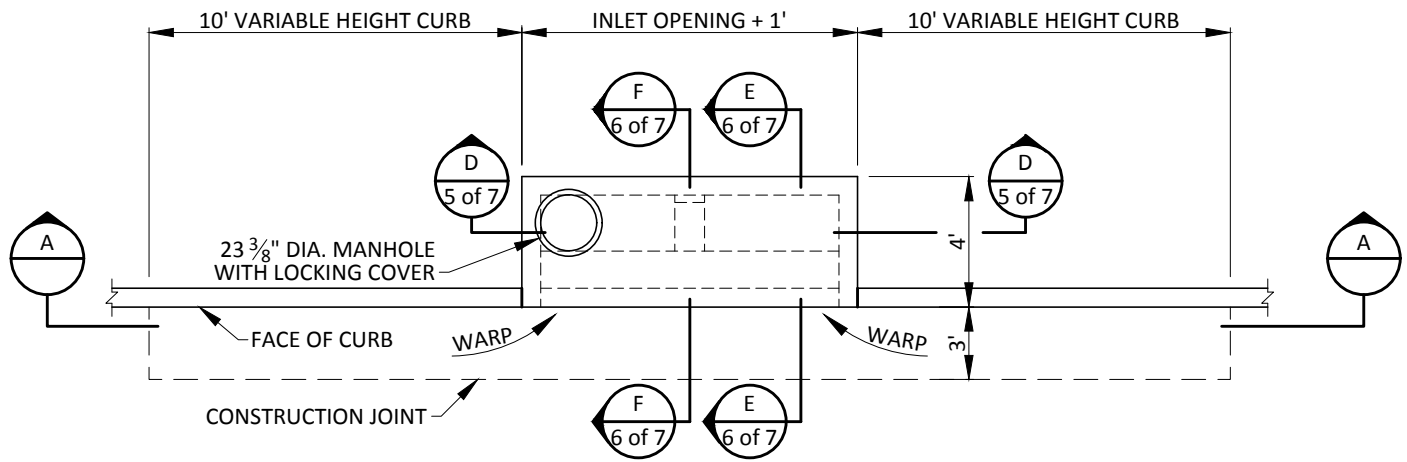
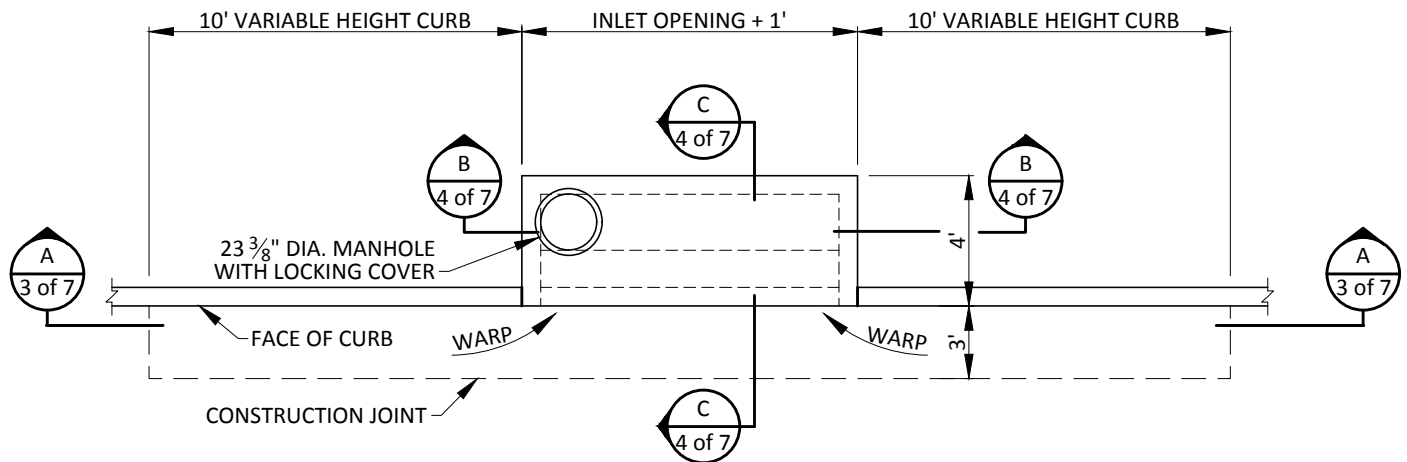

STANDARD DETAIL INDEX

SUBJECT	PAGE
Drainage Details	
Curb Line Inlet	D-1
"Y" Type Inlet	D-2
Storm Drain Manhole	D-3
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12' AND 14' CURB INLET



8' AND 10' CURB INLET

NOTES:

1. OUTLET PIPE MAY BE LOCATED IN ANY WALL EXCEPT AT CORNERS OR PILASTER.
2. MANHOLE RING WITH LOCKING COVER SHALL BE PLACED OVER THE OUTLET PIPE- REINFORCING BARS ARE TO BE ADJUSTED ACCORDINGLY. RING AND COVER SHALL BE BASS & HAYS INLET #224L OR EQUAL.
3. INLETS 4' TO 5' DEEP SHALL CONTAIN ONE STEP SPACED 3'-6" FROM THE TOP OF THE INLET. STEPS SHALL BE POURED IN PLACE AND COATED WITH RUBBER OR PLASTIC (NEENAH R-1981-1 OR EQUAL).
4. INLETS 5' AND DEEPER SHALL CONTAIN ONE STEP SPACED 3'-6" FROM THE TOP OF INLET AND ADDITIONAL STEPS EVERY 12" OC BELOW TO 1'-6" FROM BOTTOM.
5. ALL INLETS SHALL BE 4000 PSI CONCRETE.

GENERAL DESIGN STANDARDS
DRAINAGE DETAILS

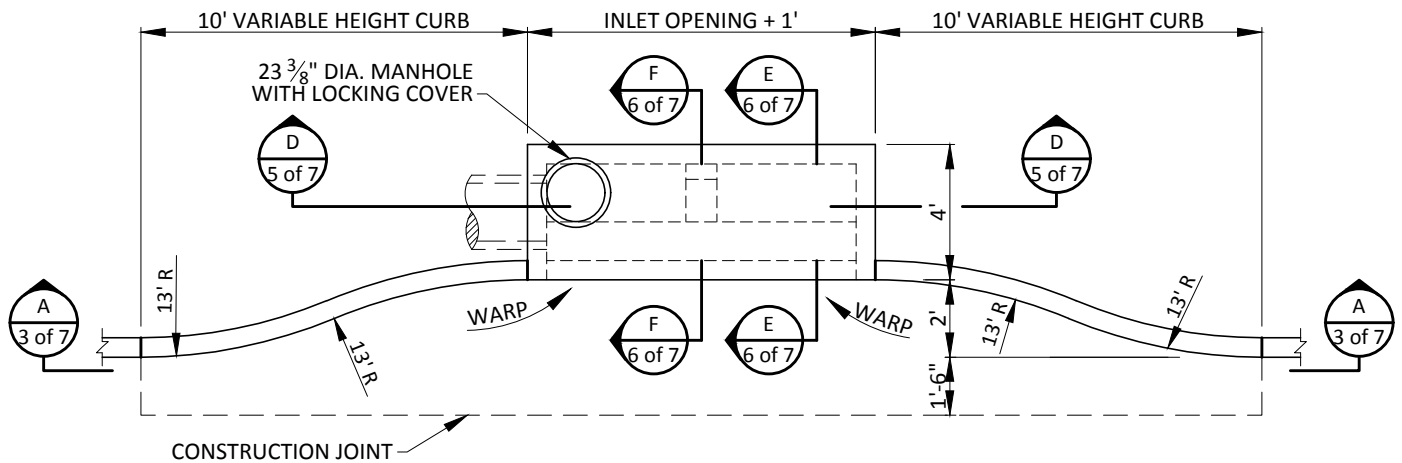
SCALE: NTS DATE: 01/2015
SHEET 1 OF 7



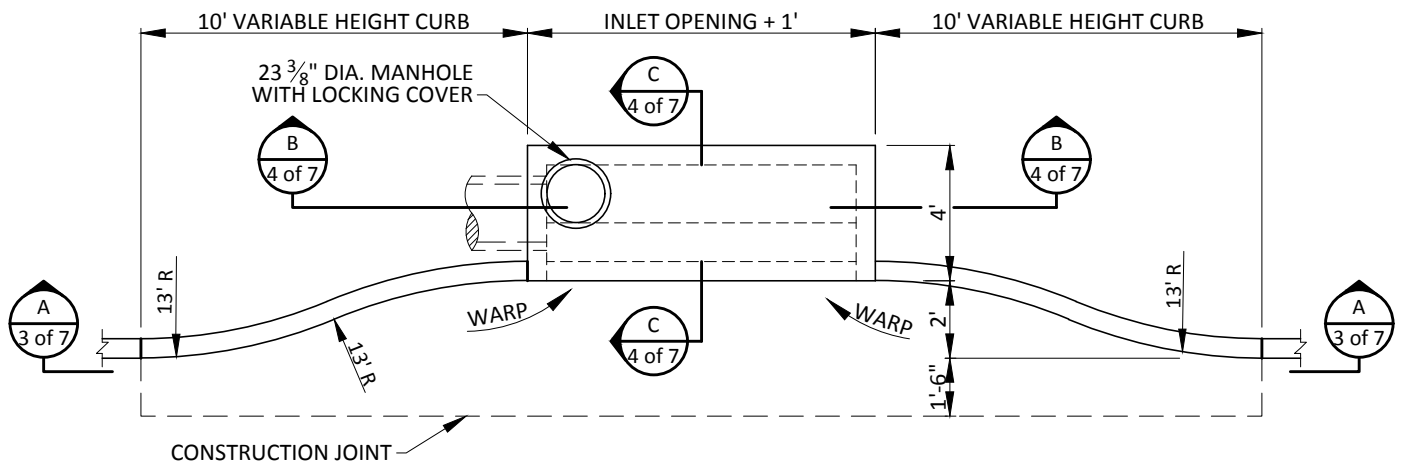
CURB INLET PLAN VIEW

D-1

ENGINEERING
DEPARTMENT



12' AND 14' RECESSED INLET



8' AND 10' RECESSED INLET

NOTES:

1. OUTLET PIPE MAY BE LOCATED IN ANY WALL EXCEPT AT CORNERS OR PILASTER.
2. MANHOLE RING WITH LOCKING COVER SHALL BE PLACED OVER THE OUTLET PIPE- REINFORCING BARS ARE TO BE ADJUSTED ACCORDINGLY. RING AND COVER SHALL BE BASS & HAYS INLET #224L OR EQUAL.
3. INLETS 4' TO 5' DEEP SHALL CONTAIN ONE STEP SPACED 3'-6" FROM THE TOP OF THE INLET. STEPS SHALL BE POURED IN PLACE AND COATED WITH RUBBER OR PLASTIC (NEENAH R-1981-1 OR EQUAL).
4. INLETS 5' AND DEEPER SHALL CONTAIN ONE STEP SPACED 3'-6" FROM THE TOP OF INLET AND ADDITIONAL STEPS EVERY 12" OC BELOW TO 1'-6" FROM BOTTOM.
5. ALL INLETS SHALL BE 4000 PSI CONCRETE.

GENERAL DESIGN STANDARDS
DRAINAGE DETAILS

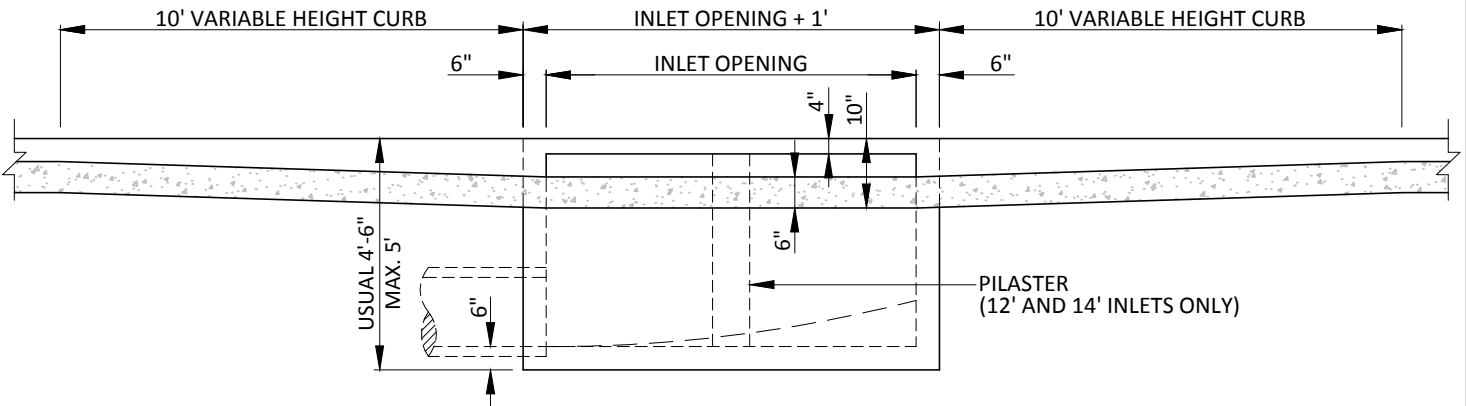
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SHEET 2 OF 7



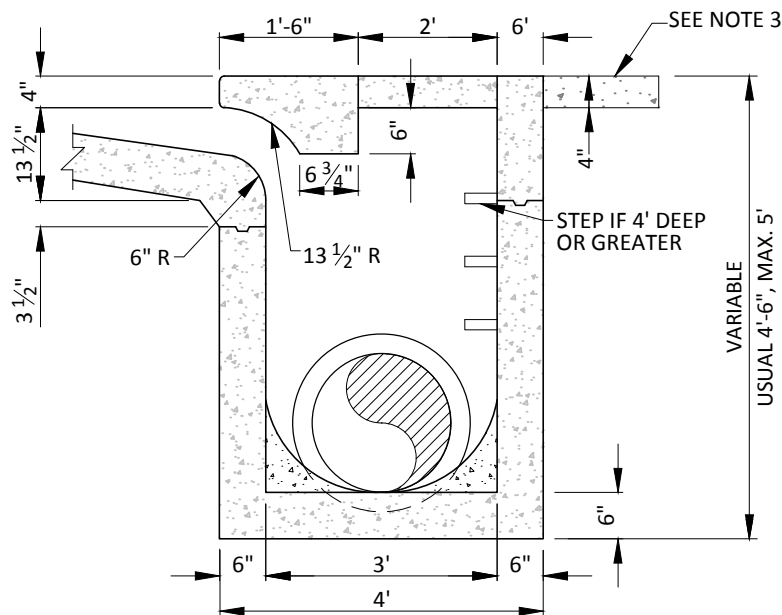
RECESSED INLET PLAN VIEW

D-1

ENGINEERING
DEPARTMENT



SECTION A-A



TYPICAL CROSS SECTION

NOTES:

1. PIPE MAY BE LOCATED IN ANY WALL EXCEPT AT CORNERS OR PILASTER.
2. INLET THROAT SHALL BE A 7 1/2" OPENING. SEE D-1, SHEET 1 OR 2 OF 7 FOR STEP REQUIREMENTS.
3. WHEN SIDEWALK IS AT BACK OF CURB, POUR INLET TOP TO MATCH THE SIDEWALK WIDTH.

GENERAL DESIGN STANDARDS
DRAINAGE DETAILS

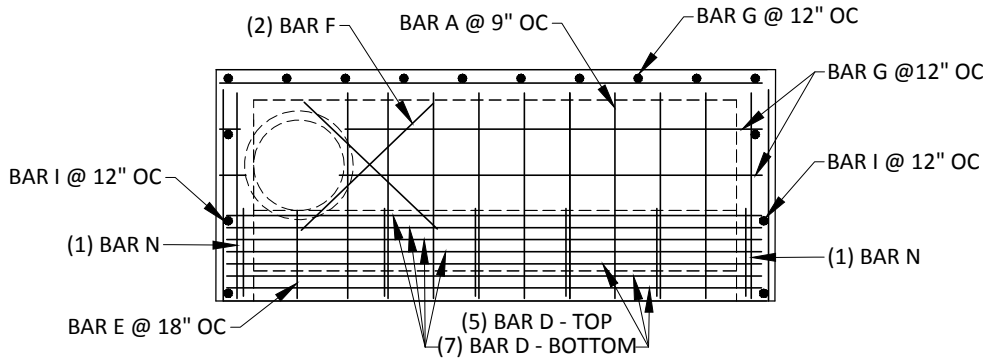
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SHEET 3 OF 7



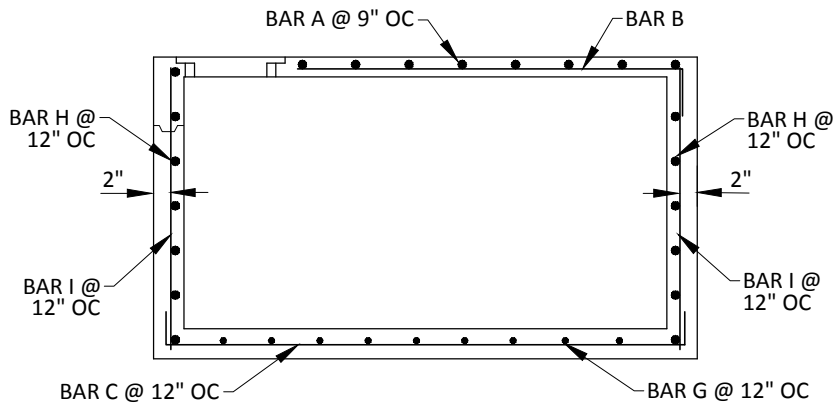
CURB AND RECESSED INLET SECTIONS

D-1

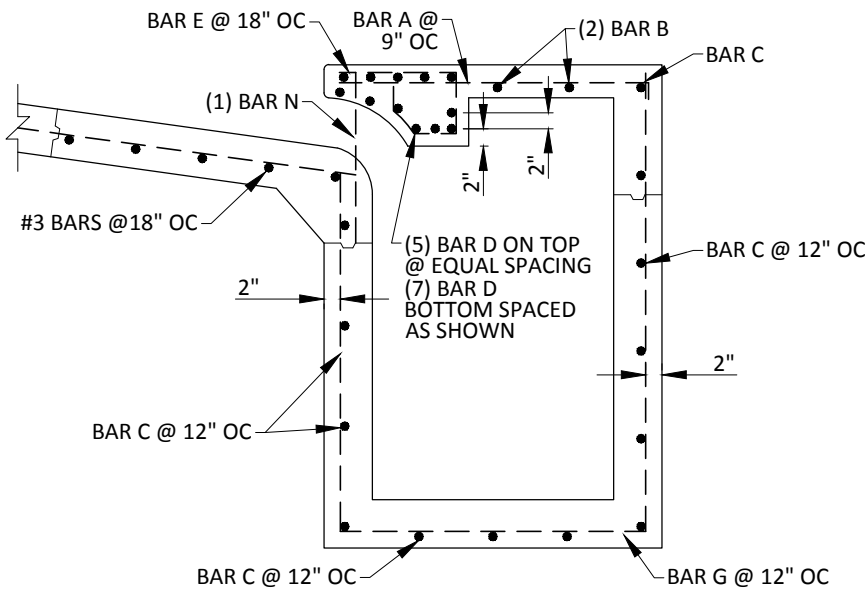
ENGINEERING
DEPARTMENT



PLAN VIEW (8' AND 10' INLET)



SECTION B-B



SECTION C-C

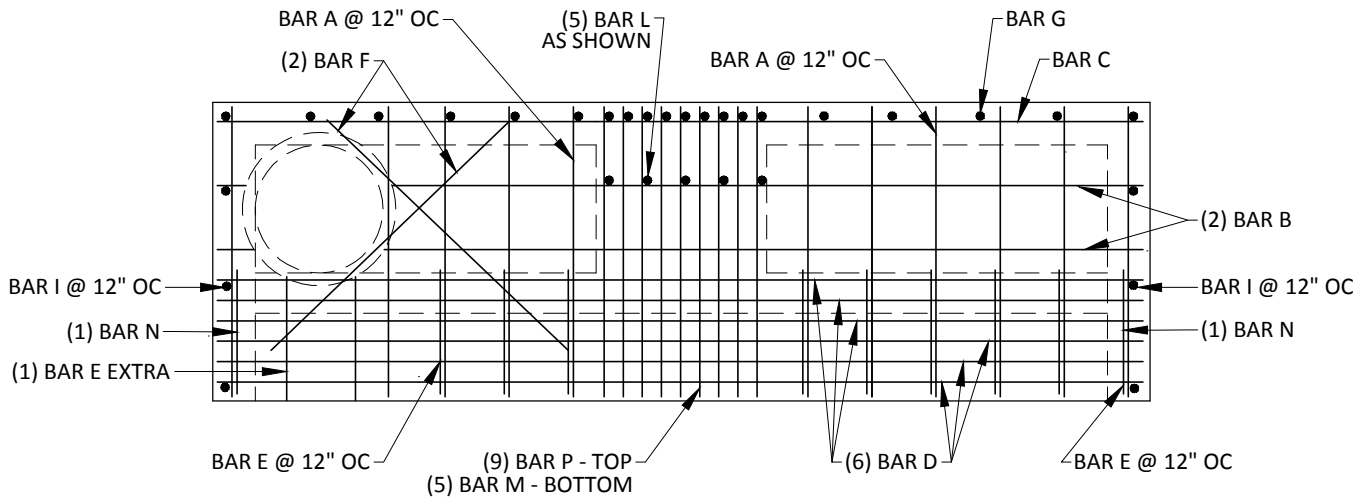
**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

SCALE: NTS DATE: 01/2004
SHEET 4 OF 7

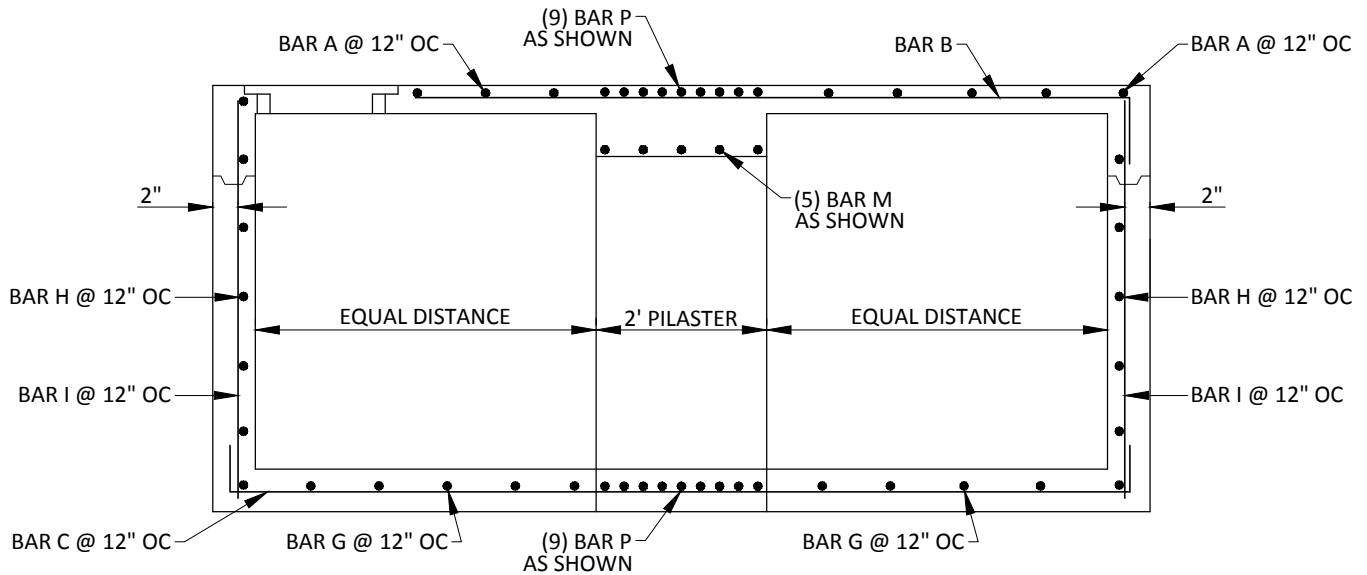


**8' AND 10' CURB & RECESSED INLET
BAR REINFORCING DETAILS**

D-1
ENGINEERING
DEPARTMENT



PLAN VIEW (12' AND 14' INLET)



SECTION D-D

**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

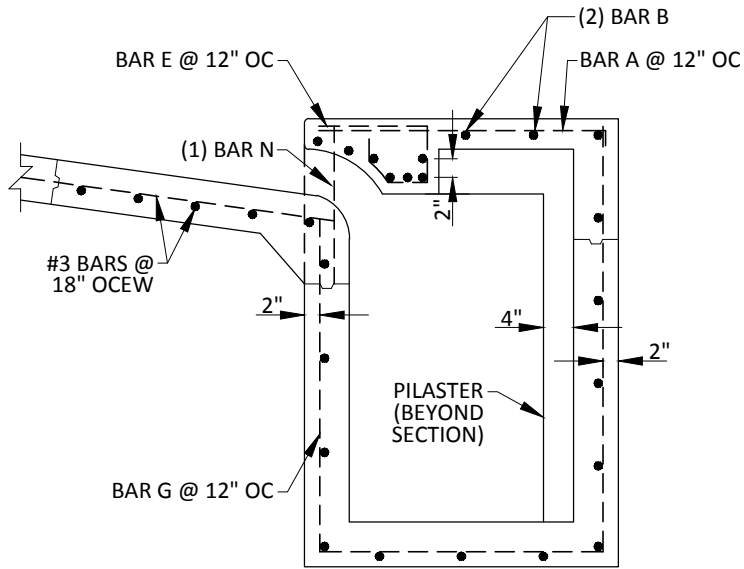
SCALE: NTS DATE: 02/2017
SHEET 5 OF 7

**12' AND 14' CURB & RECESSED INLET
BAR REINFORCING DETAILS**

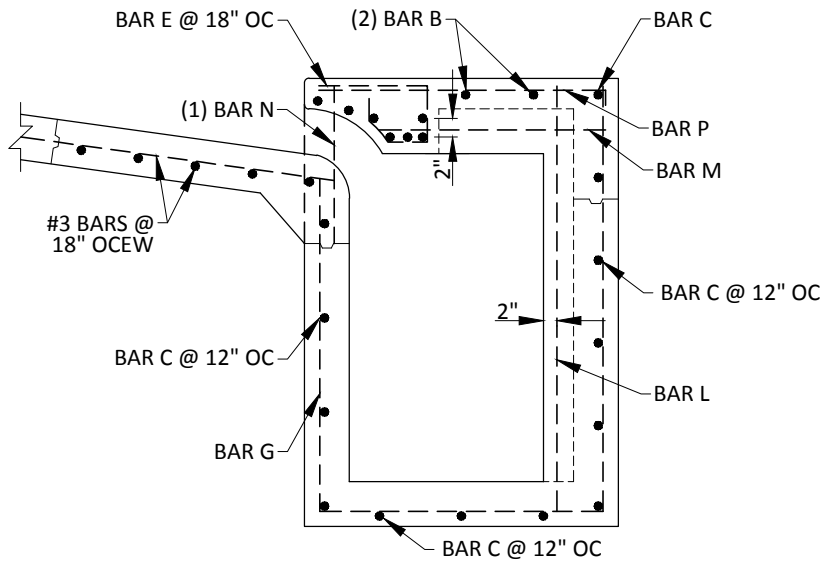
D-1

ENGINEERING
DEPARTMENT





SECTION E-E



SECTION F-F

**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

SCALE: NTS DATE: 07/2017
SHEET 6 OF 7

**12' AND 14' CURB & RECESSED INLET
BAR REINFORCING DETAILS**

D-1

ENGINEERING
DEPARTMENT



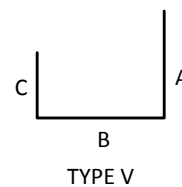
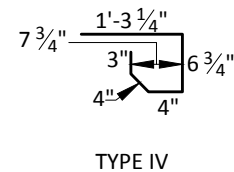
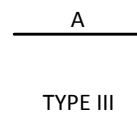
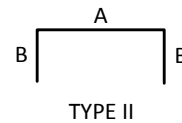
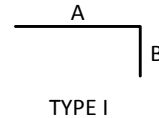
REINFORCING BAR SCHEDULE

INLET LENGTH	BAR MARK NUMBER	BAR DIAGRAM TYPE	BAR SIZE	NUMBER REQUIRED	BAR BENDING DIMENSIONS		
					A	B	C
8	A	I	#3	9	3' - 2"	6"	-
	B	I	#3	2	6' - 8"	6"	-
	C	II	#4	VARIES	8' - 8"	6"	-
	D	II	#4	12	8' - 8"	6"	-
	E	IV	#3	7	*	*	*
	F	III	#3	2	4' - 0"	-	-
	G	V	#4	10	**	3' - 2"	**
	H	III	#4	VARIES	3' - 2"	-	-
	I	III	#4	4	**	-	-
N	III	#4	2	1' - 6"	-	-	
10	A	I	#3	14	3' - 2"	6"	-
	B	I	#3	2	8' - 8"	6"	-
	C	II	#4	VARIES	10' - 8"	6"	-
	D	II	#4	12	10' - 8"	6"	-
	E	IV	#3	8	*	*	*
	F	III	#3	2	4' - 0"	-	-
	G	V	#4	12	**	3' - 2"	**
	H	III	#4	VARIES	3' - 2"	-	-
	I	III	#4	4	**	-	-
N	III	#4	2	1' - 6"	-	-	
12	A	I	#3	10	3' - 2"	6"	-
	B	I	#3	2	10' - 8"	6"	-
	C	II	#4	VARIES	12' - 8"	6"	-
	D	II	#5	6	12' - 8"	-	-
	E	IV	#3	12	*	*	*
	F	III	#3	2	4' - 0"	-	-
	G	V	#4	10	**	3' - 2"	**
	H	III	#4	VARIES	3' - 2"	-	-
	I	III	#4	4	**	-	-
	L	III	#4	5	**	-	-
	M	III	#4	5	2' - 8"	6"	-
	N	III	#4	2	1' - 6"	-	-
	P	I	#5	9	3' - 2"	6"	-
	R	V	#5	9	**	3' - 2"	**
14	A	I	#3	14	3' - 2"	6"	-
	B	I	#3	2	12' - 8"	6"	-
	C	II	#4	VARIES	14' - 8"	6"	-
	D	II	#5	6	14' - 8"	-	-
	E	IV	#3	16	*	*	*
	F	III	#3	2	4' - 0"	-	-
	G	V	#4	14	**	3' - 2"	**
	H	III	#4	VARIES	3' - 2"	-	-
	I	III	#4	4	**	-	-
	L	III	#4	5	**	-	-
	M	III	#4	5	2' - 8"	6"	-
	N	III	#4	2	1' - 6"	-	-
	P	I	#5	9	3' - 2"	6"	-
	R	V	#5	9	**	3' - 2"	**

* SEE BAR DIAGRAM FOR DIMENSIONS.

** LENGTH VARIES DUE TO DEPTH OF INLET.

BAR DIAGRAM



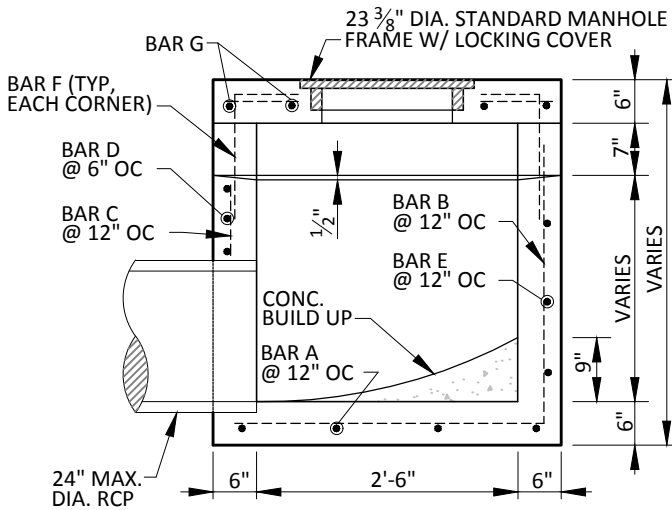
GENERAL DESIGN STANDARDS DRAINAGE DETAILS

SCALE: NTS DATE: 01/2005
SHEET 7 OF 7

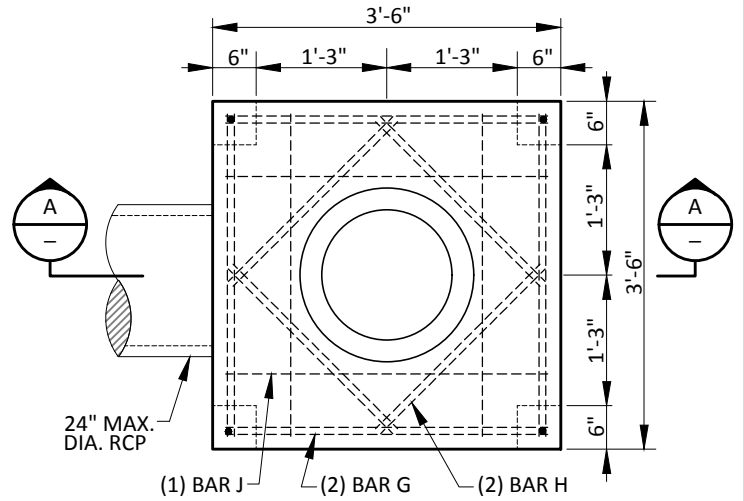


CURB AND RECESSED INLETS REINFORCING BAR SCHEDULE

D-1
ENGINEERING
DEPARTMENT

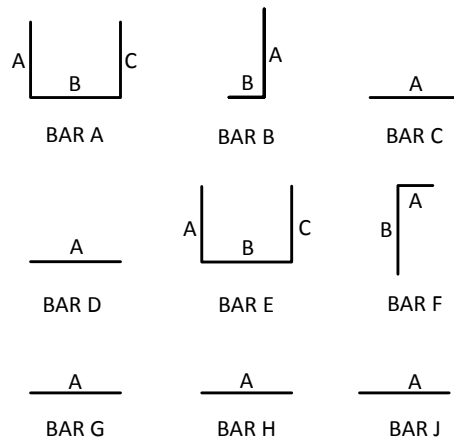


SECTION A-A



PLAN VIEW

REINFORCING BAR SCHEDULE					
BAR	NO. REQ'D	BAR SIZE	BAR BENDING DIMENSIONS		
			A	B	C
A	4	#4	VARIES	3'-0"	VARIES
B	4	#4	3'-0"	VARIES	-
C	2	#4	VARIES	-	-
D	VARIES	#4	3'-0"	-	-
E	VARIES	#4	3'-0"	3'-0"	3'-0"
F	4	#4	1'-0"	2'-0"	-
G	8	#4	3'-2"	-	-
H	8	#4	2'-1"	-	-
J	4	#4	3'-2"	-	-



BAR DIAGRAM

NOTES:

1. OUTLET PIPE MAY BE LOCATED IN ANY WALL BUT SHALL NOT BE LOCATED AT ANY CORNER OR PILASTER.
2. MANHOLE RING WITH LOCKING COVER SHALL BE PLACED OVER THE OUTLET PIPE. REINFORCING BARS ARE TO BE ADJUSTED ACCORDINGLY. RING AND COVER SHALL BE BASS & HAYS INLET #224L OR EQUAL.
3. INLETS 4' TO 5' DEEP SHALL CONTAIN ONE STEP SPACED 3'6" FROM THE TOP OF THE INLET. STEPS SHALL BE OF THE POURED IN PLACE AND ARE TO BE RUBBER OR PLASTIC COATED (NEENAH R-1981-1 OR EQUAL).
4. INLETS 5' AND DEEPER SHALL CONTAIN ONE STEP SPACED 3'-6" FROM THE TOP OF INLET AND ADDITIONAL STEPS EVERY 12" OC BELOW TO 1'-6" FROM BOTTOM.
5. ALL INLETS SHALL BE 4000 PSI CONCRETE.
6. WHEN STEPS ARE REQUIRED, MANHOLE RING AND LID SHALL BE PLACED OVER STEPS AND NOT IN THE CENTER.
7. "A" AND "E" ARE USED IN THE WALLS PARALLEL TO THE RCP. "B" ARE USED IN THE WALL OPPOSITE THE RCP.

GENERAL DESIGN STANDARDS
DRAINAGE DETAILS

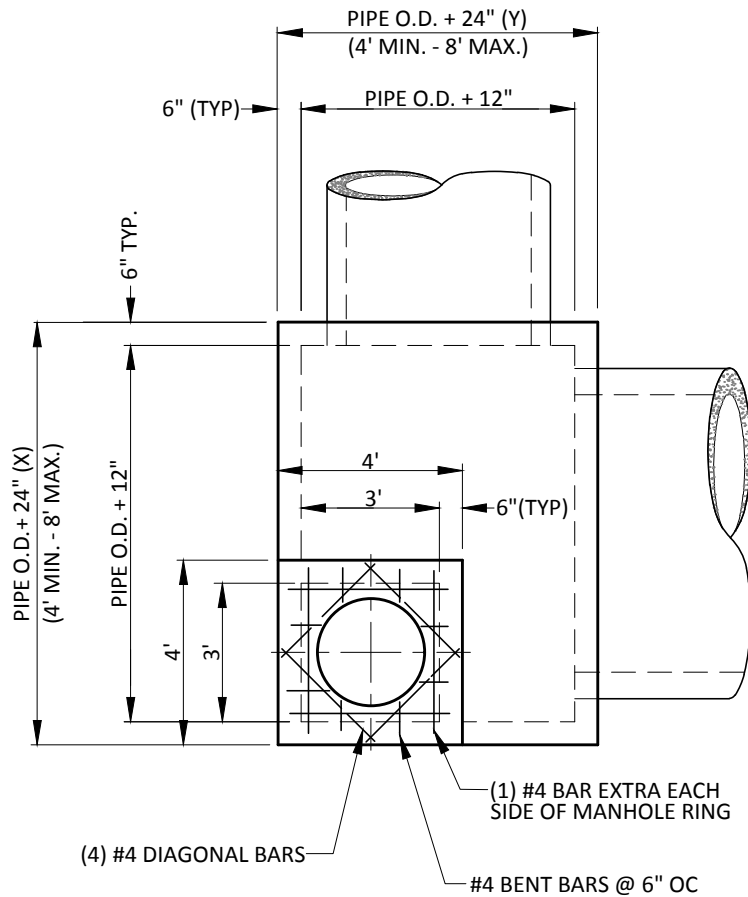
SCALE: NTS DATE: 01/2015
SHEET 1 OF 1



"Y" TYPE INLET DETAILS

D-2

ENGINEERING
DEPARTMENT



NOTES:

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. ALL EXPOSED EDGES SHALL HAVE A $\frac{3}{4}$ " CHAMFER. AN ALTERNATE DESIGN (BEARING THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER) WILL BE ACCEPTABLE FOR PRECAST CONSTRUCTION OF MANHOLES AND/OR EQUIVALENT STRUCTURAL DESIGN WITH THE APPROVAL OF THE DIRECTOR OF ENGINEERING.
2. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, BLOCKOUTS, PIPES, ANCHOR BOLTS OR OTHER REINFORCING STEEL, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE DESIGNING ENGINEER.
3. CONNECTING PIPES SHOULD ENTER WITHIN 10° OF NORMAL TO THE INLET WALL. IF NECESSARY, PIPE ELBOWS OR CURVED APPROACH ALIGNMENT SHOULD BE USED TO STAY WITHIN THIS LIMIT. PIPES MAY ENTER ANY OR ALL WALLS, EXCEPT AT CORNERS. THE MAXIMUM DIAMETER OF PIPE THAT CAN BE ACCOMMODATED IS 60". MORE THAN ONE PIPE MAY ENTER A SIDE, SUBJECT TO THE MAXIMUM BOX DIMENSIONS SHOWN. THE CLEAR DISTANCE BETWEEN ADJACENT PIPES SHOULD BE A MINIMUM OF 9".
4. MINIMUM REBAR LAP IS TO BE 30 BAR DIAMETERS (MINIMUM LENGTH OF 18"). ALL CONCRETE SHALL BE 4000 PSI.
5. MANHOLE LID SHALL BE 30" DIAMETER AND SHALL SAY "CARROLLTON" AND "STORM SEWER" ON IT.
6. MANHOLE STEPS, WHERE SHOWN AND NOT OBSTRUCTED BY PIPE OPENINGS, ARE TO BE CONTINUED TO WITHIN 12" OF FINISHED MANHOLE FLOOR. WHERE POSSIBLE, MANHOLE STEPS ARE TO BE LOCATED ON A WALL WHICH HAS NO OPENINGS. MANHOLE STEPS ARE TO BE COPOLYMER POLYPROPYLENE PLASTIC COATED STEEL OR CAST IRON REINFORCED STEPS CONFORMING TO ASTM C-478.

**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

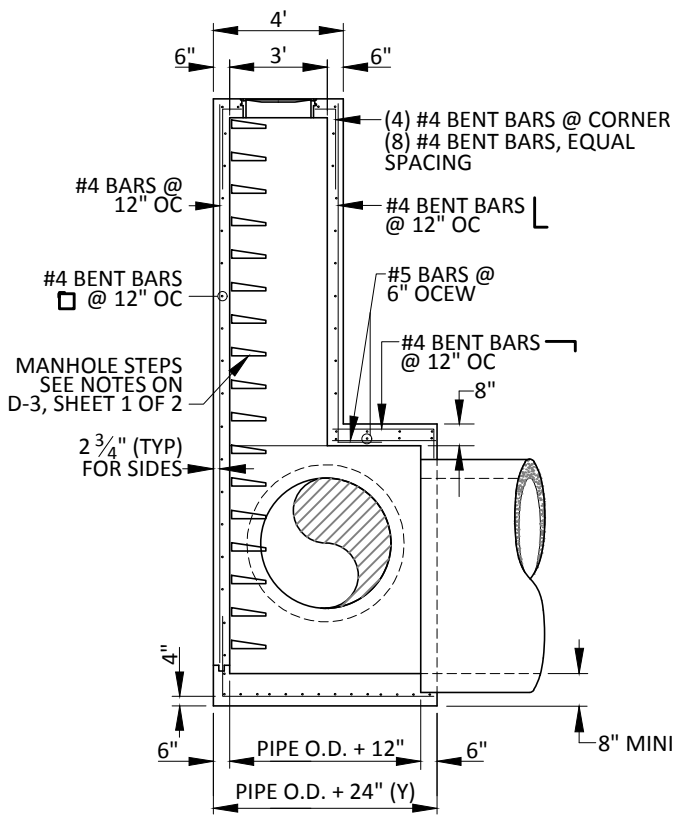
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SHEET 1 OF 2



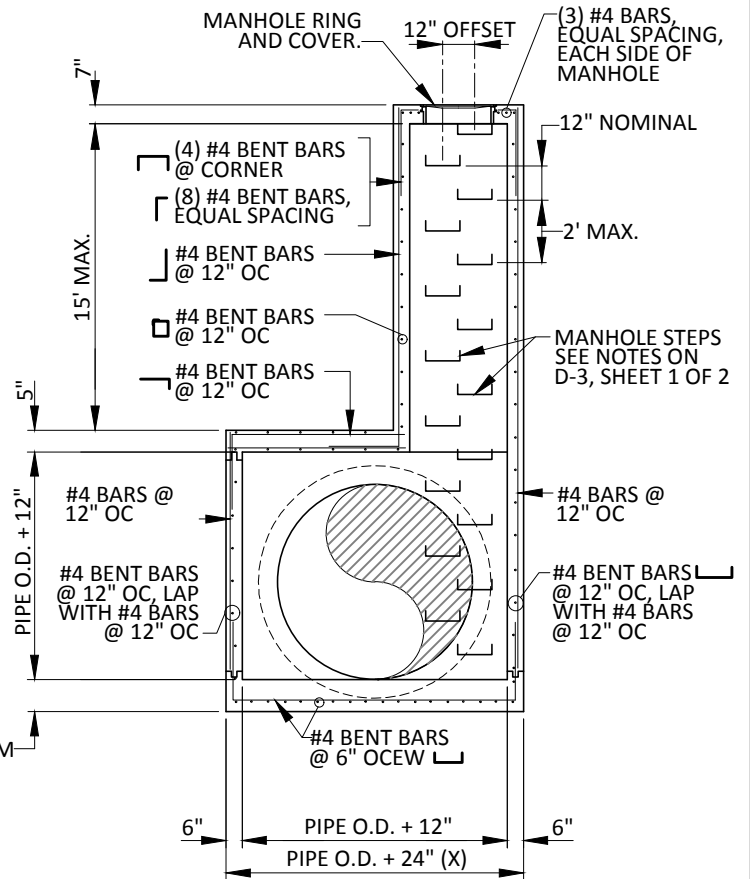
STORM DRAIN MANHOLE DETAILS

D-3

ENGINEERING
DEPARTMENT



CROSS SECTION
(UPSTREAM)



CROSS SECTION
(DOWNSTREAM)

GENERAL DESIGN STANDARDS
DRAINAGE DETAILS

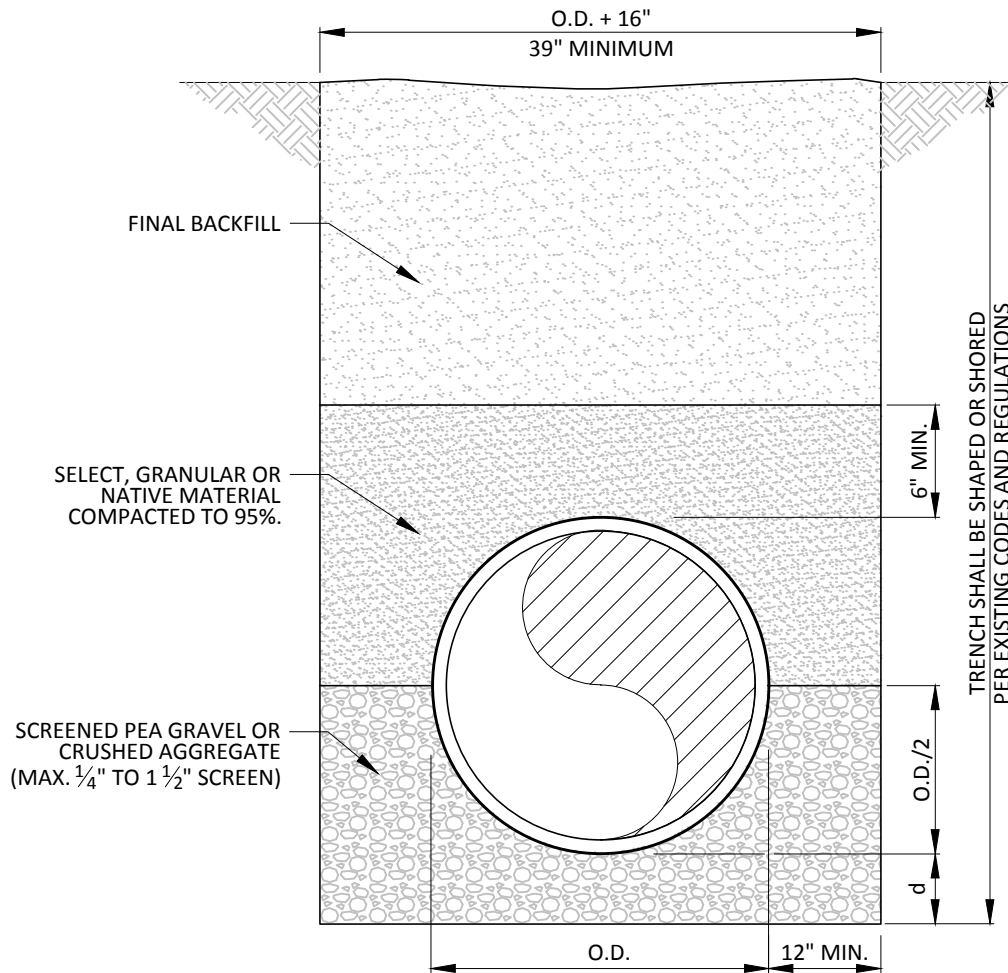
SCALE: NTS DATE: 06/2005
SHEET 2 OF 2



STORM DRAIN MANHOLE DETAILS

D-3

ENGINEERING
DEPARTMENT



PIPE SIZE	d
<27"	3"
30" - 60"	4"
>66"	6"

NOTES:

- FOR THE DEFINITION OF THE BACKFILL MATERIAL TERMS SEE N.C.T.C.O.G. SPECIFICATIONS ITEM 504.4.
- FINAL BACKFILL SHALL CONSIST OF AND BE PLACED IN ACCORDANCE WITH N.C.T.C.O.G. SPECIFICATIONS ITEM 504.6.

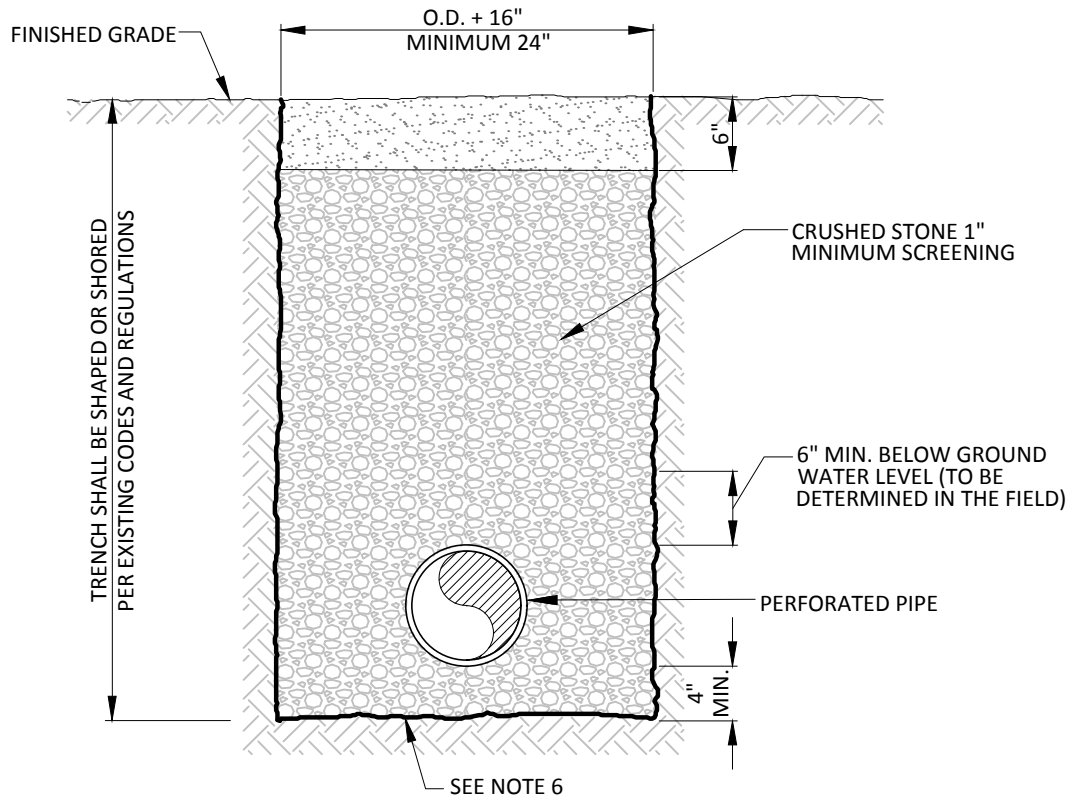
**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

SCALE: NTS DATE: 02/2017
SHEET 1 OF 1



STORM DRAIN R.C.P.
PIPE EMBEDMENT

D-4
ENGINEERING
DEPARTMENT



NOTES:

1. WHERE THE CONTRACTOR ENCOUNTERS UNDERGROUND WATER A SUBSURFACE DRAINAGE SYSTEM SHALL BE INSTALLED, WITH THE DISCHARGE OF SAID SYSTEM BEING CARRIED TO THE NEAREST STORM DRAIN INLET OR NATURAL WATER SHED SYSTEM.
2. THE SUBSURFACE DRAINAGE SYSTEM SHALL BE CONSTRUCTED WITH A MINIMUM SIZE OF 6" DIAMETER TYPE PS-46 PVC PIPE OR APPROVED EQUAL. THE PIPE SHALL MEET ALL CURRENT ASTM F758 REQUIREMENTS AND SHALL HAVE GASKET TYPE JOINTS. THE PERFORATED AND CONDUCTING PIPES SHALL BE WHITE IN COLOR.
3. THE FINAL BACKFILL SHALL CONSIST OF AND BE PLACED IN ACCORDANCE WITH THE N.C.T.C.O.G. SPECIFICATIONS ITEM 504.6.
4. CLEANOUTS SHALL BE INSTALLED EVERY 200' AND AT THE END OF EACH PIPING SYSTEM.
5. FRENCH DRAINS SHALL BE SHOWN ON ALL RECORD DRAWINGS.
6. PLACE A SINGLE LAYER OF FILTER FABRIC WITH A LAP OVER THE PVC PIPE, BETWEEN THE EMBEDMENT AND INITIAL BACKFILL MATERIAL. THE FILTER FABRIC SHALL BE A NON-WOVEN INERT MATERIAL GREATER THAN OR EQUAL TO "MIRAFI 140N" AS MANUFACTURED BY THE MIRAFI GEOTEXTILE FABRICS COMPANY.

**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

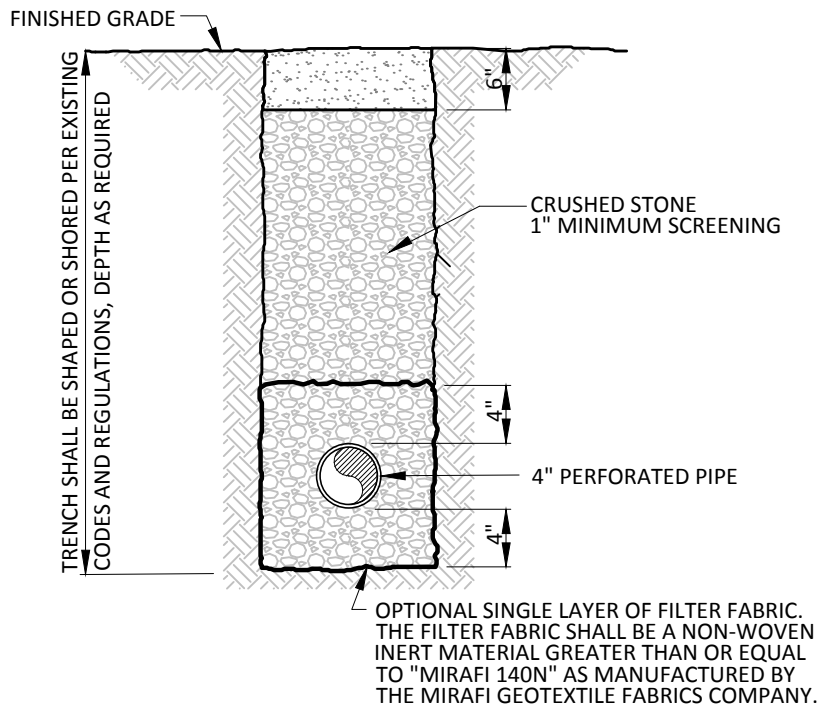
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SHEET 1 OF 2



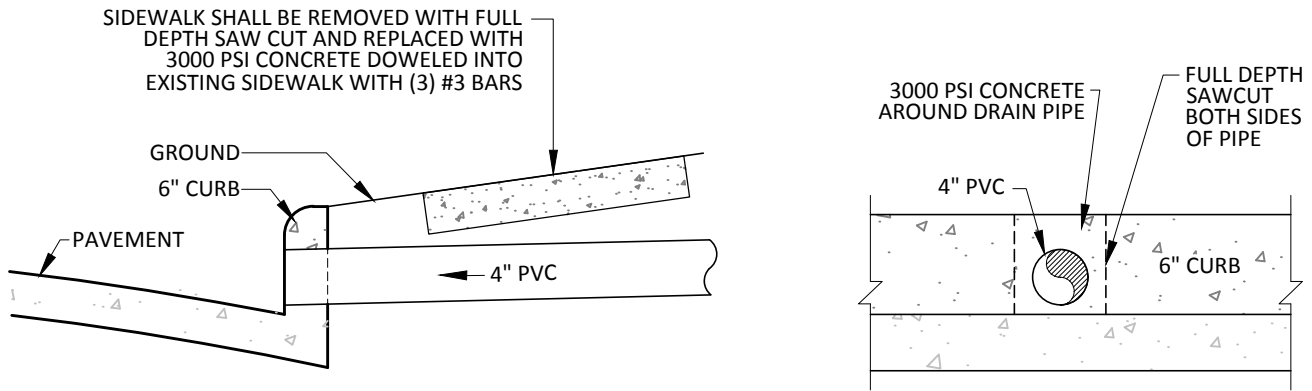
**SUBSURFACE
DRAINAGE DETAIL**

D-5

ENGINEERING
DEPARTMENT



TRENCH DRAIN



CURB CUT DETAIL

NOTE:

ANY CONNECTIONS TO CITY OWNED TRENCH DRAINS MUST BE DONE WITH TEE AND 6" x 6" AREA DRAIN.

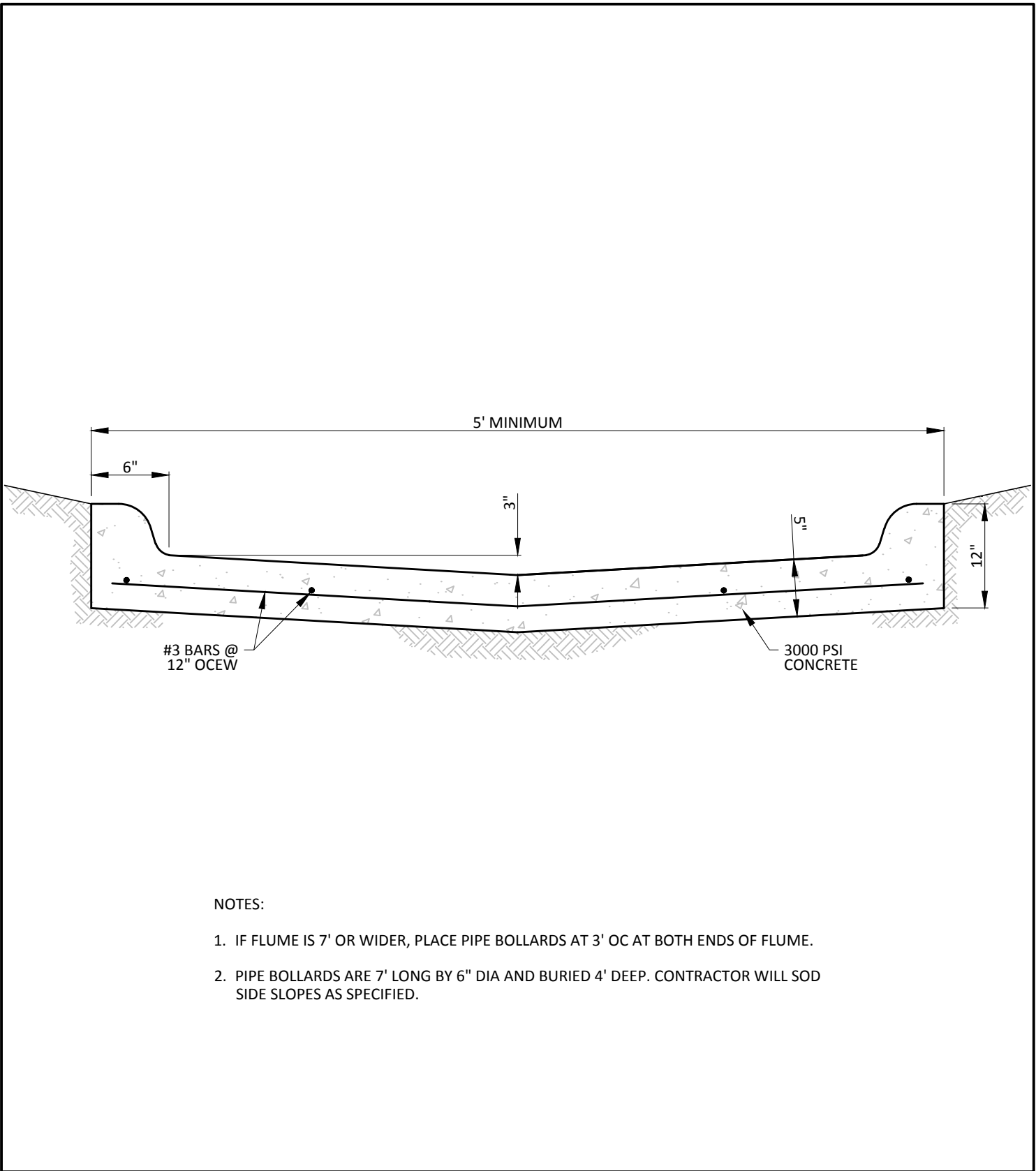
GENERAL DESIGN STANDARDS
DRAINAGE DETAILS

SCALE: NTS DATE: 01/2004
SHEET 2 OF 2



RESIDENTIAL SUBSURFACE
DRAINAGE DETAIL

D-5
ENGINEERING
DEPARTMENT



NOTES:

1. IF FLUME IS 7' OR WIDER, PLACE PIPE BOLLARDS AT 3' OC AT BOTH ENDS OF FLUME.
2. PIPE BOLLARDS ARE 7' LONG BY 6" DIA AND BURIED 4' DEEP. CONTRACTOR WILL SOD SIDE SLOPES AS SPECIFIED.

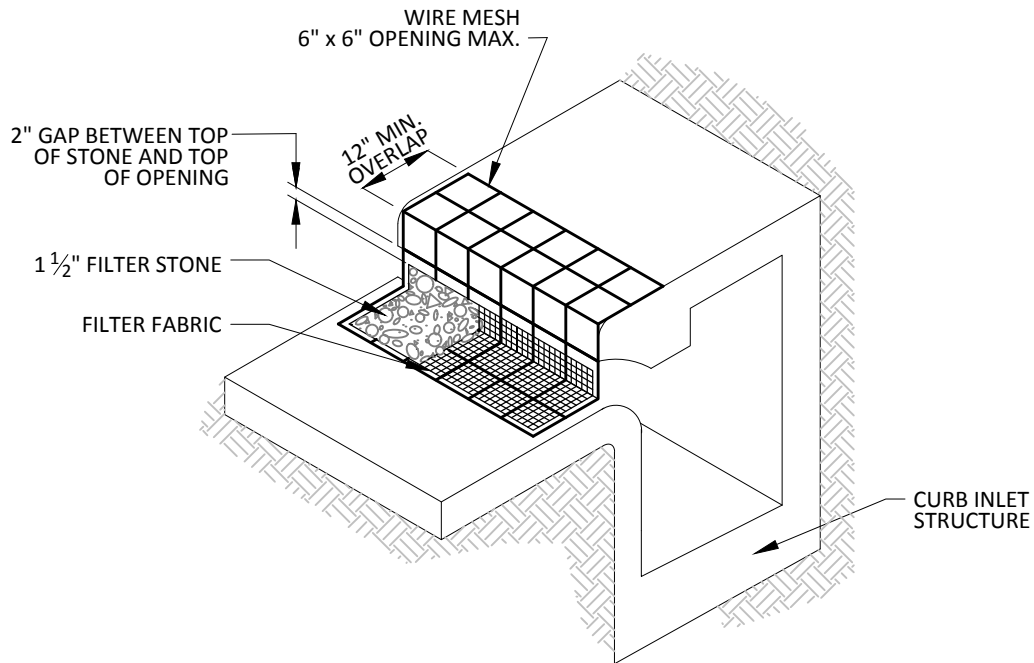
**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

SCALE: NTS DATE: 04/2017
SHEET 1 OF 1



CURBED FLUME DETAIL

D-6
ENGINEERING
DEPARTMENT



NOTE:

EXTEND MESH, FABRIC, AND FILTER STONE 12" BEYOND END OF INLET ON BOTH ENDS.

**GENERAL DESIGN STANDARDS
DRAINAGE DETAILS**

SCALE: NTS DATE: 04/2017
SHEET 1 OF 1



CURB INLET PROTECTION

D-7
ENGINEERING
DEPARTMENT