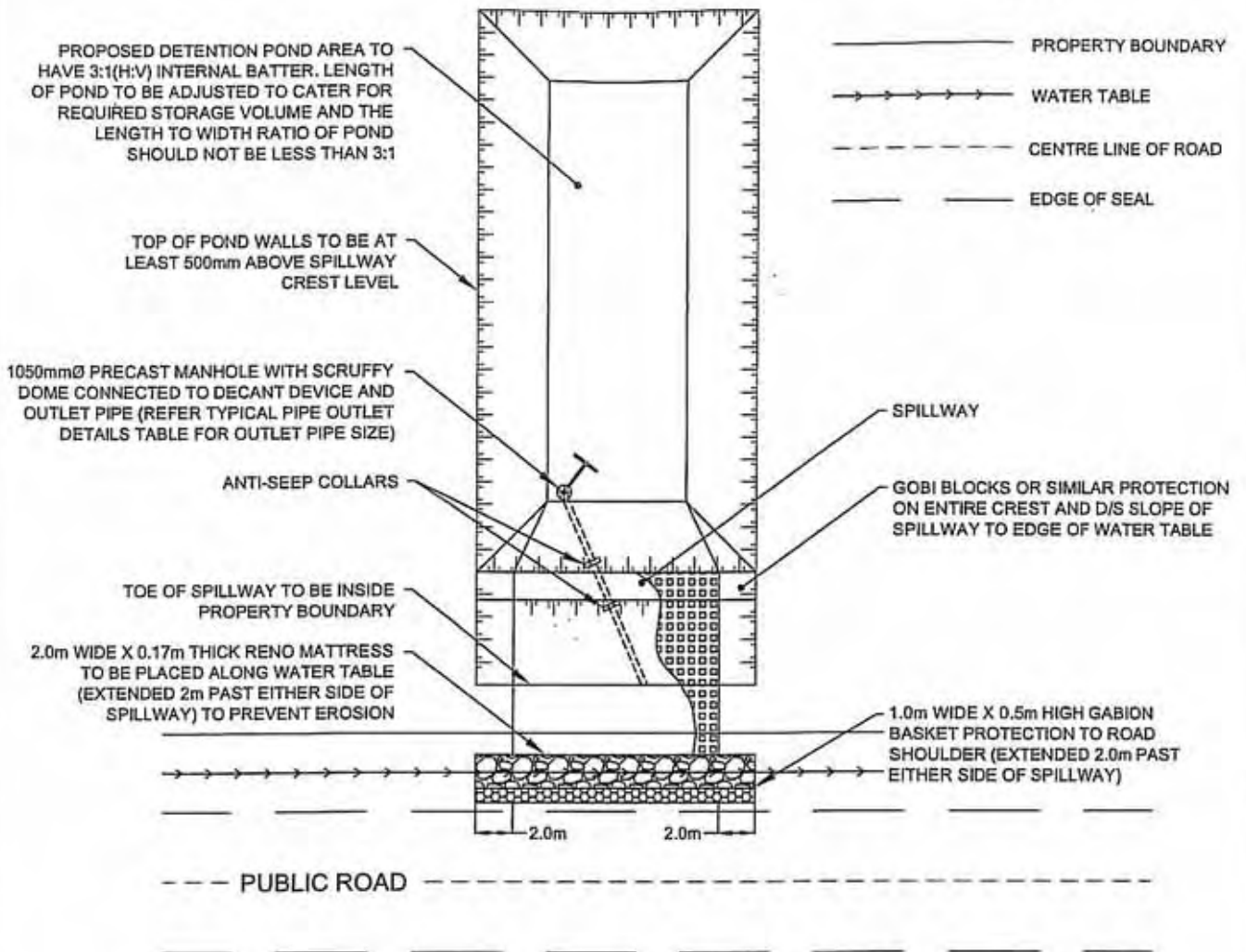
DATE: APRIL 2009

No: SW 16



**KEY**

- PROPERTY BOUNDARY
- >>>> WATER TABLE
- - - - - CENTRE LINE OF ROAD
- EDGE OF SEAL



**PLAN**

SCALE: 1:250 @ A4

TYPICAL DETENTION POND DETAILS				TYPICAL PIPE OUTLET DETAILS		
CATCHMENT AREA (ha)	PEAK FLOWS (m <sup>3</sup> /s) 10 YEAR ARI	SPILLWAY LENGTH (m)	POND STORAGE VOLUME (m <sup>3</sup> )		PEAK FLOWS (m <sup>3</sup> /s) 2 YEAR ARI	PIPE OUTLET DIA. (mm)
			SLOPE <10%	SLOPE >10%		
1	0.12	1.50	50	100	0.06	225
2	0.23	2.00	100	200	0.11	300
5	0.58	4.00	250	500	0.28	375
>5	REQUIRES SPECIFIC DESIGN					

**NOTES:**

1. SEE ALSO FRANKLIN DISTRICT COUNCIL STANDARD DRAWING SW18.
2. DESIGN BASED ON FRANKLIN SUSTAINABILITY PROJECT SOIL AND DRAINAGE MANAGEMENT GUIDE.
3. CATCHMENT AREA NOT TO EXCEED 10ha PER POND.
4. LENGTH OF SPILLWAY IS DESIGNED FOR A 1 IN 10 YEAR STORM WHICH ALLOWS FOR A 200mm DEPTH OF FLOW ACROSS THE SPILLWAY, APPLICABLE TO RURAL INLAND AREAS OF FRANKLIN DISTRICT.



**STANDARD DETAIL**

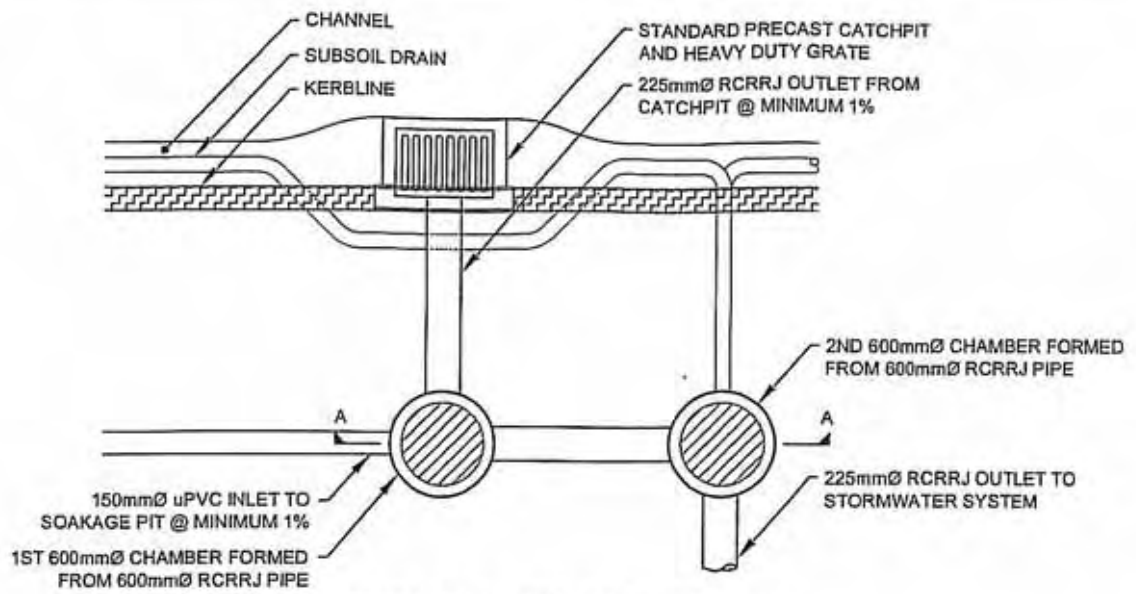
**PRIVATE RURAL  
SEDIMENT DETENTION POND  
LAYOUT PLAN**

DATE: SEPTEMBER 2010

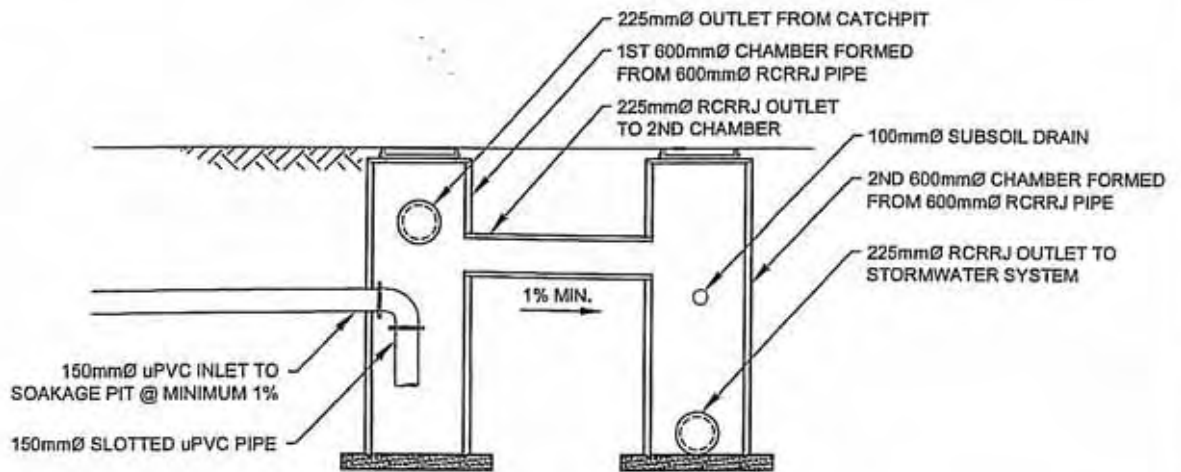
No: SW17



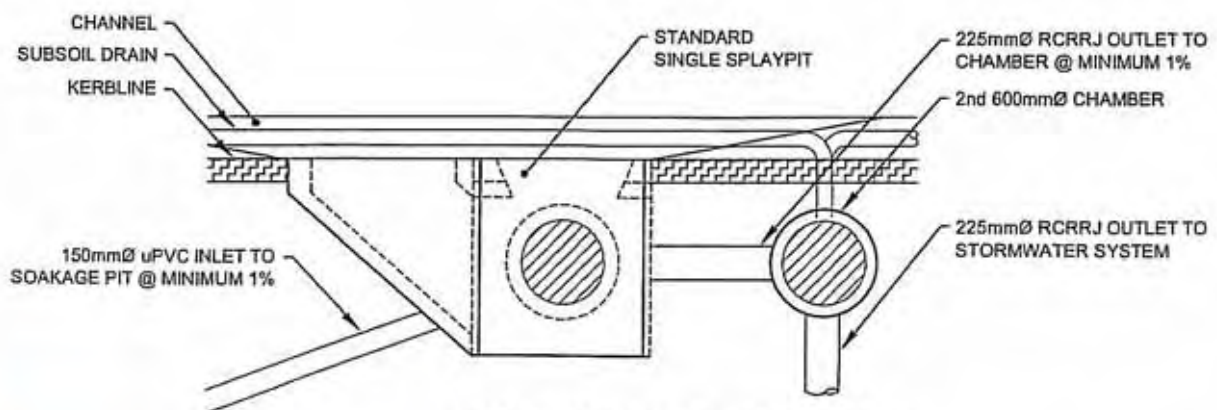




PLAN: STANDARD CATCHPIT INLET



SECTION A-A



PLAN: STANDARD SPLAYPIT INLET



**Franklin**  
DISTRICT COUNCIL

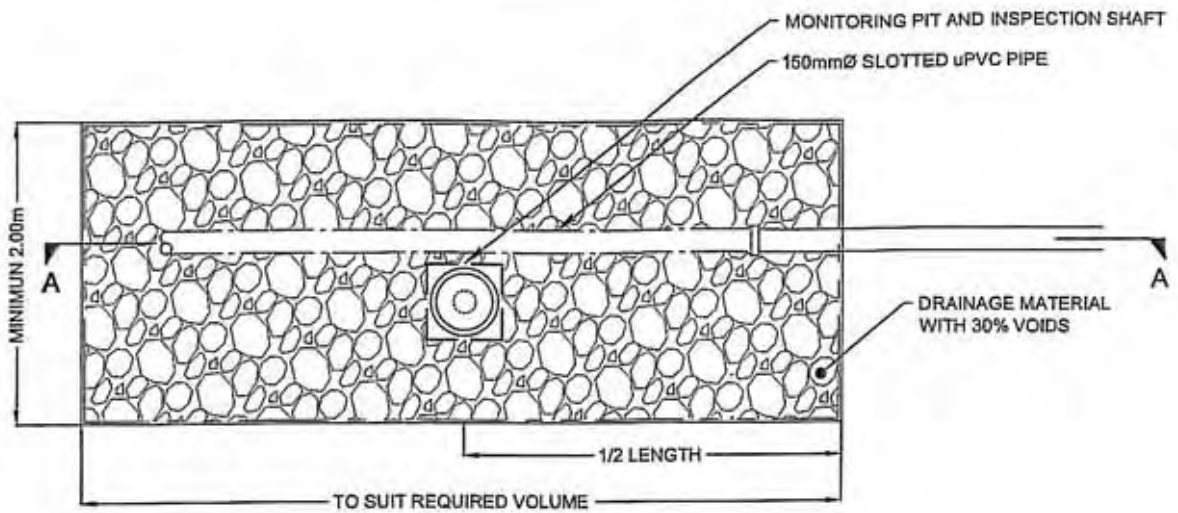
DATE: SEPTEMBER 2010

No: SW19

## STANDARD DETAIL

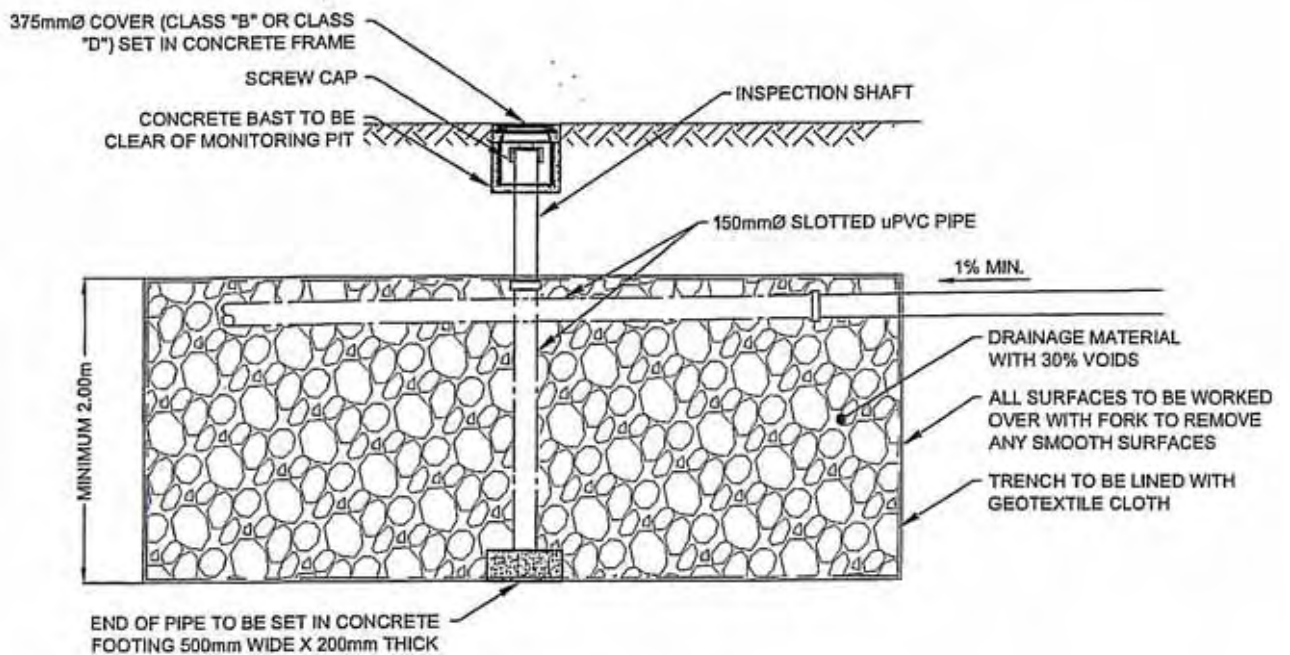
### SOAKAGE SYSTEM INLET DETAILS





**PLAN VIEW**

SCALE 1:25



**SECTION A-A**

SCALE 1:25

**NOTES:**

1. STORAGE VOLUME IS APPROXIMATELY 0.3m<sup>3</sup> PER 1m<sup>2</sup> OF SOAKAGE PIT WITH DRAINAGE MATERIAL WITH 30% VOIDS
2. PERCOLATION TESTING AS PER ARC TP10, SECTION 8.5.2, IS REQUIRED BEFORE SIZING SOAKAGE SYSTEM



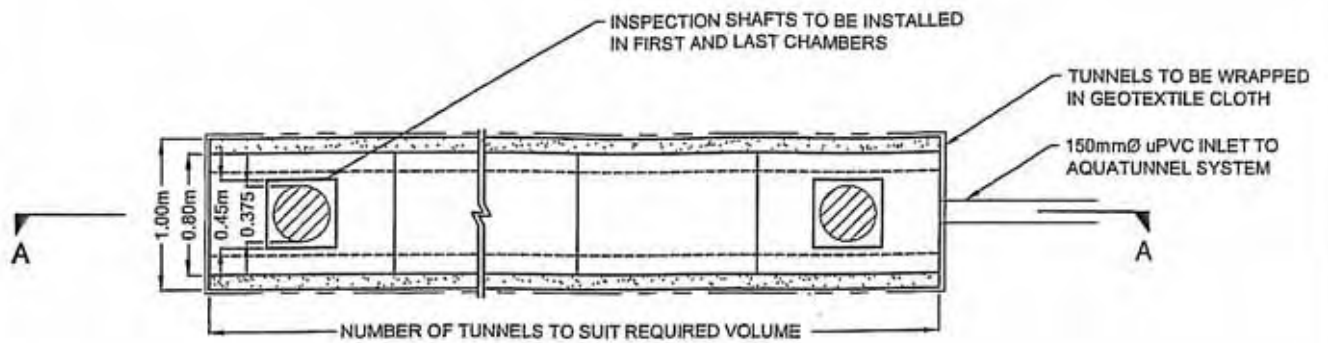
**Franklin**  
DISTRICT COUNCIL

DATE: SEPTEMBER 2010

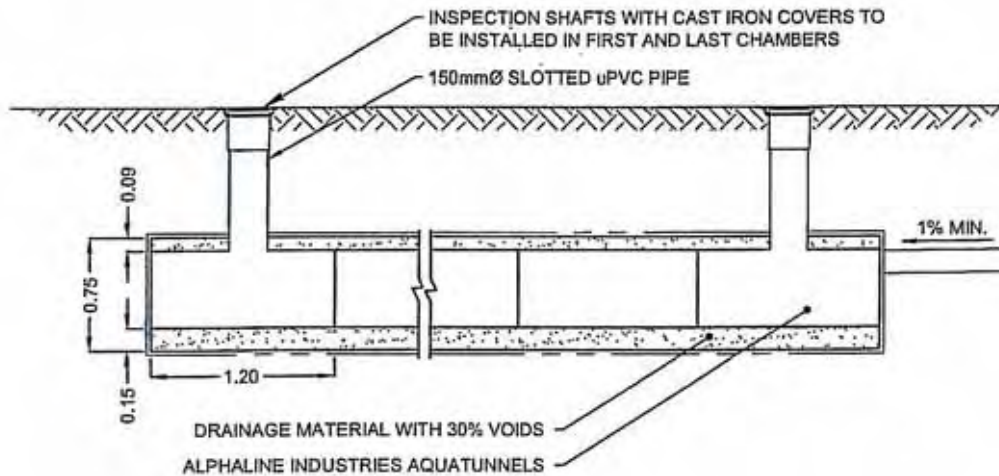
No: SW20

STANDARD DETAIL

STANDARD SOAKAGE  
SYSTEM DETAILS



**PLAN VIEW**  
SCALE 1:25



**SECTION A-A**  
SCALE 1:25

**NOTES:**

1. STORAGE VOLUME IS APPROXIMATELY 0.3m<sup>3</sup> PER AQUATUNNEL
2. PERCOLATION TESTING AS PER ARC TP10, SECTION 8.5.2, IS REQUIRED BEFORE SIZING SOAKAGE SYSTEM



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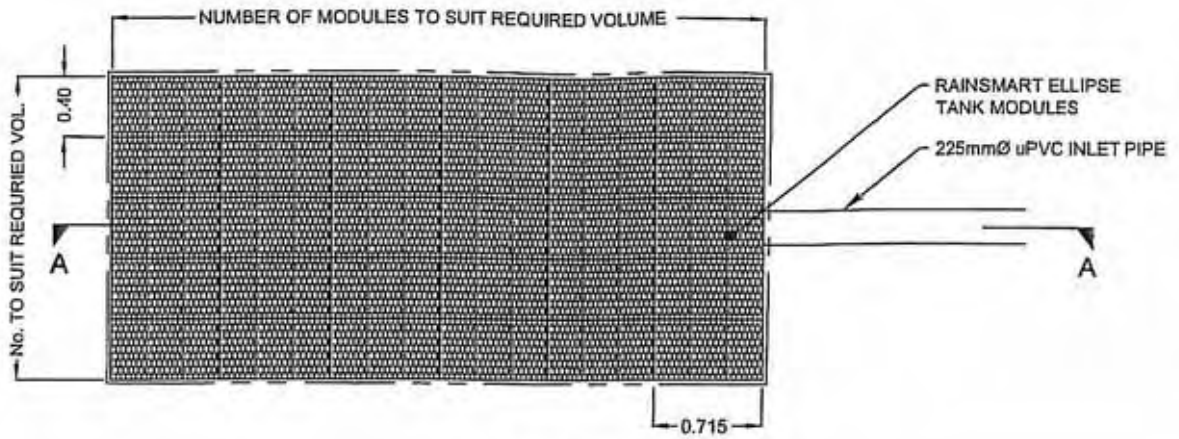
STANDARD DETAIL

AQUATUNNEL SOAKAGE  
SYSTEM DETAILS

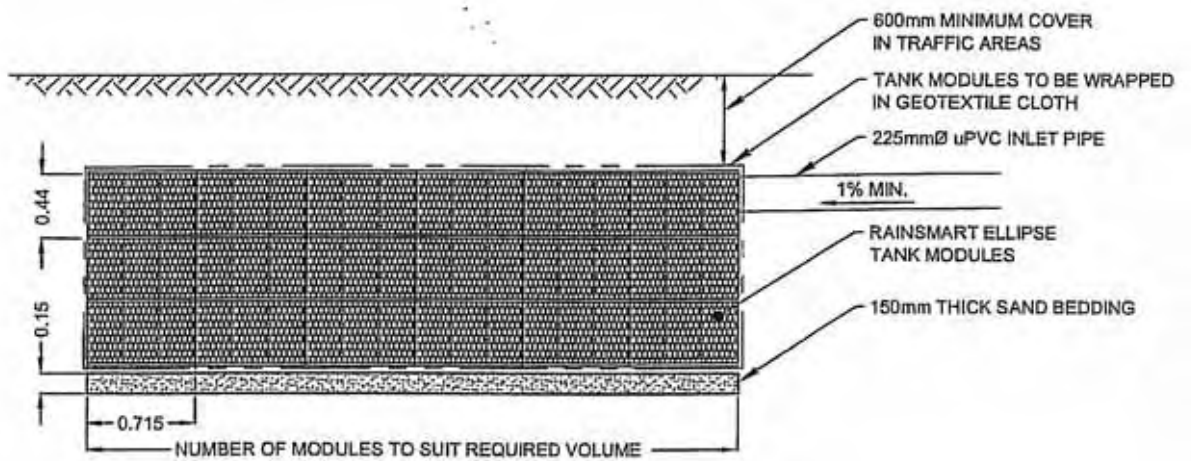
DATE: SEPTEMBER 2010

No: SW21





**PLAN VIEW**  
SCALE 1:25



**SECTION A-A**  
SCALE 1:25

**NOTES:**

1. STORAGE VOLUME IS APPROXIMATELY 0.12m<sup>3</sup> PER RAINSMART ELLIPSE TANK MODULE
2. PERCOLATION TESTING AS PER ARC TP10, SECTION 8.5.2, IS REQUIRED BEFORE SIZING SOAKAGE SYSTEM



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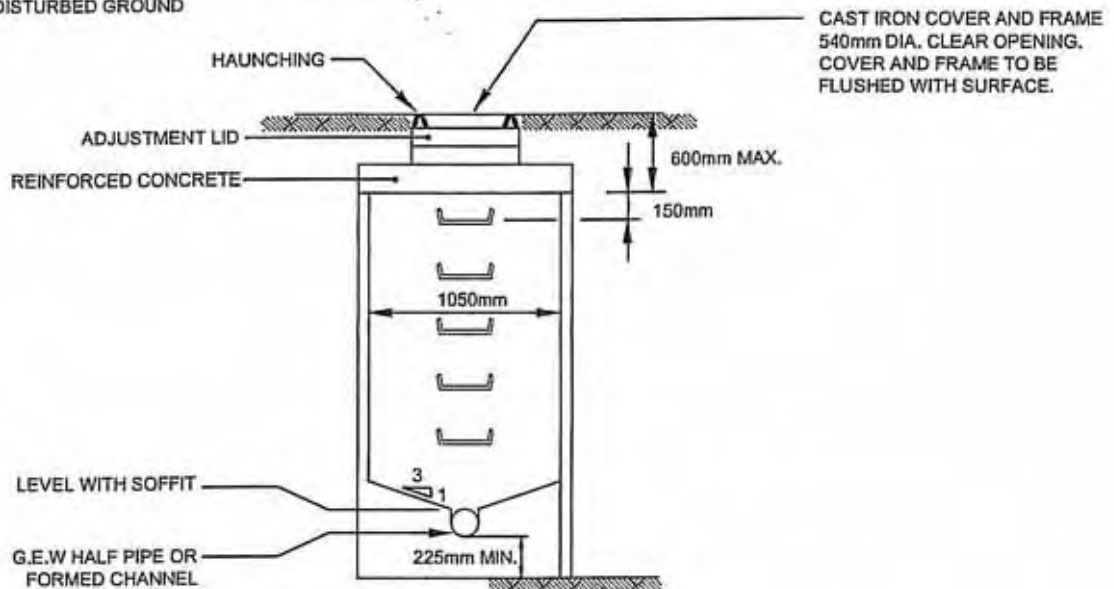
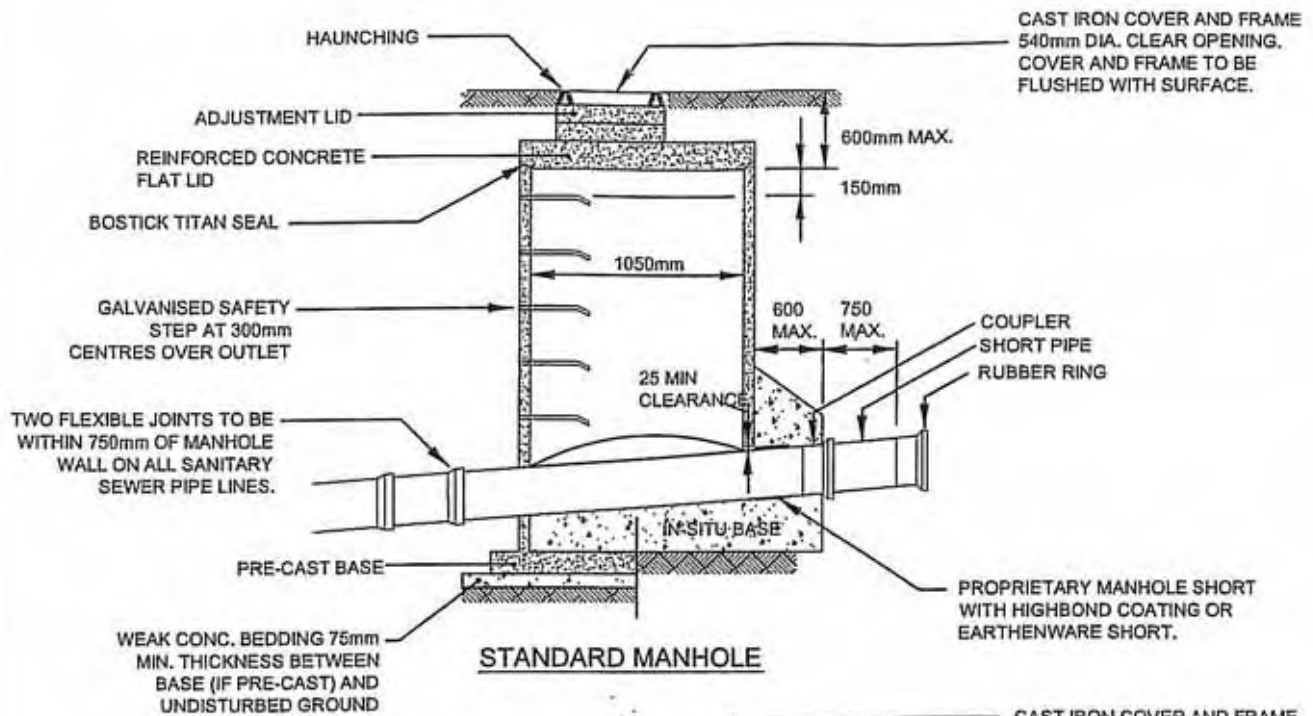
**STANDARD DETAIL**

**RAINSMART TANKS SOAKAGE  
SYSTEM DETAILS**

DATE: SEPTEMBER 2010

No: SW22





**NOTES:-**

1. HEAVY DUTY COVERS TO BE USED IN DRIVES, ROADS, BERMS, AND INDUSTRIAL OR COMMERCIAL ZONED LAND.
2. LIGHT DUTY COVERS MAY BE USED OUTSIDE ROAD BOUNDARIES EXCEPT IN INDUSTRIAL AREAS.
3. 100mm THICK TOP SLAB MAY BE USED OUTSIDE ROAD BOUNDARIES EXCEPT IN INDUSTRIAL AREAS.
4. FOR MANHOLES ON PIPE LINES GREATER THAN 600mm DIA. SEE CLAUSE 401.12.5.
5. PRECAST MANHOLES LESS THAN 2.4m DEEP TO INVERT TO BE CONSTRUCTED OF ONE SECTION.
6. PRECAST MANHOLES OVER 2.4m DEEP TO INVERT MUST HAVE BOTTOM SECTION OF A MIN. LENGTH OF 1.8m.
7. INTERNAL DROPS SHOULD GENERALLY BE USED. REFER SHEET S3 FOR DETAILS.
8. ANY JOINTS IN THE WALL TO BE EPOXY MORTED.



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## STANDARD DETAIL

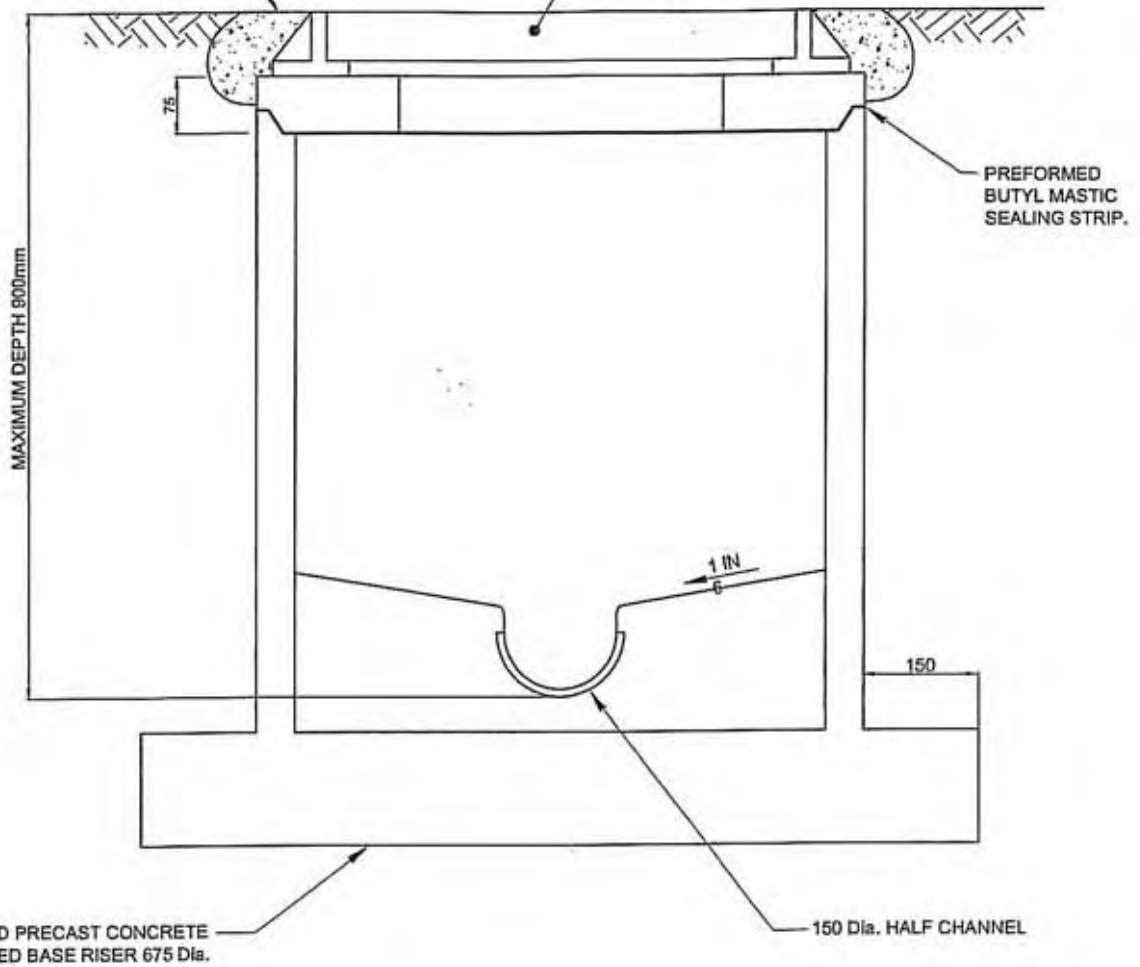
## MANHOLE DETAILS

DATE: AUGUST 2010

No: SS 1

17.5 MPa CONCRETE ORDINARY  
GRADE STEEL FLOAT FINISH

CAST IRON FRAME AND COVER TO BE PAINTED  
RED FOR SEWERS AND BLUE FOR STORMWATER.



**NOTE:**

1. ONLY TO BE USED FOR TERMINATING MANHOLES ON LEVEL RESIDENTIAL SITES WITH A MAXIMUM OF TWO 100mm DIA. HOUSE CONNECTIONS OR WHEN A FIXED SURFACE LEVEL IS ESTABLISHED.



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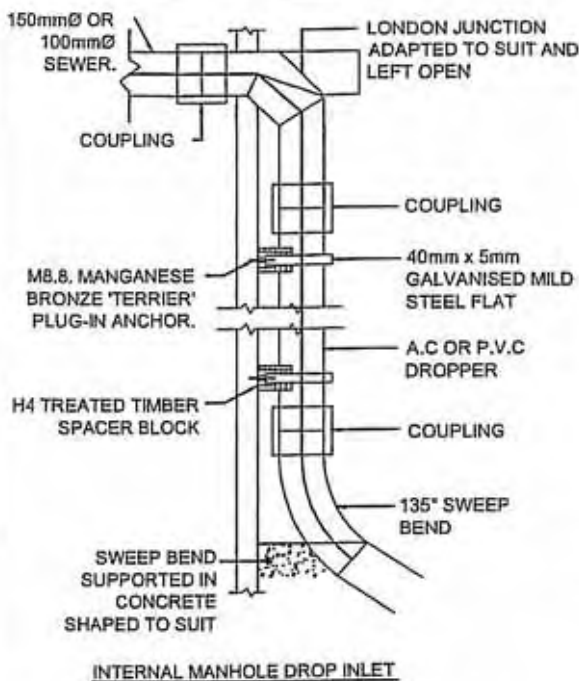
## STANDARD DETAIL

## SHALLOW MANHOLE DETAILS

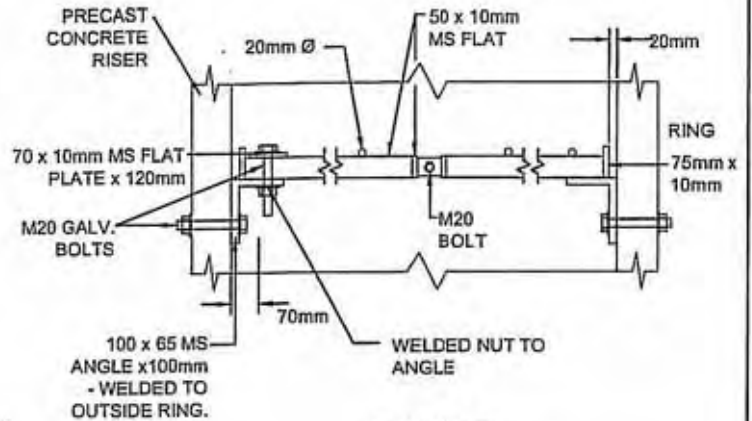
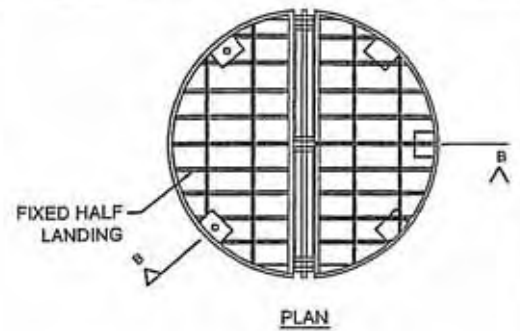
DATE: APRIL 2009

No: SS 2





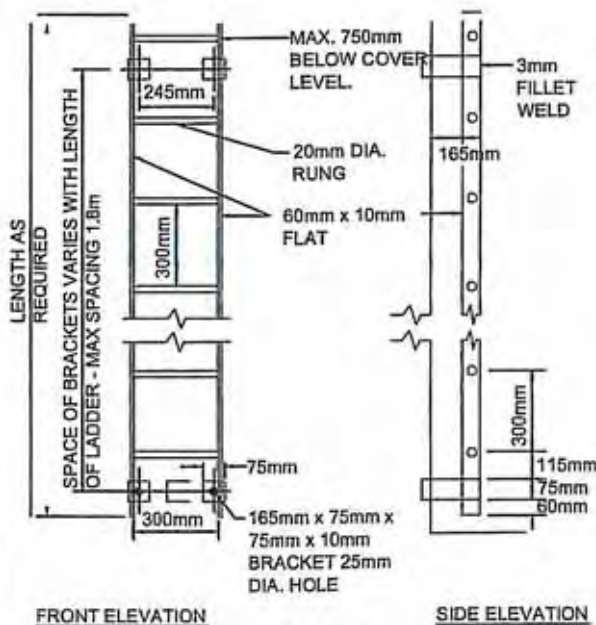
**INTERNAL MANHOLE DROP INLET**



**SECTION B-B**

**NOTE:**  
IF MORE THAN ONE INLET GRILL IS NEEDED WITHIN A MANHOLE RISER OPENING SIDE OF GRILLS SHOULD ALTERNATE.

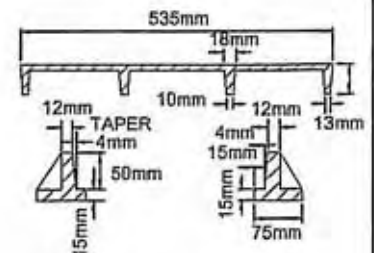
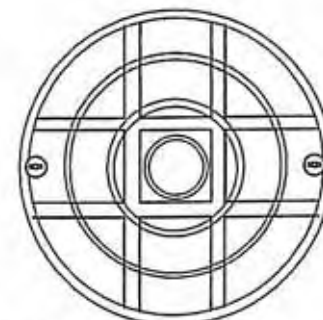
**SAFETY PLATFORM- (MANHOLES GREATER THAN 5.0m DEEP)**



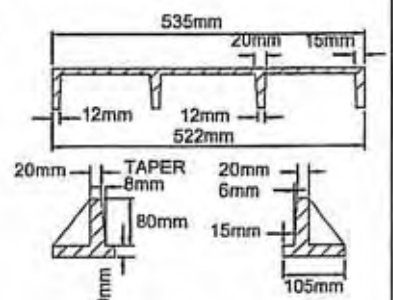
**FRONT ELEVATION**

**SIDE ELEVATION**

**MANHOLE LADDER**

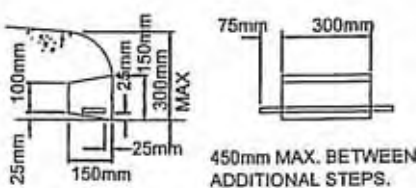


**SECTION - LIGHT DUTY**



**SECTION - HEAVY DUTY**

**MANHOLE COVER AND FRAME**



**SECTION**

**ELEVATION**

**RECESSED STEP DETAILS**

**(ONLY BELOW PIPE BENCHING LEVEL)**

**NOTES:**

1. ALL STEEL INCLUDING BOLTS TO BE HOT DIPPED GALVANISED.
2. THE INTERNAL DIAMETER OF NEW MANHOLES SHALL BE INCREASED BY 150mm FOR EACH INTERNAL DROP INSTALLED
3. MANHOLE COVERS AND FRAMES WITH DIMENSIONS FROM THE ABOVE MUST BE APPROVED BY THE ENGINEER BEFORE USE.



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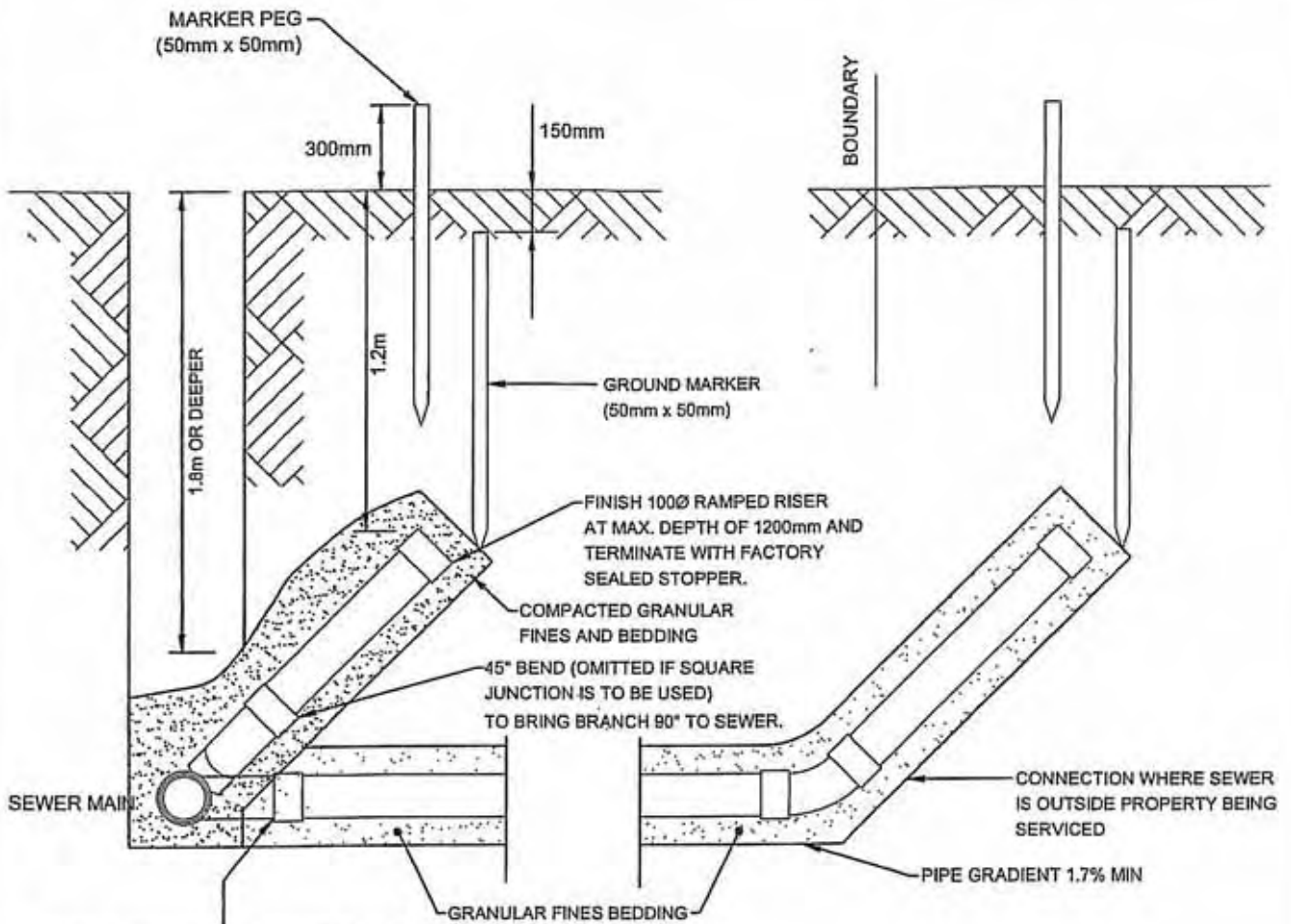
**STANDARD DETAIL**

**MANHOLE FITTINGS DETAILS**

DATE: APRIL 2009

No: SS 3

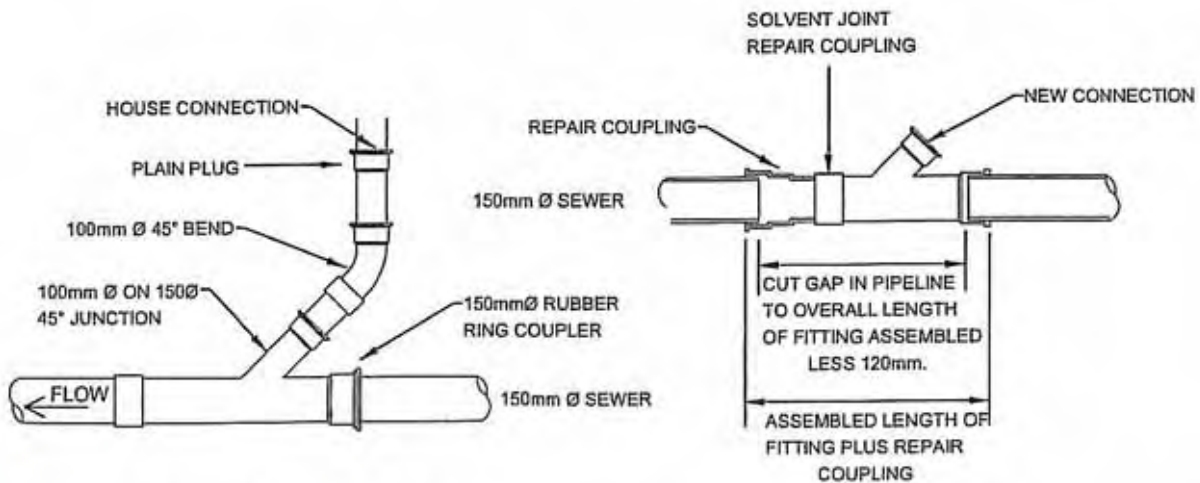




45° BEND (SQUARE JUNCTION NOT TO BE USED AT BRANCH LINE GRADIENTS LESS THAN 45°).

**RAMPED RISERS**

UPVC PIPES



**BRANCH CONNECTION**

**REPAIR COUPLING**



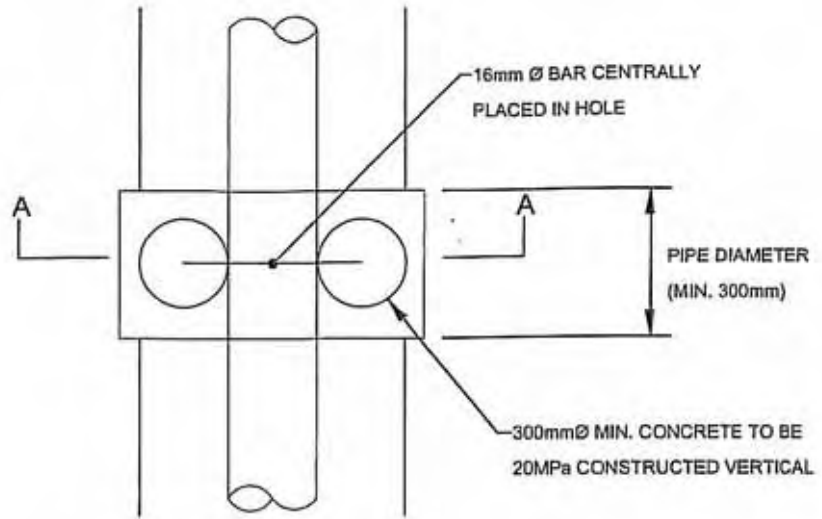
**Franklin**  
DISTRICT COUNCIL

**STANDARD DETAIL**

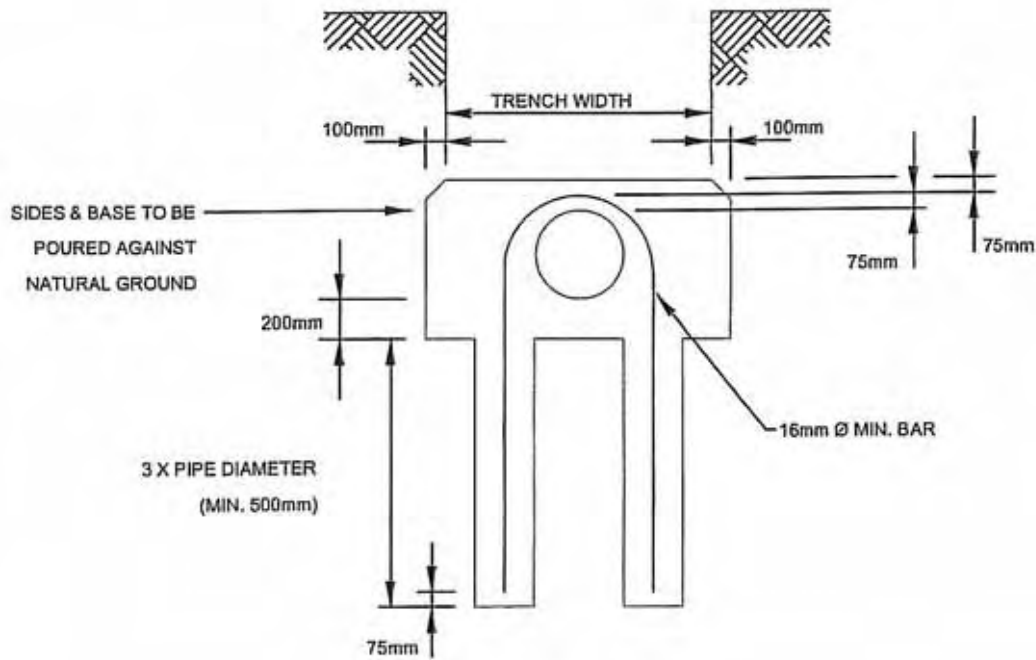
**HOUSE CONNECTIONS AND RAMPED RISERS**

DATE: APRIL 2009

No: SS 4



PLAN



SECTION A-A



**Franklin**  
DISTRICT COUNCIL

DATE:

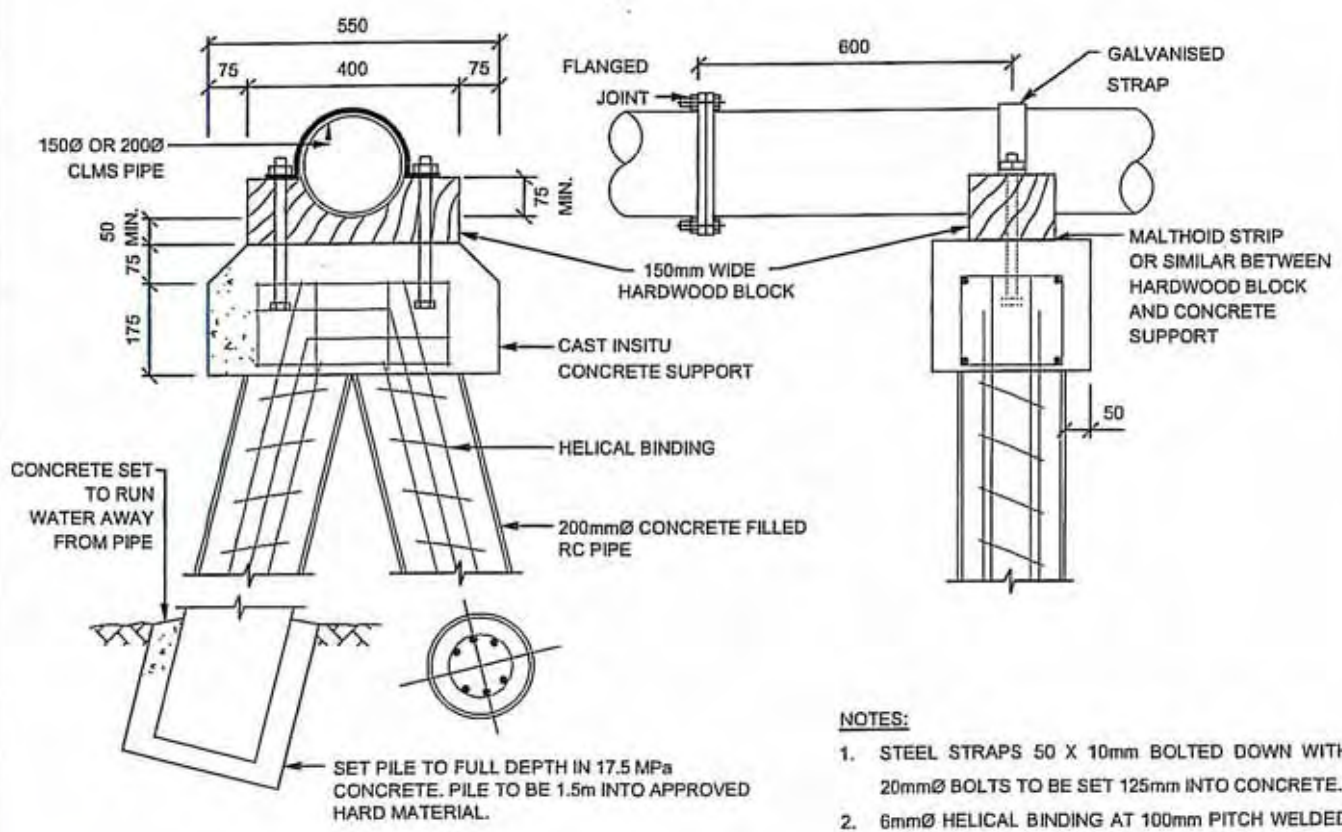
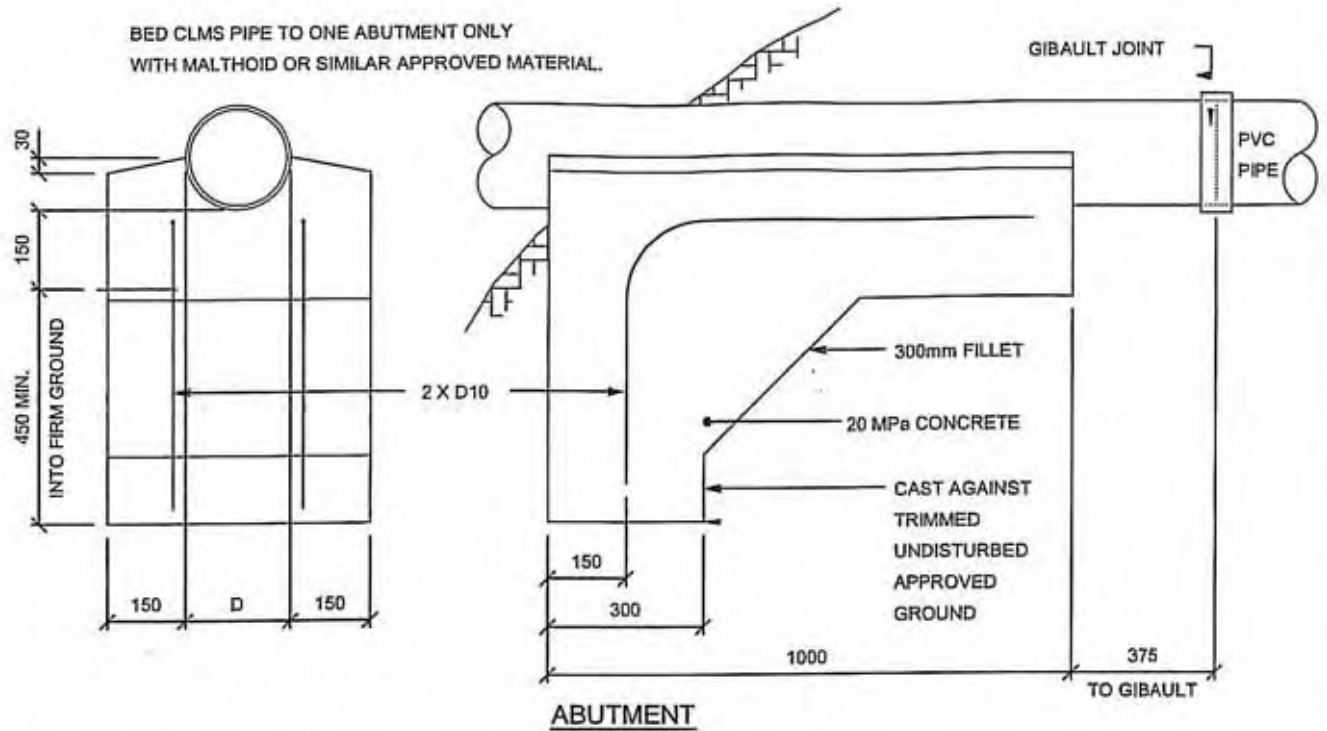
APRIL 2009

No:

SS 5

## STANDARD DETAIL

ANTI - SCOUR BLOCKS  
FOR STEEP SEWER LINES



- NOTES:**
1. STEEL STRAPS 50 X 10mm BOLTED DOWN WITH 20mmØ BOLTS TO BE SET 125mm INTO CONCRETE.
  2. 6mmØ HELICAL BINDING AT 100mm PITCH WELDED TO ALTERNATE LONGITUDINAL BARS - 6 IN EACH PIPE 16mmØ.
  3. FOR PIPE SIZES GREATER THAN 200mmØ SPECIFIC DESIGN IS REQUIRED.

**PIER**



**STANDARD DETAIL**

DATE: APRIL 2009  
No: SS 6

**PIPE BRIDGE FOR  
150Ø - 200Ø PIPE**

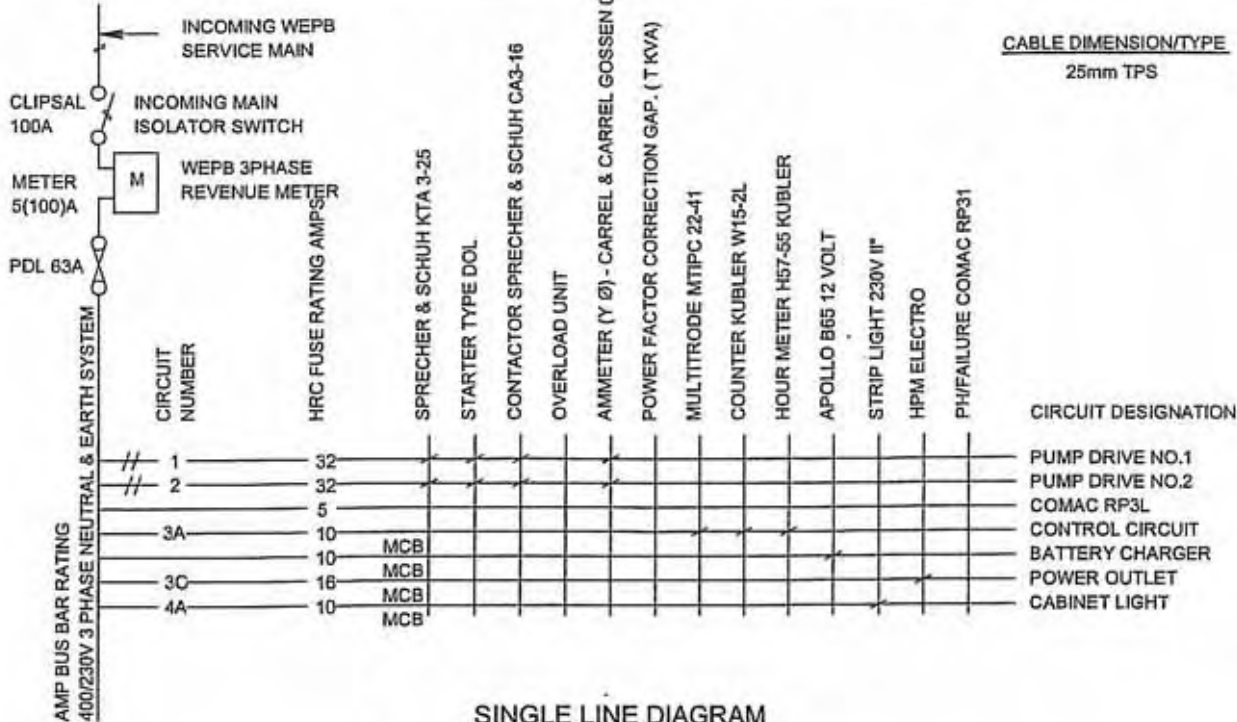


( MISC. STARTER EQUIP. )

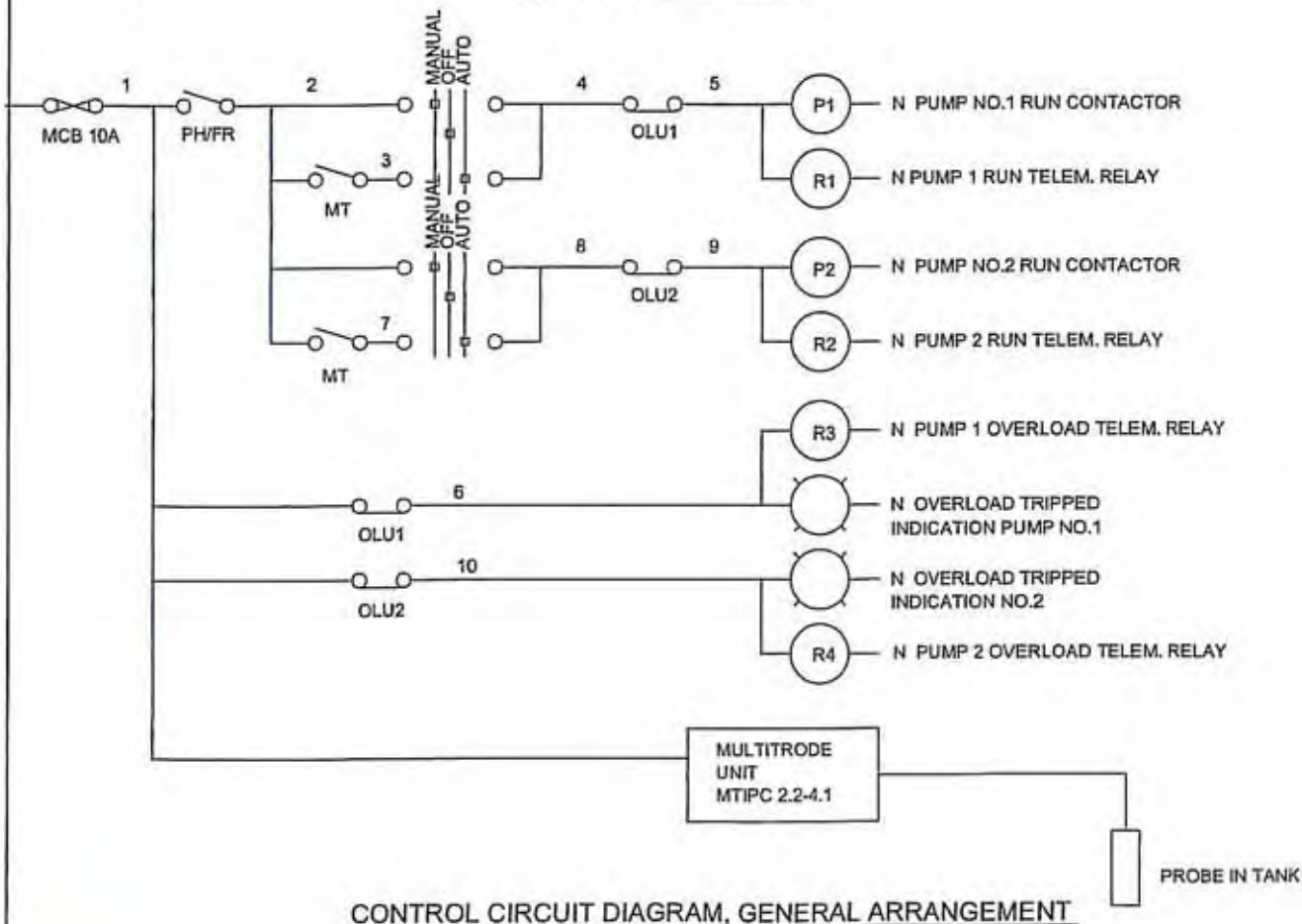
( CONTROL STARTER EQUIP. )

CABLE DIMENSION/TYPE

25mm TPS



**SINGLE LINE DIAGRAM**



**CONTROL CIRCUIT DIAGRAM, GENERAL ARRANGEMENT**



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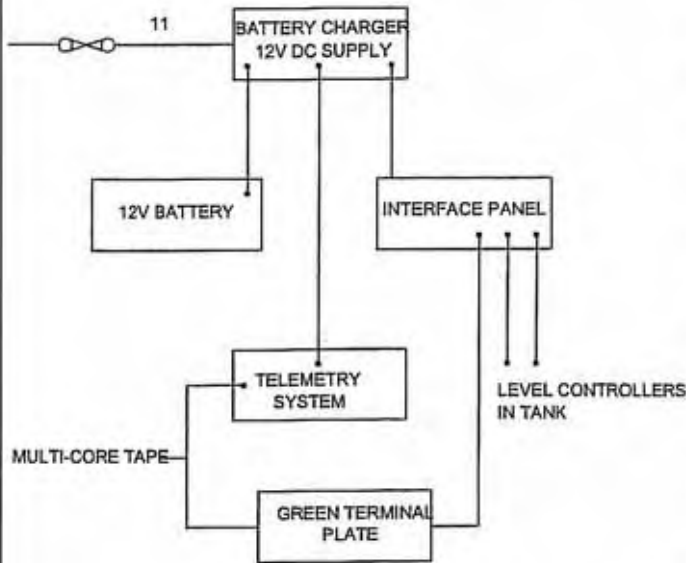
**STANDARD DETAIL**

**SEWAGE PUMP STATION  
SWITCHBOARD  
TWO - PUMP LAYOUT**

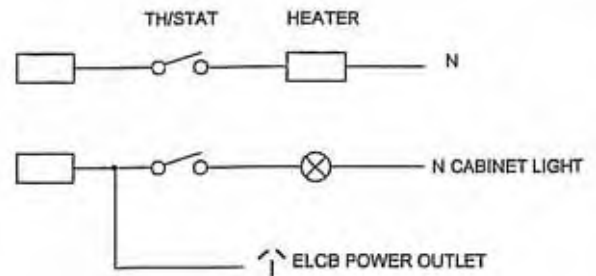
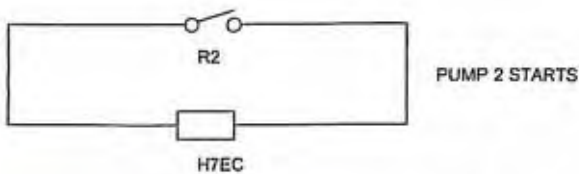
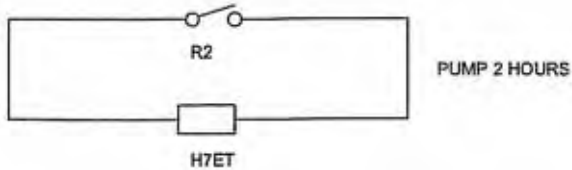
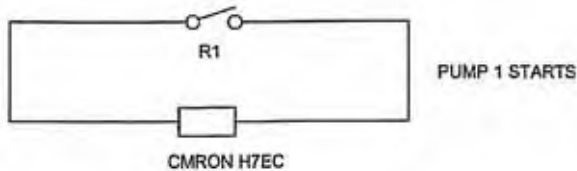
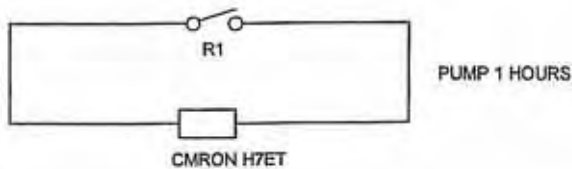
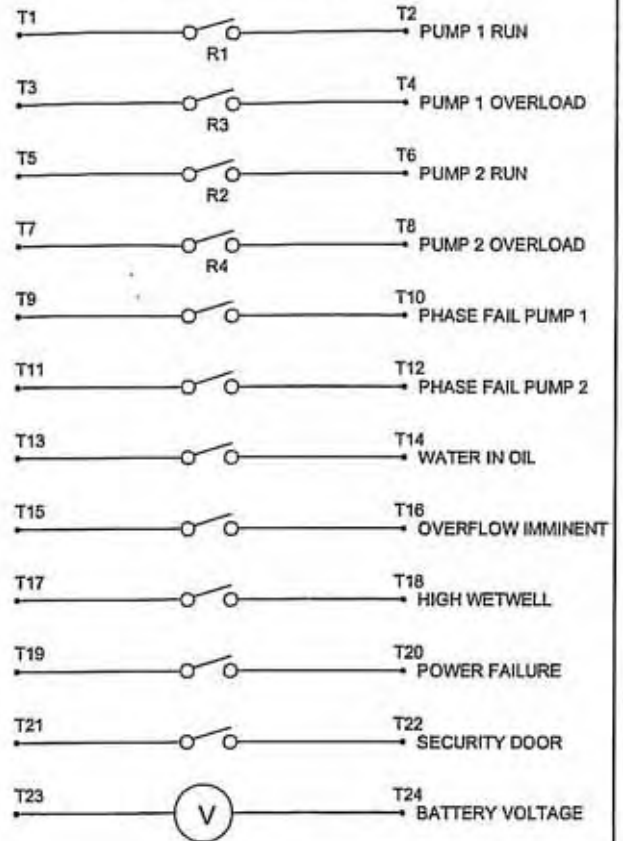
DATE: APRIL 2009

No: SS 7

**TELEMETRY CONTROL BLOCK DIAGRAM**



**TELEMETRY OUTPUTS**

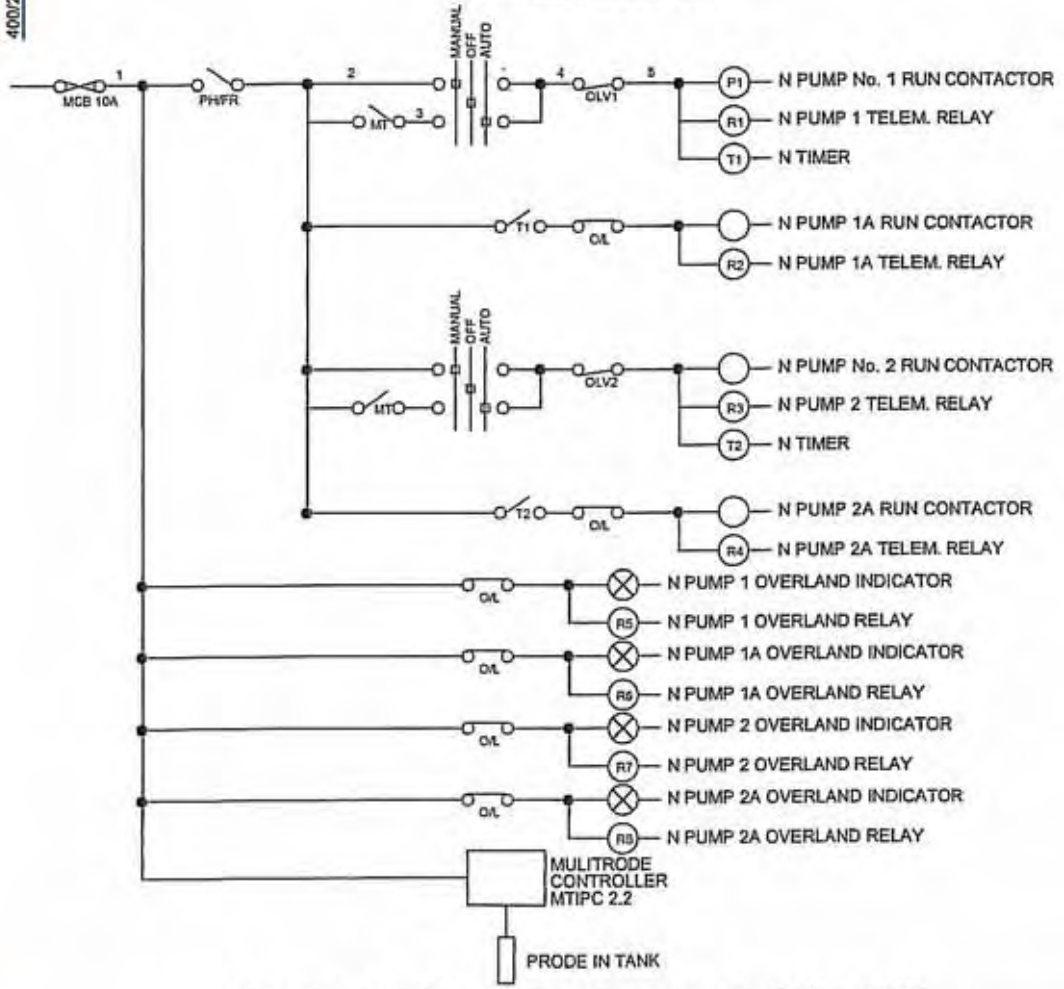
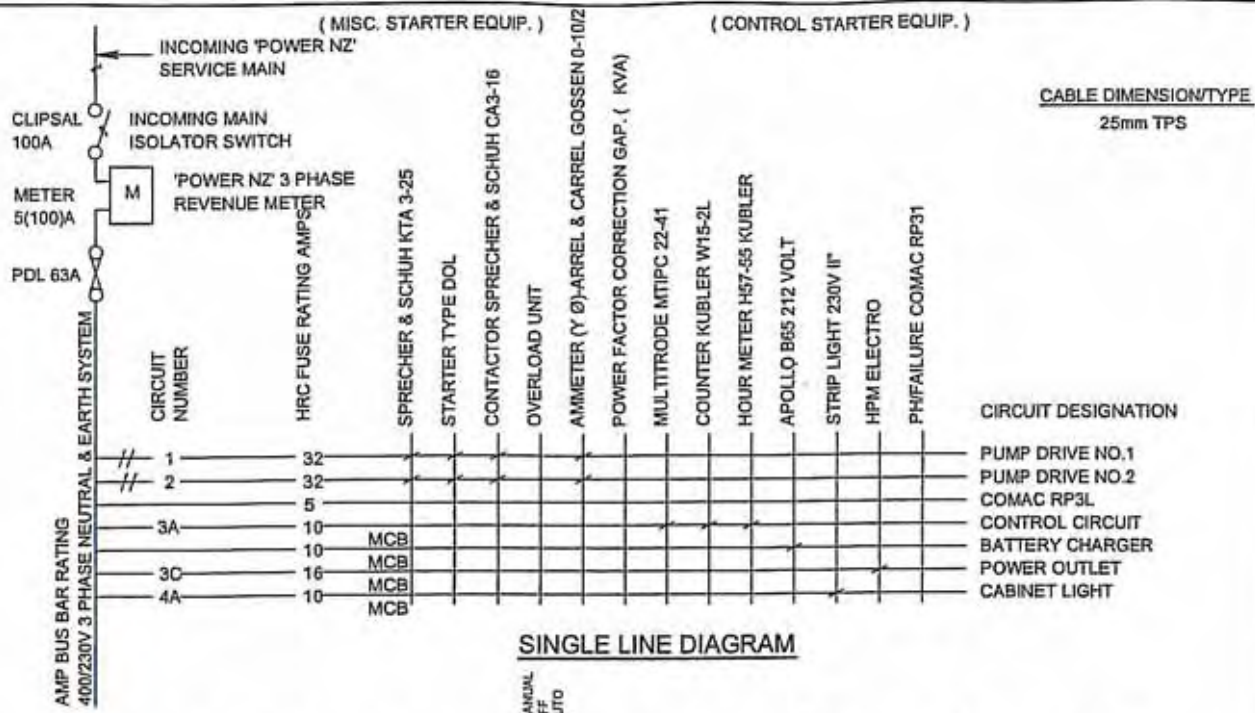


**STANDARD DETAIL**

**SEWAGE PUMP STATION  
SWITCHBOARD  
TWO - PUMP LAYOUT**

DATE: APRIL 2009

No: SS 8

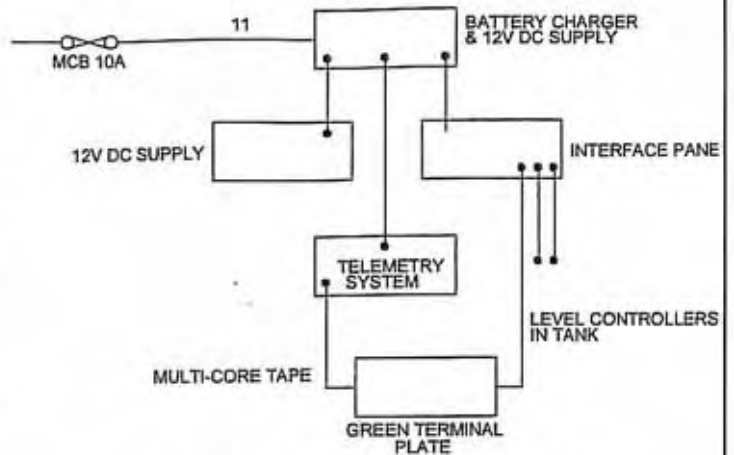
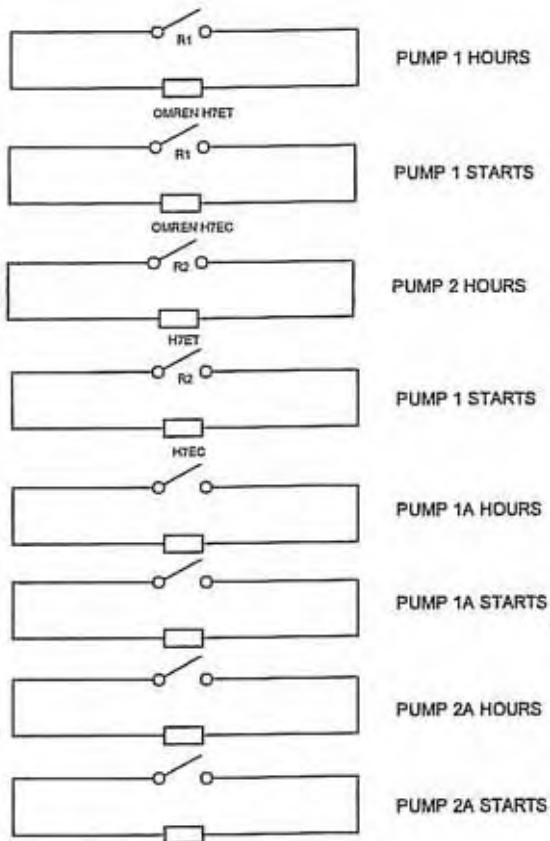


**STANDARD DETAIL**  
**SEWAGE PUMP STATION**  
**SWITCHBOARD**  
**FOUR - PUMP LAYOUT**

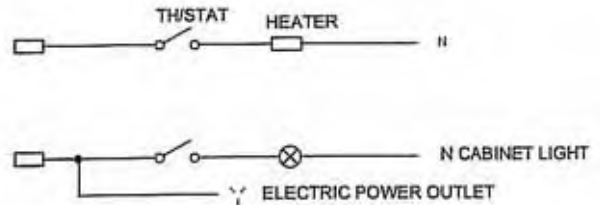
DATE:                      APRIL 2009

No:                              SS 9





TELEMETRY CONTROL BLOCK DIAGRAM



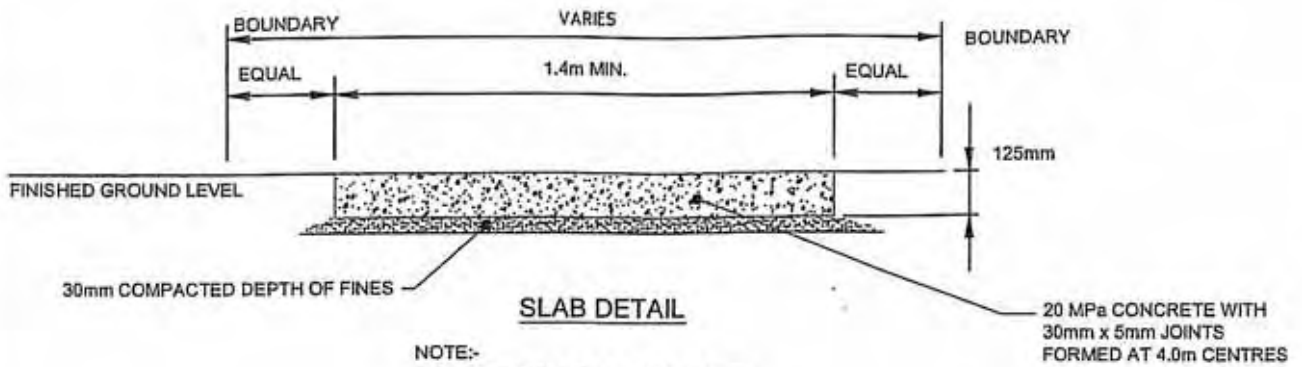
DATE: APRIL 2009

No: SS 10

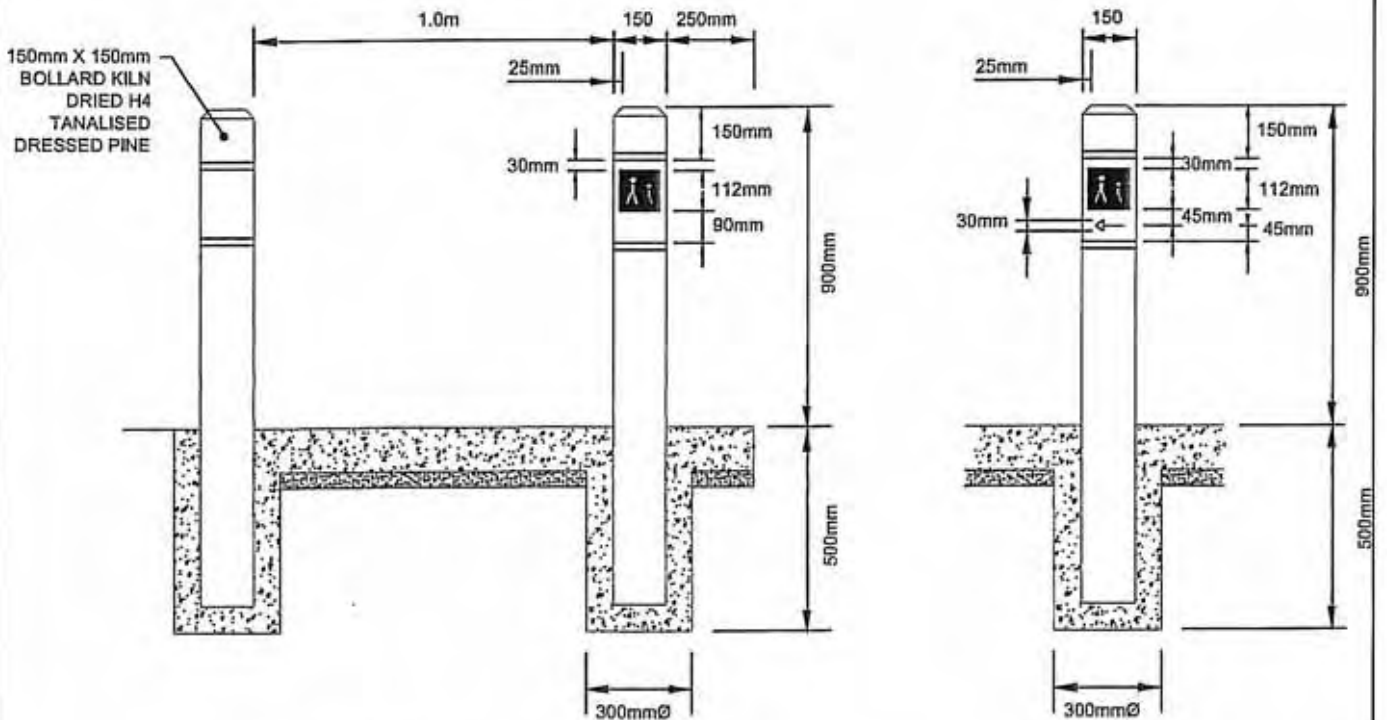
STANDARD DETAIL

SEWAGE PUMP STATION  
SWITCHBOARD

FOUR - PUMP LAYOUT



NOTE:-  
FOR WIDTHS UP TO 2.0m COMPLETE ACCESSWAY TO BE CONCRETED.



**ENTRY BOLLARDS**

**SIDE ELEVATION**

LOCATED AT ROAD BOUNDARY

**BOLLARD CONSTRUCTION NOTE:-**

1. OUTDOOR RECREATION SYMBOL NO. 50 TO NZS 8603:1992 STANDARD, ON FRONT AND SIDES OF POSTS ONLY.
2. SYMBOLS AND DIRECTIONAL ARROWS TO BE CHECKED 10mm INTO POSTS.
3. 10mm ROUTED GROOVES TO BE CUT ON ALL FOUR FACES OF THE POSTS WITH THE GROOVES LINING UP.
4. GROOVES HIGHLIGHTED IN BLUE - AS DETAILED IN 282 CD1.
5. POST WITH SYMBOLS TO BE INSTALLED ON THE RIGHTHAND SIDE LOOKING INTO THE WALKWAY.
6. DIRECTIONAL ARROWS TO BE ON THE SIDE ONLY, AND POINTING INTO THE WALKWAY.



**STANDARD DETAIL**

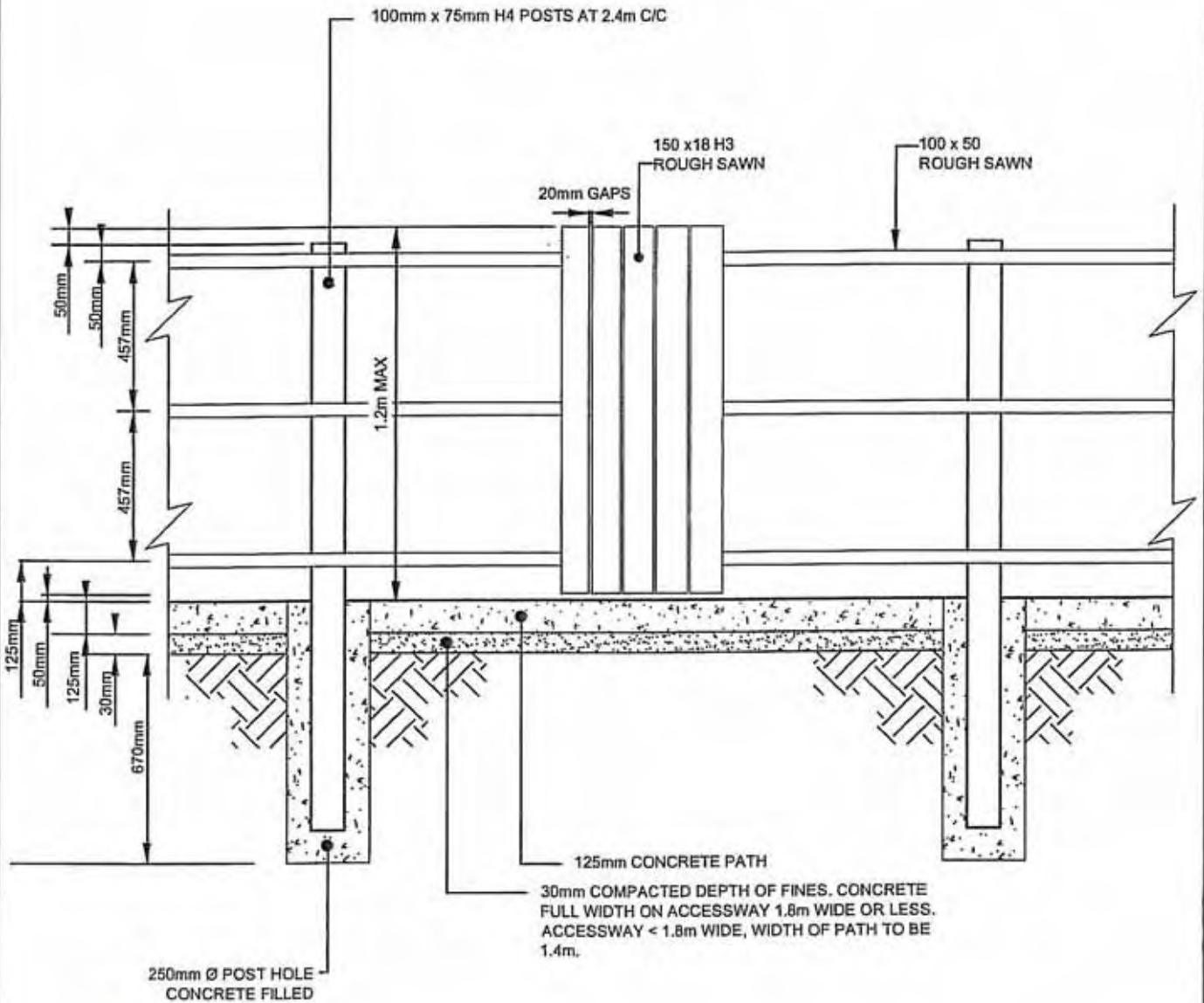
**PEDESTRIAN ACCESSWAY**

DATE: APRIL 2009

No: P 1

**NOTES:**

1. FENCE SHOWN REPRESENTS THE MINIMUM STANDARD REQUIRED. ALTERNATIVE MAY BE AGREED BY THE ENGINEER.
2. PAVING BLOCKS OR SIMILAR MAY BE USED FOR THE ACCESSWAY SUBJECT TO THE PRIOR APPROVAL OF THE ENGINEER TO THE TYPE AND METHOD OF LAYING PROPOSED.



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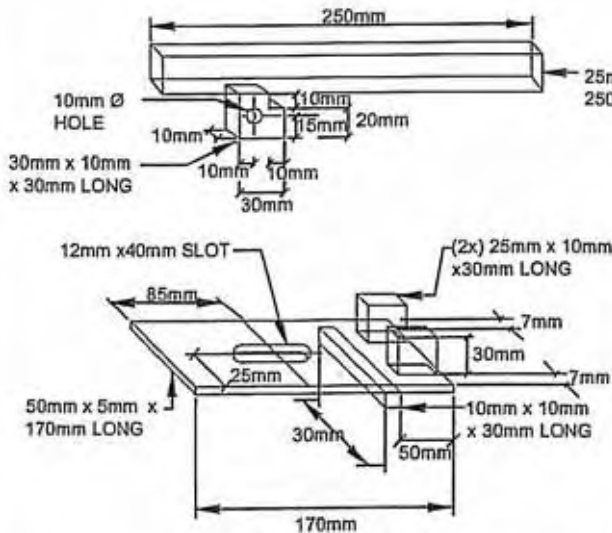
STANDARD DETAIL

PEDESTRIAN ACCESSWAYS

DATE: AUGUST 2010

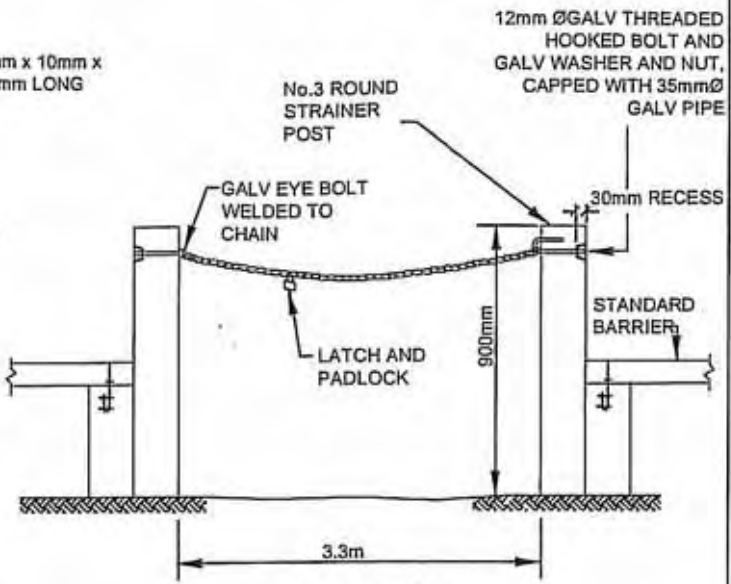
No: P 2



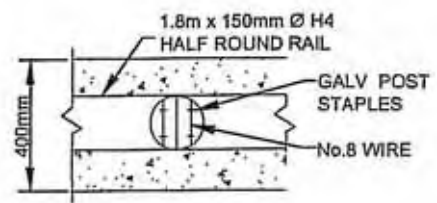
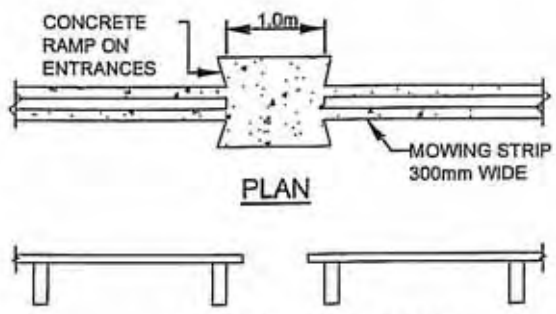


**LATCH DETAIL**

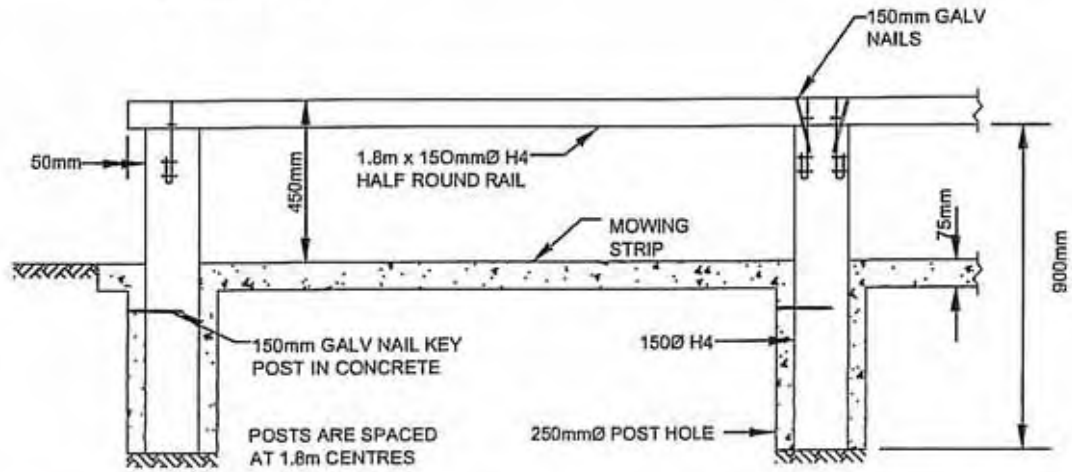
**NOTE:**  
ALL COMPONENTS HOT DIPPED GALVANISED AND ALL FILLET WELDS ARE AT 5mm.



**GATE DETAIL**



**PLAN**



**BARRIER END AND STANDARD POST DETAIL ELEVATION**



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**STANDARD DETAIL**

**STANDARD PARK BARRIERS**

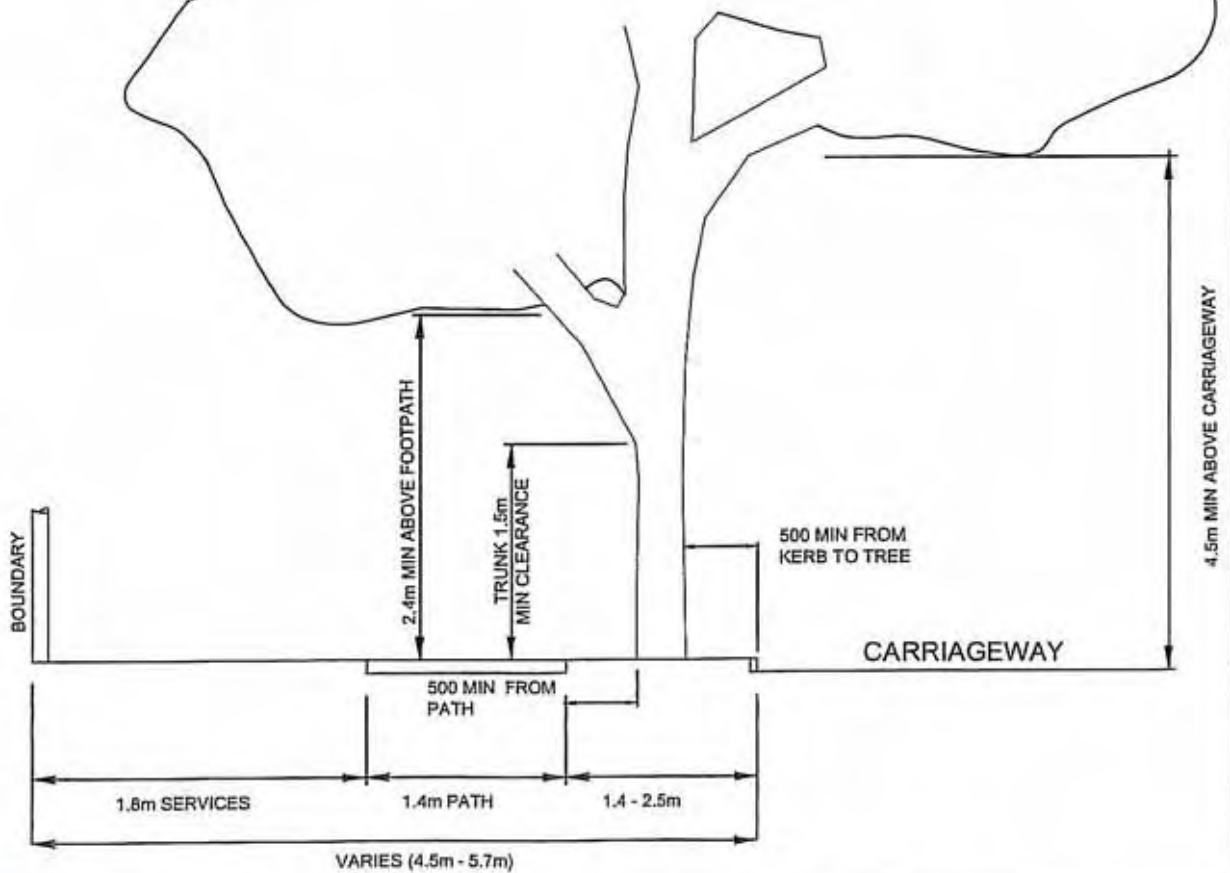
DATE: APRIL 2009

No: P 3

**NOTE:**

SPECIFIC APPROVAL IS REQUIRED FOR STRUCTURES IN ROAD RESERVE CONSIDERING FOLLOWING CRITERIA

1. ROAD HIERARCHY
2. PROXIMITY OF THE ROAD INTERSECTION
3. PROXIMITY OF VEHICULAR AND PEDESTRIAN CROSSINGS
4. TRAFFIC VOLUME DUCTS WILL BE REQUIRED TO ALLOW FOR SERVICES



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## STANDARD DETAIL

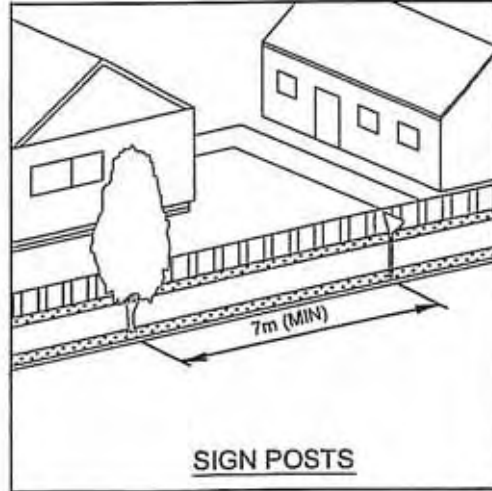
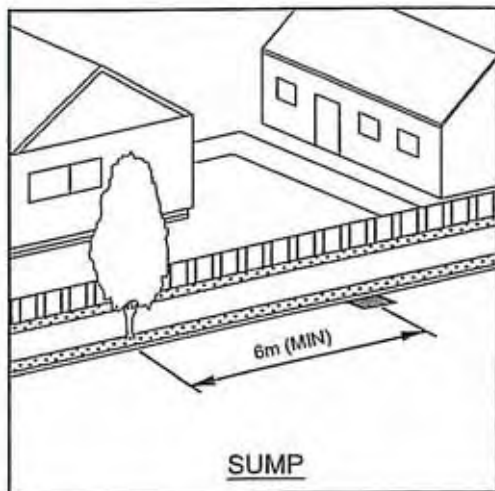
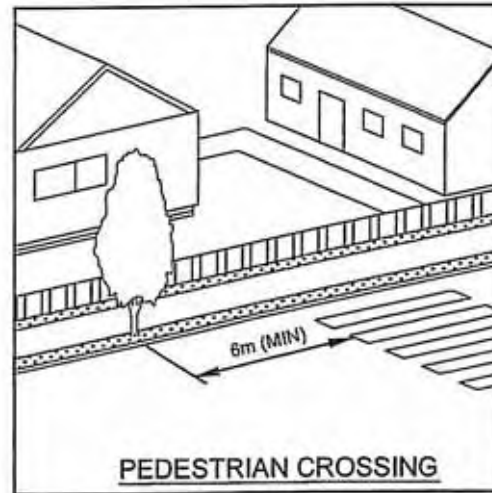
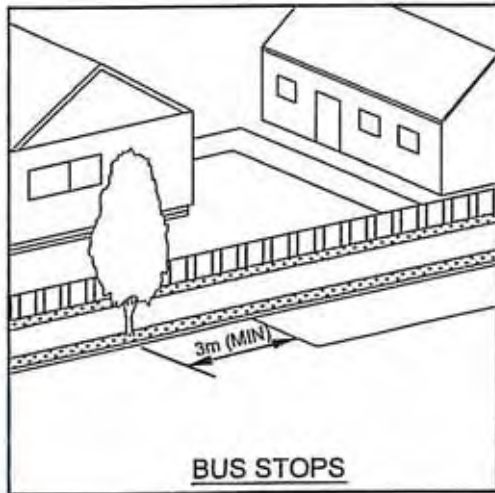
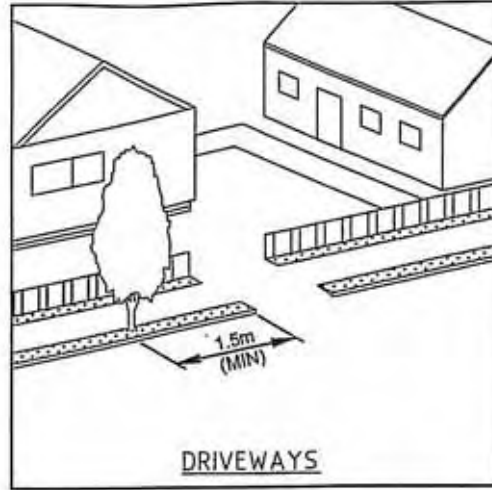
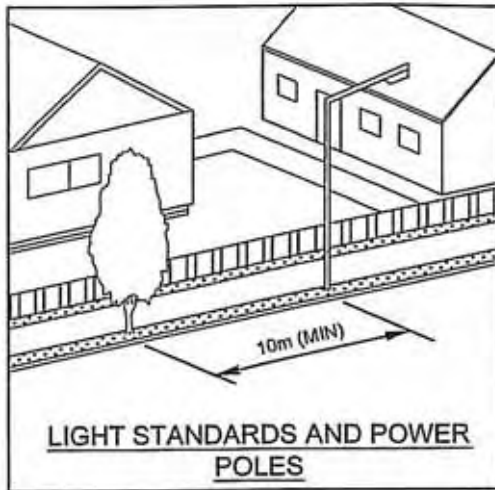
STANDARD BERM CROSS -  
SECTION WITH ENVELOPES  
FOR TREE LANDSCAPING

DATE:

APRIL 2009

No:

P 4



**NOTE:**

1. IN HIGH DENSITY URBAN RESIDENTIAL ZONES SOME FLEXIBILITY WITH REGARD TO THESE DIMENSIONS MAY BE PERMITTED.



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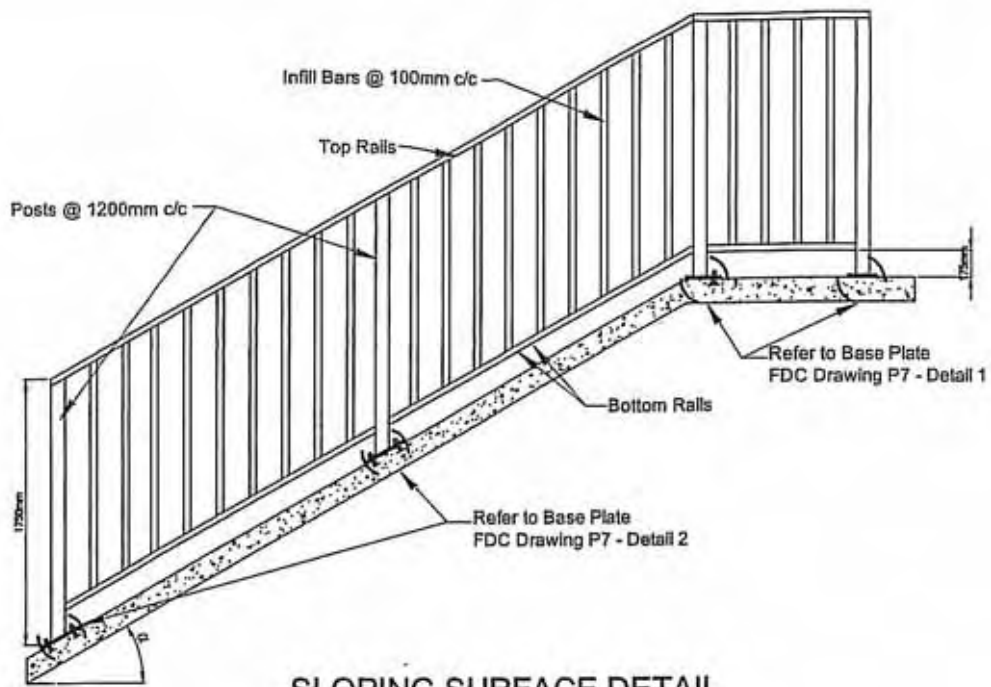
**STANDARD DETAIL**

**PREFERRED STREET TREE  
PLACEMENT**

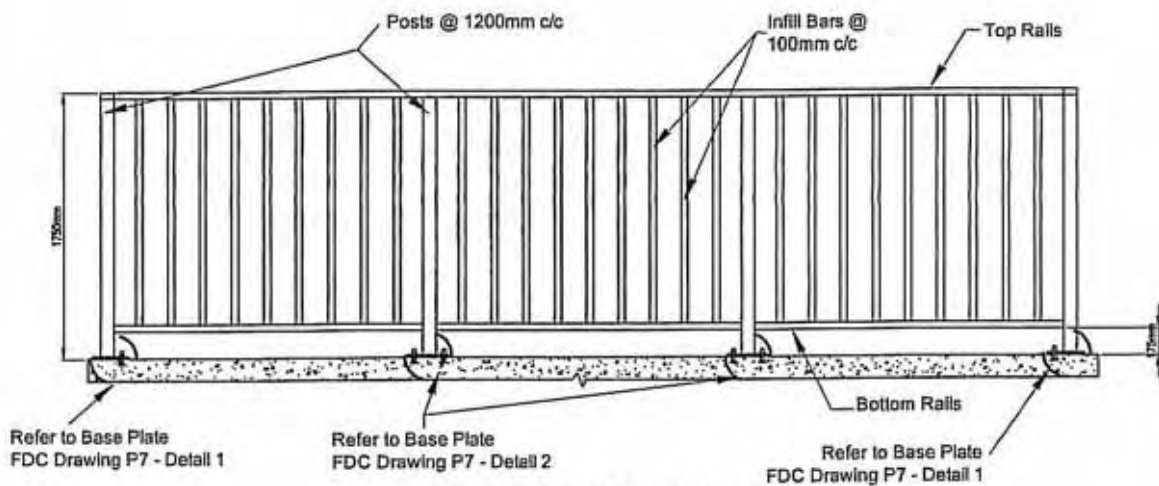
DATE: AUGUST 2010

No: P 5





**SLOPING SURFACE DETAIL**  
Elevation



**FLAT SURFACE DETAIL**  
Elevation

**Notes:**

- |  |   |              |             |                     |                                   |  |                                   |                             |             |
|--|---|--------------|-------------|---------------------|-----------------------------------|--|-----------------------------------|-----------------------------|-------------|
| <ol style="list-style-type: none"> <li>1. Top &amp; Bottom Rails : 50x25x3.0 RHS</li> <li>2. Posts : 50x50x4.0 SHS</li> <li>3. Infill Bars : 16x16 Square Solid Bar</li> <li>4. Posts and Infill Bars to remain vertical on sloping surface</li> <li>5. All exposed sharp edges and corners to be slightly rounded by grinding before galvanising</li> <li>6. All steelwork to be hot dip galvanised. Coating to be 500g/m or equivalent.</li> <li>7. All opening ends to be closed by welding a endplates before galvanising</li> <li>8. Post fixings : M12 Bolts x 70mm length and washer</li> </ol> | <ol style="list-style-type: none"> <li>9. All bolt connections to be Grade 4.6 and snug-tightened</li> <li>10. All RHS, SHS, Solid bars to be Grade C350</li> <li>11. All infill bars to be centered along top and bottom rails before welding</li> <li>12. RHS connections are 3mm end-to-end butt-welds</li> <li>13. Weld Connections: <table border="0" style="margin-left: 20px;"> <tr> <td>Infill Bars:</td> <td>3mm F.W.A.R</td> </tr> <tr> <td>Base Plate to Post:</td> <td>6mm F.W.A.R : <math>\alpha &lt; 30^\circ</math></td> </tr> <tr> <td></td> <td>6mm F.W.A.R : <math>\alpha &gt; 30^\circ</math></td> </tr> <tr> <td>Top &amp; Bottom Rails to Post:</td> <td>4mm F.W.A.R</td> </tr> </table> </li> </ol> <p>(Note: F.W.A.R. = Fillet Weld All Round)</p> | Infill Bars: | 3mm F.W.A.R | Base Plate to Post: | 6mm F.W.A.R : $\alpha < 30^\circ$ |  | 6mm F.W.A.R : $\alpha > 30^\circ$ | Top & Bottom Rails to Post: | 4mm F.W.A.R |
| Infill Bars:   | 3mm F.W.A.R   |              |             |                     |                                   |  |                                   |                             |             |
| Base Plate to Post:  | 6mm F.W.A.R : $\alpha < 30^\circ$   |              |             |                     |                                   |  |                                   |                             |             |
|  | 6mm F.W.A.R : $\alpha > 30^\circ$   |              |             |                     |                                   |  |                                   |                             |             |
| Top & Bottom Rails to Post:  | 4mm F.W.A.R   |              |             |                     |                                   |  |                                   |                             |             |



**STANDARD DETAIL**

**PEDESTRIAN SAFETY  
HANDRAIL DETAILS**

DATE: SEPTEMBER 2010

No: P 6

