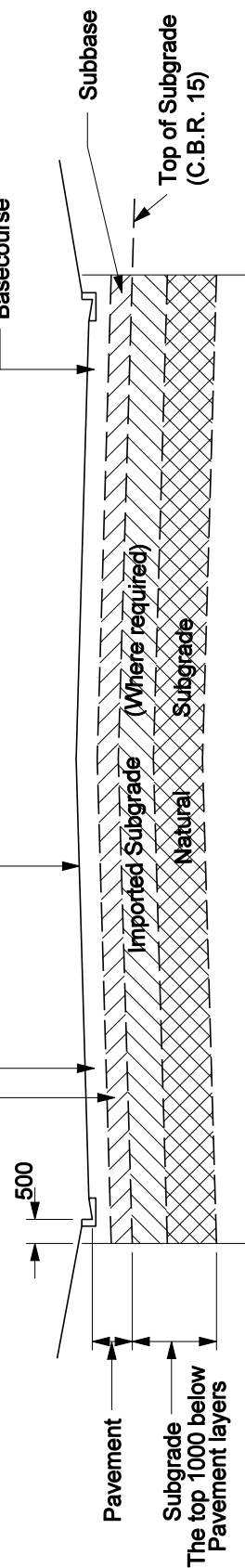
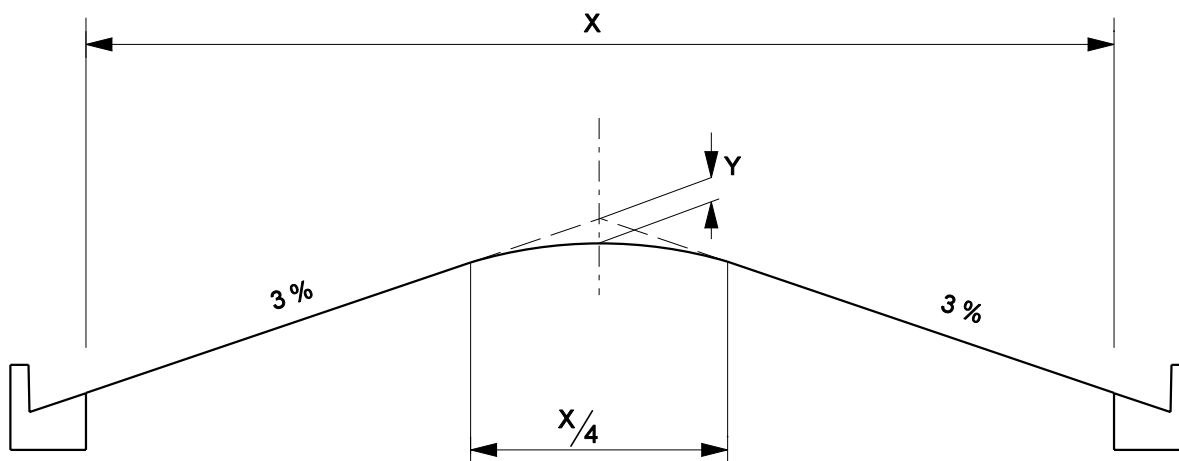


Typically - TNZ M/4 AP40 (i)
or - GAP (ii)

Typically - GAP 40 (i)
or - GAP 65





$$Y \text{ (in mm)} = 2 X \text{ (where } X \text{ is in metres)}$$

e.g. $X = 7.9$ (8.5 carriageway)

$$\therefore Y = 2 \times 7.9$$

$$= 16\text{mm}$$

Crown Height above lip of channel (in mm) = $13X$ (where X is in metres)

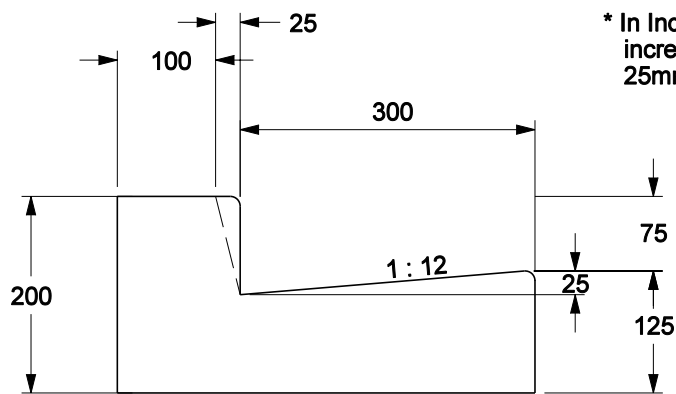
NORMAL CARRIAGEWAY CAMBER

TABLE OF LEVEL TOLERANCES FOR FLEXIBLE PAVEMENTS

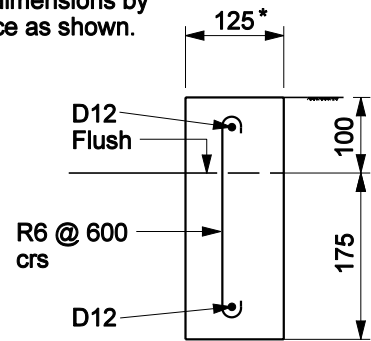
At top of Layer	Centreline and near Pavement edge	At Channel edge	Deviation from 3m straight edge or camber board
Surface			1: 12mm 2: 8mm
Basecourse	- 5mm to + 15mm	1: 0mm to + 10mm 2: -5mm to + 5mm	12mm
Sub-base	- 25mm to + 5mm	- 25mm to + 5mm	15mm
Subgrade	- 30mm to 0mm	- 30mm to 0mm	15mm

- 1: Chip sealed surface
2: Asphalt surface (minimum 25mm thick)

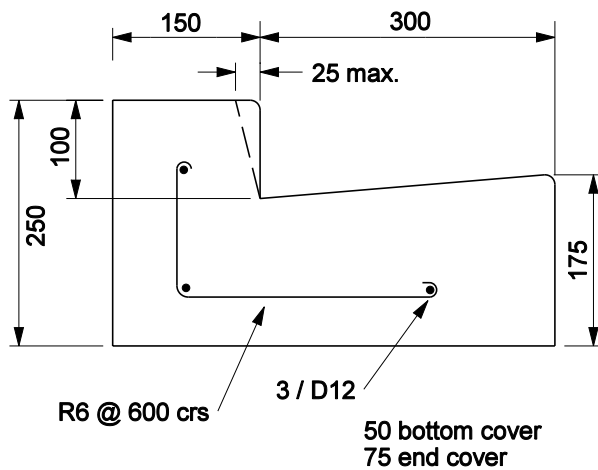
Construction levels are based on lip of channel, appropriate crossfall and designed pavement layer thickness



VERTICAL KERB & CHANNEL

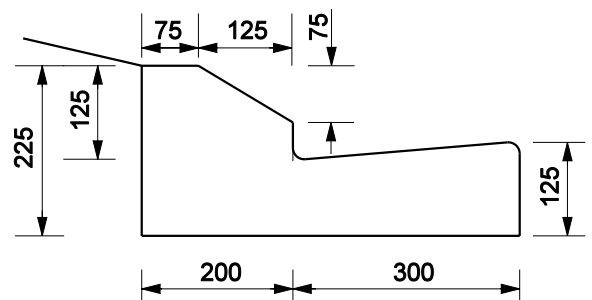


EDGE RESTRAINT
(Parallel to Travel)



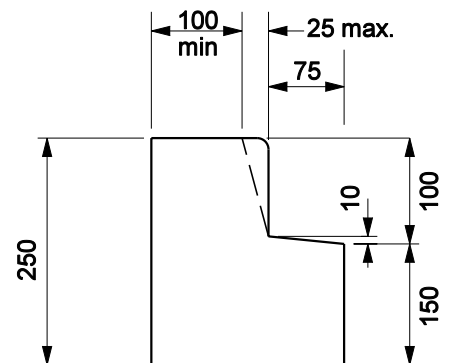
HEAVY DUTY KERB & CHANNEL

E.G. Tight Radius K & C usage
Narrow Carriageway

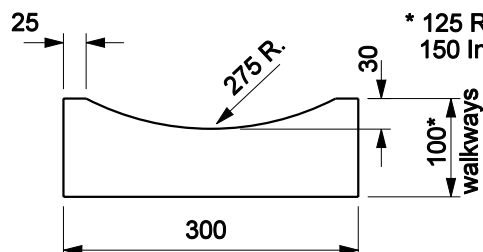


MOUNTABLE KERB & CHANNEL

Type 2



VERTICAL NIB KERB



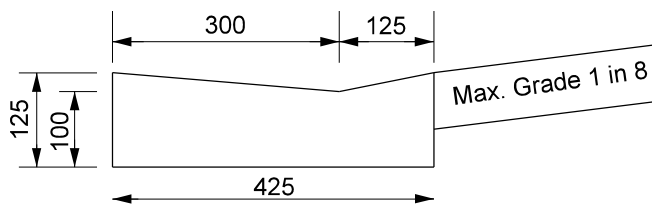
DISH CHANNEL - FOOTPATHS

* 125 Residential Streets
150 Industrial / Commercial Streets

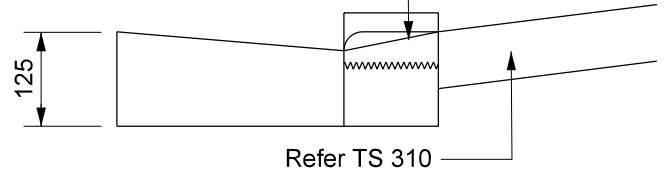
NOTE:

All concrete shall be 20 MPa in place.
Minimum radius for kerbs on Public roads 5.0m.

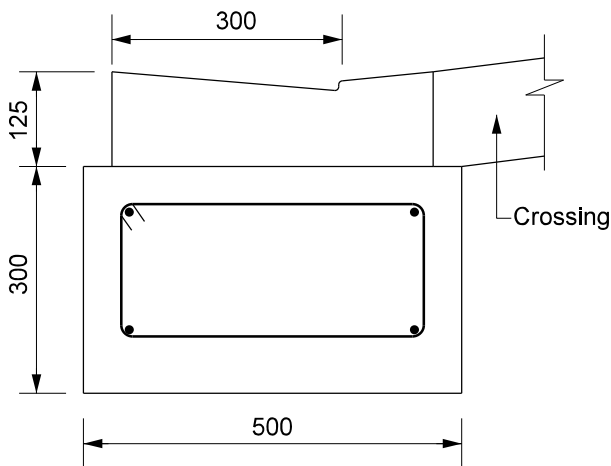
New residential crossing in existing K & C only.
Saw cut 40mm deep and remove vertical portion
and recast crossing - only applies where the
channel is not cracked, otherwise replace K & C



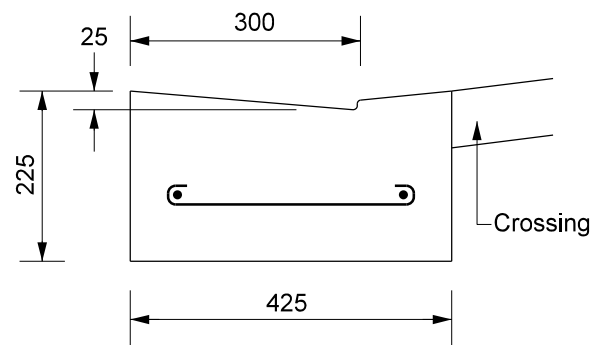
**PRAM/PEDESTRIAN/CYCLE
FLUSH CUTDOWN**



**RESIDENTIAL CHANNEL CROSSING
(Less than 7 Household Units)**

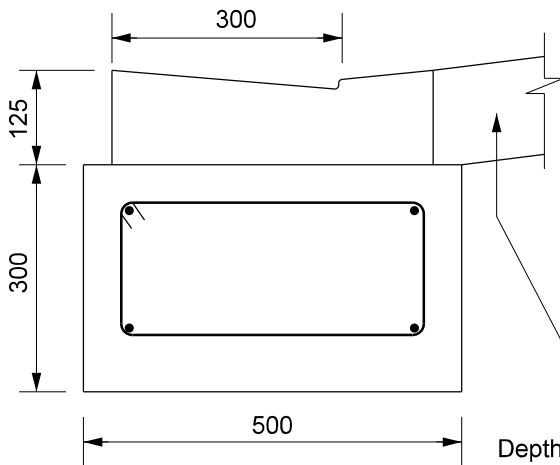


CASE A

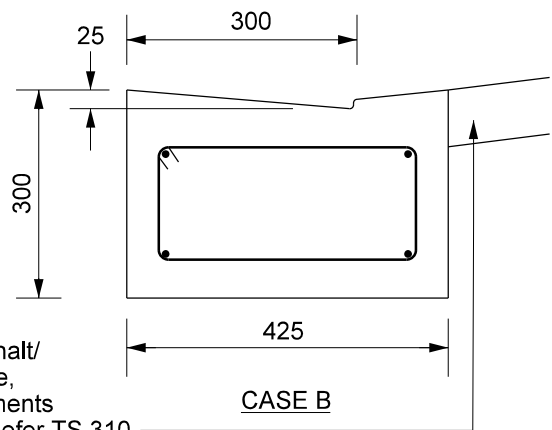


CASE B

**COMMERCIAL CHANNEL CROSSING
(Also Residential Privateways 7 or more Household Units)**



CASE A



CASE B

Depth of concrete/asphalt/
interlocking block, base,
reinforcement requirements
and subgrade CBR - Refer TS 310

INDUSTRIAL CHANNEL CROSSING

Case A For Extrusion Machine Channel
Case B For Cast in Situ Channel

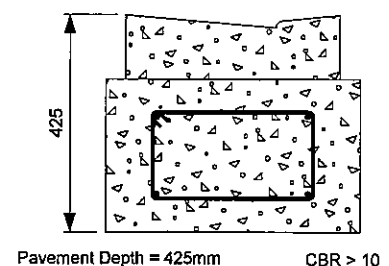
Reinforcing - D12 bars with R6 stirrups @ 600 crs
Reinforcement beam to extend 1500 either side of cutdown.
Side & Top Cover 50mm minimum
Bottom Cover 75mm minimum

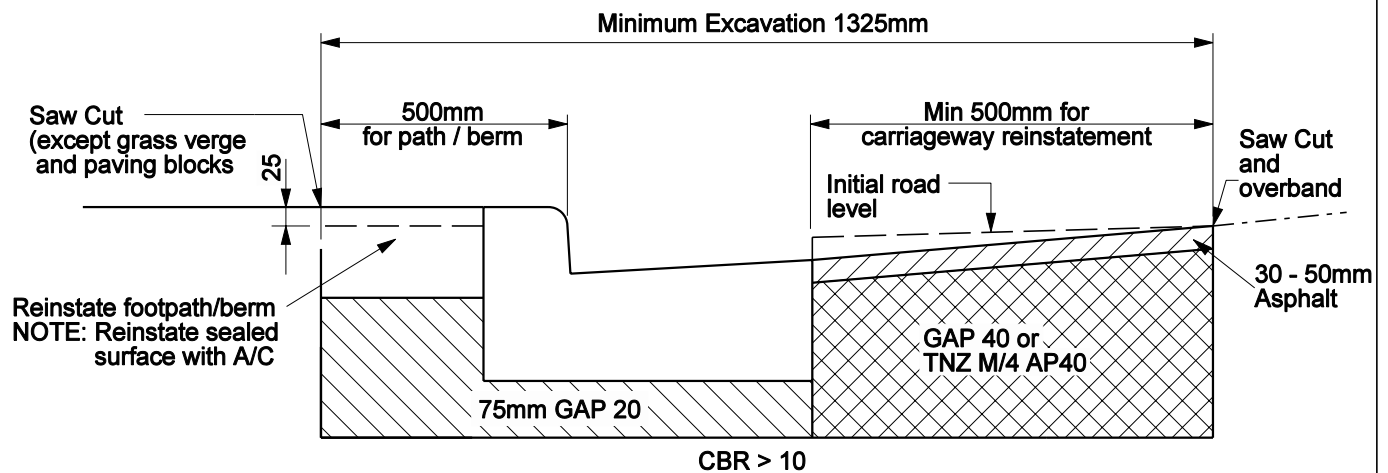
	Pedestrian Footpath (Single Residential Dwelling)	Residential Strength Vehicle Crossing (Multi Dwellings 2-6)	Commercial Strength Vehicle Crossing (Multi Dwellings 7+)	Industrial Strength Vehicle Crossings
Asphalt Surfacing	<p>25mm Mix 10 Asphalt</p> <p>150mm WHAP 40</p> <p>CBR > 10</p> <p>Pavement Depth = 175mm</p>	<p>25mm Mix 10 Asphalt</p> <p>175mm WHAP 40</p> <p>CBR > 10</p> <p>Pavement Depth = 200mm</p>	<p>25mm Mix 10 Asphalt</p> <p>225mm WHAP 40</p> <p>CBR > 10</p> <p>Pavement Depth = 250mm</p>	<p>50mm Mix 20 Asphalt</p> <p>250mm WHAP 40</p> <p>CBR > 10</p> <p>Pavement Depth = 300mm</p>
Concrete Surfacing	<p>100mm Concrete</p> <p>75mm Sand/WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 175mm</p>	<p>125mm Concrete</p> <p>75mm Sand/WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 200mm</p>	<p>150mm Concrete</p> <p>100mm WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 250mm</p>	<p>175mm Concrete</p> <p>125mm WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 300mm</p>
Inter locking block paving	<p>50/60mm Paving Block</p> <p>90mm WHAP 40</p> <p>25mm Bedding Sand</p> <p>CBR > 10</p> <p>Pavement Depth = 175mm</p>	<p>80mm Paving Block</p> <p>90mm WHAP 40</p> <p>25mm Bedding Sand</p> <p>CBR > 10</p> <p>Pavement Depth = 195mm</p>	<p>80mm Paving Block</p> <p>145mm WHAP 40</p> <p>25mm Bedding Sand</p> <p>CBR > 10</p> <p>Pavement Depth = 250mm</p>	<p>80mm Paving Block</p> <p>195mm WHAP 40</p> <p>25mm Bedding Sand</p> <p>CBR > 10</p> <p>Pavement Depth = 300mm</p>
Depressed Kerb and Channel Crossing	<p>Pedestrian crossing (No Lip)</p> <p>125</p> <p>75mm WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 200mm</p>	<p>Residential dwelling vehicle crossing (1-6 Dwellings)</p> <p>125</p> <p>75mm WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 200mm</p>	<p>225</p> <p>75mm WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 300mm</p>	<p>300</p> <p>75mm WHAP 20</p> <p>CBR > 10</p> <p>Pavement Depth = 350mm</p>

NOTES:

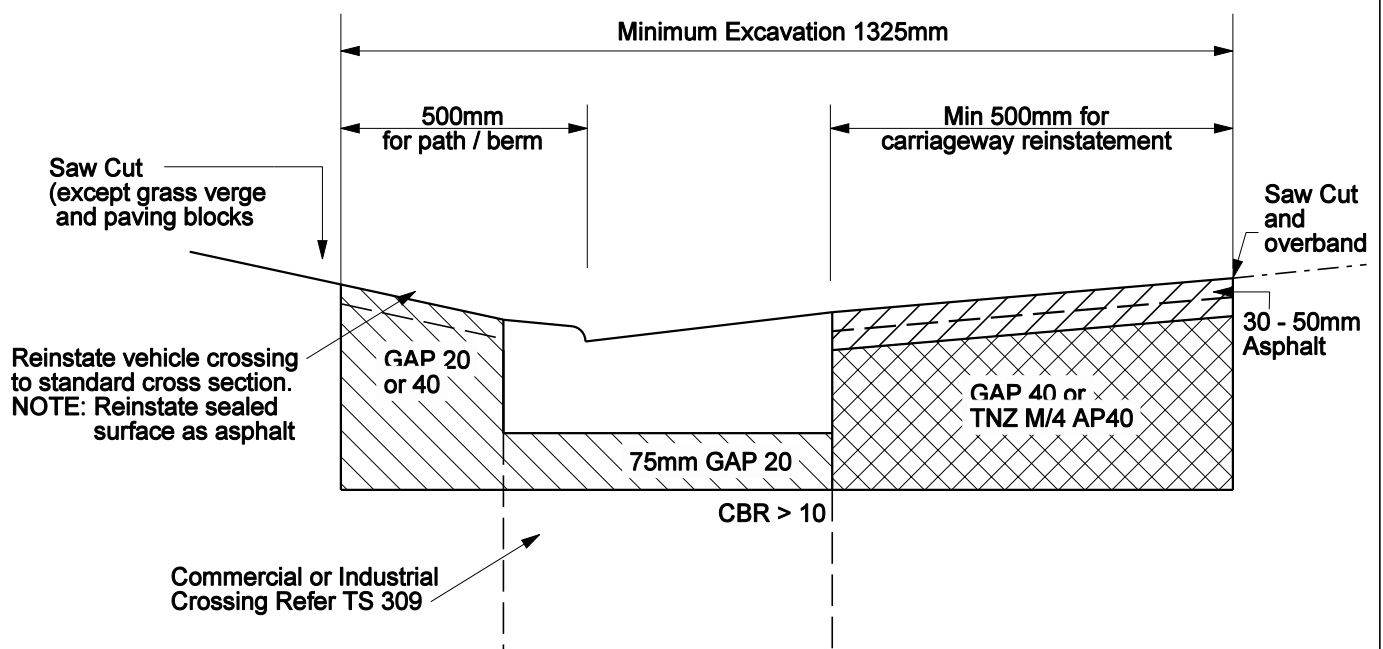
- Concrete - 28 Day in place minimum strength of 20 MPa
(Refer to HCC Development Manual, Vol. 3: Pt 3: Section 11: Clause 11.10: Concrete Footpaths & Vehicle Crossings)
- Block Paving - (Refer to HCC Development Manual, Vol. 3: Pt 3: Section 12: Block Paving)
- Asphalt - (Refer to HCC Development Manual, Vol. 3: Pt 3: Section 11: Clause 11.11: Asphalt Surfacing)
- Base course depth can be amended by using steel mesh reinforcing in concrete vehicle crossings (specific design required)
- Depth of sand/WHAP material to be increased where CBR is not achievable

Machine Extruded Crossing

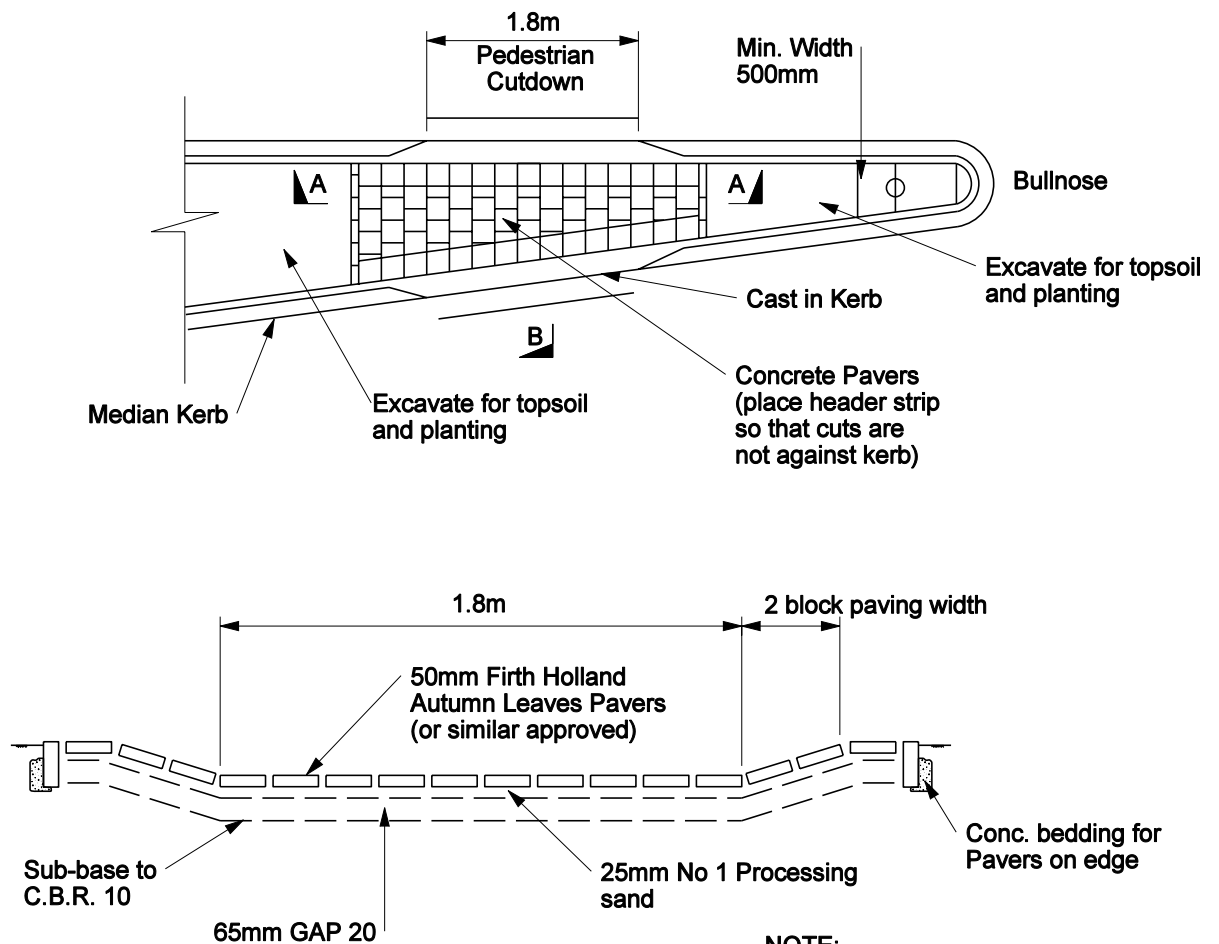




STANDARD KERB AND CHANNEL

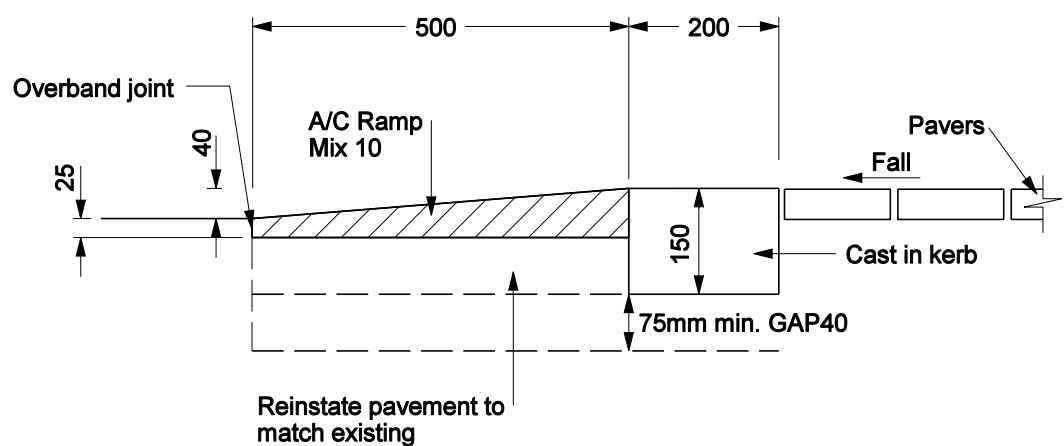


RESIDENTIAL CROSSINGS

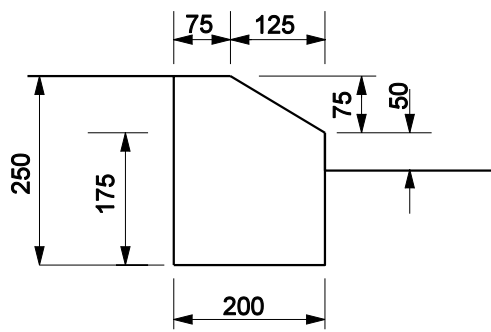


NOTE:
Use only processed sand as bedding over existing pavement

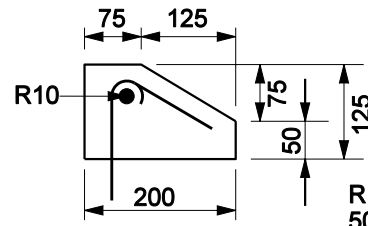
SECTION A - A



SECTION AT B



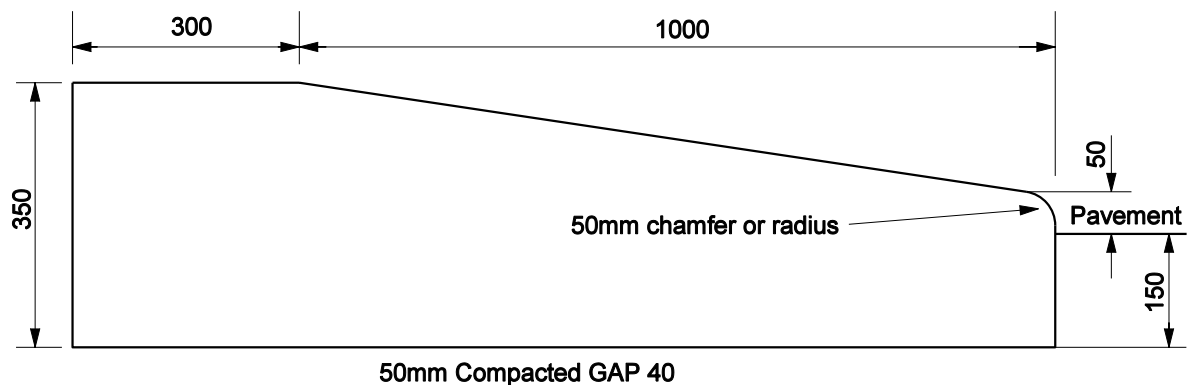
TYPE A
(Cast Insitu)



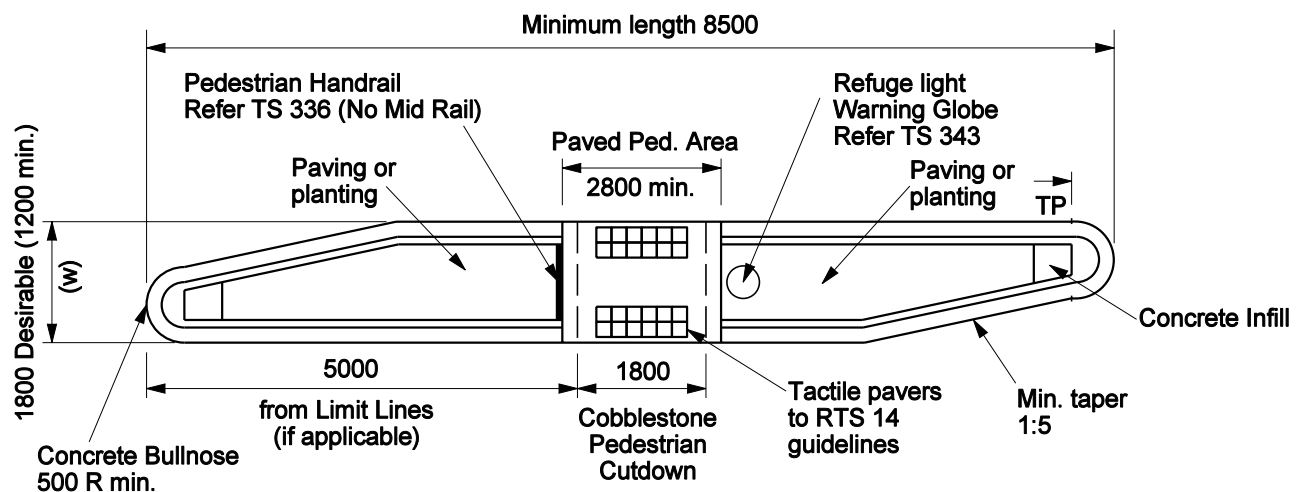
TYPE B
(Pinned to Pavement)

R10 Bar @ 750 crs.
500 long embedded 300.
Bend top over

MEDIAN KERB



CONCRETE ROTARY COLLAR



ISLAND KERB DETAILS TYPICAL

Schematic only - specific design required

HAMILTON CITY COUNCIL
WORKS & SERVICES GROUP
TRANSPORTATION UNIT

Path: g:\hccmap\standards\technical spec\roading\dwgs.dgn

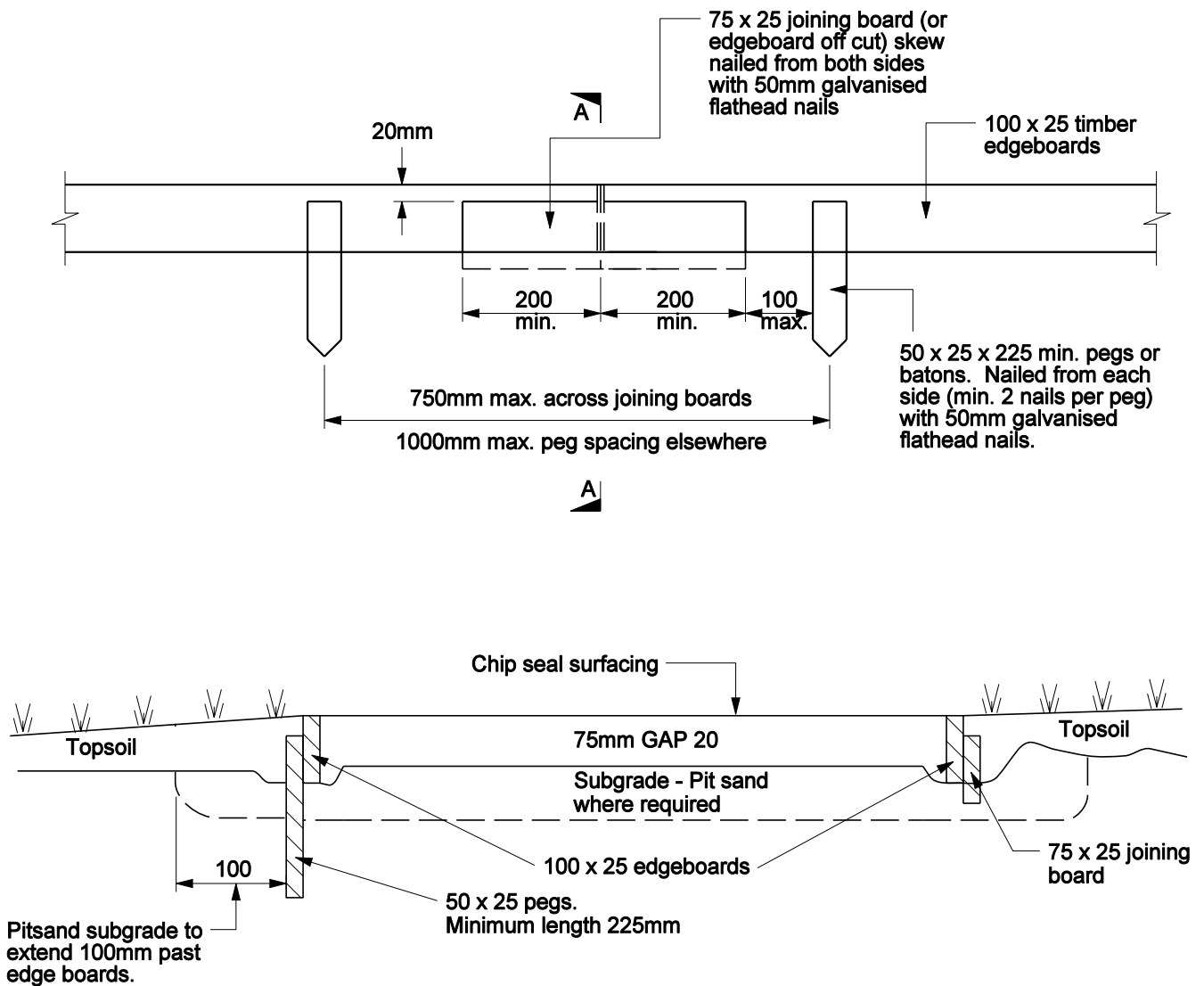
MEDIAN REFUGE ISLAND KERB DETAILS

DEVELOPMENT MANUAL

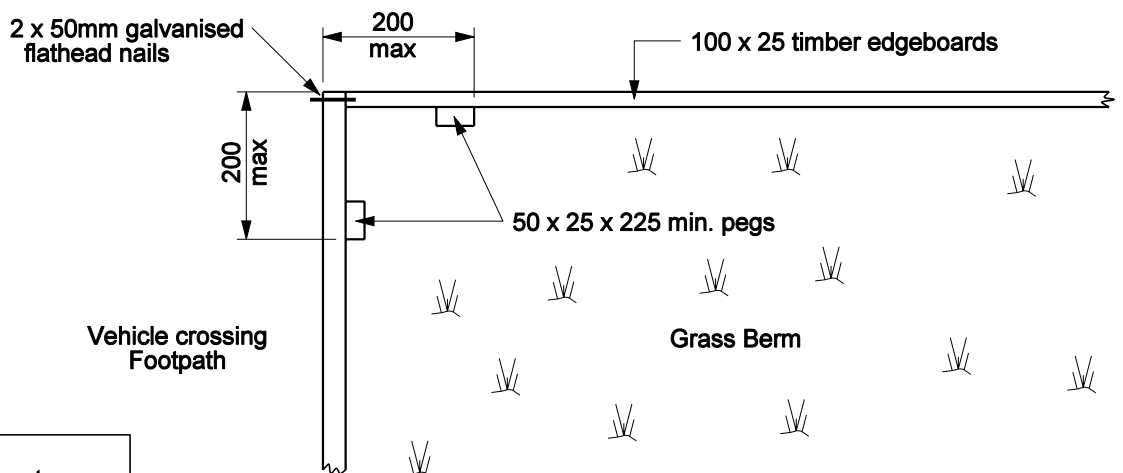
TS 313

Approved: Transportation Manager

Version: August 2008

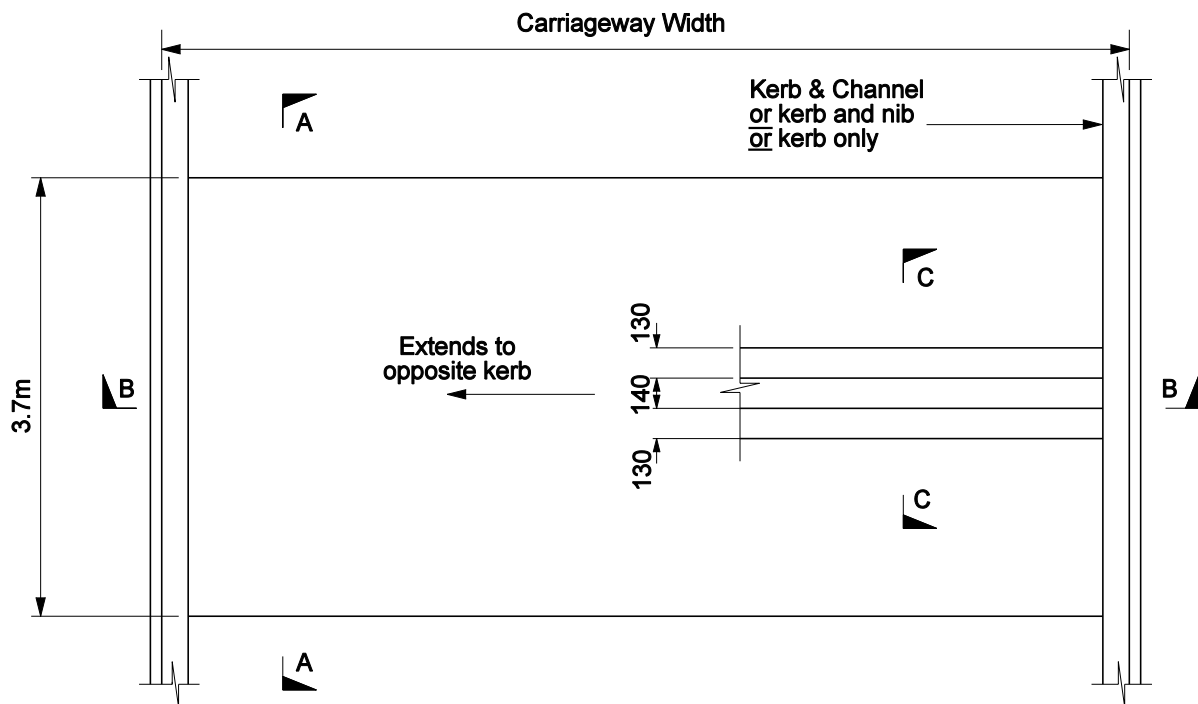


SECTION A - A

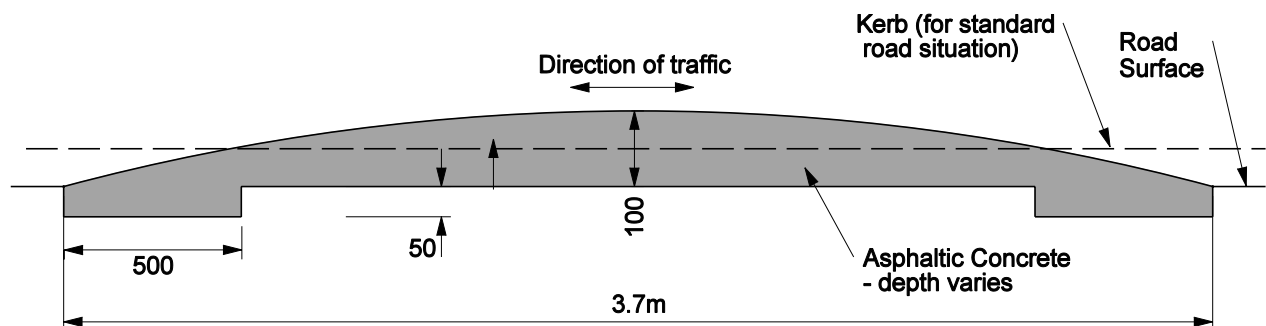


NOTE:
All timber components
shall be H4 ground treated

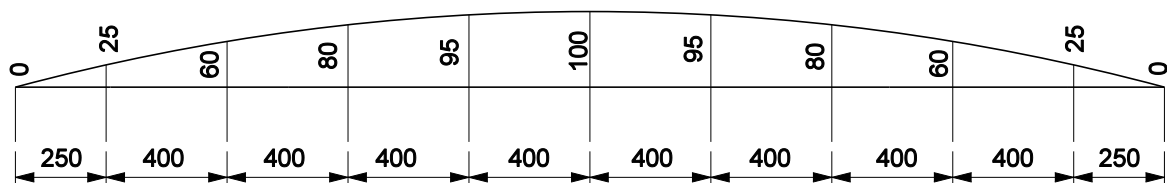
CORNER DETAIL



**PLAN OF STANDARD ROAD SITUATION,
CARRIAGEWAY CONSTRUCTION AND
SMALL PROFILE HUMP**

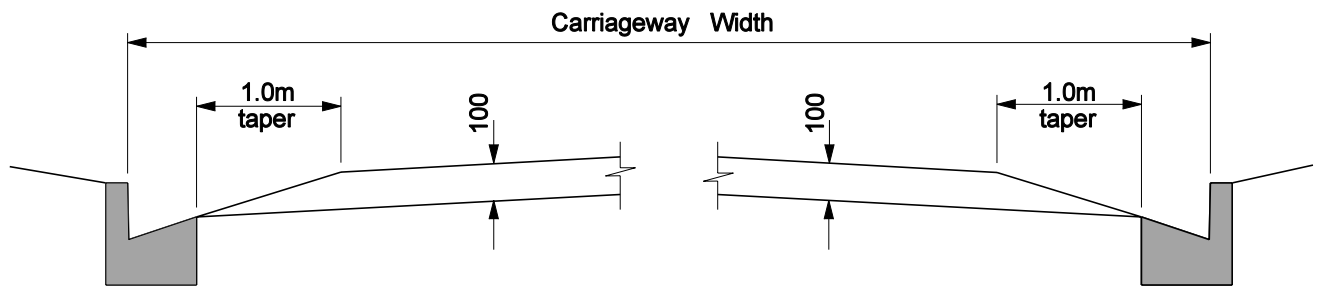


**SECTION A - A ROAD HUMP PROFILE FOR
KERB & CHANNEL
STANDARD ROAD SITUATION**

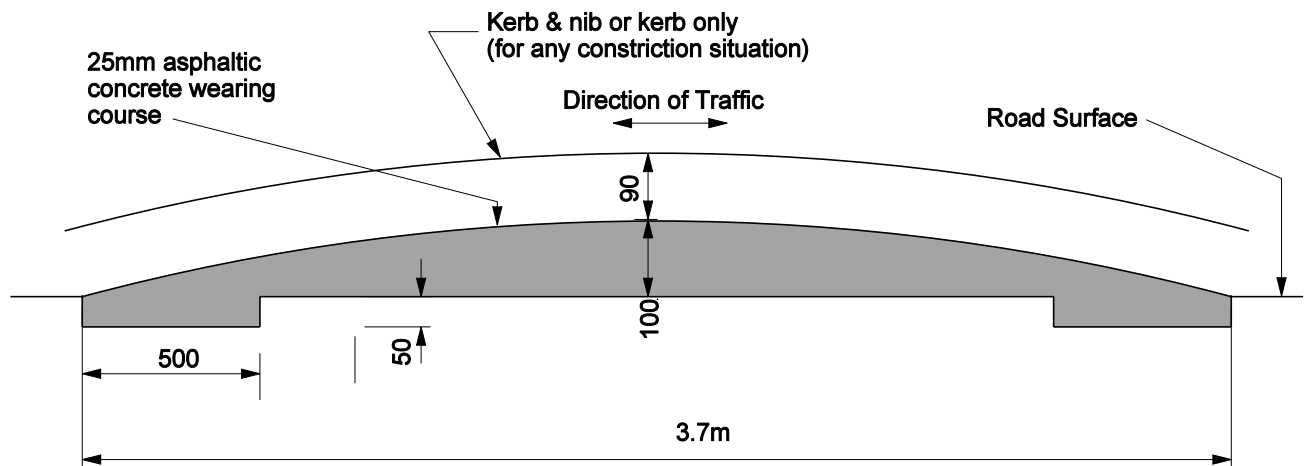


**SETTING OUT PROFILE
FOR SECTION A - A (ALL CASES)**

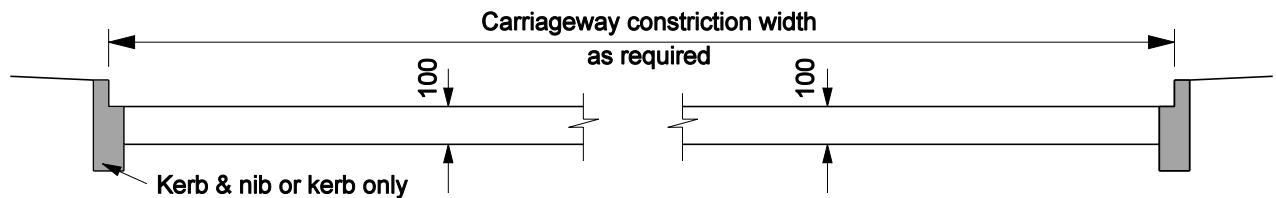
NOTE: Alternative profile and/or materials may be used where approved
by Transportation Manager



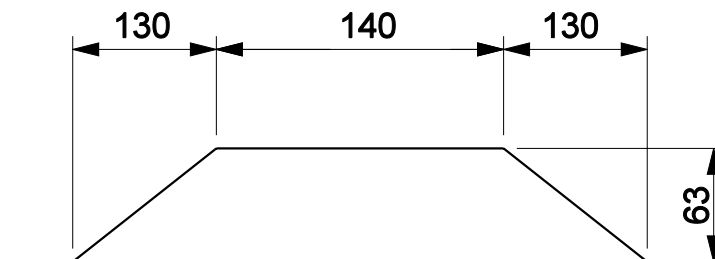
SECTION B - B FOR STANDARD ROAD
SITUATION 3.7m HUMP



SECTION A - A ROAD HUMP PROFILE FOR KERB
& NIB OR KERB ONLY (CARRIAGEWAY CONSTRUCTION)

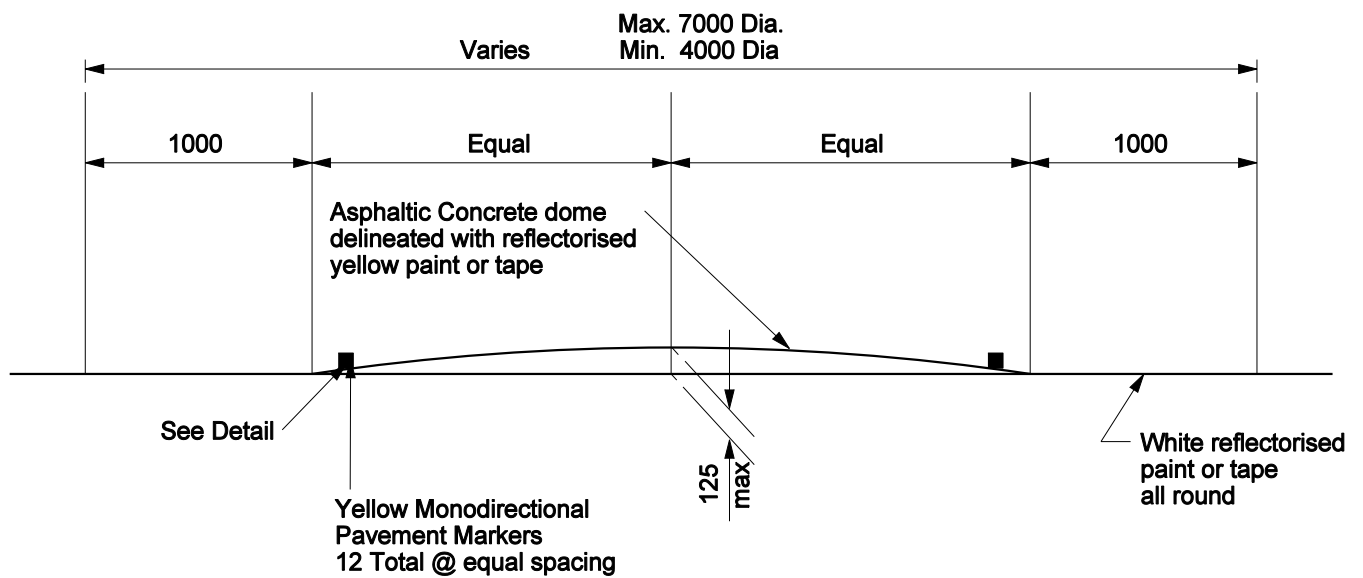


SECTION B - B FOR CARRIAGEWAY CONSTRUCTION

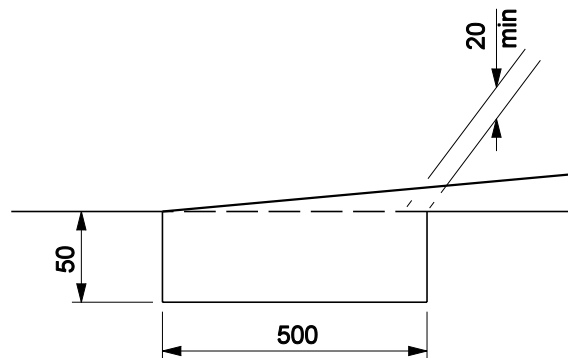


SECTION C - C FOR SMALL PROFILE HUMP

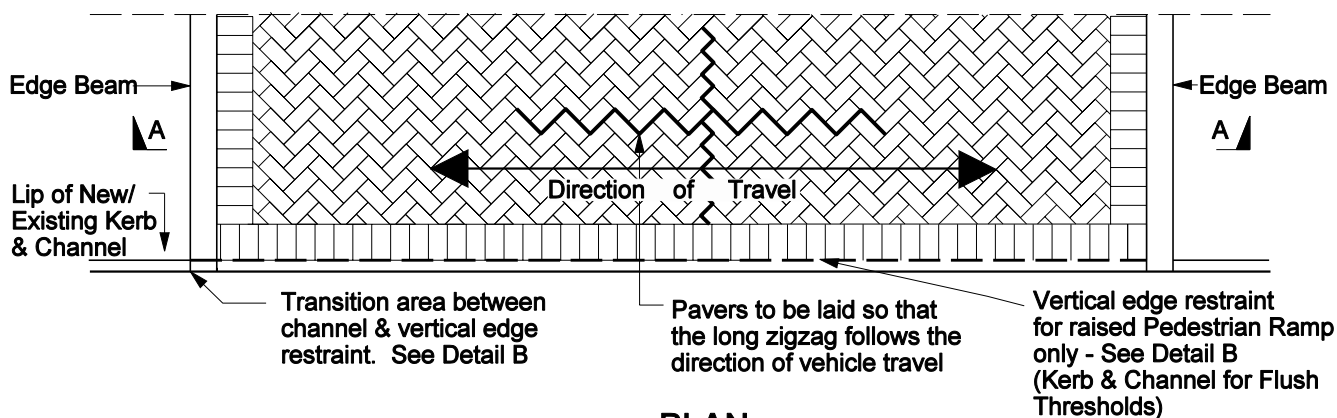
NOTE: Alternative profile and/or materials may be used where approved by Transportation Manager



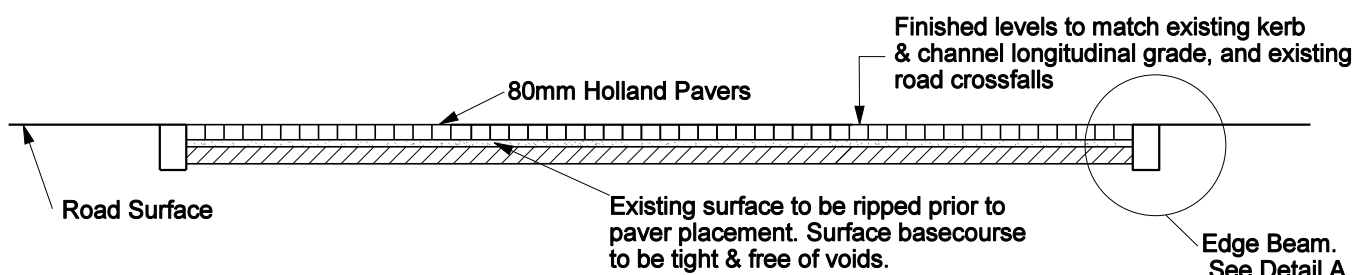
CROSS SECTION



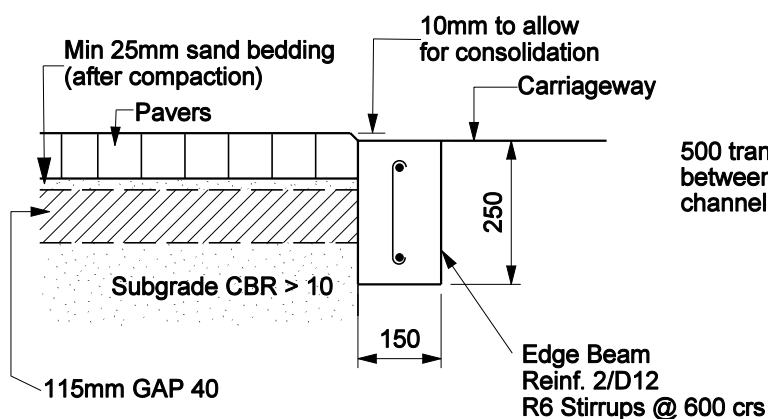
EXISTING PAVEMENT KEY-IN



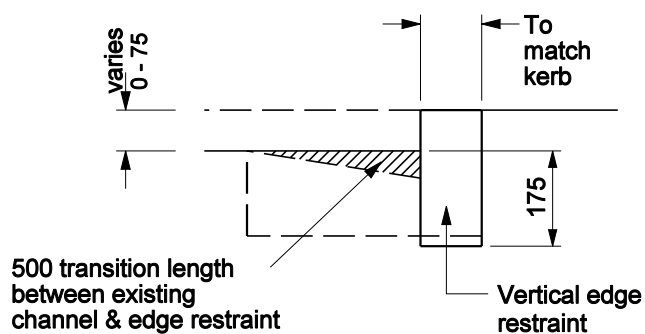
PLAN



SECTION A - A (FLUSH THRESHOLD)



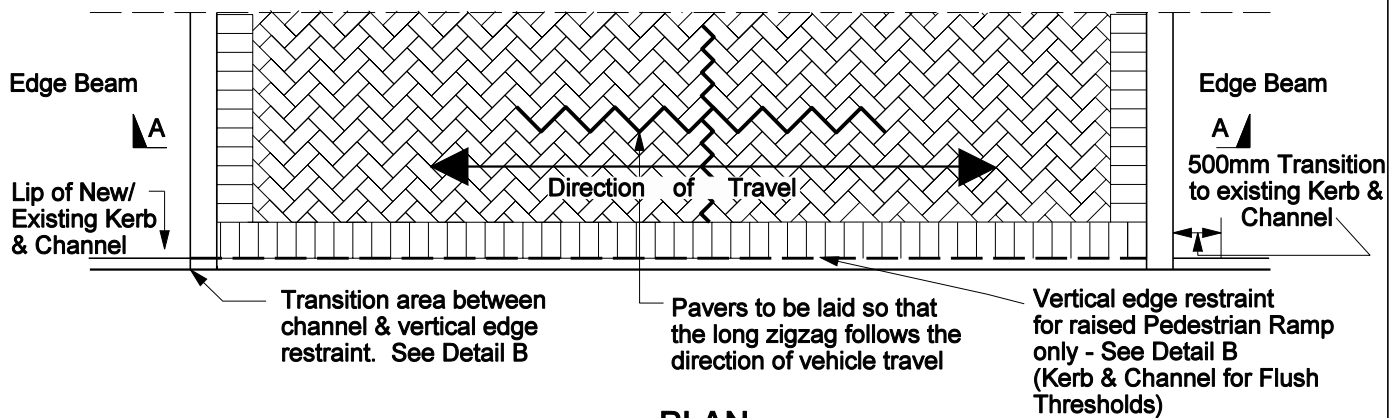
DETAIL A



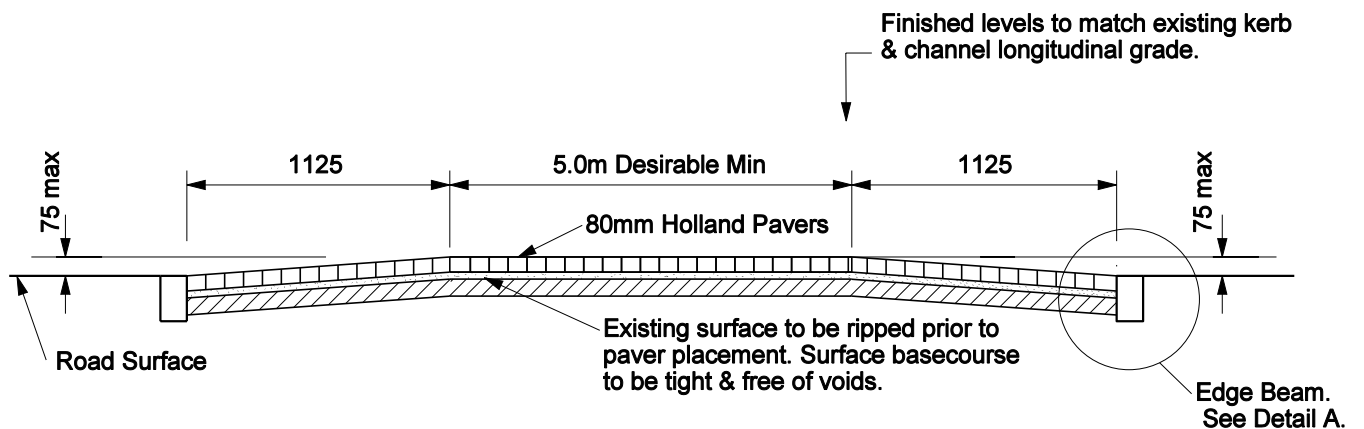
DETAIL B

Notes:

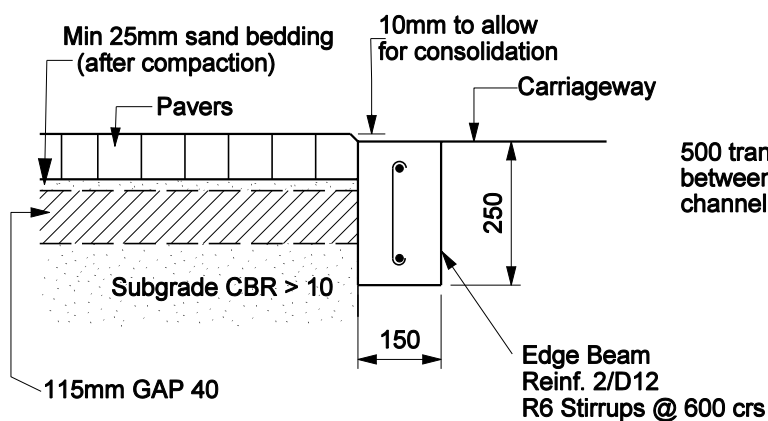
1. Pavers to be Autumn Tones
2. Where existing subgrade is unsatisfactory excavate and replace with imported pitsand
3. Sand bedding to be No 1 grade processed sand



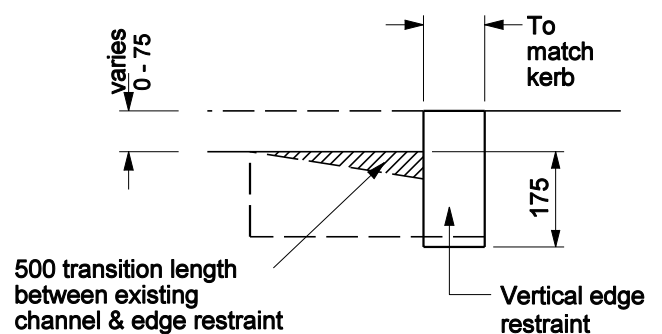
PLAN



SECTION A - A (RAISED PEDESTRIAN RAMP)



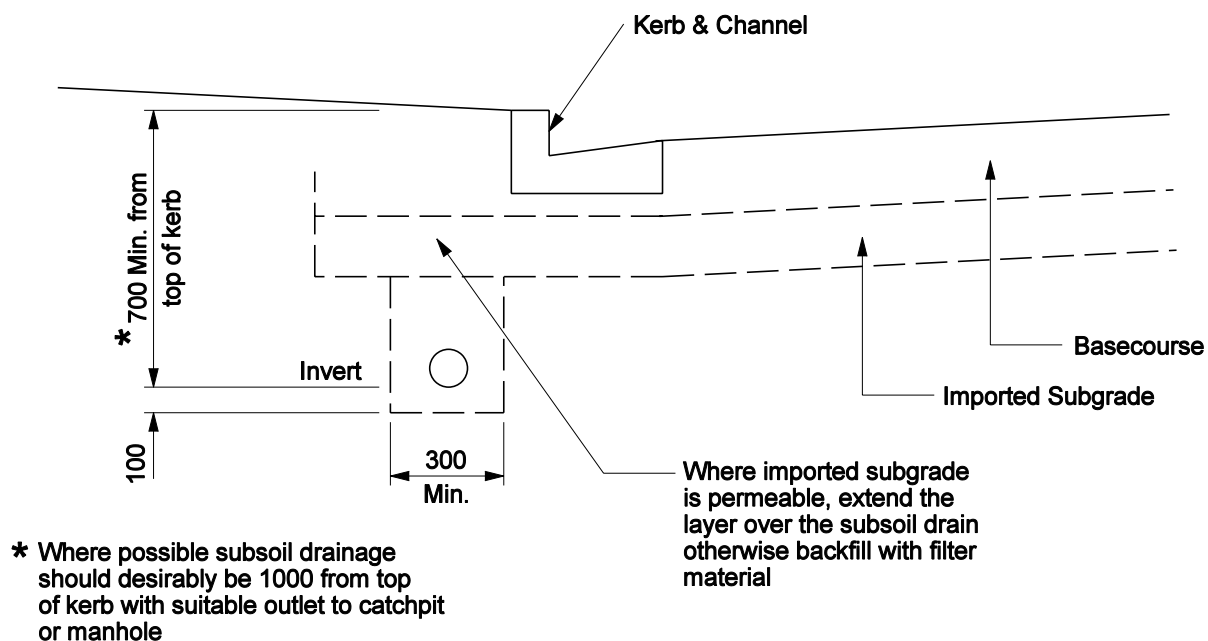
DETAIL A



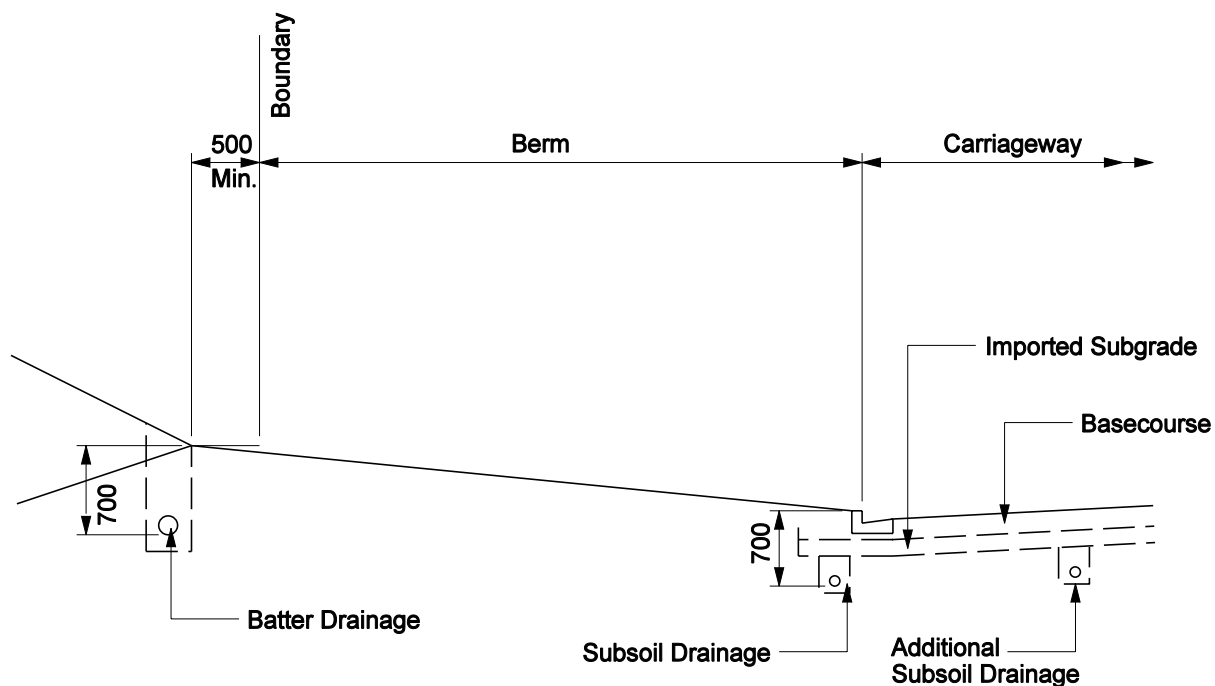
DETAIL B

Notes:

1. Pavers to be Autumn Tones
2. Where existing subgrade is unsatisfactory excavate and replace with imported pitsand
3. Sand bedding to be No 1 grade processed sand

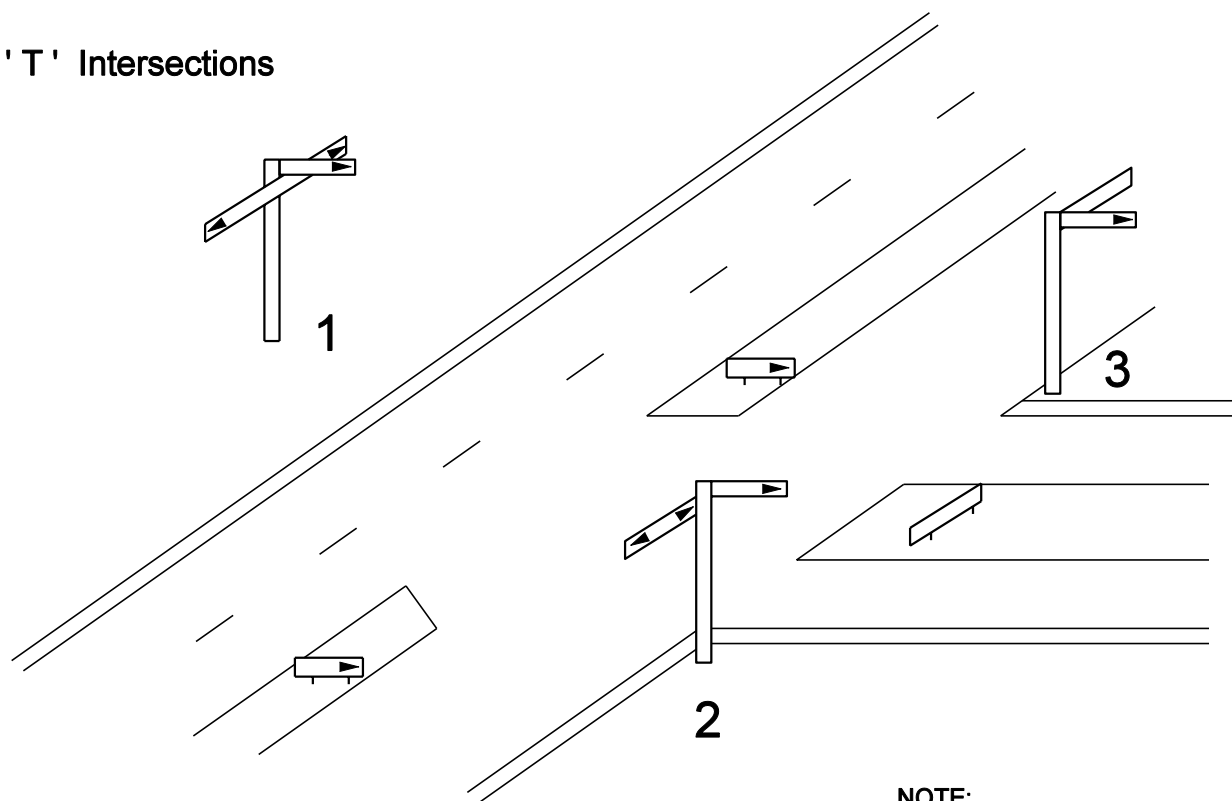


SUBSOIL DRAINAGE



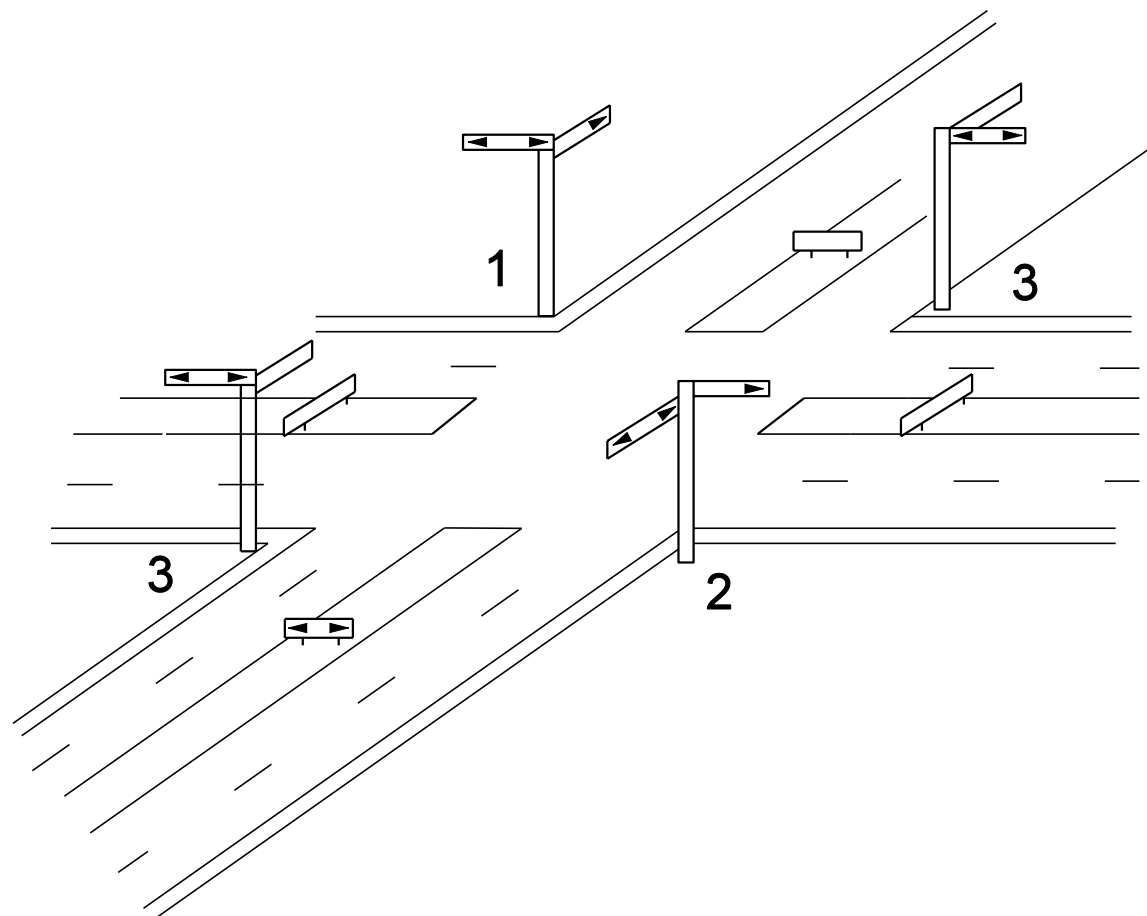
TYPES OF SUBGRADE DRAINAGE

1. 'T' Intersections



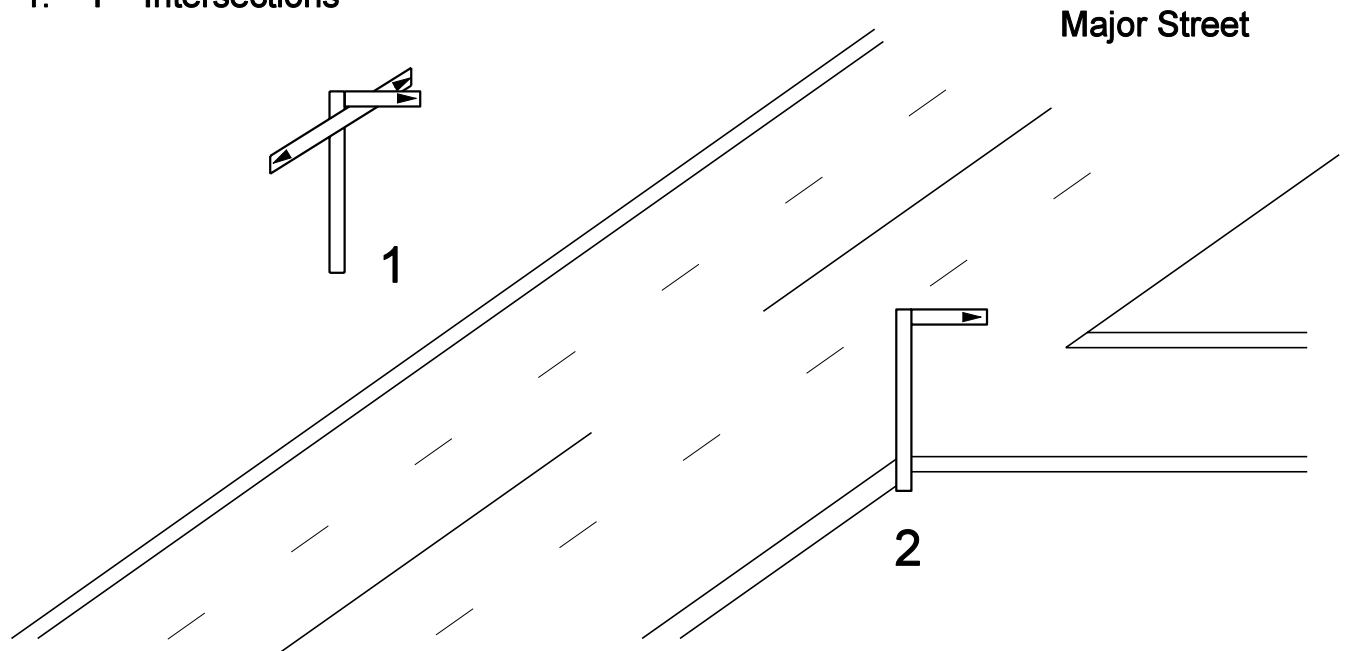
NOTE:
Triangular arrows to be added to
Street Name signs as indicated on
diagrams (both sides of sign).

1. 'X' Intersections

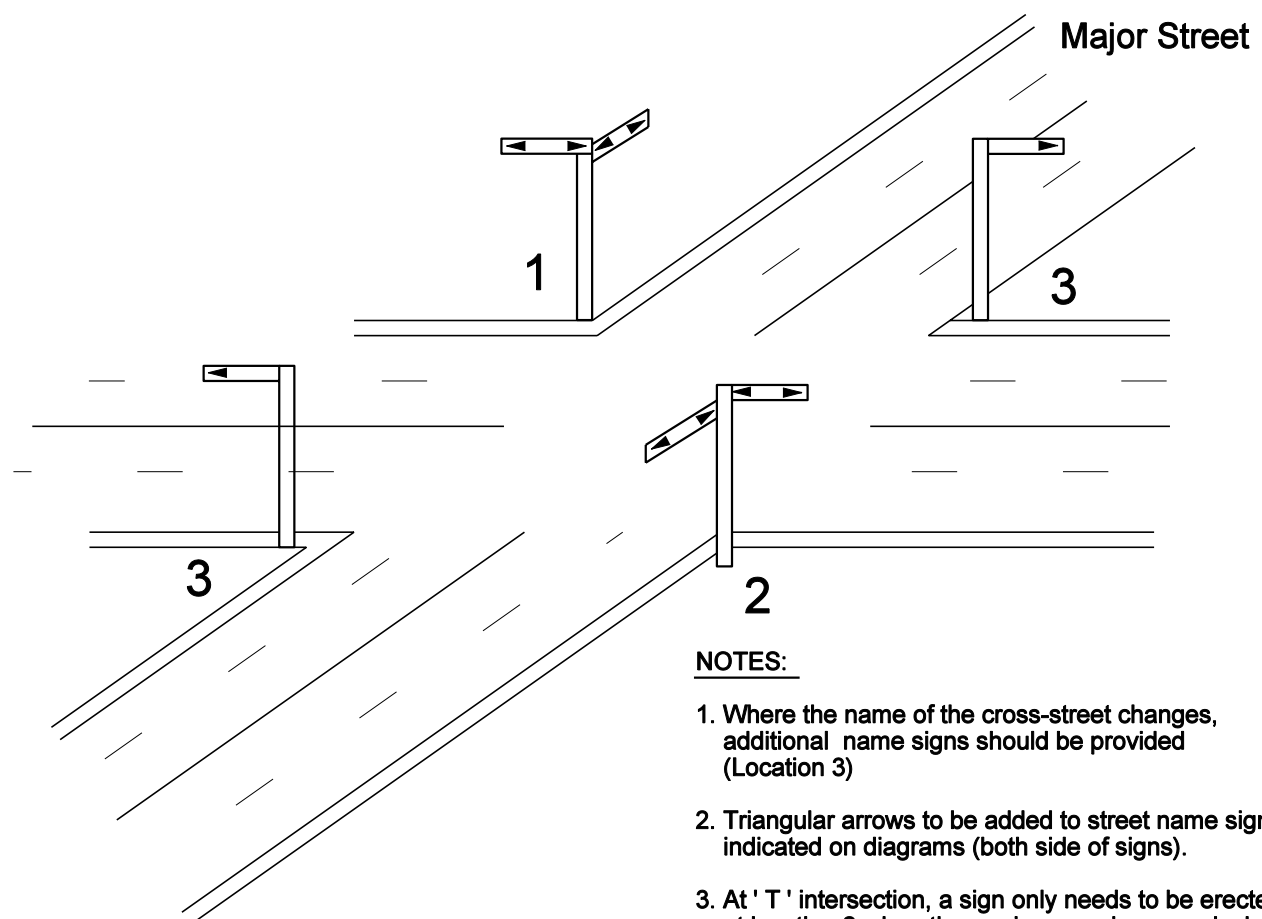


SIGNING FOR INTERSECTIONS OF COLLECTOR AND ARTERIAL ROADS

1. 'T' Intersections



1. 'X' Intersections

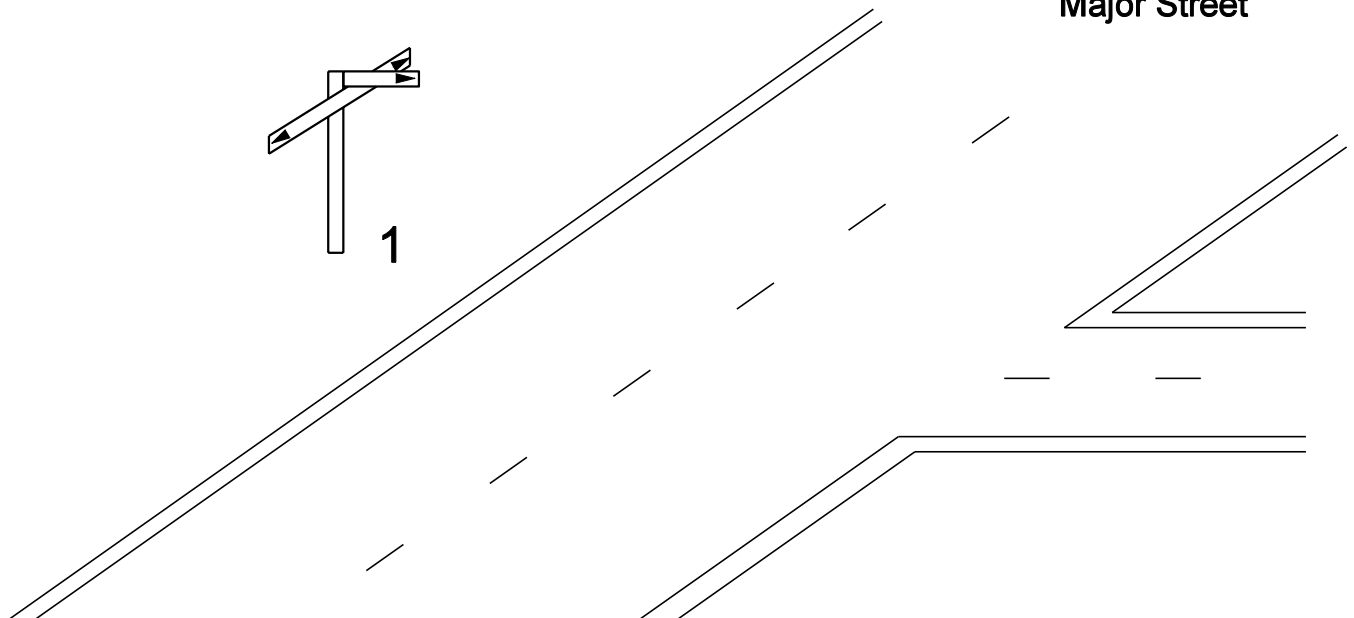


NOTES:

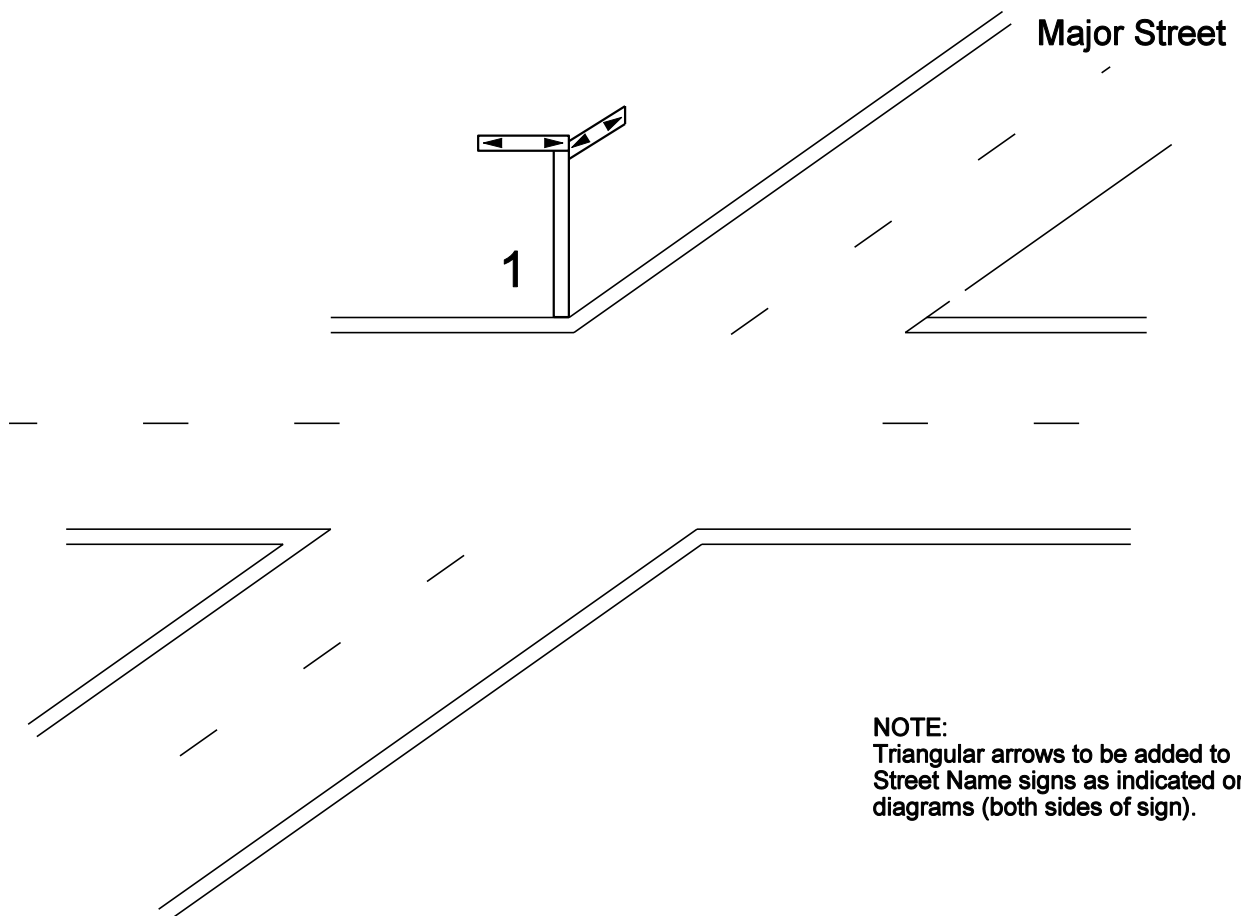
1. Where the name of the cross-street changes, additional name signs should be provided (Location 3)
2. Triangular arrows to be added to street name signs as indicated on diagrams (both side of signs).
3. At 'T' intersection, a sign only needs to be erected at location 2 when the carriageway is excessively wide or due to visibility constraints.

SIGNING FOR INTERSECTION OF LOCAL ROADS WITH COLLECTOR OR ARTERIAL ROADS

1. 'T' Intersections



1. 'X' Intersections



NOTE:
Triangular arrows to be added to
Street Name signs as indicated on
diagrams (both sides of sign).

SIGNING FOR LOCAL ROAD / LOCAL ROAD INTERSECTIONS

HAMILTON CITY COUNCIL
WORKS & SERVICES GROUP
TRANSPORTATION UNIT

Path: g:\hccmap\standards\technical spec\road\dwgs.dgn

LOCATION OF STREET NAME SIGNS

DEVELOPMENT MANUAL

TS 329

Approved: Transportation
Manager

Version: August 2008