

NOTES:

1. Concrete strength = 25 MPa, unless stated otherwise
2. Pits shall be cast monolithically. Concrete to be thoroughly compacted by vibration during and immediately after placing in formworks. Cement render shall only be used to repair defects
3. Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in walls
4. Pit located behind semi-mountable kerb shall have Terra Firma medium duty cover
5. In street with bluestone k&c, asphalt or charcoal coloured concrete footpath, any exposed concrete shall be charcoal coloured
6. Pits located in road pavement areas shall have heavy duty frame and cover, eg. Gatic B145, SVC No. 21148 or similar
7. Step irons shall be fitted to pits greater than 1 metre in depth (see SD190)
8. Pit covers shall be set in accordance with manufacturer's specification
9. Minimum internal dimensions to be 900 x 600 mm



Moreland City Council

JUNCTION PIT

Revised Mar 11

File SD110

PS 1:20

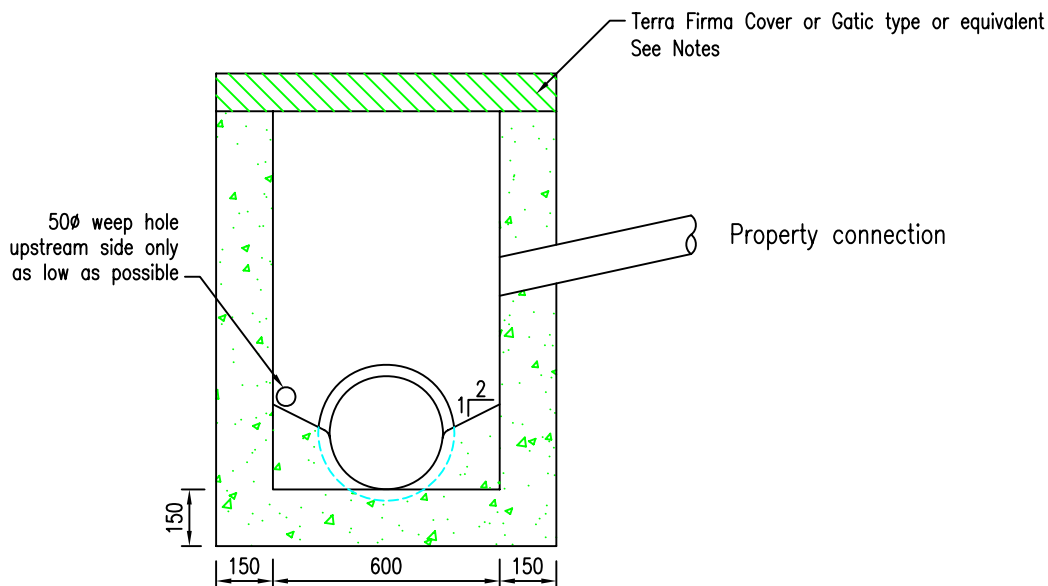
Date
Manager, Transport Development

Date
Director, City Infrastructure

A4

Plan No.

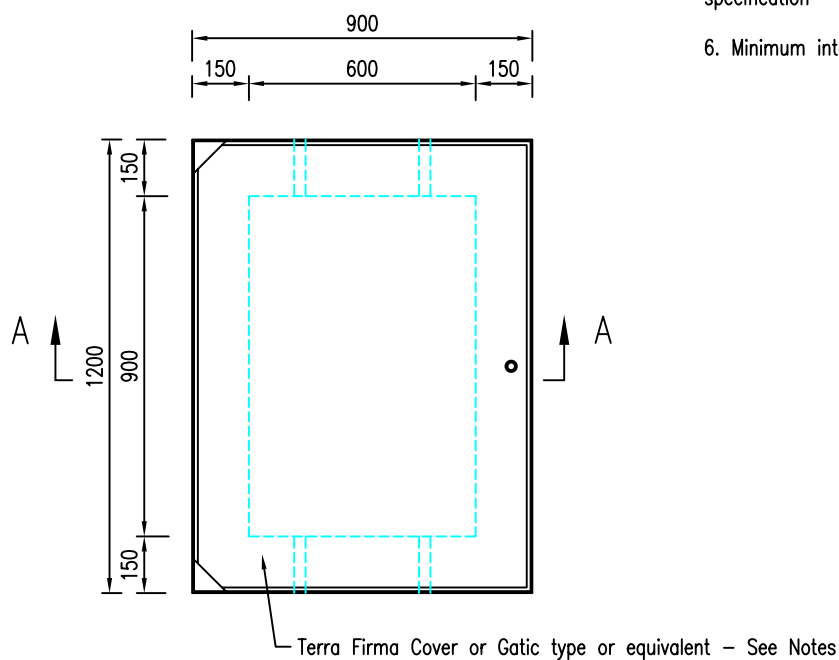
SD 110



FOR PIPES UP TO 375mm \varnothing
SECTION A-A

NOTES:

1. Concrete strength = 25 MPa, unless stated otherwise
2. Pits shall be cast monolithically. Cement render shall only be used to repair defects
3. Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in walls
4. Step irons shall be fitted to pits greater than 1 metre in depth (see SD190)
5. Pit covers shall be set in accordance with manufacturer's specification
6. Minimum internal dimensions to be 900 x 600 mm



P L A N

THIS IS AN EXTRACT OF STANDARD DRAWING NUMBER SD110,
AND IS TO BE USED FOR PITS IN EASEMENTS AND PIPES
UP TO 375mm DIAMETER ONLY



Moreland City Council

JUNCTION PIT

Revised Mar 11

File SD110A

PS 1:20

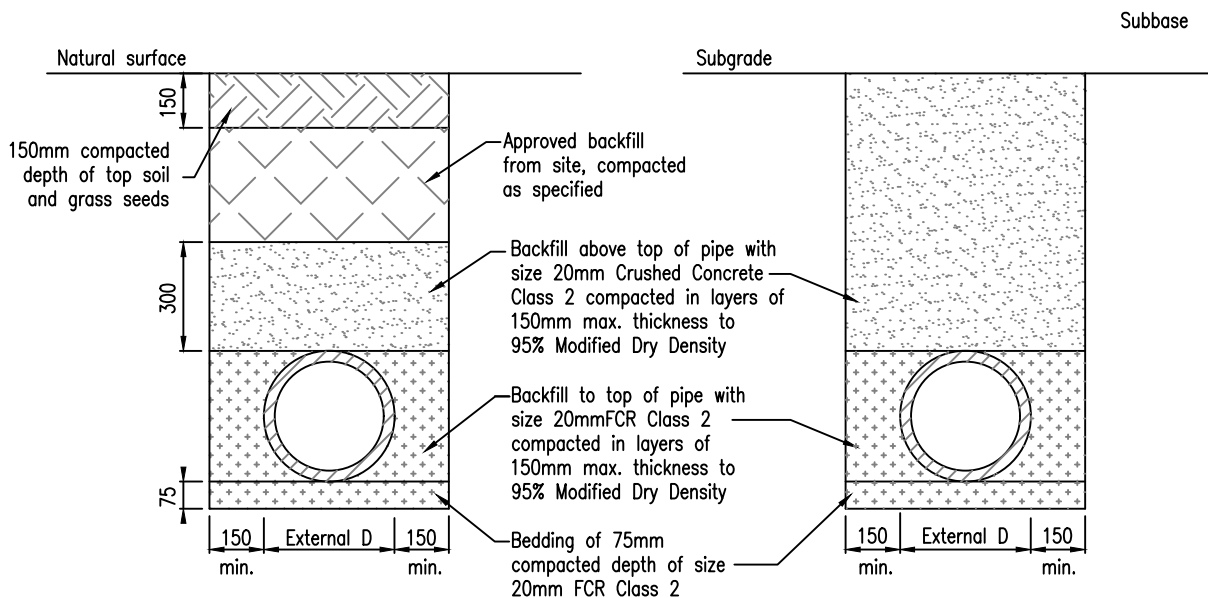
Date
Manager, Asset Planning

Date
Director, City Infrastructure

A4

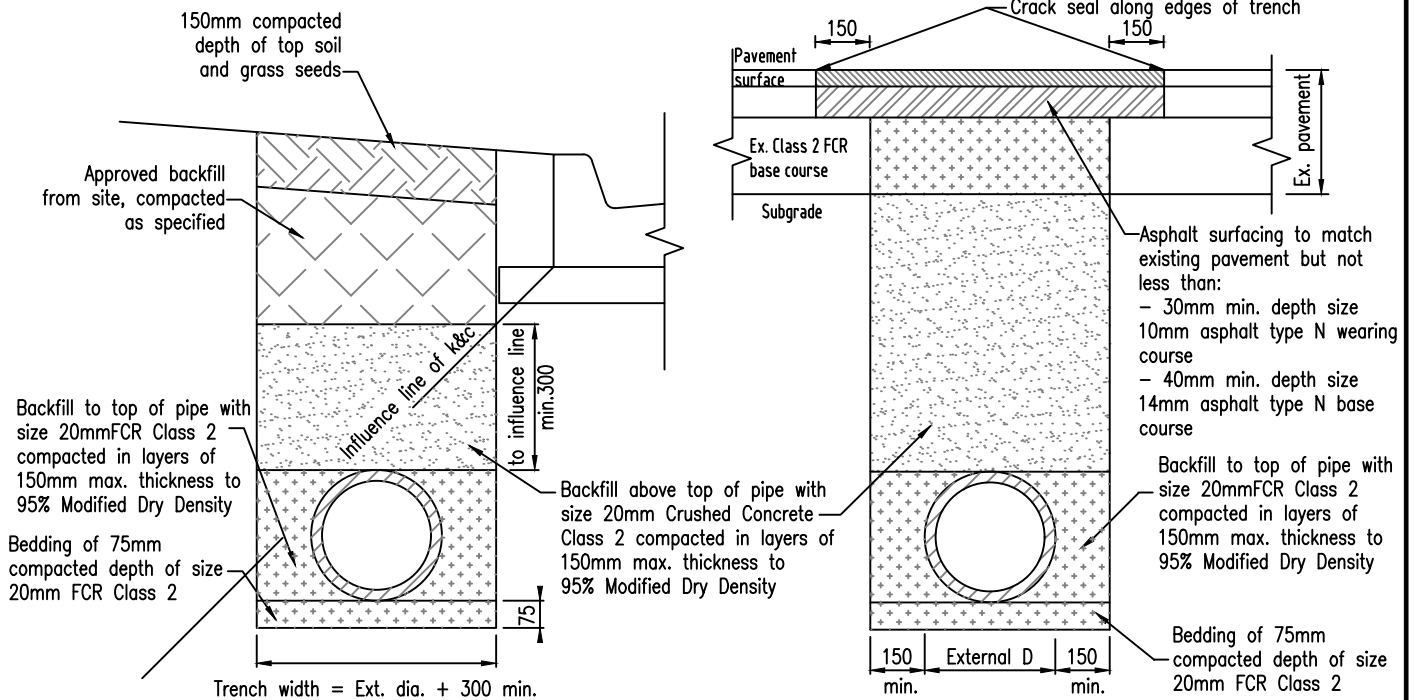
Plan No.

SD 110A



TRENCH IN NATURE STRIP

TRENCH UNDER PAVEMENT
AND/OR K&C



TRENCH BEHIND KERB & CHANNEL

REINSTATEMENT OF TRENCH
UNDER EXISTING PAVEMENT

NOTES:

1. Top soil backfill to be top soil previously stripped from the area or imported sandy loam.
2. Grass seed mix to be 'Dry Land Mix' or similar. The sowing rate shall be at 45 gm/m
3. Trench width shown are minimum width required to place the pipe. Wider trench widths ² may be required in certain circumstances.
4. Crushed Concrete size 20mm Class 2 to be used as backfill for rigid pipes (RCP & FRCP)



Moreland City Council

DRAIN – BEDDING AND BACKFILL REQUIREMENTS

Revised 05-06-18

File SD131

PS 1:20

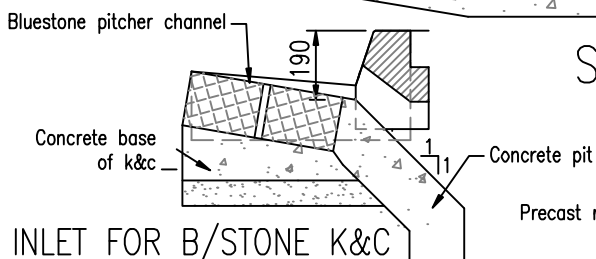
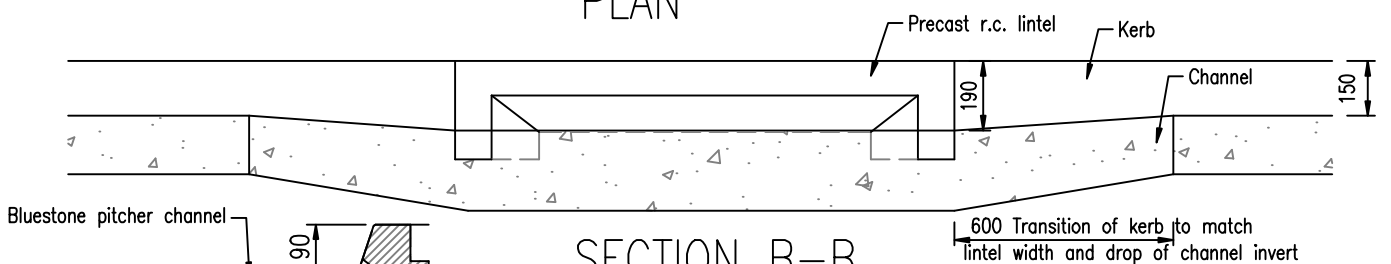
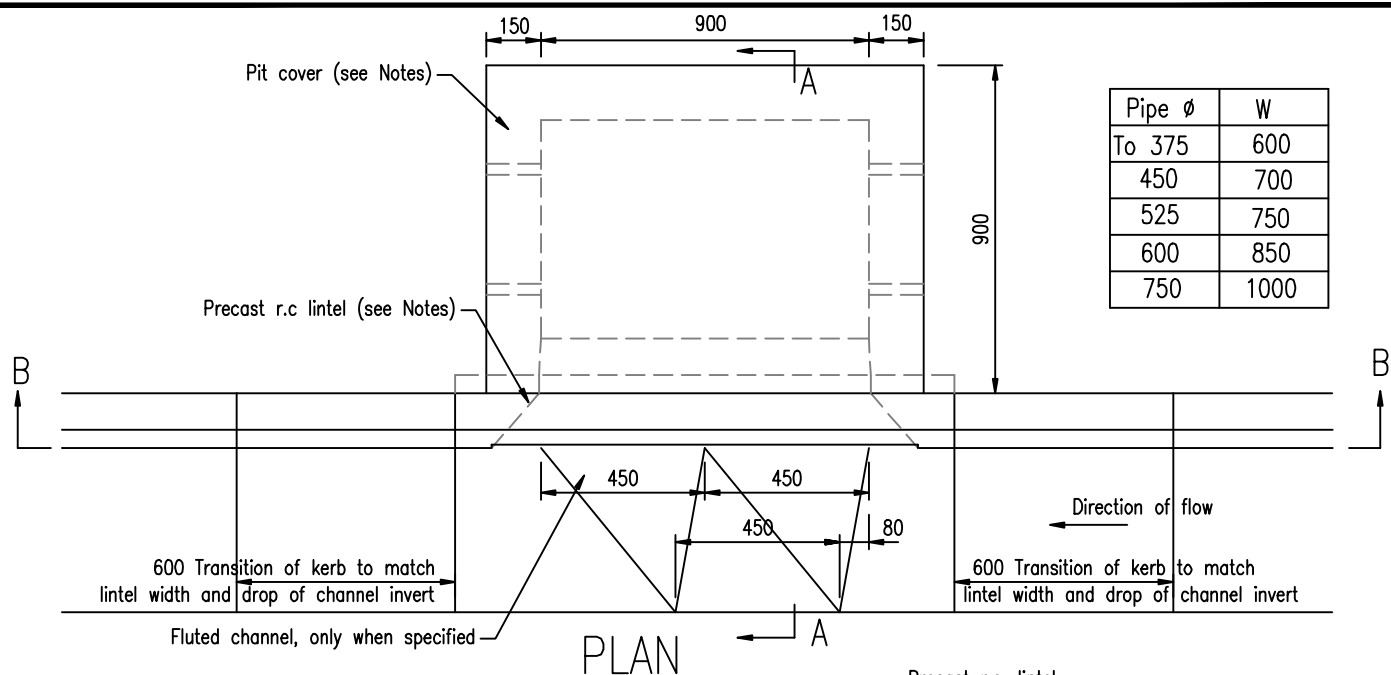
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

A4

Plan No.

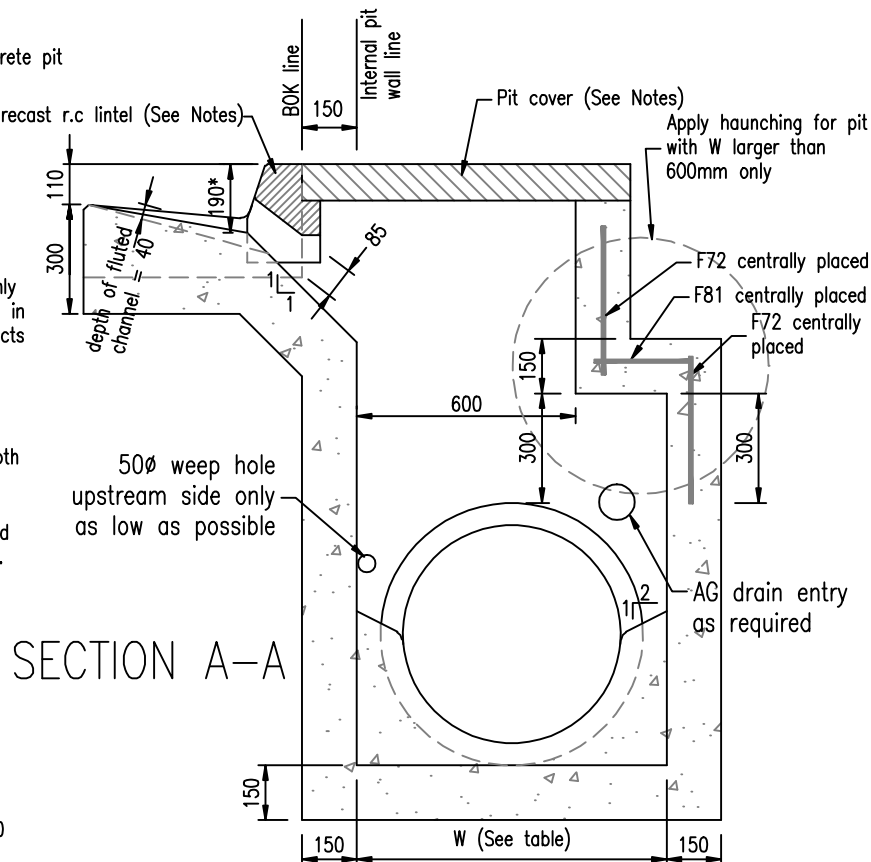
SD 131



NOTES:

- Concrete strength = 25 MPa, unless stated otherwise
- Pits shall be cast monolithically. Concrete to be thoroughly compacted by vibration during and immediately after placing in formworks. Cement render shall only be used to repair defects
- Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in walls
- Step irons shall be fitted to pits greater than 1m in depth (see SD190)
- In street with bluestone k&c, asphalt or charcoal coloured concrete footpath, any exposed concrete, including lintel etc. shall be charcoal coloured
- Lintel shall be SVC Code 15.370 or similar
- Pit covers shall be Terra Firma, set in accordance with manufacturer's specification, unless specified otherwise.
- In industrial & commercial area, cover shall be Class C, medium duty (Australian Road Covers, Gatic, etc..)

* This dimension could vary if lintels other than SVC 15.370 are used



Moreland City Council

SIDE ENTRY PIT (FOR TYPE B K&C) – 0.9m INLET

Revised July 09

File SD121

PS 1:20

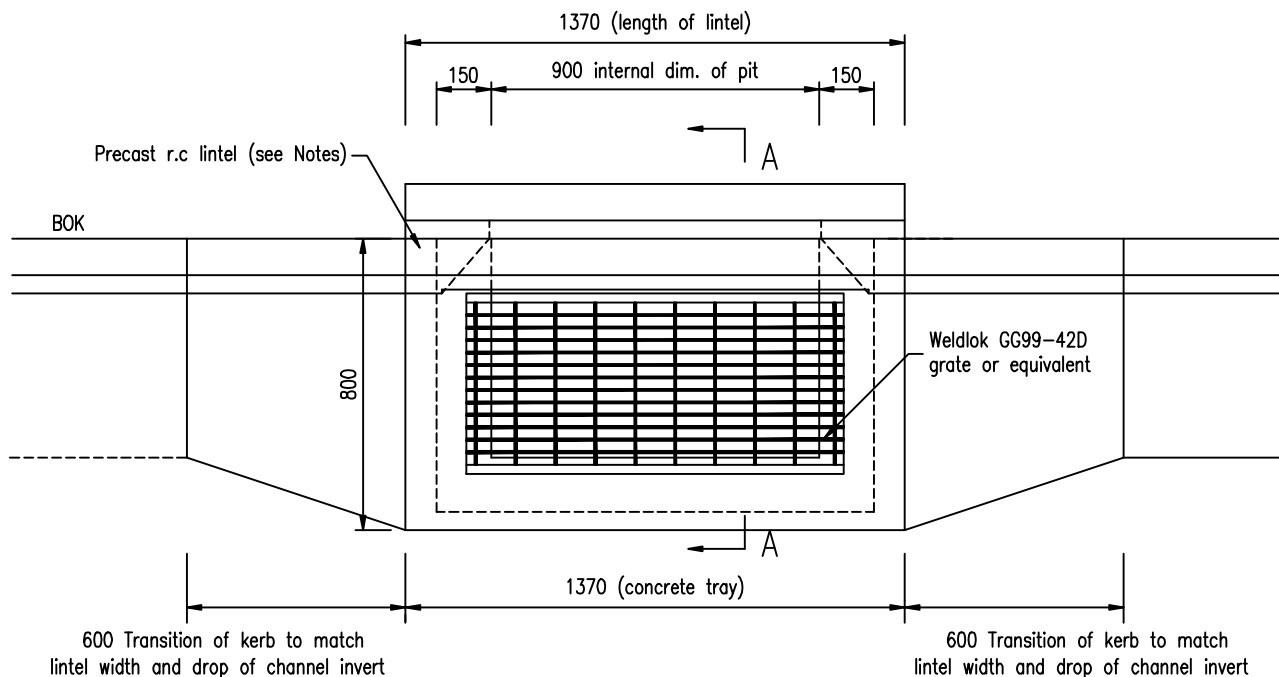
Date
Manager, Transport Infrastructure

Date
Director, City Works

A4

Plan No.

SD 121

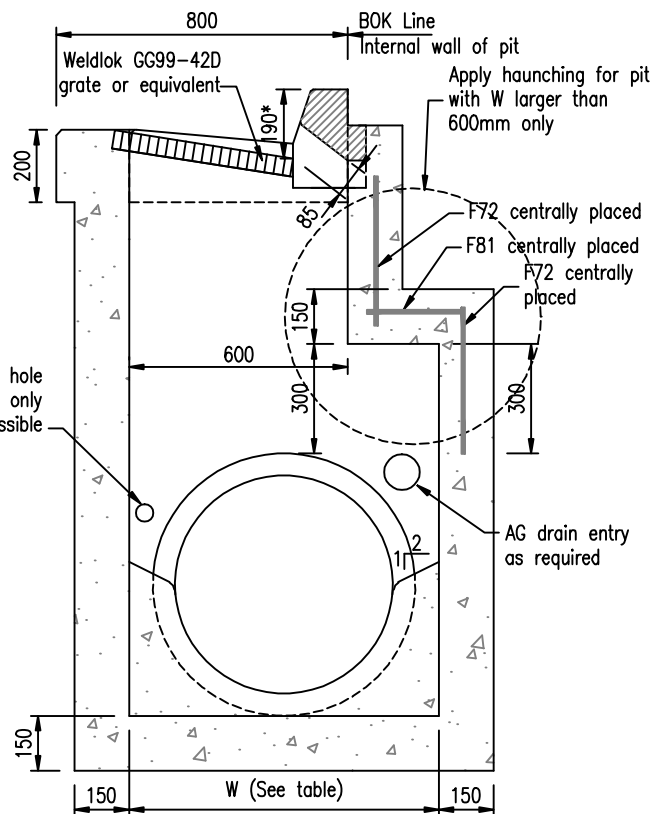


PLAN

Pipe ϕ	W
To 375	600
450	700
525	750
600	850
750	1000

NOTES:

1. Concrete strength = 25 MPa, unless stated otherwise
2. Pits shall be cast monolithically. Concrete to be thoroughly compacted by vibration during and immediately after placing in formworks. Cement render shall only be used to repair defects
3. Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in walls
4. Step irons shall be fitted to pits greater than 1m in depth (see SD190)
5. In street with bluestone k&c, lintel and concrete tray shall be in charcoal colour. Transition sections shall be bluestone at the same width as the normal section
7. Lintel shall be SVC's type, Code 15.370 or similar
8. * This dimension could vary if lintels other than SVC 15.370 are used
9. Equivalent grate shall be approved by Council before use. The grate and frame shall be galvanised steel with the grate hinged to the frame



SECTION A-A



Moreland City Council

SIDE ENTRY GRATED PIT (FOR TYPE B K&C) – 0.9m INLET

Revised July 09

File SD122

PS 1:20

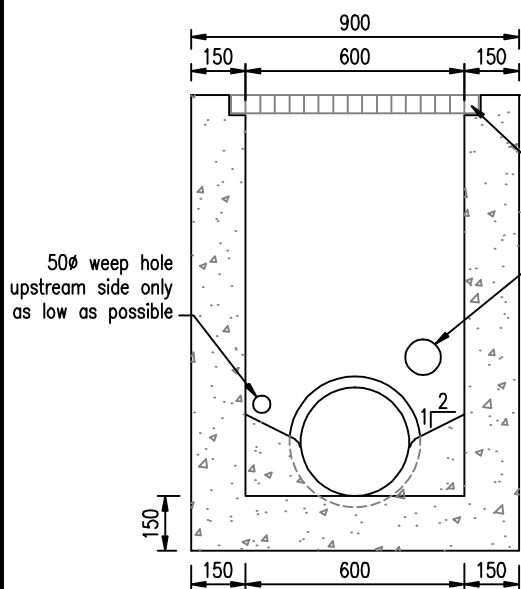
Date
Manager, Transport Infrastructure

Date
Director, City Works

A4

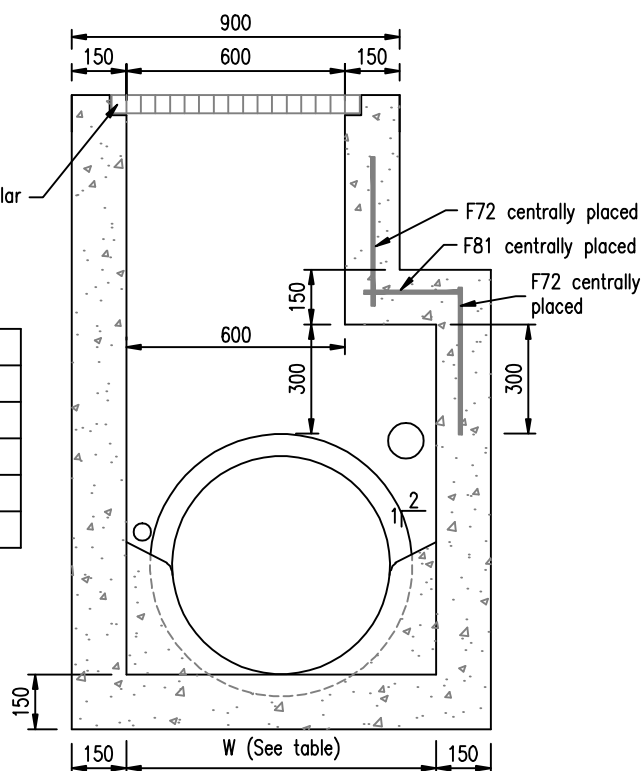
Plan No.

SD 122

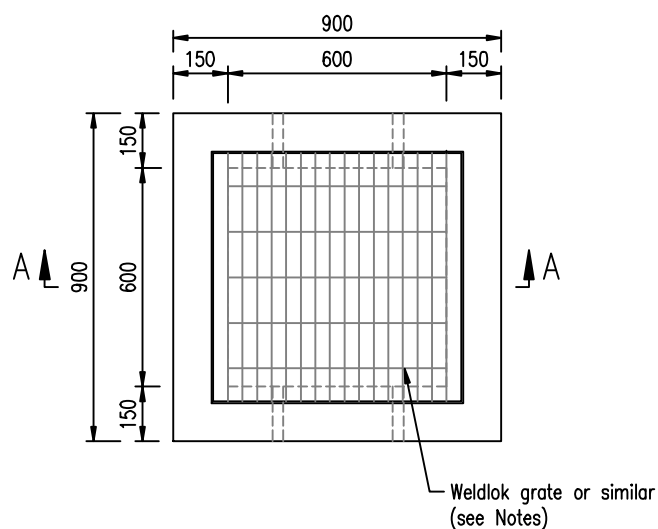


FOR PIPES UP TO 375mm ϕ
SECTION A-A

Pipe ϕ	W
To 375	600
450	700
525	750
600	850
750	1000



FOR PIPES OVER 375mm ϕ
SECTION A-A



P L A N

NOTES:

1. Concrete strength = 25 MPa, unless stated otherwise
2. Pits shall be cast monolithically. Concrete to be thoroughly compacted by vibration during and immediately after placing in formworks. Cement render shall only be used to repair defects
3. Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in walls
4. Step irons shall be fitted to pits greater than 1m in depth (See SD 190)
5. Minimum internal dimensions to be 600x600
6. For blue stone pitch or asphalt right of ways, any exposed concrete shall be charcoal coloured
7. Grate to be Weldlok PC6060L for areas with pedestrian traffic, PC6060M for cars traffic, PC6060H for truck traffic and PC 6060XH for semi-trailer traffic
8. Similar grate and frame shall be galvanised steel with the grate hinged to its frame. The proposed grate and frame set must be approved by Council prior to being use.



Moreland City Council

GRATED PIT FOR R.O.W.

Revised July 09

File SD113

PS1:20

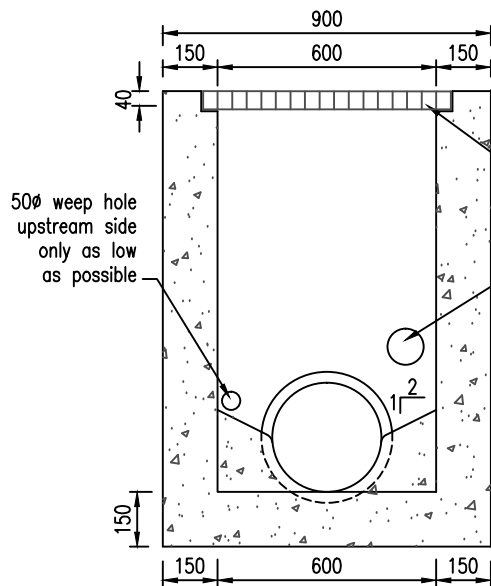
Date
Manager, Transport Development

Date
Director, City Infrastructure

A4

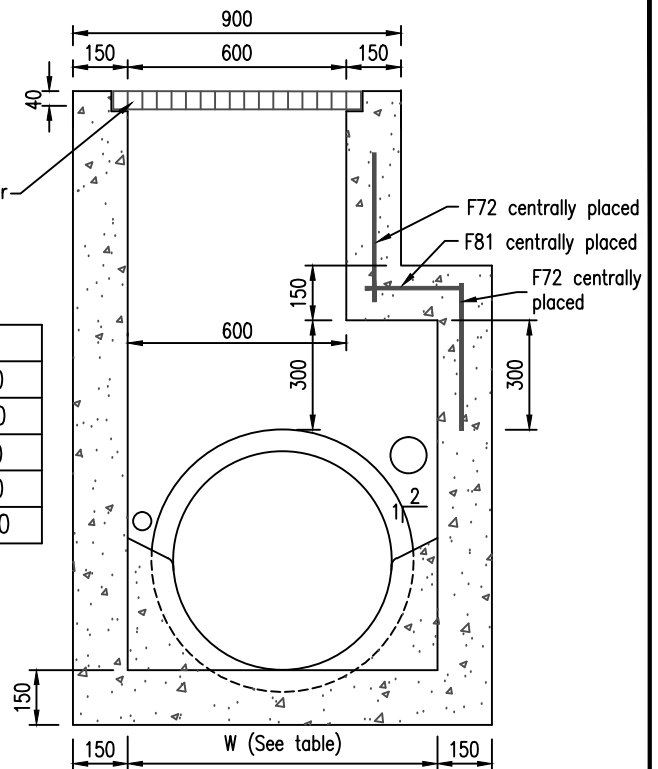
Plan No.

SD 113

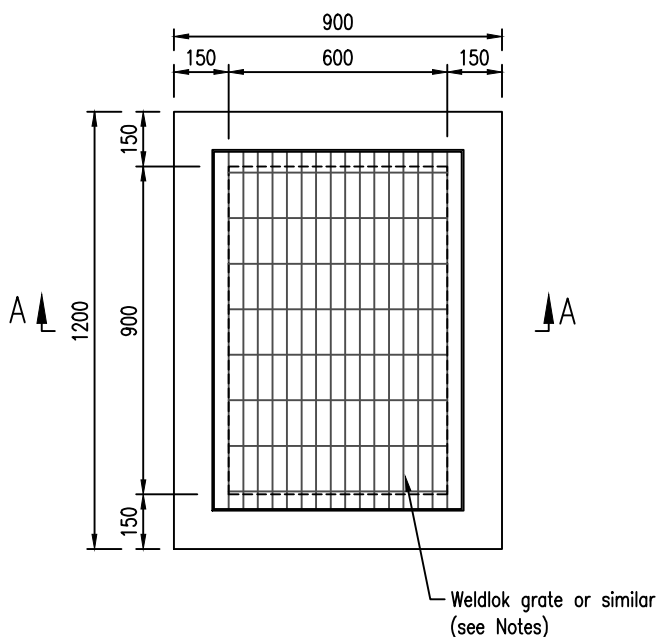


FOR PIPES UP TO 375mm ϕ
SECTION A-A

Pipe ϕ	W
To 375	600
450	700
525	750
600	850
750	1000



FOR PIPES OVER 375mm ϕ
SECTION A-A



P L A N

NOTES:

1. Concrete strength = 25 MPa, unless stated otherwise.
2. Pits shall be cast monolithically. Concrete to be thoroughly compacted by vibration during and immediately after placing in formworks. Cement render shall only be used to repair defects.
3. Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in walls.
4. Step irons shall be fitted to pits greater than 1m in depth (See SD 190).
5. Minimum internal dimensions to be 600x900.
6. For blue stone pitch or asphalt right of ways, any exposed concrete shall be charcoal coloured.
7. Grate to be Weldlok PC6090L for areas with pedestrian traffic, PC6090M for cars traffic, PC6090H for truck traffic and PC6090XH for semi-trailer traffic.
8. Similar grate and frame shall be galvanised steel with the grate hinged to its frame. The proposed grate and frame set must be approved by Council before use.



Moreland City Council

GRATED PIT

Revised July 09

File SD125

PS

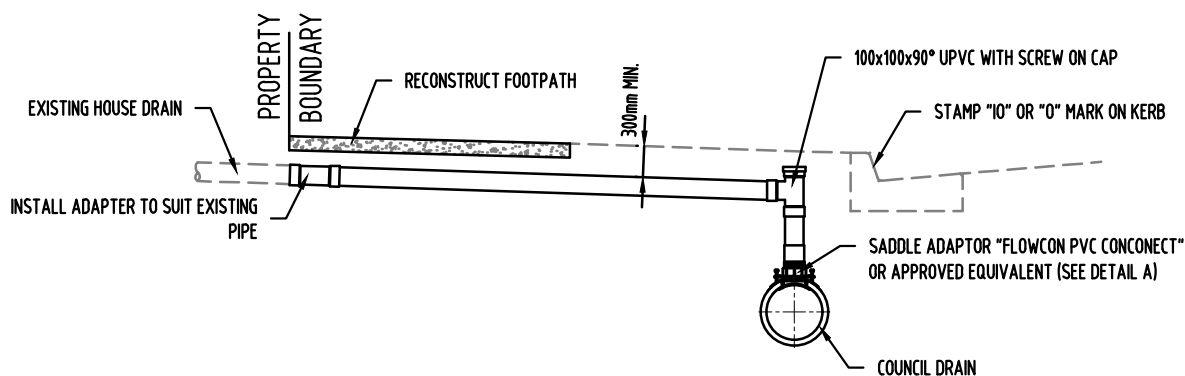
Date
Manager, Transport Infrastructure

Date
Director, City Works

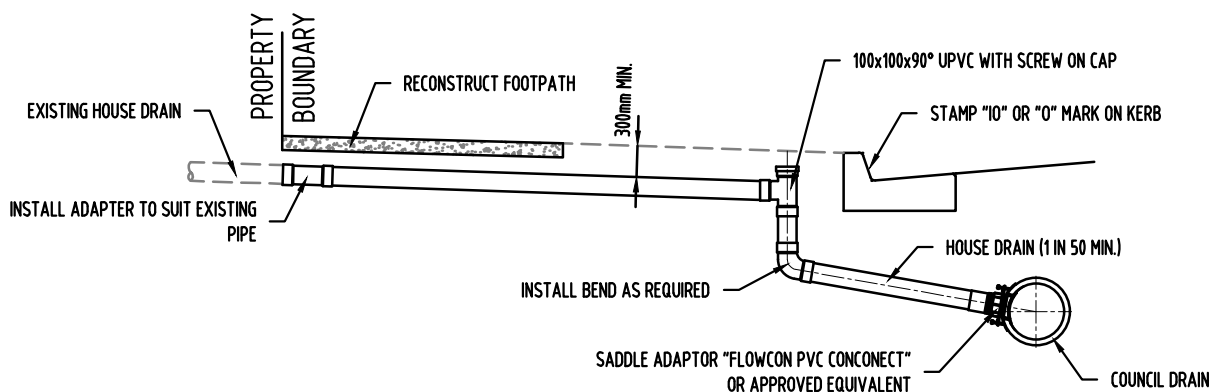
A4

Plan No.

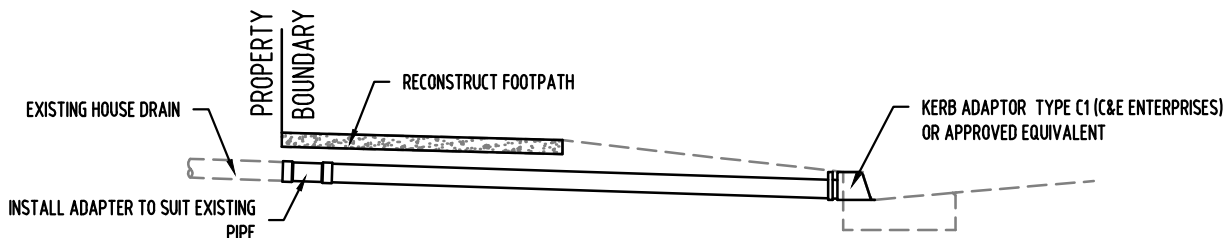
SD125



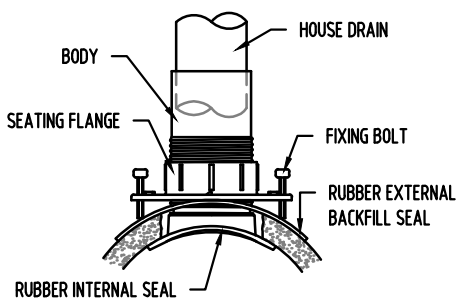
CONNECTION TO DRAIN LOCATED IN NATURE STRIP



CONNECTION TO DRAIN LOCATED UNDER KERB&CHANNEL / IN PAVEMENT



CONNECTION TO KERB&CHANNEL



DETAIL A
FLOWCON PVC CONCONNECT

NOTES:

1. HOUSE DRAIN PIPE TO BE VINIDEX DWV SEWER PIPE SCJ, 100MMØ, CLASS SN6, WITH SOLVENT WELD JOINT OR EQUIVALENT.
2. SADDLE ADAPTOR TO BE FLOWCON PVC CONCONNECT OR APPROVED EQUIVALENT.
3. KERB ADAPTOR TO BE C&E ENTERPRISES (PH. 1800 646 018) TYPE C1 OR APPROVED EQUIVALENT FITTED IN ACCORDANCE WITH MANUFACTURER SPECIFICATION.
4. ALL INSPECTION OPENINGS LOCATED IN PAVED AREAS TO BE FITTED WITH 150X150MM FITZROY BOXES FROM " AUSTRALIAN ROAD COVERS" OR APPROVED EQUIVALENT.
5. "10" OR "0" MARKS ARE TO BE STAMPED ON KERB & CHANNEL OPPOSITE INSPECTION OPENINGS TO HOUSE DRAIN CONNECTIONS.
6. THE REINSTATEMENT OF EXISTING HOUSE DRAIN FOR ROAD RECONSTRUCTION TO BE UP TO THE PROPERTY BOUNDARY LINE WITH A SUITABLE ADAPTER TO CONNECT NEW DRAIN PIPE TO EXISTING DRAIN PIPE.



Moreland City Council

HOUSE DRAIN CONNECTION DETAILS

Revised 03-04-18

File SD 150

PS

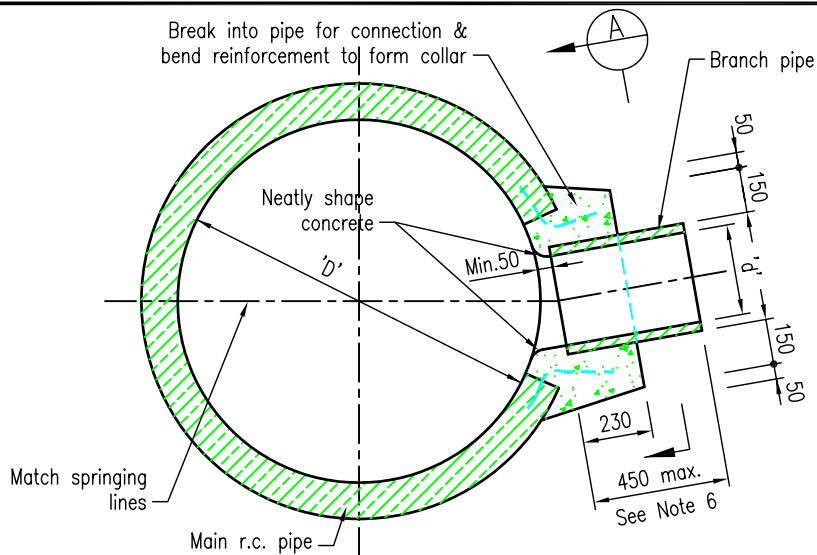
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

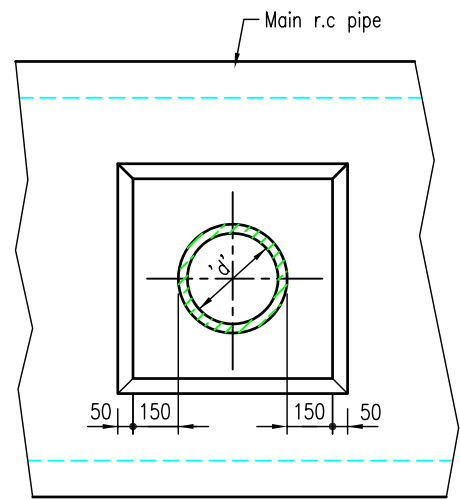
A4

Plan No.

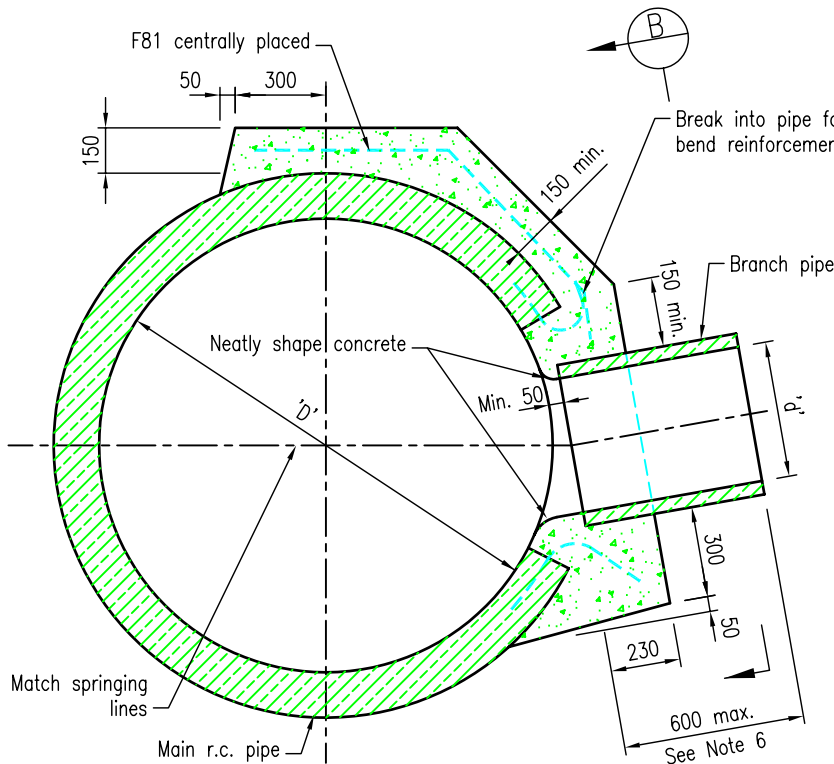
SD150



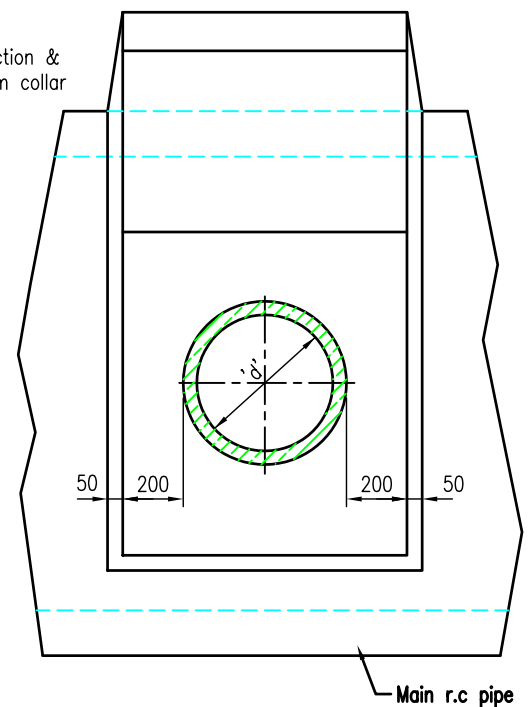
BRANCH PIPE 'd' UP TO 375 ϕ
PROVIDED 'd' IS LESS THAN 'D'/3



SECTION A



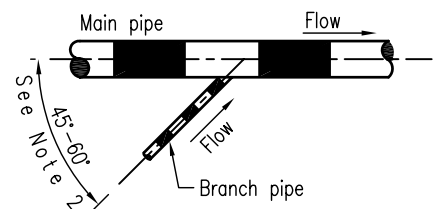
BRANCH PIPE 'd' = 450 ϕ AND LARGER
PROVIDED 'd' IS LESS THAN 'D'/3



SECTION B

NOTES:

1. When 'd' is greater than 'D'/3, a pit or junction chamber must be designed, incorporating hydraulic analysis
2. Preference should be given to angling connection downstream, at 45°–60°. Where 'd' is smaller than 'D'/6, angle of connection may be increase to 90°
3. Concrete strength to be 25 MPa
4. Reinforcement in main pipe to be cut and formed into collar. Care should be taken to prevent damage to the main pipe
5. Concrete jointing to be neatly shaped and rendered on the inside of the drain
6. Where connection cannot be rendered from inside of the main pipe, connection to consist of 300mm length branch pipe to allow rendering from outside the main pipe



ANGLE OF CONNECTION

Revised: 4 August 2000

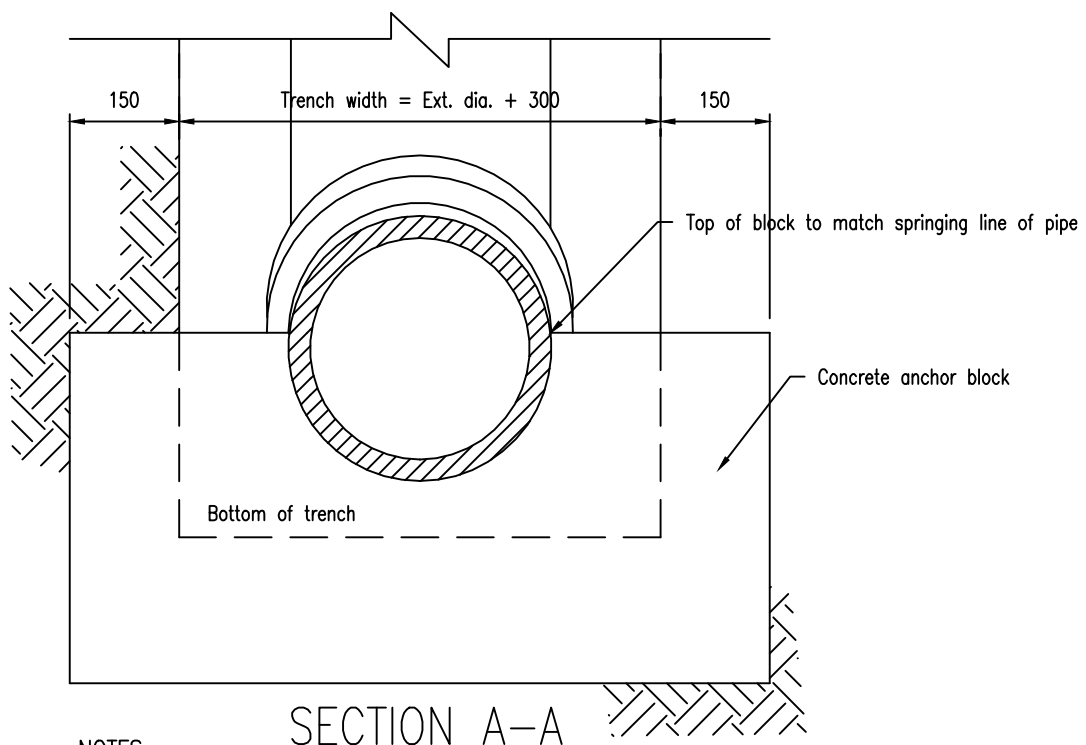
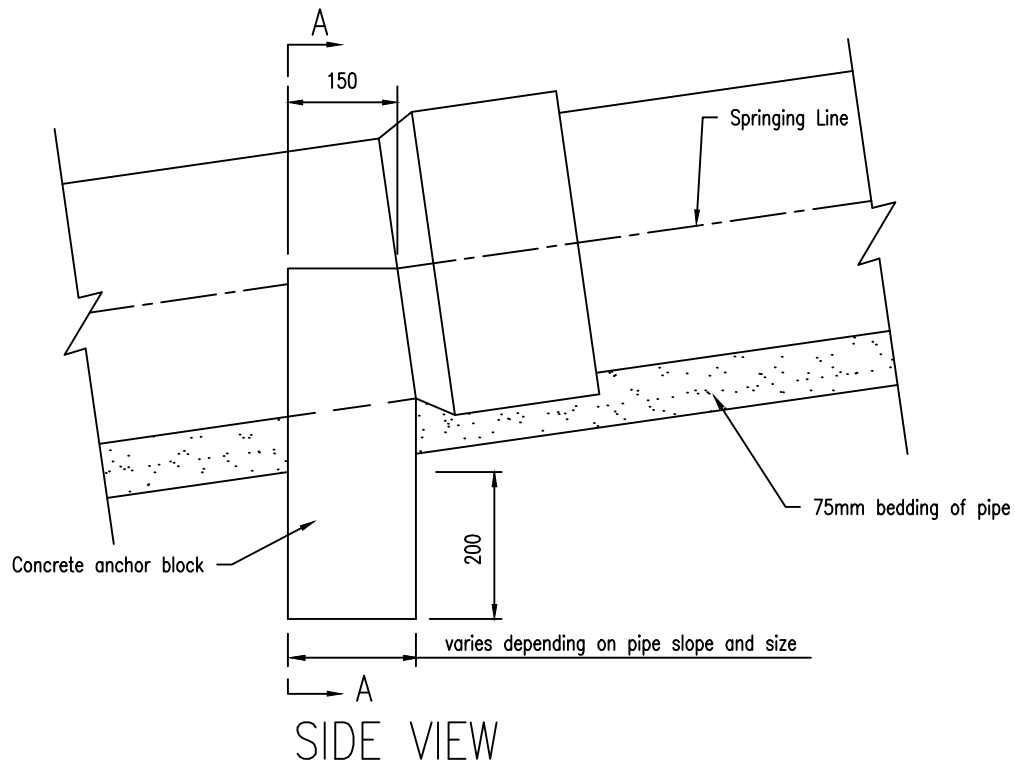
This standard drawing is in accordance with Melbourne Water's Standard Drawing No.7251/4/307



Moreland City Council

PIPE CONNECTION TO EXISTING MAIN PIPE

Revised			Plan No.
File SD152			A4
PS 1:25	Date Manager, Transport Infrastructure	Date Director, City Works	SD152



NOTES:

1. Pipe anchor blocks shall be used where the pipe slope exceeds 1 in 7 and the distance between pits exceeds 9 metres
2. Concrete for anchor blocks shall be of strength 20 MPa at 28 days
3. Pipe anchor blocks shall be spaced at 9 m apart unless specified otherwise

Issued 20 July 1999
Revised 21 May 2014



Moreland City Council

PIPE ANCHOR BLOCK

Revised

File SD132

PS 1:10

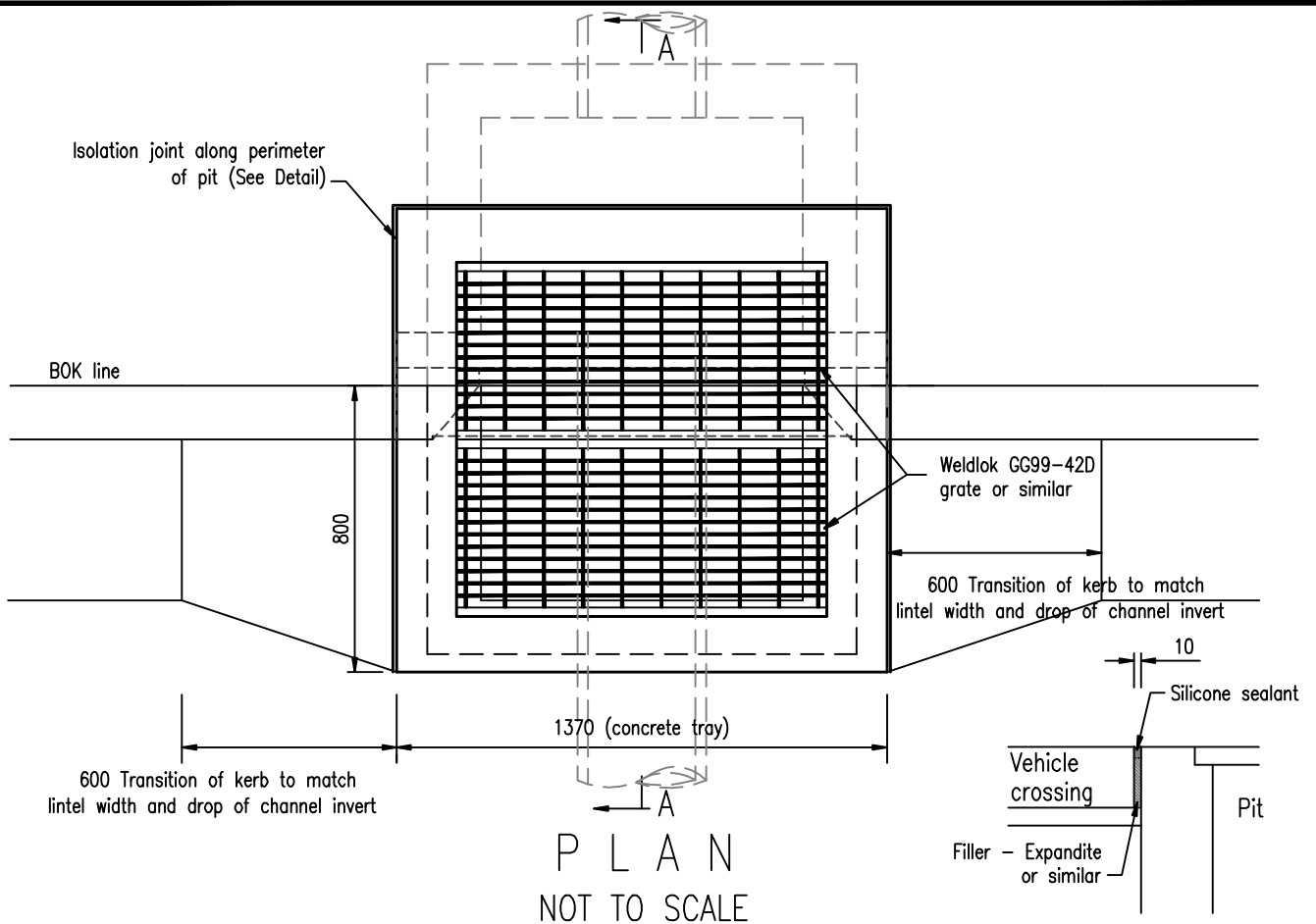
Date
Manager, Transport Infrastructure

Date
Director, City Works

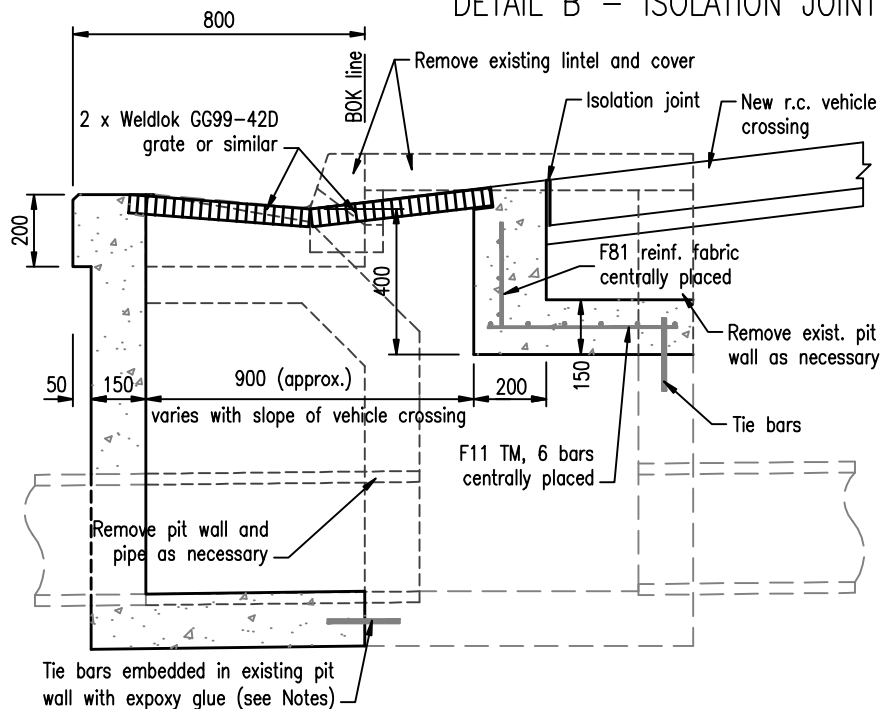
A4

Plan No.

SD 132



DETAIL B - ISOLATION JOINT



NOTES:

1. For single size side entry pits longer than 900mm (eg. 1100mm) reduce the pit length to 900mm
2. Concrete strength = 25 MPa, unless stated otherwise
3. Pit shall be cast monolithically. Concrete to be thoroughly compacted by vibration during and immediately after placing in formworks. Cement render shall only be used to repair defects.
4. Tie bars to be 12 dia deformed steel bars, 200mm in length at 300mm centres, embedded in existing concrete with an epoxy glue. The concrete joining interface must be roughened before casting new concrete
5. Pits over 2m in depth shall have F72 reinforcing fabric placed centrally in wall
6. Reinstate iron steps, if any
7. Surplus lintels and pit covers to remain the property of Council unless directed otherwise



Moreland City Council

CONVERSION OF SEP INTO GP FOR NEW VEHICLE CROSSING

Revised July 09

File SD123

PS

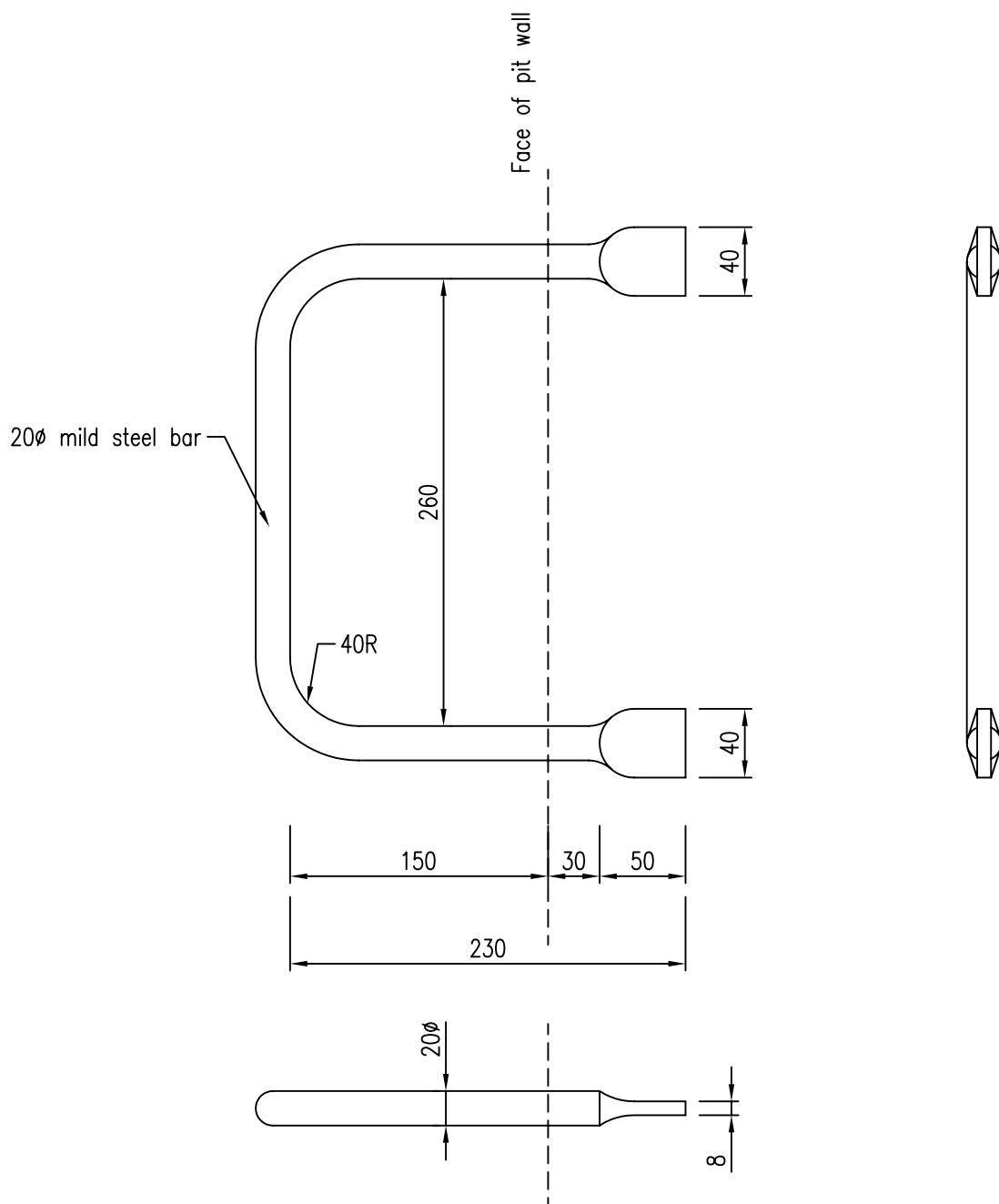
Date
Manager, Transport Infrastructure

Date
Director, City Works

A4

Plan No.

SD123



NOTES:

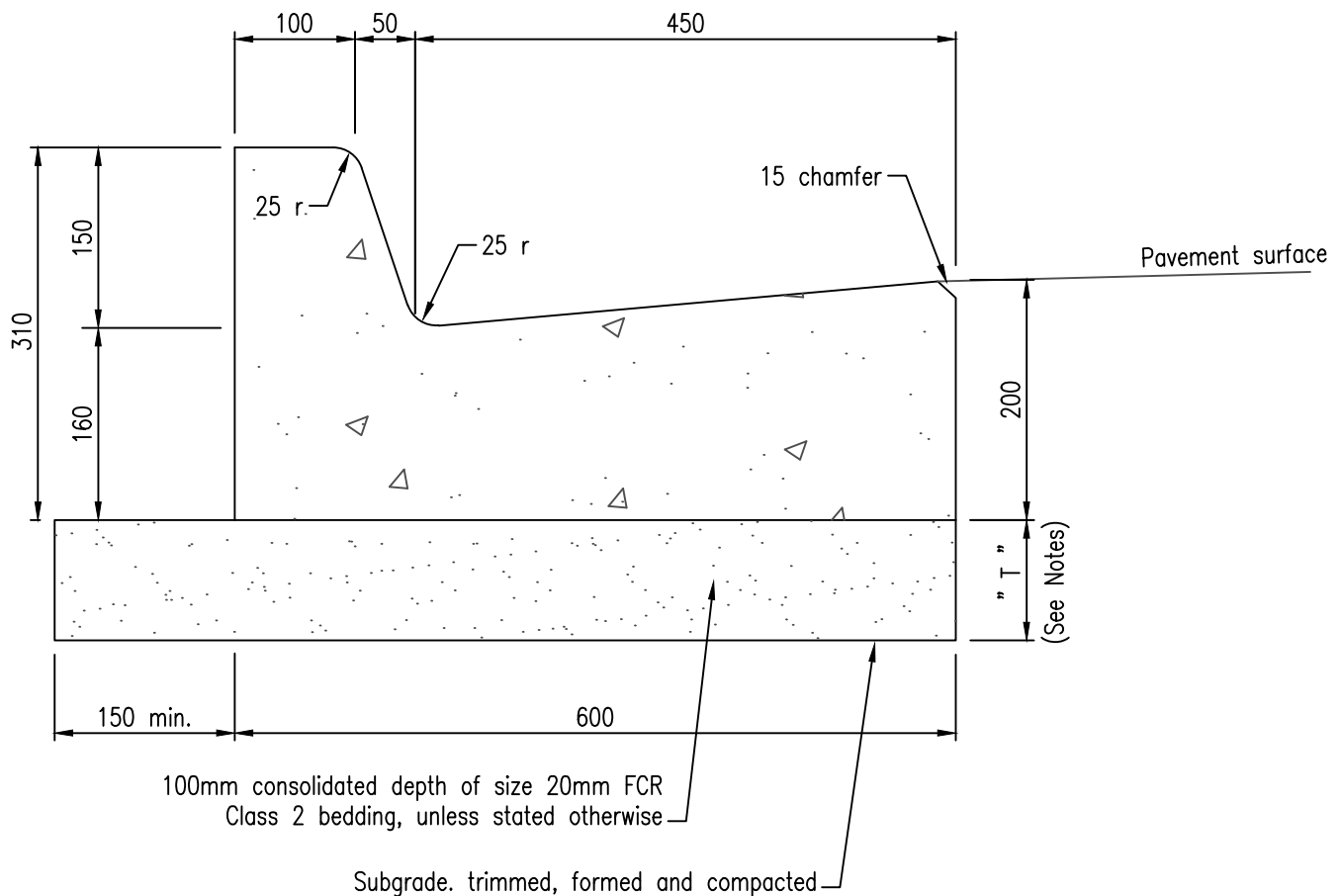
1. Step irons are to be provided in all pits deeper than 1 metre
2. The irons to be spaced at 300mm centres, commencing 300mm from the top of pit and the last iron shall be no more than 300mm above invert of pit
3. The step irons to be staggered for the width of the step irons
4. Step irons to be mild steel bars treated with heavy duty hot dipped galvanising



Moreland City Council

MILD STEEL STEP IRON

Revised			Plan No.
File SD190			A4
PS 1:4	Date Manager, Transport Infrastructure	Date Director, City Works	SD 190



NOTES:

1. Concrete strength to be 25 MPa unless specified otherwise
2. " T " to be as specified on project drawings. When not specified, " T " to be 100mm minimum.
3. Charcoal colour concrete, where specified shall be by adding "Abilox" black colour powder or equivalent into the premix concrete. The rate of powder shall be 8.3% by weight of cementitious binder (approx. 25 kg per cubic metre of concrete)



Moreland City Council

CONCRETE KERB AND CHANNEL

Revised 10 Oct 11

File SD201

PS 1:6

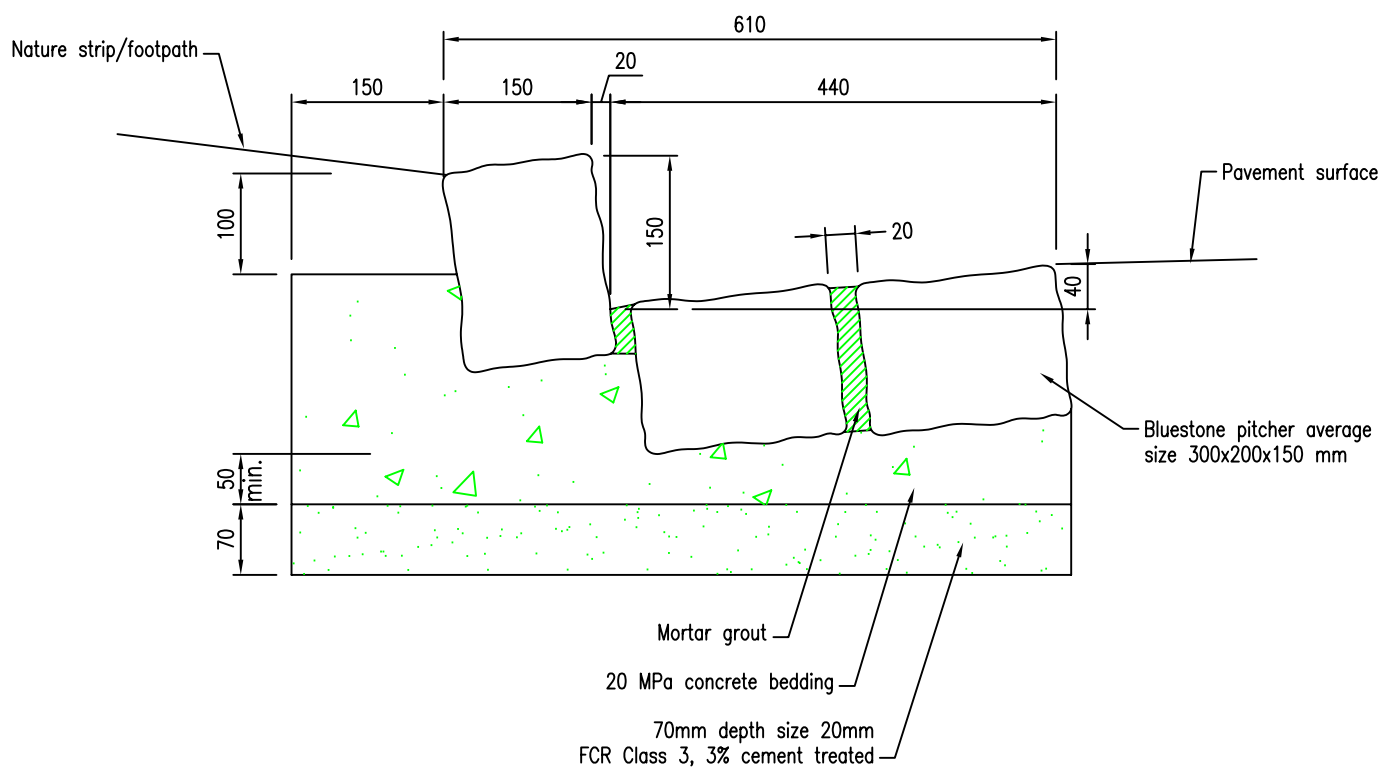
Date
Manager, Transport Infrastructure

Date
Director, City Works

A4

Plan No.

SD 201



NOTES:

1. Joints between bluestone pitchers in the kerb section to be 20mm wide, filled with mortar grout and raked 5mm
2. Joints between bluestone pichers in the channel section to be 20mm wide, flush filled with mortar grout
3. Mortar mix: 1 part of cement
3 part of sand
 $\frac{1}{8}$ part of black iron oxide colouring



Moreland City Council

BLUESTONE PITCHERS KERB & CHANNEL

Revised 24 Jul 97

File SD206

PS 1:6

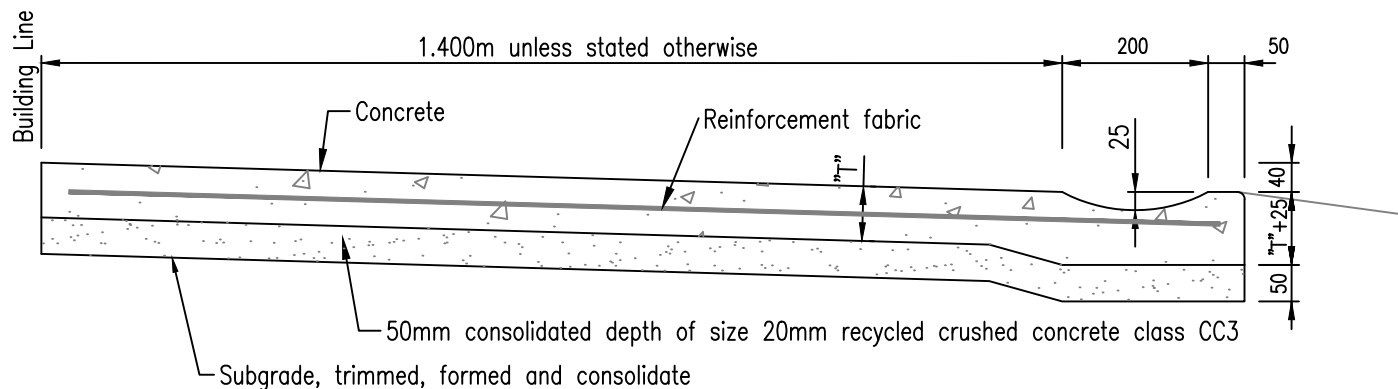
Date
Manager, Transport Infrastructure

Date
Director, City Works

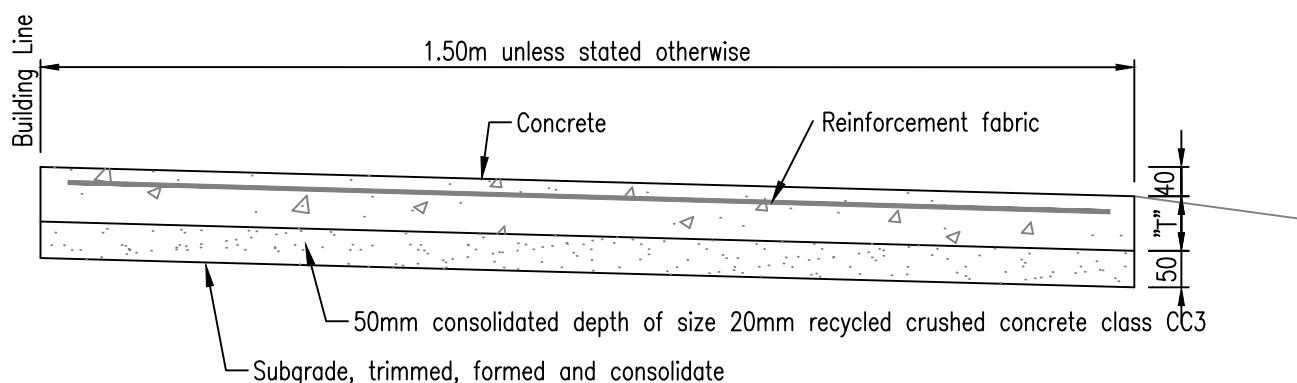
A4

Plan No.

SD 206



CROSS SECTION CONCRETE FOOTPATH WITH INTEGRATED SPOON DRAIN



CROSS SECTION CONCRETE FOOTPATH

NOTES:

- "T" = 100 mm with SL52 reinforcement fabric placed at 30mm cover
"T" = 125 mm with SL72 reinforcement fabric placed at 30mm cover, where footpath abuts kerb and/or kerb & channel, in industrial area
- Provide contraction joints at 1.5m intervals and expansion joints at 15m intervals. The joints to be at right angles to the direction of the footpath unless specified otherwise and to be in accordance with SD291. Expansion joint to be Connolly Expansion Joint or approved alternative.
- Where an existing section of footpath is to be reinstated, the section to be replaced shall be between existing joints
- Charcoal coloured concrete, where specified, shall be by adding "Abilox" black colour powder or equivalent into the premix concrete. The rate of powder is 8.3% by weight of cementitious binder (approx. 25kg per cubic metre of concrete)



Moreland City Council

CONCRETE FOOTPATH

Revised 28-08-18

File SD220

PS 1:10

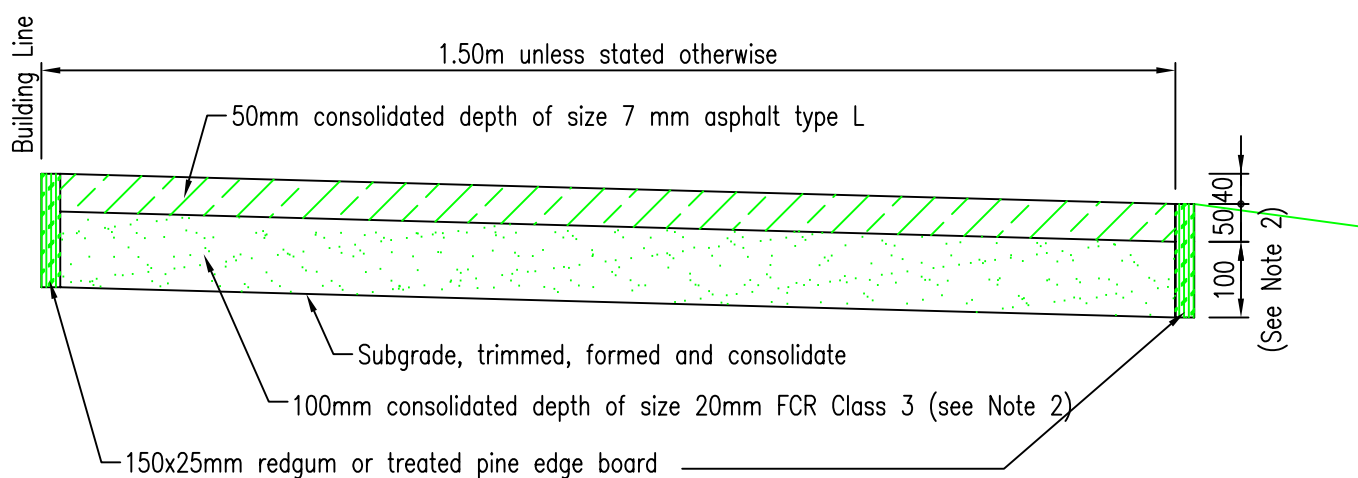
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

A4

Plan No.

SD 220



CROSS SECTION STANDARD ASPHALT FOOTPATH

NOTES:

1. Asphalt to be hot-mixed, in accordance with Section 40, Moreland's Standard Specification
2. For fullwidth footpath in shopping centres or where existing subgrade is poor, the thickness of FCR base shall be 150mm



Moreland City Council

ASPHALT FOOTPATH

Revised 5 May 04

File SD221

PS 1:10

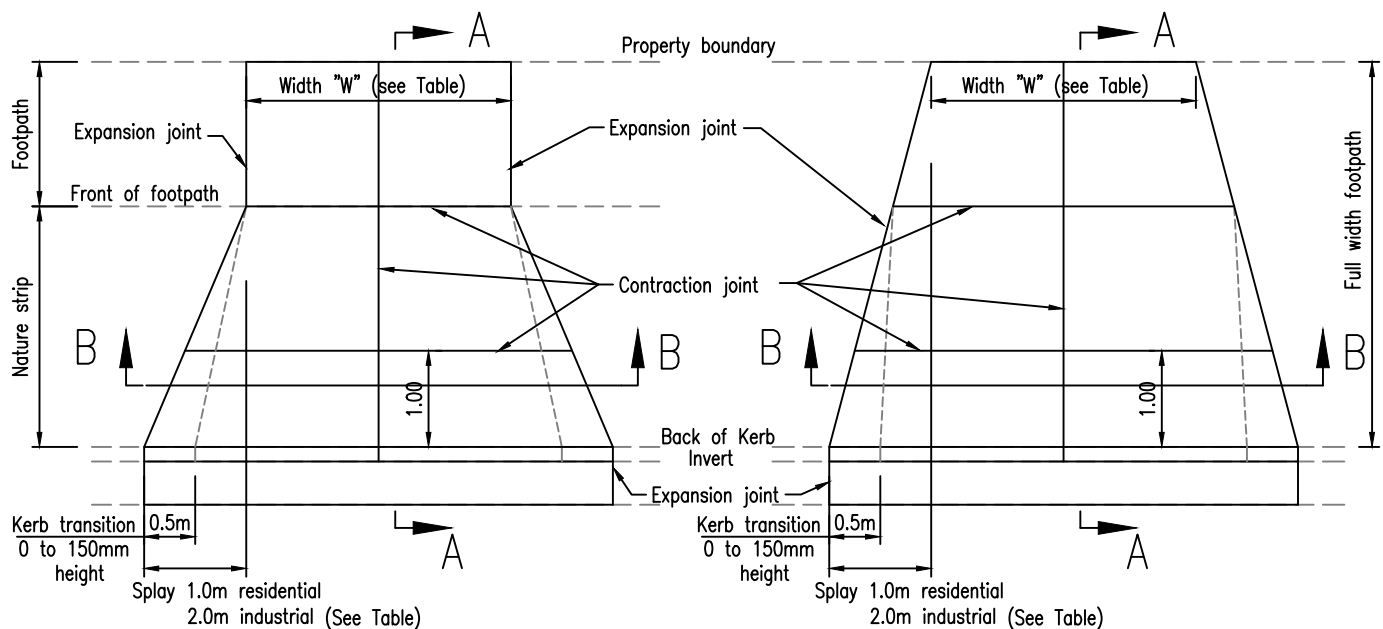
Date
Manager, Transport Infrastructure

Date
Director, City Works

A4

Plan No.

SD 221



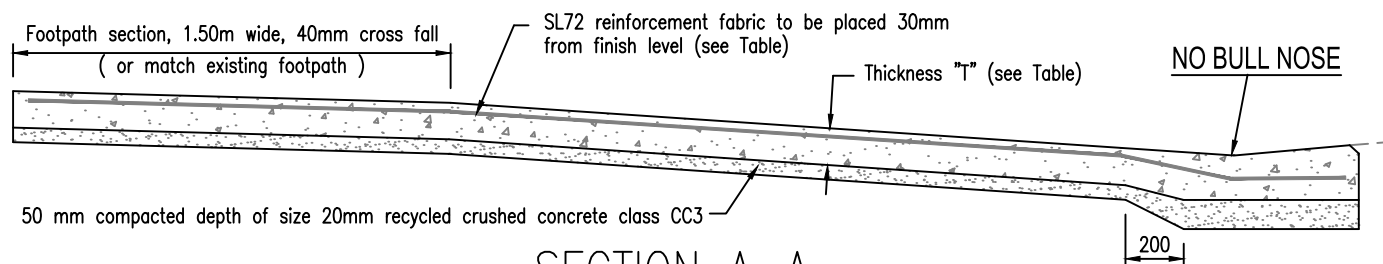
FOOTPATH AND NATURE STRIP

FULL WIDTH FOOTPATH

PLAN



SECTION B-B



SECTION A-A

NOTES:

1. Street channel section to be cast integrated with crossing, NO BULL NOSE TO BE CONSTRUCTED.
2. Concrete strength 25 MPa.
3. Contraction joints shall be provide in both directions. maximum spacing 1.5 m.
4. For industrial properties, provide a second SL72 reinforcement fabric at the bottom of the crossing, 30mm cover.
5. Where the new crossing is jointed to an existing crossing, provide $\phi 12$ mm deformed steel tie bars, 450mm length (225mm each side of the joint), spacing 300mm.

	Width W		Splay	Thickness T	Reinforcement
	Min.	Max.			
Residential	3.0m	4.0m	1.0m	125mm	SL72 top
Industrial	3.0m	6.0m	2.0m	175mm	SL72 top & bottom

6. Council's inspection officer to have discretion to vary standard, depending on existing street conditions, that is: crossing shape, charcoal colour and the treatment of the street channel.
7. Concrete finish to be stipple, unless otherwise stated. Channel section to be smooth finish.
8. Charcoal colour clause. Charcoal coloured concrete, where specified, shall be by adding "Abilox" black colour powder (or equivalent) into the premix concrete. The rate of powder is 8.3% by weight of cementitious binder (approx. 25 kg of powder per cubic metre of concrete).
9. For splay dimension see table.
10. Kerb transition to be 0.5m.



Moreland City Council

TYPE 2 R.C. VEHICLE CROSSING (K&C TYPE B & SM2)

Revised 28-08-18

File SD265

PS 1:20

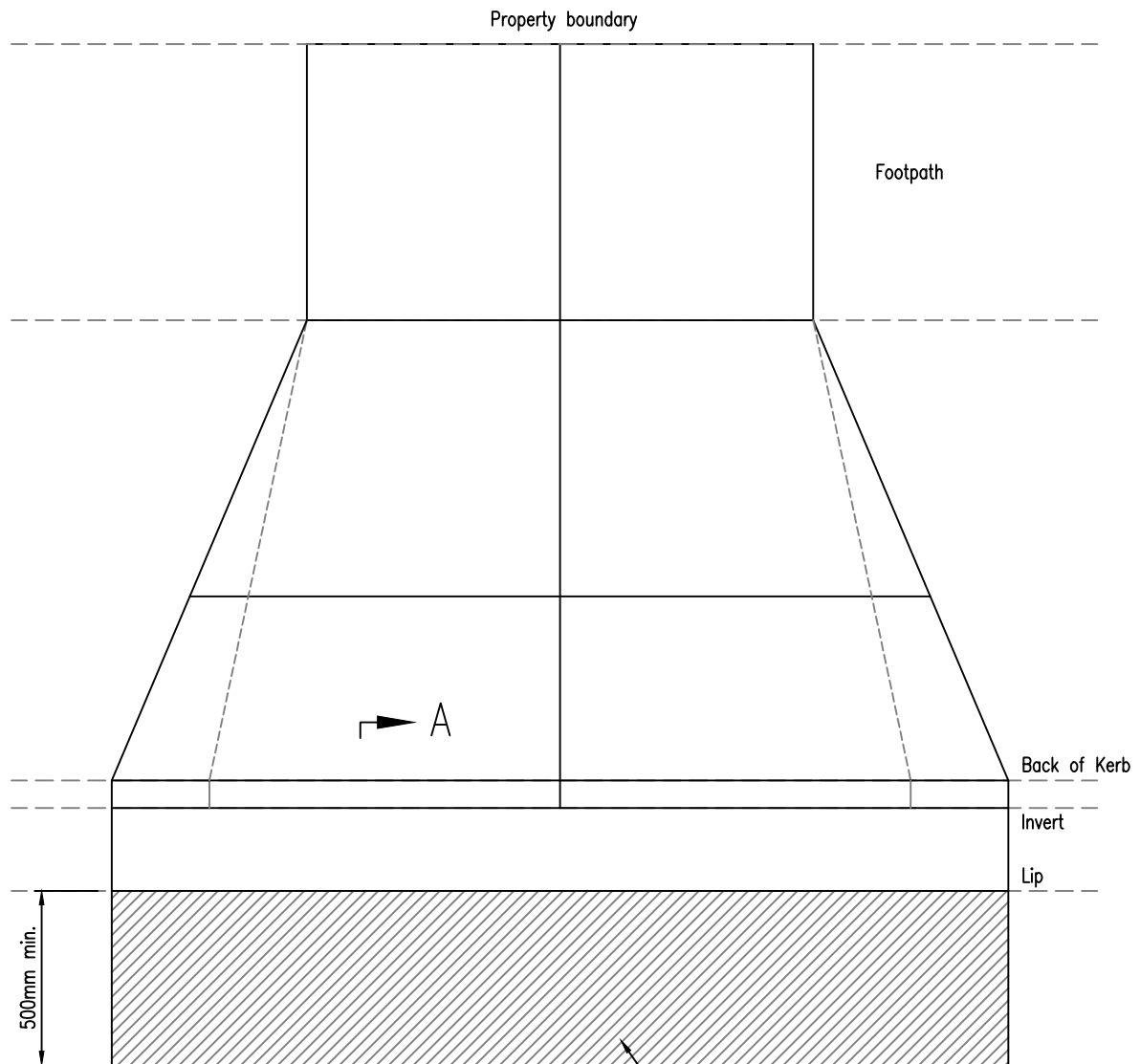
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

A4

Plan No.

SD 265

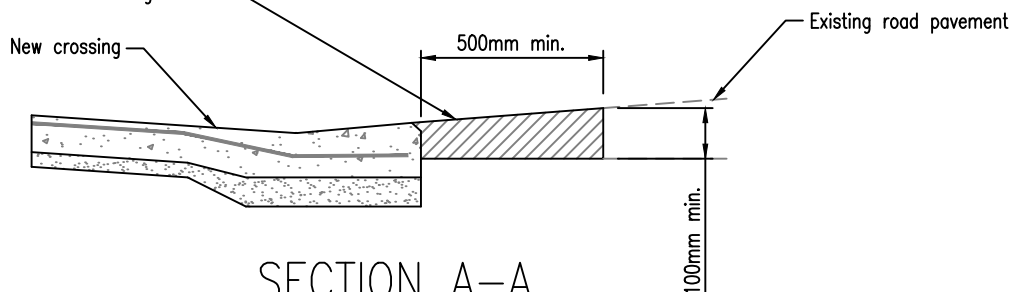


➔ A

PLAN
NTS

Saw cut and remove existing road pavement in front of vehicle crossing to 100mm minimum depth and 500mm minimum width as directed by Council's Supervising Officer

Asphalt size 10mm Type N (Class 320) on residential roads to match existing pavement levels without any discontinuity, road pavement to be saw cut in a straight line



SECTION A-A
NTS



Moreland City Council

ROAD PAVEMENT REINSTATEMENT IN FRONT OF NEW VEHICLE CROSSING

Revised 28-08-18

File SD265E

PS 1:20

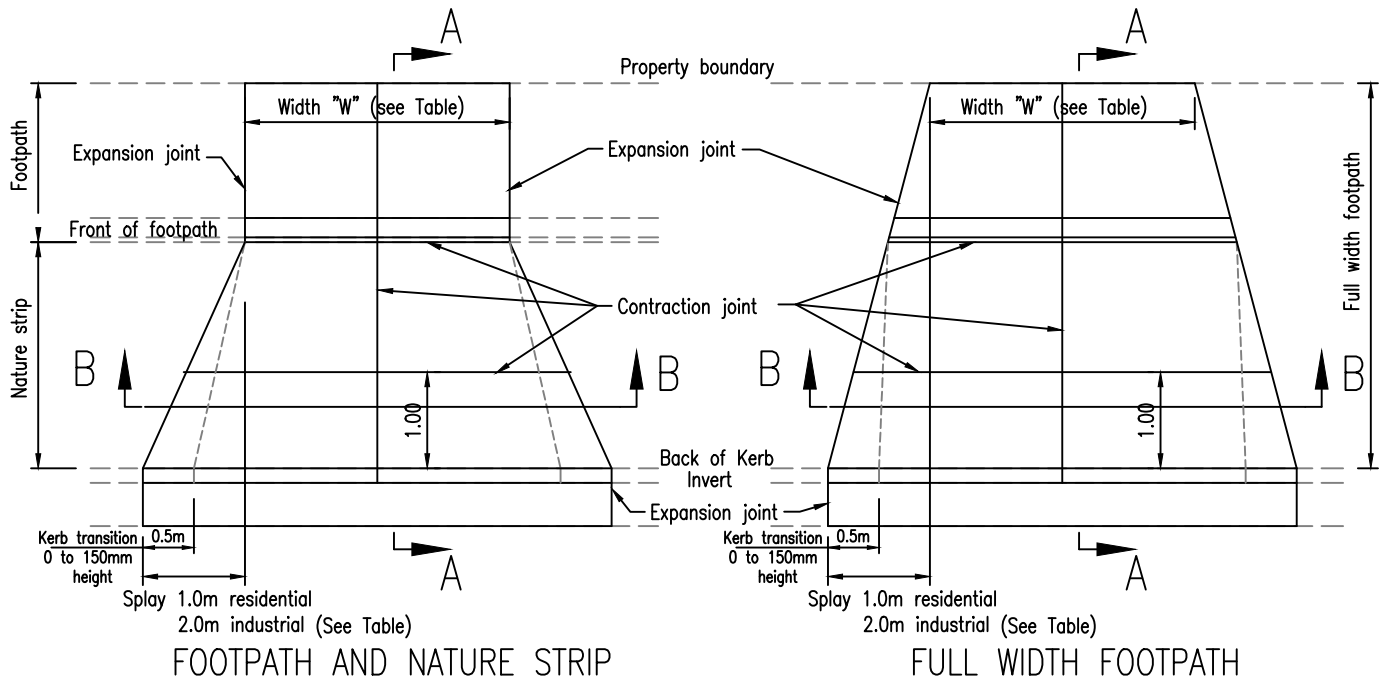
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

A4

Plan No.

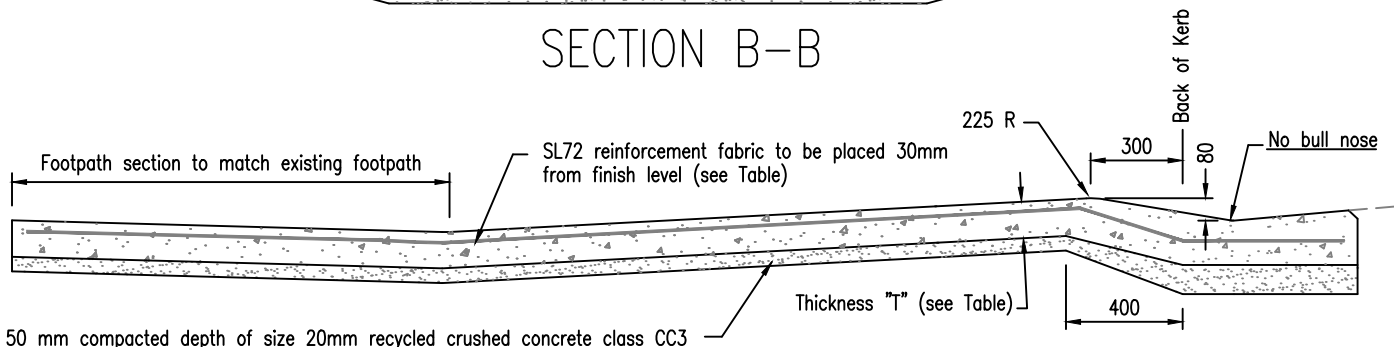
SD 265E



PLAN



SECTION B-B



SECTION A-A

	Width W		Splay	Thickness T	Reinforcement
	Min.	Max.			
Residential	3.0m	4.0m	1.0m	125mm	SL72 top
Industrial	3.0m	6.0m	2.0m	175mm	SL72 top & bottom

NOTES:

- Street channel section to be cast integrated with crossing.
- Concrete strength 25 MPa.
- Contraction joints shall be provide in both directions. maximum spacing 1.5 m.
- For industrial properties, provide a second SL72 reinforcement fabric at the bottom of the crossing, 30mm cover.
- Where the new crossing is jointed to an existing crossing, provide $\phi 12$ mm deformed steel tie bars, 450mm length (225mm each side of the joint), spacing 300mm.
- Council's inspection officer to have discretion to vary standard, depending on existing street conditions, that is: crossing shape, charcoal colour and the treatment of the street channel.
- Concrete finish to be stipple, unless otherwise stated.
- Concrete colour to be natural.
- For splay dimension see table.
- Kerb transition to be 0.5m.



Moreland City Council

TYPE 2 R.C. VEHICLE CROSSING (K&C TYPE B & SM2) – REVERSE FALL

Revised 28-08-18

File SD266

PS 1:20

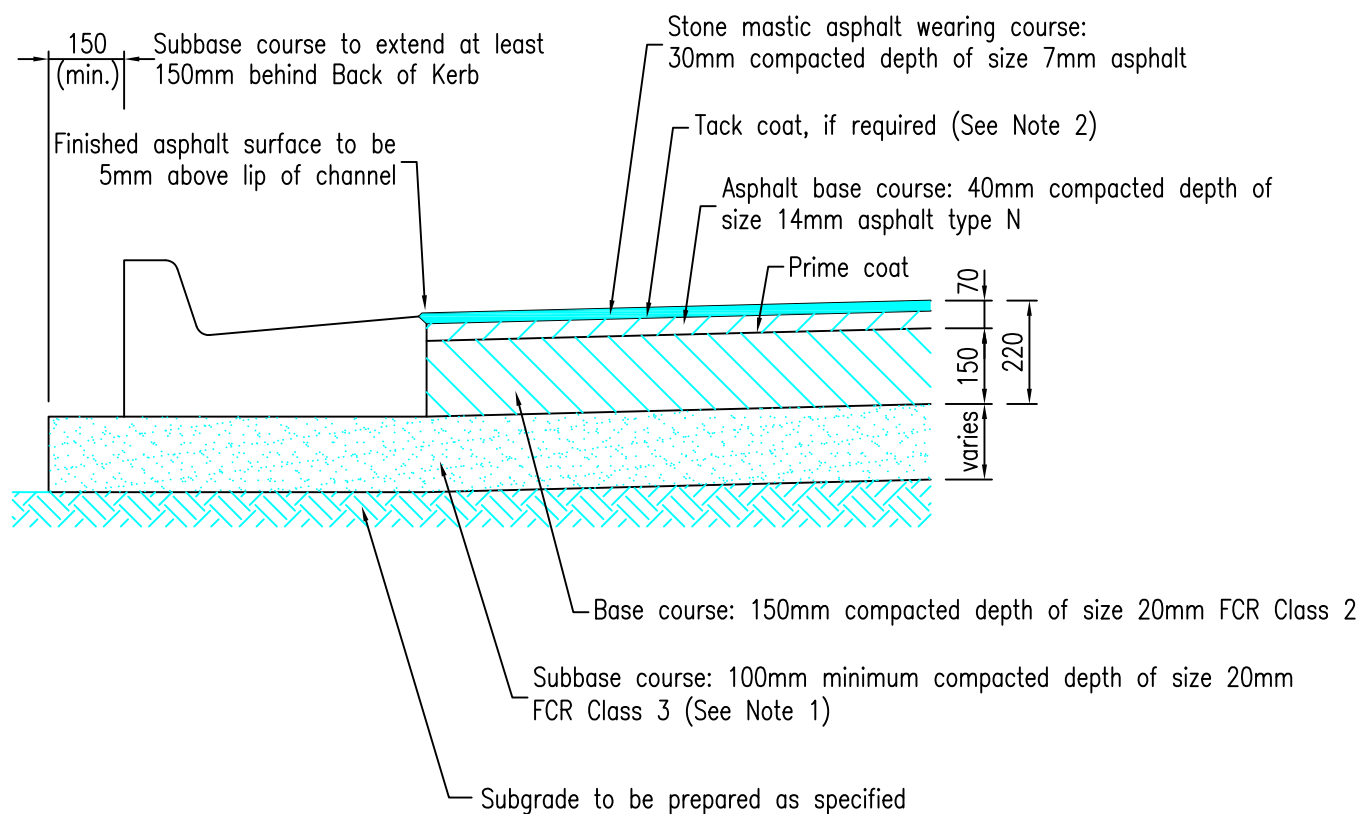
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

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Plan No.

SD 266



NOTES:

1. Subbase depth to be adopted shall be determined in accordance with the ARRB's SRNo.41 "Into a New Age of Pavement Design – A Structural Design Guide for Flexible Residential Street Pavements" or the APRG Report No.21 "A Guide to the Design of New Pavements for Light Traffic", but not less than 100mm. A 95% confidence limit shall be used.
2. When the construction of asphalt wearing course is deferred after the construction of the asphalt base course, a tack coat shall be applied to the surface of the asphalt base course.



Moreland City Council

TYPICAL PAVEMENT STRUCTURE FOR LOCAL ROAD

Revised 11 Mar 15

File SD290C

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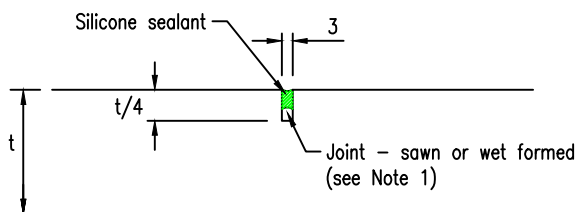
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Director, City Infrastructure

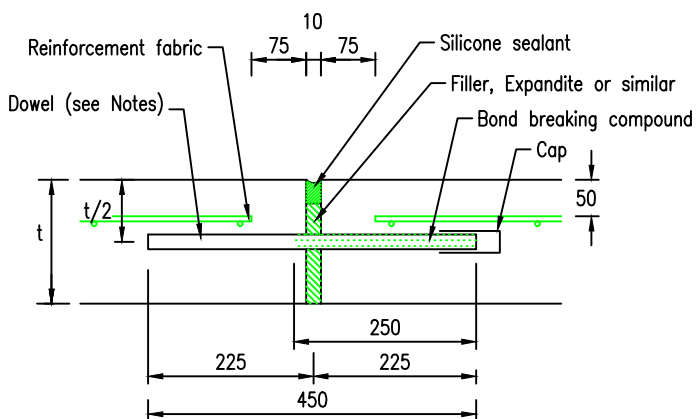
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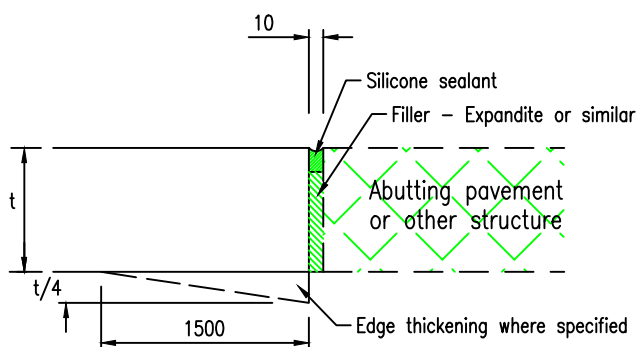
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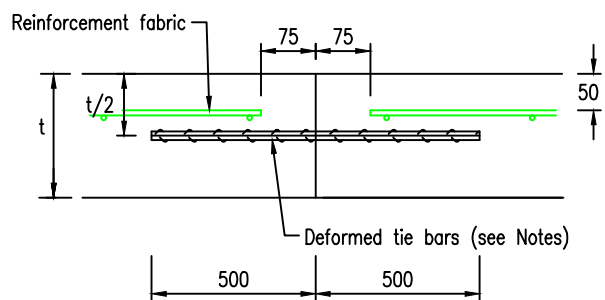
CONTRACTION JOINT
NOT TO SCALE



(Connolly Expansion Joint or Approved Alternative)
EXPANSION JOINT
NOT TO SCALE



ISOLATION JOINT
NOT TO SCALE



TIED JOINT
NOT TO SCALE

NOTES

1. Sawn joints must be cut within 24 hours after placing concrete. Wet joints may only be undertaken with the approval of the superintendent using a special tool for that purpose to ensure that the joint formed is flushed with the paving surface without any bumps. Should wet joints not be satisfactory, the contractor must revert to sawn joints.
2. Dowels should be grade 250R steel bars, 450 mm long and placed at 300mm centres, diameter as shown in Dowel Diameters Table, unless specified otherwise.
3. Dowels must be sawn, not cropped and must be straight, smooth and free of burrs
4. Dowels must be effectively debonded over 250mm length and placed orthogonal to the joint direction and the pavement surface
5. Dowels should be placed in assemblies and firmly secured to the subbase before concrete placing. The insertion of dowels during the placing of concrete is not acceptable.
6. Tie bars should consist of 12 mm diameter grade 400Y deformed steel bars, 1000 mm long and placed at 800 mm centres, unless specified otherwise.
7. Silicone sealant to be applied in accordance with the manufacturer's recommendations.
8. Expansion joints may be Connolly Expansion Joints or approved alternative.

DOWEL DIAMETERS

Slab thickness t(mm)	Dowel dia (mm)
125 – 140	20
141 – 160	24
161 – 190	28
191 – 220	33
221 – 250	36



Moreland City Council

CONCRETE PAVEMENT – JOINTS

Revised 20-03-17

File SD291

PS 1:10

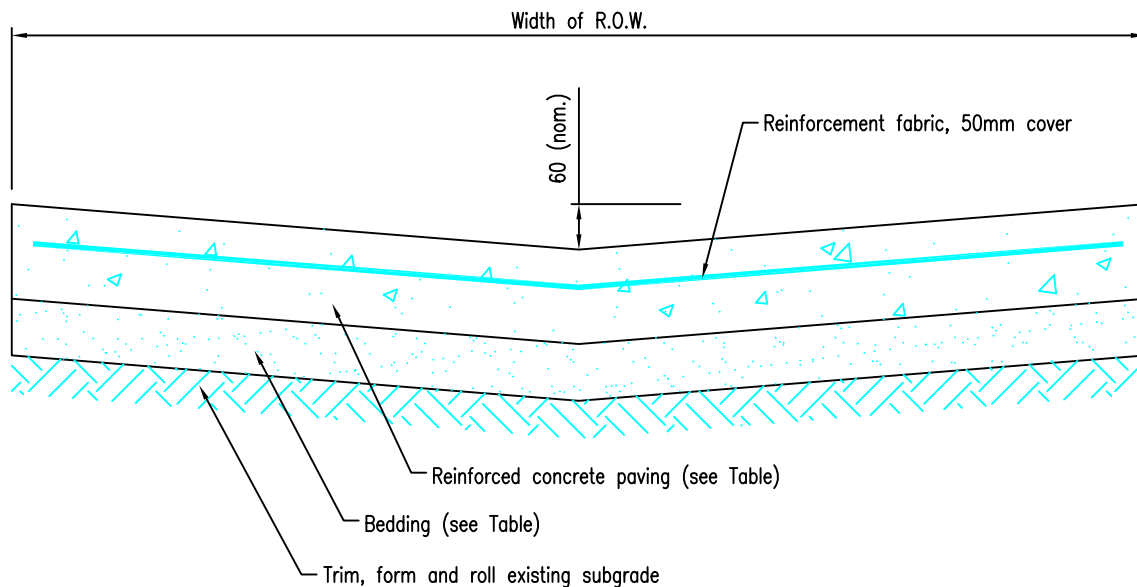
Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

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Plan No.

SD291



TYPICAL CROSS SECTION
NOT TO SCALE

	RESIDENTIAL	COMMERCIAL
CONCRETE STRENGTH	32 MPa	32 MPa
REINFORCEMENT FABRIC	F72	F82
CONCRETE THICKNESS	150 mm	175 mm
BEDDING	75mm consolidated depth size 20mm crushed concrete Class CC2	100mm consolidated depth size 20mm crushed concrete Class CC3 5% cement treated

NOTES:

1. Reinforcement fabrics must be lapped 400mm. Lapped portions must be tied together with wires at 500mm centre. Reinforcement fabrics must be supported by bar chairs in 1000mm grid.
2. Contraction joints spacing: 4m. Expansion joints spacing: 16m.
3. Provide isolation joints between new paving and existing structures
4. Provide an expansion joint at the end of each day pour
5. All joints to be in accordance with SD 291



Moreland City Council

CONCRETE RIGHT OF WAYS

Revised 23 Aug 13

File SD292

PS 1:20

Date
Manager, Capital Works Planning & Delivery

Date
Director, City Infrastructure

A4

Plan No.

SD292