

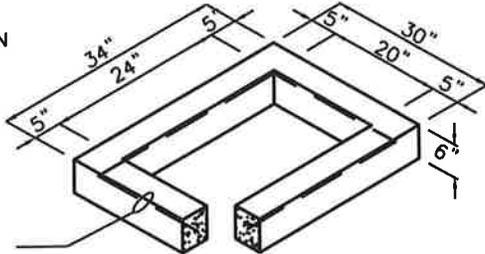
STORM SEWER & MISCELLANEOUS DETAILS

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FRAME AND GRATE

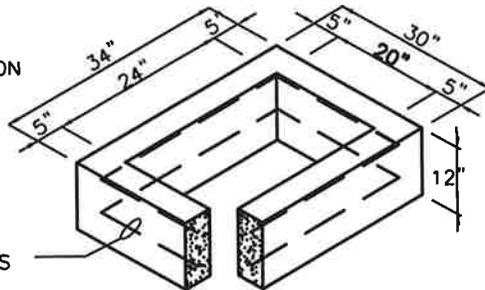


6" RISER SECTION



1 #3 BAR HOOP

12" RISER SECTION

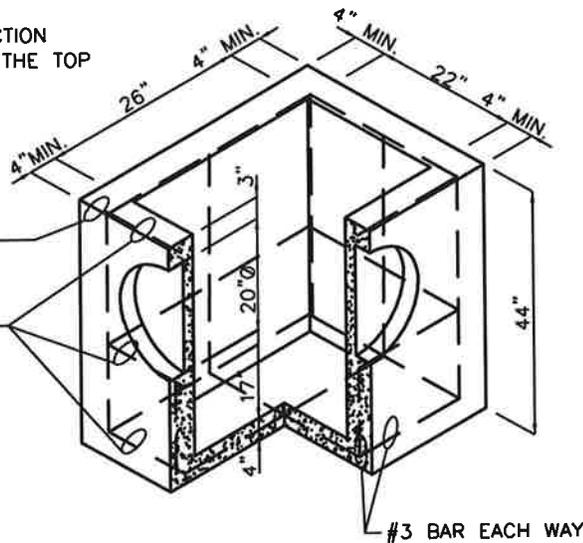


2 #3 BAR HOOPS

PRECAST BASE SECTION
(MEASUREMENT AT THE TOP OF THE BASE)

#3 BAR EACH CORNER

#3 BAR EACH SIDE



#3 BAR EACH WAY

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 7-05 WSDOT/APWA STANDARD SPECIFICATIONS, UNLESS OTHERWISE SHOWN ON PLANS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIA. PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIA. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B1-b.
12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.



CITY OF ALGONA

CATCH BASIN - TYPE 1

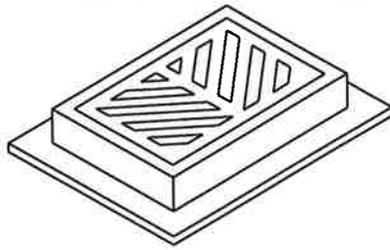
APPROVED:

DATE: 04/06/2015

DWG. NO.

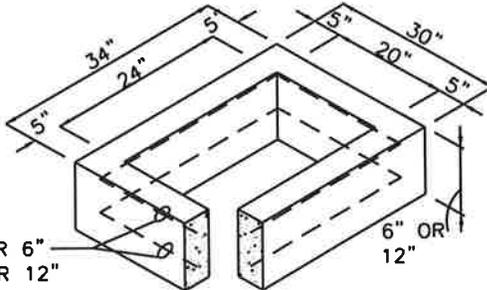
SW-4

FRAME AND GRATE



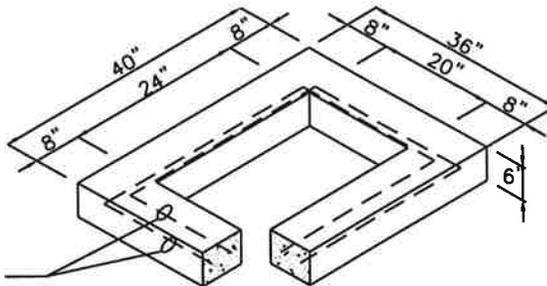
RISER SECTION

- 1 #3 BAR HOOP FOR 6"
- 2 #3 BAR HOOP FOR 12"



6" REDUCING SECTION

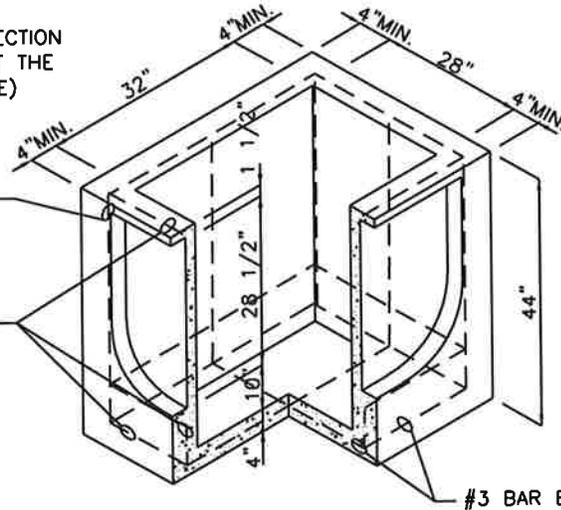
- 2 #3 BAR HOOP



PRECAST BASE SECTION
(MEASUREMENT AT THE TOP OF THE BASE)

#3 BAR EACH CORNER

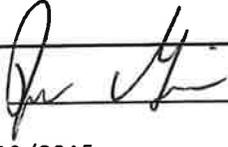
#3 BAR EACH SIDE



#3 BAR EACH WAY

NOTES:

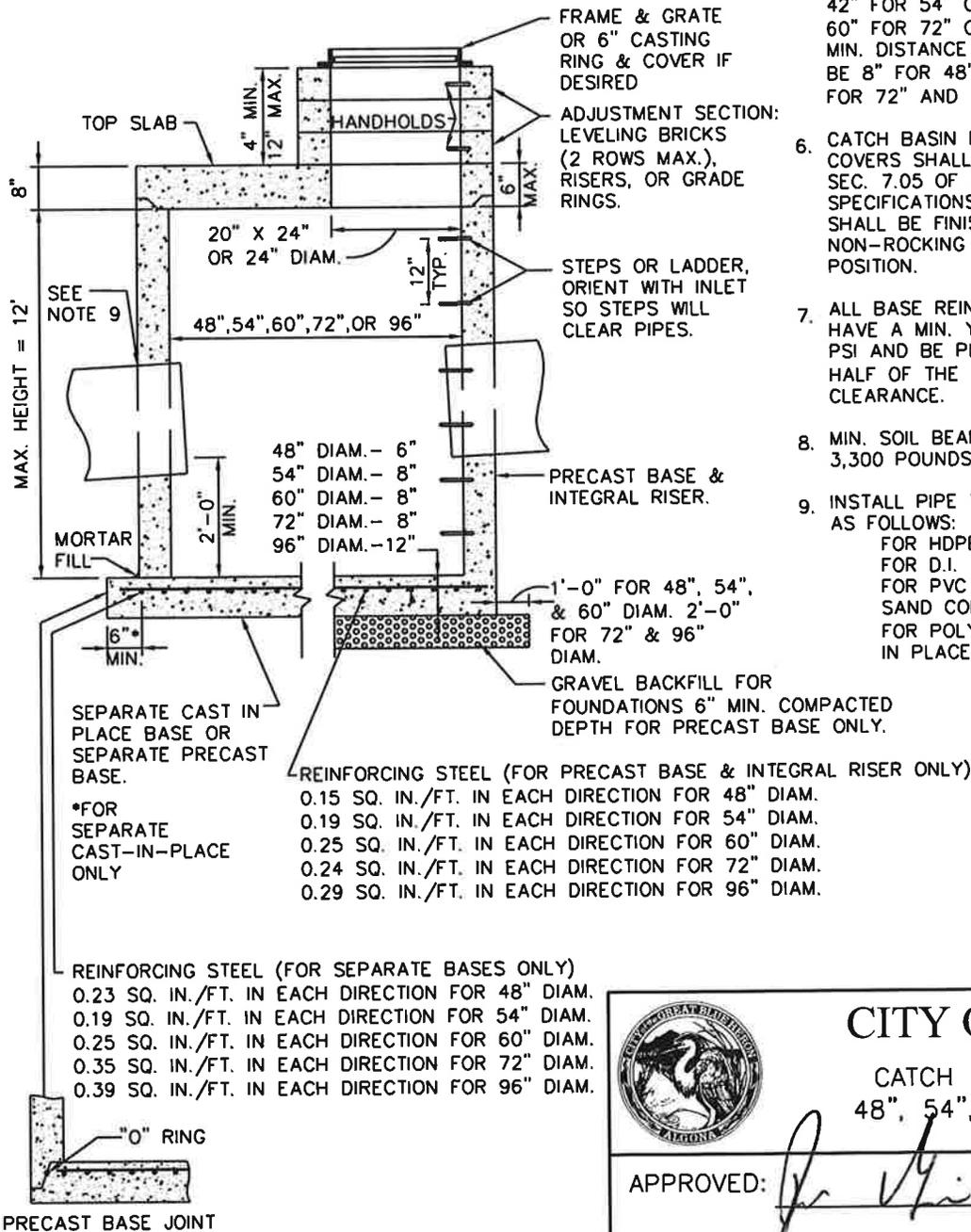
1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
6. KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAX. DIAM. OF 28". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
8. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. MAX. DEPTH FROM FINISHED GRADE TO PIPE INVERT SHALL BE 5'-0".
11. EDGE OF REDUCING SECTION OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

	<h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">CATCH BASIN - TYPE 1L</p>
APPROVED: 	DWG. NO. SW-5
DATE: 04/06/2015	

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NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M199) AND ASTM C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MIN. CLEARANCE. CATCH BASIN DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP TO THE FINISHED GRADE. ALL STEPS AND HANDHOLDS SHALL BE MADE OF POLY PROPYLENE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" CATCH BASIN, 42" FOR 54" C.B., 48" FOR 60" C.B., 60" FOR 72" C.B., 84" FOR 96" C.B. MIN. DISTANCE BETWEEN HOLES SHALL BE 8" FOR 48", 54", AND 60" C.B.; 12" FOR 72" AND 96" C.B.
6. CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH SEC. 7.05 OF THE STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
9. INSTALL PIPE TO MANHOLE CONNECTION AS FOLLOWS:
FOR HDPE USE KOR-N-SEAL
FOR D.I. USE KOR-N-SEAL
FOR PVC USE KOR-N-SEAL OR SAND COLLAR.
FOR POLYETHYLENE (ADS) GROUT IN PLACE.



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CITY OF ALGONA

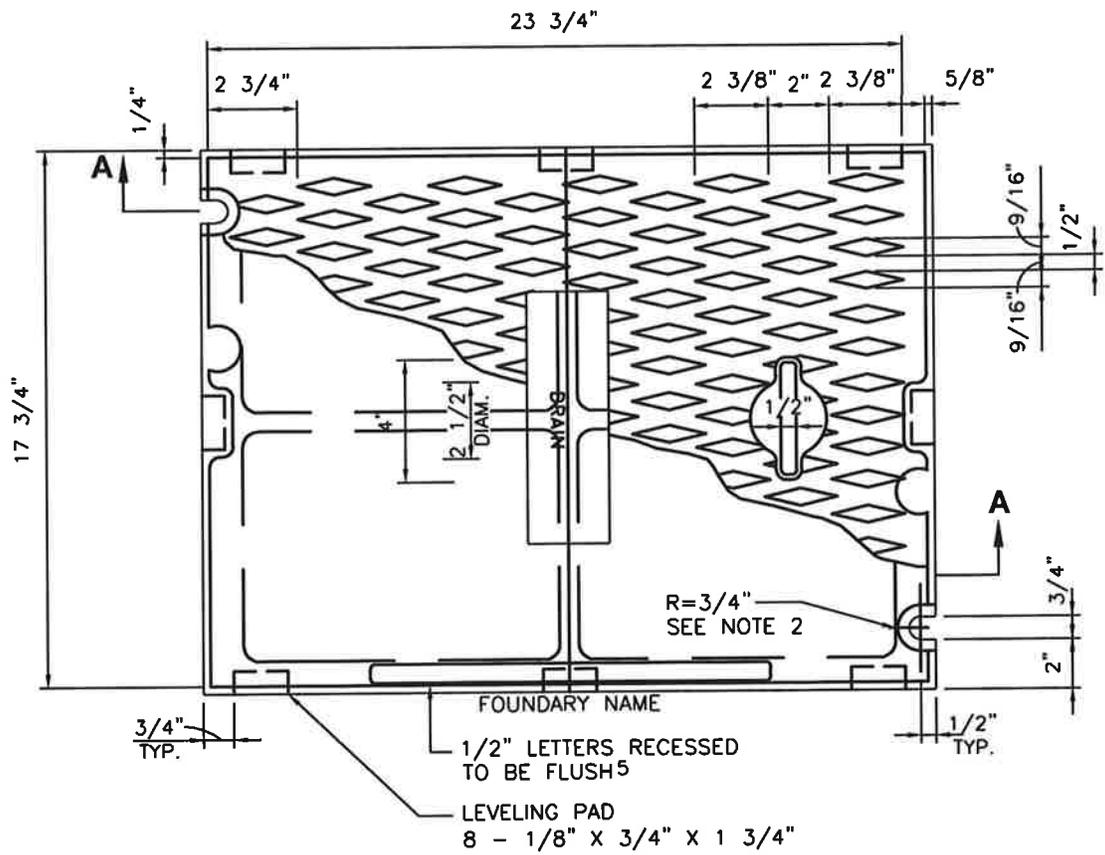
CATCH BASIN - TYPE 2
48", 54", 60", 72", & 96"

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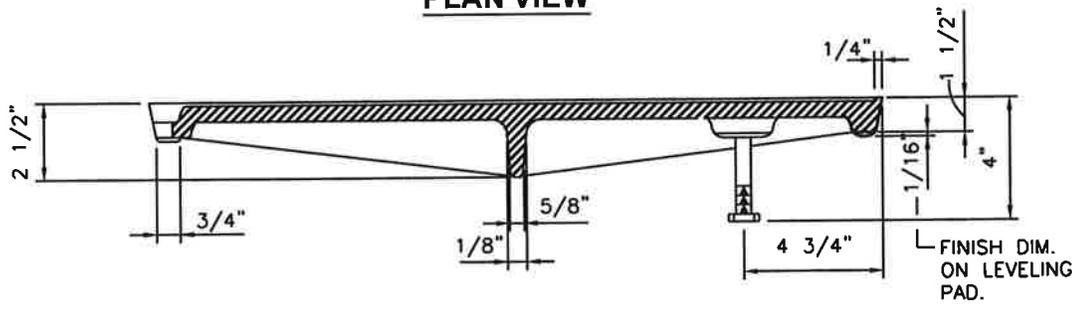
DWG. NO.

DATE: 04/06/2015

SW-6



PLAN VIEW

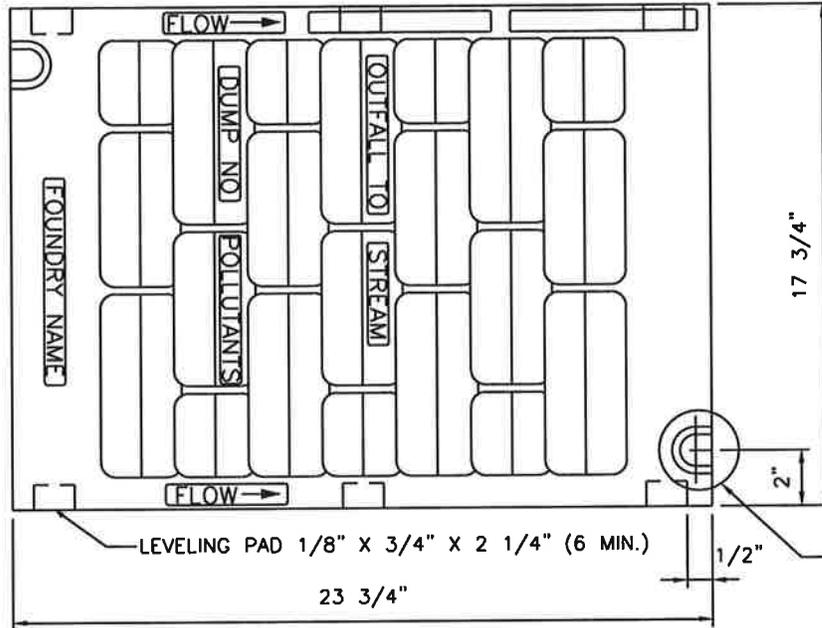


SECTION A-A

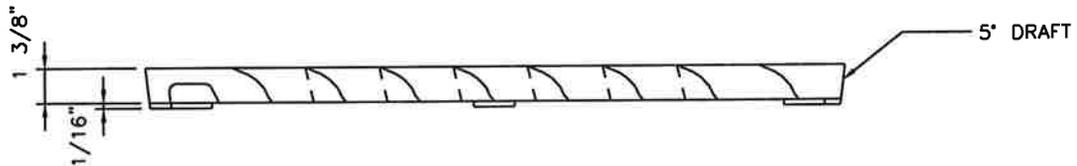
NOTES:

1. USE WITH FRAME DRILLED AND TAPPED FOR LOCKING BOLTS.
2. USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS STEEL TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG.
3. COVER MATERIAL IS CAST IRON PER ASTM A48 CLASS 30.
4. SHALL CONFORM TO SEC. 7.05 OF THE STANDARD SPECIFICATIONS.
5. COVER SHALL HAVE THE WORD "DRAIN" IN 2-INCH RAISED LETTERS.

	<p>CITY OF ALGONA</p> <p>SOLID STORM DRAIN COVER</p>	
	<p>APPROVED: </p>	<p>DWG. NO.</p>
<p>DATE: 04/06/2015</p>		<p>SW-7</p>



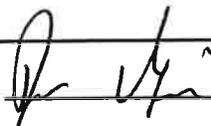
PLAN

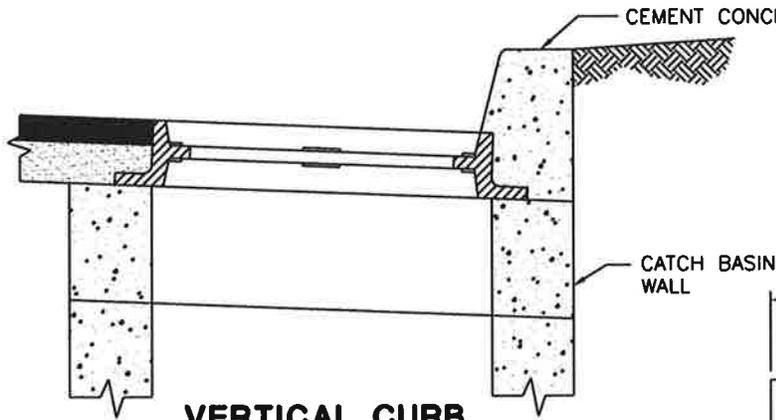


ELEVATION

NOTES:

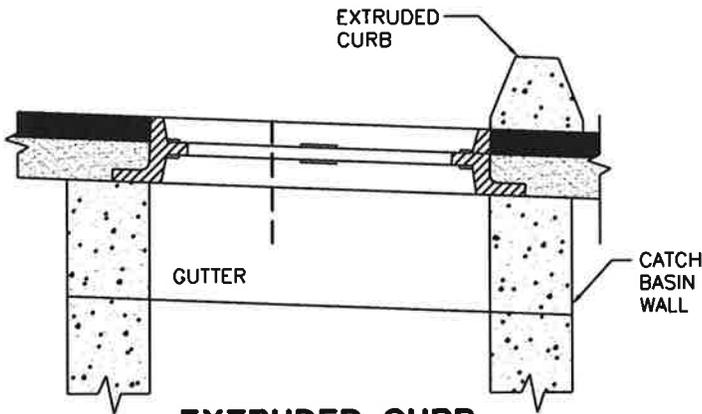
1. SELF-LOCK VANED GRATE MANUFACTURER SUBJECT TO APPROVAL BY ENGINEER.
2. USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG. NOTE SLOT DETAIL. PROVIDE WHERE REQUIRED. ALL LIDS OUTSIDE OF ROADWAY TO BE LOCKED.
3. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
4. "OUTFALL TO STREAM DUMP NO POLLUTANTS" IN RAISED LETTERS SHALL BE LOCATED ON GRATE AS SHOWN, OR ON BORDER AREA.
5. SHALL CONFORM TO SEC. 7.05 OF THE STANDARD SPECIFICATIONS.
6. WELDING IS NOT PERMITTED.
7. EDGES SHALL HAVE 0.125" RADIUS, 0.125" CHAMBER OR COMPLETE DEBURRING.
8. USE A BI-DIRECTIONAL VANED GRATE IN SAG VERTICAL CURVES.

 <h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">VANED GRATE</p>	
APPROVED: 	DWG. NO. SW-9
DATE: 04/06/2015	

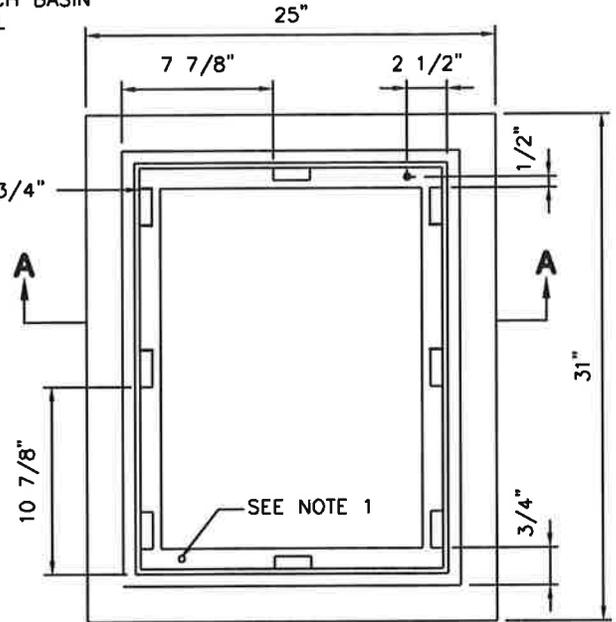


VERTICAL CURB

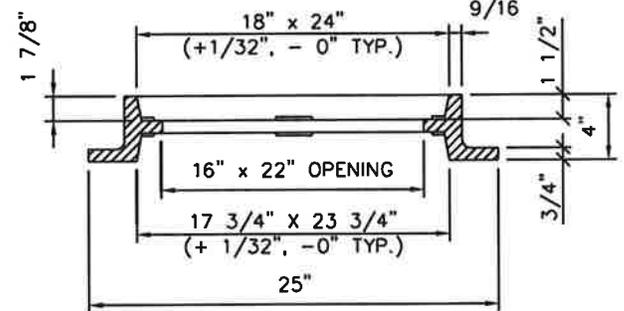
LEVEL PAD 16 - 3/4"
X 2 1/4" X 1/8"



EXTRUDED CURB



PLAN

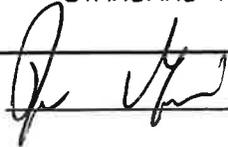


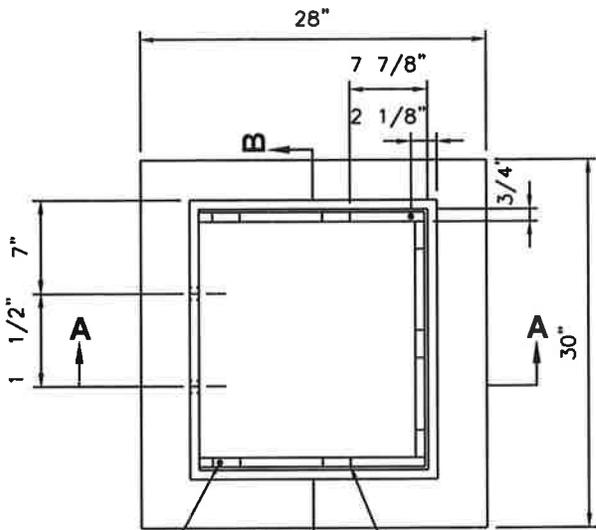
SECTION A-A

NOTES:

1. DRILL AND TAP FOR, AND PROVIDE, TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG, WHERE REQUIRED. ALL LIDS TO BE LOCKED OUTSIDE OF ROADWAY.
2. FRAME MATERIAL IS CAST IRON PER ASTM A48 CLASS 30 OR BETTER.
3. SET FRAME TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.

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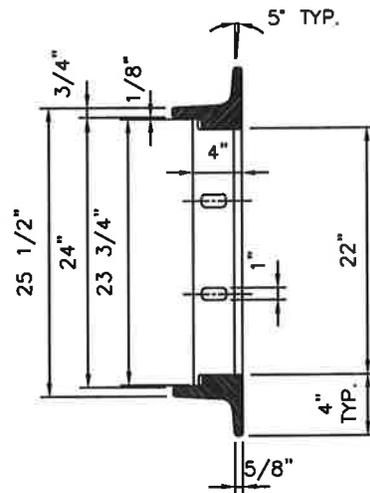
	<p>CITY OF ALGONA</p> <p>STANDARD FRAME INSTALLATION</p>
<p>APPROVED: </p>	<p>DWG. NO. SW-10</p>
<p>DATE: 04/06/2015</p>	



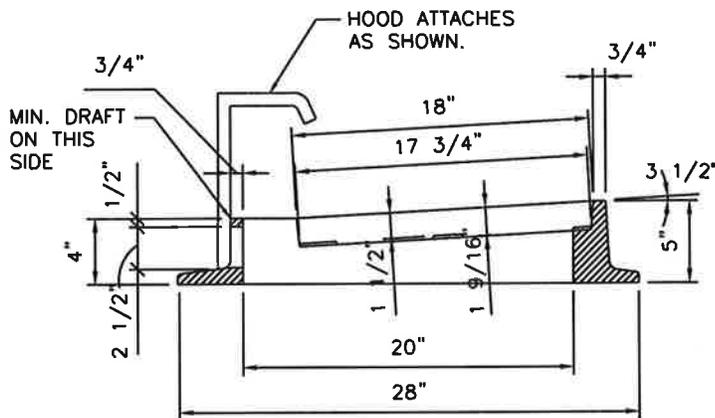
DRILL & TAP TWO 5/8"-11NC HOLES THRU FRAME

LEVELING PAD 7-1/8" X 3/4" X 2 1/4" (TYP.)

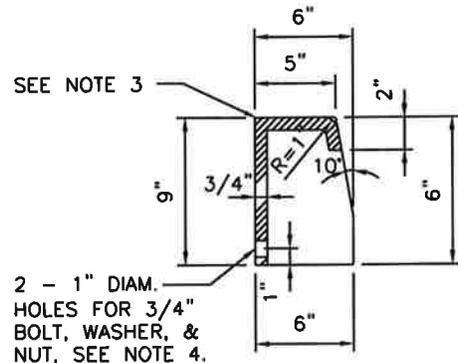
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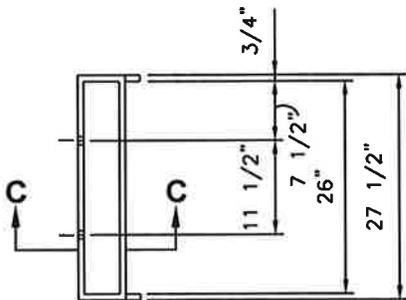
SECTION B-B



SECTION A-A



SECTION C-C



HOOD DETAIL

NOTES:

1. MATERIAL SHALL CONFORM TO SECTION 9-05.15(2) OF THE STANDARD SPECIFICATIONS.
2. PATTERN ON TOP SURFACE OF HOOD SHALL BE 3/16" NON-SKID DIAMOND.
3. BOLT, WASHER, AND NUT SHALL BE GALVANIZED OR CORROSION RESISTANT.



CITY OF ALGONA

THROUGH CURB INLET FRAME

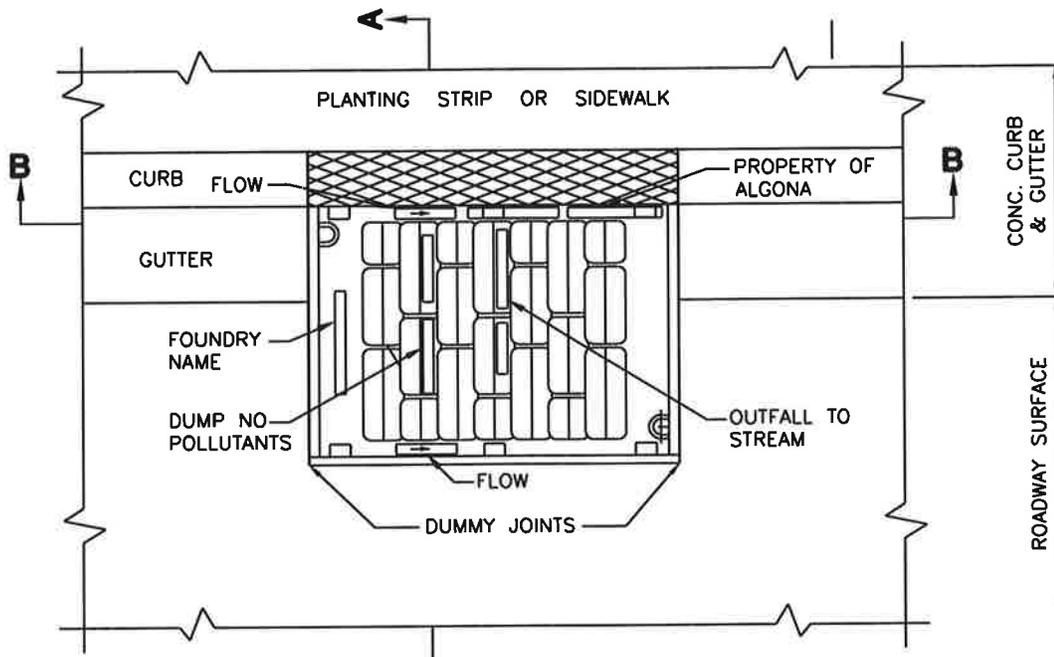
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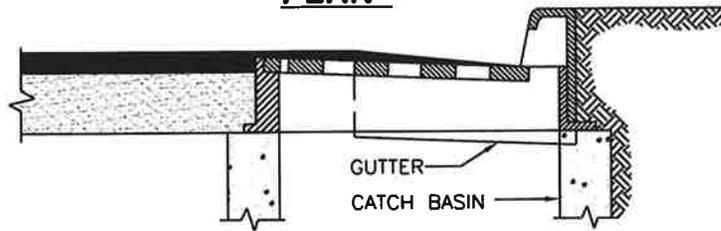
DATE: 04/06/2015

DWG. NO.

SW-11



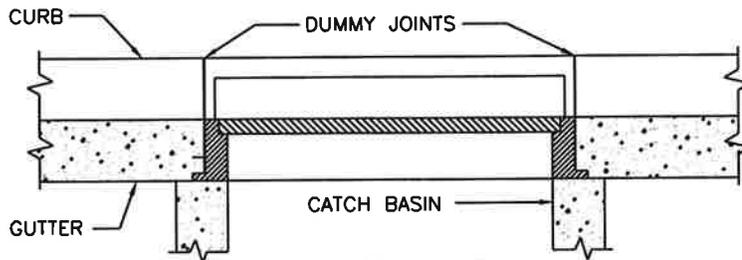
PLAN



SECTION A-A

NOTES:

1. SET TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.
2. THROUGH CURB INLET TO BE USED IN SAG CURVES.



SECTION B-B



CITY OF ALGONA

THROUGH VERTICAL CURB INLET
FRAME & GRATE

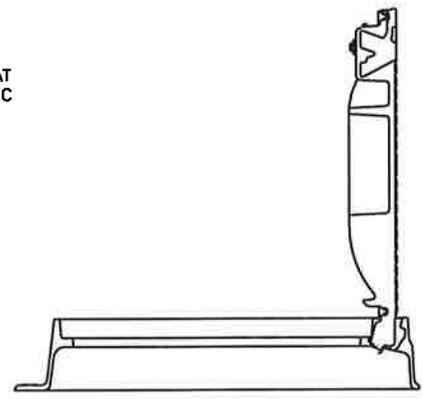
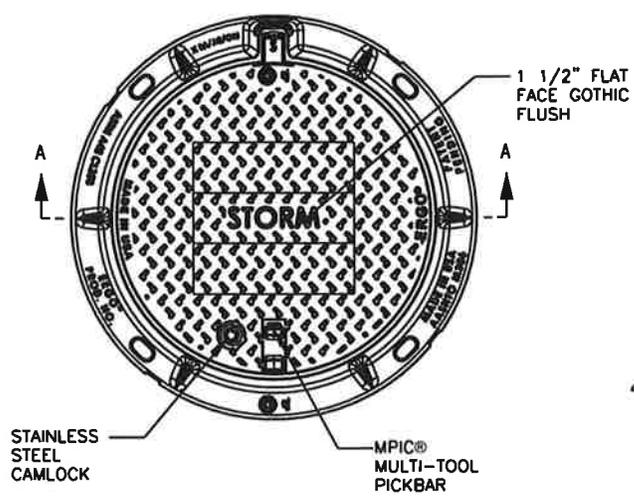
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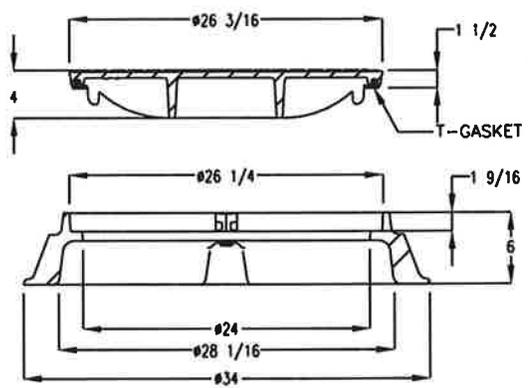
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SW-12

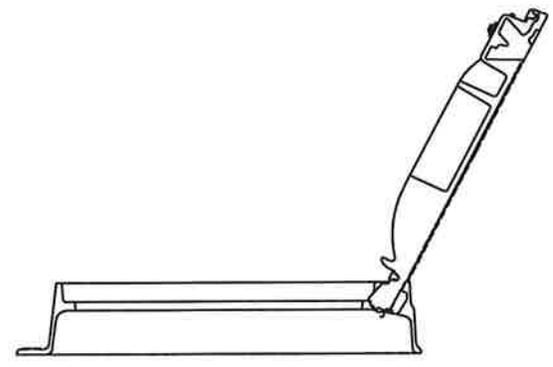
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SAFETY LOCK ● 90°



SECTION A-A



FULLY OPENED ● 120°

ERGO ASSEMBLY
MODEL NO. 00104028L02



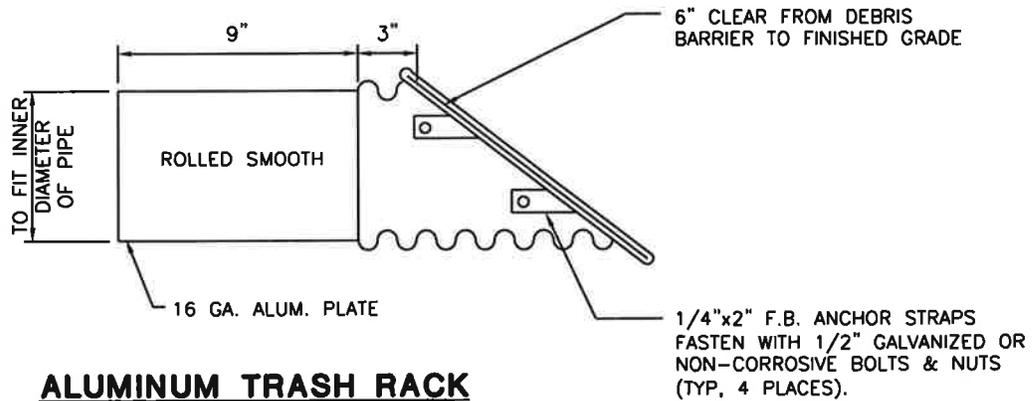
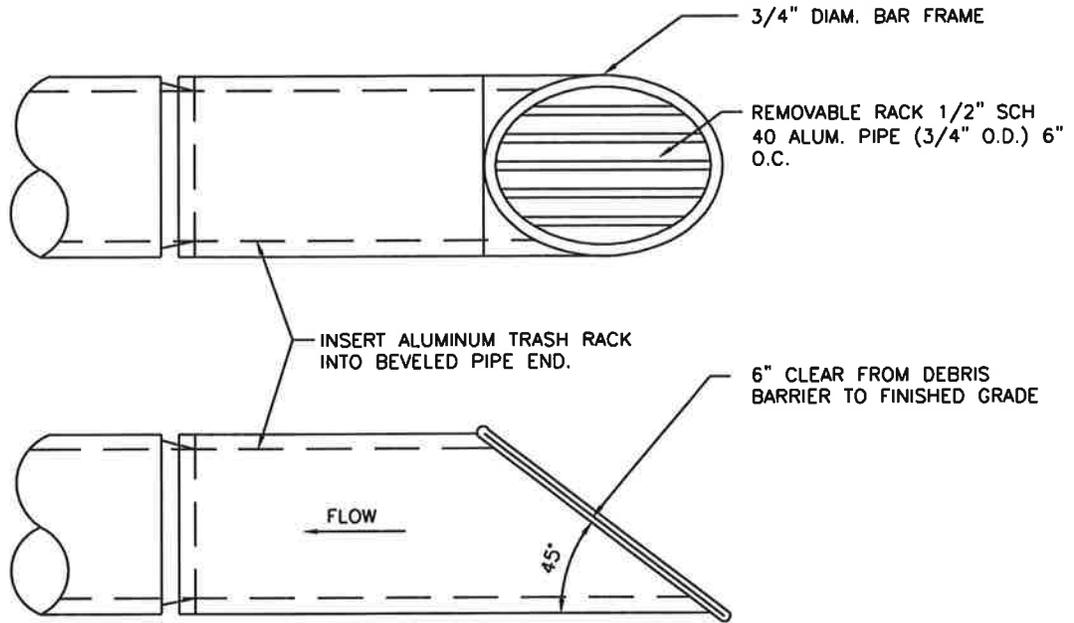
CITY OF ALGONA

MANHOLE FRAME AND COVER

APPROVED: *[Signature]*

DATE: 04/06/2015

DWG. NO.
STMH CVR -
ERGO



ALUMINUM TRASH RACK

NOTES:

1. ALL STEEL PARTS MUST BE GALVANIZED & ASPHALT COATED (TREATMENT 1 OR BETTER).
2. CONTRACTOR TO VERIFY DIMENSIONS.



CITY OF ALGONA

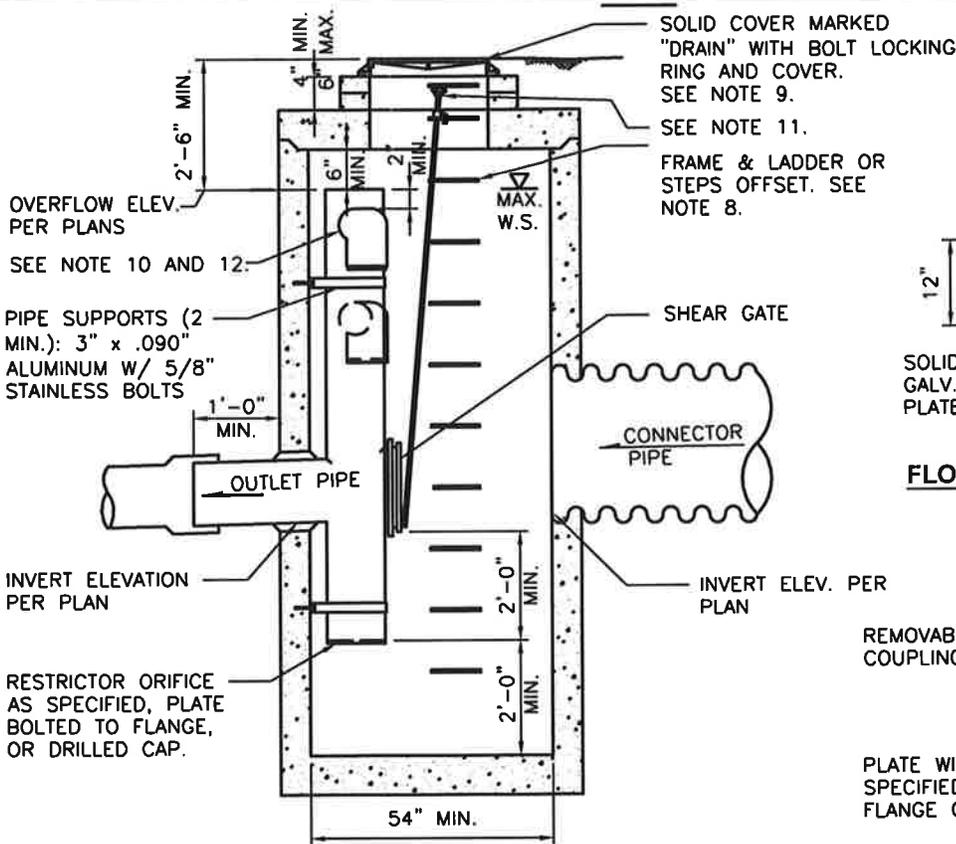
**TRASH RACK
DEBRIS BARRIER**

APPROVED:

DATE: 04/06/2015

DWG. NO.

SW-17



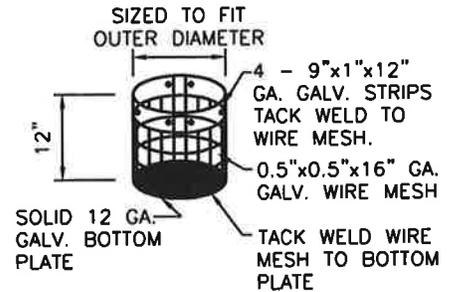
CATCH BASIN TYPE 2

DIAM. AS REQUIRED

NOTES:

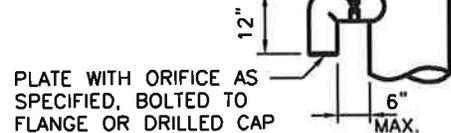
1. PIPE SIZES, INVERT ELEVATIONS, ORIFICE SIZES, OVERFLOW ELEVATIONS AND SLOPES; PER PLANS.
2. OUTLET CAPACITY: NOT LESS THAN COMBINED INLETS.
3. EXCEPT AS SHOWN OR NOTED, UNITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS FOR CATCH BASIN TYPE 2, 54" MIN. DIAM.
4. PIPE SUPPORTS AND RESTRICTOR SHALL BE OF SAME MATERIAL, AND BE ANCHORED AT 3' MAX. SPACING BY 5/8" DIAM. STAINLESS STEEL EXPANSION BOLTS OR EMBEDDED 2" IN WALL.
5. THE RESTRICTOR SHALL BE FABRICATED FROM .060" ALUMINUM, PVC, CPE, OR HDPE PIPE PER THESE ENGINEERING STANDARDS.
6. OUTLET SHALL BE CONNECTED TO CULVERT OR SEWER PIPE WITH SUITABLE COUPLER OR GROUTED INTO THE BELL OF CONCRETE PIPE.
7. THE VERTICAL RISER STEM OF THE RESTRICTOR SHALL BE THE SAME DIAM. AS THE HORIZONTAL OUTLET PIPE, WITH AN 8" MIN. DIAM.
8. FRAME AND LADDER OR STEPS OFFSET SO THAT:
 - A. SHEAR GATE IS VISIBLE FROM TOP.
 - B. CLIMB DOWN SPACE IS CLEAR OF RISER AND SHEAR GATE.
 - C. FRAME IS CLEAR OF CURB. ALL STEPS AND HANDHOLD SHALL BE MADE OF POLY PROPYLENE.
9. FOR POND APPLICATIONS SOLID COVER AND MANHOLE CONCRETE LID SHALL BE REPLACED WITH DEBRIS CAGE.
10. MULTI-ORIFICE ELBOWS MAY BE LOCATED AS SHOWN OR ALL ON ONE SIDE OF RISER TO ASSURE LADDER CLEARANCE.
11. SHEAR GATE HANDLE SHALL BE ATTACHED TO LADDER/ STEP LOCATED WITHIN 24" ACCESS SECTION.
12. IF NOTCHED WEIR IS USED IN LIEU OF ELBOW, BAFFLE SHALL NOT OBSTRUCT ACCESS TO THE STRUCTURE.

NOTE:
ATTACH SCREEN TO CMP CROSS W/ 6 1" METAL SCREWS-2 PER STRAP, OR USE STAINLESS STEEL PIPE CLAMP.

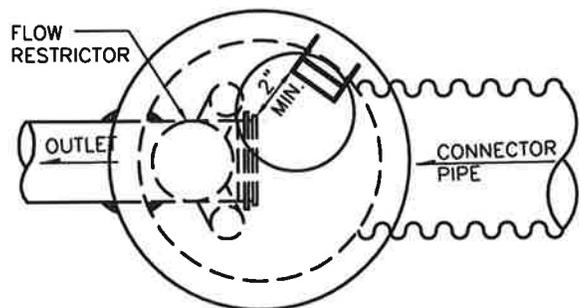


FLOW CONTROL SCREEN

REMOVABLE WATER-TIGHT COUPLING



ELBOW DETAIL



PLAN



CITY OF ALGONA

FLOW RESTRICTOR
TEE TYPE

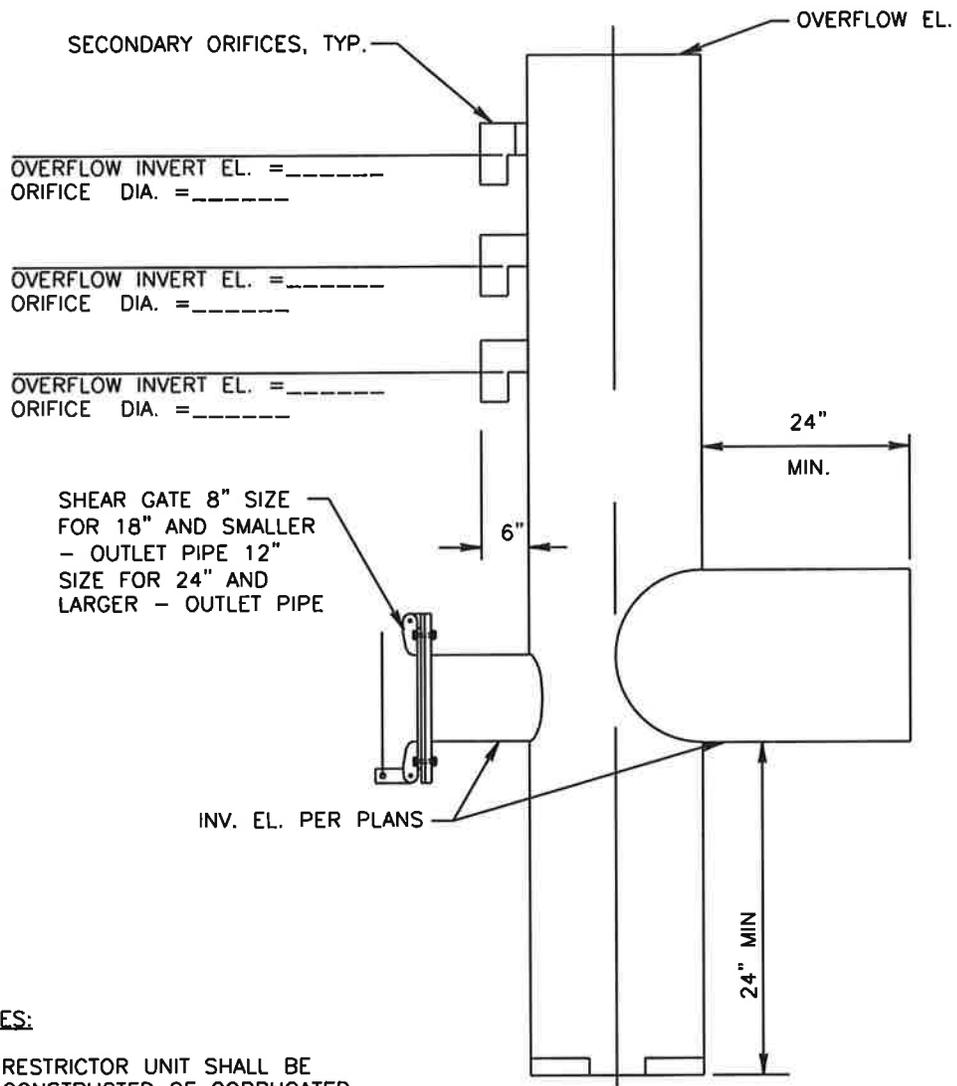
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DATE: 04/06/2015

DWG. NO.

SW-20

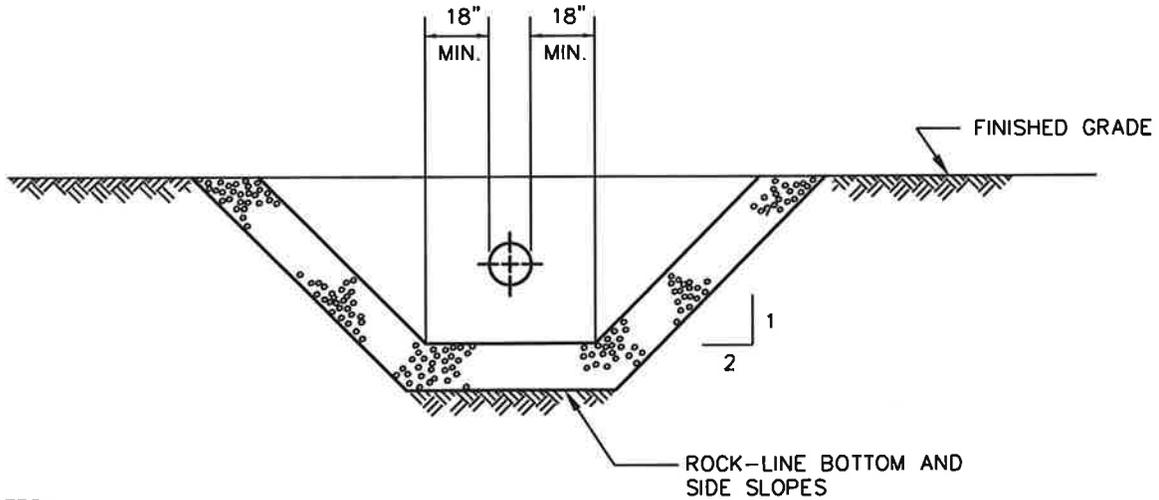
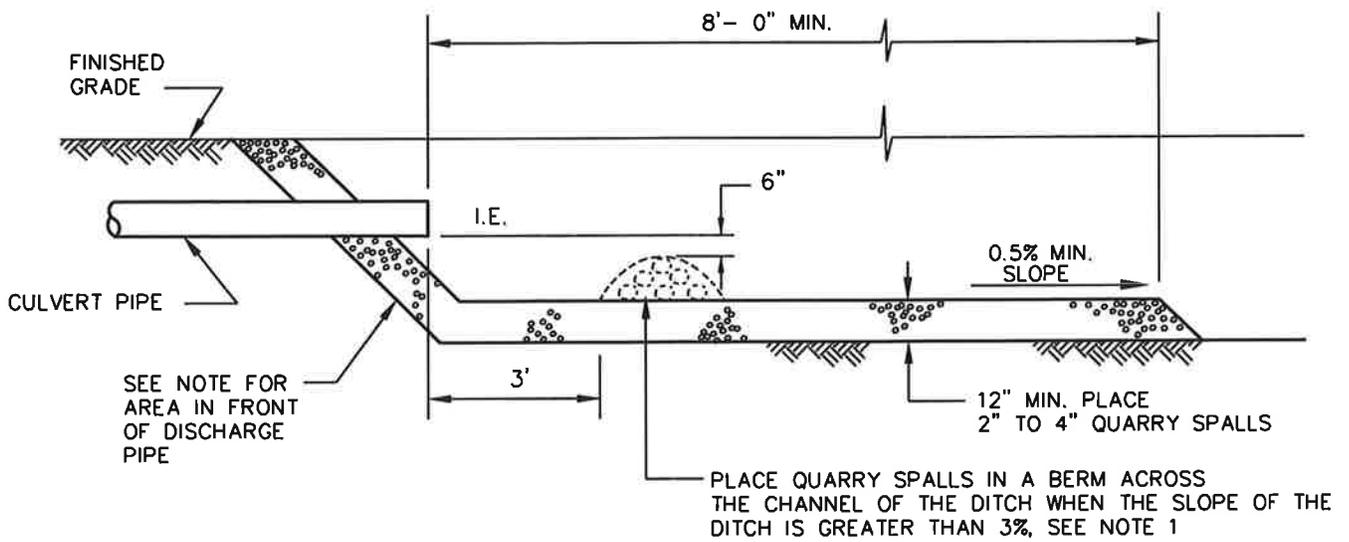
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NOTES:

1. RESTRICTOR UNIT SHALL BE CONSTRUCTED OF CORRUGATED POLYETHYLENE PIPE AASHTO M294 TYPE S, POLYVINYL CHLORIDE (PVC) ASTM D-3034 SCHEDULE 40, OR ALUMINIZED CMP.
2. FOR PVC APPLICATIONS, ALL CONNECTIONS SHALL BE MADE USING STANDARD FITTINGS, NO WELDING SHALL BE USED.

	CITY OF ALGONA	
	RESTRICTOR RISER	
APPROVED: 	DWG. NO.	
DATE: 04/06/2015	SW-21	



NOTES:

1. PLACE QUARRY SPALLS IN FRONT OF CULVERT DISCHARGE, ENGINEER SHALL SIZE QUARRY SPALL BERM



CITY OF ALGONA

RIPRAP AND ENERGY DISSIPATION
FOR DITCH

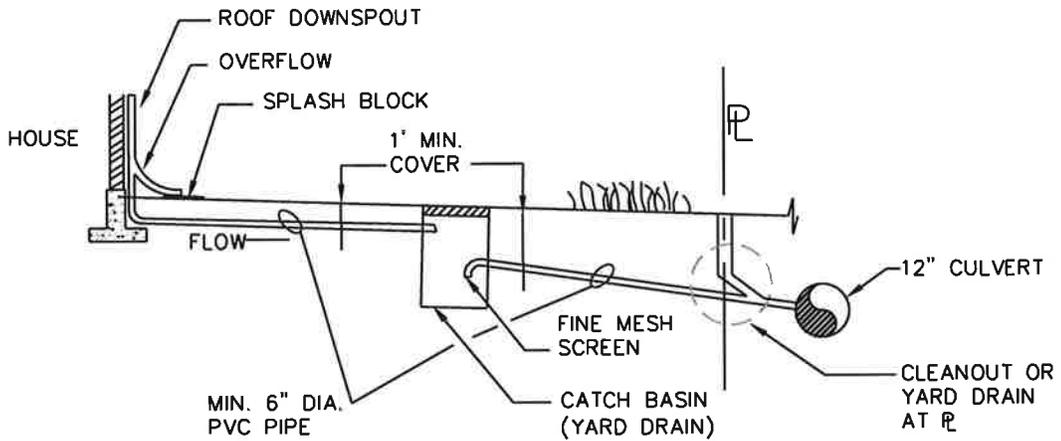
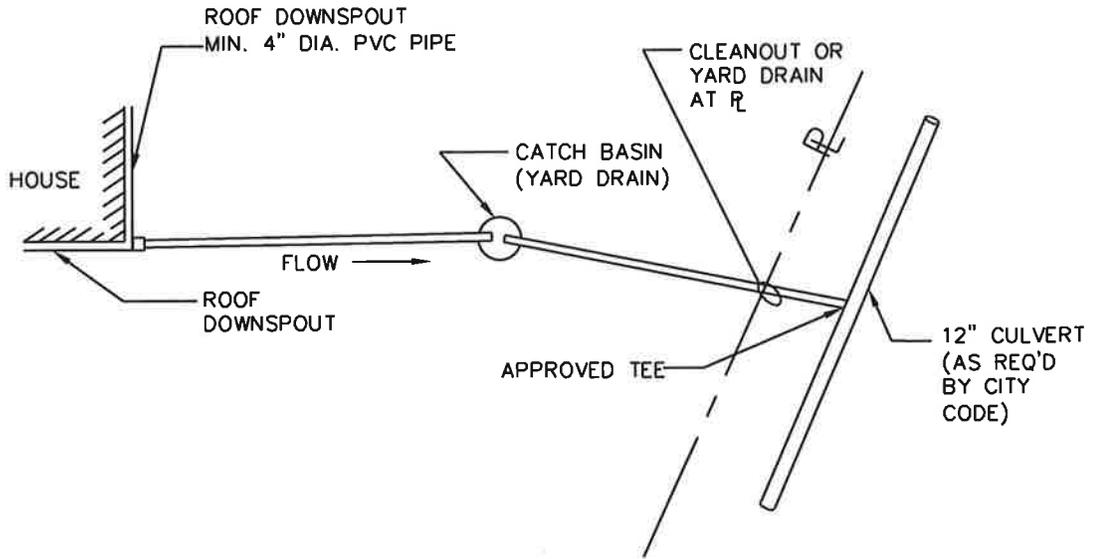
APPROVED:

DATE: 04/06/2015

DWG. NO.

DTCH-2

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CITY OF ALGONA

PIPE COVER - TYPICAL
YARD DRAIN

APPROVED:

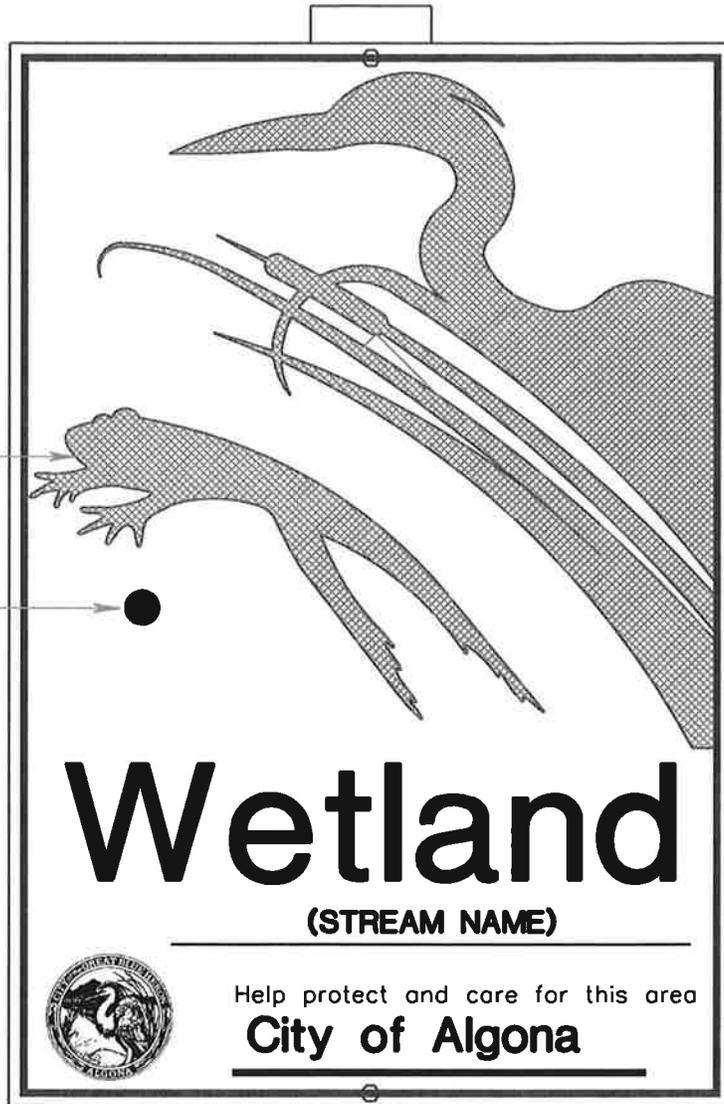
DATE: 04/06/2015

DWG. NO.
PIPECOVER

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FOREGROUND
COLOR: TEAL

BACKGROUND
COLOR: BEIGE



SIGN SIZE: 24"x36"

8'-4X4 CEDAR OR
PRESSURE-TREATED
POST SET 3' IN GROUND
OR 2X2 UNISTRUT
(SEE STREET DETAILS)

NOTES:

1. ATTACH SIGN TO POST WITH TWO (2) 5/16 GALVANIZED LAG BOLTS WITH WASHERS.
2. THE WETLAND SIGN SHALL BE POSTED AT THE BOUNDARY BETWEEN THE SENSITIVE AREA BUFFER, SETBACK AREA OR SETBACK TRACT AND THE BUILDING SETBACK AREA.
3. SIGN SHALL BE STATIONED IN A PROMINENT LOCATION, I.E.: AT THE CLOSEST POINT TO THE PROPOSED DEVELOPMENT. SIGN MAY ALSO BE ATTACHED TO FENCES.

 <h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">WETLAND SIGN INSTALLATION</p>	
APPROVED: 	DWG. NO. SW-28
DATE: 04/06/2015	