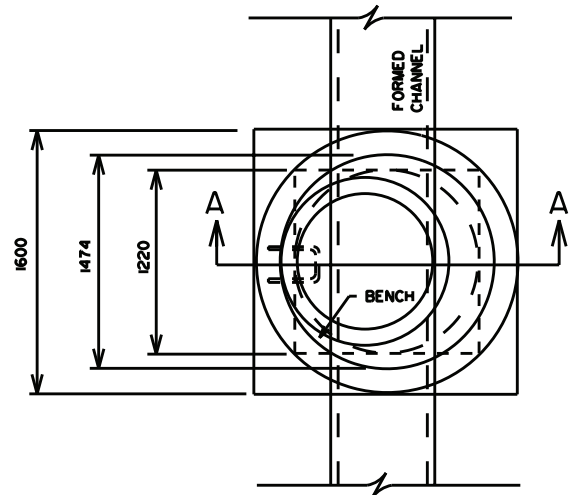
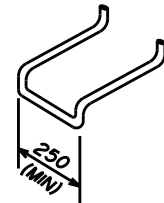
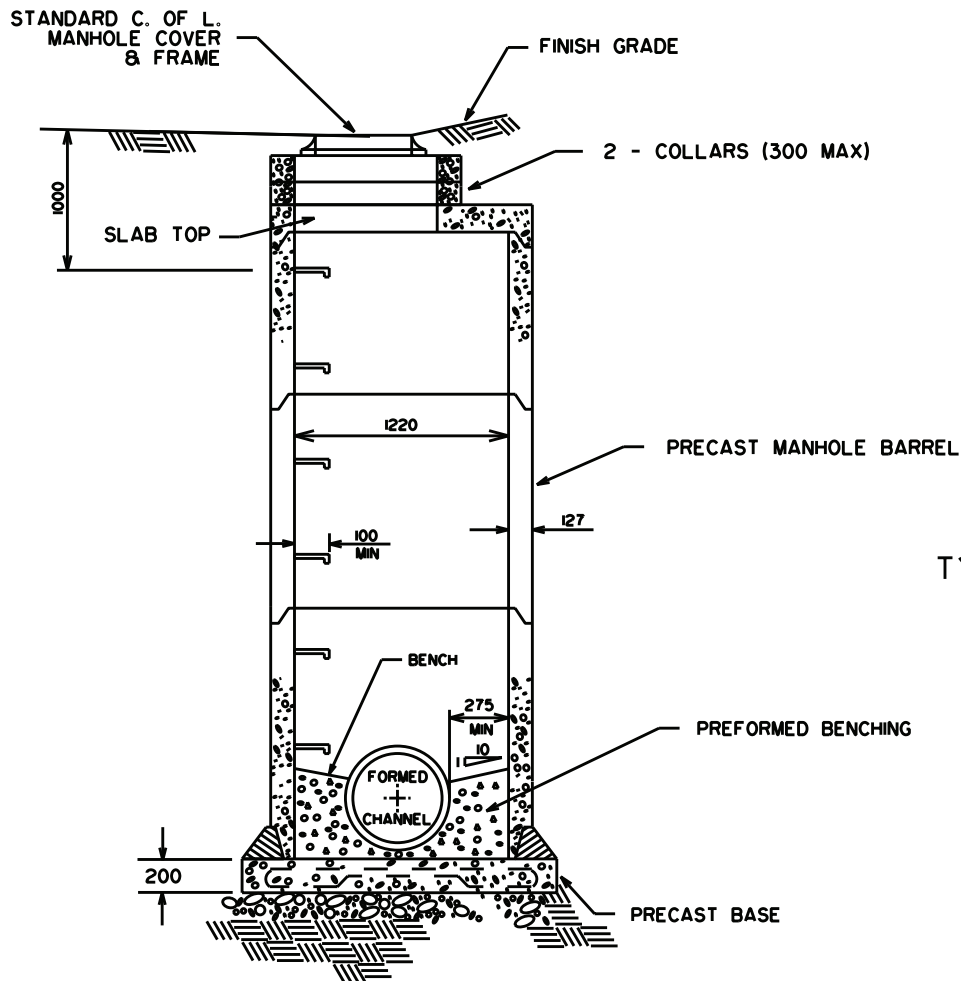


NOTE: - PRECAST MANHOLE SECTIONS TO CONFORM
TO A.S.T.M. DESIGNATION C478 (LATEST EDITION)

- ALL JOINTS TO BE SEALED WITH FLEXIBLE BUTYL RESIN SEALANT OR TYLOX SUPERSEAL GASKET
- ALL DIMENSIONS IN mm
- LADDER RUNGS SHALL BE CLEAR OF ALL LATERALS
- MANHOLE STEPS AT 400 o/c
- FOR BENCHING DETAIL SEE DRAWINGS S-07
- CEMENT TO BE TYPE 50 (SULPHATE RESISTANT)



PLAN VIEW

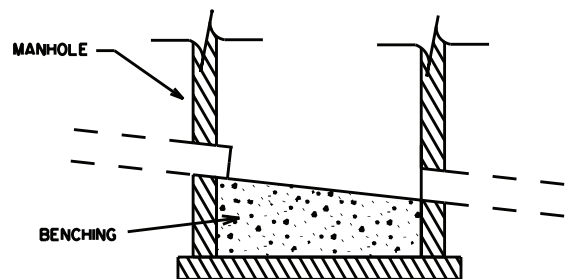


TYPICAL STEP DETAIL

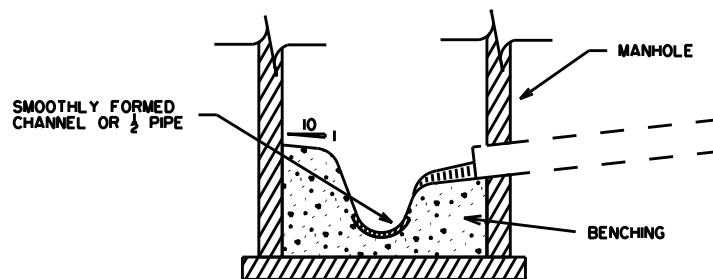
SECTION A-A

NOTE: TO BE USED ONLY WHEN CONNECTING TO EXISTING
MAINS 600 mm DIAMETER & SMALLER.

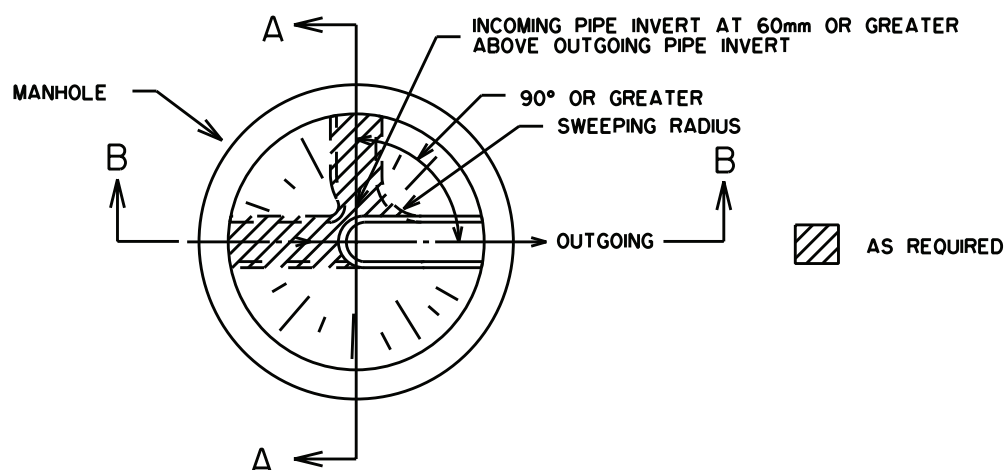
REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
NOV 15, 2004		CHECKED	
DEC 14, 2005		APPROVED	
FEB 3, 2010		SCALE	N.T.S.
		DATE	97/03/08
	STANDARD MANHOLE TYPE I	DWG NO	S-01



SECTION B-B
TYPICAL BENCHING



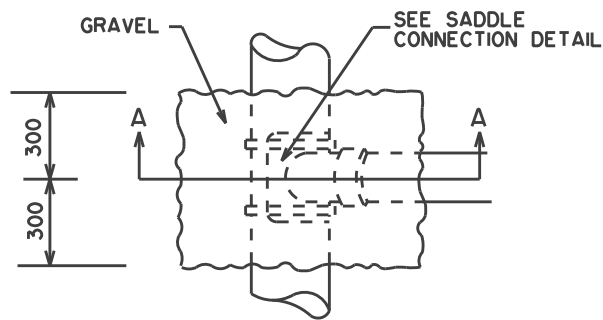
SECTION A-A
TYPICAL BENCHING



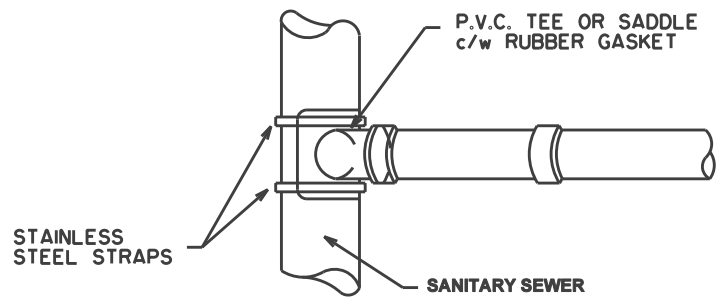
NOTE: - ALL DIMENSIONS IN MILLIMETERS.

- BENCHING SLOPE TO BE 10 : 1 FROM SPRING LINE OF PIPE (1/2 WAY UP)
- ON SANITARY SEWER USE EXTERIOR DROP MANHOLE WHEN INCOMING PIPE INVERT IS 600 OR GREATER ABOVE OUTGOING PIPE INVERT.
- NO SHARP CORNERS.
- BENCHING CONCRETE TO BE TYPE 50 SULPHATE RESISTANT CEMENT. MINIMUM COMPRESSIVE STRENGTH TO BE 30 MPa @ 28 DAYS.
- 30 mm DROP ACROSS M.H. BETWEEN INCOMING & OUTGOING INVERTS FOR PIPE GRADE UP TO 2%.
- 60 mm DROP ACROSS M.H. BETWEEN INCOMING & OUTGOING INVERTS FOR PIPE GRADES > 2%. AND < = 5%. ALSO FOR 90° TURNS.
- DROP ACROSS M.H. BETWEEN INCOMING & OUTGOING INVERTS TO BE @ GRADE OF PIPE FOR PIPE GRADES > 5%
- ALL INCOMING PIPE MUST BE GROUTED TO BE FLUSH WITH BENCHING IN MANHOLES.

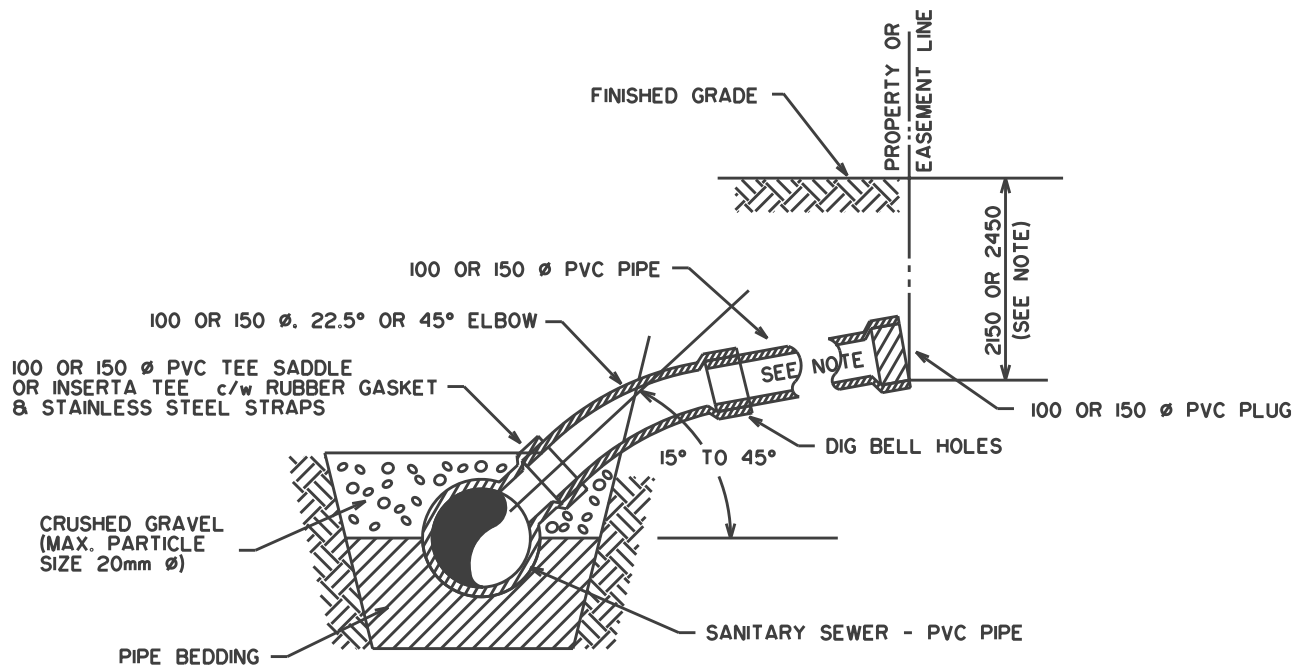
REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
DEC 3/07		CHECKED	
FEB 5/10		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/18
		DWG NO	S-07
TYPICAL BENCHING IN MANHOLES			



PLAN



SADDLE CONNECTION DETAIL



SECTION A-A

FOR SEWERS LESS THAN 3700 DEEP

- NOTE:
- 150 Ø SERVICES AT MIN 1%
 - 100 Ø SERVICES AT MINIMUM 2%
 - ALL P.V.C. PIPE TO BE MUNICIPAL STUB SEWER PIPE, A.S.T.M. D3034, DR 28
 - WHEN LOT SLOPES FROM BACK TO FRONT, THE DEPTH AT P/L TO BE 2150.
 - WHEN LOT SLOPED FRONT TO BACK, THE DEPTH AT P/L TO BE 2450.
 - SEWER SERVICES MUST TERMINATE WITH A BELL END
 - SADDLES TO BE 400mm APART MIN.
 - ALL DIMENSIONS ARE IN MILLIMETERS

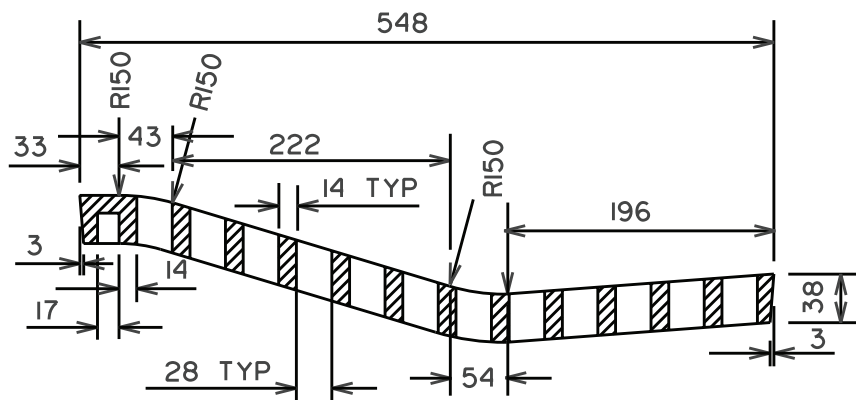
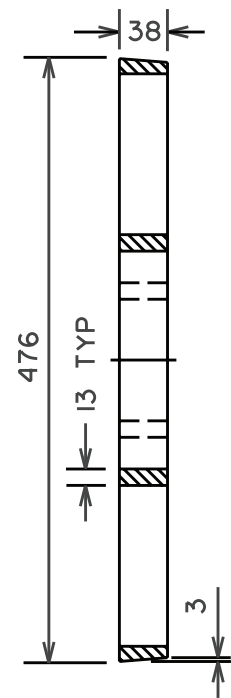
REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/10
	P.V.C. SEWER SERVICE CONNECTION FOR MAINS LESS THAN 3.7 DEEP	DWG NO	S-08



8 RIBS - 19mm THICK
(EQUALLY SPACED) -

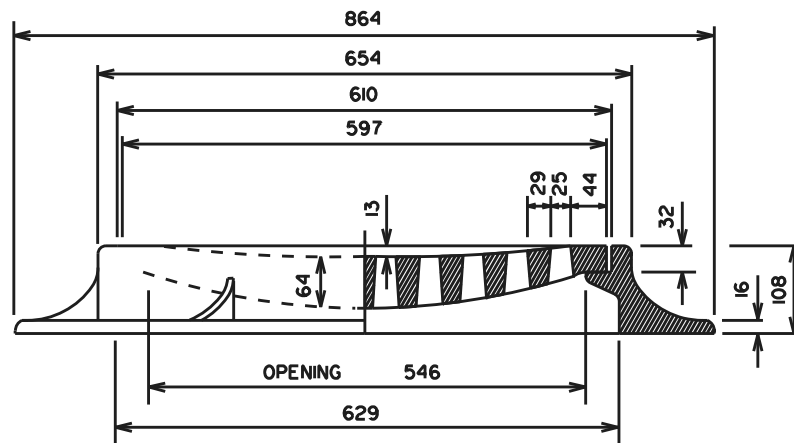
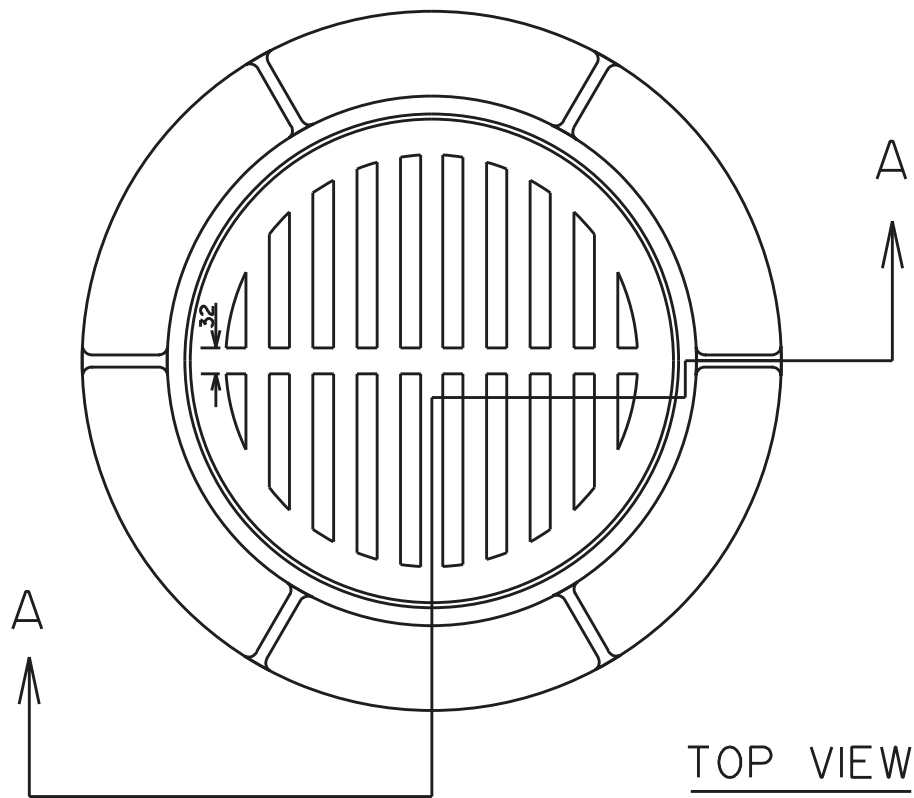


REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD MANHOLE FRAME AND COVER	DWG NO	S-10




GRATE MATERIAL :
DUCTILE IRON
ASTM A536
GRADE 60-40-18

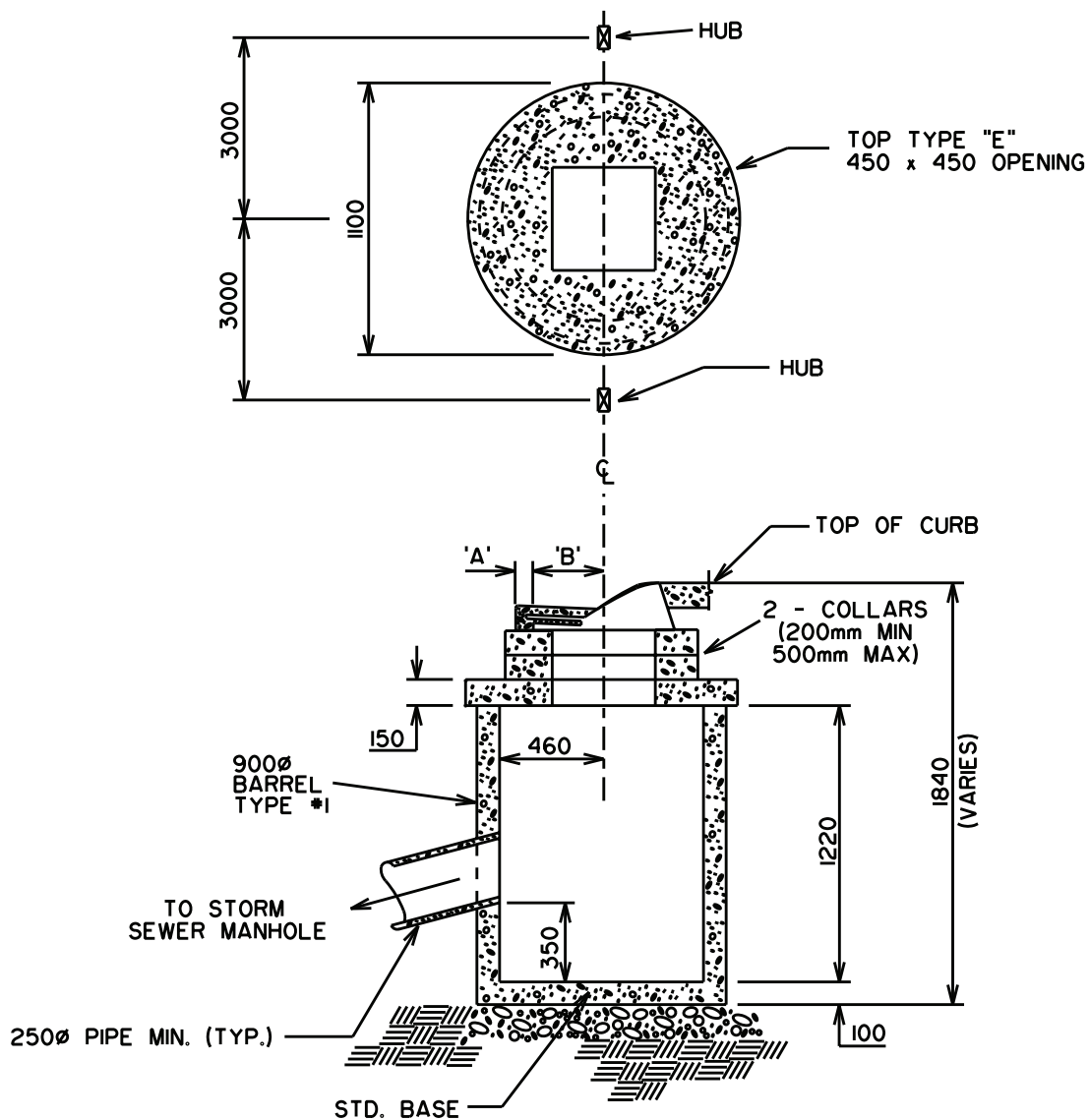
REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	D.F.
		CHECKED	
		APPROVED	
		SCALE	NTS
		DATE	NOV 25/2004
	CATCH BASIN GRATE ROLLED CURB TYPE	DWG NO	S-IIB



SECTION A-A

MATERIAL: CL. 30 CAST IRON

REVISED	 <p style="text-align: center;">CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD C.B. FRAME & GRATE ROUND TYPE	DWG NO	S-13

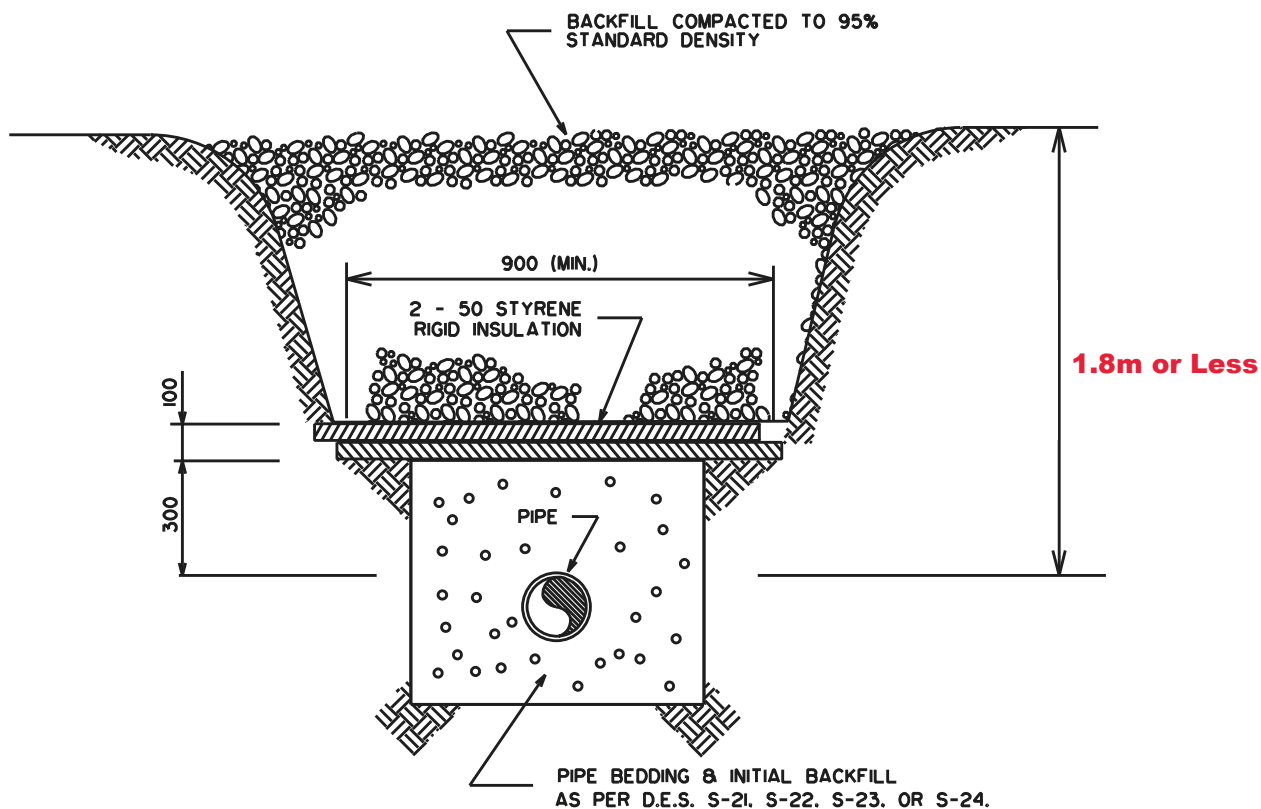


CURB & GUTTER WIDTH	DIMENSION	
	'A'	'B'
600mm	75mm	300mm
690mm	100mm	300mm

INSTALLING CATCH BASINS

- ALL JOINTS IN PRECAST SECTIONS TO BE SEALED WITH FLEXIBLE BUTYL RUBBER SEALANT (OR APPROVED EQUAL).
- PRECAST SECTION TO CONFORM TO A.S.T.M. C-478 (LATEST EDITION).
- ALL COVERS TO MEET CITY OF LETHBRIDGE STANDARDS.
- NO GRAVEL REQUIRED IF BASE IS SET ON UNDISTURBED SOIL. OTHERWISE 150 MINIMUM THICKNESS.
- ALL DIMENSIONS ARE IN MILLIMETRES.
- CEMENT TO BE TYPE 50 (SULFATE RESISTANT).

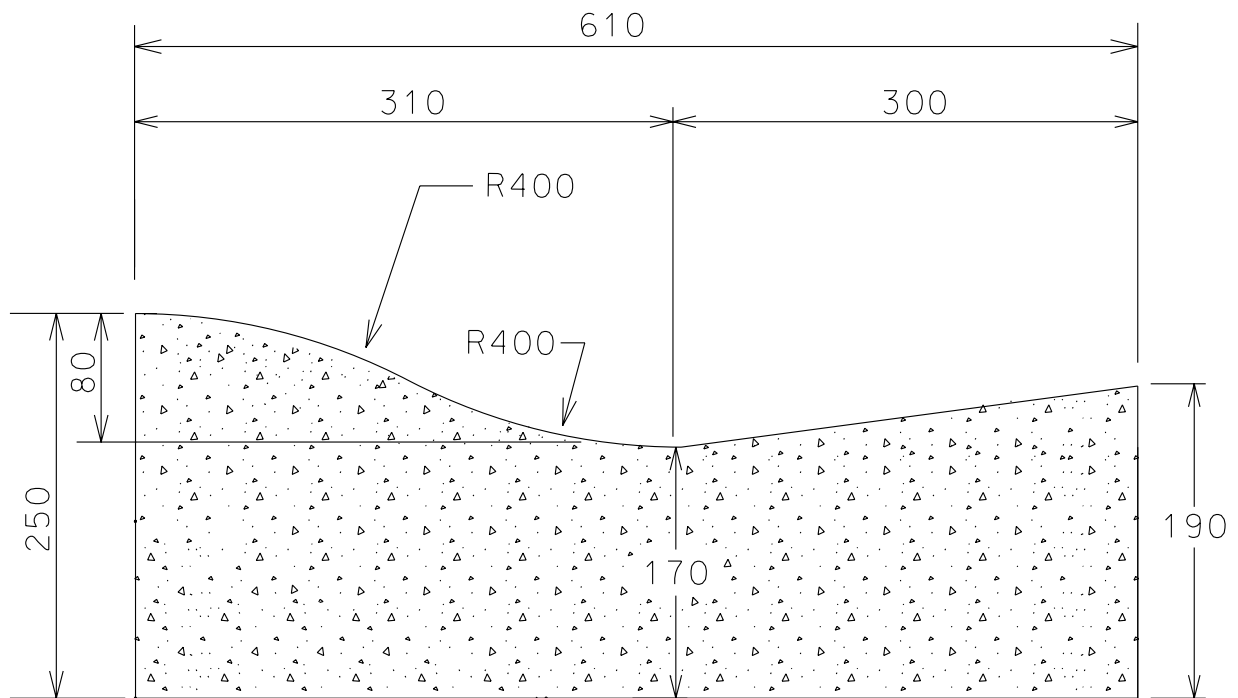
REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	C.R.S.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/06
		DWG NO	S-14
	CATCH BASIN ROLLED CURB		




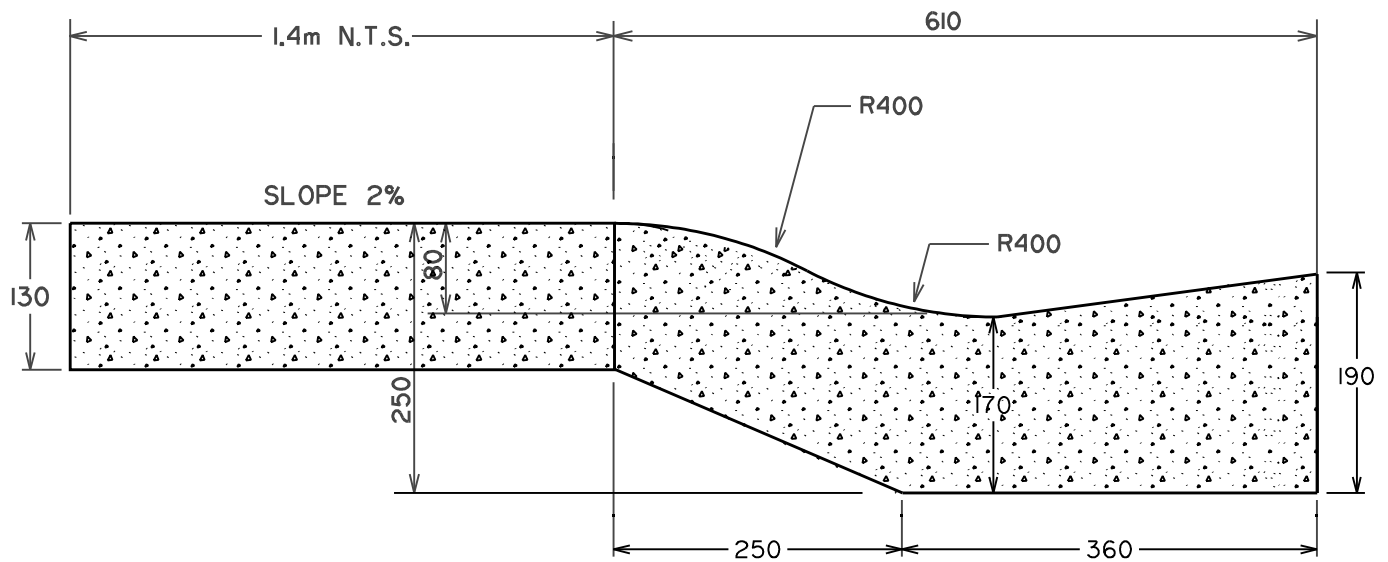
NOTES:

- ALL DIMENSIONS IN MILLIMETERS
- FROST SHIELD TO BE USED IN TRENCHES THAT ARE 1500mm OR LESS IN DEPTH.
- STAGGER JOINTS ON INSULATION 50mm ACROSS WIDTH OF DITCH.
- STAGGER JOINTS OF INSULATION $\frac{1}{2}$ SHEET ALONG LENGTH OF DITCH.
- INSULATION TO BE 'STYROFOAM - SM' BRAND EXTRUDED EXPANDED POLYSTYRENE FOAM MANUFACTURED BY DOW CHEMICAL CANADA INC. OR APPROVED EQUAL.

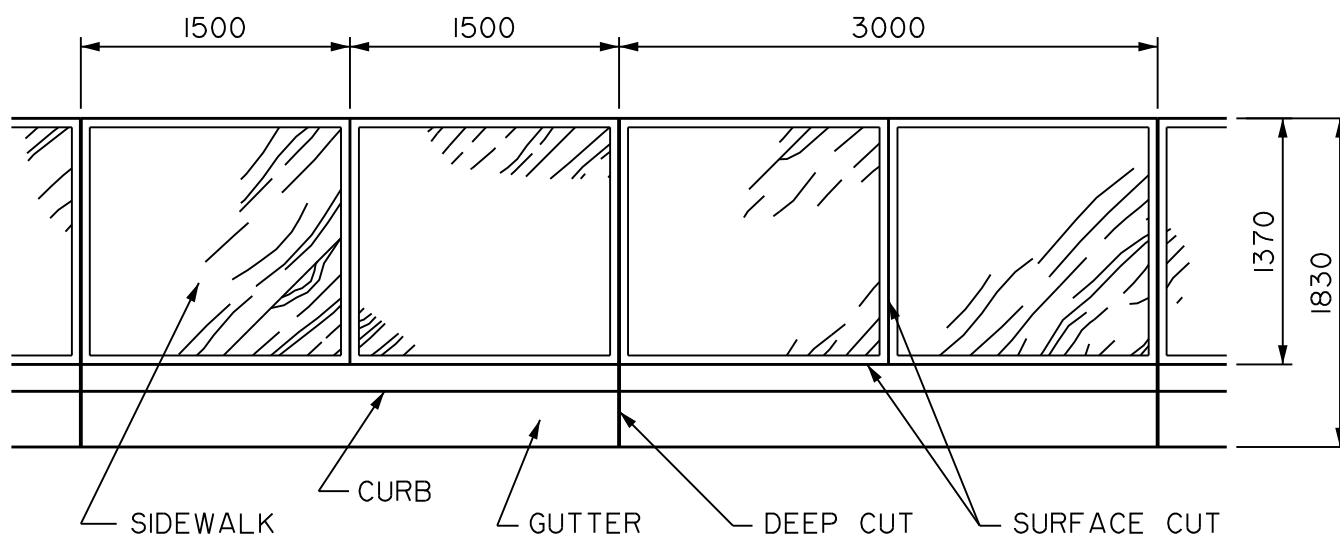
REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
		DWG NO	S-19
	STANDARD FOR FROST SHIELD FOR MAINS & SERVICES		



REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	R. J. K
		CHECKED	R. A. B.
		APPROVED	
		SCALE	NTS
		DATE	OCT 31/2005
REVISED 03/14/07 R. J. K.	LOW PROFILE ROLLED CURB	DWG NO	STR-06.1.dgn



REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	D.Mc.
		CHECKED	
		APPROVED	
		SCALE	NTS
	COMBINED SIDEWALK ROLLED CURB GUTTER	DATE	OCT 31/2005
		DWG NO	STR-09.dgn



NOTE:

- SIDEWALK SURFACE TO BE BRUSHED FINISHED
- 6mm x 32mm DEEP EXPANSION JOINT TO BE LOCATED AT 3000mm INTERVAL.



City of Lethbridge
INFRASTRUCTURE

SIDEWALK JOINTING

DRAWN jrg

CHECKED

APPROVED

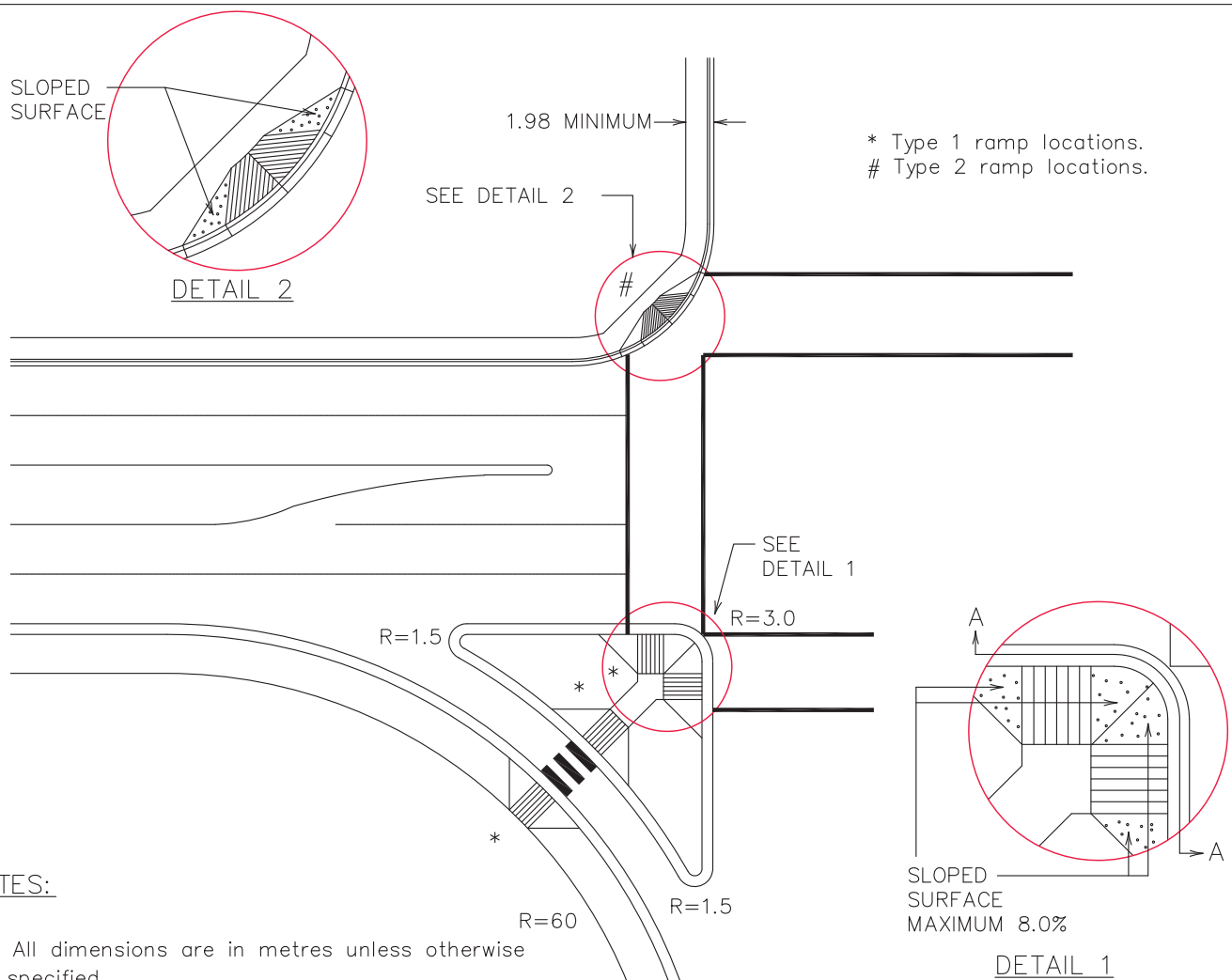
SCALE N.T.S.

DATE 99/05/03

REV. DATE

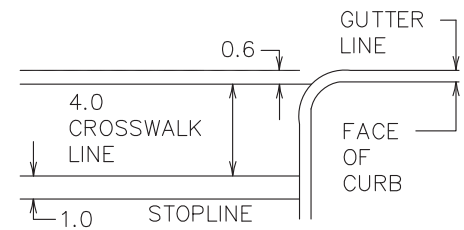
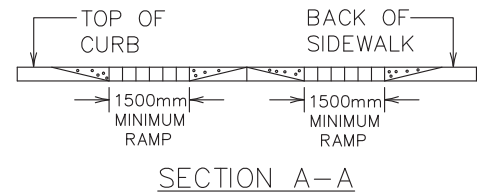
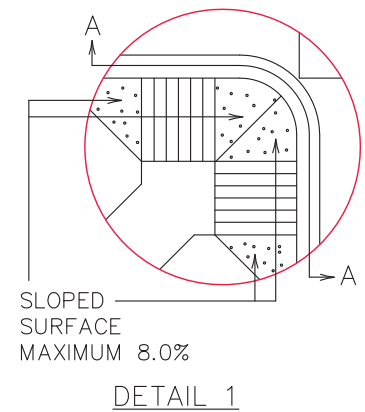
DWG NO

STR_10



NOTES:

- All dimensions are in metres unless otherwise specified.
- Sidewalk ramps must provide access directly to crosswalks.
- The selection of curb ramp type is dependent on the location of the crosswalk relative to the curb face. Where the curb return radius is greater than or equal to 4.0m one Type 2 ramp can be used. Where the curb return radius is less than 4.0m two Type 1 ramps are required.
- Where crosswalks are controlled by signals with a push-button system, the sidewalks and ramps must allow access by wheelchair to the push button.
- Refer to Drawing Nos. STR 11.1 and 11.2 for details of Type 1 and Type 2 ramps.
- On a sharp corner where two Type 1 ramps are being used, the slope on the flared areas between the two ramps can be less than the 0.08 m/m maximum shown. This will provide a smoother sidewalk for general use especially for pedestrians who are not using the crosswalk.



DETAIL SHOWING
CROSSWALK DIMENSIONS

DATE	REVISION	BY
02/11	REVISED SHAPE	R.J.K.
FILE:	str_11.0.dwg	

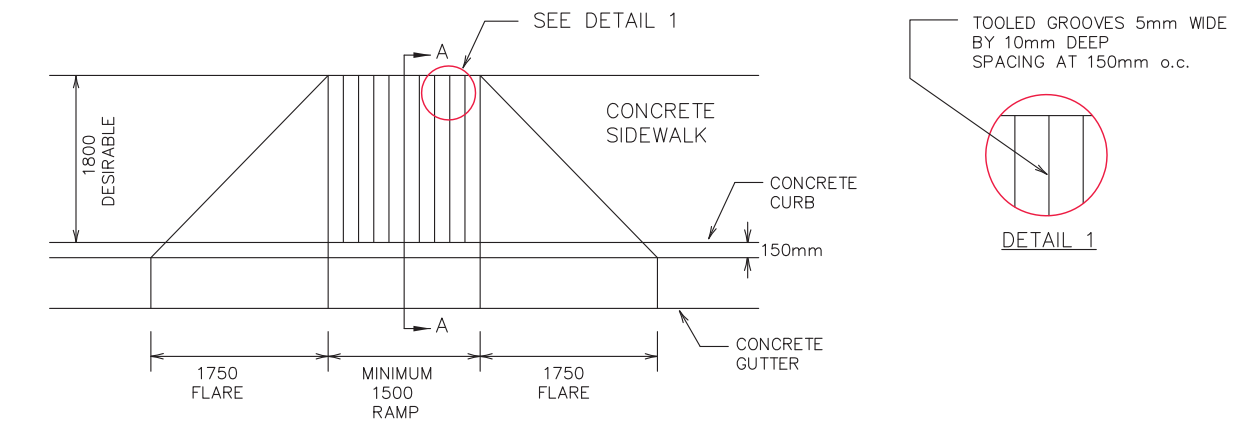


CITY OF
Lethbridge

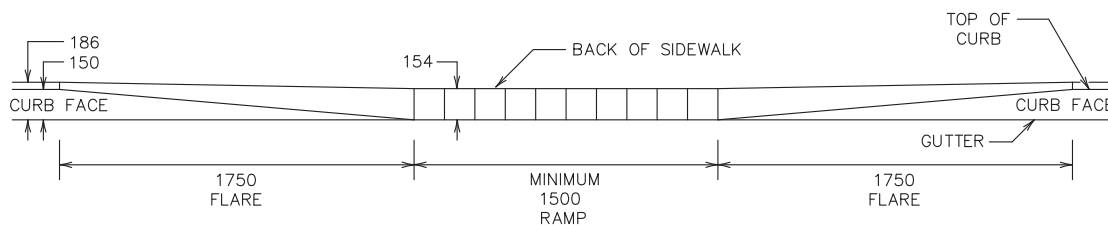
INFRASTRUCTURE SERVICES

TYPICAL LAYOUT OF CROSSWALKS
AND LOCATION AND TYPE OF
SIDEWALK RAMPS AT
URBAN INTERSECTIONS

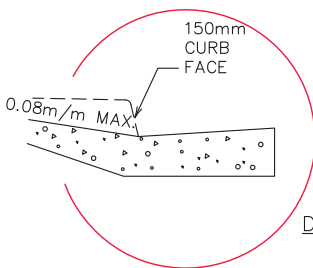
DRAWN:	C.R.S.
DESIGN:	R.J.K.
CHECKED:	R.A.B.
APPROVED:	D.L.J.
SCALE:	N.T.S.
DATE:	02/10/1991
DWG NO:	STR 11.0



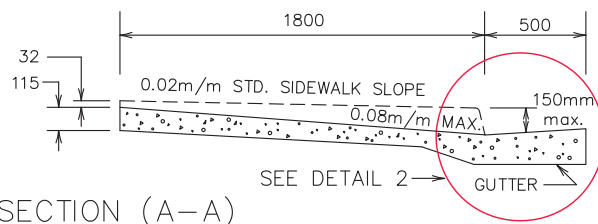
TYPICAL PLAN VIEW



TYPICAL ELEVATION



DETAIL 2



TYPICAL CROSS SECTION (A-A)

NOTES:

- All dimensions are in millimetres unless otherwise specified.
- Ramps for users of wheelchairs/bicycles should be located at all junctions of crosswalks and sidewalks.
- Grooves on sidewalk ramps are to alert persons who are visually impaired of the curb-cut and a street crossing.
- Where crosswalks are controlled by signals with a push-button system, the sidewalks and ramps must allow access by wheelchair to the push-button.
- Concrete sidewalks, curbs and ramps to be poured monolithically.
- Minimum width of ramp is 1500mm. It may be necessary to build wider ramps in busy urban areas where the volume of pedestrian traffic is high.
- Maximum ramp slope is 0.08m/m.
- Where the sidewalk is less than 1800mm wide, the 0.08m/m maximum slope should not be exceeded and therefore the back of the sidewalk must be lowered accordingly.
- Refer to Drawing No. STR 11.0 for typical layout of crosswalks and location and the type of ramp to be used.
- For details of typical ramps for 90 degree corners, refer to Drawing No. STR 11.2.



CITY OF
Lethbridge

INFRASTRUCTURE SERVICES

CONCRETE SIDEWALK RAMP FOR
WHEELCHAIR OR BICYCLE
ON TANGENT (TYPE 1)

DRAWN: C.R.S.

DESIGN: C.R.S.

CHECKED: P.R.A.

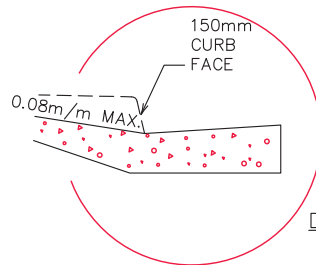
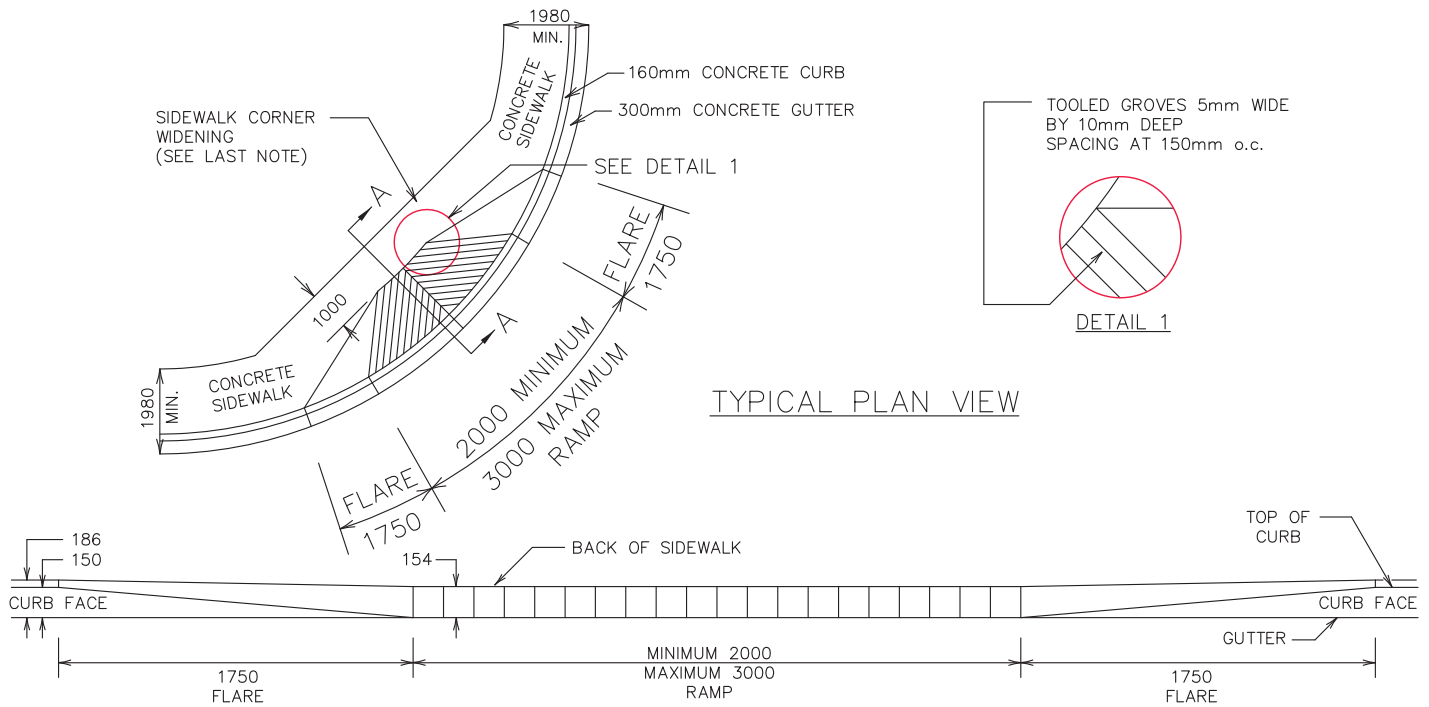
APPROVED: B.L.H.

SCALE: N.T.S.

DATE: 10/10/1991

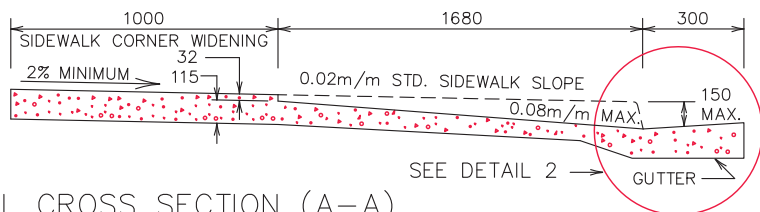
DWG NO:
STR 11.1

DATE	REVISION	BY
FILE:	str_11.1.dwg	



DETAIL 2

TYPICAL ELEVATION



NOTES:

- All dimensions are in millimetres unless otherwise specified.
- Ramps for users of wheelchairs/bicycles should be located at all junctions of crosswalks and sidewalks. Ramp must be located within a crosswalk.
- Grooves on sidewalk ramps are to alert persons who are visually impaired of the curb-cut and a street crossing.
- Where crosswalks are controlled by signals with a push-button system, the sidewalks and ramps must allow access by wheelchair to the push-button.
- Concrete sidewalks, curbs and ramps to be poured monolithically.
- Minimum width of ramp is 2000mm. It may be necessary to build wider ramps in busy urban areas where the volume of pedestrian traffic is high.
- Maximum ramp slope is 0.08m/m.
- Where the sidewalk is less than 1800mm wide, the 0.08m/m maximum slope should not be exceeded and therefore the back of the sidewalk must be lowered accordingly.
- Refer to Drawing No. STR 11.0 for typical layout of crosswalks and location and the type of ramp to be used.
- For details of typical ramps for tangent sections, refer to Drawing No. STR 11.1.
- Where right-of-way is available, the sidewalk is to be widened at corner locations as shown so that at least a 1.0m width of minimum 2% sloped sidewalk is provided adjacent to the ramp.

DATE	REVISION	BY
02/11	REVISED SHAPE	R.J.K.
05/11	RECORD REVISION	R.J.K.
05/12	SIZE REVISION	R.J.K.
FILE:	str_11.2.dwg	

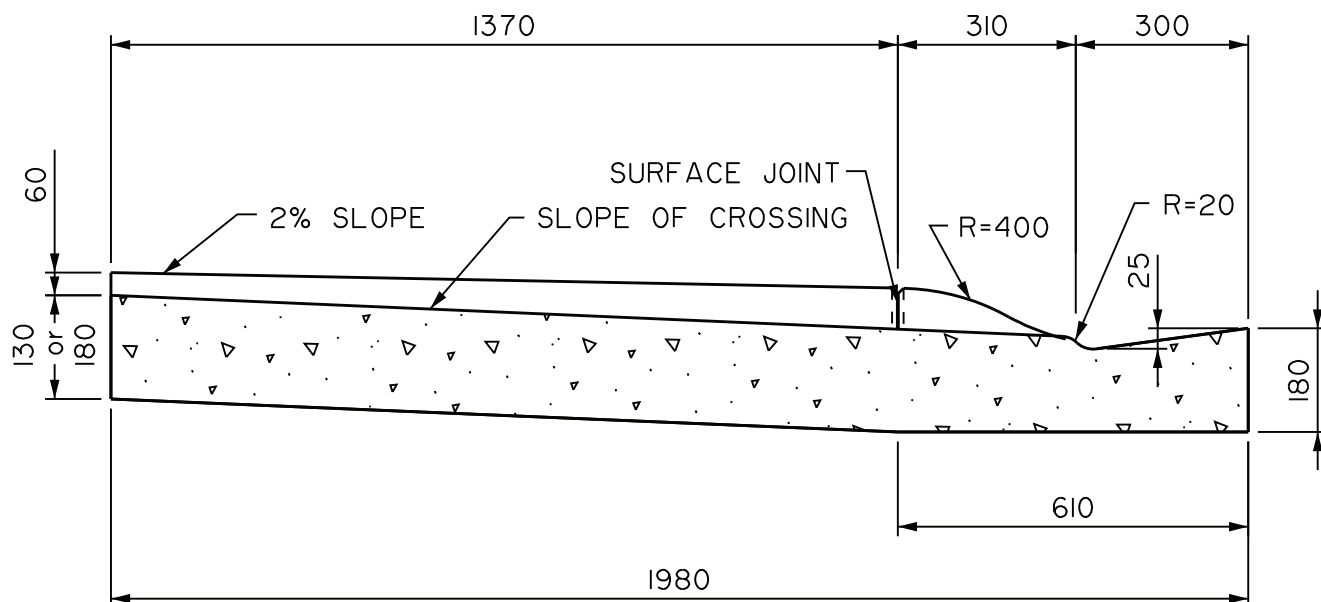


CITY OF
Lethbridge

INFRASTRUCTURE SERVICES

CONCRETE SIDEWALK RAMP FOR
WHEELCHAIR OR BICYCLE ON
CORNER (TYPE 2)

DRAWN:	C.R.S.
DESIGN:	R.J.K.
CHECKED:	R.A.B.
APPROVED:	D.L.J.
SCALE:	N.T.S.
DATE:	10/11/1991
DWG NO:	STR 11.2



NOTE:

- RESIDENTIAL CROSSING TO BE MIN. 130mm THICK.
- LANE OR COMMERCIAL CROSSING TO BE MIN. 180mm THICK.



City of Lethbridge
INFRASTRUCTURE

REVI: CURB RADII TO 20, DI FROM TOP
OF CROSSING TO SIDEWALK 60

**CROSSING THROUGH COMBINED SIDEWALK
ROLLED CURB AND GUTTER**

DRAWN jrg

CHECKED

APPROVED

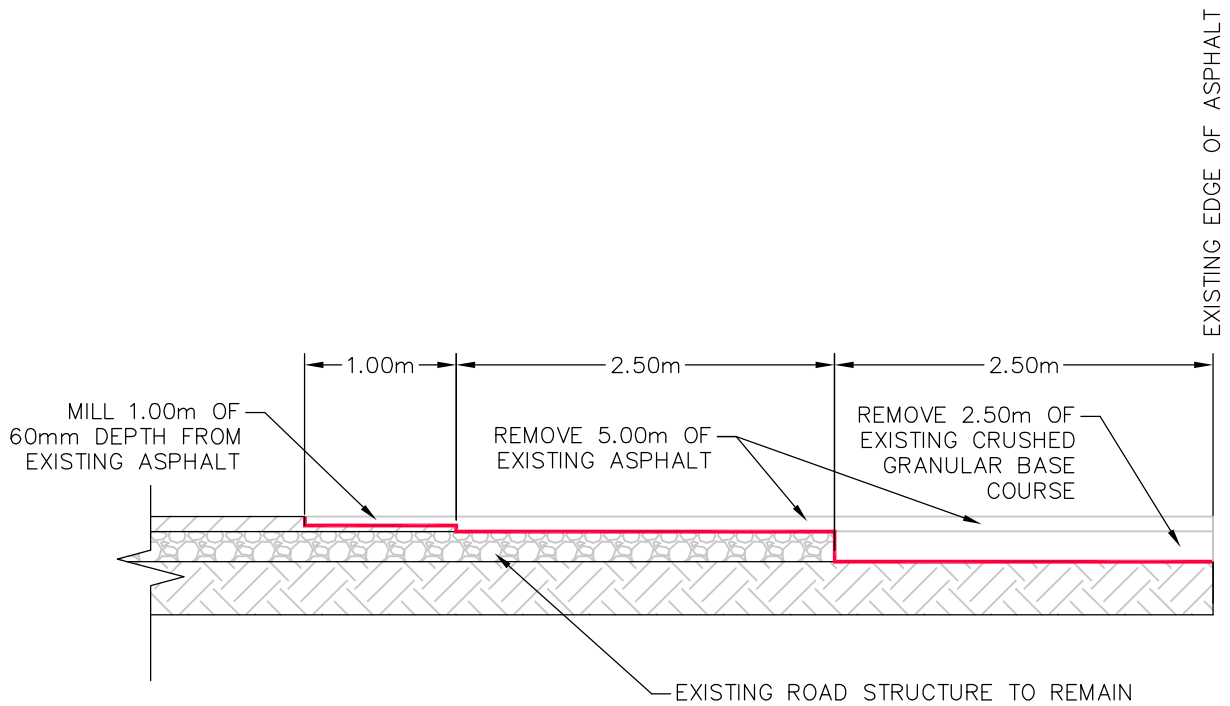
SCALE N.T.S.

DATE 99/05/03

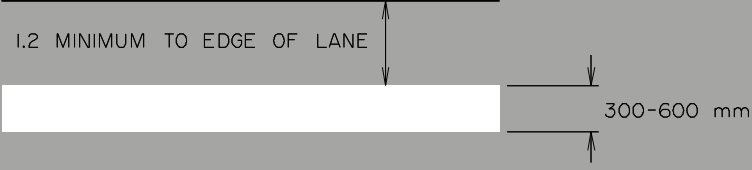
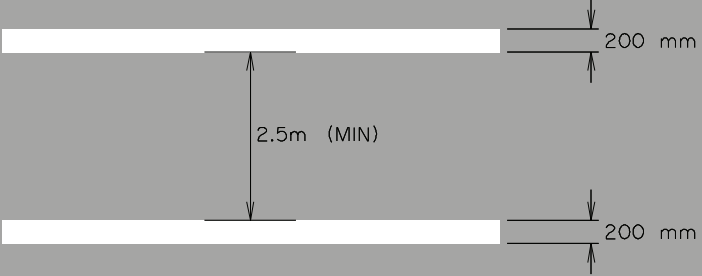
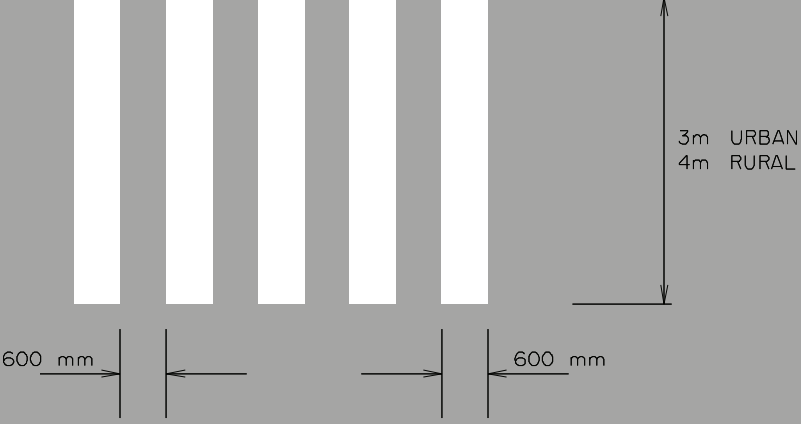
REV. DATE 99/12/14



DWG NO


STR_14_0

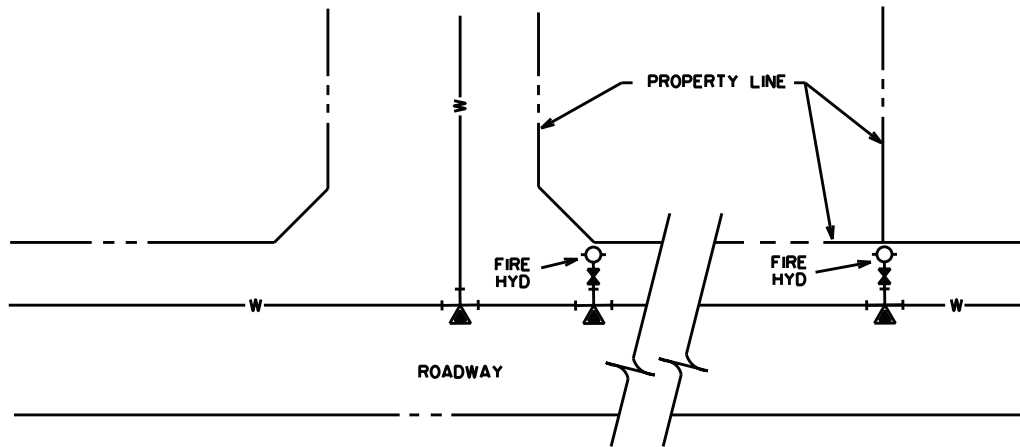


DATE	REVISION	BY	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN: R.J.K.
			ROAD EXTENSION BETWEEN PHASES	DESIGN: R.J.K.
				CHECKED: R.A.B.
				APPROVED: D.L.J.
FILE: str_30.dwg				SCALE: N.T.S.
				DATE: 14/02/2011
				DWG NO: STR_30

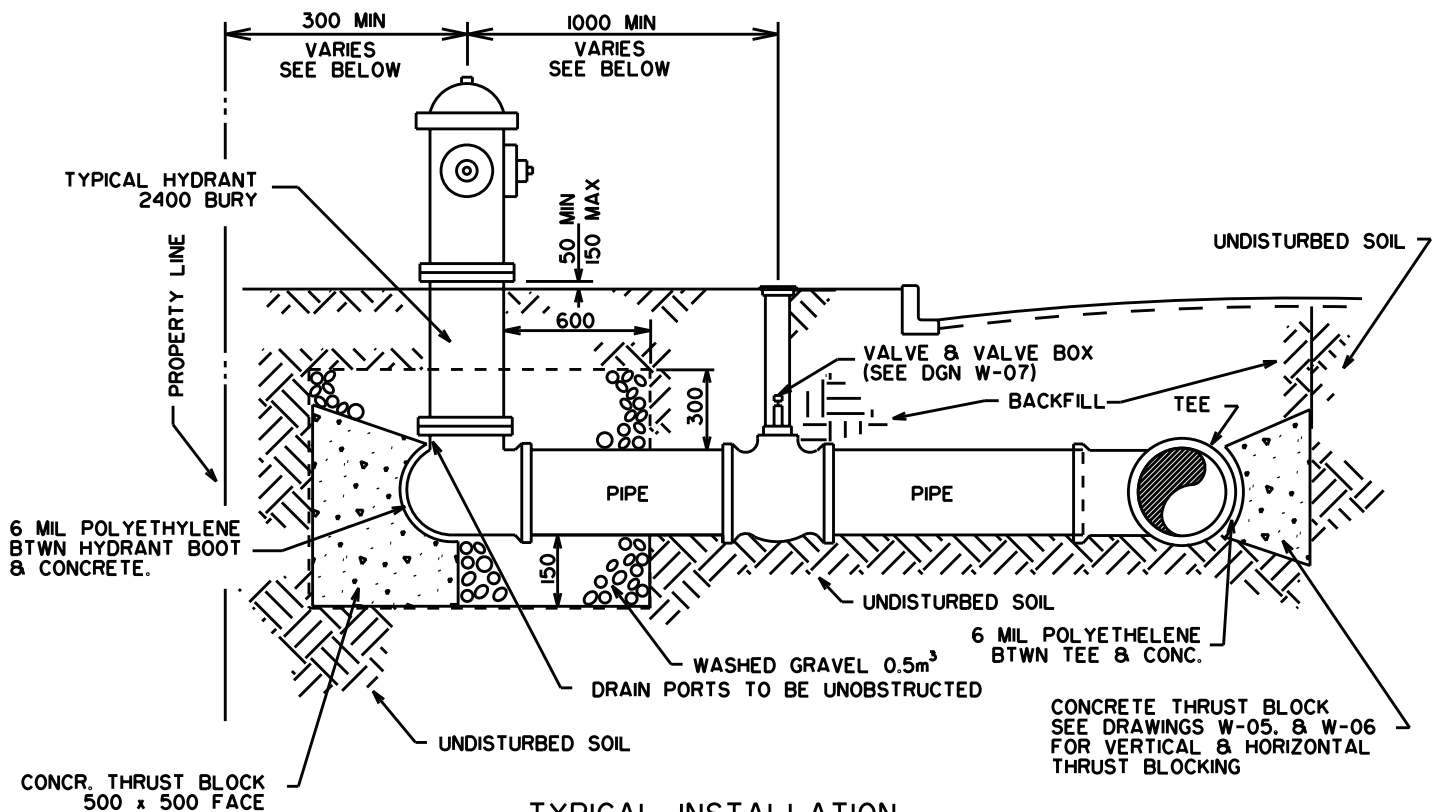
LINE TYPE	PATTERN	USE
STOP BAR		STOP LINE
STANDARD CROSSWALK		STANDARD CROSSWALK
ZEBRA CROSSWALK		ZEBRA CROSSWALK FOR ADDED VISIBILITY

		---	
	Dwg. no. changed from TCS-C-3.01	B.B.	Mar/03
No.	DESCRIPTION	BY	DATE

	FIGURE TCS-C-301		
	Date: <u>MAY 1999</u> ----		
TRANSVERSE PAVEMENT MARKINGS DIMENSIONS AND DEFINITIONS			
Prepared By: <u>R.M.</u>	Checked By: <u>S.J.M.</u>	Scale: <u>---- N.T.S. --</u>	Section C3



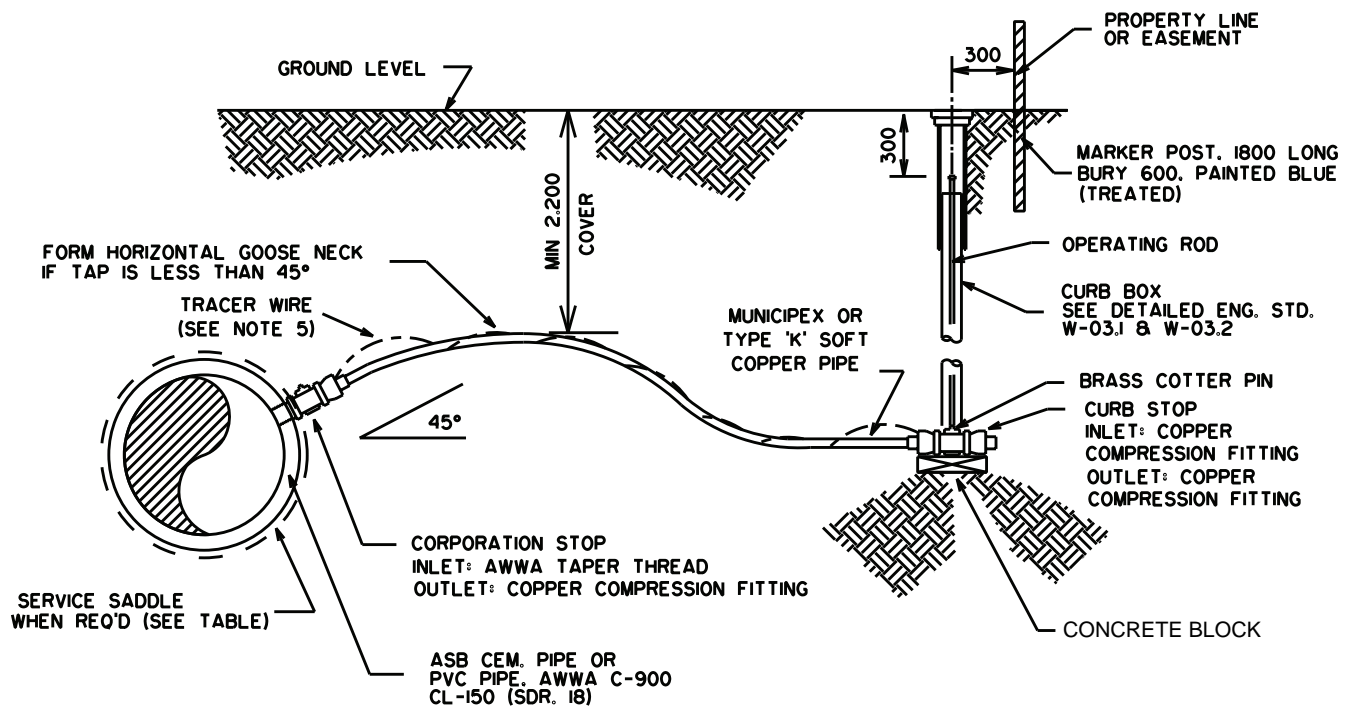
TYPICAL LOCATION



TYPICAL INSTALLATION

- THRUST BLOCKS SHALL BE OF CONCRETE OBTAINING A COMPRESSIVE STRENGTH OF AT LEAST 30 MPa @ 28 DAYS. CEMENT TO BE TYPE 50 (SULPHATE RESISTANT).
- TO OBTAIN DISTANCE FROM PROPERTY LINE TO HYDRANT AND VALVE, SEE CITY OF LETHBRIDGE ROAD R.O.W. - LINE ASSIGNMENT CORRESPONDING TO R.O.W. WIDTH.
- ALL DIMENSIONS ARE IN MILLIMETERS.

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
07/01/10		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD FOR FIRE HYDRANT INSTALLATION	DWG NO	W-01

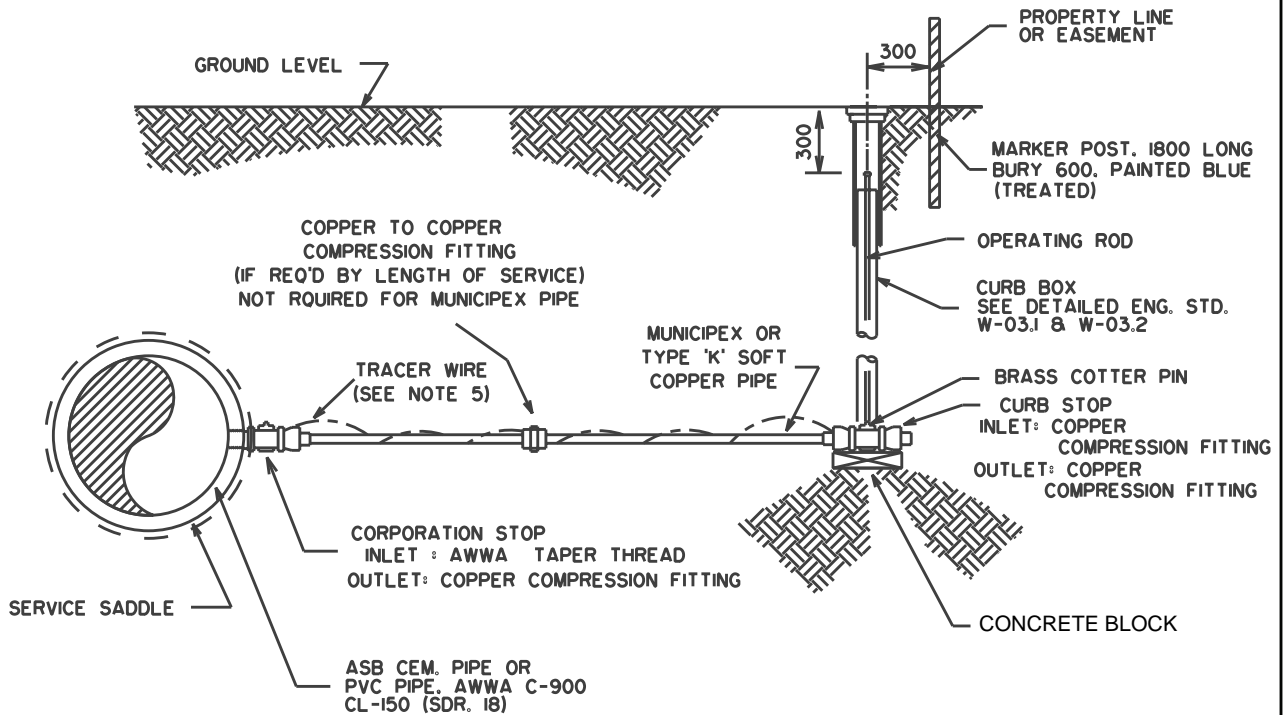


PIPE SIZE	MAX SIZE OF OUTLET ALLOWED WITH CL 150 AC PIPE		MAX SIZE OF OUTLET WITH PVC PIPE CL 150 (SDR.18)	
	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE
100	-	25	20	50
150	-	37	25	50
200	-	50	25	50
250	-	50	25	50
300	-	50	25	50
350	-	50	25	50
400	-	50	25	50

NOTES:

1. CORPORATION STOPS TO BE STAGGERED AND AT LEAST 400 mm APART.
2. CORPORATION STOPS TO BE 300 mm MIN. FROM END OF PIPE SECTION.
3. USE AWWA THREAD FOR ALL DIRECT TAPS & SERVICE SADDLE CONNECTIONS
4. FOR CONNECTIONS IN EXISTING AREAS, HORIZONTAL GOOSENECK TO BE FORMED IF DEPTH IS LESS THAN 1500 mm
5. TRACER WIRE SHALL BE INSTALLED IN CUL-DE-SACS AND WHERE SPECIFIED BY THE CITY ENGINEER.

REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
DEC 15, 2005		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD FOR 20mm & 25mm WATER SERVICE	DWG NO	W-02



PIPE SIZE	MAX SIZE OF OUTLET ALLOWED WITH CL 150 AC PIPE		MAX SIZE OF OUTLET WITH PVC PIPE CL 150 (SDR.18)	
	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE
100	—	25	—	50
150	—	37	—	50
200	—	50	—	50
250	—	50	—	50
300	—	50	—	50
350	—	50		
400	—	50		

NOTES:

1. SERVICE SADDLE TO BE BRONZE BODY, AWWA THREAD, C/W DOUBLE STAINLESS STEEL STRAP FOR PIPE > 100mm Ø & SINGLE 50mm WIDE FOR STAINLESS STEEL STRAP FOR PIPE 100 mm Ø
2. CORPORATION STOPS TO BE STAGGERED AND AT LEAST 400 mm APART.
3. CORPORATION STOPS TO BE 300 mm MIN. FROM END OF PIPE SECTION.
4. USE AWWA THREAD FOR ALL DIRECT TAPS
5. TRACER WIRE SHALL BE INSTALLED IN CUL-DE-SACS AND WHERE SPECIFIED BY THE CITY ENGINEER.

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/08
		DWG NO	W_03
	STANDARD FOR 37mm & 50mm WATER SERVICE		

FOR 20mm & 25mm VALVES

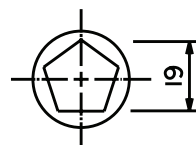
FOR 37mm & 50mm VALVES

CAST-IRON, RIBBED LID c/w 32mm
PENTAGON HEAD BRASS PLUG

STANDARD I.P. THREAD

35
MIN

610 MIN
1000 MAX



TOP VIEW
BRASS PLUG

35
MIN

610 MIN
1000 MAX

TOP BOX SLIDER, 38mm SCHEDULE 40
GALVANIZED IRON PIPE

CASING, 25mm SCHEDULE 40
GALVANIZED IRON PIPE

15.875mm \varnothing STAINLESS STEEL ROD
SEE ENGINEERING STANDARD W-03B

10mm \varnothing GALVANIZED SET SCREW
OR THREADED JOINT

NECK I.D.
38mm

38

230

EPOXY COATED BOOT

NECK I.D. 38mm

38

280

15 92 \varnothing

15 127 \varnothing

REVISED



CITY OF
Lethbridge

INFRASTRUCTURE SERVICES

CURB STAND DETAIL
(SERVICE BOX)

DRAWN

CHECKED

APPROVED

SCALE

N.T.S.

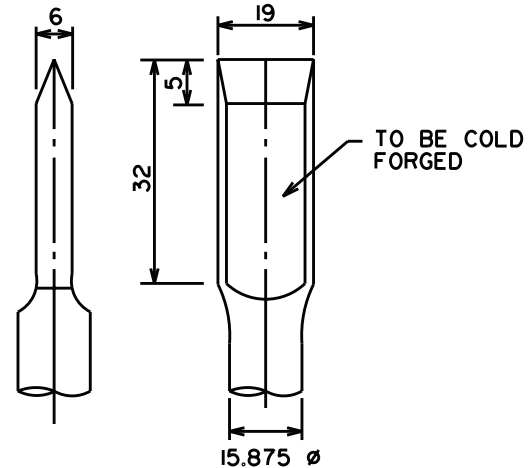
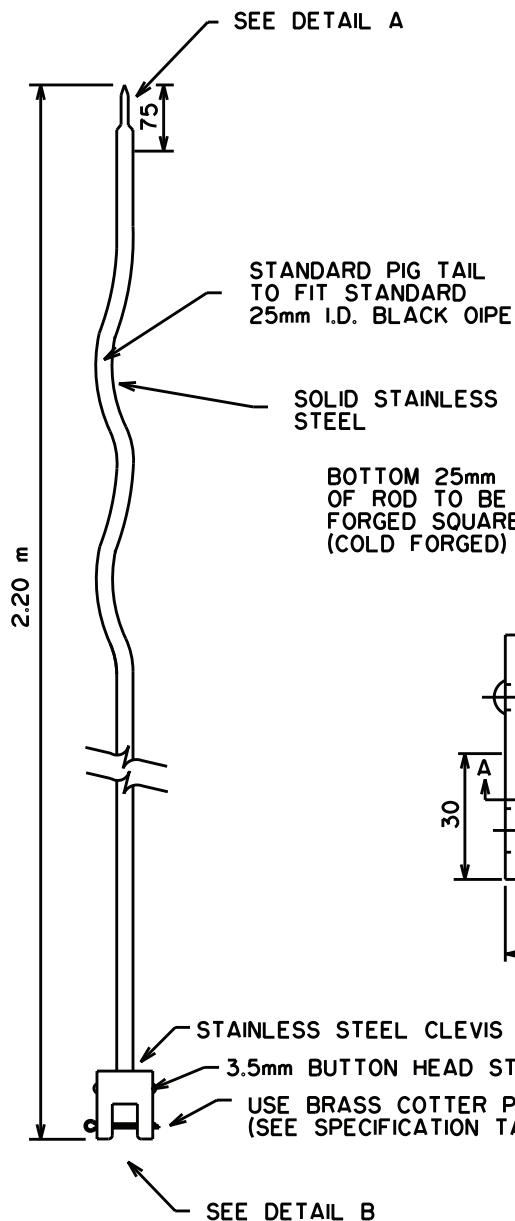
DATE

97/02/28

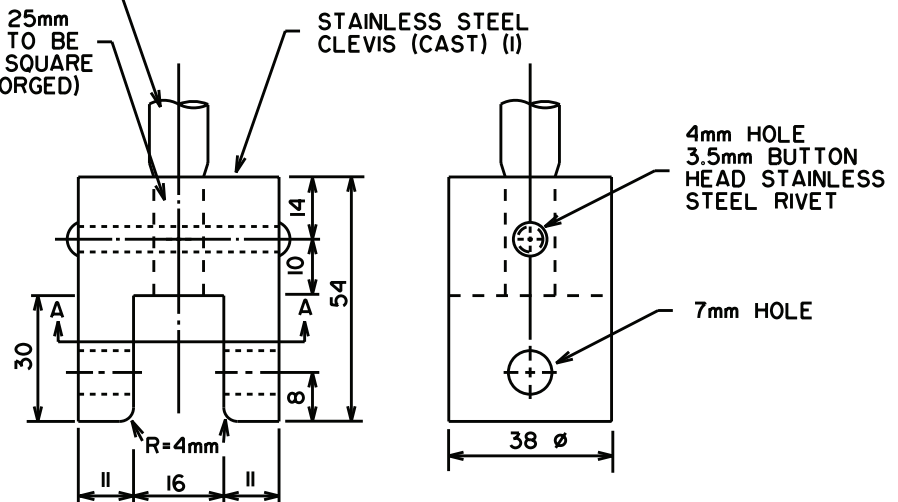
DWG NO

W-03A

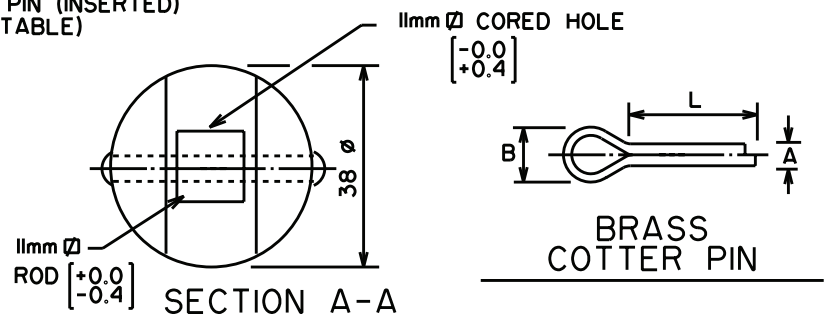
COTTER PIN SPECIFICATIONS					
NOMINAL DIAMETER	DIAMETER A		OUTSIDE EYE DIAMETER B (MIN)	HOLE SIZE RECM'D	LENGTH L
	MAX	MIN			
6.35mm	5.7mm	5.6mm	12.7mm	6.7mm	55mm



DETAIL A

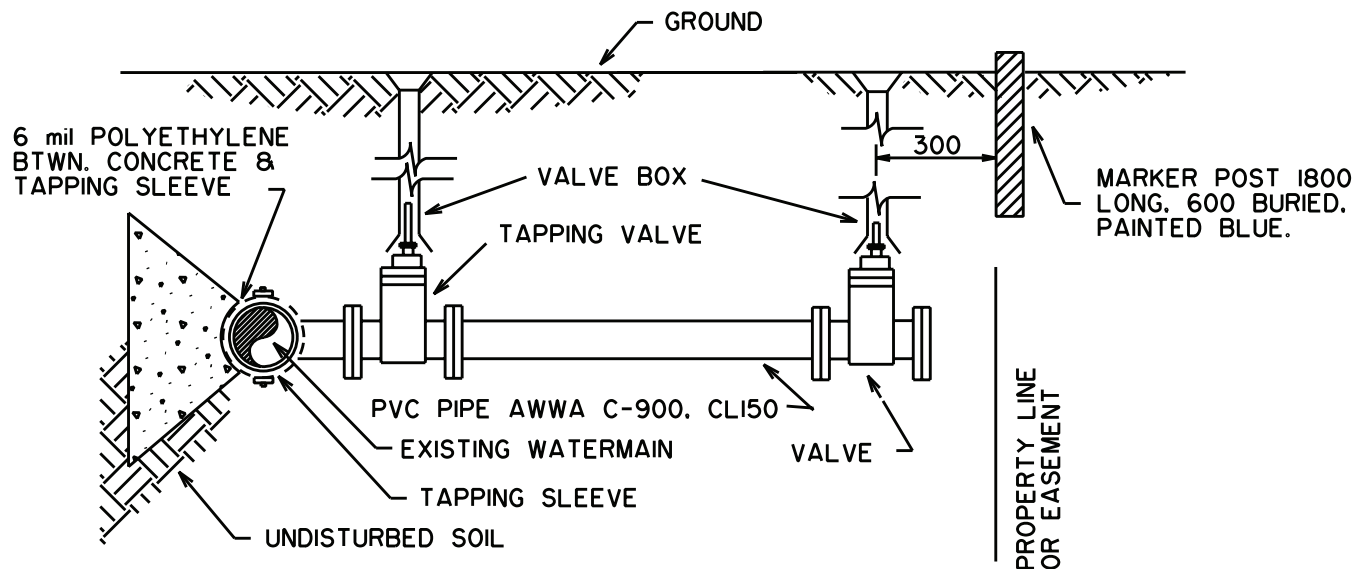


DETAIL B

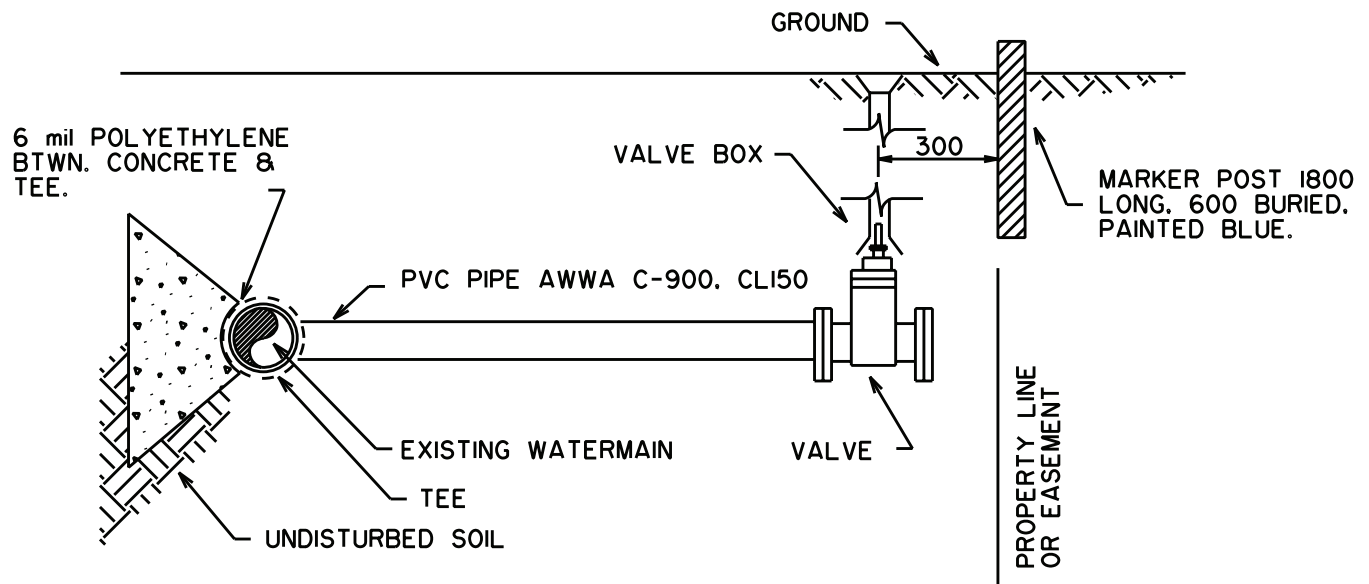


SECTION A-A

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
JAN 27, 2005 - (I)		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/07
	CURB STAND OPERATING ROD DETAIL	DWG NO	W-03B



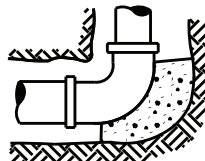
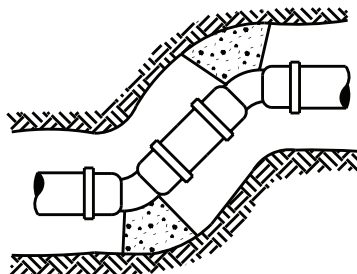
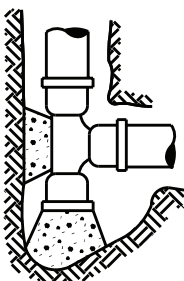
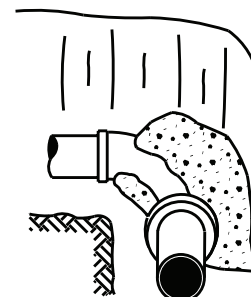
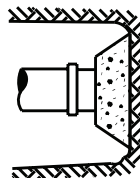
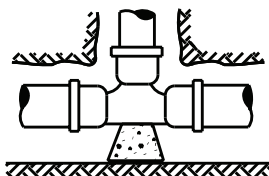
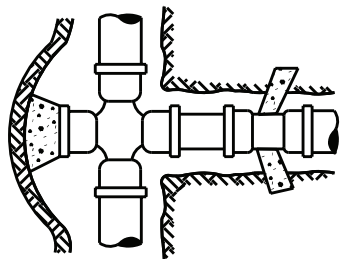
FOR MAIN UNDER PRESSURE



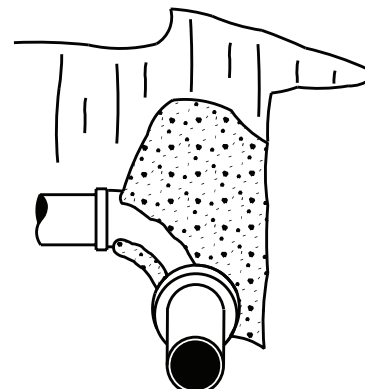
AT TIME OF CONSTRUCTION

- NOTE:
- ALL DIMENSIONS IN MILLIMETERS.
 - THRUST BLOCKS TO BE AS PER "STANDARD FOR HORIZONTAL THRUST BLOCKING" DRAWING W-05.

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/19
		DWG NO	W_04
	STANDARD WATER SERVICE CONNECTIONS FOR 150mm & 200mm		



FOR SMALL PIPE



FOR LARGE PIPE

LOCATION OF HORIZONTAL THRUST BLOCKS

TABLE "A"					
THRUST BLOCK FACE AREA IN SQ. METRES AT FITTING FOR CL150 PIPE @ 1000kPa & SOIL BEARING CAPACITY OF 100 kPa					
PIPE SIZE	DEAD ENDS & TEES	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
100	0.12	0.17	0.10	0.10	0.10
150	0.25	0.35	0.19	0.10	0.10
200	0.43	0.60	0.33	0.17	0.10
250	0.70	0.99	0.54	0.27	0.14
300	1.00	1.40	0.75	0.39	0.19
350	1.35	1.90	1.03	0.52	0.26
400	1.75	2.47	1.34	0.68	0.34
450	2.24	3.15	1.72	0.87	0.44
500	2.77	3.90	2.12	1.07	0.54
600	4.00	5.64	3.07	1.55	0.78
750	6.26	8.83	4.81	2.44	1.22
900	9.03	12.70	7.58	3.51	1.76

TABLE "B"	
SOIL TYPE	SAFE BEARING LOAD - kPa
SOFT CLAY; LOOSE SAND	50
MED. SOFT CLAY; DENSE SAND	100
DENSE CLAY TILL & GRAVEL	150
HARD SHALE	500

NOTE: - CONCRETE THRUST BLOCKS ARE TO BE PLACED AT ALL TEES, BENDS, PLUGS, CAPS, PIPE DEFLECTIONS AND REDUCERS.

- CONCRETE THRUST BLOCKS SHALL EXTEND INTO UNDISTURBED SOIL. THRUST BLOCKS IN SOFT UNSTABLE SOILS WILL REQUIRE REMOVAL OF SOIL & REPLACEMENT WITH COMPACTABLE FILL OF SUFFICIENT STABILITY TO RESIST THRUST TO THE SATISFACTION OF THE ENGINEER.

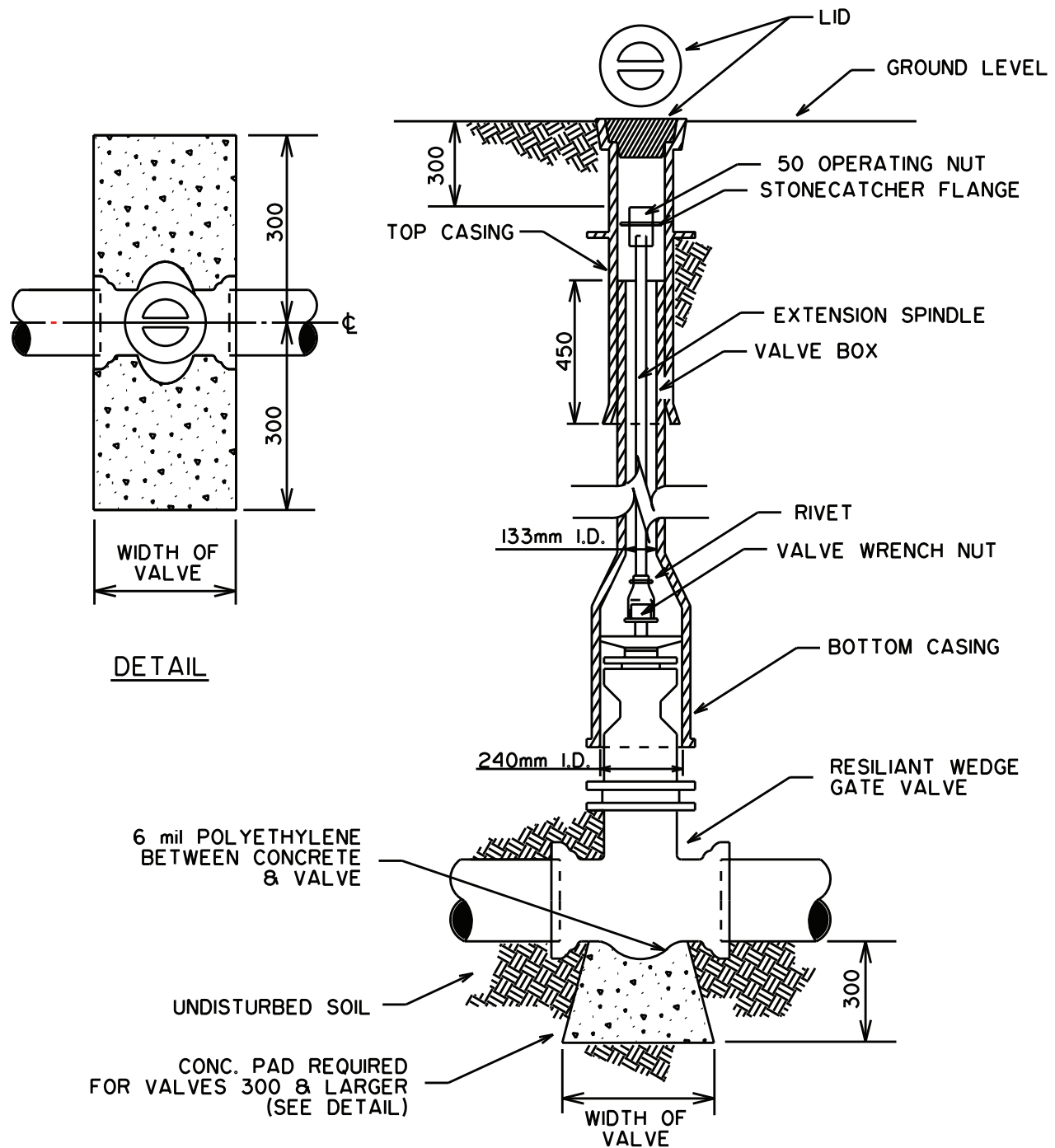
- THRUST BLOCKS SHALL BE OF CONCRETE OBTAINING A COMPRESSIVE STRENGTH OF AT LEAST 30 MPa @ 28 DAYS. CEMENT TO BE TYPE 50 (SULPHATE RESISTANT).

- CONCRETE SHALL BE KEPT CLEAR OF BELLS AND SHALL NOT CONTACT THE PIPE. USE A MINIMUM OF 6 mil POLYETHYLENE BETWEEN CONCRETE AND ALL FITTING SURFACES.

- ALL THRUST BLOCKS SHALL HAVE A MINIMUM FACE OF 0.10 m²

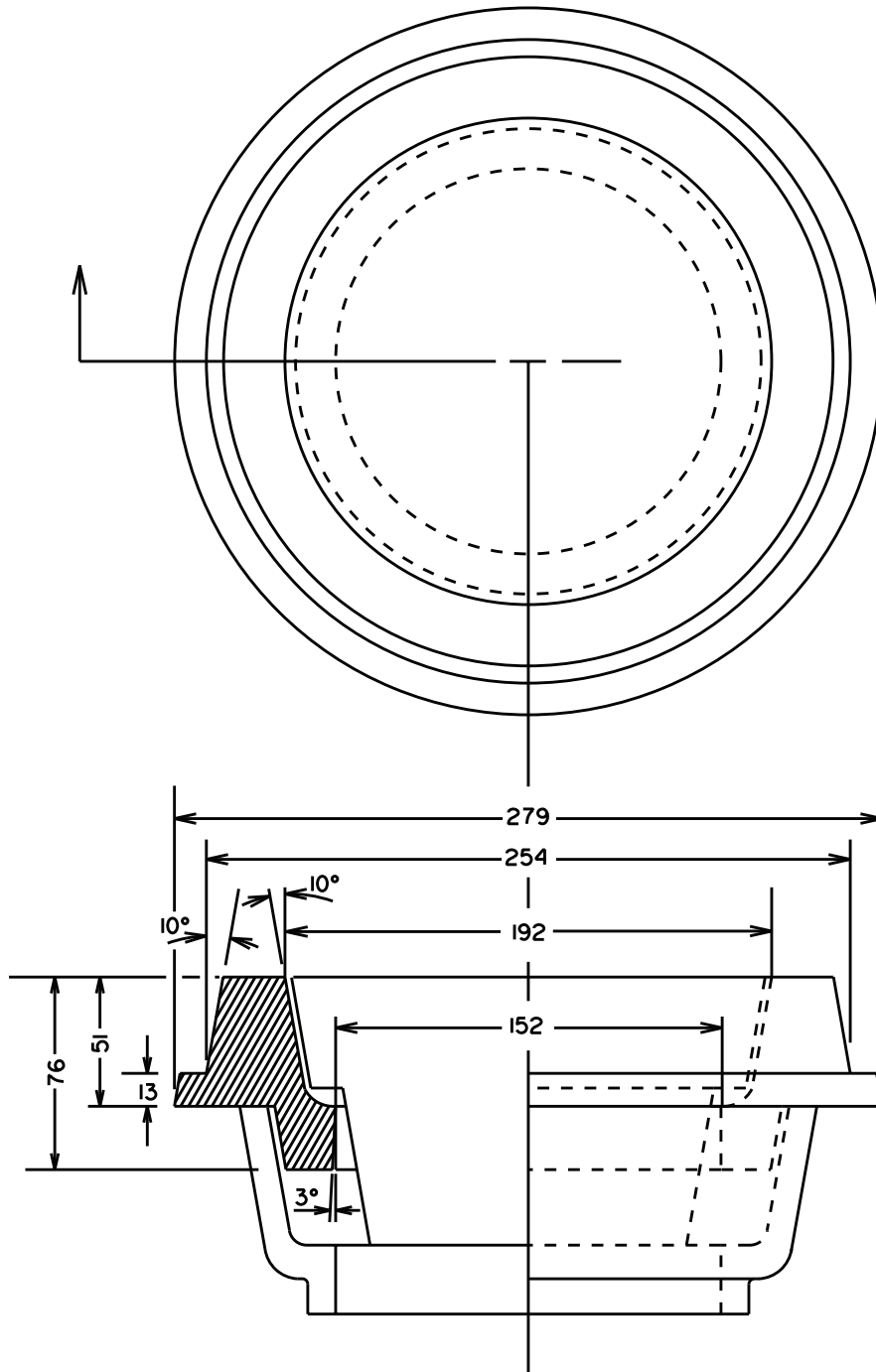
- REDUCERS SHALL HAVE A TOTAL BEARING AREA EQUAL TO THAT OF AN 11 1/4° BEND BASED UPON THE LARGEST DIAMETER OF THE REDUCER.

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/12
		DWG NO	W-05
	HORIZONTAL THRUST BLOCKING		




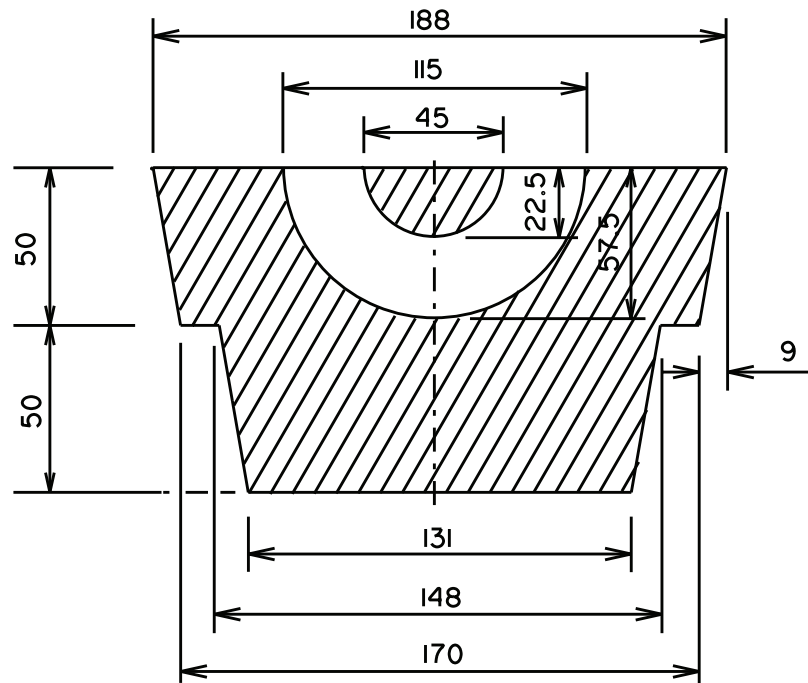
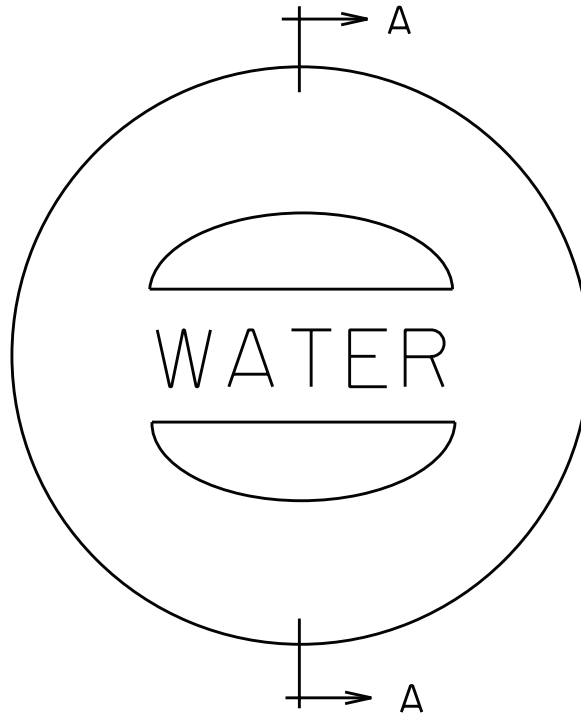
- NOTE:
- ALL DIMENSIONS ARE IN MILLIMETERS
 - ALL VALVES LEFT TURN TO OPEN (COUNTER-CLOCKWISE)
FOR MAIN SIZES 150mm TO 300mm
 - CONCRETE SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 30 MPa @ 28 DAYS. ALL CEMENT TO BE TYPE 50 (SULPHATE RESISTANT).

REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
	STANDARD GATE VALVE INSTALLATION	DATE	95/05/11
		DWG NO	W-07



NOTE: ALL DIMENSIONS IN MILLIMETERS

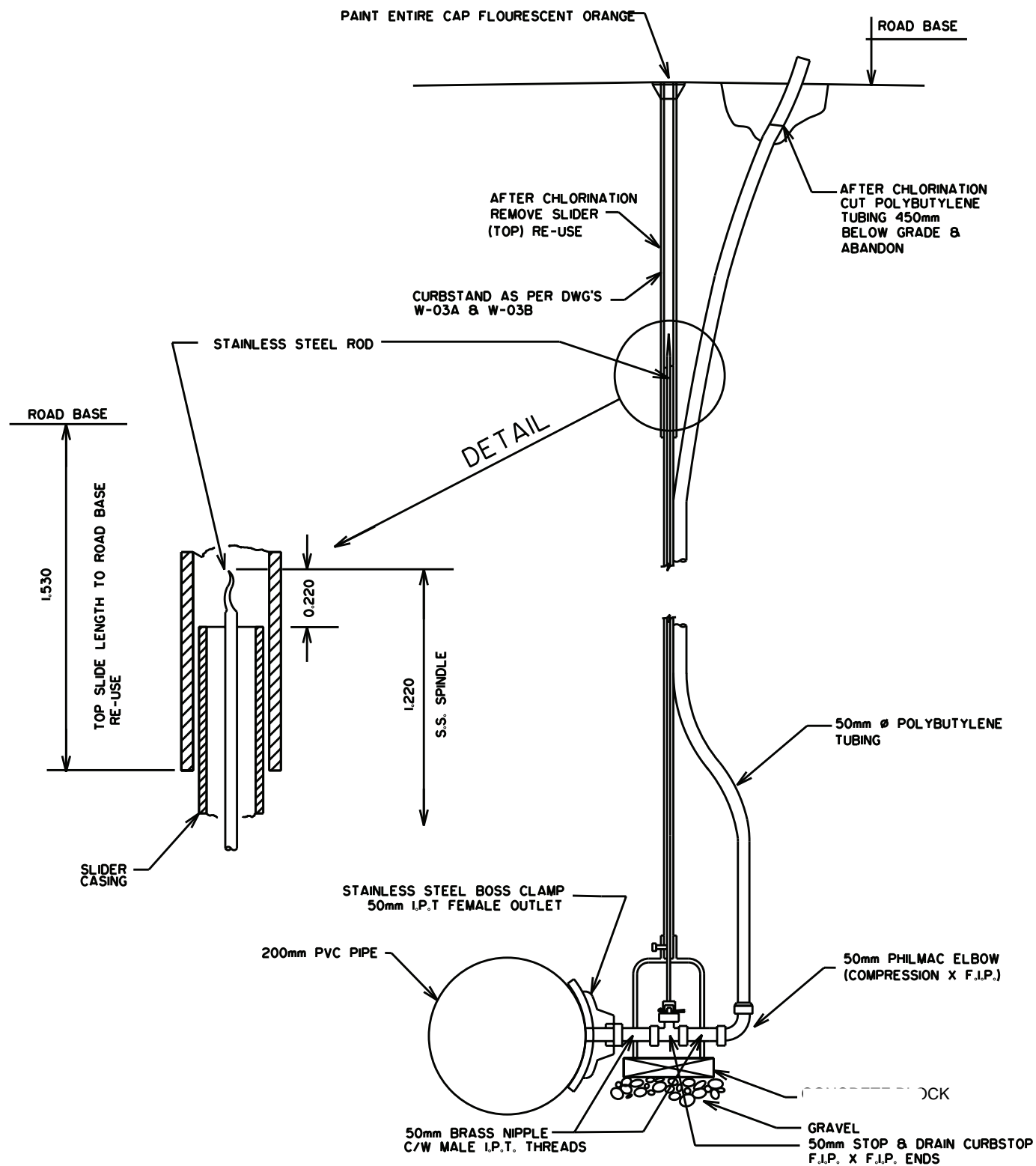
REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
	VALVE RISER BOX	DATE	97/02/10
		DWG NO	W-12



SECTION A-A

NOTE: ALL DIMENSIONS IN MILLIMETERS

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	D.F.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	06/12/08
		DWG NO	W-12A
	VALVE BOX CAP		

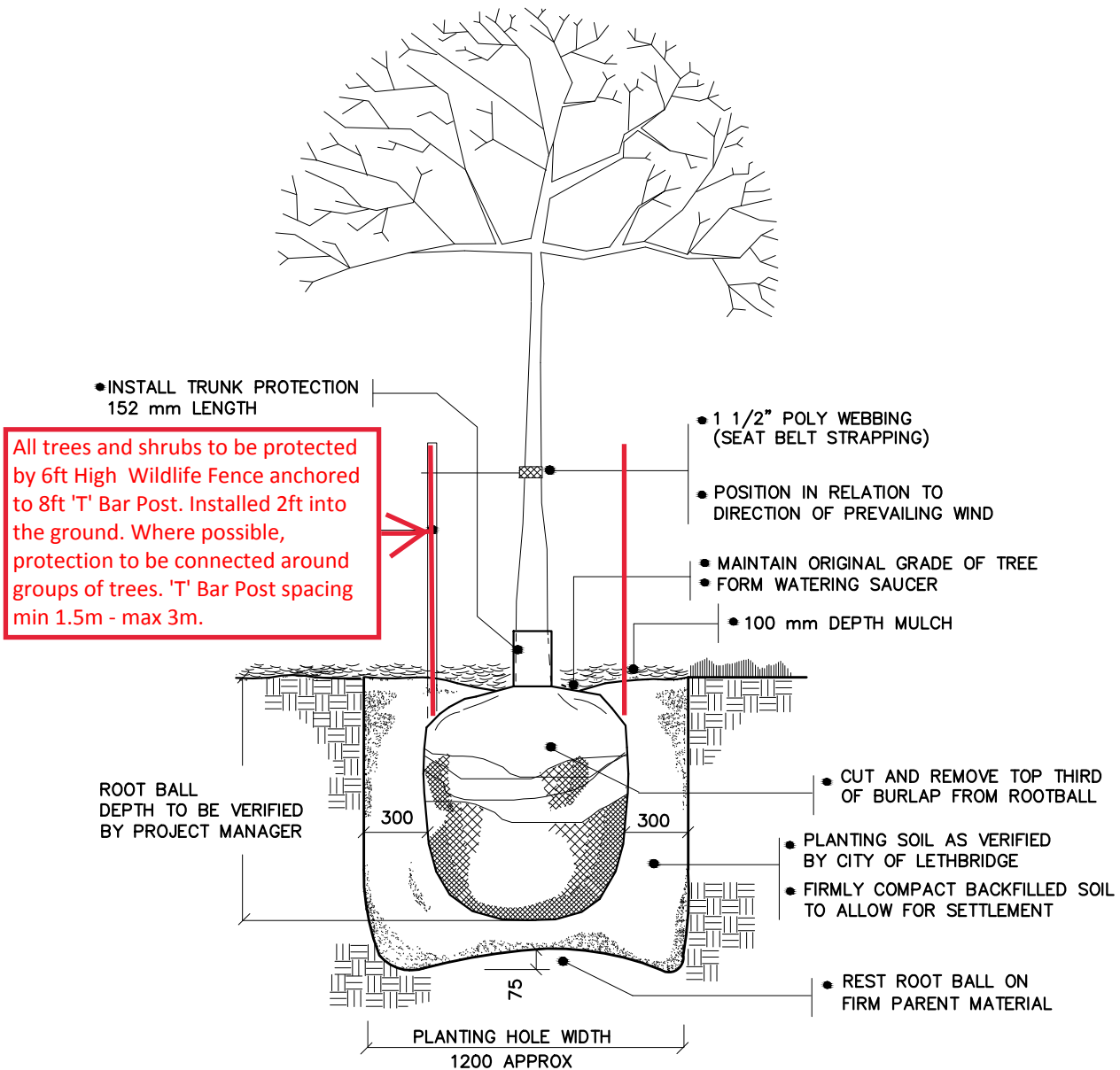


CHLORINATION SYSTEM

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	L.M.C
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/01
	FOR CHLORINATING & FLUSHING WATERMAINS	DWG NO	W-13

GENERAL NOTES

- POSITION FIN GR OF TREE AT ORIGINAL TREE GRADE
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL TREE SHAPE



CITY OF
Lethbridge

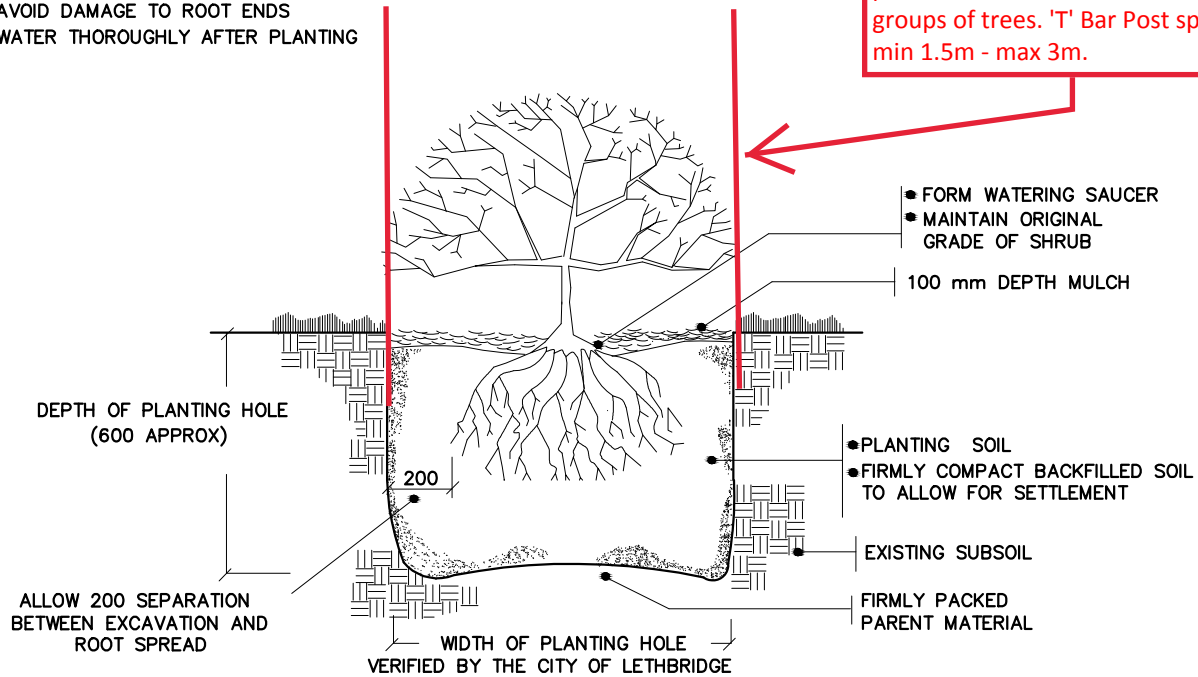
INFRASTRUCTURE SERVICES
DECIDUOUS TREE

REVISIONS		
1. 10-25-2005	WOOD STAKE & TRUNK SLEEVE	
2. 02-20-2013	SEAT BELT STRAPPING	
3. 12-29-2015	MULCH	
DRAWN	GD	AD
SCALE	NOT TO SCALE	
DATE	09-15-2000	
DWG NO	3.1	

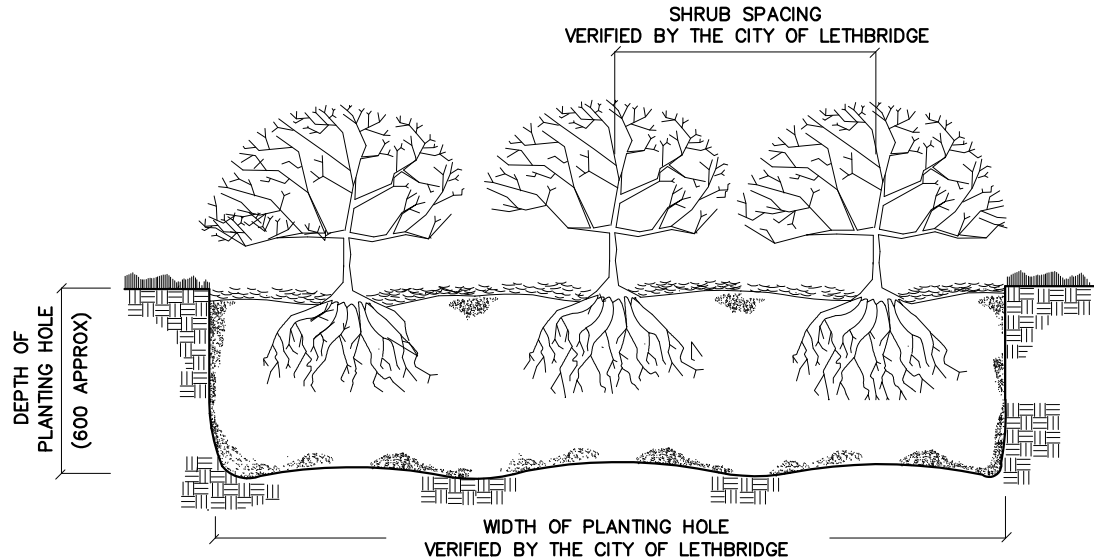
GENERAL NOTES

- POSITION FIN GR OF SHRUB AT ORIGINAL SHRUB GR
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL SHRUB SHAPE
- SPREAD ROOTS EVENLY IN PLANTING BED AVOID DAMAGE TO ROOT ENDS
- WATER THOROUGHLY AFTER PLANTING

All trees and shrubs to be protected by 6ft High Wildlife Fence anchored to 8ft 'T' Bar Post. Installed 2ft into the ground. Where possible, protection to be connected around groups of trees. 'T' Bar Post spacing min 1.5m - max 3m.



SECTION



PLANTING BED SECTION



CITY OF
Lethbridge

INFRASTRUCTURE SERVICES
BARE ROOT SHRUB

REVISIONS	
1. 12-29-2015	WOOD MULCH
DRAWN	
GD	
SCALE	
NOT TO SCALE	
DATE	
09-15-2000	
DWG NO	
3.10	

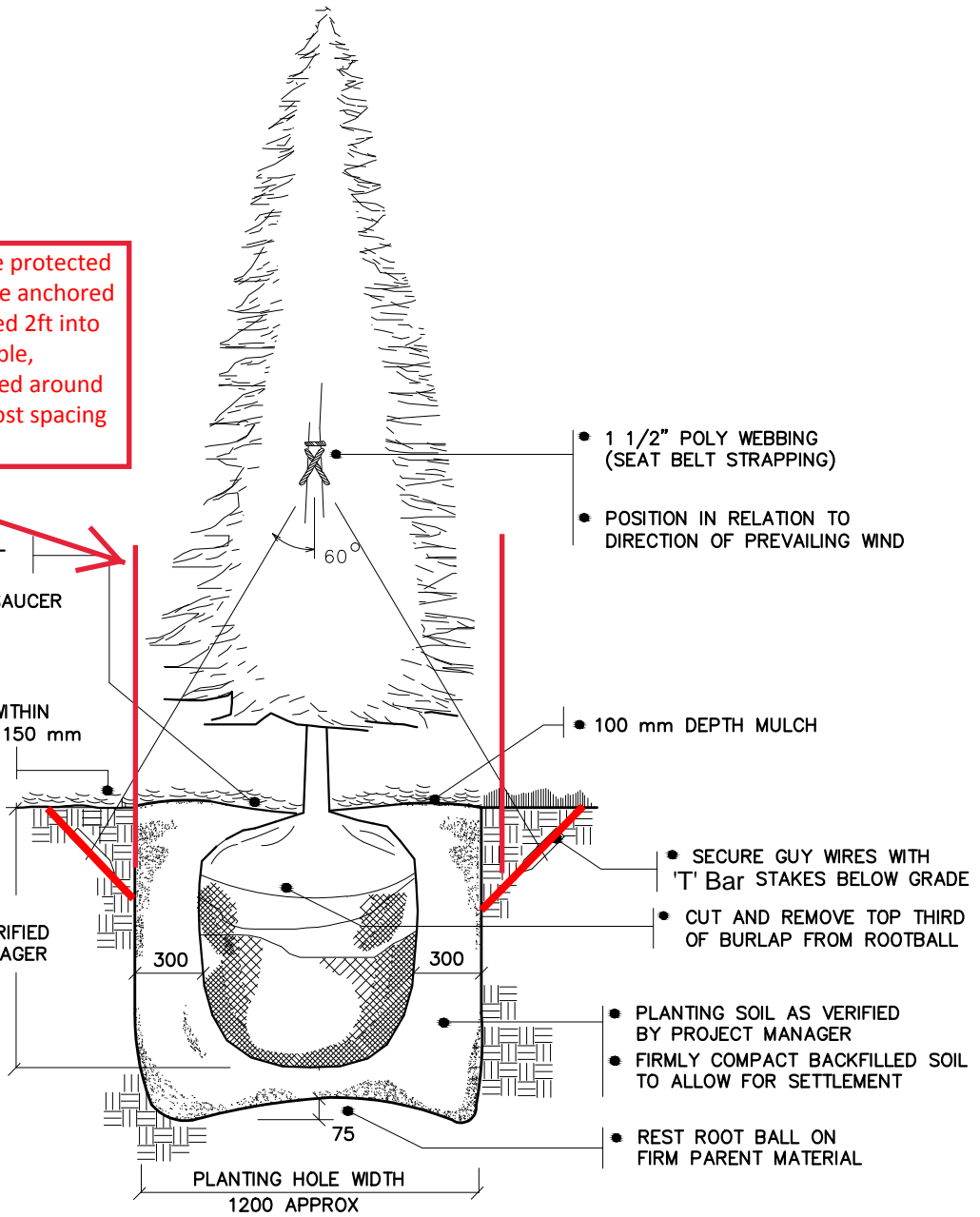
GENERAL NOTES

- POSITION FIN GR OF TREE AT ORIGINAL TREE GRADE
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL TREE SHAPE

All trees and shrubs to be protected by 6ft High Wildlife Fence anchored to 8ft 'T' Bar Post. Installed 2ft into the ground. Where possible, protection to be connected around groups of trees. 'T' Bar Post spacing min 1.5m - max 3m.

- MAINTAIN ORIGINAL GRADE OF TREE
- FORM WATERING SAUCER
- FOR TREE GROUPS WITHIN MULCH BEDS PLACE 150 mm MULCH ON FIN GR

ROOT BALL DEPTH TO BE VERIFIED BY PROJECT MANAGER



SECTION



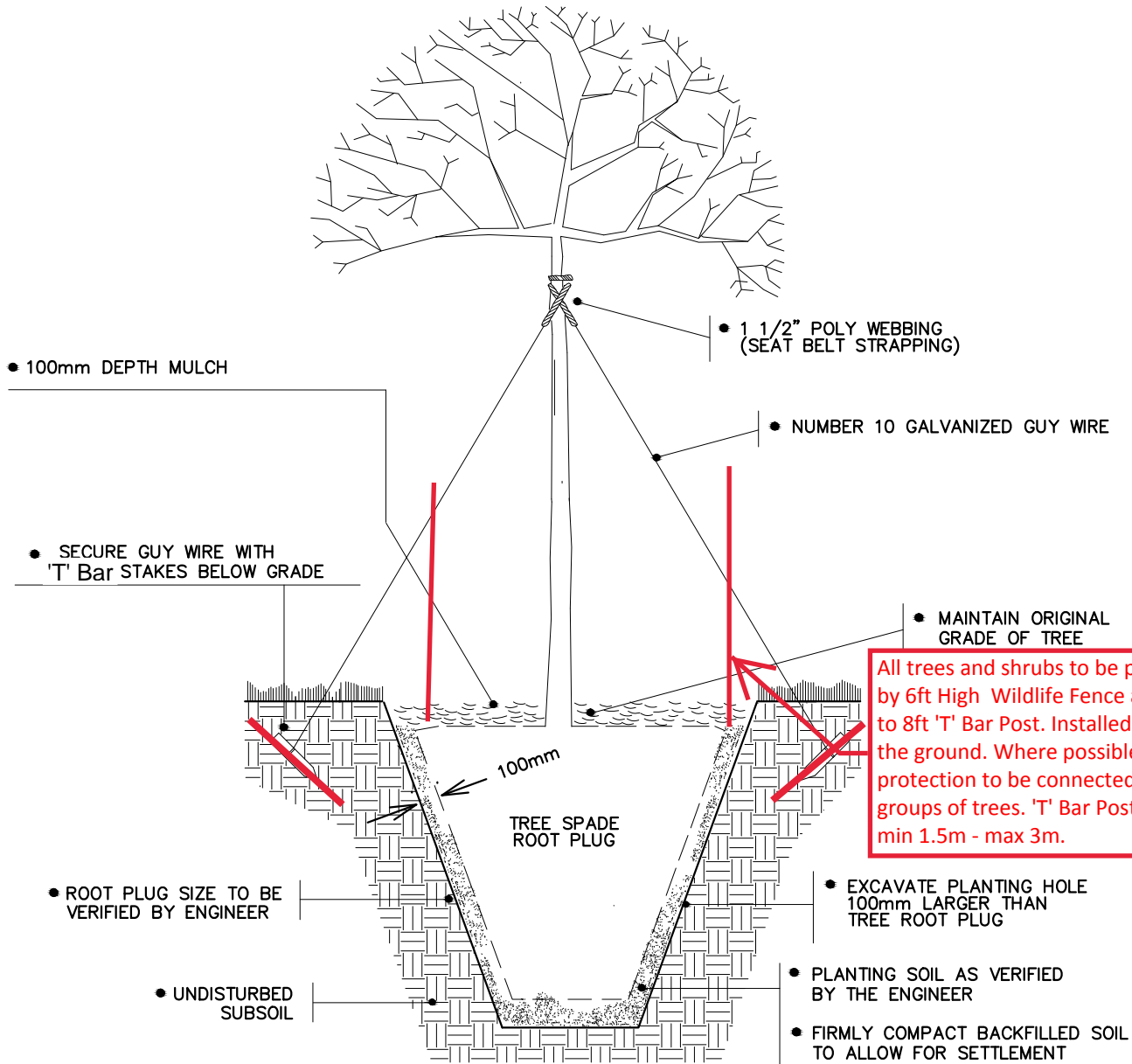
CITY OF
Lethbridge

INFRASTRUCTURE SERVICES
CONIFEROUS TREE

REVISIONS	
1. 01/24/04	2003 REVISIONS
2. 02/20/13	SEAT BELT STRAPPING
3. 12/29/15	MULCH
DRAWN	GD AD
SCALE	NOT TO SCALE
DATE	09-15-2000
DWG NO	3.2

GENERAL NOTES

- POSITION FIN GR OF TREE AT ORIGINAL TREE GRADE
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL TREE SHAPE
- WATER THOROUGHLY AFTER PLANTING
- THIS DETAIL IS VALID FOR DECIDUOUS AND CONIFEROUS TREES



All trees and shrubs to be protected by 6ft High Wildlife Fence anchored to 8ft 'T' Bar Post. Installed 2ft into the ground. Where possible, protection to be connected around groups of trees. 'T' Bar Post spacing min 1.5m - max 3m.

SECTION



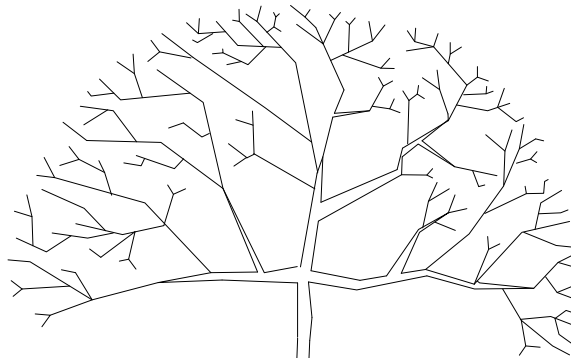
CITY OF
Lethbridge

INFRASTRUCTURE SERVICES
TREE SPADE

REVISIONS	
1. 02-20-2013	SEAT BELT STRAPPING
2. 12-29-2015	MULCH
DRAWN	GD
SCALE	NOT TO SCALE
DATE	04-18-2000
DWG NO	3.4

GENERAL NOTES

- POSITION FIN GR OF TREE AT ORIGINAL TREE GRADE
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL TREE SHAPE
- USE FOR TREES 25–38 mm CAL



- INSTALL TRUNK PROTECTION 152 mm LENGTH

All trees and shrubs to be protected by 6ft High Wildlife Fence anchored to 8ft 'T' Bar Post. Installed 2ft into the ground. Where possible, protection to be connected around groups of trees. 'T' Bar Post spacing min 1.5m - max 3m.

- 1 1/2" POLY WEBBING (SEAT BELT STRAPPING)

- POSITION IN RELATION TO DIRECTION OF PREVAILING WIND

- MAINTAIN ORIGINAL GRADE OF TREE
- FORM WATERING SAUCER

- 100mm DEPTH MULCH

- SPREAD ROOTS EVENLY
- AVOID DAMAGE TO ROOT ENDS

- PLANTING SOIL AS VERIFIED BY PROJECT MANAGER
- FIRMLY COMPACT BACKFILLED SOIL TO ALLOW FOR SETTLEMENT

- COMPACTED PLANTING SOIL

PLANTING HOLE DEPTH
1000 APPROX

PLANTING HOLE WIDTH
1000 APPROX

SECTION



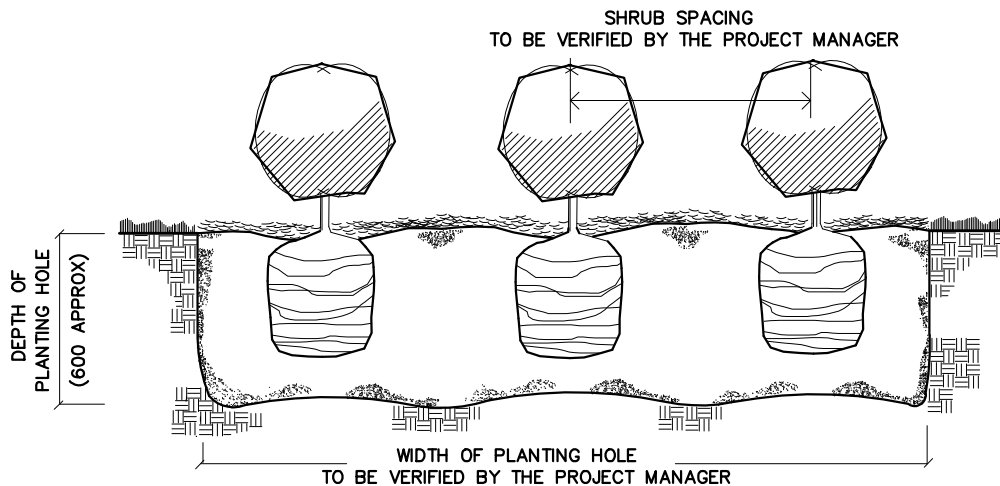
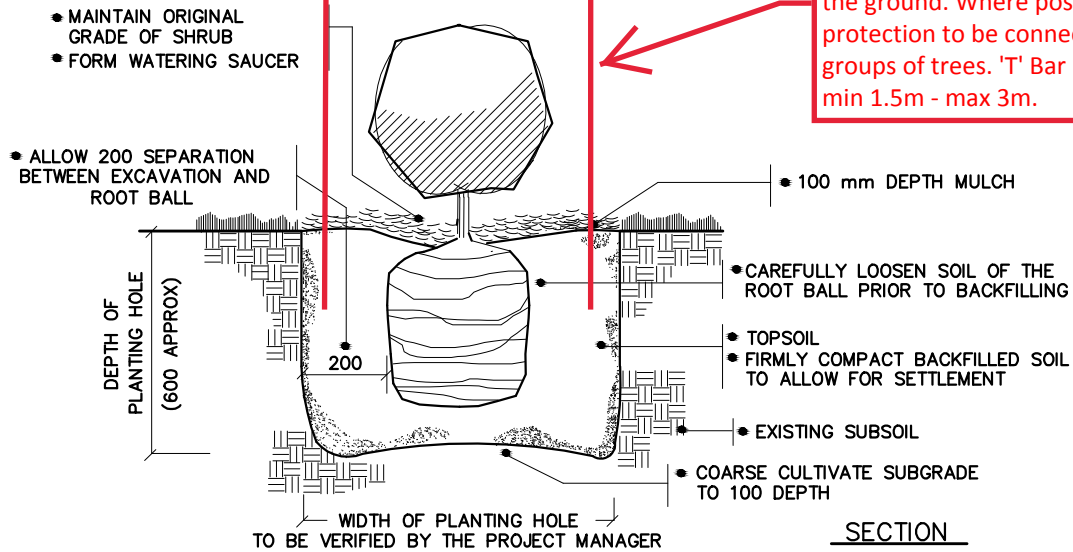
CITY OF
Lethbridge

INFRASTRUCTURE SERVICES
BARE ROOT TREE

REVISIONS	
1. 10–25–2005	WOOD STAKE & TRUNK SLEEVE
2. 02–20–2013	SEAT BELT STRAPPING
3. 12–29–2015	WOOD MULCH
DRAWN	GD
SCALE	NOT TO SCALE
DATE	02–15–1998
DWG NO	3.5

GENERAL NOTES

- POSITION FIN GR OF SHRUB AT ORIGINAL SHRUB GR
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL SHRUB SHAPE
- WATER THOROUGHLY AFTER PLANTING
- REMOVE CONTAINERS CAREFULLY TO AVOID ROOT DAMAGE



PLANTING BED SECTION



CITY OF
Lethbridge

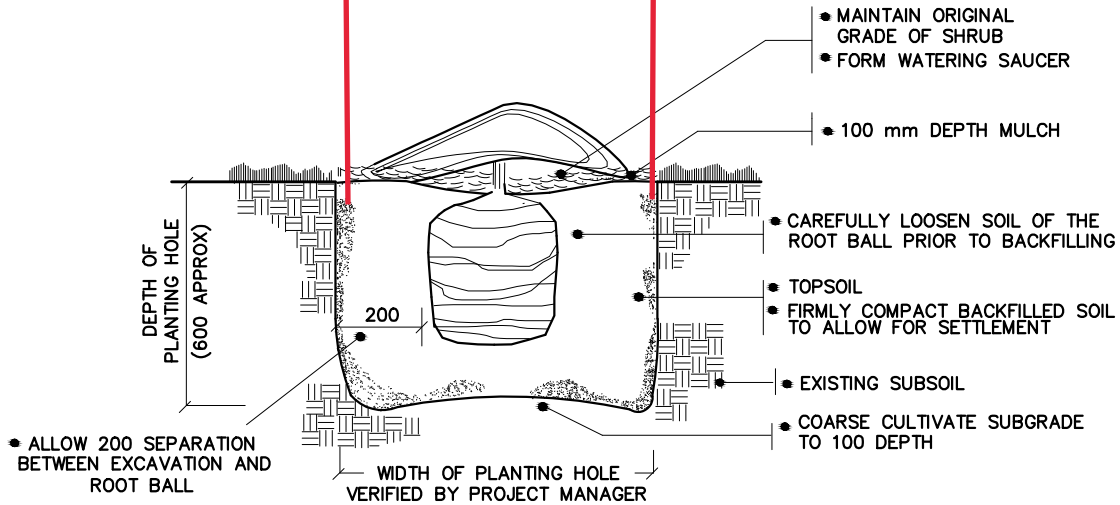
INFRASTRUCTURE SERVICES
DECIDUOUS SHRUB

REVISIONS	
1. 12-29-2015	WOOD MULCH
DRAWN	
GD	
SCALE	
NOT TO SCALE	
DATE	
09-15-2000	
DWG NO	
3.8	

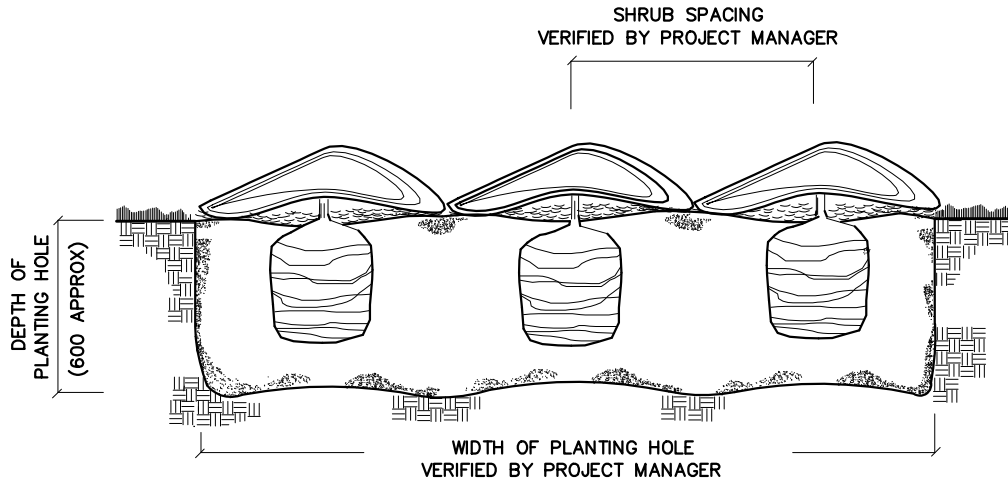
GENERAL NOTES

- POSITION FIN GR OF SHRUB AT ORIGINAL SHRUB GR
- PRUNE BROKEN & DISEASED BRANCHES & MAINTAIN NATURAL SHRUB SHAPE
- WATER THOROUGHLY AFTER PLANTING
- REMOVE CONTAINERS CAREFULLY TO AVOID ROOT DAMAGE

All trees and shrubs to be protected by 6ft High Wildlife Fence anchored to 8ft 'T' Bar Post. Installed 2ft into the ground. Where possible, protection to be connected around groups of trees. 'T' Bar Post spacing min 1.5m - max 3m.



SECTION



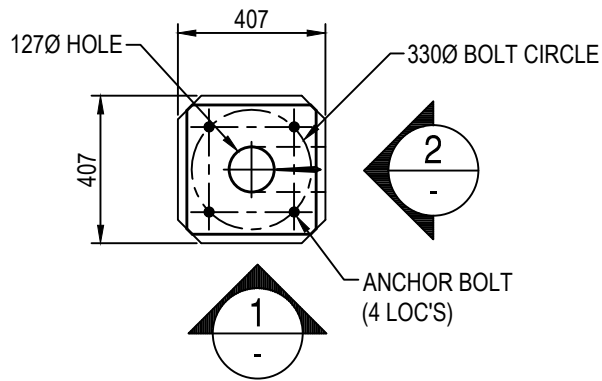
PLANTING BED SECTION



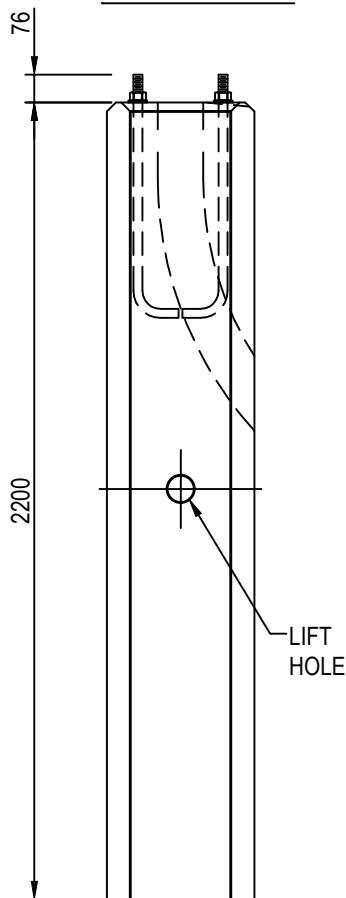
CITY OF
Lethbridge

INFRASTRUCTURE SERVICES
CONIFEROUS SHRUB

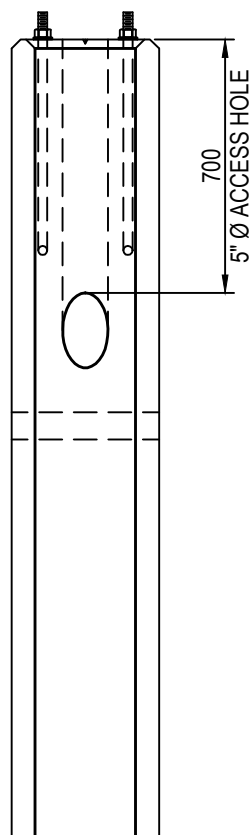
REVISIONS	
1. 12-29-2015	WOOD MULCH
DRAWN	
GD	
SCALE	
NOT TO SCALE	
DATE	
09-15-2000	
DWG NO	
3.9	



TOP VIEW



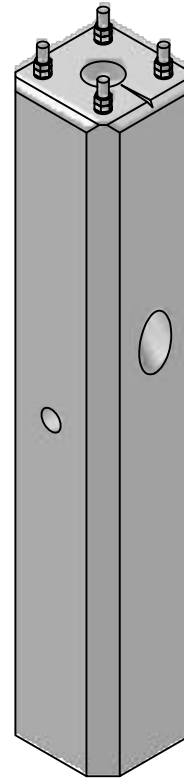
1 ELEVATION



2 ELEVATION

Notes

Site installation, backfilling and suitability for use are to be determined by others.
Armtec is not responsible for modifications, coring or coatings not provided by Armtec others.



Technical Detail

CPCI Standard	Group S
CSA Standard	A23.3-14, A23.4-09
Concrete Strength	35 MPa @ 28 Days
Concrete Type	Sulphate Resistant
	S2 Exposure
Reinforcement	Grade 400
Weight	877 kg (1930 lbs)

Product Detail

Outside Dimension	407 x 407 x 2200
Bolt Circle Dia.	330 mm or 13"
Access Hole	127 mm or 5"
Anchor Bolt	1" Dia.
Lift Mechanism	n/a

Revision Date Jan. 01 2017



armtec

Light Pole Base

ARMTEC Prairie Region (Calgary, Edmonton, Winnipeg)
www.armtec.com
Tel: (403) 279-8161
Fax: (403) 279-6027

Dwg. No. 8-0083-3

SAP No. 405125