

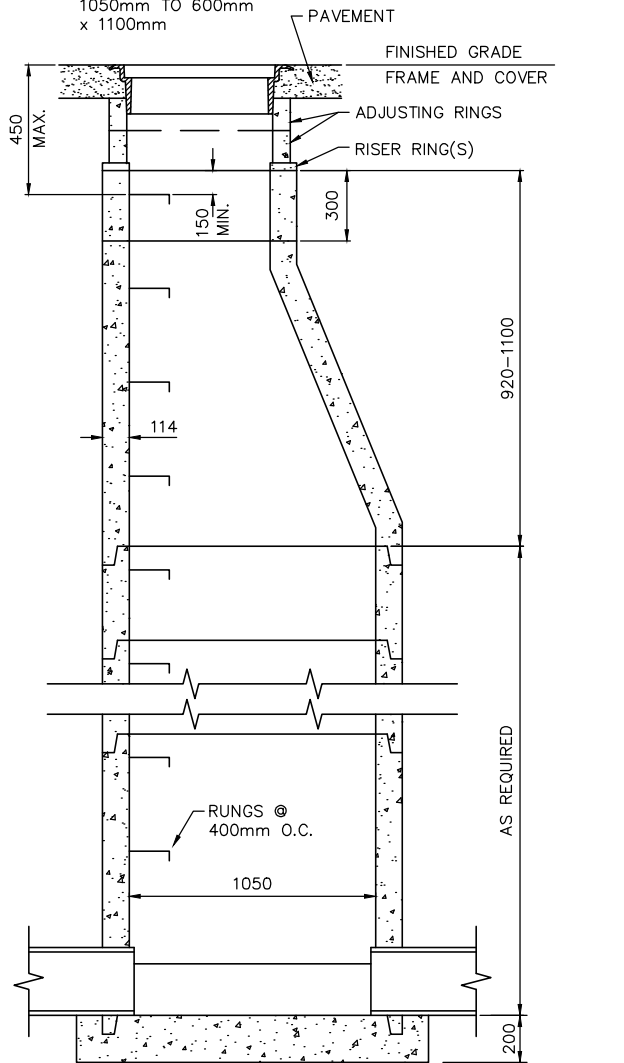
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S-1	No Drawing	Feb/10
S-2	Precast Manhole 1050mm Dia.	July/10
S-2B	Precast Manhole 1200mm Dia.	Jan/17
S-3	Precast Concrete Deep Manhole	Jan/10
S-4	Special Manhole T-Riser for Sewers of 1050 Dia. or Larger	July/10
S-5	Drop Manhole	July/10
S-5C	Precast Manhole Catchbasin 1050mm Dia. Detail	July/10
S-6	Cul-de-sac Service Connections	July/10
S-7	Grated Floating Manhole/Catchbasin Frame & Cover	Jan/18
S-8	No Drawing	Jan/17
S-9	Floating Manhole Frame and Cover	Jan/ 18
S-10	Typical Pipe Section Exfiltration Test	July/10
S-11	Sewer Cleanout	Jan/18
S-12	No Drawing	Feb/10
S-13	Standard Precast Concrete Catchbasin	July/10
S-14	Standard Side Inlet Catchbasin Frame & Cover (Rolled Curb & Gutter)	July/10
S-15	Standard Side Inlet Catchbasin Frame & Cover (Barrier Curb)for 190mm Curb & Gutter	July/10
S-15A	Arterial Road Catchbasin Frame Grate & Side Inlet	Jan/18
S-16	Standard Catchbasin Frame and Cover	July/10
S-17	No Drawing	
S-18	Service Connection Integral Tee/Wye	July/10
S-19	Typical Commercial Connection	Jan/11
S-19R	Residential Connection	Jan/11
S-20	Standard Flexible Pipe Bedding & Trench Backfill	July/10
S-21	Standard Rigid Pipe Bedding & Trench Backfill	July/10
S-22	Storm Sewer Outlet	July/10
S-23	Erosion Control at Culverts	July/10

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S-24	Precast Concrete Manhole Integral Base & Thru-Pipe Type	July/10
S-25	Precast Concrete Manhole End Section 1050 Dia. Manhole	July/10
S-26	No Drawing	
S-27	Establishment of Grade for Sewer Construction	July/10
S-28	Impervious Material Barriers for Utility Service Trenches	July/10
S-29	Manhole Frame & Cover for 1200 mm Dia. Manholes	July/10
S-30A	Hi-Capacity Catchbasin Frame and Grate	July/10
S-30B	Hi-Capacity Catchbasin Frame and Grate	July/10
S-30C	Hi-Capacity Catchbasin Box Out	July/10
S-30D	Catchbasin for Hi-Capacity Frame and Grate	July/10
S-31A	Gabion Basket and Wire Mesh detail	Jan/11
S-31B	Gabion Installation	Jan/11
S-32	Sump with Pumped Discharge to Surface	Jan/17
S-32A	Foundation Drain Discharge to Standpipe	Jan/11
U-1	City Utility Protective Cover	Nov/16
U-2	City Utility Excavation Guidelines	Nov/16

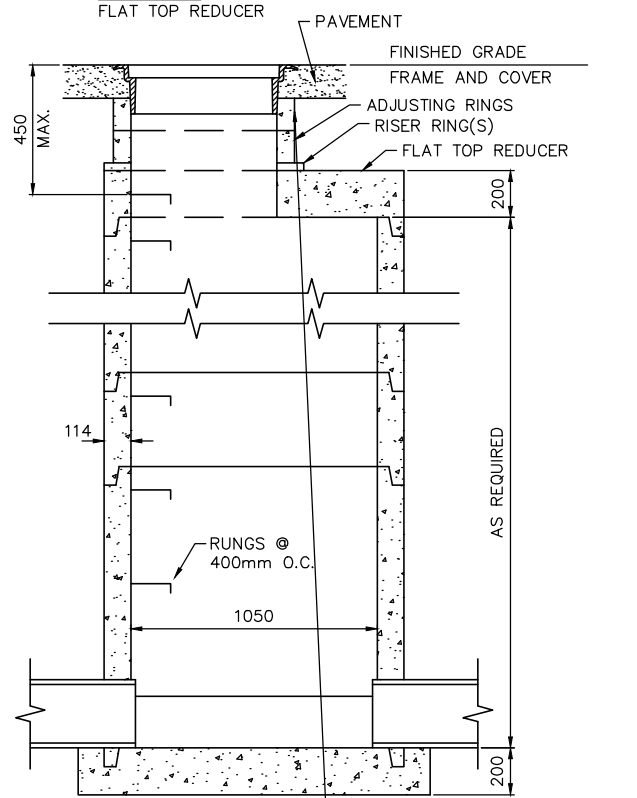
**OPTION ONE**  
**CONICAL TOP REDUCER**  
 1050mm TO 600mm  
 x 1100mm



**SECTION A-A**

MANHOLE BASE PRECAST  
 OR CAST IN PLACE

**OPTION TWO**  
**FLAT TOP REDUCER**

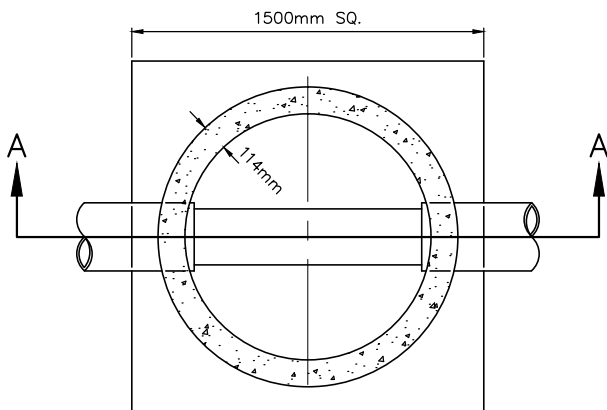


**SECTION A-A**

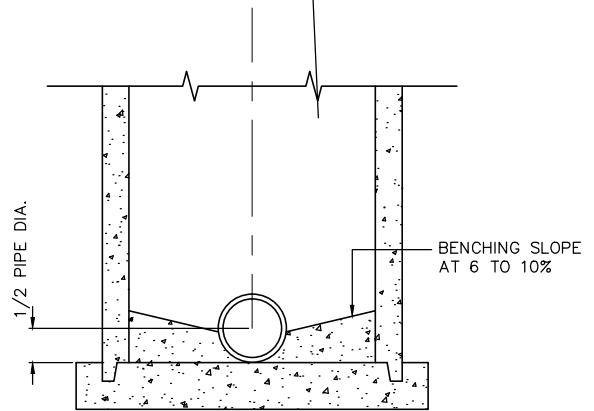
MANHOLE BASE PRECAST  
 OR CAST IN PLACE

**NOTES:**

ALL DIMENSIONS ARE IN MILLIMETERS  
 UNLESS OTHERWISE NOTED



**PLAN**



**DETAIL OF BENCHING**

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
MAR/04	ADDED FLAT TOP OPTION'	CJK
NOV/05	REVISED DIM	BW
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA

City of Regina



CONSTRUCTION STANDARDS

**Pre-Cast Manhole**

**1050 Dia.**

Designed By:

Approved:

Stella Madsen

Date

JAN/01

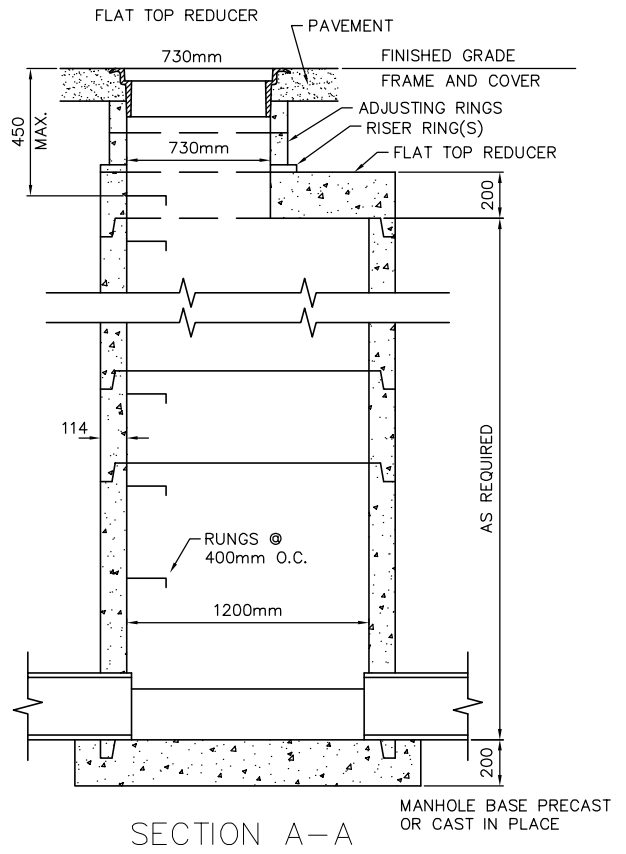
Scale

NTS

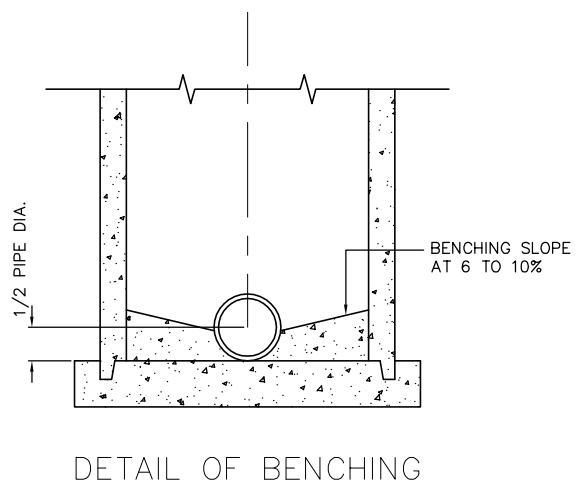
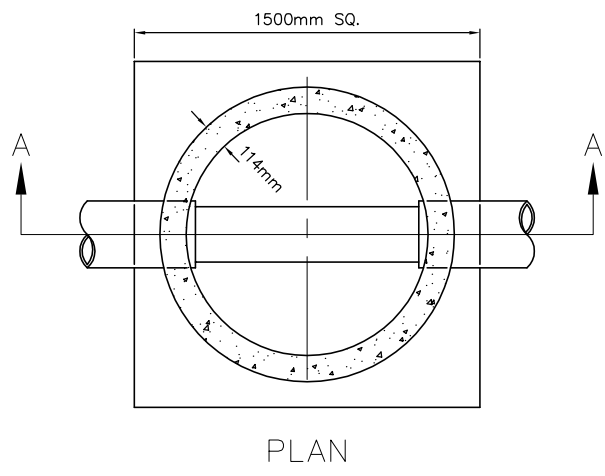
**S-2**

Digital File:

STDS-2.dwg



- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
  2. REFER TO DRAWING S-29 FOR MANHOLE FRAME AND COVER

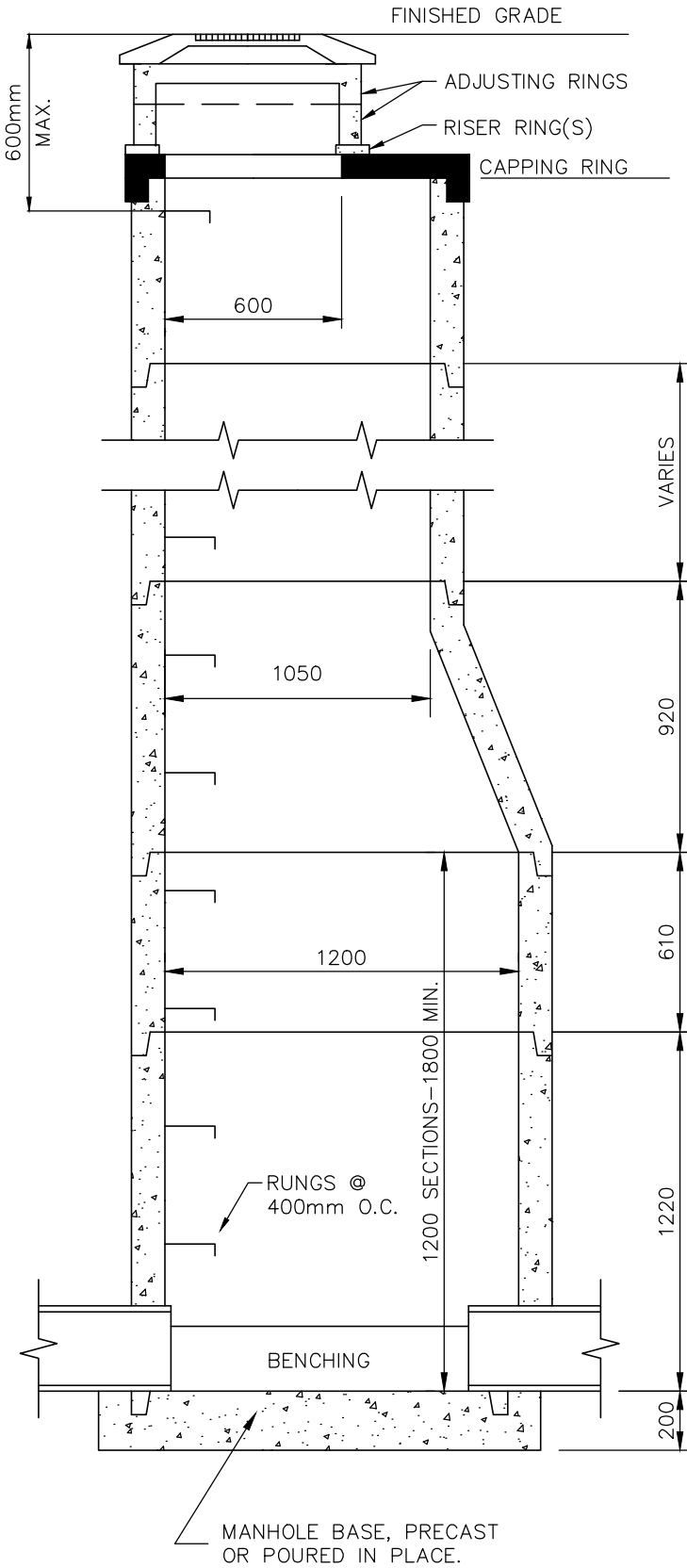


Date	Revisions	By
JAN/17	NEW DRAWING ISSUED	TY



CONSTRUCTION STANDARDS		
<b>Oversized Pre-Cast Manhole 1200 Dia.</b>		
Designed By:	Approved: <b>DUSTIN McCALL</b>	
Date: <b>MAR/16</b>	Scale: <b>NTS</b>	<b>S-2B</b>
Digital File: <b>STDS-2.dwg</b>		

**NOTE**



1. INSTALL RUNG 150mm BELOW TOP EDGE OF FIRST RISER
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
3. DEEP MANHOLE REFERS TO A MANHOLE WITH DEPTH > 5m

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
NOV/05	REVISED	DM
JUL/10	TITLE BLOCK	JJA



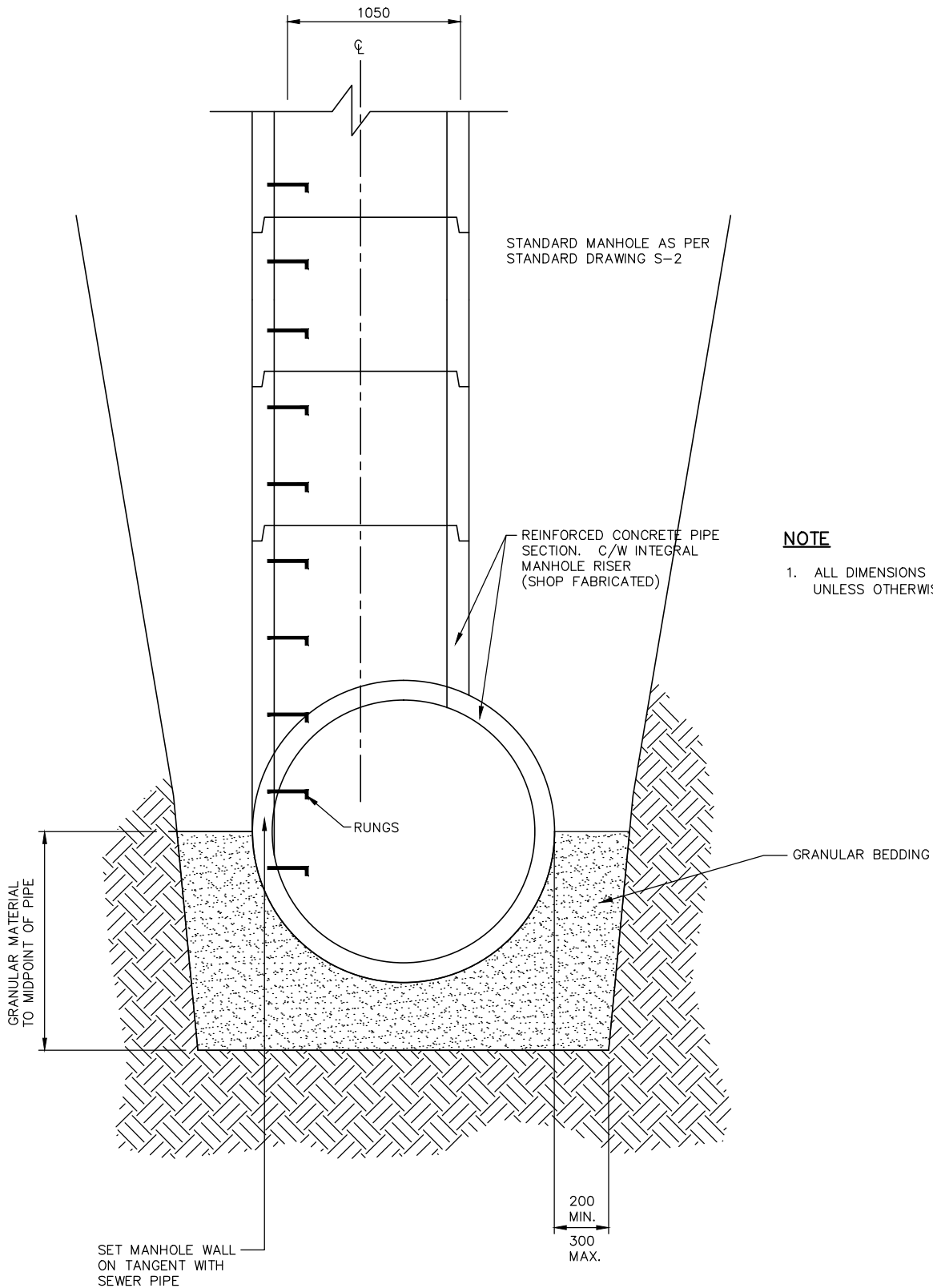
CONSTRUCTION STANDARDS

**Pre-Cast Concrete  
Deep Manhole**

Designed By: \_\_\_\_\_ Approved: **Kelly Wyatt**

Date: **JAN/11** Scale: **NTS** **S-3**

Digital File: **STDS-3.dwg**



**NOTE**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

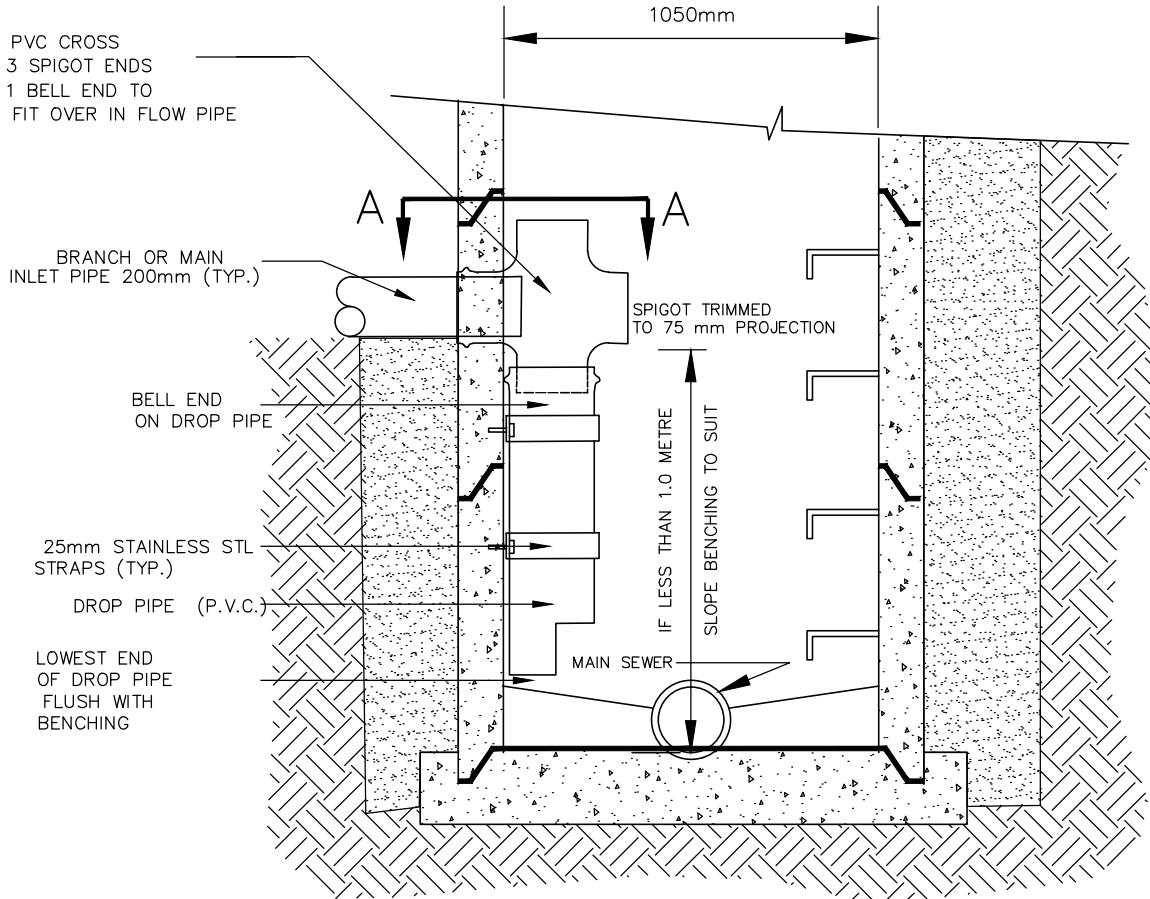
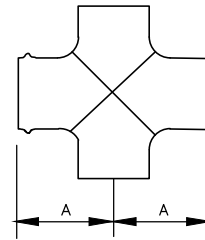
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Special Manhole T-Riser for Sewers of 1050Ø or Larger</b>		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	<b>S-4</b>
Digital File: STDS-4.dwg		

SPECIAL ORDER  
PSM CROSS

SIZE I.D.	A
200 $\phi$	381mm
250 $\phi$	406mm
300 $\phi$	457mm



PVC CROSS  
3 SPIGOT ENDS  
1 BELL END TO  
FIT OVER IN FLOW PIPE

BRANCH OR MAIN  
INLET PIPE 200mm (TYP.)

BELL END  
ON DROP PIPE

25mm STAINLESS STL  
STRAPS (TYP.)

DROP PIPE (P.V.C.)

LOWEST END  
OF DROP PIPE  
FLUSH WITH  
BENCHING

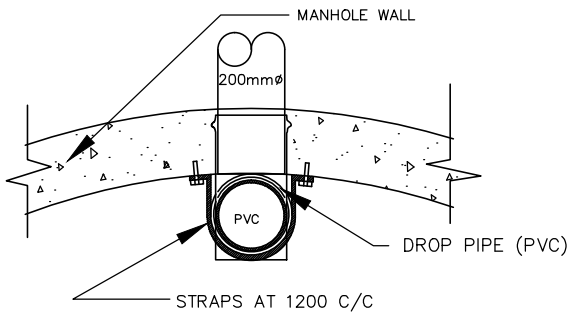
SPIGOT TRIMMED  
TO 75 mm PROJECTION

IF LESS THAN 1.0 METRE  
SLOPE BENCHING TO SUIT

MAIN SEWER

NOTES

- 1 DROP PIPE AND CROSS TO BE SAME DIAMETER AS INLET SEWER
- 2 FOR INLET SEWERS GREATER THAN 300mm OR WITH MORE THAN ONE INLET, DROP STRUCTURES ARE TO BE APPROVED BY THE ENGINEER
- 3 INSTALL STRAPS TO MANHOLE WALL WITH 15.875 X 56.350 SLEEVE ANCHORS TYPE SLE HEX. NUT ZINC CHROMATE PLATED
- 4 REPAIR DAMAGE CAUSED BY ANCHOR INSTALLATION
- 5 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

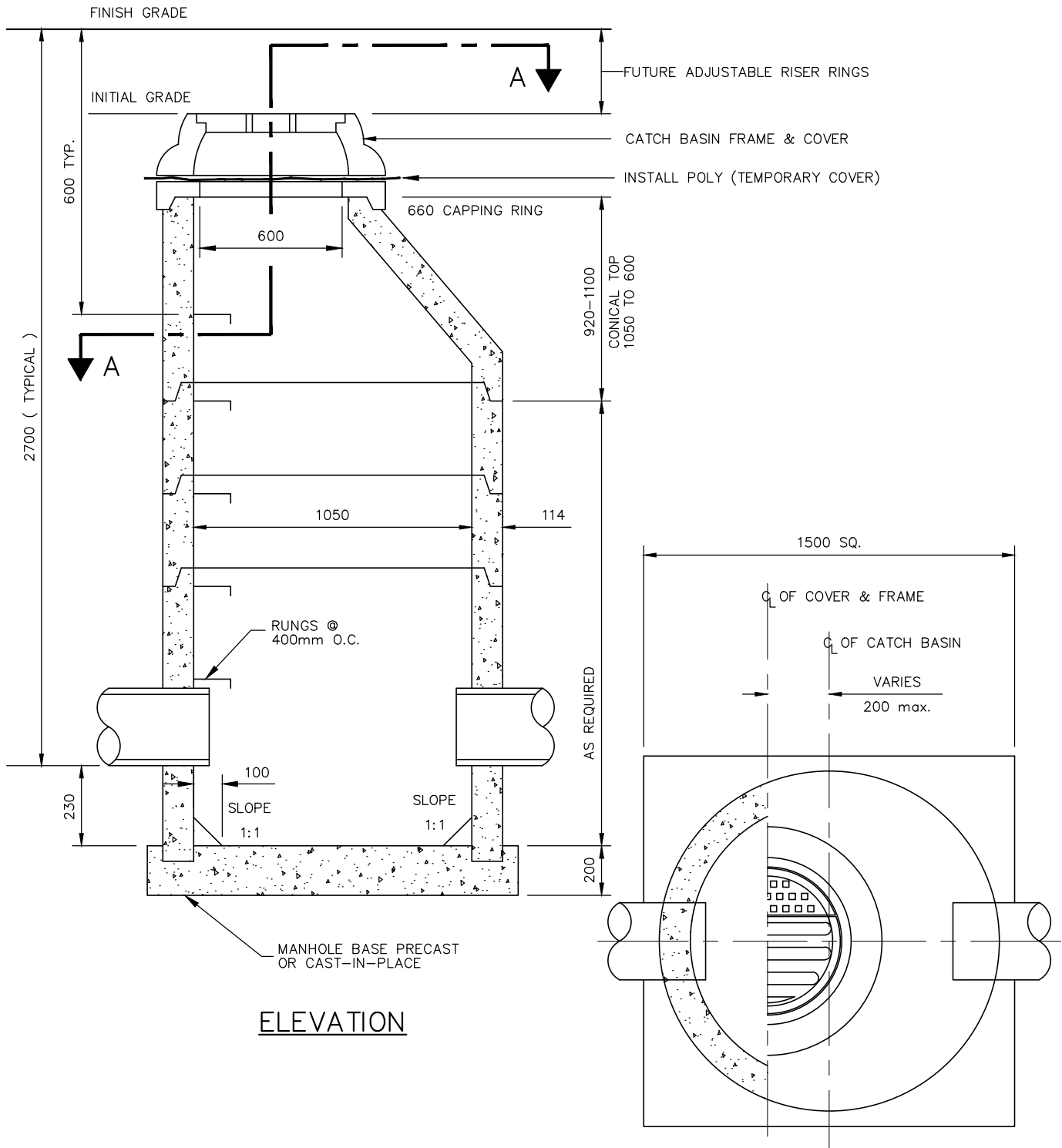


SECTION A-A

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA

City of Regina | **REGINA**  
Infinite Horizons

CONSTRUCTION STANDARDS		
Drop Manhole		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	S-5
Digital File: STDS-5.dwg		



**ELEVATION**

**SECTION A-A**

**NOTE:**

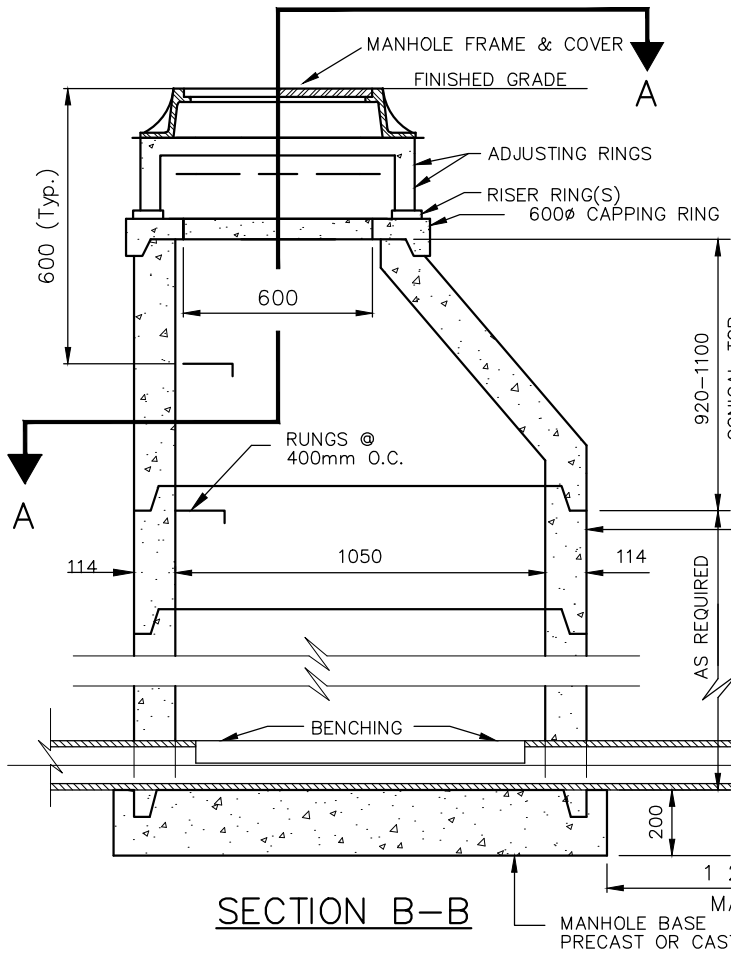
- 1) MAXIMUM PIPE DIAMETER, 450Ømm
- 2) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	REVISED DIM	BW
NOV/05	TITLE BLOCK	BW
MAR/10	REVISED	DM
JUL/10	TITLE BLOCK	JJA



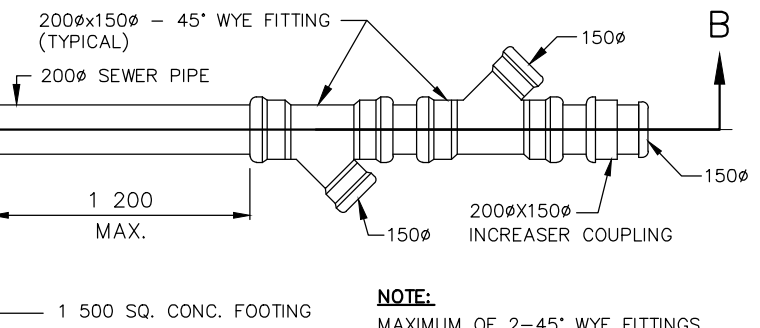
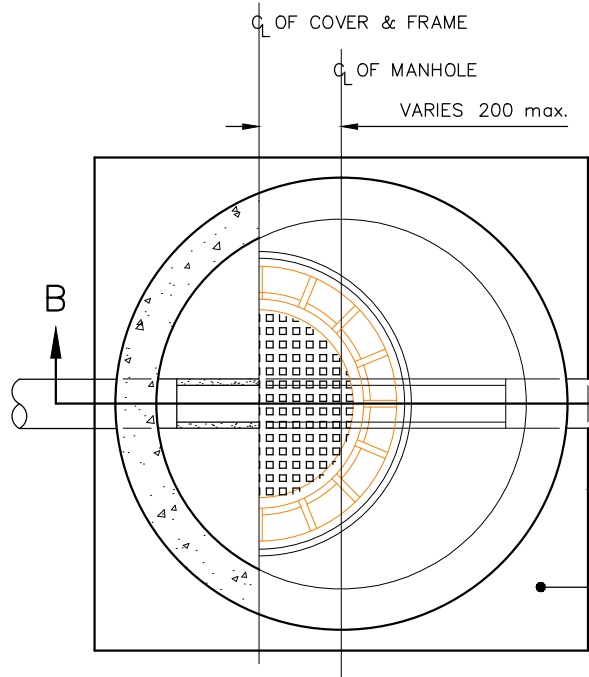
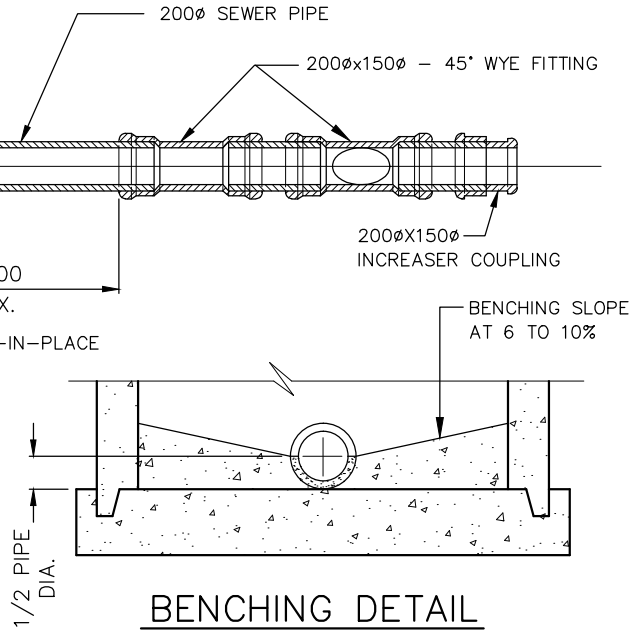
CONSTRUCTION STANDARDS		
<b>Pre-Cast Manhole Catch Basin</b>		
<b>1050Ø Detail</b>		
Designed By:	Approved: <b>Stella Madsen</b>	
Date: <b>JAN/01</b>	Scale: <b>NTS</b>	<b>S-5C</b>
Digital File: <b>STDS-5C.dwg</b>		





**NOTE:**

- 1) LAY PIPE ACROSS BOTTOM OF MANHOLE AND EXTEND STUB BEYOND. POUR CONCRETE FLOOR OF MANHOLE UP TO THE PIPE SPRINGLINE. BREAK TOP HALF OFF OF THE PIPE.
- 2) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



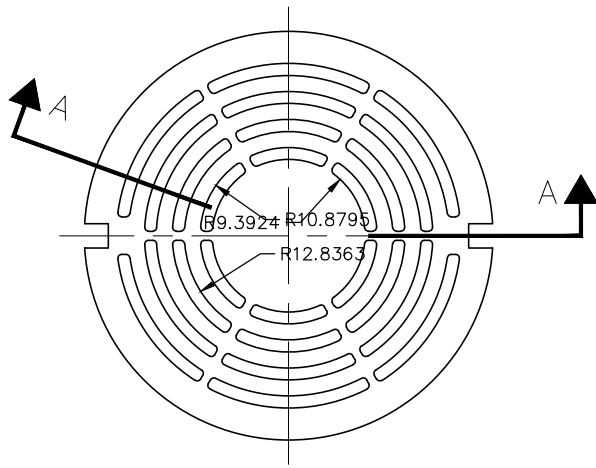
**NOTE:**

MAXIMUM OF 2-45° WYE FITTINGS AND AN INCREASER COUPLING IF REQUIRED. (ALLOWS FOR 3 SERVICE CONNECTIONS TO A MANHOLE)

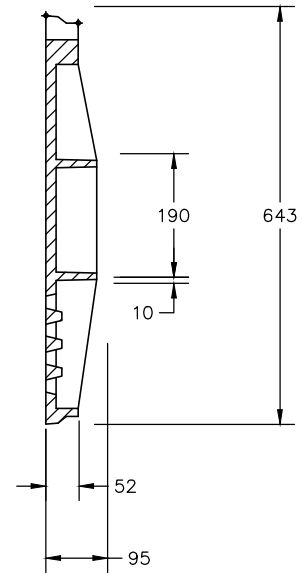
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	REVISED DIM	BW
NOV/05	TITLE BLOCK	BW
MAR/10	REVISED	DM
JUL/10	TITLE BLOCK	JJA



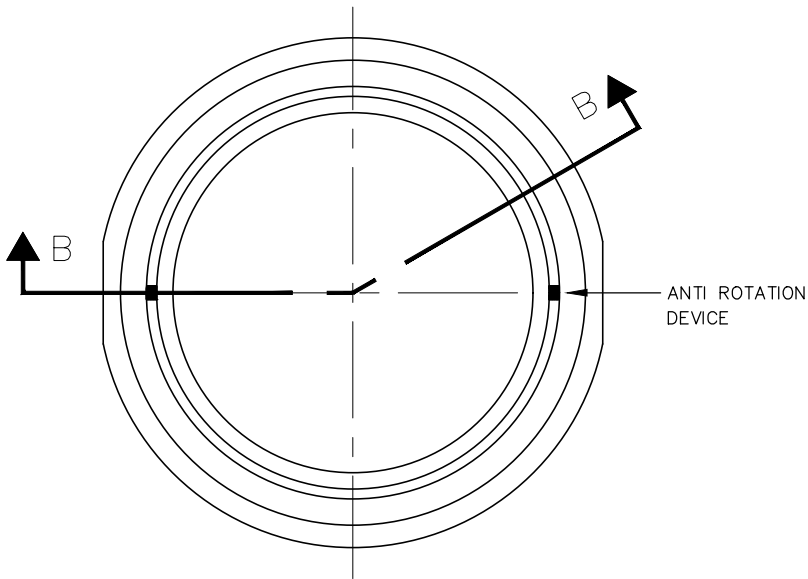
CONSTRUCTION STANDARDS		
Cul-De-Sac Service Connections		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	S-6
Digital File: STDS-6.dwg		



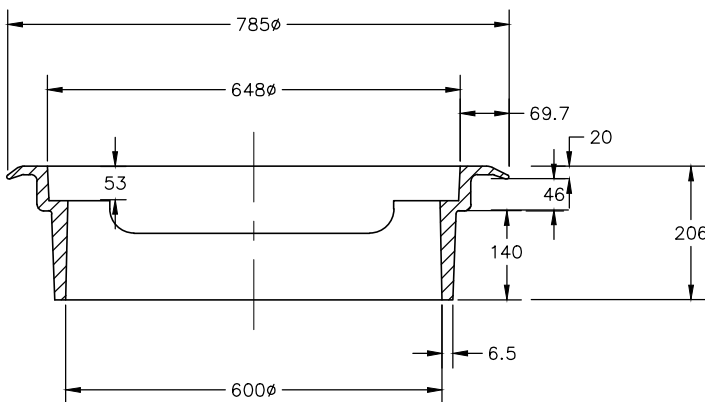
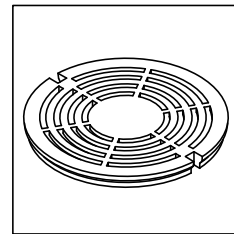
PLAN - (COVER)



SECTION A-A



PLAN - (FRAME)



SECTION B-B

NOTES:

1. FRAME AND COVER SHALL BE NORWOOD F-80 ULEFOS, TITAN TF-80 OR APPROVED EQUAL
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

MATERIAL SPECIFICATION

DUCTILE IRON GRADE 80-60-03

BEARING SURFACE SHALL BE MACHINED TO PREVENT ROCKING

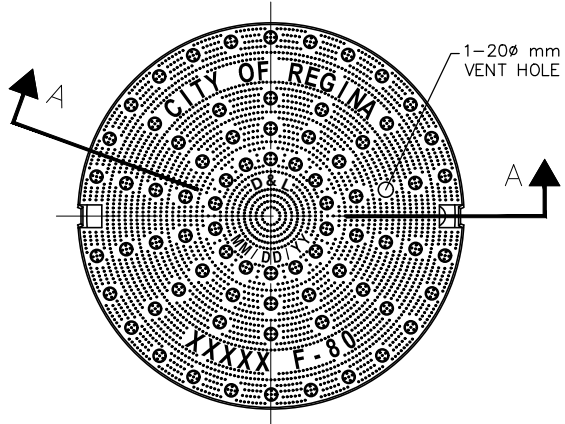
COVER WEIGHT 48.0 Kg.

FRAME WEIGHT 53.0 Kg.

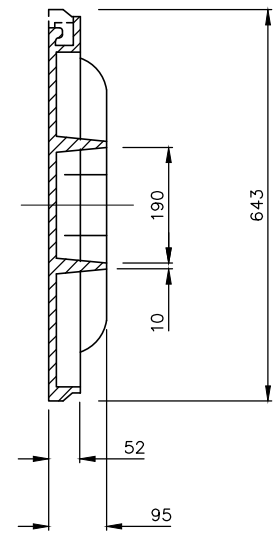
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/18	REVISED TO BE FLOATING STYLE	BW



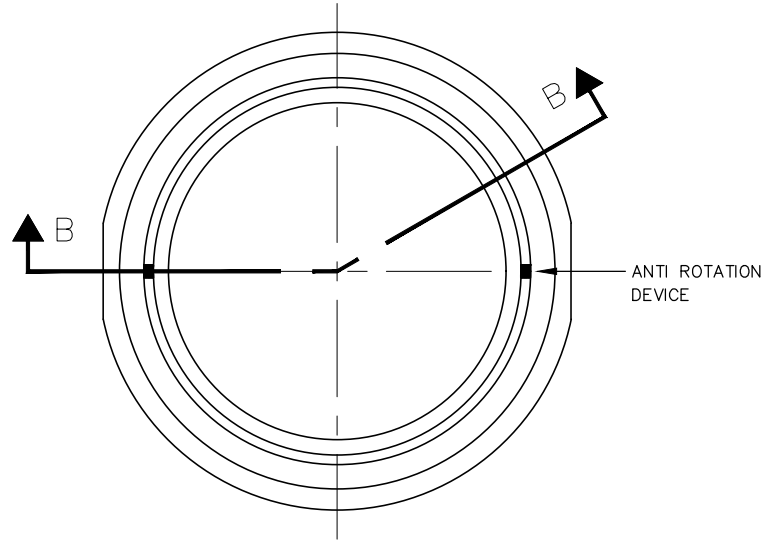
CONSTRUCTION STANDARDS		
<b>Grated Floating Manhole/Catch Basin Frame and Cover</b>		
Designed By:	Approved: Dustin McCall	
Date: JAN/18	Scale: NTS	<b>S-7</b>
Digital File: STDS-7.dwg		



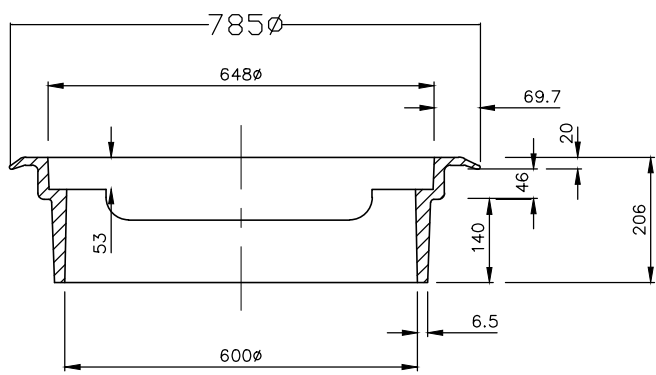
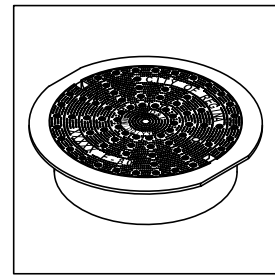
PLAN - (COVER)



SECTION A-A



PLAN - (FRAME)



SECTION B-B

NOTES:

1. FRAME AND COVER SHALL BE NORWOOD F-80 ULEFOS, TITAN TF-80 OR APPROVED EQUAL
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

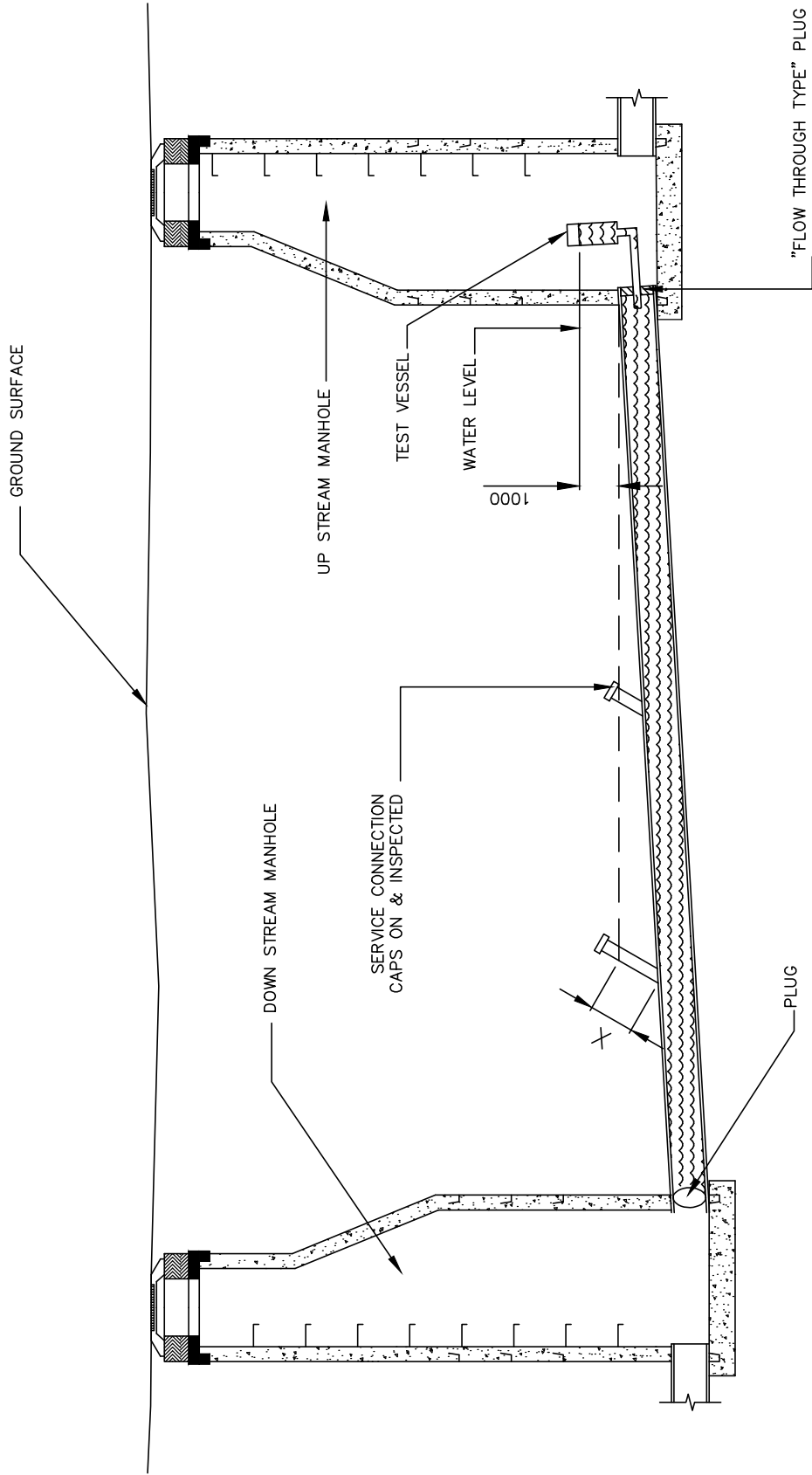
MATERIAL SPECIFICATION

DUCTILE IRON GRADE 80-60-03  
 BEARING SURFACE SHALL BE MACHINED TO PREVENT ROCKING  
 COVER WEIGHT 48.0 Kg.  
 FRAME WEIGHT 53.0 Kg.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW
JAN/18	REVISED COVER	BW



CONSTRUCTION STANDARDS		
<b>Floating Manhole Frame and Cover</b>		
Designed By:	Approved: <b>Dustin McCall</b>	
Date: <b>JAN/18</b>	Scale: <b>NTS</b>	<b>S-9</b>
Digital File: <b>STDS-9.dwg</b>		



X = Length of Service Connection to be included in Exfiltration test calculation.

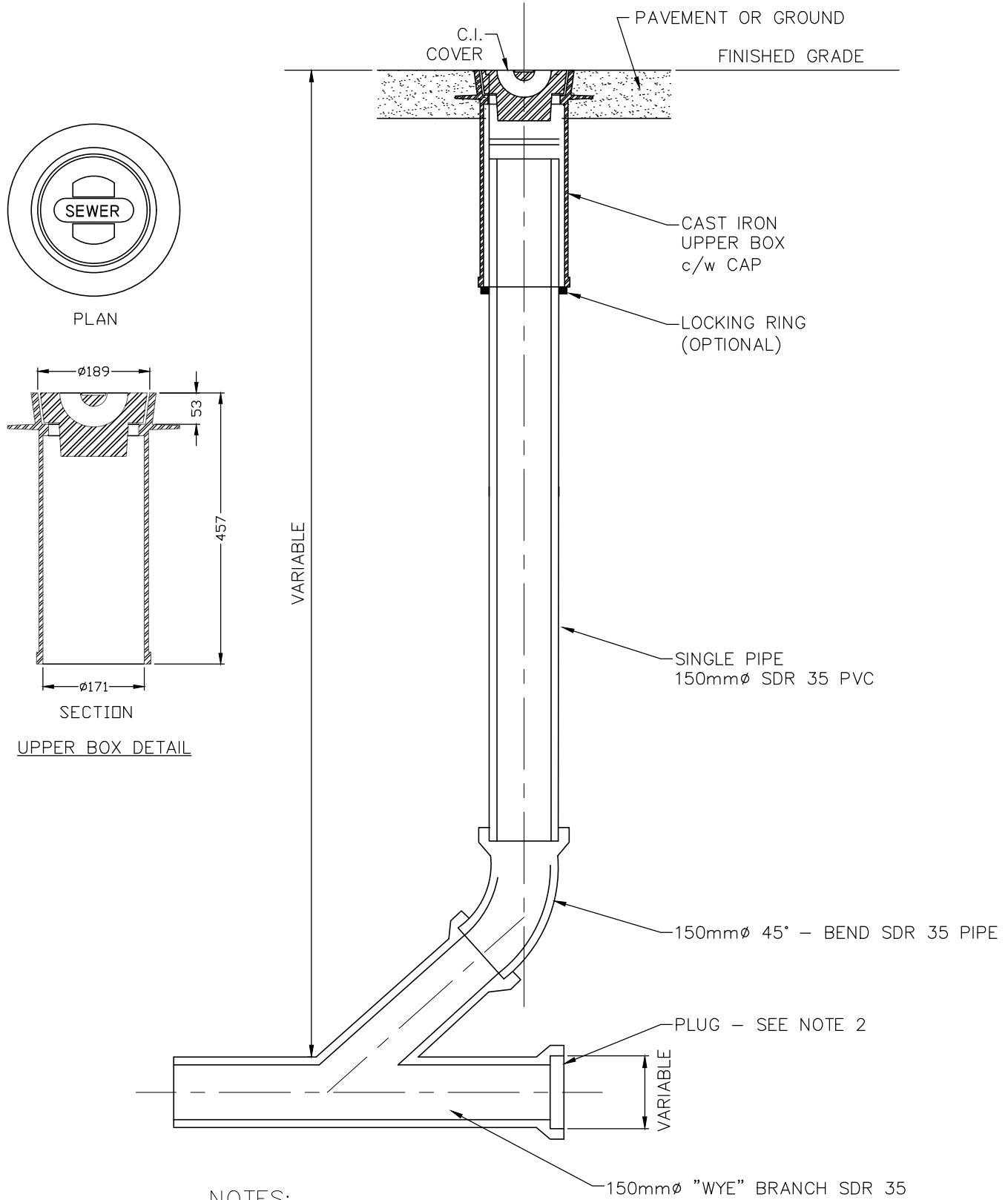
**NOTE**

1. THE ENTIRE LENGTH OF SERVICE IS NOT INCLUDED. ONLY THE PORTION BELOW THE 1 METRE HEAD IS INCLUDED IN THE EXFILTRATION TEST.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
MAR/10	REVISED	DM
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Typical Pipe Section Exfiltration Test</b>		
Designed By:		Approved:
Date	Scale	<b>S-10</b>
JAN/01	NTS	
Digital File: STDS-10.dwg		



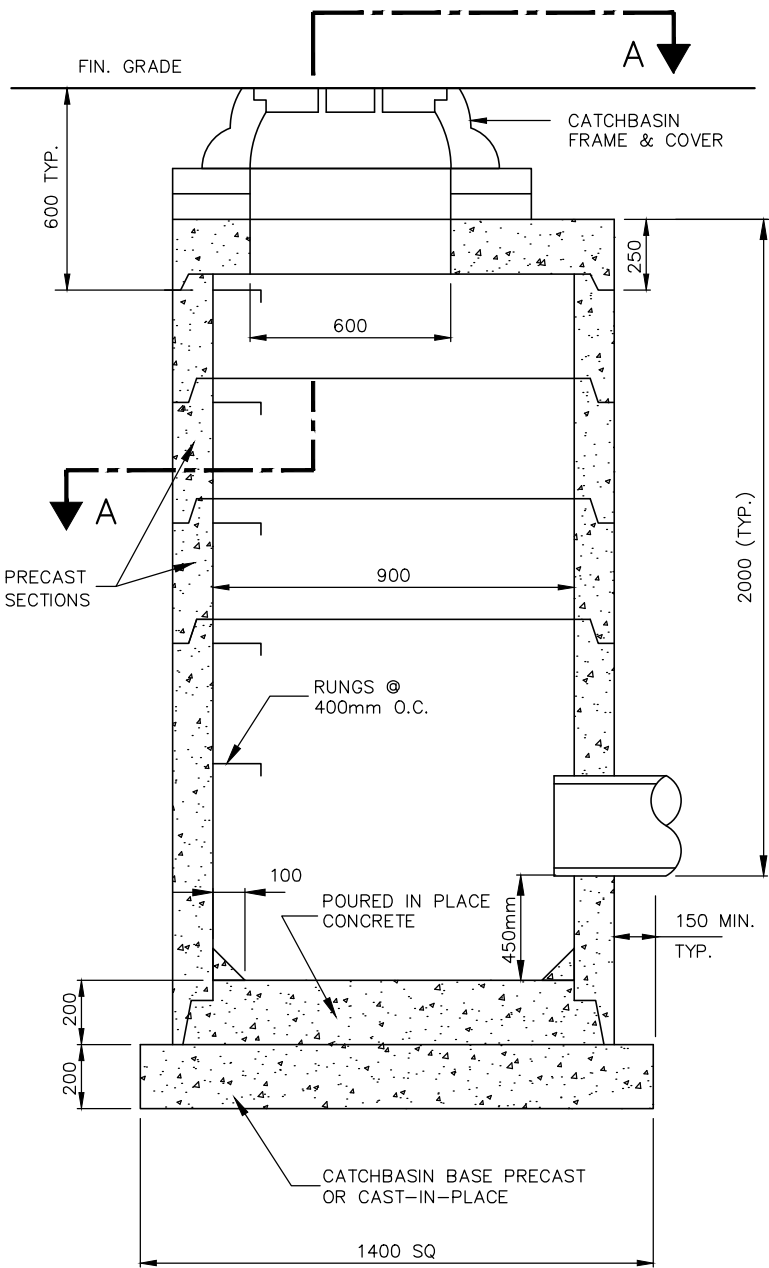
**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
2. PLUG STUB WITH BURNT CLAY DISC OR EQUAL APPROVED BY CITY

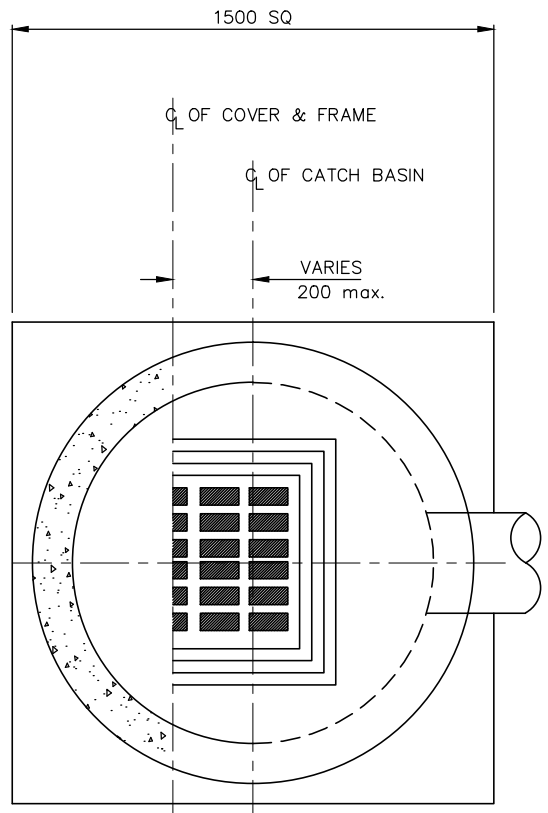
Date	Revisions	By
JAN/17	NEW DRAWING ISSUED	TY
JAN/18	REVISED UPPER BOX DETAIL	BW



CONSTRUCTION STANDARDS		
Sewer Cleanout		
Designed By:	Approved: Dustin McCall	
Date	Scale	S-11
Jan/18	NTS	
Digital File: STDS-11.dwg		



CATCHBASIN TO BE BROUGHT TO GRADE WITH RISERS



**ELEVATION**

**SECTION A-A**

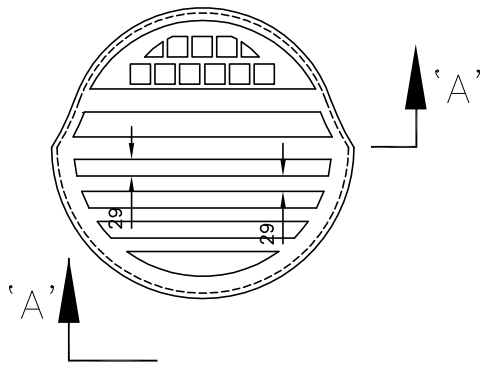
**NOTE:**

1. FOR POURED IN PLACE BASE SET C.B. BARREL IN WET CONCRETE
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

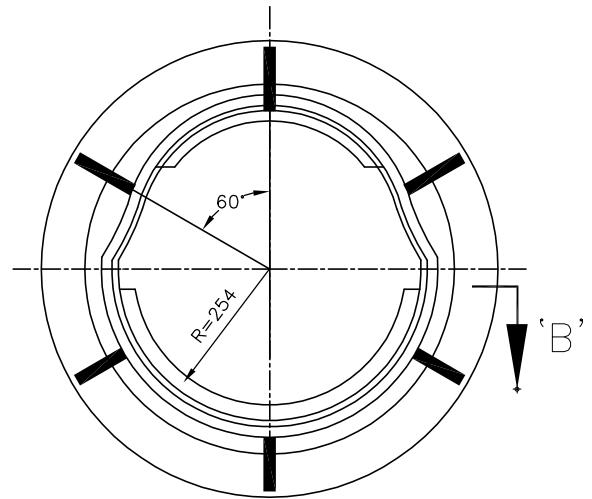
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
MAR/10	REVISED	DM
JUL/10	TITLE BLOCK	JJA



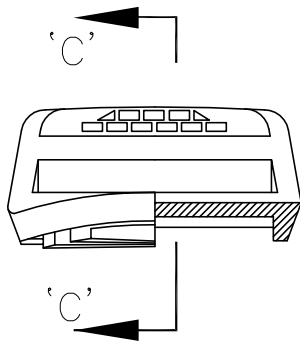
CONSTRUCTION STANDARDS		
<b>Standard Pre-Cast Concrete Catch Basin</b>		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	<b>S-13</b>
Digital File: STDS-13.dwg		



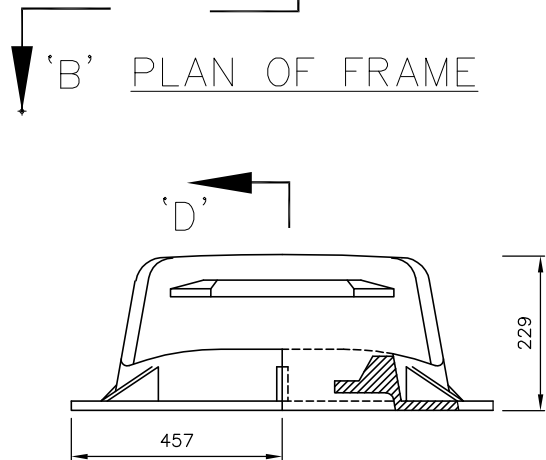
PLAN OF COVER



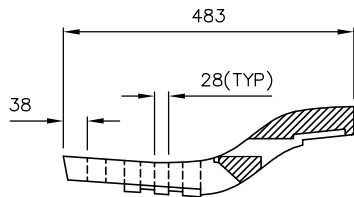
PLAN OF FRAME



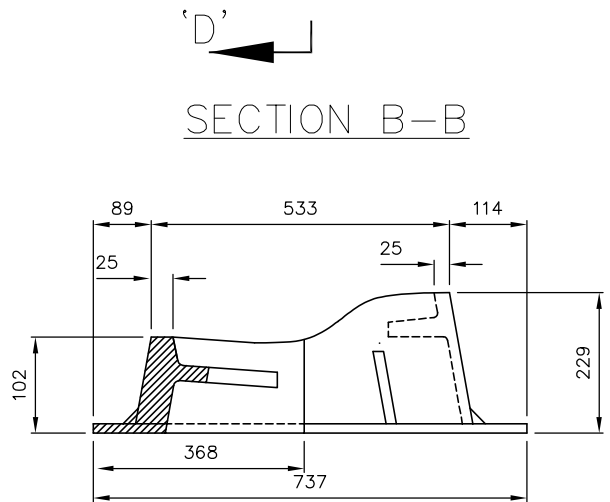
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

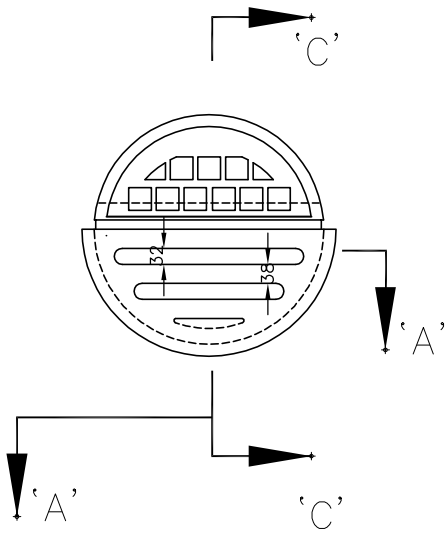
**NOTE**

1. FRAME AND COVER SHALL BE AS INDICATED IN THE APPROVED PRODUCTS LIST OR APPROVED EQUAL
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

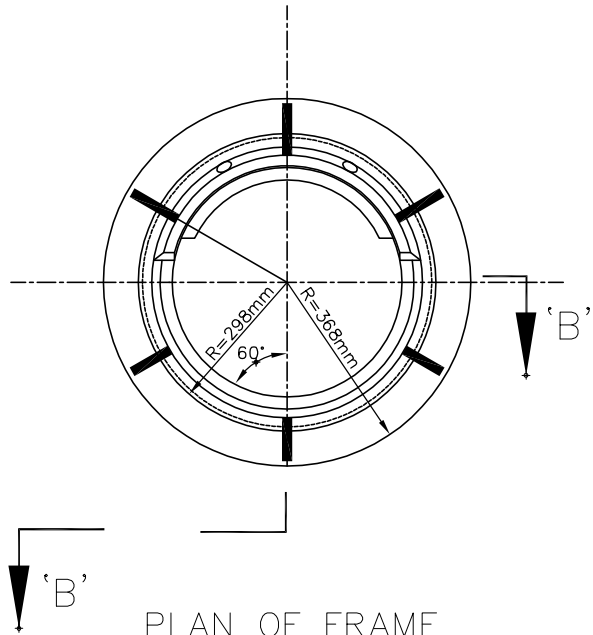
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JAN/17	SPEC REVISION	BW



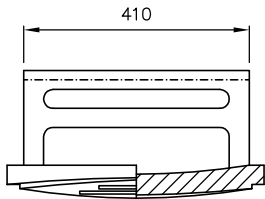
CONSTRUCTION STANDARDS			
<b>Standard Side Inlet Catch basin Frame &amp; Cover (Rolled Curb &amp; Gutter)</b>			
Designed By:		Approved: <b>Dustin McCall</b>	
Date	Scale	<b>S-14</b>	
JAN/01	NTS		
Digital File: STDS-14.dwg			



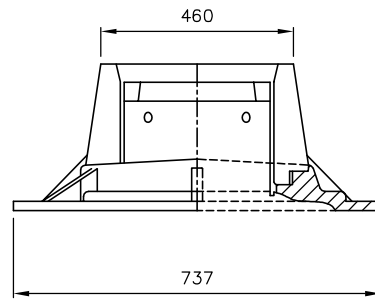
PLAN OF COVER



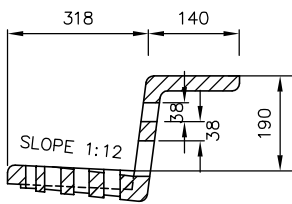
PLAN OF FRAME



FRONT ELEVATION  
SECTION A-A



FRONT ELEVATION  
SECTION B-B



SECTION C-C

NOTE

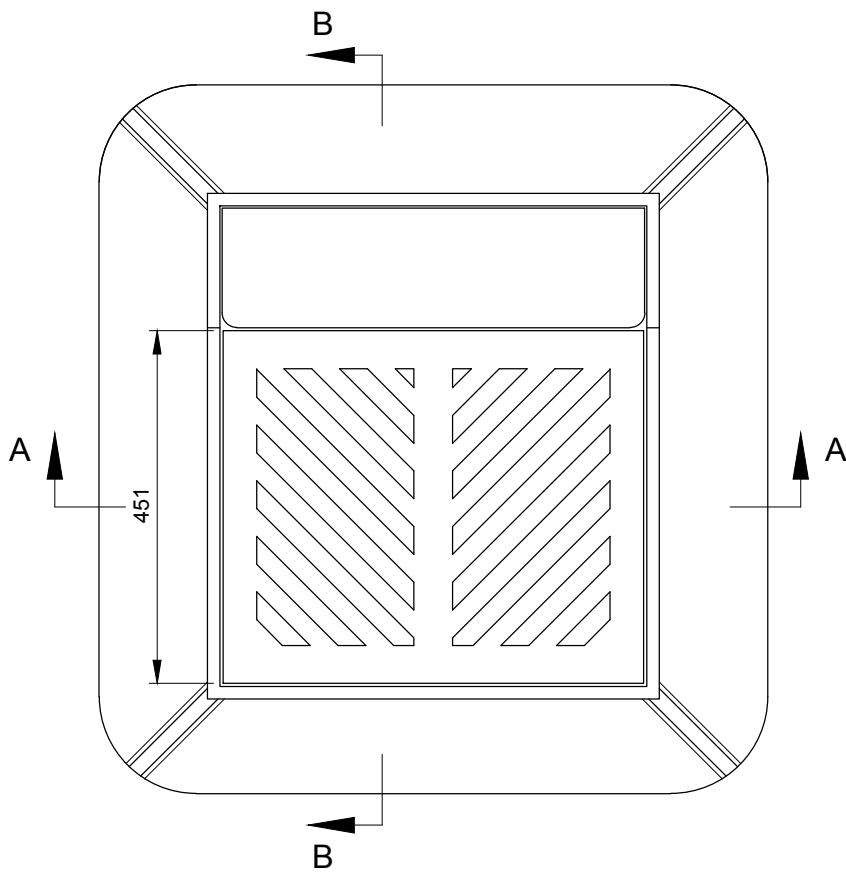
1. FRAME AND COVER SHALL BE AS INDICATED IN THE APPROVED PRODUCTS LIST OR APPROVED EQUAL
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW

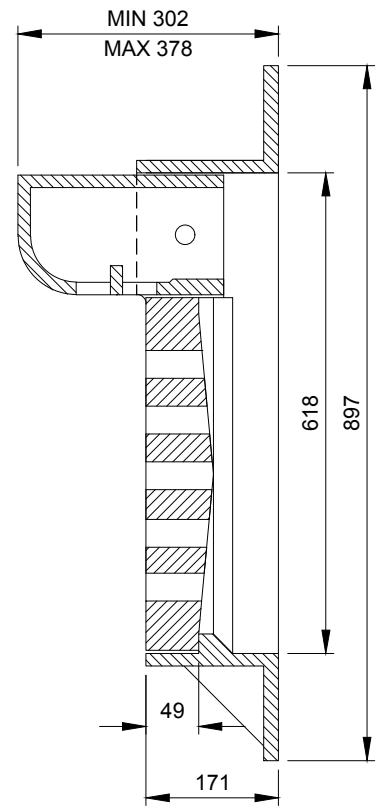
City of Regina | **REGINA**  
Infinite Horizons

CONSTRUCTION STANDARDS			
<b>Standard Side Inlet Catch Basin Frame &amp; Cover (Barrier Curb) for 190mm C&amp;G</b>			
Designed By:		Approved: Dustin McCall	
Date	Scale	S-15	
JAN/01	NTS		
Digital File: STDS-15.dwg			

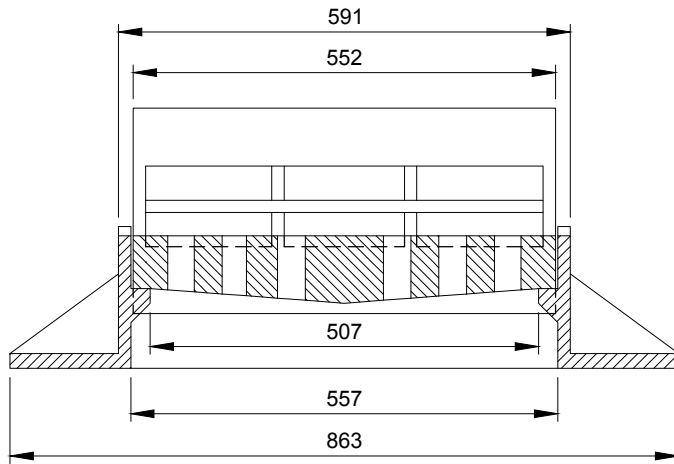




PLAN



SECTION B - B



SECTION A - A

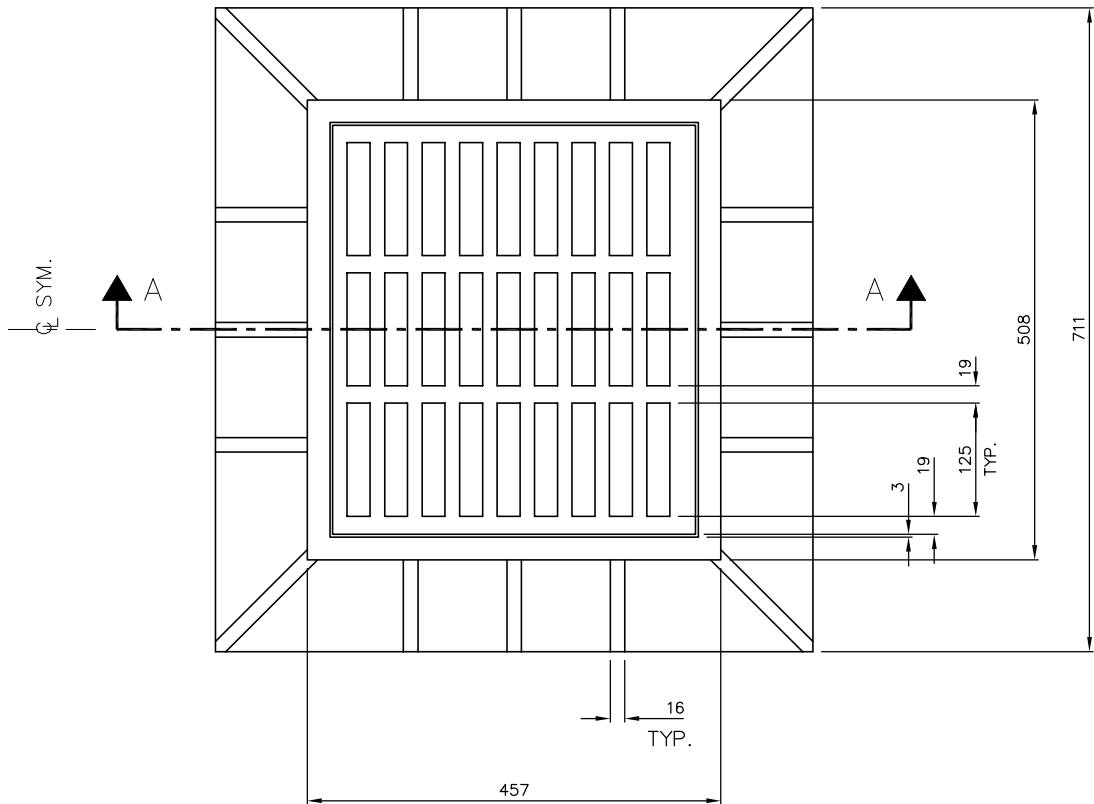
**NOTES:**

1. FRAME, GRATE AND SIDE INLET TO BE AS INDICATED IN THE APPROVED PRODUCTS LIST.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

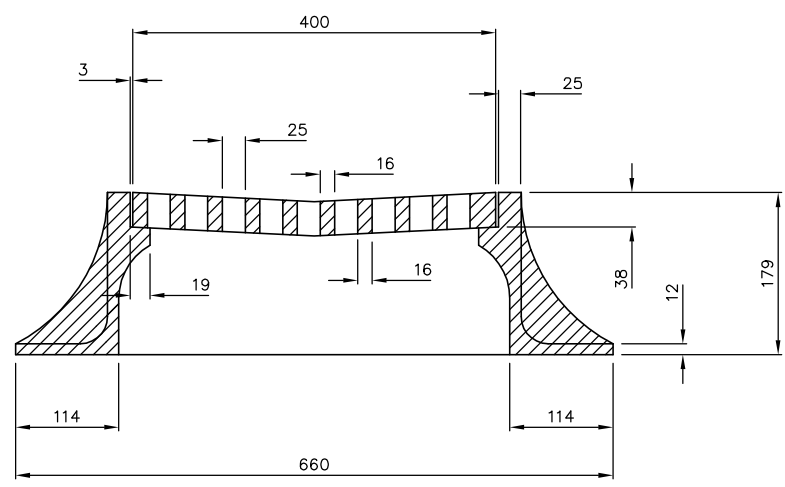
Date	Revisions	By
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW
JAN/18	REVISED TO HAVE FOUR FLANGES	BW



CONSTRUCTION STANDARDS		
<b>Arterial Road Catch Basin Frame, Grate &amp; Side Inlet</b>		
Designed By:	Approved: Dustin McCall	
Date	Scale	<b>S-15A</b>
JAN/18	NTS	
Digital File: STDS-15A.dwg		



PLAN



SECTION A-A

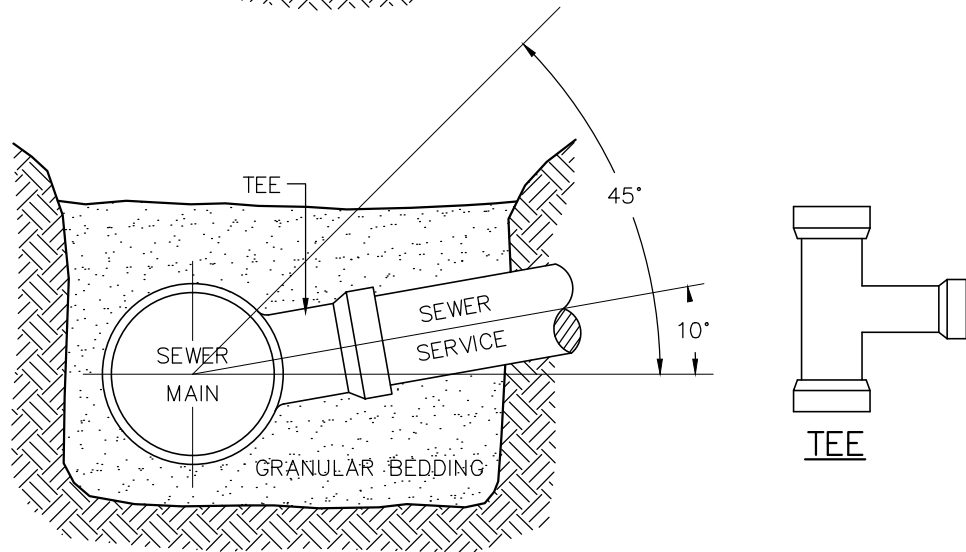
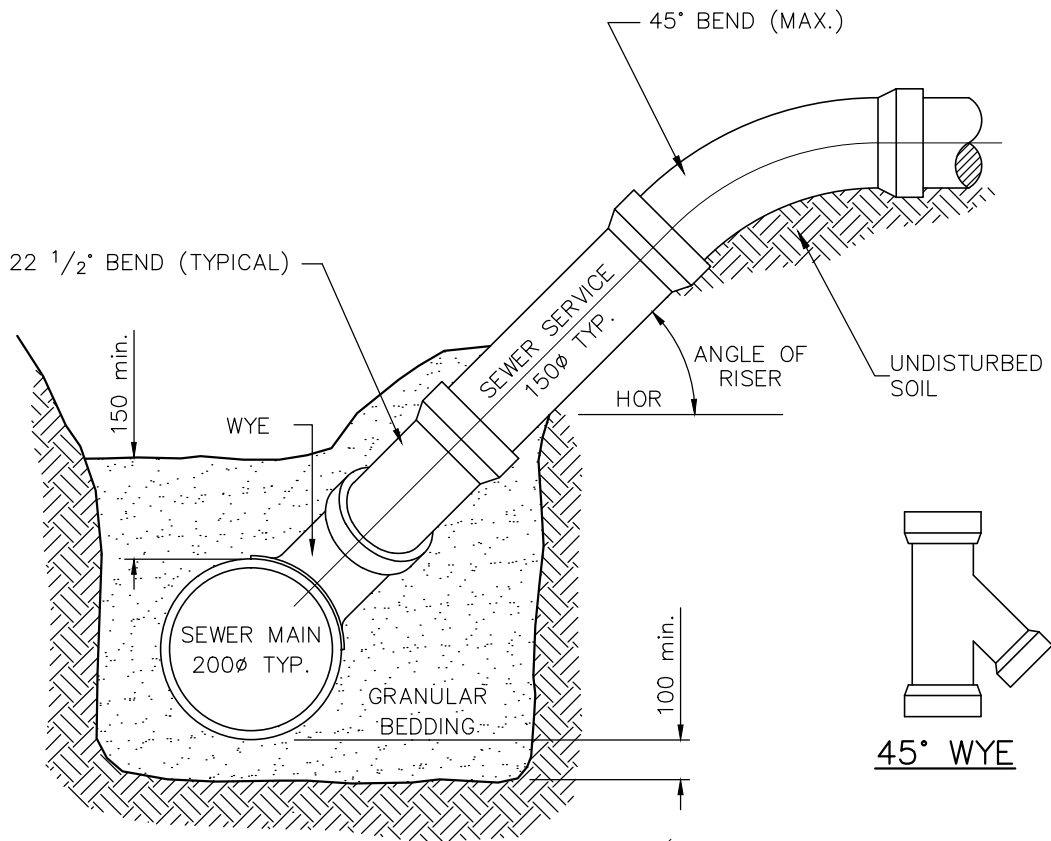
NOTES:

1. END FRAME SEAT DISHED TO CONFORM WITH COVER.
2. FRAME & COVER SHALL BE AS INDICATED IN THE APPROVED PRODUCTS LIST OR APPROVED EQUAL
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW



CONSTRUCTION STANDARDS		
<b>Standard Catch Basin Frame &amp; Cover</b>		
Designed By:		Approved: <b>Dustin McCall</b>
Date	Scale	<b>S-16</b>
JAN/01	NTS	
Digital File: STDS-16.dwg		



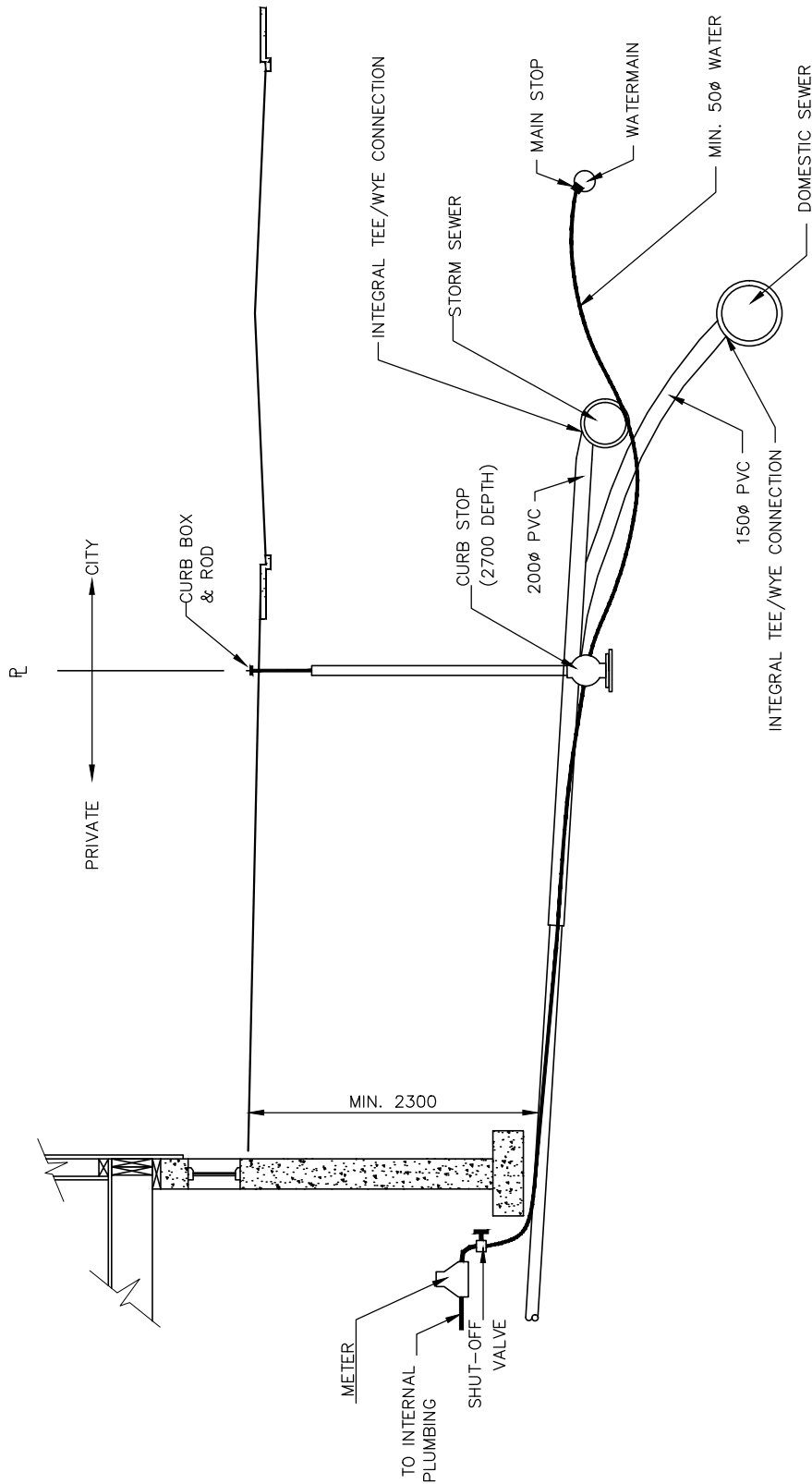
**NOTES:**

- 1) CONNECTION TO JOIN MAIN WITH SLOPE BETWEEN 10° AND 45°
- 2) RISER REQ'D WHERE DEPTH OF MAIN IS 4250 OR GREATER
- 3) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Service Connection Integral Tee/Wye</b>		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	<b>S-18</b>
Digital File: STDS-18.dwg		



**PIPE POSITION**

THE SERVICE PIPES IN EACH TRENCH SHALL BE POSITIONED AS FOLLOWS WHEN FACING THE BUILDING

- DOMESTIC SEWER IN CENTRE
- WATER ON RIGHT SIDE OF DOMESTIC SEWER
- STORM, IF ANY, ON LEFT SIDE OF DOMESTIC SEWER

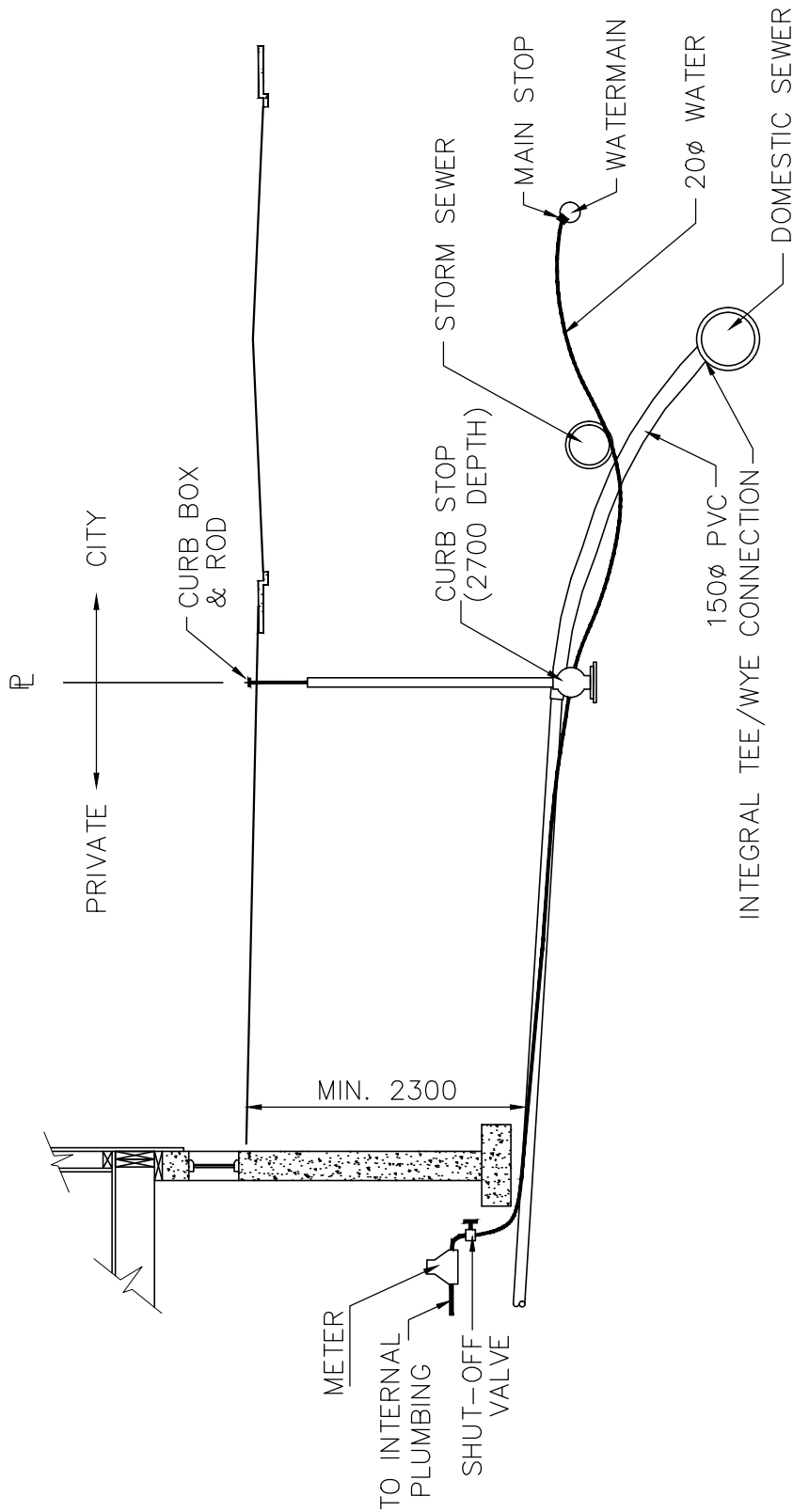
**NOTE**

1. STORM SEWER SERVICE NOT ALLOWED FOR SINGLE FAMILY DWELLING
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Typical Commercial connection</b>		
Designed By:	Approved: Kelly Wyatt	
Date: JAN/11	Scale: NTS	<b>S-19</b>
Digital File: STDS-19.dwg		



**PIPE POSITION**

THE SERVICE PIPES IN EACH TRENCH SHALL BE POSITIONED AS FOLLOWS WHEN FACING THE BUILDING

- DOMESTIC SEWER IN CENTRE
- WATER ON RIGHT SIDE OF DOMESTIC SEWER
- STORM, IF ANY, ON LEFT SIDE OF DOMESTIC SEWER

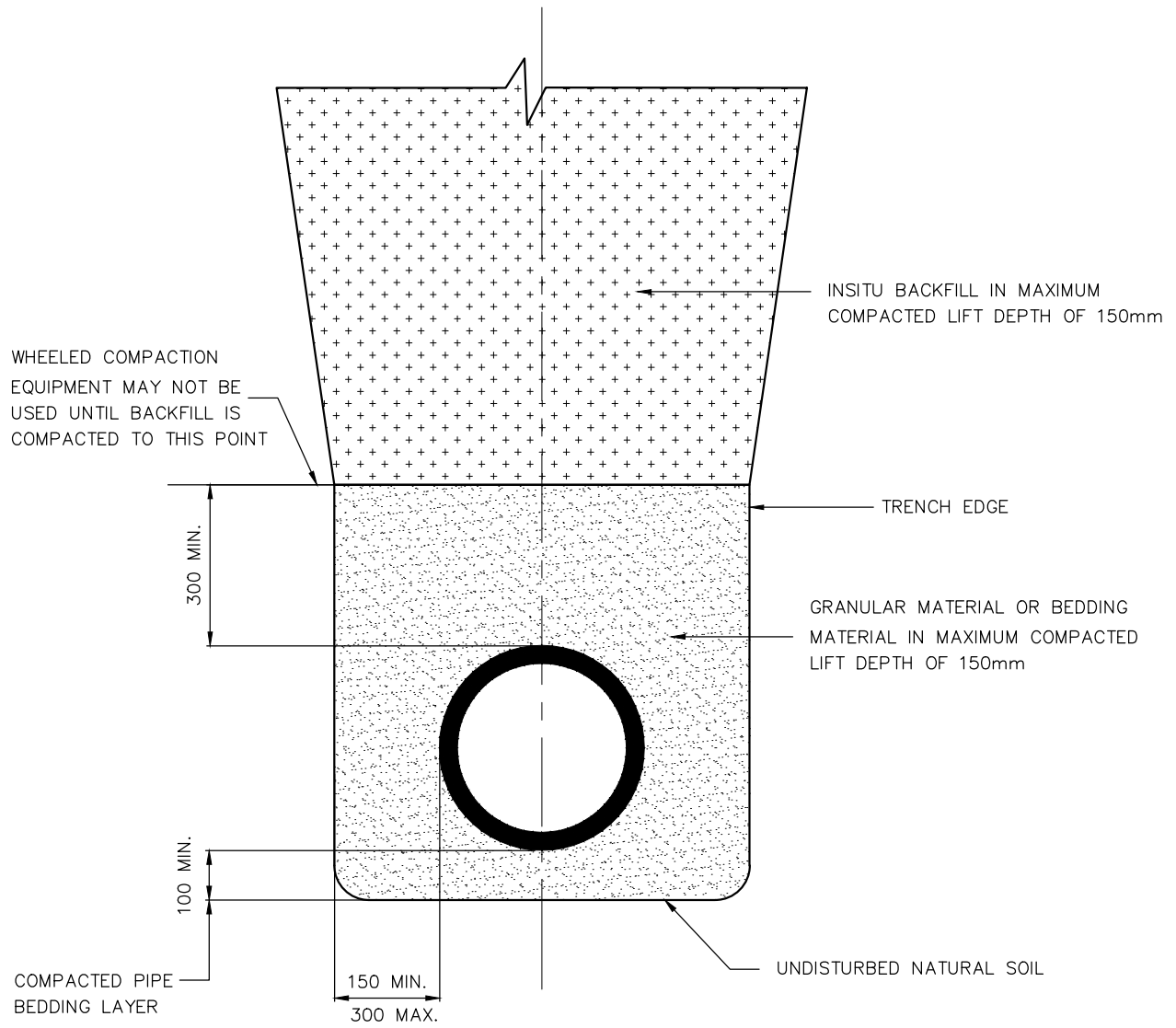
**NOTE**

1. STORM SEWER SERVICE NOT ALLOWED FOR SINGLE FAMILY DWELLING
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
Residential Connection		
Designed By:	Approved: Kelly Wyatt	
Date: Jan/11	Scale: NTS	S-19R
Digital File: STDS-19R.dwg		



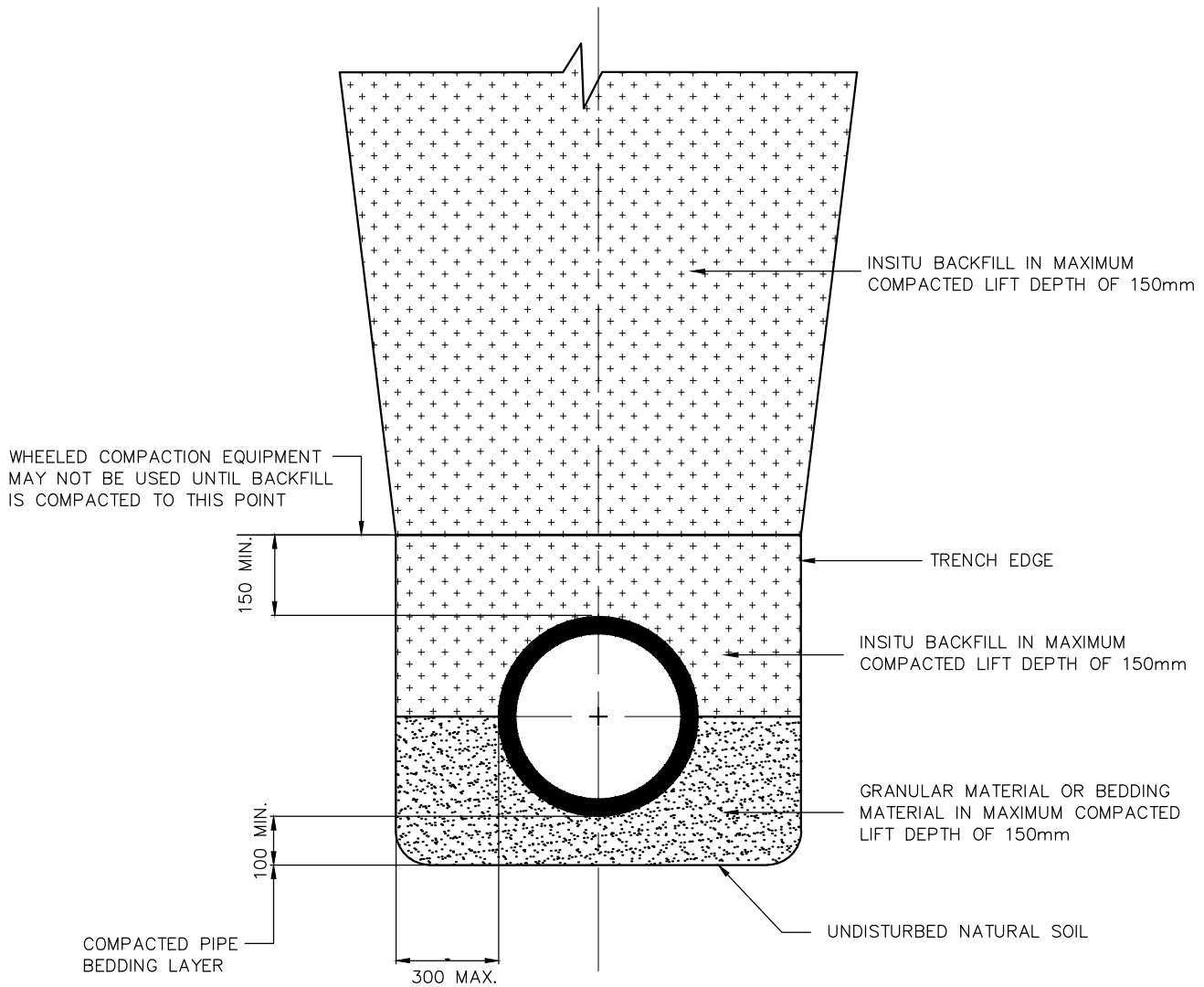
**NOTE**

1. BACKFILL COMPACTION TO BE A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
2. INSITU BACKFILL MOISTURE CONTENT TO BE +/- 3% OF ADJACENT UNDISTURBED TRENCH SIDE.
3. SIDE CLEARANCE MUST BE ADEQUATE TO PERMIT COMPACTION OF BACKFILL AT SIDE OF PIPE
4. THE GUIDELINE MINIMUM FOR COMPACTION TESTING IS ONE TEST FOR EACH 1000m<sup>2</sup> FOR EACH LIFT IN THE PIPE BEDDING ZONE AND TRENCH BACKFILL ZONE.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

Date	Revisions	By
JAN/02	NOTES 1 & 2 CORRECTED	BW
JAN/03	GENERAL REVISIONS	BW
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Standard Flexible Pipe Bedding and Trench Backfill</b>		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	<b>S-20</b>
Digital File: STDS-20.dwg		



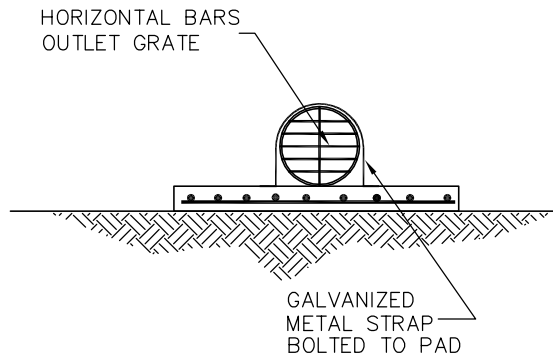
**NOTE**

1. BACKFILL COMPACTION TO BE MINIMUM OF 95% STANDARD PROCTOR DENSITY.
2. INSITU BACKFILL MOISTURE CONTENT TO BE +/- 3% OF ADJACENT UNDISTURBED TRENCH SIDE.
3. SIDE CLEARANCE MUST BE ADEQUATE TO PERMIT COMPACTION OF BACKFILL MATERIAL AT THE SIDE OF PIPE
4. THE GUIDELINE MINIMUM REQUIREMENT FOR COMPACTION TESTING IS ONE TEST FOR EACH 1000m<sup>2</sup> FOR EACH LIFT IN THE PIPE BEDDING ZONE AND TRENCH BACKFILL ZONE.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

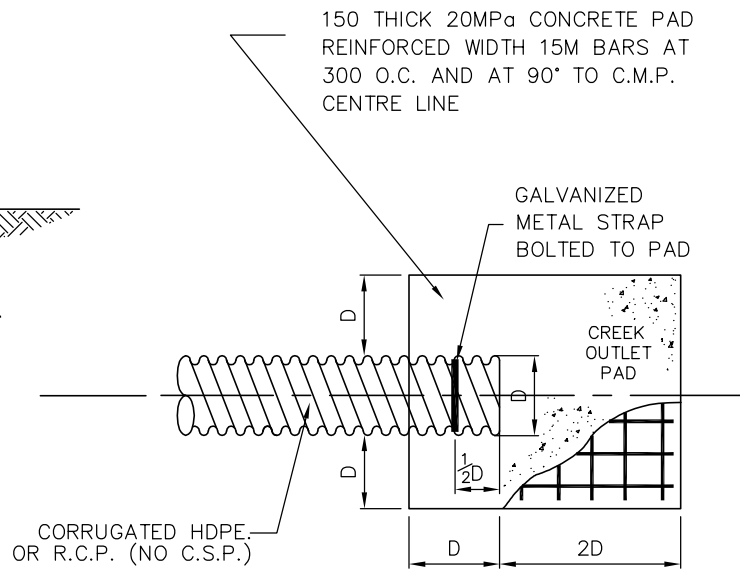
Date	Revisions	By
JAN/02	NOTES 1 & 2 CHANGED	BW
JAN/03	GENERAL REVISIONS	BW
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



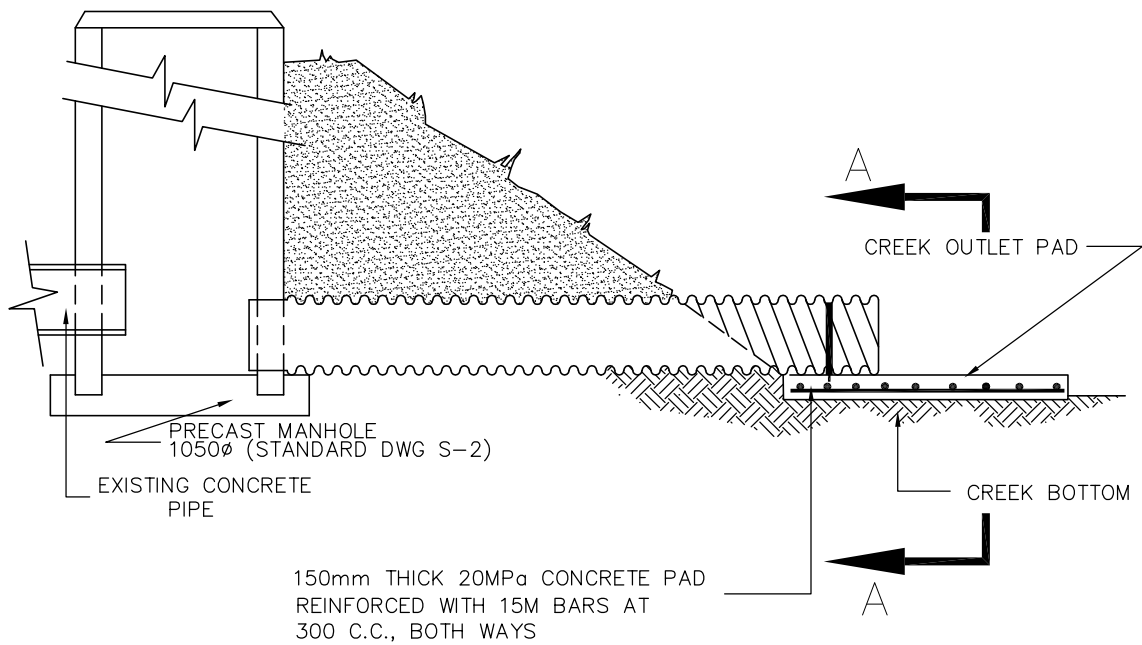
CONSTRUCTION STANDARDS		
Standard Rigid Pipe Bedding and Trench Backfill		
Designed By:	Approved: Stella Madsen	
Date	Scale	S-21
JAN/01		
Digital File:	STDS-21.dwg	



SECTION A-A



PLAN



Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW



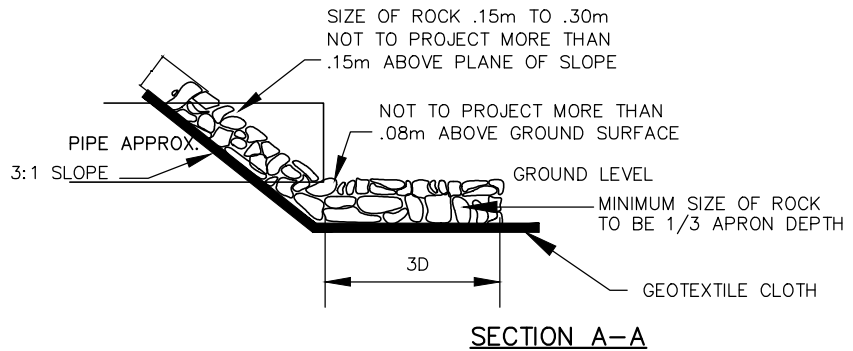
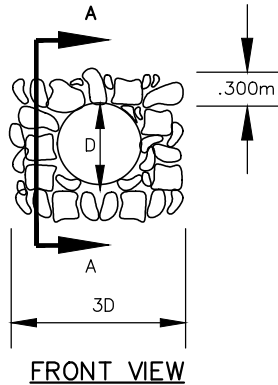
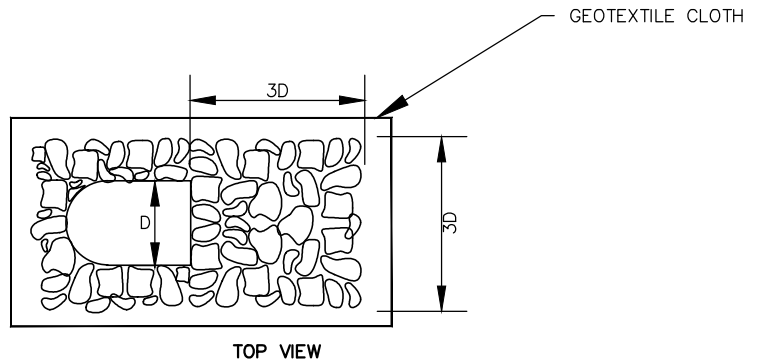
CONSTRUCTION STANDARDS		
Storm Sewer Outlet		
Designed By:	Approved: Dustin McCall	
Date: JAN/01	Scale: NTS	S-22
Digital File: STDS-22.dwg		



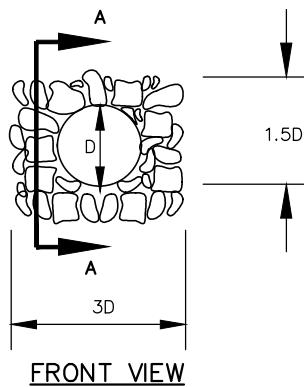
# OUTLET

## NOTE

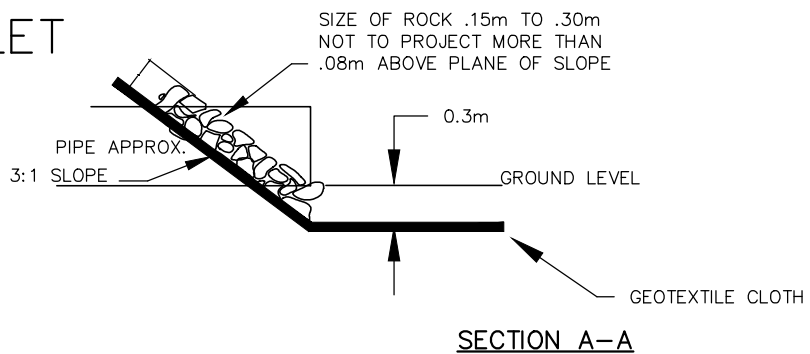
1. RIP RAP TO VBE UNDERLAIN BY MEDIUM THICKNESS GEOTEXTILE FILTER CLOTH THAT IS KEYED INTO NATIVE MATERIAL AT ALL EDGES OF CLOTH.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



D (mm)	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000
APRON DEPTH	.45m							.60m			.75m		



# INLET



TOTAL QUANTITIES OF RIP-RAP IN CUBIC METRES

D (mm)	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000
INLET	.56	.71	.88	1.27	1.73	2.26	2.85	3.52	5.07	6.91	9.02	11.42	14.10
OUTLET	1.42	1.73	2.08	2.86	3.77	4.80	5.95	8.65	12.19	16.32	21.05	30.89	37.86
TOTAL	1.98	2.44	2.96	4.13	5.50	7.06	8.80	12.17	17.26	23.23	30.07	42.31	51.96

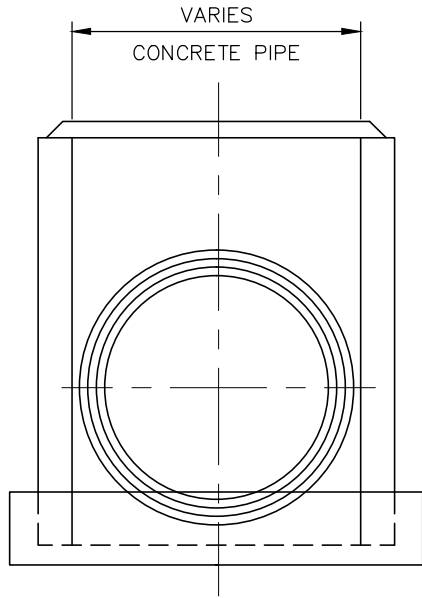
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



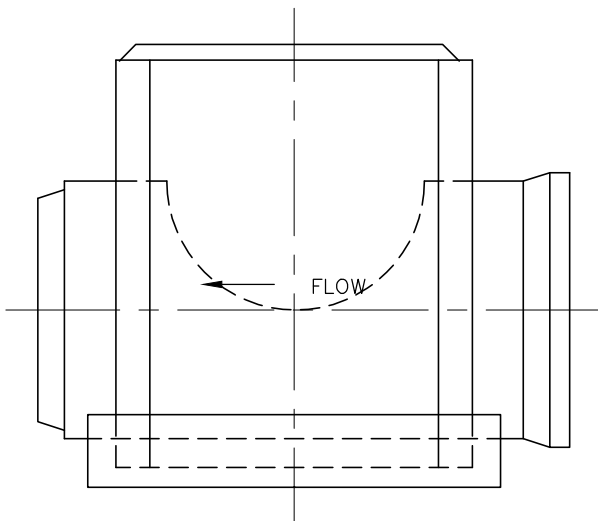
CONSTRUCTION STANDARDS

## Erosion Control at Culverts

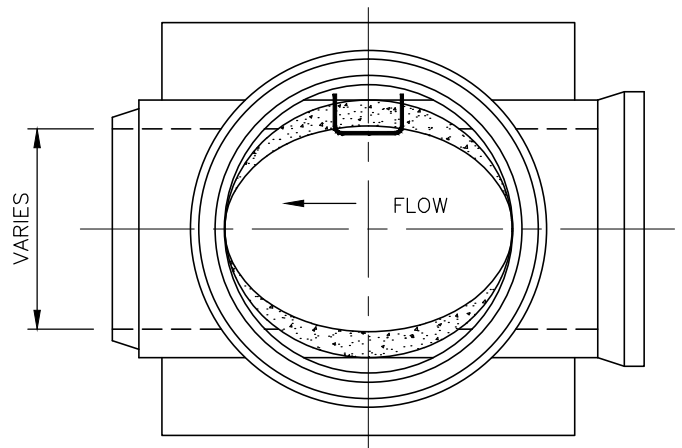
Designed By:		Approved: Stella Madsen	
Date JAN/01	Scale NTS	S-23	
Digital File: STDS-23.dwg			



FRONT VIEW



SIDE VIEW



TOP VIEW

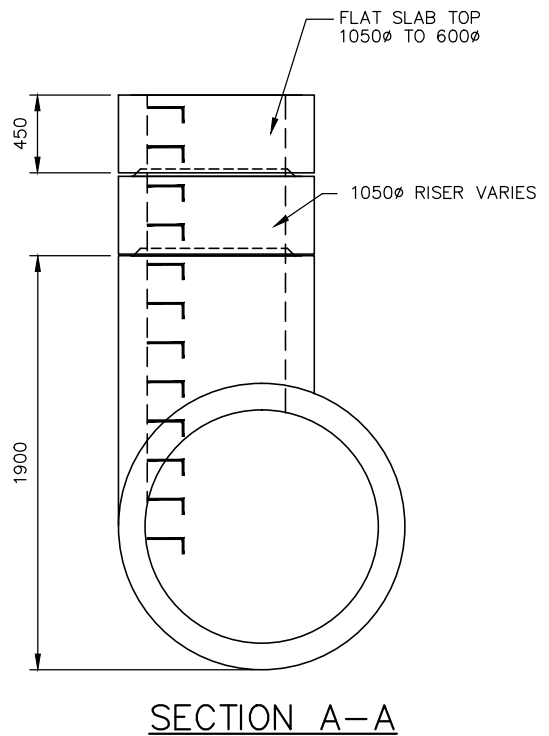
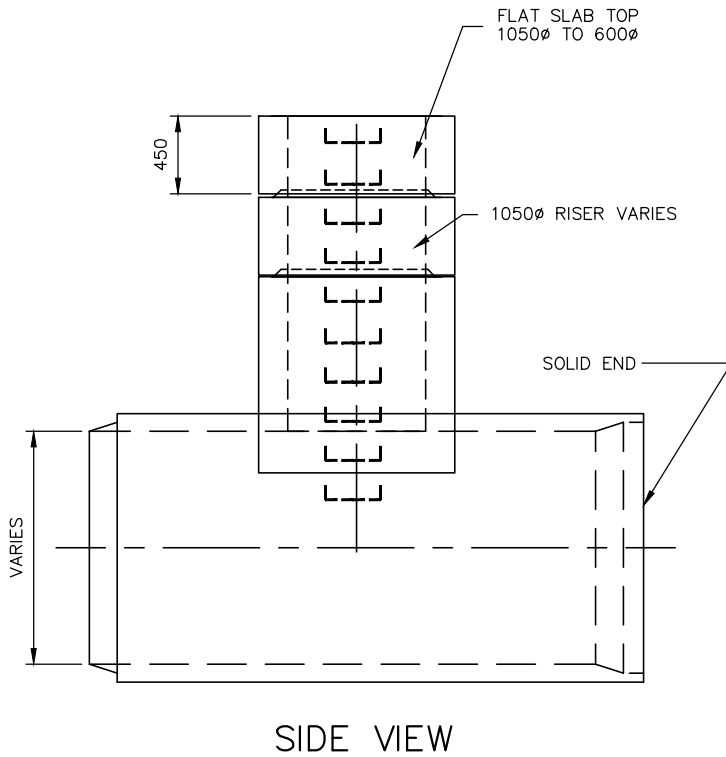
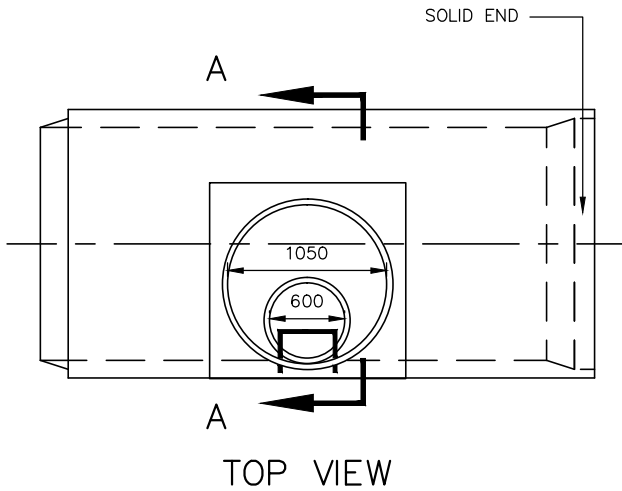
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Pre-Cast Concrete Manhole Integral Base and Thru-Pipe Type</b>		
Designed By:	Approved: Stella Madsen	
Date	Scale	<b>S-24</b>
JAN/01	NTS	
Digital File: STDS-24.dwg		

**NOTE**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



- 1) SHALL COMPLY WITH DESIGN REQUIREMENTS FOR CLASS IV REINFORCED PIPE
- 2) PIPE LEADS INTO MANHOLE END SECTION TO SUITE PARTICULAR SITUATION
- 3) ADD BRICKS, FRAME AND COVER TO FINISHED GRADE
- 4) ADD RISERS

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA

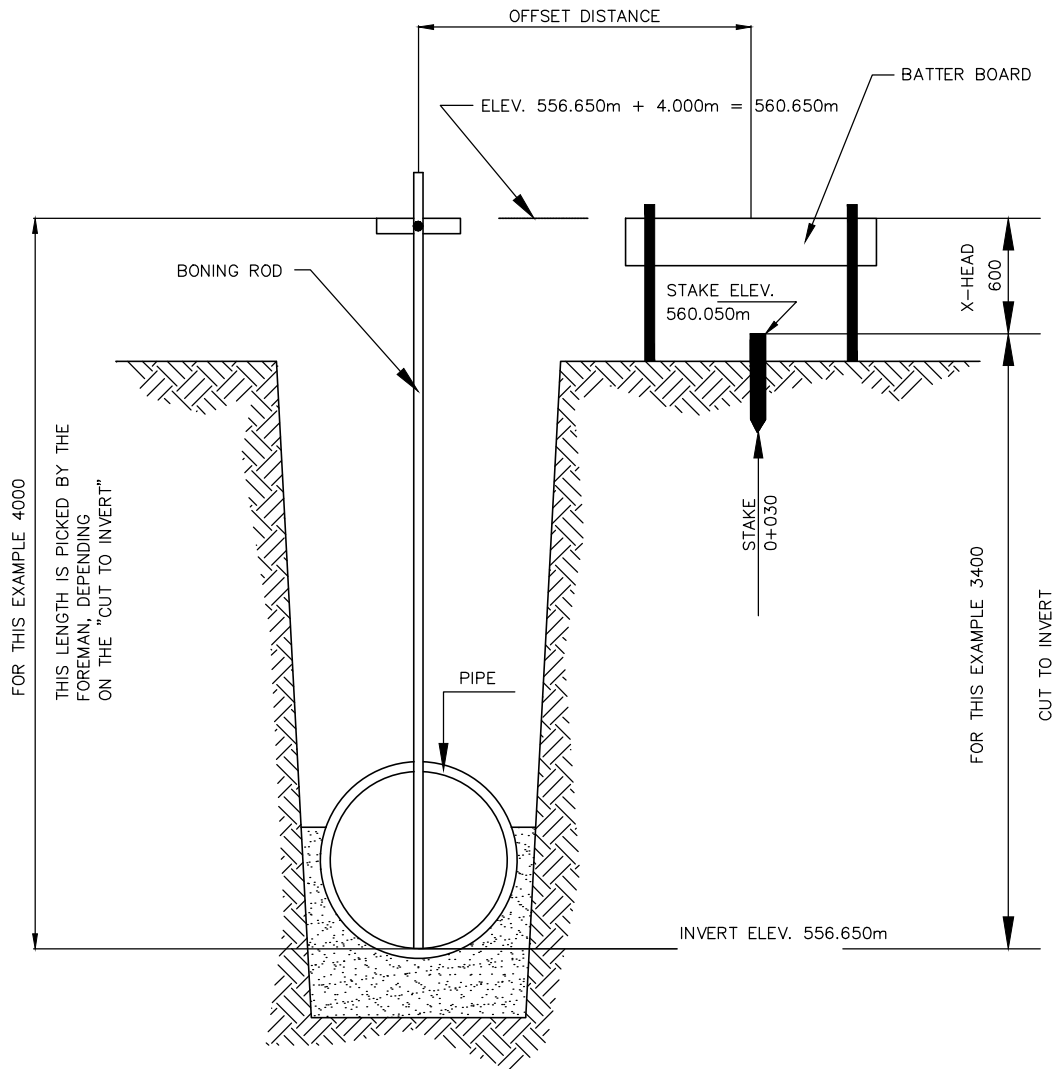


CONSTRUCTION STANDARDS		
<b>Pre-Cast Concrete Manhole End Section 1050Ø Manhole</b>		
Designed By:	Approved: Stella Madsen	
Date: JAN/01	Scale: NTS	<b>S-25</b>
Digital File: STDS-25.dwg		

EXAMPLE OF  
TYPICAL GRADE SHEET

<u>STATION</u>	<u>STAKE ELEV.</u>	<u>INVERT ELEV.</u>	<u>CUT TO INVERT</u>	<u>X-HEAD</u>
0+030	560.050m	556.650m	3 400	600 (4 000-3 400)

DO THIS  
PROCESS  
FOR EACH  
STAKE ELEVATION



**NOTE:**

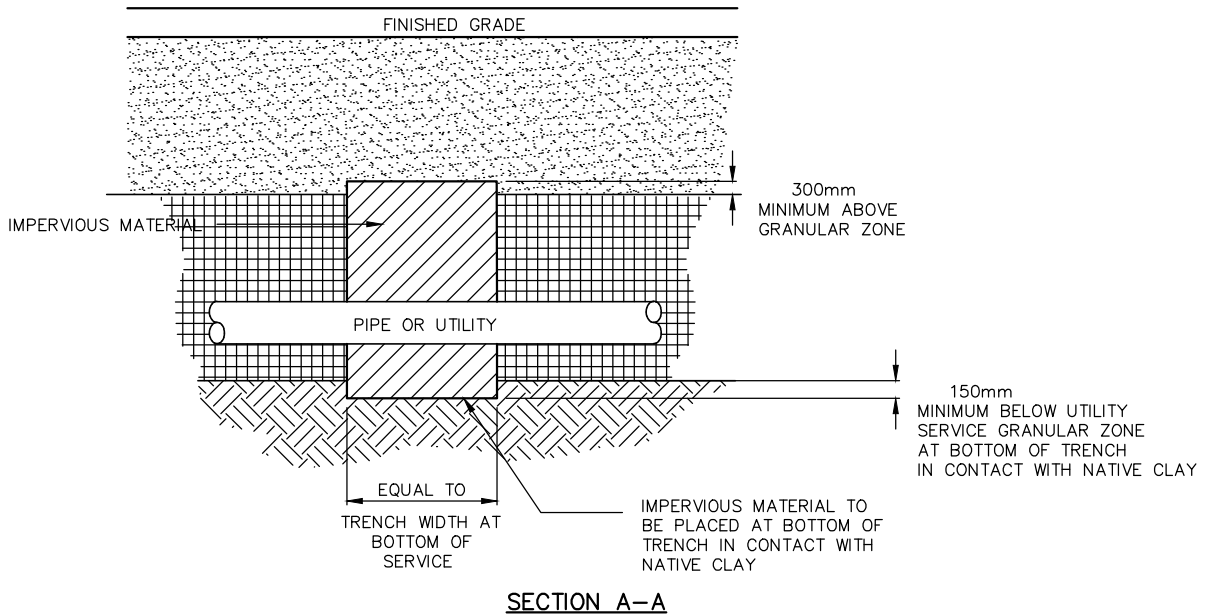
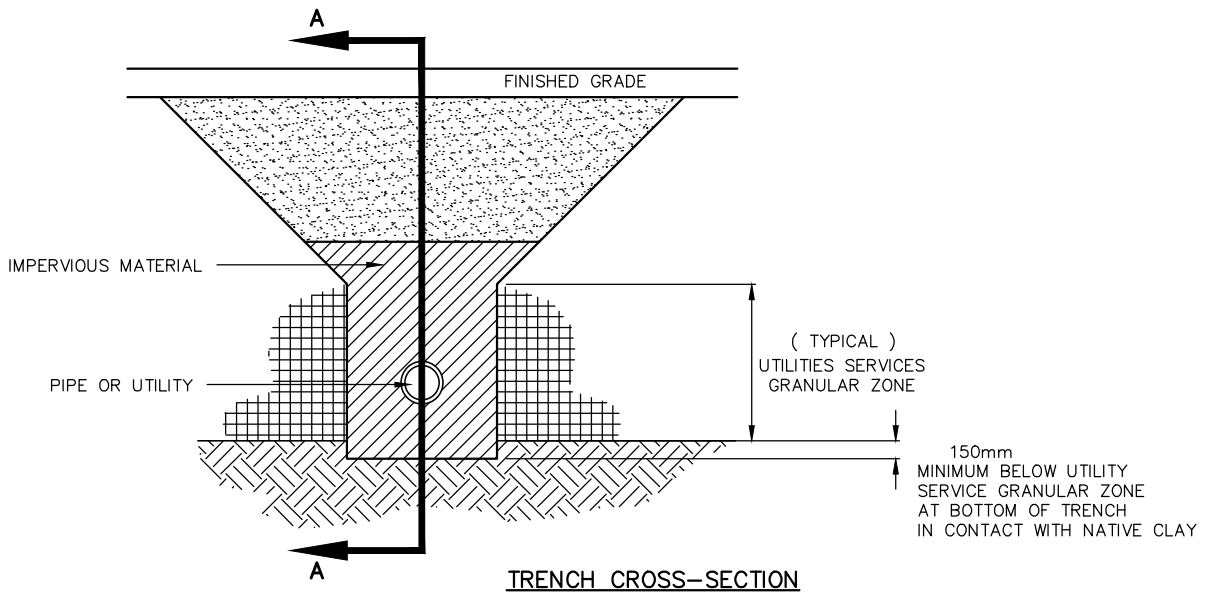
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS  
**Establishment of Grade  
for Sewer Construction**

Designed By:		Approved: Stella Madsen	
Date	Scale	S-27	
JAN/01	NTS		
Digital File: STDS-27.dwg			



**NOTE**

1. FOR UTILITY SERVICES AND BEDDING MATERIAL, REFER TO CITY SPECIFICATIONS, SECTION 01390 AND 02315

IMPERVIOUS MATERIAL BARRIERS FOR UTILITY SERVICE TRENCHES AT THE PROPERTY LINES SHOULD BE WELL MIXED, CONSISTING OF 20% BENTONITE CLAY AND 80% PIPE BEDDING MATERIAL.

ANY OTHER DESIGNS ARE TO BE SUBMITTED FOR REVIEW AND APPROVAL TO THE ENGINEER

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA

City of Regina | **REGINA**  
Infinite Horizons

CONSTRUCTION STANDARDS  
**Impervious Material Barriers  
for Utility Service Trenches**

Designed By: \_\_\_\_\_ Approved: **Stella Madsen**

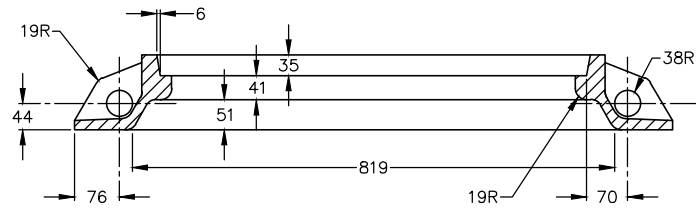
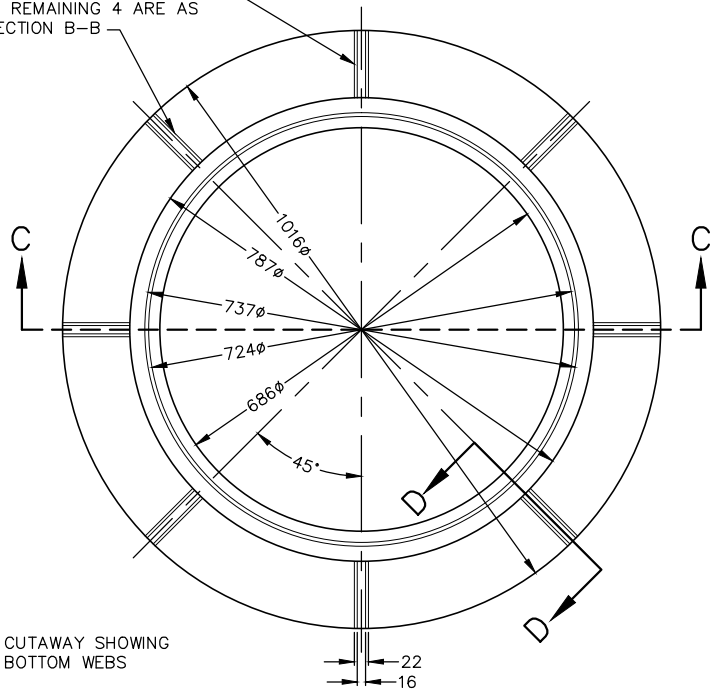
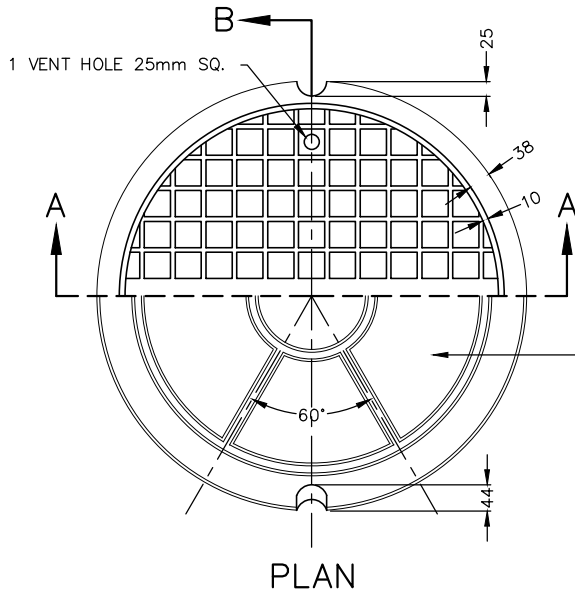
Date: **JAN/01** Scale: **NTS** **S-28**

Digital File: **STDS-28.dwg**

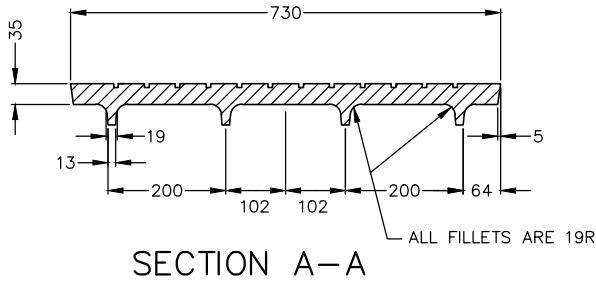
**SPECIFICATIONS**

- FRAME AND COVER SHALL BE NORWOOD F-40, TITAN TF-40 OR APPROVED EQUAL
- MANHOLE FRAMES AND COVERS SHALL BE GREY CAST IRON CONSTRUCTION
- WEIGHT OF FRAME SHALL BE AT LEAST 115 Kg
- WEIGHT OF COVER SHALL BE AT LEAST 110 Kg

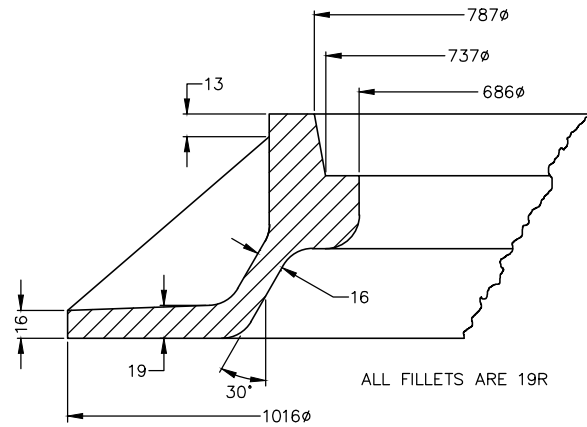
4 OF THE WEBBS ARE CONSTRUCTED AS IN SECTION A-A. REMAINING 4 ARE AS IN SECTION B-B



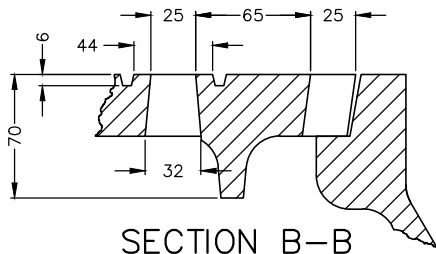
SECTION C-C



SECTION A-A



SECTION D-D



SECTION B-B

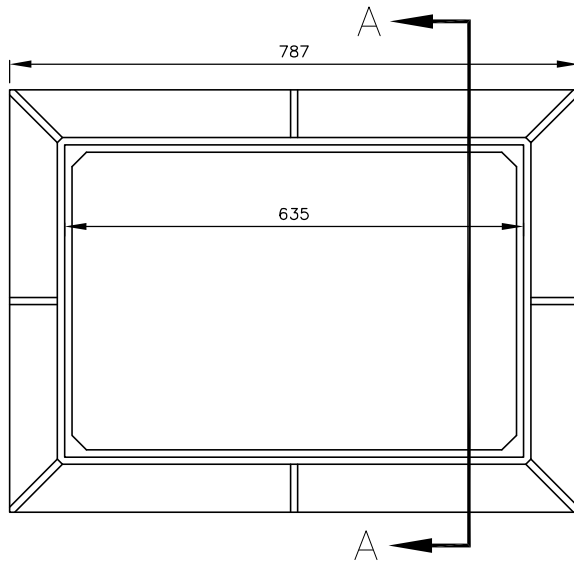
**NOTE:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

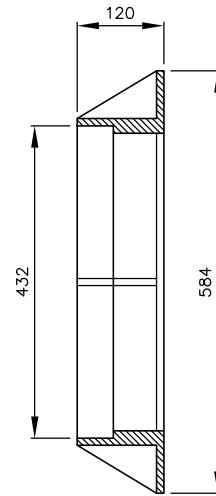
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA



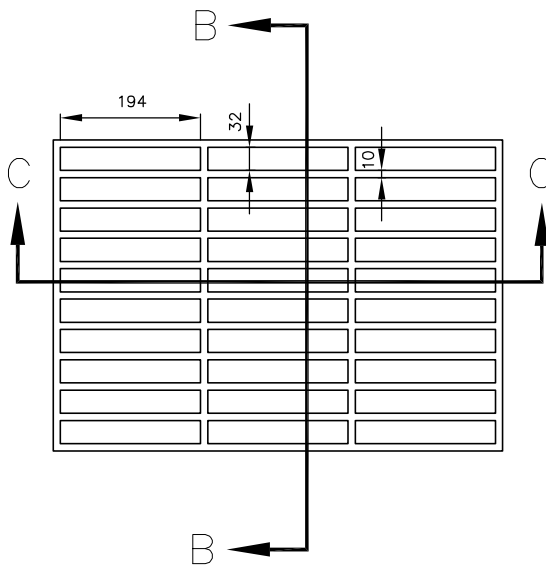
CONSTRUCTION STANDARDS		
<b>Manhole Frame and Cover for 1200<math>\phi</math> Manhole</b>		
Designed By:	Approved: Stella Madsen	
Date	Scale	<b>S-29</b>
JAN/01	NTS	
Digital File:	STDS-29.dwg	



PLAN OF FRAME



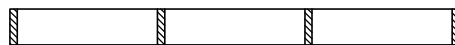
SECTION A-A



PLAN OF GRATE



SECTION B-B



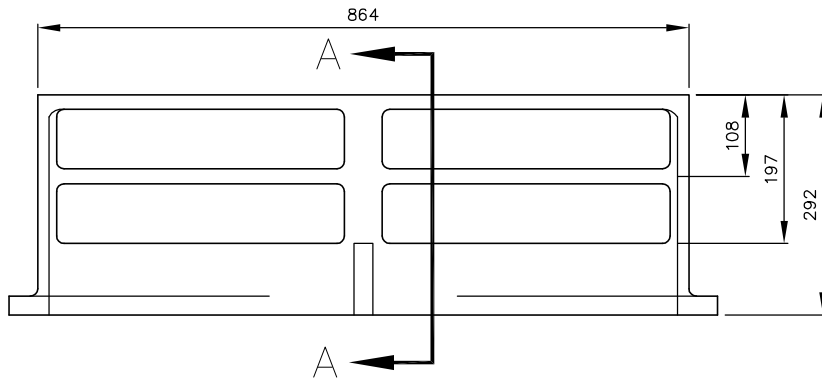
SECTION C-C

NOTE:  
FRAME AND GRATE SHALL BE AS INDICATED  
IN THE APPROVED PRODUCTS LIST  
OR APPROVED EQUAL

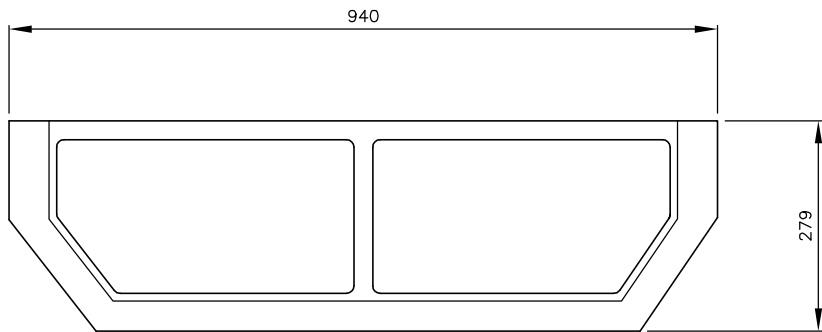
Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW



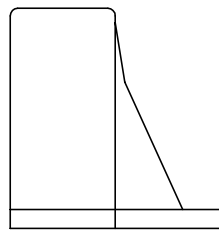
CONSTRUCTION STANDARDS		
<b>High Capacity Catch basin Frame and Grate</b>		
Designed By:		Approved: Dustin McCall
Date: JAN/01	Scale: NTS	<b>S-30A</b>
Digital File: STDS-30.dwg		



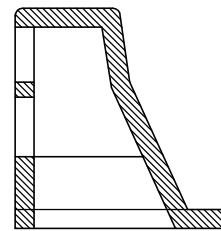
FRONT VIEW



BOTTOM VIEW



END VIEW



SECTION A-A

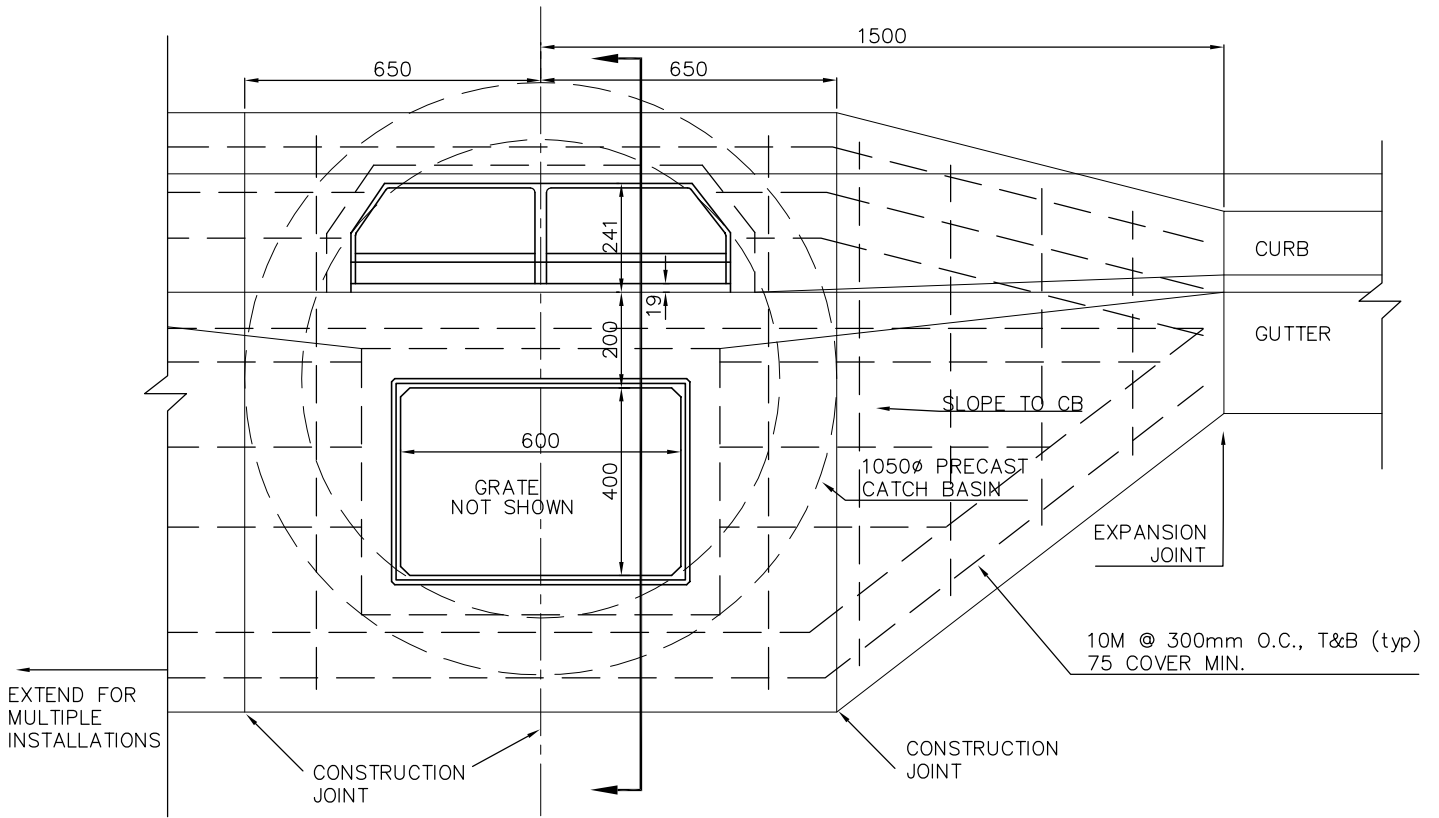
NOTE:  
 FRAME AND GRATE SHALL BE AS INDICATED  
 IN THE APPROVED PRODUCTS LIST  
 OR APPROVED EQUAL

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW

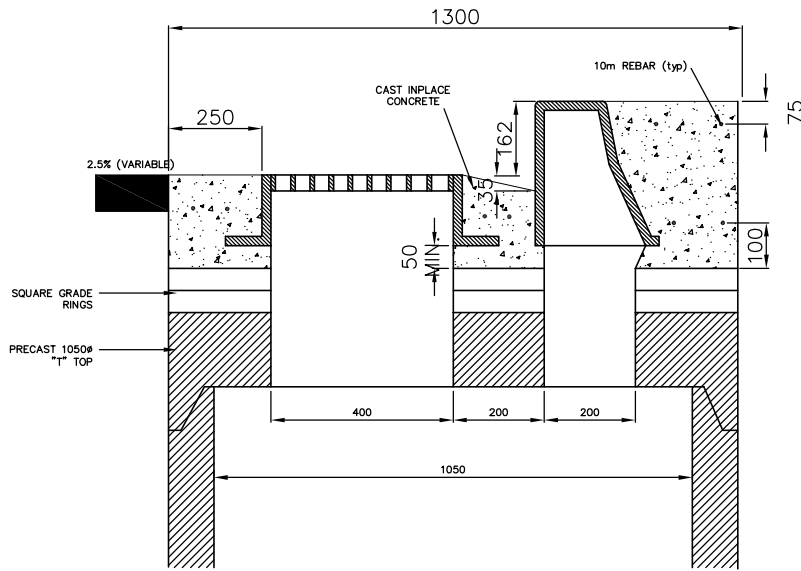


CONSTRUCTION STANDARDS		
<b>High Capacity Catch basin Frame and Grate</b>		
Designed By:	Approved: Dustin McCall	
Date: JAN/01	Scale: NTS	<b>S-30B</b>
Digital File: STDS-30.dwg		





PLAN

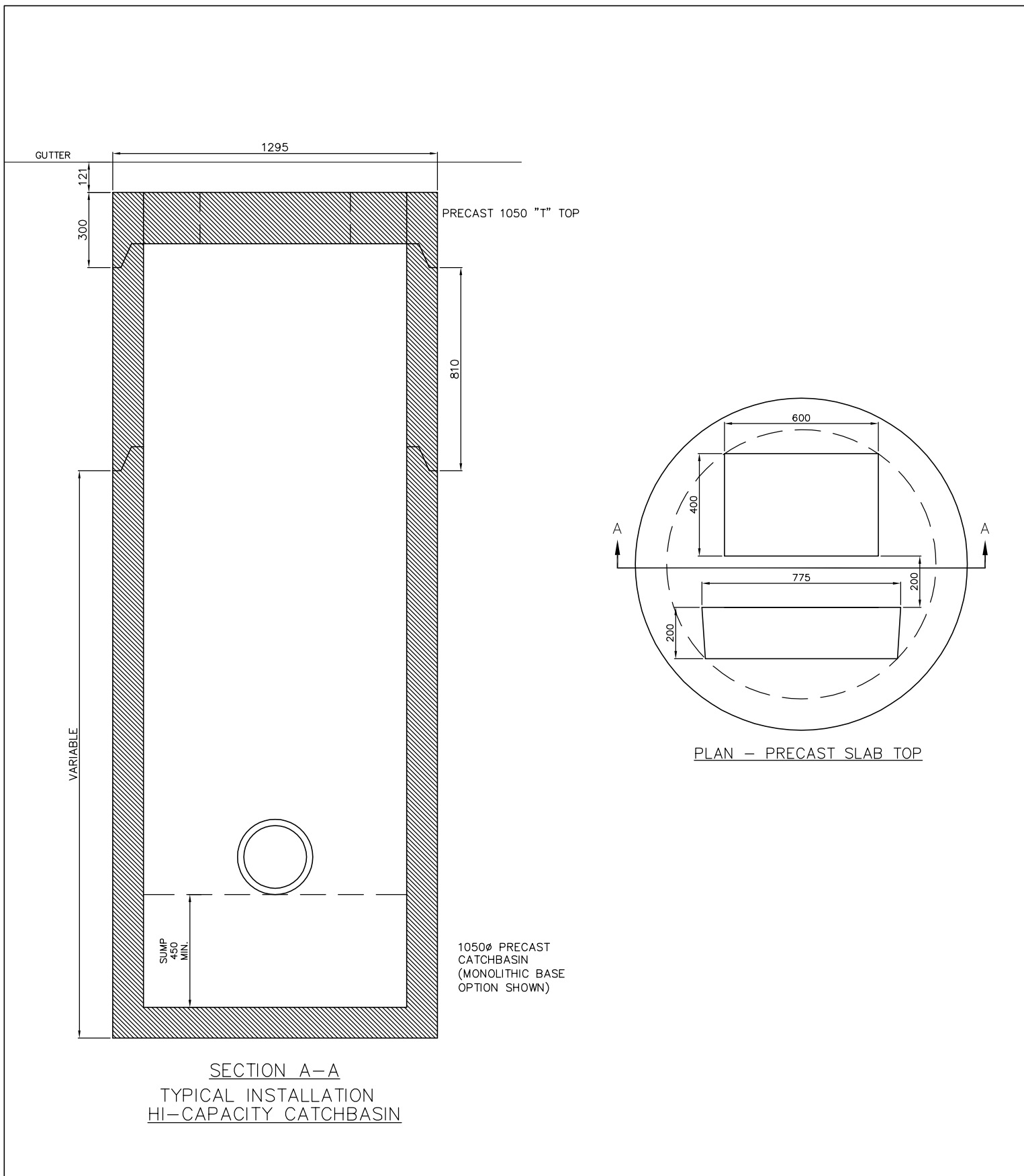


SECTION

Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JAN/17	SPEC REVISIONS	BW



CONSTRUCTION STANDARDS		
<b>High Capacity Catch Basin Box-Out</b>		
Designed By:		Approved: Dustin McCall
Date: JAN/01	Scale: NTS	<b>S-30C</b>
Digital File: STDS-30.dwg		



Date	Revisions	By
JAN/03	TITLE BLOCK	MLG
NOV/05	TITLE BLOCK	BW
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVISIONS	BW

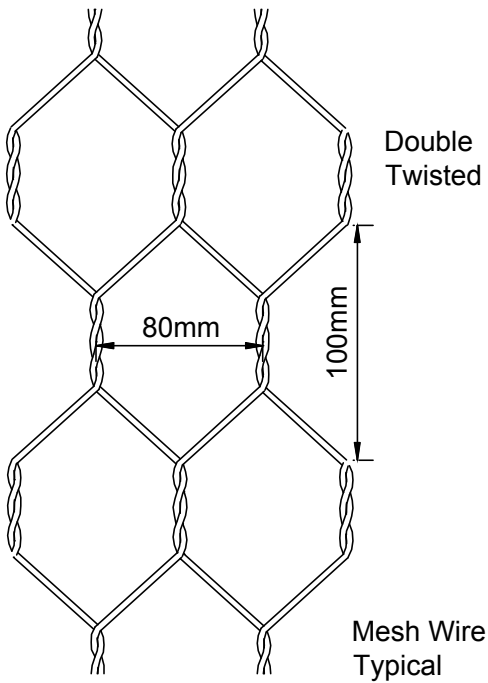
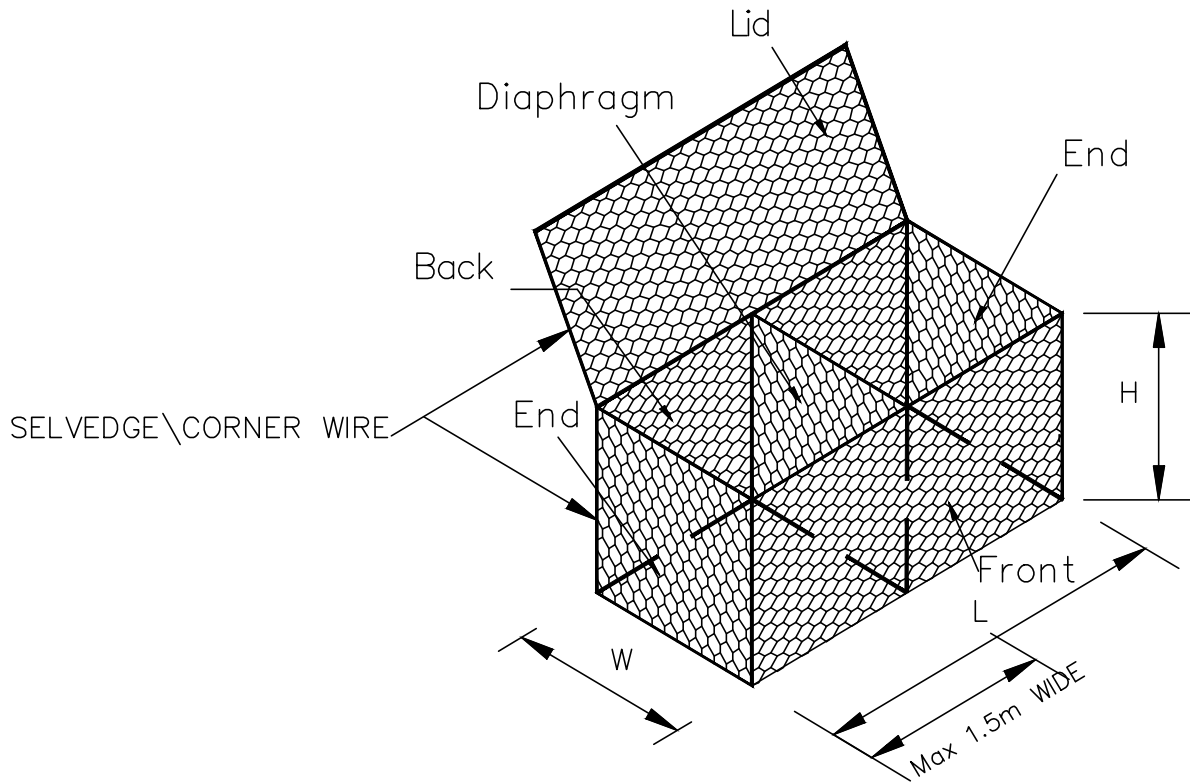
City of Regina | **REGINA**  
Infinite Horizons

CONSTRUCTION STANDARDS

**Catch Basin for High Capacity Frame and Grate**

Designed By:	Approved:
Date: JAN/01	Scale: NTS
Digital File: STDS-30.dwg	S-30D

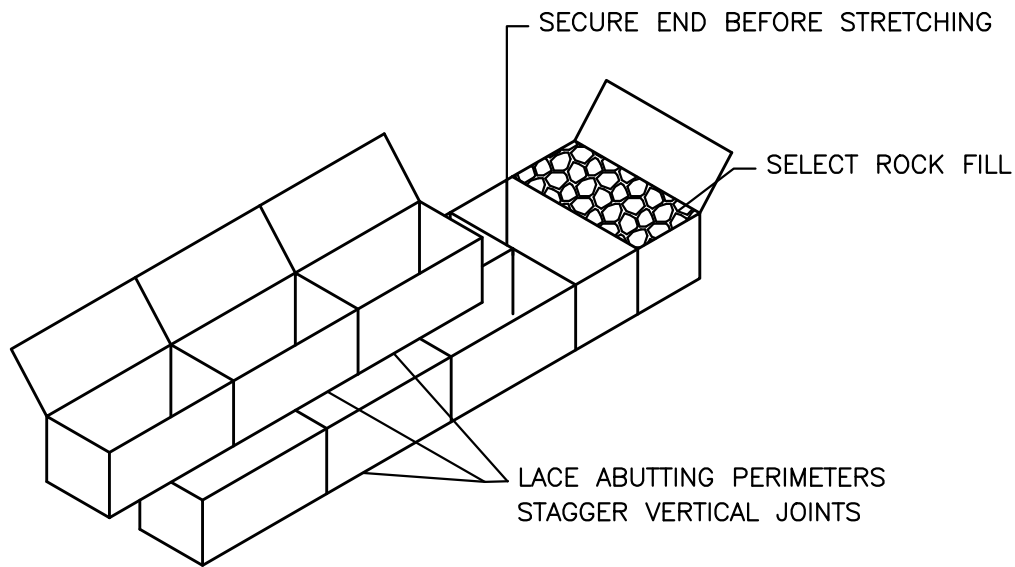
Dustin McCall



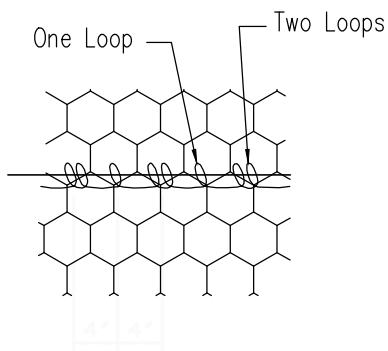
Date	Revisions	By
JUL/10	TITLE BLOCK	JJA

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CONSTRUCTION STANDARDS		
<b>Gabion Basket and Wire Mesh detail</b>		
Designed By:	Approved: Kelly Wyatt	
Date: JAN/11	Scale: NTS	<b>S-31A</b>
Digital File: STDS-31.dwg		



TYPICAL GABION STRUCTURE



LACING DETAIL

NOTES:

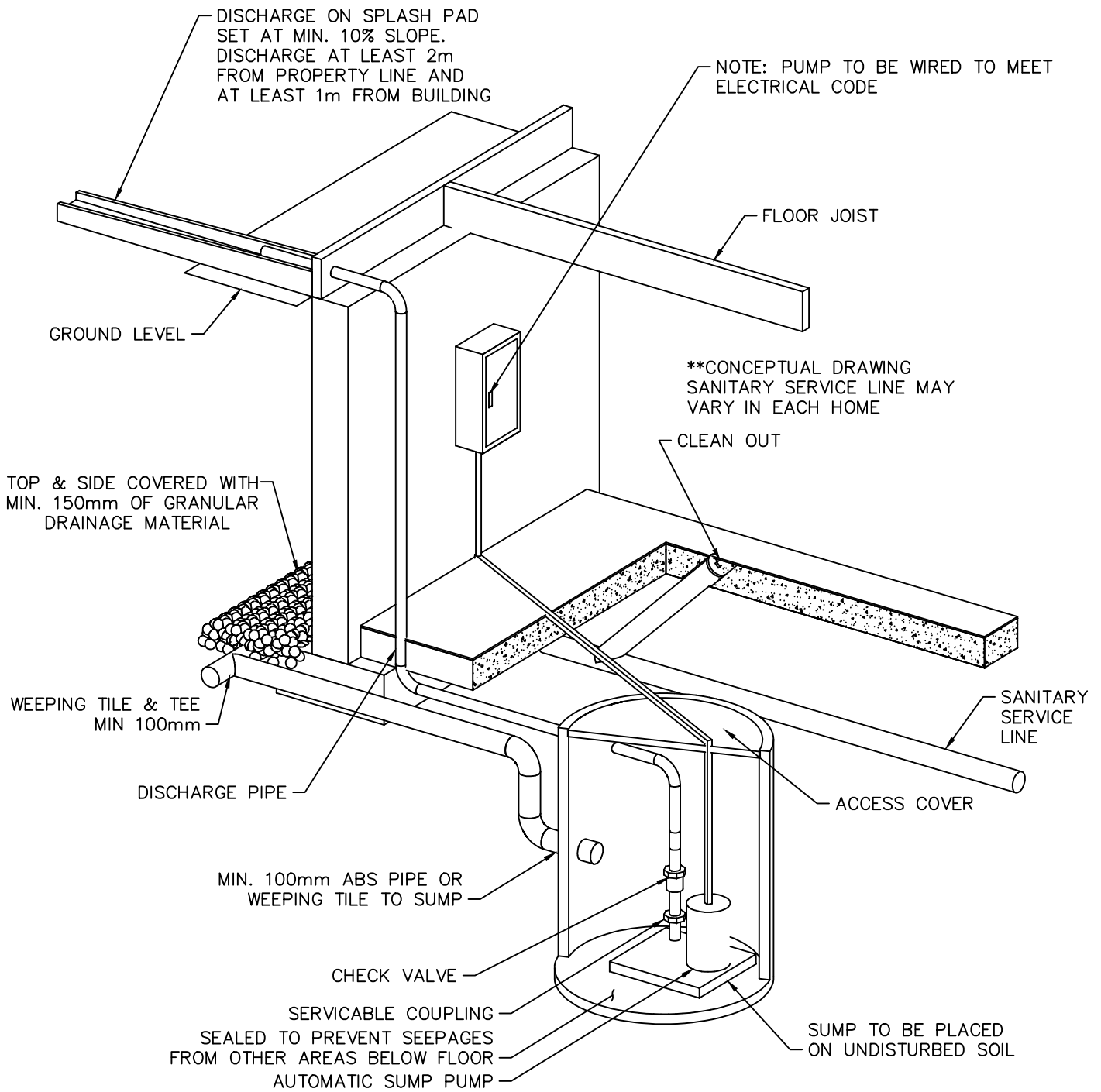
1. The ends of a lacing wire will be secured by looping it thru the mesh and twisting. Proceed to lace with alternate two loops and one loop at approximately 4 inch intervals.
2. Other lacing methods may be used if recommended by the manufacturer and approved by the engineer/inspector.
3. The "X" shaped inner tie may be twisted at the "X" to tighten, if placed too loosely.

Date	Revisions	By
JUL/10	TITLE BLOCK	JJA

  
**REGINA**  
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City of Regina

CONSTRUCTION STANDARDS		
Gabion Installation		
Designed By:	Approved: Kelly Wyatt	
Date JAN/11	Scale NTS	<b>S-31B</b>
Digital File: STDS-31.dwg		



CODE REFERENCE ON SUMP:  
 NATIONAL BUILDING CODE SECTION 9.14.2  
 FOUNDATION DRAINAGE  
 9.14.5.2 SUMP PITS

SUMP PIT MAY BE CONSTRUCTED OF:

- A) CONCRETE
- B) CORROSION RESISTANT STEEL
- C) PLASTIC

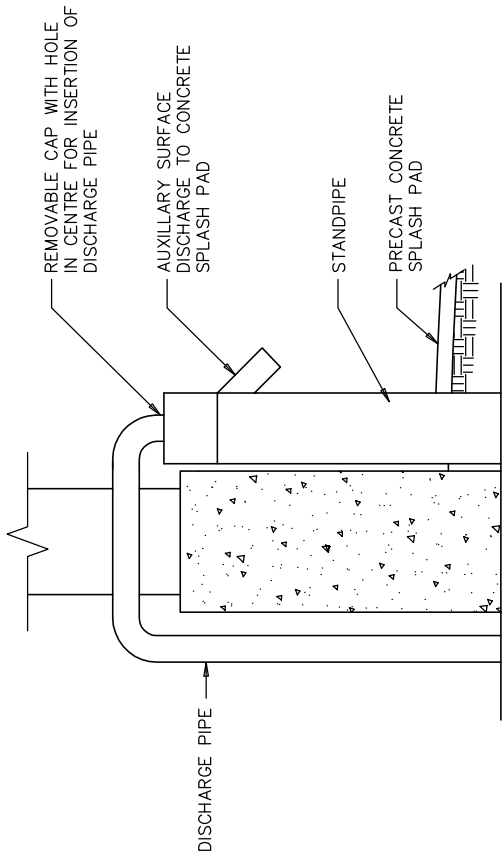
WHERE A SUMP PIT IS PROVIDED IT SHALL BE:

- A) NOT LESS THAN 750mm DEEP.
- B) NOT LESS THAN 0.25sq.m IN AREA, AND
- C) PROVIDED WITH A COVER.

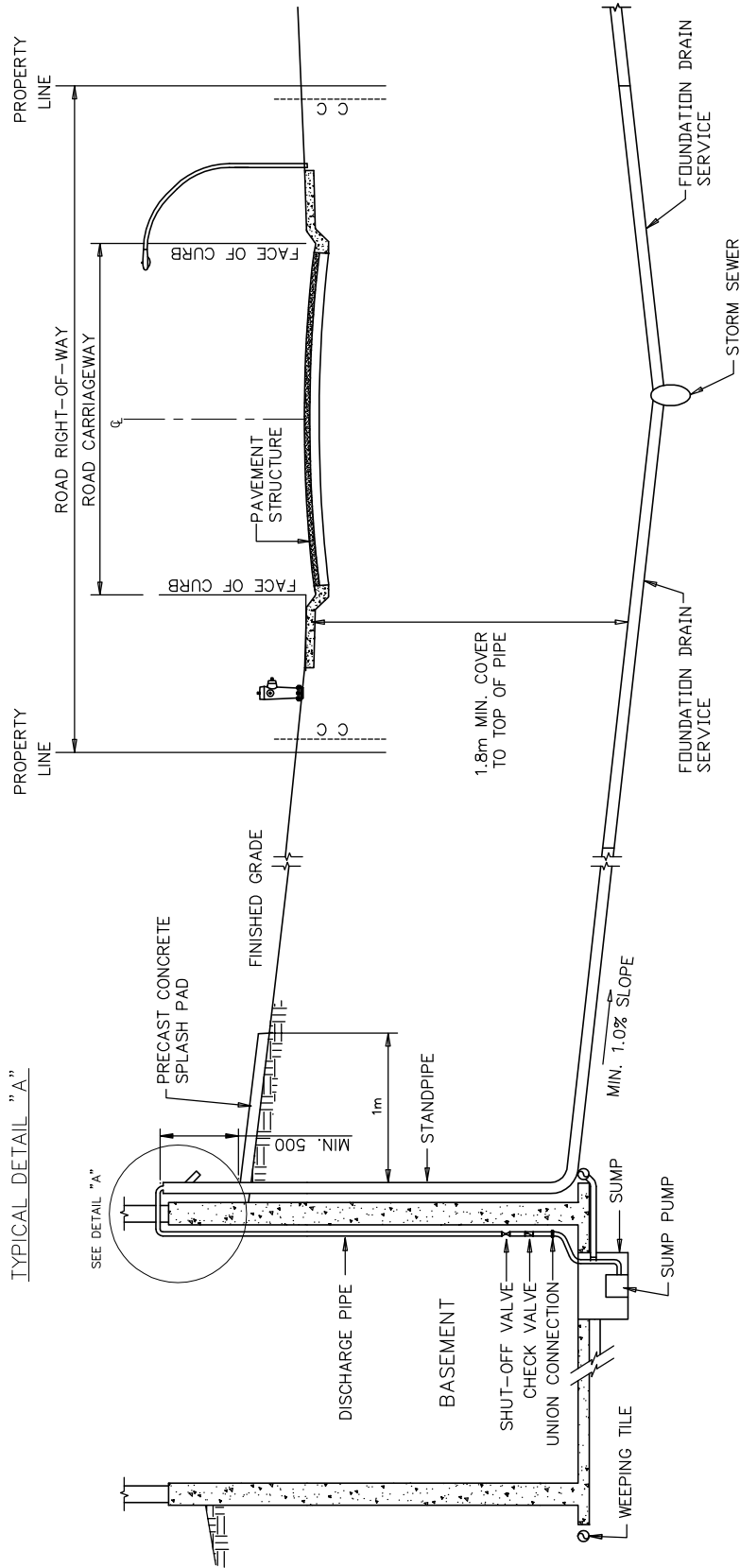
Date	Revisions	By
FEB/09	TITLE BLOCK	JJA
MAR/10	CHANGES TO NOTE & FILE #	ELB
JUL/10	TITLE BLOCK	JJA
JAN/17	SPEC REVIEW CHANGES / REMOVE DRAIN	TSY



CONSTRUCTION STANDARDS		
<b>Sump with Pumped Discharge to Surface</b>		
Designed By:	Approved: Dustin McCall	
Date: JAN/17	Scale: NTS	<b>S-32</b>
Digital File: STDS-32.dwg		



TYPICAL DETAIL "A"

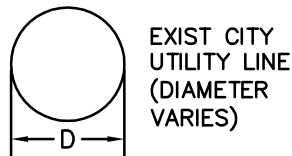
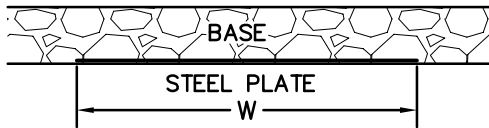
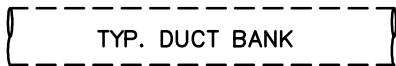
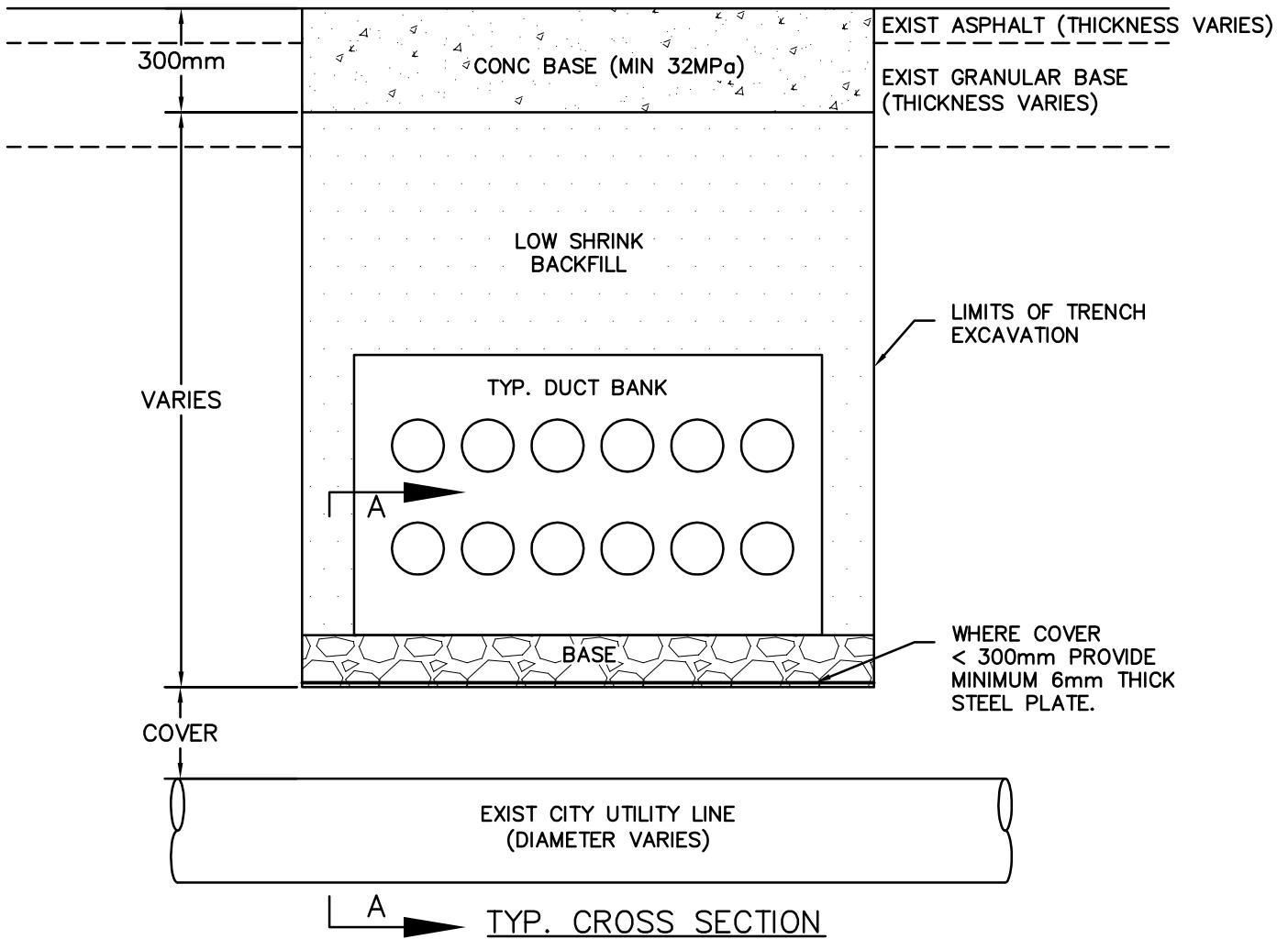


NOTE:  
ROOF LEADERS (DOWNSPOUTS) OR ANY OTHER STORM WATER SOURCE MUST NOT BE CONNECTED TO THE FOUNDATION DRAIN DISCHARGE COLLECTION SYSTEM.

Date	Revisions	By
FEB/09	TITLE BLOCK	JJA
FEB/10	ADDED CHECK VALVE & UNION CONNECTION	ELB
MAR/10	ADDED SHUT-OFF VALVE, TITLE	ELB
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS		
<b>Foundation Drain Discharge to Standpipe</b>		
Designed By:	Approved: Kelly Wyatt	
Date: Jan/11	Scale: NTS	<b>S-32A</b>
Digital File: STDS-32A.dwg		



SECTION A-A

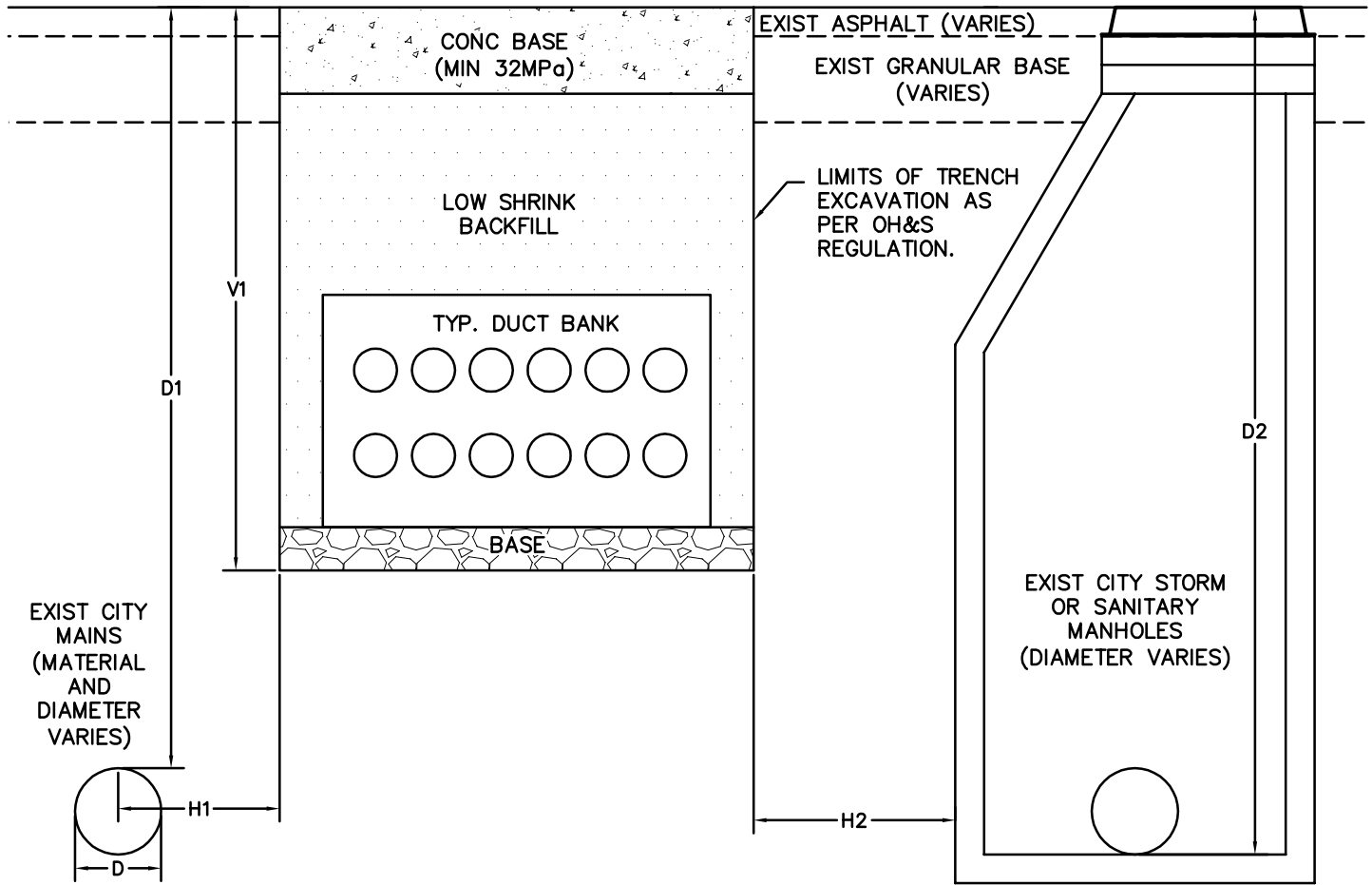
NOTES:

1. REFER TO CITY OF REGINA STANDARD CONSTRUCTION SPECIFICATION 2240 FOR CONCRETE BASE AND 2500 FOR SUPPLY OF PORTLAND CEMENT CONCRETE AND FOR LOW SHRINK BACKFILL. (AVAILABLE AT [WWW.REGINA.CA/CITY PLANNING/DEVELOPMENT MANUALS](http://WWW.REGINA.CA/CITY_PLANNING/DEVELOPMENT_MANUALS))
2. STEEL PLATE SHALL BE TO C.S.A. G40.21M TYPE G.
3. WIDTH OF PLATE (W) SHALL BE 1000mm FOR NOMINAL PIPE SIZES (D) UP TO AND INCLUDING 250mm. FOR D GREATER THAN 250mm W = D + 750mm.

Date	Revisions	By
NOV/16	ISSUED	B.W.



CONSTRUCTION STANDARDS		
CITY UTILITY PROTECTIVE COVER		
Designed By:	Approved:	
B.W.		
Date	Scale	
NOV, 2016	NTS	U-1
Digital File: SPC U-1.dwg		



EXIST CITY MAINS (MATERIAL AND DIAMETER VARIES)

EXIST ASPHALT (VARIES)

EXIST GRANULAR BASE (VARIES)

LIMITS OF TRENCH EXCAVATION AS PER OH&S REGULATION.

LOW SHRINK BACKFILL

TYP. DUCT BANK

BASE

EXIST CITY STORM OR SANITARY MANHOLES (DIAMETER VARIES)

WATER, SANITARY AND STORM MAINS:

PROVIDE ENGINEERED SHORING SYSTEM ON SIDE ADJACENT TO MAIN AS FOLLOWS:

- IF  $V1$  IS  $\geq D1 - 0.5m$  AND  $H1 \leq D1$ .
- IF ACTUAL DEPTH OF MAIN IS UNKNOWN, ASSUME  $D1 = 2.5m$

OR OBTAIN WRITTEN ADVICE FROM GEOTECHNICAL ENGINEER TO CONFIRM SHORING IS NOT REQUIRED.

STORM AND SANITARY MANHOLES:

PROVIDE ENGINEERED SHORING SYSTEM ON SIDE ADJACENT TO MANHOLE AS FOLLOWS:

- IF PRECAST CONCRETE AND  $V1 \geq D2 - 0.5m$  AND  $H2 \leq V1$ .
- IF CONCRETE BLOCK AND  $V1 \geq D2 - 1.0m$  AND  $H2 \leq V1$ .
- IF BRICK AND  $V1 \geq D2 - 1.5m$  AND  $H2 \leq V1 + 1.0m$ .

OR OBTAIN WRITTEN ADVICE FROM GEOTECHNICAL ENGINEER THAT SHORING IS NOT REQUIRED.

NOTE: ASSUMES TYPICAL REGINA CLAY. IF SILT OR OTHER MATERIALS ARE ENCOUNTERED OBTAIN ADVICE FROM GEOTECHNICAL ENGINEER.

Date	Revisions	By
NOV/16	ISSUED	B.W.

City of Regina | **REGINA**  
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CONSTRUCTION STANDARDS  
**CITY UTILITY EXCAVATION GUIDELINES**

Designed By: B.W. | Approved: \_\_\_\_\_

Date: NOV, 2016 | Scale: NTS | **U-2**

Digital File: SPC U-2.dwg