

**NOTE:**

REFER TO VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL FOR ASSUMPTIONS MADE IN DERIVING THIS FIGURE.

DATE:	NOT TO SCALE
09/22/2007	
REVISION	APPROVED
BY	DATE


CITY OF ELK GROVE - PUBLIC WORKS

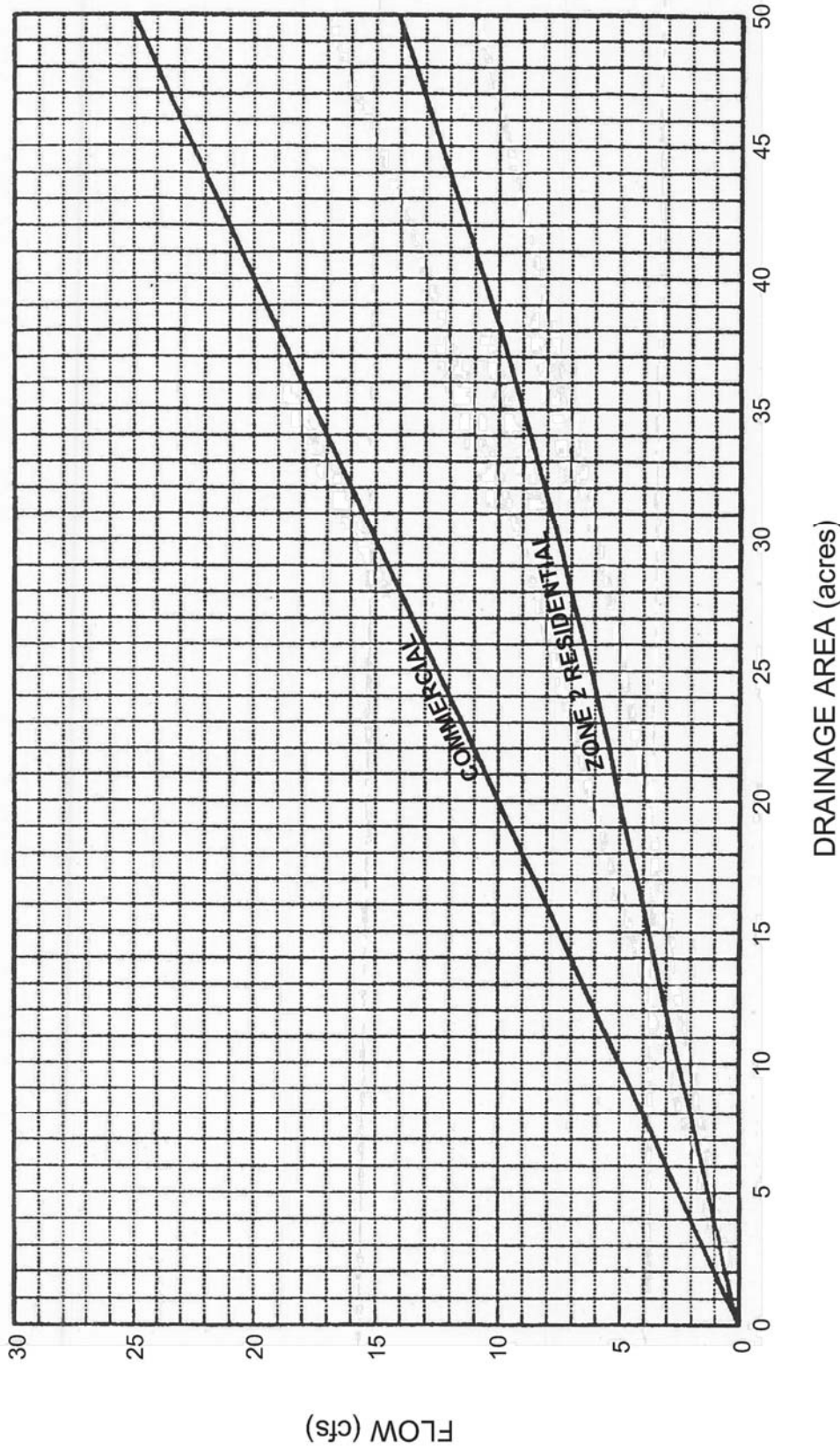
**10-YEAR PEAK FLOW  
SACRAMENTO METHOD  
RAINFALL ZONE 2, <80 ACRES**

APPROVED BY: *Paul F. Muddick*  
CITY ENGINEER

10/24/2018  
DATE

DRAWING NUMBER  
**SD - 1**





DRAINAGE AREA (acres)

NOTE: Design runoff for multiple family development shall be based on the following formula:

$$Q_m = Q_r + (Q_c - Q_r)(I - 50)/40$$

Where:

- RD-7 I = 60
- RD-10 I = 70
- RD-20 I = 80
- RD-30 I = 90

Source: County of Sacramento Master Drainage Plan, Part 1, County-wide Hydrology, Nolte and Assoc.

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CITY OF ELK GROVE - PUBLIC WORKS

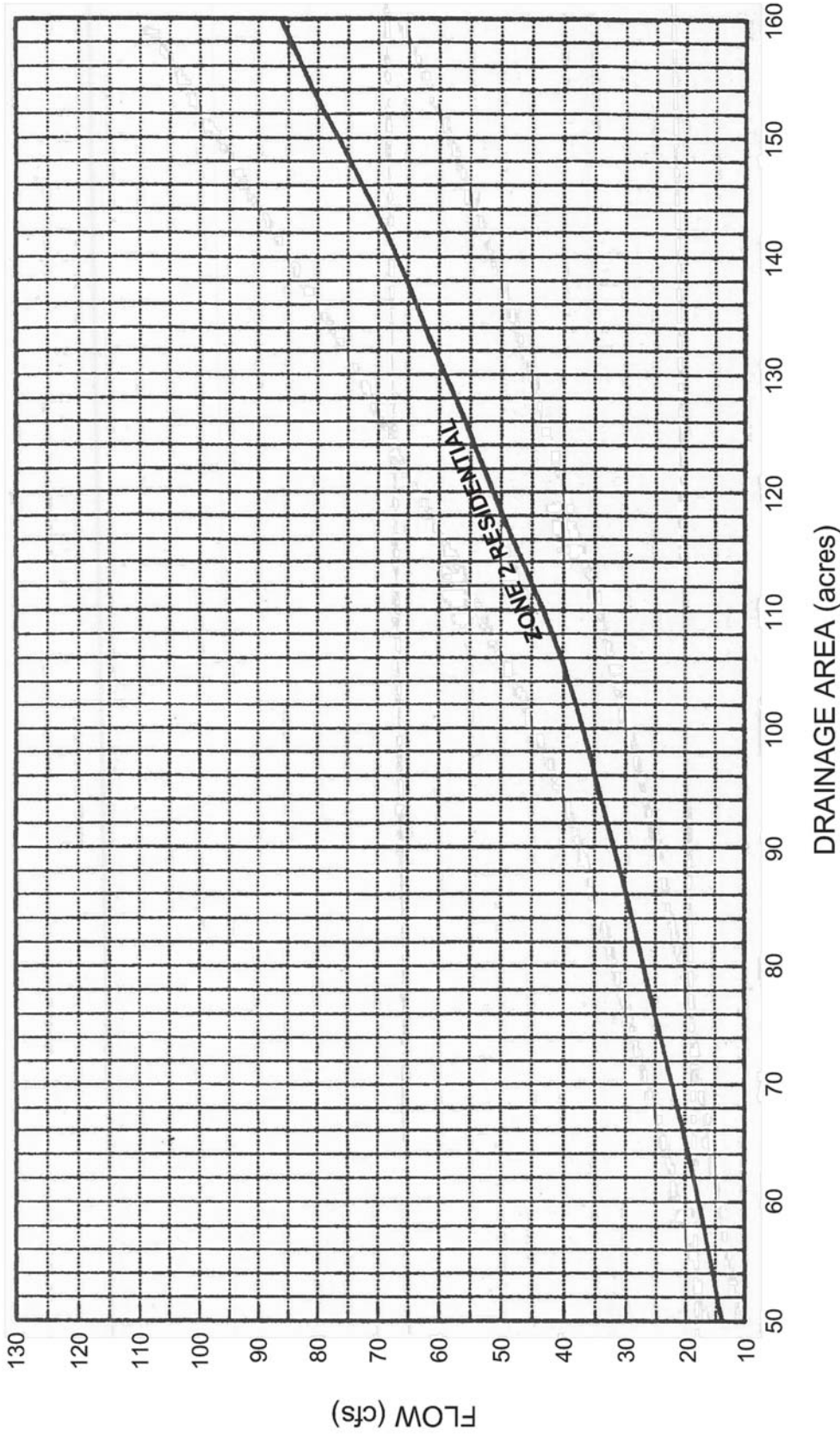
**DESIGN RUNOFF  
NOLTE METHOD  
DRAINAGE AREAS, <50 ACRES**

APPROVED BY: *Robert M. Muddick*  
CITY ENGINEER

10/24/2018  
DATE

DRAWING NUMBER  
**SD - 1A**





NOTE: Design runoff for multiple family development shall be based on the following formula:

$$Q_m = Q_r + (Q_c - Q_r) \cdot (I - 50) / 40$$

Where:

- RD-7 I = 60
- RD-10 I = 70
- RD-20 I = 80
- RD-30 I = 90

Source: County of Sacramento Master Drainage Plan, Part 1, County-wide Hydrology, Nolte and Assoc.

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APPROVED BY: *Robert M. Mudd*  
 CITY ENGINEER

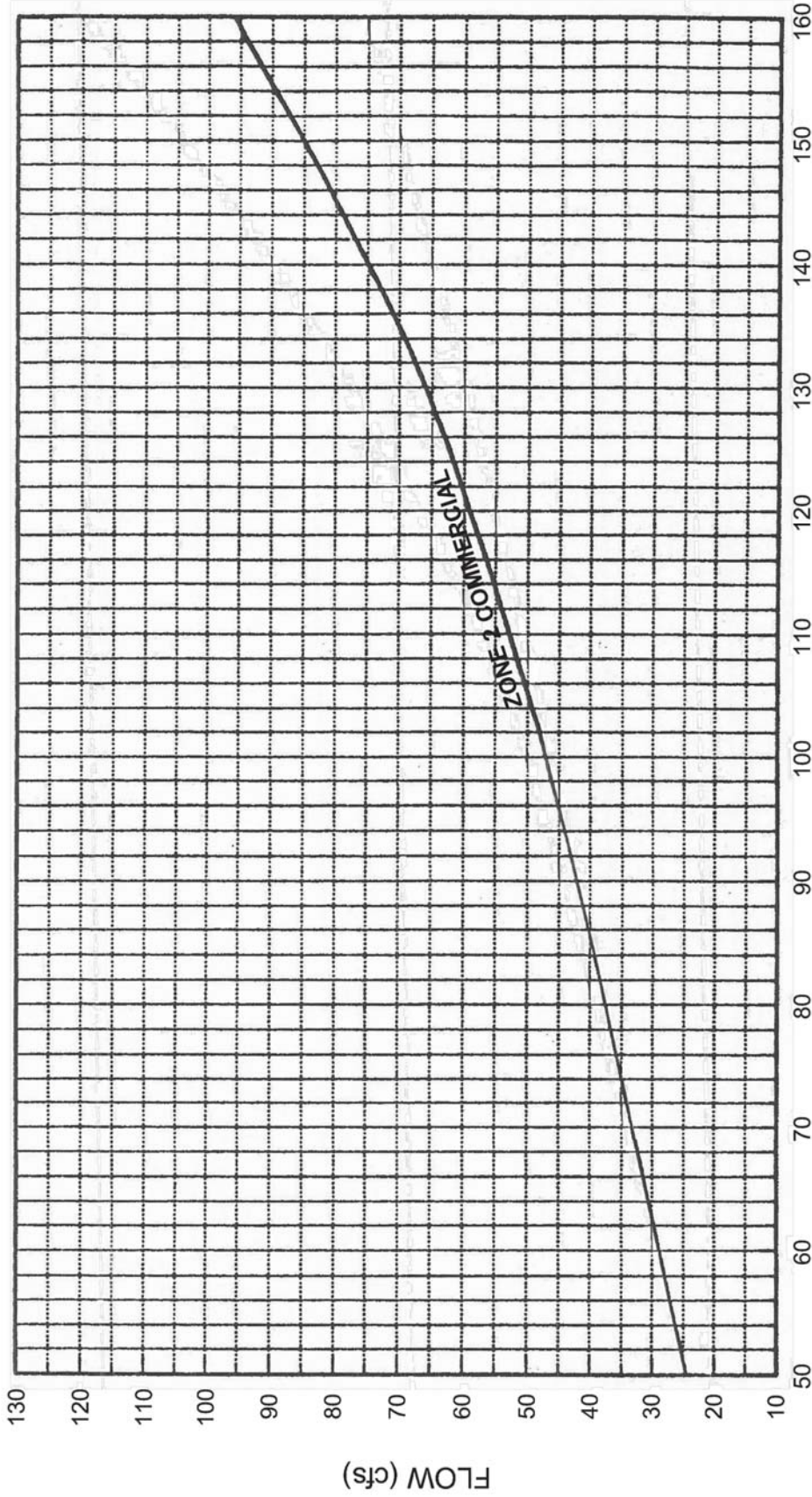
DATE: 10/24/2018

CITY OF ELK GROVE - PUBLIC WORKS

**DESIGN RUNOFF  
 NOLTE METHOD  
 RESIDENTIAL AREAS, 50-160 ACRES**

DRAWING NUMBER  
**SD - 1B**





DRAINAGE AREA (acres)

FLOW (cfs)

Source: County of Sacramento Master Drainage Plan, Part 1, County-wide Hydrology, Nolte and Assoc.

DATE:	NOT TO SCALE
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REVISION	APPROVED
BY	DATE

CITY OF ELK GROVE - PUBLIC WORKS


**DESIGN RUNOFF  
NOLTE METHOD  
COMMERCIAL AREAS, 50-160 ACRES**

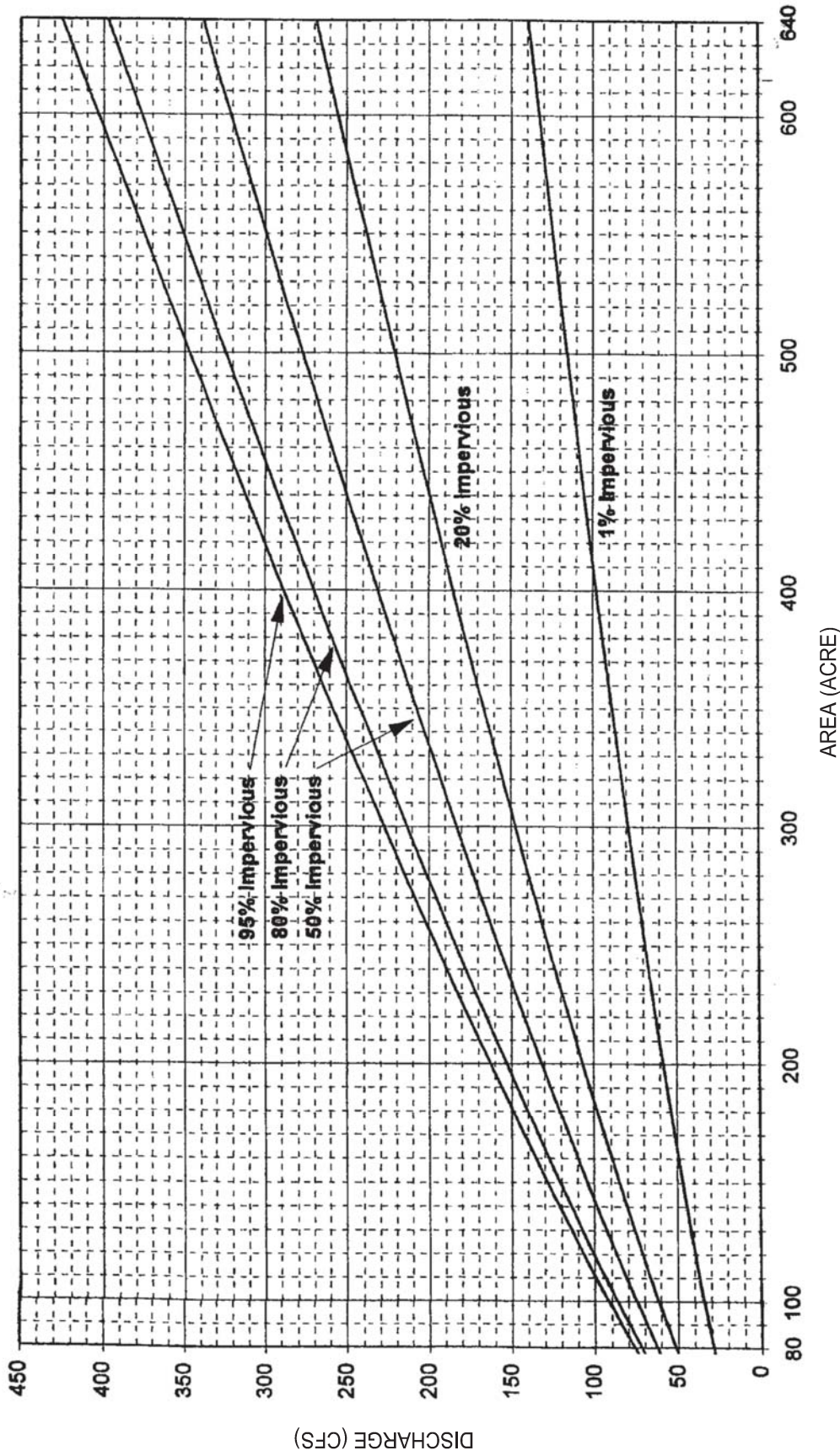
APPROVED BY: *Robert M. Mudd*

CITY ENGINEER

DATE: 10/24/2018

DRAWING NUMBER: **SD - 1C**





**NOTE:**

REFER TO VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL FOR ASSUMPTIONS MADE IN DERIVING THIS FIGURE.

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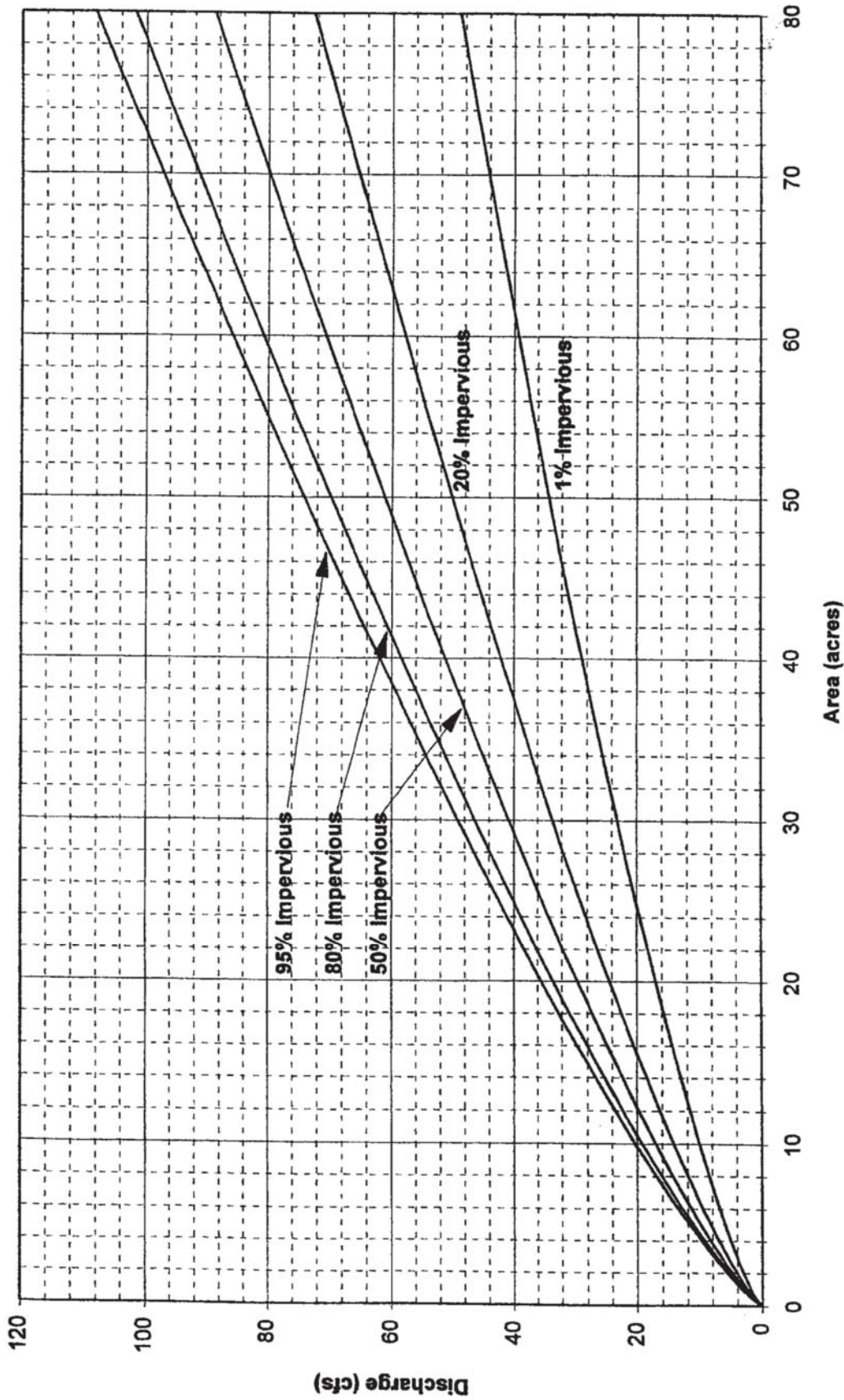
**10-YEAR PEAK FLOW  
SACRAMENTO METHOD  
RAINFALL ZONE 2, 80-640 ACRES**

APPROVED BY: *Robert Muddick*  
CITY ENGINEER

DATE: 10/24/2018

DRAWING NUMBER: **SD - 2**





**NOTE:**

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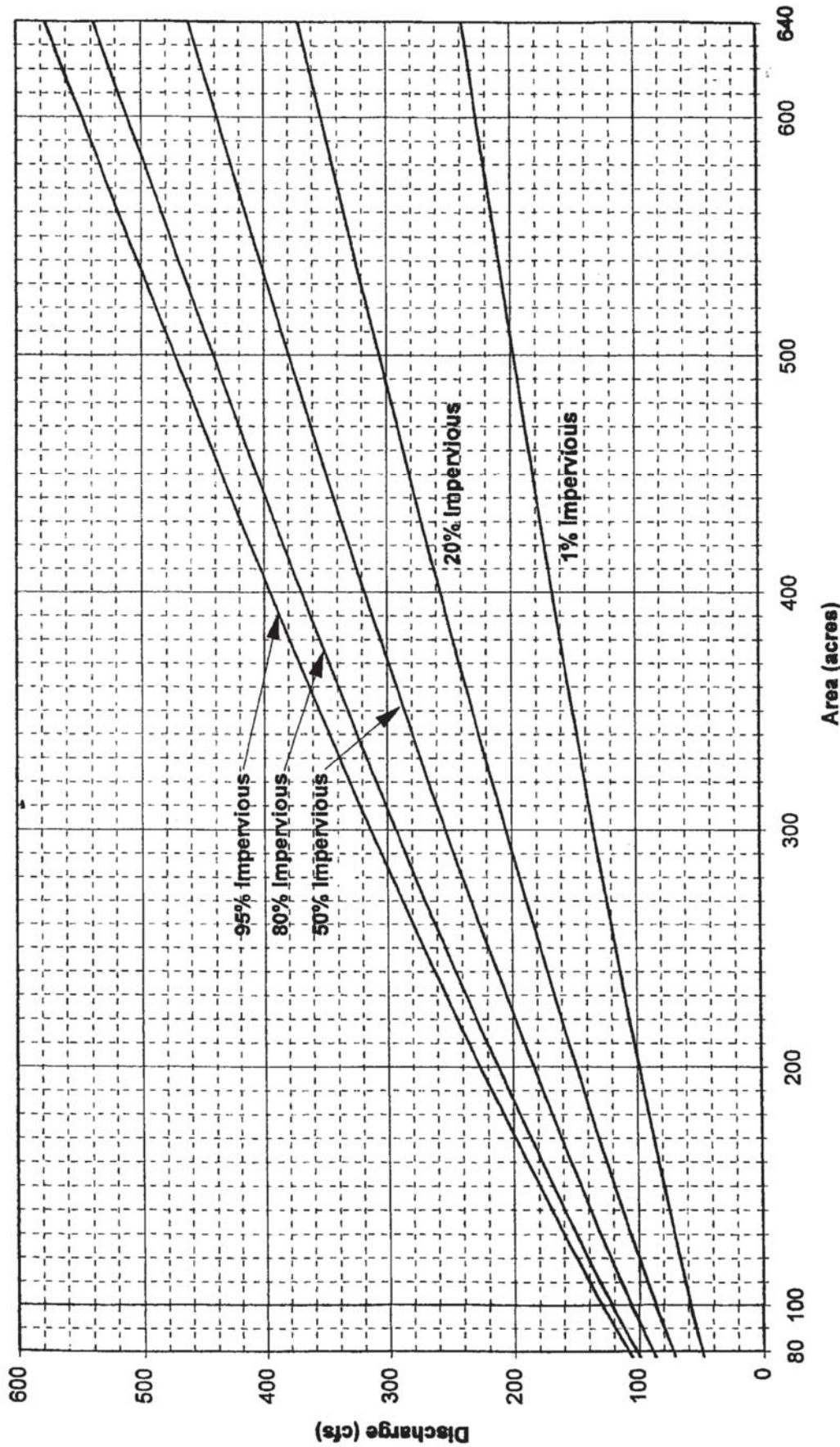
**100-YEAR PEAK FLOW  
SACRAMENTO METHOD  
RAINFALL ZONE 2, <80 ACRES**

APPROVED BY: *Robert M. Mudd*  
CITY ENGINEER

DATE: 10/24/2018

DRAWING NUMBER: **SD - 3**






**NOTE:**

REFER TO VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL FOR ASSUMPTIONS MADE IN DERIVING THIS FIGURE.

DATE:	NOT TO SCALE
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REVISION	APPROVED
BY	DATE

CITY OF ELK GROVE - PUBLIC WORKS  
**100-YEAR PEAK FLOW**  
**SACRAMENTO METHOD**  
**RAINFALL ZONE 2, 80-640 ACRES**

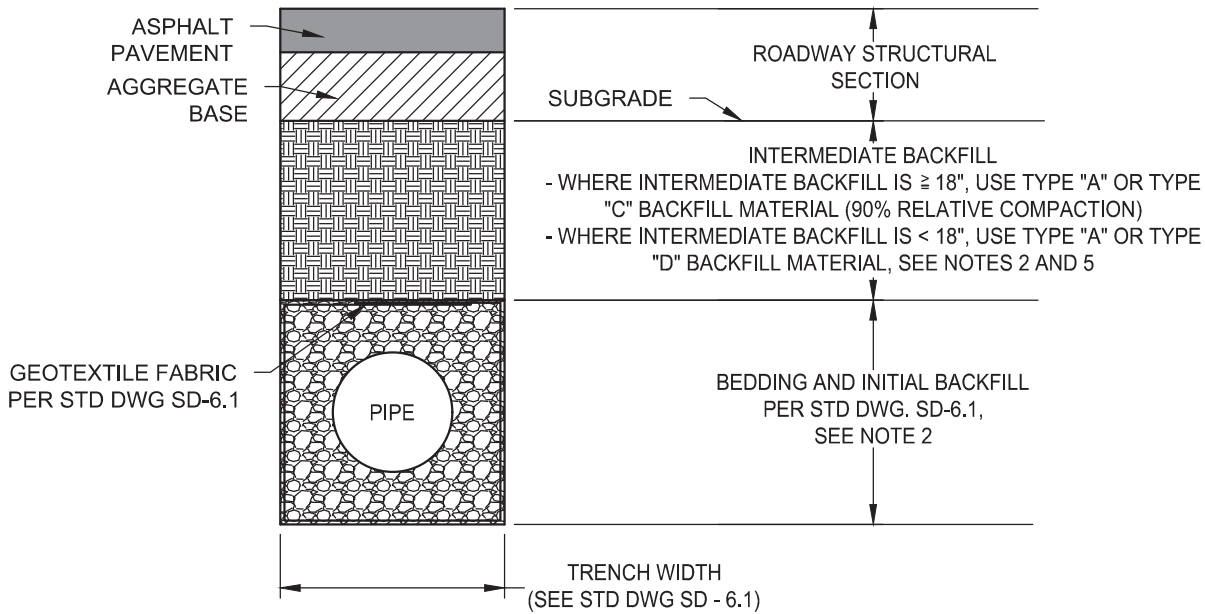
APPROVED BY: *Paul F. Muddick*  
 CITY ENGINEER  
 DATE: 10/24/2018  
 DRAWING NUMBER: **SD - 4**







## STORM DRAIN TRENCH DETAIL



### BACKFILL MATERIALS

TYPE "A" BACKFILL MATERIAL: 3/4" CLASS II AB AS PER SECTION 50 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.

TYPE "B" BACKFILL MATERIAL: 3/4" CLEAN CRUSHED ROCK AS PER SECTION 50 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.

TYPE "C" BACKFILL MATERIAL: JOB EXCAVATED NATIVE MATERIAL FREE OF ORGANIC OR UNSUITABLE MATERIALS THAT CAN CAUSE VOIDS OR DEPRESSIONS TO DEVELOP DURING OR AFTER PLACEMENT OF THE BACKFILL. ROCKS, STONES, AND SOLID EARTH CHUNKS EXCEEDING 3-INCHES IN GREATEST DIMENSION ARE NOT ALLOWED.

TYPE "D" BACKFILL MATERIAL: CONTROLLED DENSITY FILL AS PER SECTION 50 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.

TYPE "E" BACKFILL MATERIAL: CLASS "C" CONCRETE AS PER SECTION 50 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.

### NOTES

1. GEOTEXTILE SHALL BE INSTALLED AS PER STD DWG SD-6.1 AND AS PER SECTION 50 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.
2. INTERMEDIATE BACKFILL TO BE PLACED IN 8" MAXIMUM LOOSE LIFTS.
3. CUTOFF COLLARS TO BE INSTALLED EVERY MANHOLE RUN AS PER STD DWG SD-6.2 AND AS PER SECTION 19 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.
4. CONTROL DENSITY FILL (CDF) BACKFILL AROUND MANHOLES TO BE AS PER SECTION 39 OF THE CITY STANDARD CONSTRUCTION SPECIFICATIONS.
5. IF ROADWAY SUBGRADE IS WITHIN 12" OF TOP OF PIPE, BEDDING AND INITIAL BACKFILL SHALL CONFORM TO SHALLOW PIPE DETAILS AS PER STD DWG SD-6.1.

DATE 02-16-2022		NOT TO SCALE	
REVISION	BY	APPROVED	DATE
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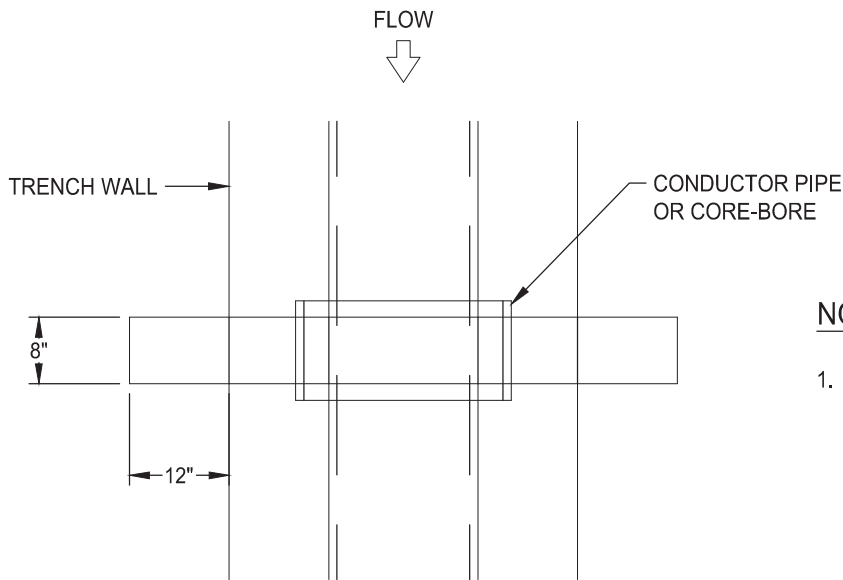
**STORM DRAIN TRENCH DETAIL**

APPROVED BY:  
  
 CITY ENGINEER 02-16-2022  
DATE



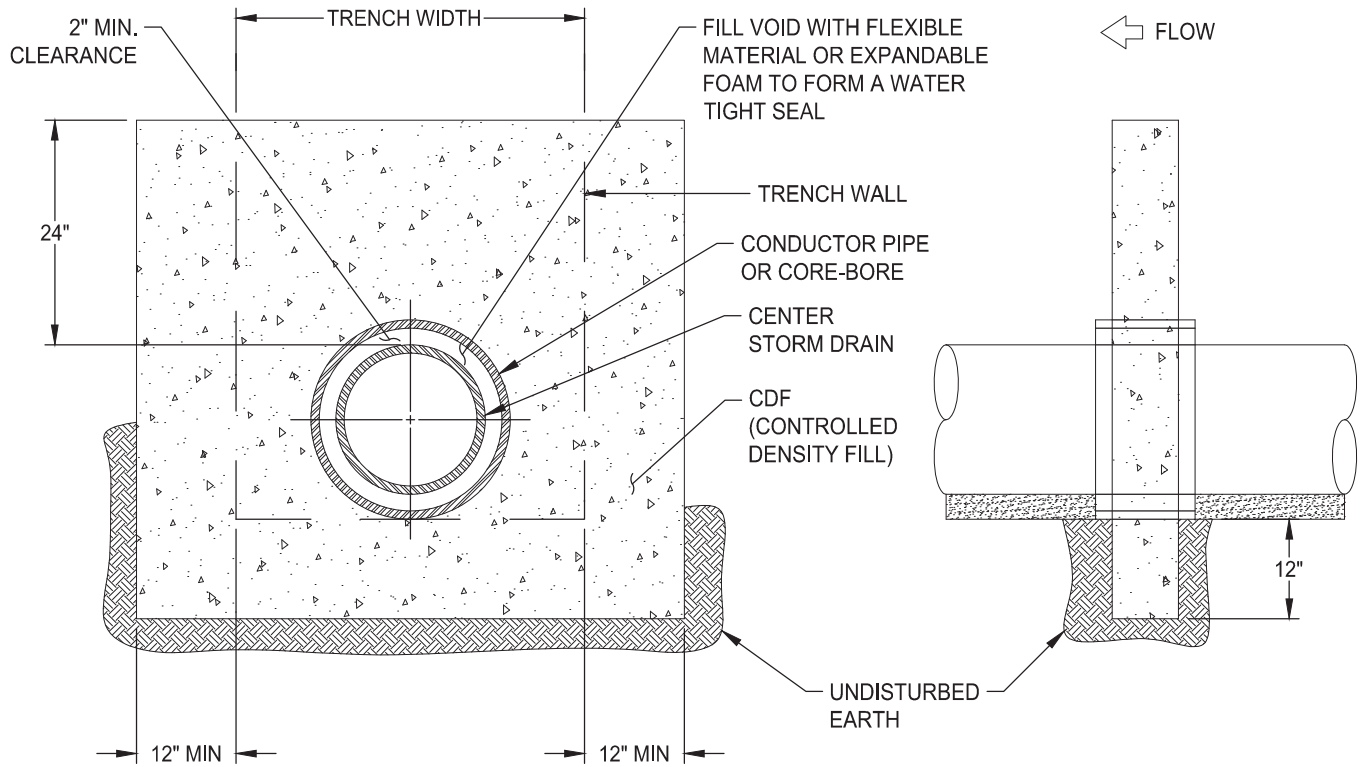
DRAWING NUMBER  
**SD - 6.0**





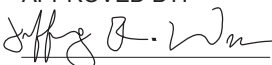
**NOTES:**

1. TOP OF COLLAR TO EXTEND INTO INTERMEDIATE BACKFILL 12" MINIMUM OR TOP OF GROUND WATER HGL.



DATE 02-16-2022		NOT TO SCALE	
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APPROVED BY:  
  
 02-16-2022  
 CITY ENGINEER DATE

**CUTOFF COLLAR**



DRAWING NUMBER

**SD - 6.2**

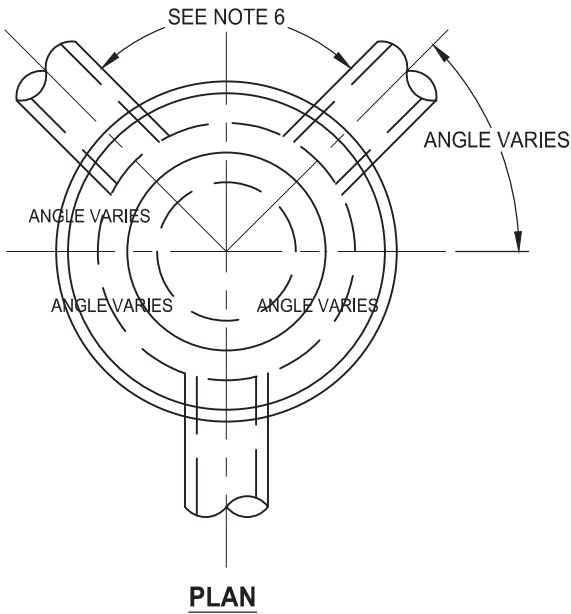
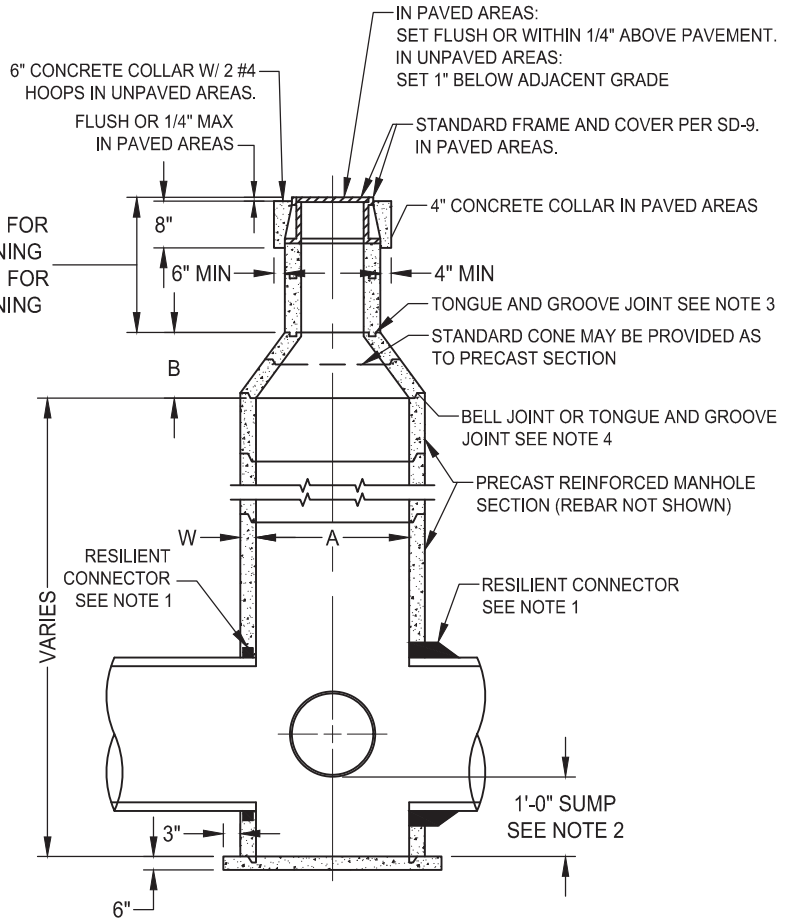


TABLE OF MINIMUM DIMENSIONS

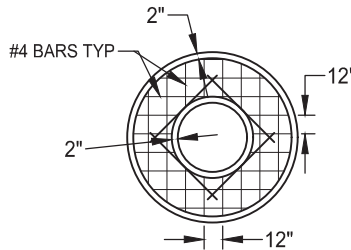
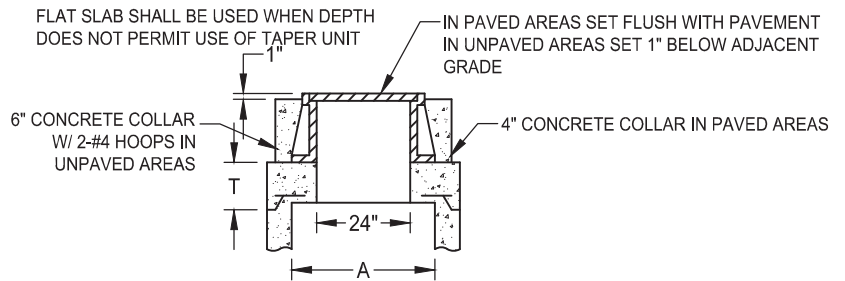
M.H.	A	B	T*	W
48"	48"	18"	8"	4'
60"	60"	28"	9"	6'
72"	72"	SEE NOTE 8	10"	7'

**NOTES:**

- ON ALL PIPES UP TO 30" I.D. USE FLEXIBLE COMPRESSION GASKET OR BOOT CONNECTOR CONFORMING TO ASTM C-923. CONNECTION SHALL BE WATER AND SOIL TIGHT. FOR PIPES GREATER THAN 30" I.D., BASE MAY BE CAST-IN-PLACE AND A WATER STOP CONFORMING TO ASTM C-923 SHALL BE USED.
- SUMP SHALL BE 1'-0" DEEP, MEASURED FROM INVERT OF OUTFALL PIPE. SUMP NOT REQUIRED IF OUTFALL PIPE IS 24" I.D. OR LARGER.
- RISER SECTIONS, CONES, AND ADJUSTING RINGS SHALL CONFORM TO ASTM C-478.
- ALL JOINTS SHALL BE MADE WITH PREFORMED PLASTIC JOINT SEALING COMPOUND. FOLLOWING INSTALLATION GROUT ALL INTERIOR AND EXTERIOR JOINTS.
- CONCENTRIC COMPONENTS SHALL BE USED UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- PRECAST MANHOLES SHALL BE SIZED TO PROVIDE THE FOLLOWING: THE ANNULAR SPACE ON THE INSIDE OF THE MANHOLE BARREL BETWEEN CORED PIPE CONNECTION HOLES SHALL BE A MINIMUM OF 10 INCHES, IF THE CONNECTION HOLE IS CAST MONOLITHICALLY WITH THE MANHOLE BARREL THE MEASUREMENT SHALL BE TAKEN FROM THE FINISHED CONCRETE CONNECTION.
- SEE SECTION 39, CONSTRUCTION SPECIFICATIONS, "MANHOLES"
- CONE FOR MANHOLES GREATER THAN 60" DIAMETER SHALL BE INDIVIDUALLY DESIGNED.



**PROFILE**



**FLAT SLAB TOP**

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE


CITY OF ELK GROVE - PUBLIC WORKS

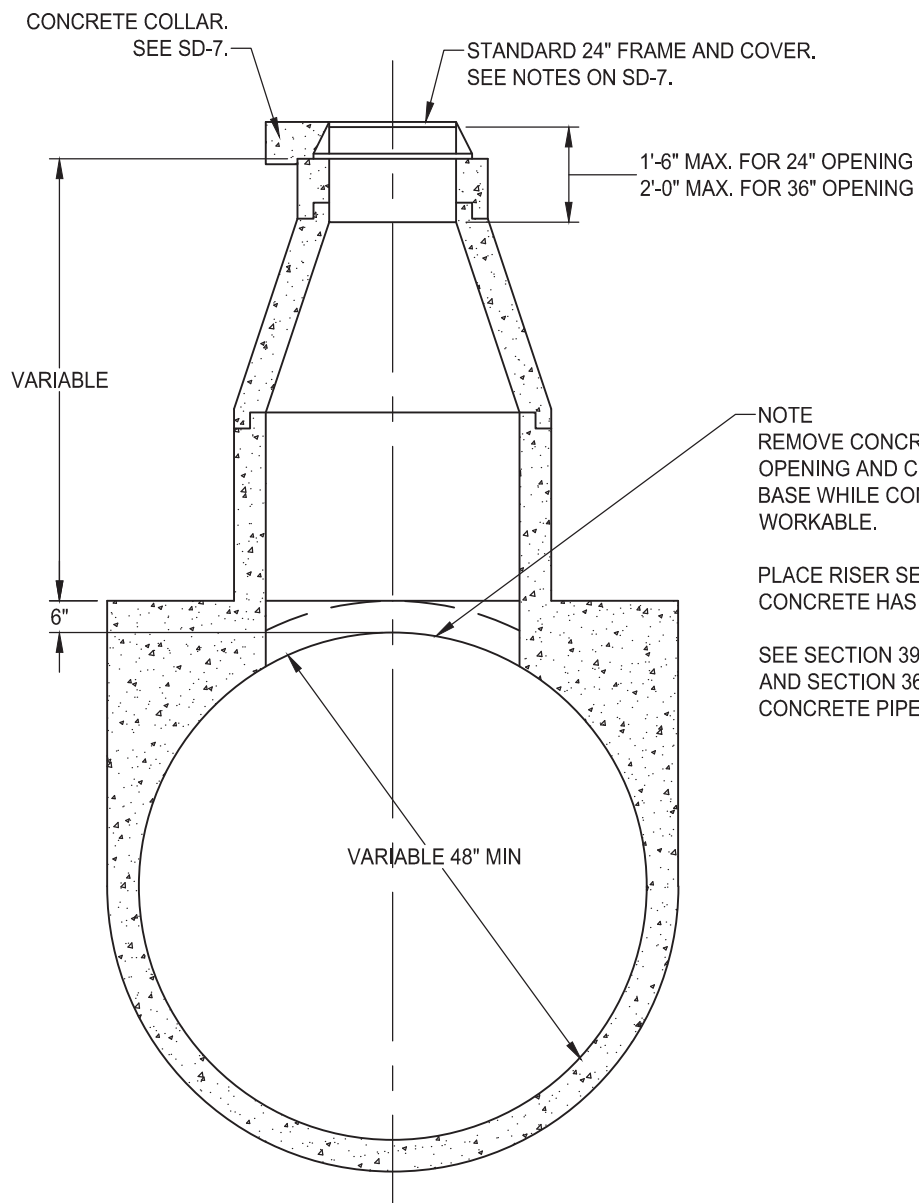
**STANDARD PRECAST CONCRETE  
DRAINAGE MANHOLE**

APPROVED BY:  
*Paul M. Muddoch*  
CITY ENGINEER

10/24/2018  
DATE

DRAWING NUMBER  
**SD - 7**





**TYPE A**  
**CAST-IN-PLACE PIPE ONLY**

DATE: 09/22/2017		NOT TO SCALE	
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CITY OF ELK GROVE - PUBLIC WORKS

**TYPE A**  
**SADDLE MANHOLE**

APPROVED BY:  
*Paul Murock*  
CITY ENGINEER

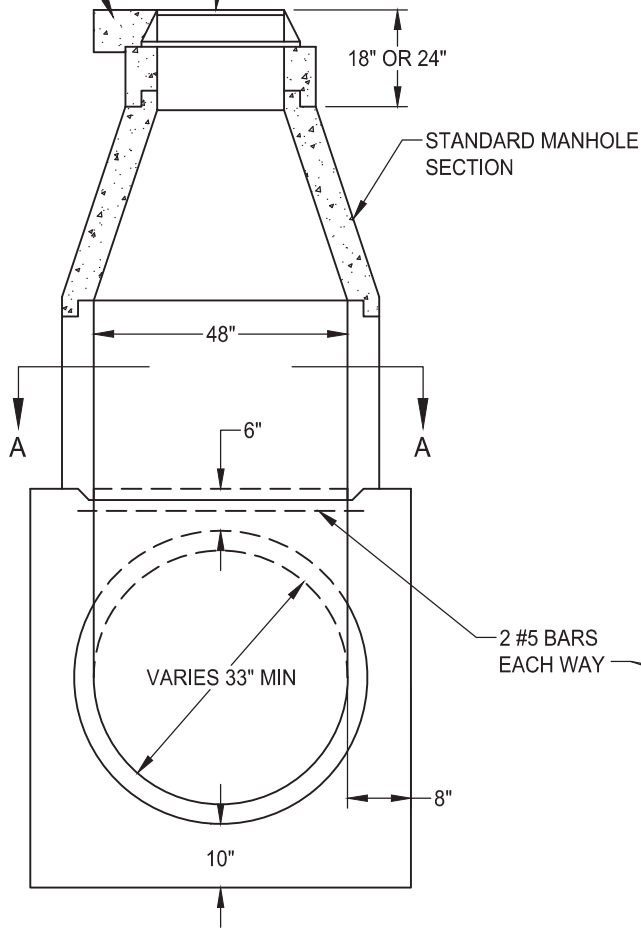
10/24/2018  
DATE

DRAWING NUMBER  
**SD - 8A**

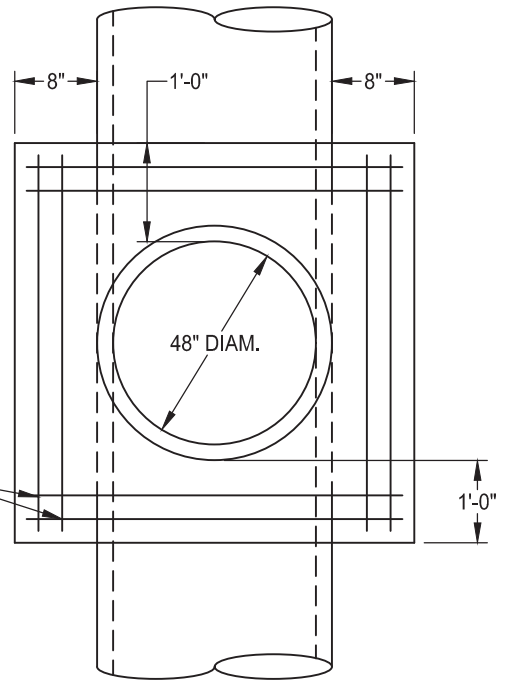


CONCRETE COLLAR  
(SEE STD DWG SD-7)

STANDARD 24" FRAME AND COVER  
SEE NOTES ON STD DWG SD-7



**TYPE B**



**SECTION A-A**

**NOTES:**

1. CONCRETE SHALL BE CLASS "A" IN CONFORMANCE WITH ARTICLE 50-5 "PORTLAND CEMENT CONCRETE."
2. SEE SECTION 39, "MANHOLES."

DATE: 09/22/2017		NOT TO SCALE	
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CITY OF ELK GROVE - PUBLIC WORKS

**TYPE B  
SADDLE MANHOLE**

APPROVED BY:

*Paul M. Muddoch*

CITY ENGINEER

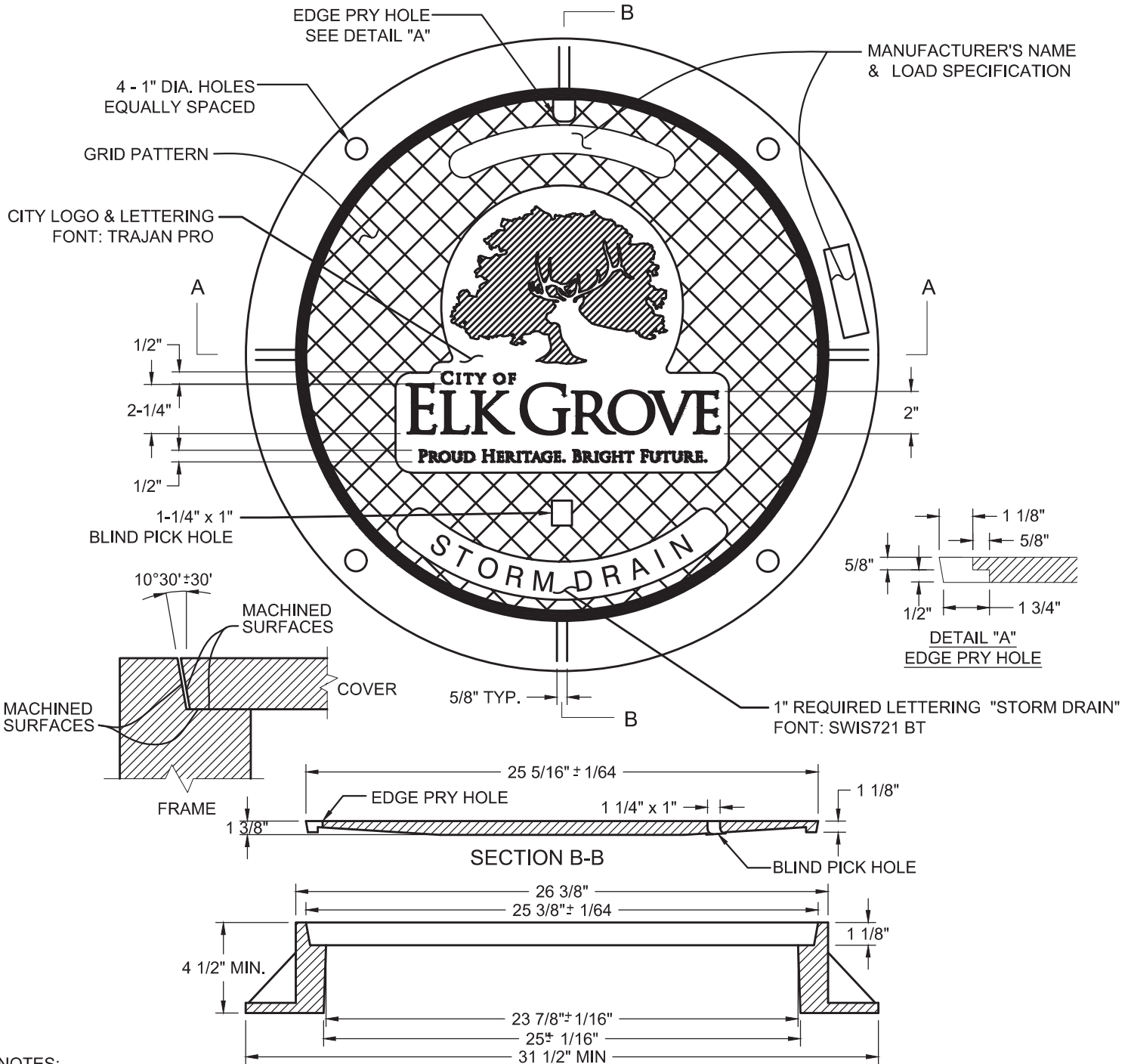
10/24/2018

DATE



DRAWING NUMBER

**SD - 8B**



NOTES:

- ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B. CONTACT CITY OF ELK GROVE FOR IMAGE FILE.
- FRAME AND COVER TO MEET AASHTO M-306-10 LOAD SPECIFICATIONS & MANUFACTURER'S PERFORMANCE REQUIREMENTS FOR POSITION & FIT.
- FRAME AND COVER SHALL HAVE A COATING OF BLACK BITUMINOUS MATERIAL.
- A TAMPER RESISTANT BOLTED TYPE FRAME & COVER SHALL BE USED IN EASEMENT AREAS UNLESS OTHERWISE APPROVED.

APPROX. SET WEIGHT	
FRAME	163 LBS
COVER	135 LBS
<b>TOTAL</b>	<b>298 LBS</b>

DATE 12/26/2018		NOT TO SCALE	
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CITY OF ELK GROVE - PUBLIC WORKS

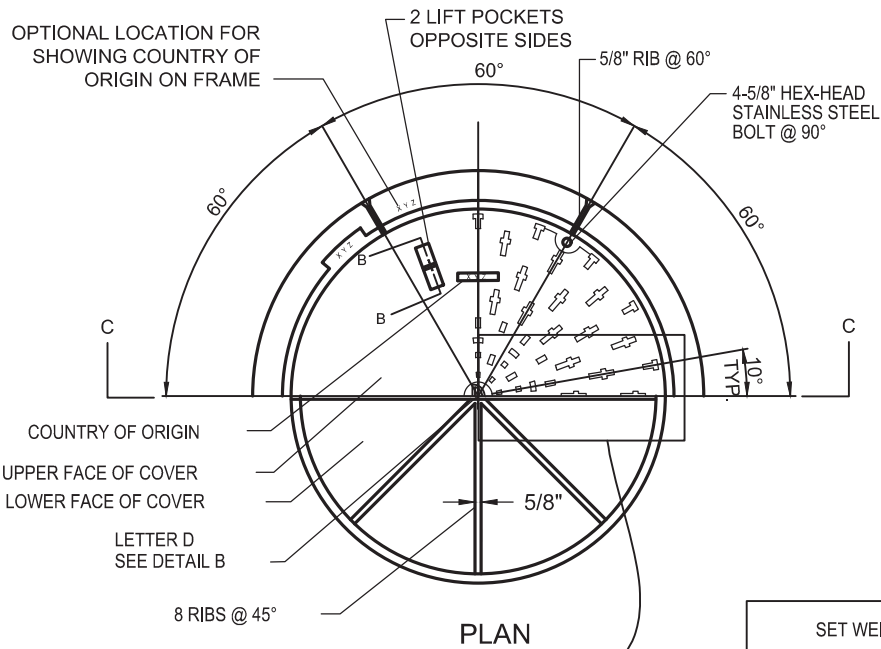
**GREY CAST IRON  
STANDARD 24" MANHOLE  
FRAME & COVER WITH CITY LOGO**

APPROVED BY:  
*Robert Murdoch*  
CITY ENGINEER

02/26/2021  
DATE

DRAWING NUMBER  
**SD - 9**

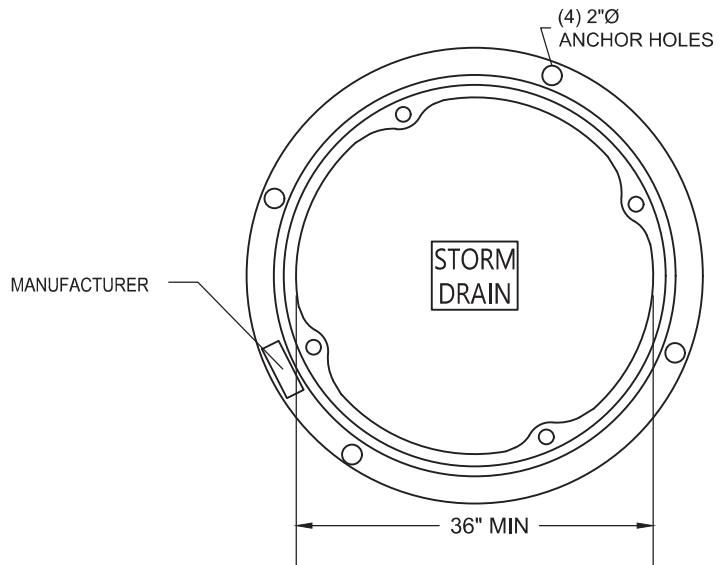




SET WEIGHT	
FRAME	310 LBS
COVER	290 LBS
<b>TOTAL</b>	<b>600 LBS</b>

NOTES:

1. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B.
2. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.
3. MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES NOT TO EXCEED 1/64" TOLERANCE.
4. FRAME AND COVER SHALL HAVE A COATING OF BLACK BITUMINOUS PAINT.
5. LOCKING COVER TYPE FRAME AND COVERS SHALL BE USED WHEN SPECIFIED IN CONTRACT DOCUMENTS.
6. H20 RATED SLOTTED GRATE OR GRATE TYPE MANHOLE COVER MAY BE SUBSTITUTED FOR COVER WHEN SPECIFIED IN CONTRACT DOCUMENTS OR UPON APPROVAL OF DIRECTOR.
7. COVER SHALL BE "STORM DRAIN" STAMPED.



DATE: 09/22/2017		NOT TO SCALE	
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CITY OF ELK GROVE - PUBLIC WORKS

**GREY CAST IRON  
STANDARD 36" MANHOLE  
FRAME & COVER (PG 1 OF 2)**

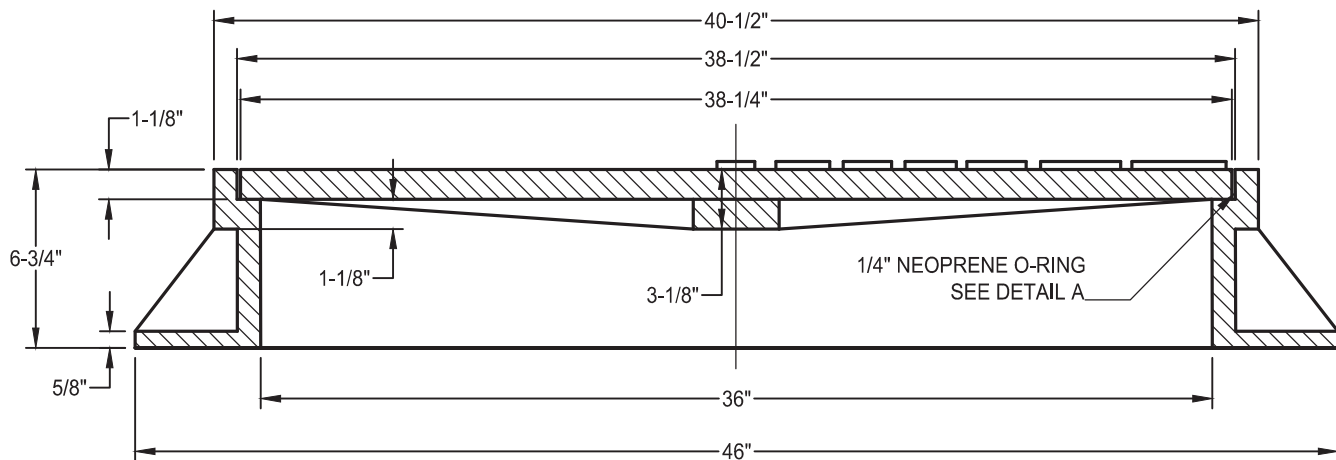
APPROVED BY:  
*Robert M. Muroch*  
CITY ENGINEER

10/24/2018  
DATE

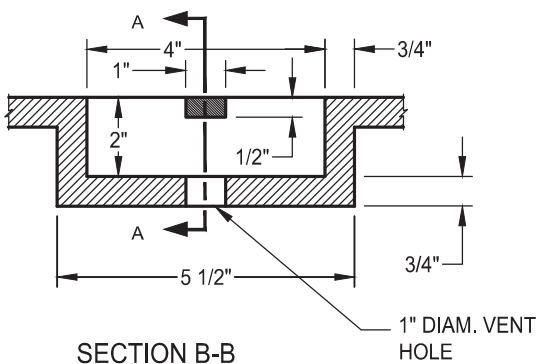
DRAWING NUMBER  
**SD - 10.1**





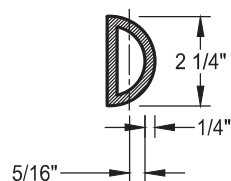


SECTION C-C

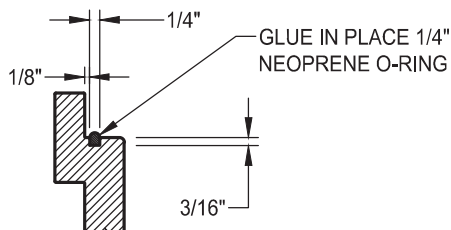


SECTION B-B

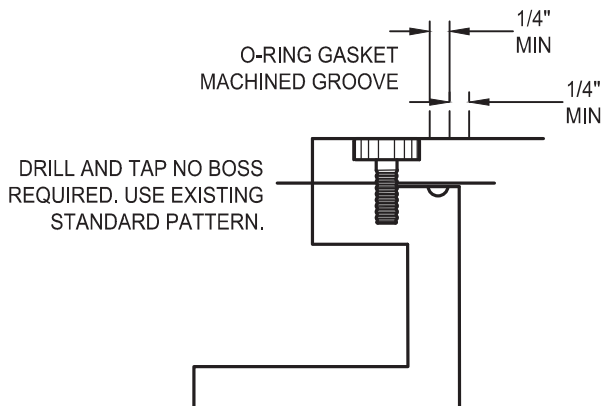
1" DIAM. VENT HOLE



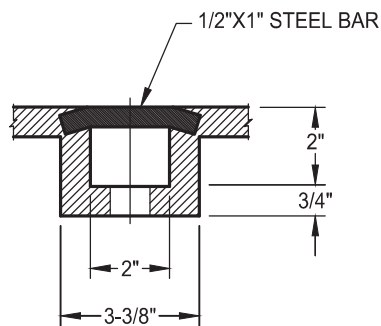
DETAIL B



DETAIL A



BOLT DOWN COVER DETAIL



SECTION A-A

DATE: 09/22/2017		NOT TO SCALE	
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CITY OF ELK GROVE - PUBLIC WORKS

**GREY CAST IRON  
STANDARD 36" MANHOLE  
FRAME & COVER (PAGE 2 OF 2)**

APPROVED BY:

*Paul M. Muddoch*

10/24/2018

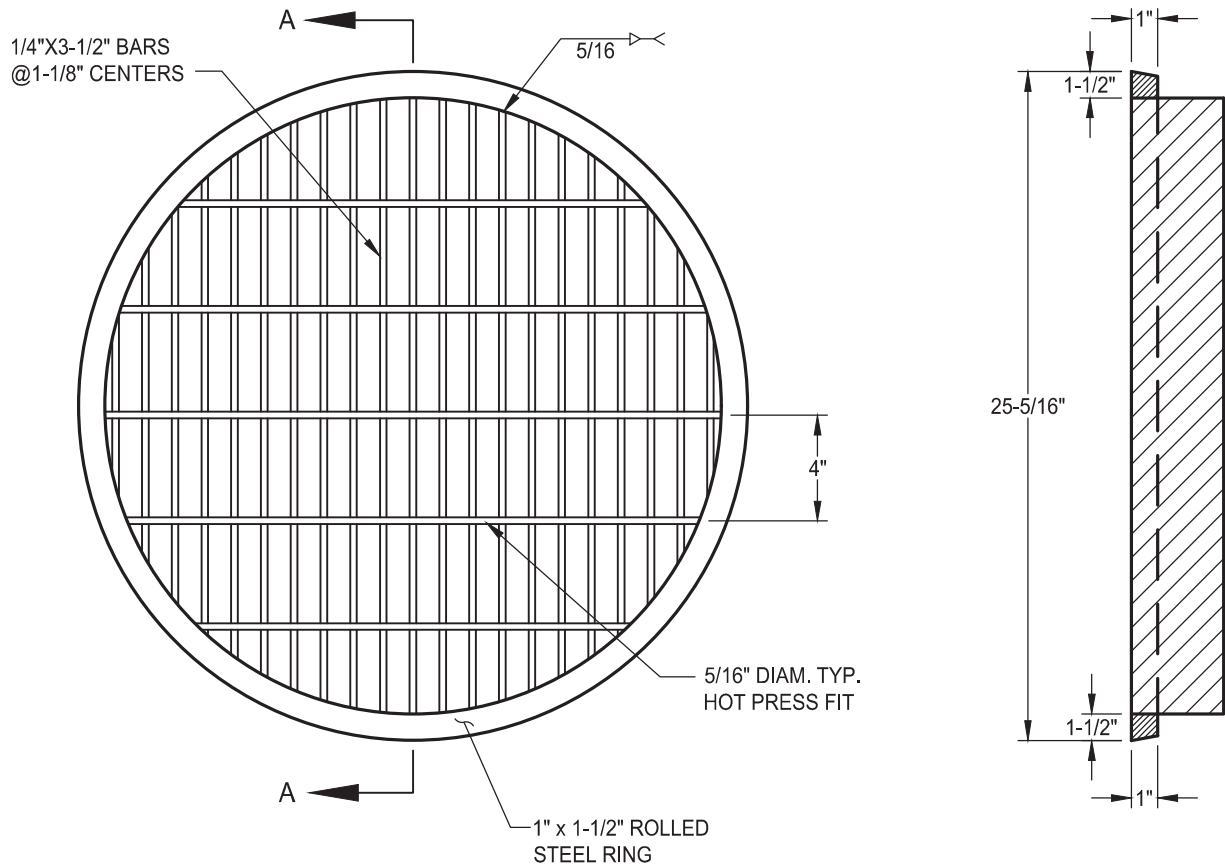
CITY ENGINEER

DATE



DRAWING NUMBER

**SD - 10.2**



**SECTION A-A**

**NOTES:**


1. MANHOLE COVER SHALL FIT FRAME SHOWN ON STANDARD DRAWING SD-9.
2. SEATING SURFACES SHALL BE MACHINED AS SHOWN IN DETAIL ON STANDARD DRAWING SD-9.
3. THIS COVER MAY BE USED ONLY WITH APPROVAL OF THE CITY ENGINEER.
4. GALVANIZE AFTER FABRICATION.

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CITY OF ELK GROVE - PUBLIC WORKS

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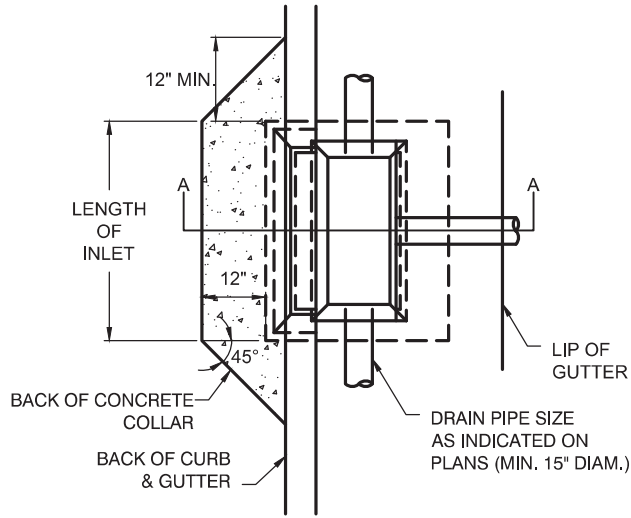
**GRATE TYPE MANHOLE COVER**

APPROVED BY:  
  
 CITY ENGINEER 10/24/2018  
DATE

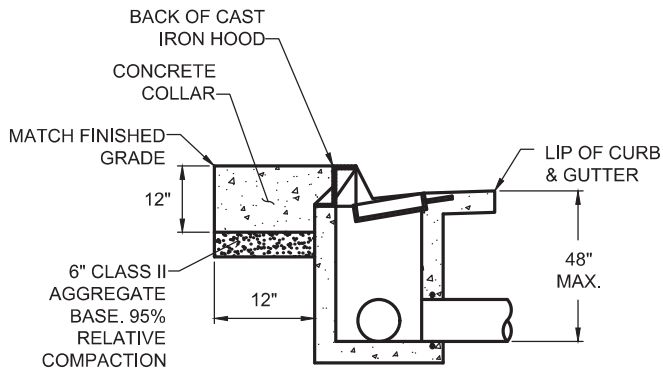
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DRAWING NUMBER  
**SD - 11**





PLAN



SECTION A-A

**NOTES**

1. TO BE USED ON TYPE 1A AND TYPE 2 CURB AND GUTTER WHERE INLETS ARE AT DETACHED SIDEWALKS.

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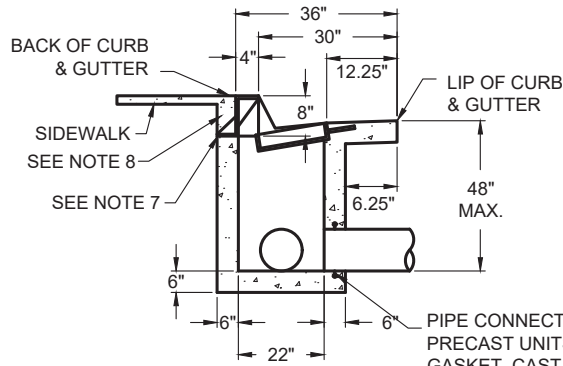
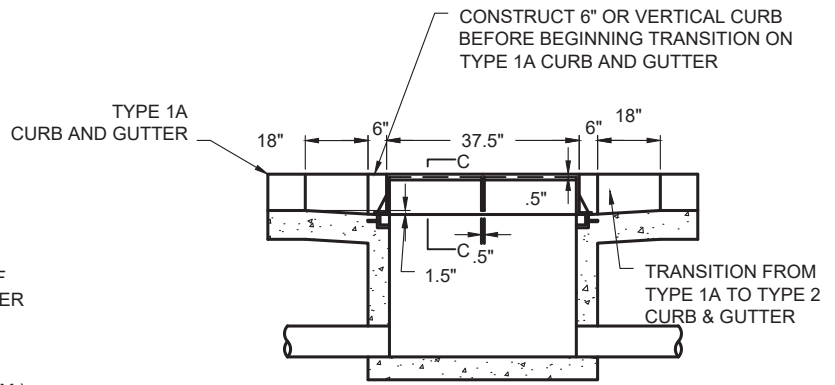
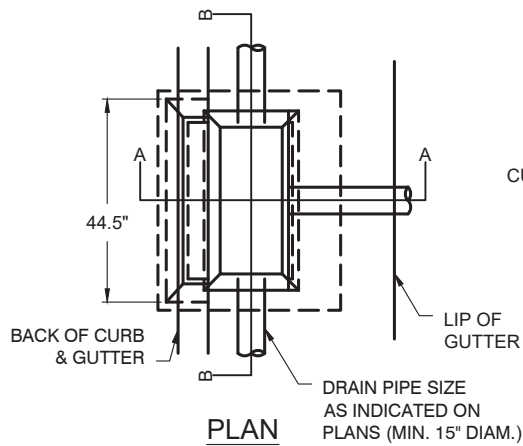
CITY OF ELK GROVE - PUBLIC WORKS

**DROP INLET  
TYPE B  
AT DETACHED SIDEWALK**

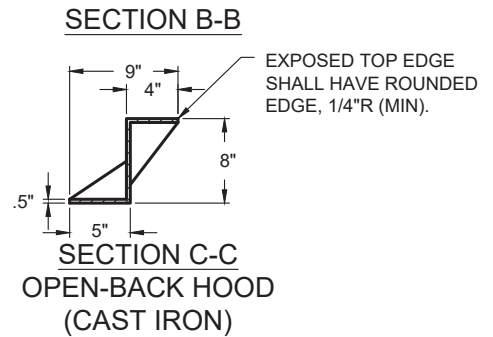
APPROVED BY:  
*Paul Murock*  
CITY ENGINEER      10/24/2018  
DATE



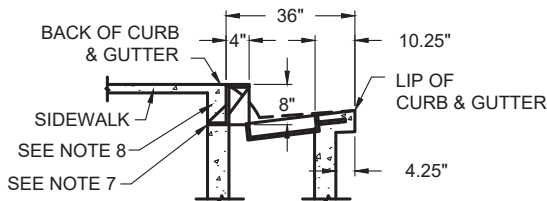
DRAWING NUMBER  
**SD - 12.1**



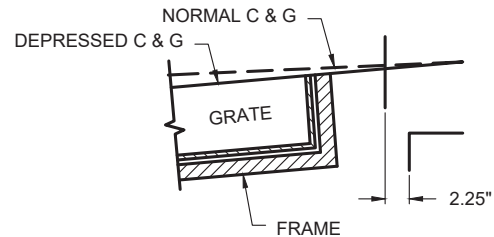
**SECTION A-A  
TYPE 2-VERTICAL C&G**



**SECTION C-C  
OPEN-BACK HOOD  
(CAST IRON)**



**SECTION A-A  
TYPE 1A - ROLLED C&G**



**CURB AND GUTTER  
WITH FRAME DETAIL**

**NOTES**

1. STANDARD DEPRESSION FOR INLET IS 1-1/2" AND LIP OF GUTTER MUST BE SET BACK 3" FROM GUTTER FLOW LINE.
2. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWINGS SD-14 AND SD-15.
3. OPEN-BACK HOOD SHALL BE H-20 RATED.
4. EXPOSED EDGES SHALL HAVE A 1/8" R (MINIMUM).
5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.
6. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.
7. SEE SD-12.1 FOR INSTALLATION OF INLETS AT DETACHED SIDEWALKS.
8. INCREASE SIDEWALK THICKNESS TO 8" IN ORDER TO ANCHOR CAST IRON HOOD AND INLET WALL. WIDTH TO BE 6" MINIMUM.
9. WHEN MORE THAN ONE GRATE IS PROPOSED, STD DWG SD-16 FOR SUPPORT ASSEMBLY.

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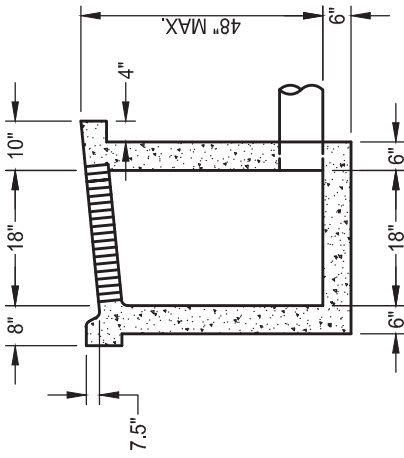
APPROVED BY:  
*Robert Muddock*  
CITY ENGINEER  
10/24/2018  
DATE

**DROP INLET  
TYPE B**



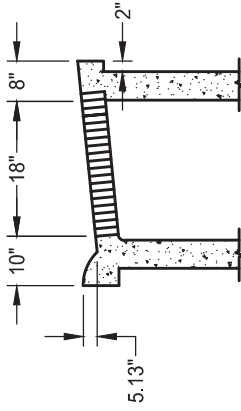
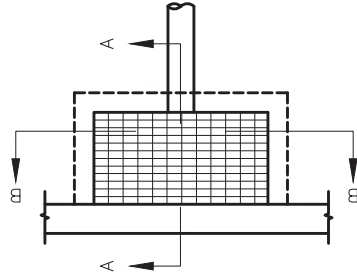
DRAWING NUMBER

**SD - 12**



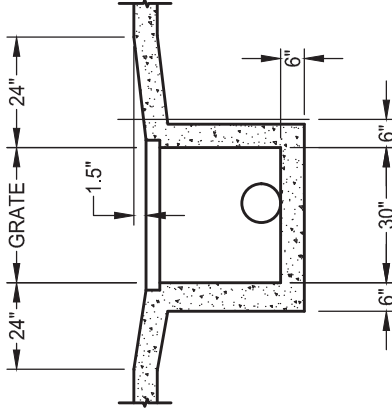
TYPE 2 CURB

SECTION A-A



TYPE 1A CURB

SECTION B-B



NOTES

1. STANDARD DEPRESSION FOR INLET IS 1-1/2".
2. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWINGS SD-14 AND SD-15.
3. OPEN-BACK HOOD SHALL BE H-20 RATED.
4. ALL EXPOSED EDGES SHALL HAVE A 1/8" R (MINIMUM).
5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.
6. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.

DATE	NOT TO SCALE	
09/22/2007		
REVISION	APPROVED	DATE
01	JRW	02/16/2021

**CITY OF ELK GROVE - PUBLIC WORKS**

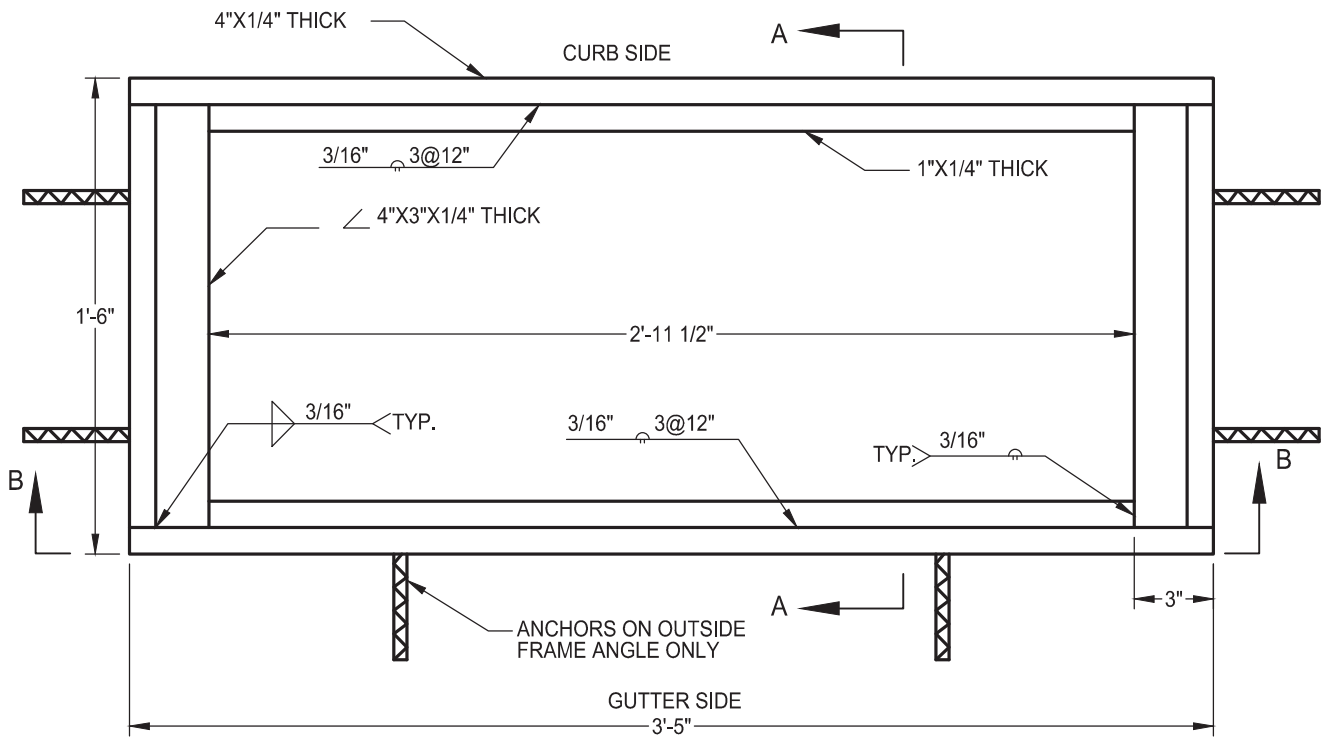
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**DROP INLET  
TYPE C**

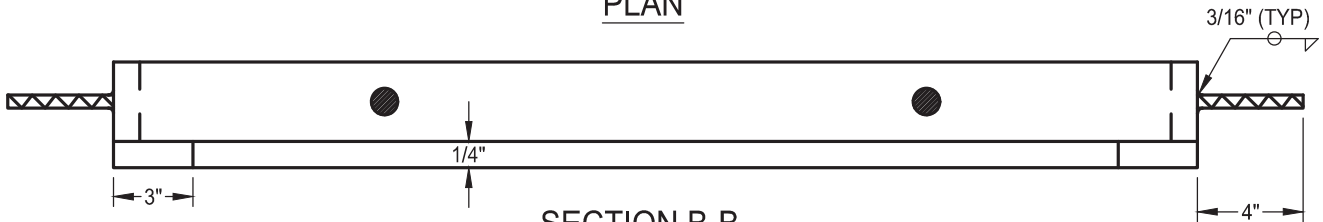
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APPROVED BY: *Robert M. ...* DATE: 02/17/2021  
 CITY ENGINEER

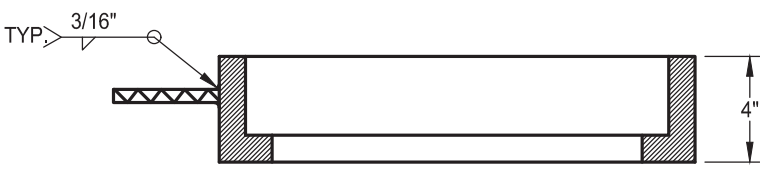
DRAWING NUMBER  
**SD - 13**



**PLAN**



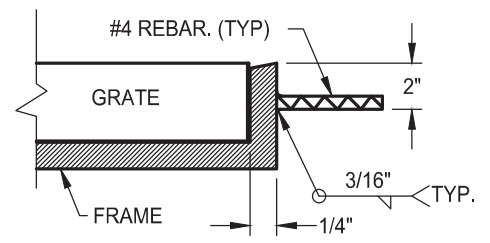
**SECTION B-B**



**SECTION A-A**

**NOTES:**

1. OMIT 1/2" FRAME ANCHORS OVER CENTER SUPPORT ASSEMBLY WHEN MULTIPLE FRAMES ARE USED.
2. MATERIAL: ASTM A36 MILD STEEL
3. SEE ARTICLE 50-31, "SEWER AND STORM DRAIN CASTINGS," OF SECTION 50.
4. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.



**FRAME ANCHOR DETAIL**

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE


**CITY OF ELK GROVE - PUBLIC WORKS**

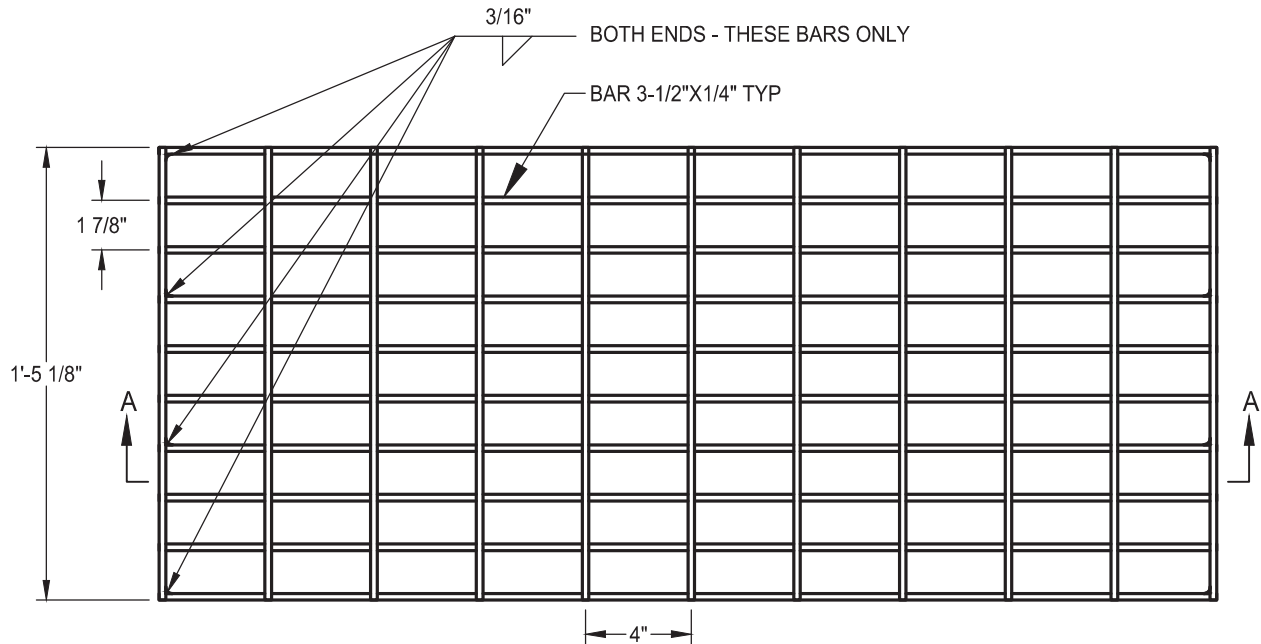
**WELDED STEEL GRATE FRAME**

APPROVED BY:  
*Paul M. Muddock*  
CITY ENGINEER

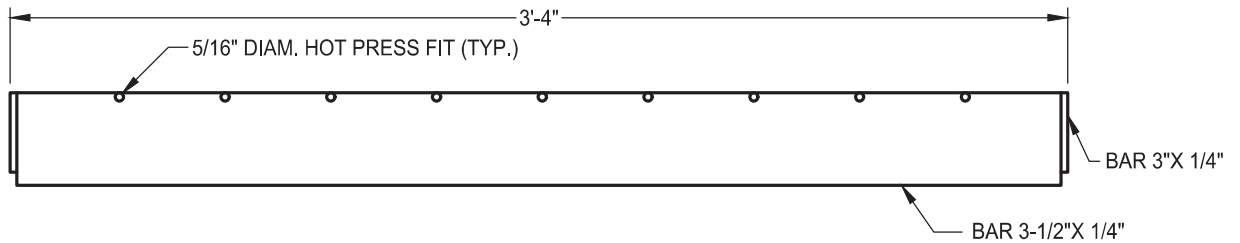
10/24/2018  
DATE

DRAWING NUMBER  
**SD - 14**





PLAN



SECTION A-A

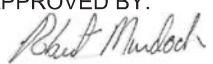
**NOTES:**

1. DIMENSIONS TO CENTERLINE OF BARS UNLESS OTHERWISE NOTED.
2. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

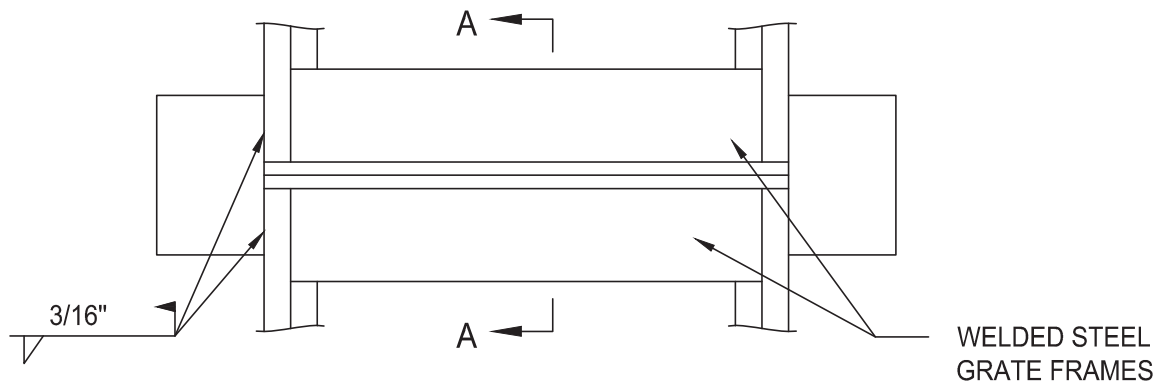
**WELDED STEEL GRATE**

APPROVED BY:  
  
 10/24/2018  
 CITY ENGINEER DATE



DRAWING NUMBER

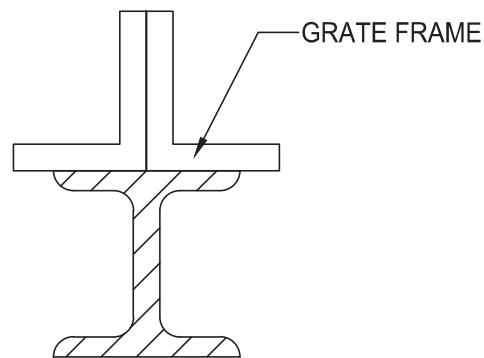
**SD - 15**



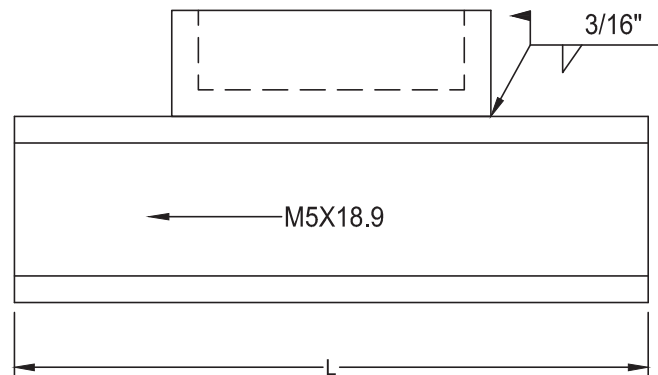
**PLAN**

**NOTES:**

1. OMIT 1/2" FRAME ANCHORS OVER CENTER SUPPORT.
2. L=57 INCHES FOR CURB OPENING CATCH BASIN WITH GRATING(S) AND DEBRIS SKIMMER (APWA GREENBOOK STANDARD PLAN 301).
3. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.



**SECTION A-A**



**ELEVATION**

DATE 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE
01	STN	JRW	02/16/2021

CITY OF ELK GROVE - PUBLIC WORKS

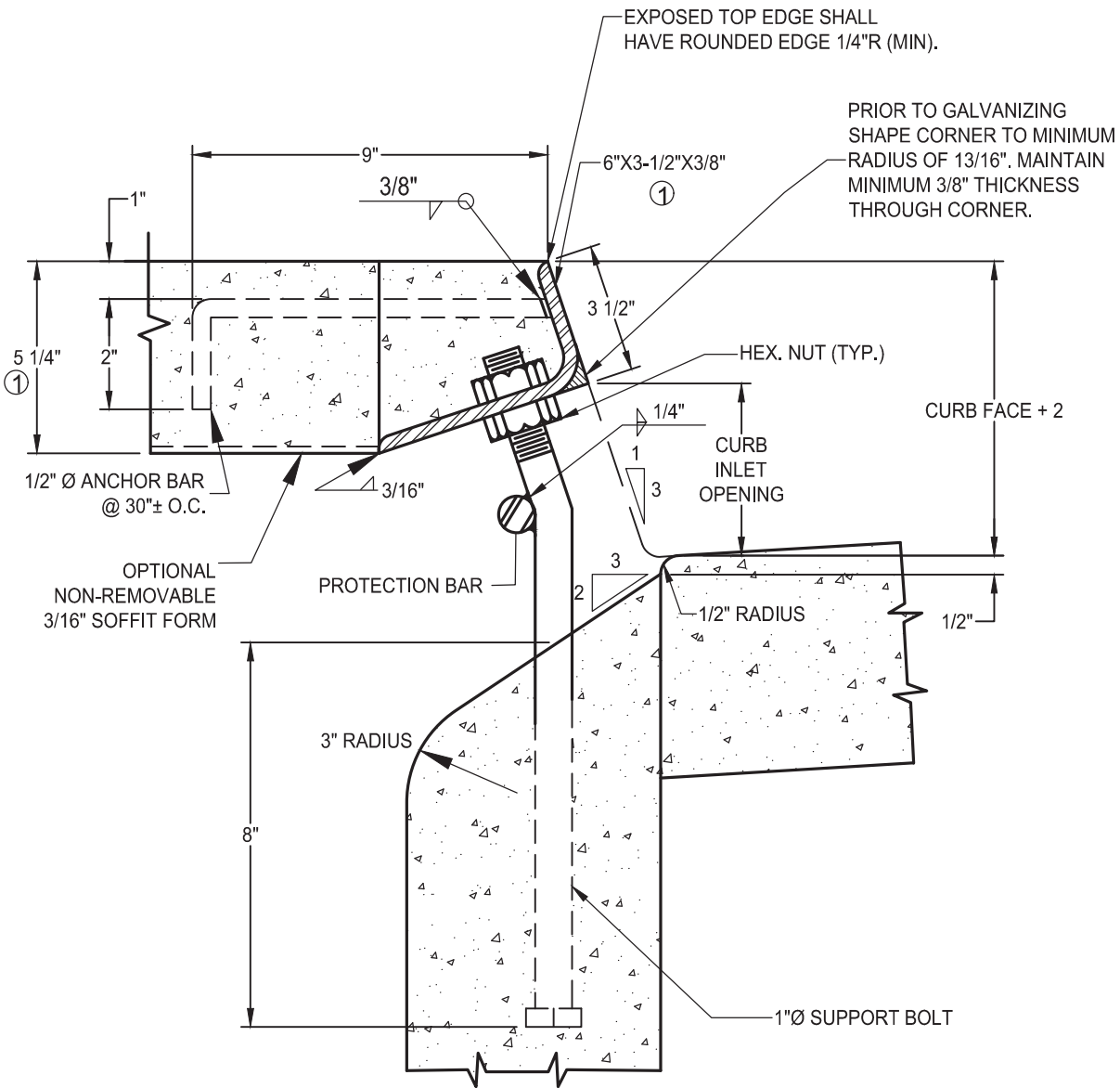
**CENTER SUPPORT ASSEMBLY  
FOR MULTIPLE GRATES**

APPROVED BY:  
*Robert Murdoch*  
CITY ENGINEER      02/26/2021  
DATE



DRAWING NUMBER  
**SD - 16**





**NOTES:**

1. TO BE USED ONLY IN TYPE 2 CURB AND GUTTER WITH 2" DEPRESSION. USE IN TYPE 1A CURB AND GUTTER ONLY UPON APPROVAL OF THE CITY ENGINEER. SEE KEYNOTE 1 .
2. FACE ANGLE SHALL BE CAST INTO STRUCTURE CONTINUOUS FOR THE FULL LENGTH "W".
3. ALL EXPOSED METAL PARTS TO BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
4. WHEN CURB INLET OPENING HEIGHT (H) EXCEEDS 6" INSTALL 1" Ø STEEL PROTECTION BAR.
5. INSTALL ADDITIONAL BARS AT 3-1/2" CLEAR SPACING ABOVE FIRST BAR WHEN OPENING EXCEEDS 13".
6. WHEN CURB INLET OPENING LENGTH EXCEEDS 8' INSTALL 1" Ø STEEL SUPPORT BOLTS, SPACED AT NOT MORE THAN 5' O.C.

**KEYNOTES:**

1. ALTERNATE ANGLE IRON SIZE, DEPRESSION DEPTH, AND SLAB THICKNESS MAY BE USED UPON APPROVAL OF THE CITY ENGINEER.

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REVISION	BY	APPROVED	DATE


CITY OF ELK GROVE - PUBLIC WORKS

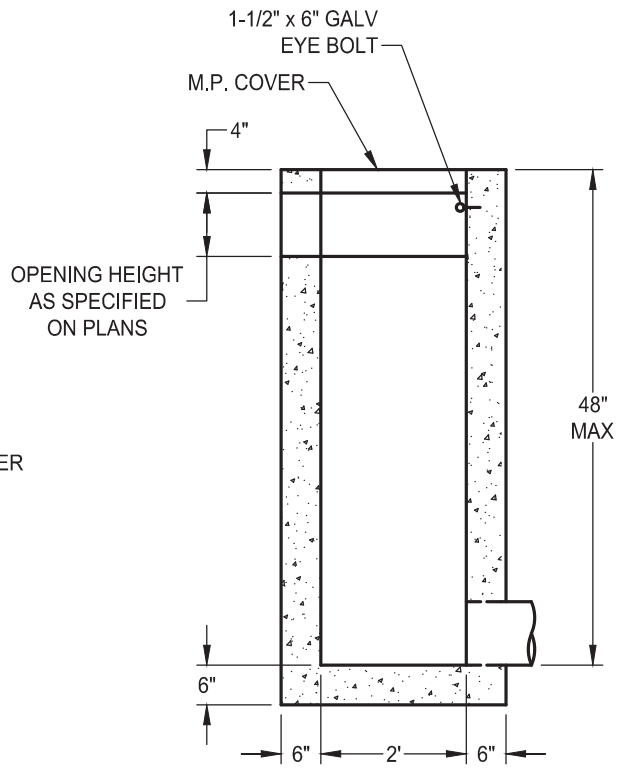
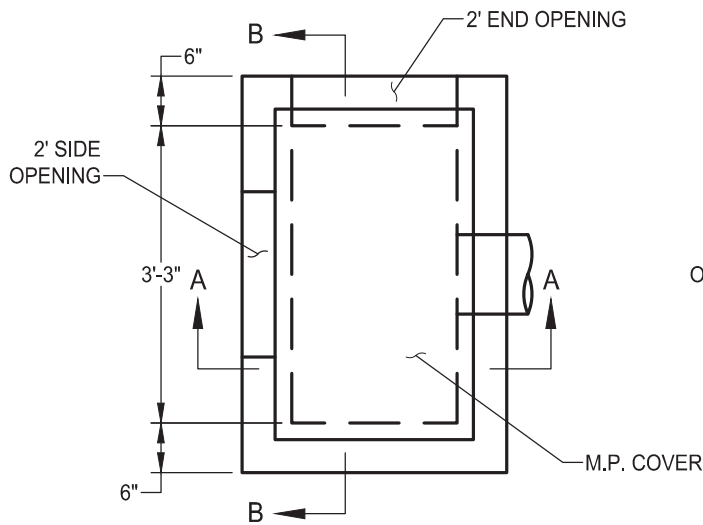
**CATCH BASIN FACE PLATE  
ASSEMBLY AND PROTECTION BAR**

APPROVED BY:  
*Robert M. Muddoch*  
CITY ENGINEER

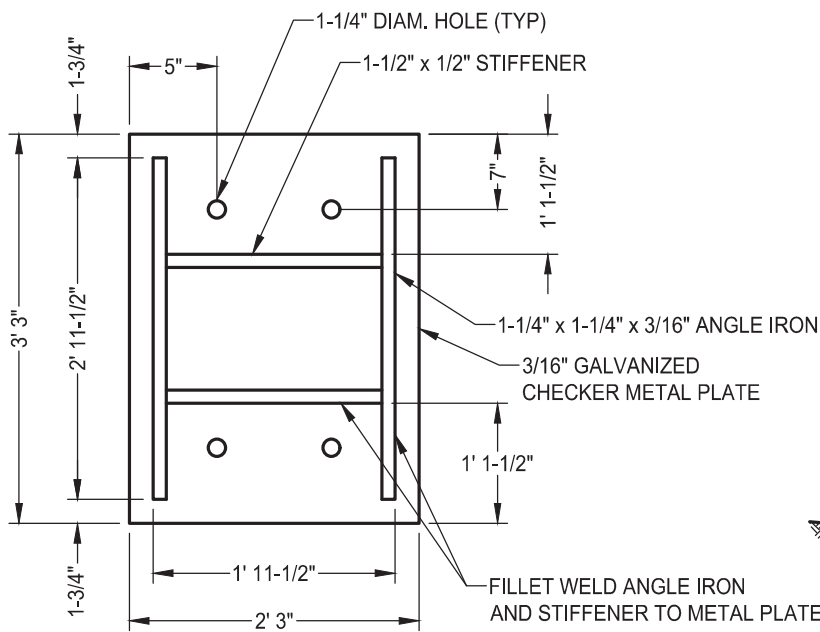
10/24/2018  
DATE

DRAWING NUMBER  
**SD - 17**



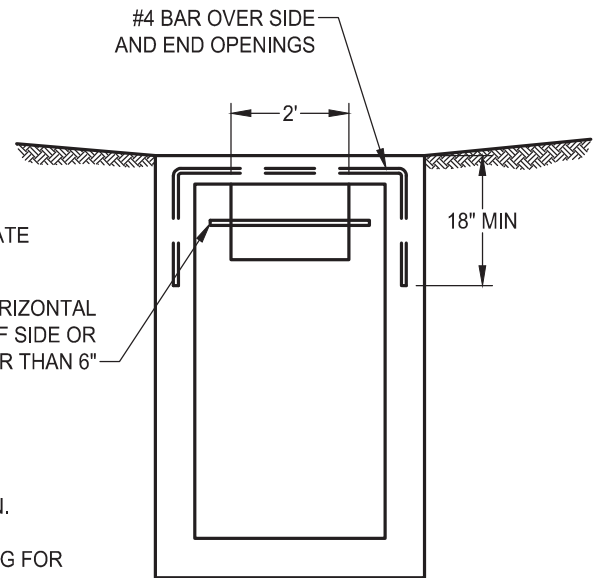


**SECTION A-A**



**METAL COVER (UNDERSIDE)**

PLACE 1/2" DIAM. HORIZONTAL BAR IN CENTER OF SIDE OR END OPENING GREATER THAN 6"



**SECTION B-B**

**NOTES:**

1. PROVIDE 1/4" x 18" GALVANIZED CHAIN WELD TO COVER AND EYE BOLT.
2. PROVIDE END OR SIDE OPENINGS AS SHOWN ON PLANS OR CROSS SECTION.
3. TOP OF WALLS TO BE FINISHED TO A FLAT PLANE TO PROVIDE EVEN BEARING FOR PLATE COVER.
4. ALL METALS SHALL BE HOT DIP GALVANIZED PER ASTM A123.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

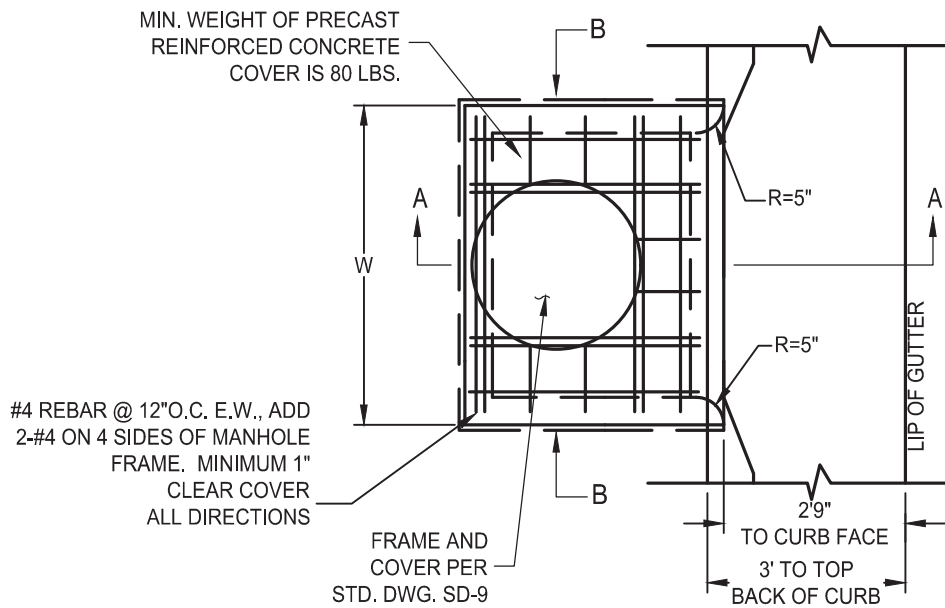
CITY OF ELK GROVE - PUBLIC WORKS

**DROP INLET  
TYPE F**

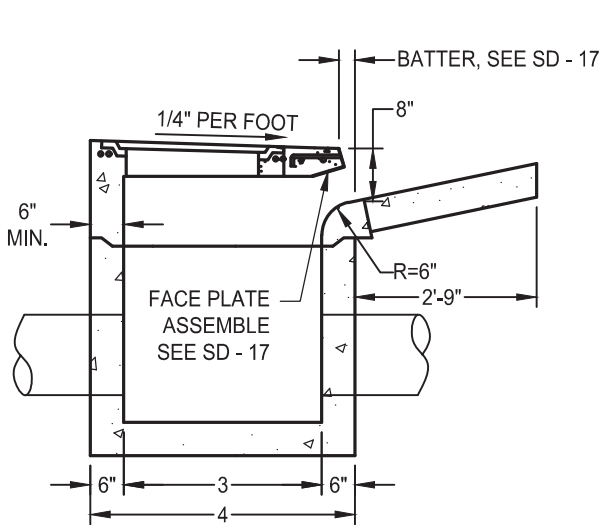
APPROVED BY:  
*Paul M. Muelich*  
CITY ENGINEER  
10/24/2018  
DATE



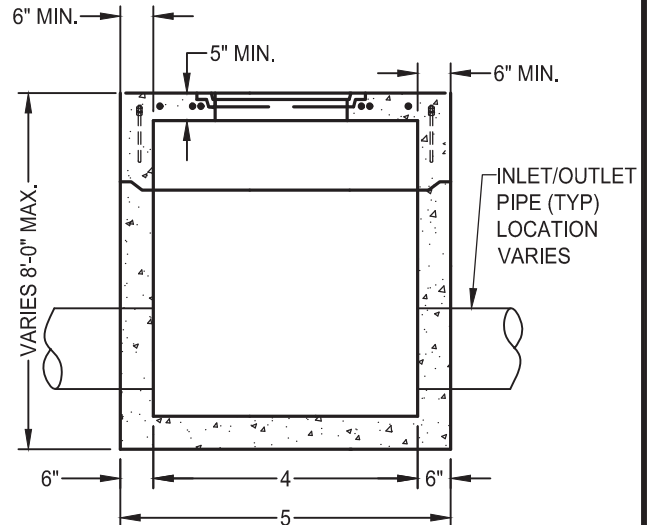
DRAWING NUMBER  
**SD - 18**



**PLAN**



**SECTION A-A**



**SECTION B-B**

**NOTES:**

1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE OR FORMED AND CAST-IN-PLACE P.C.C.
2. ALL METAL SHALL BE HOT DIP GALVANIZED PER ASTM A123.
3. SEE STANDARD DRAWING SD - 17 FOR FACE PLATE ASSEMBLY.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

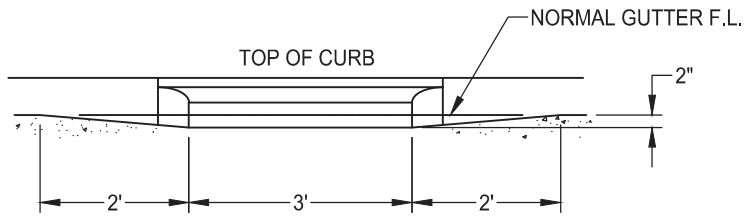
CITY OF ELK GROVE - PUBLIC WORKS

**DROP INLET TYPE G  
TYPE 2 C&G ONLY  
(PG 1 OF 2)**

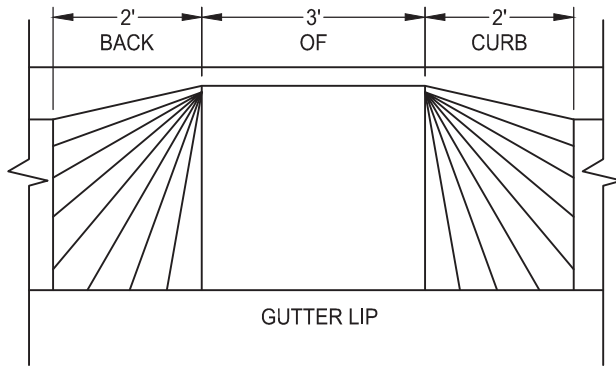
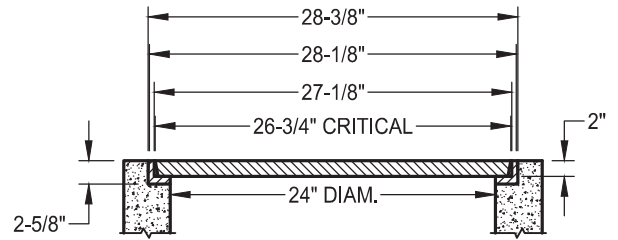
APPROVED BY:  
*Paul M. Muelich*  
10/24/2018  
CITY ENGINEER DATE



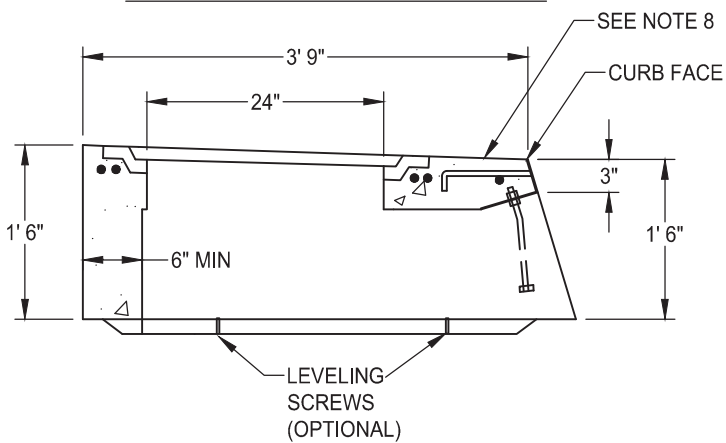
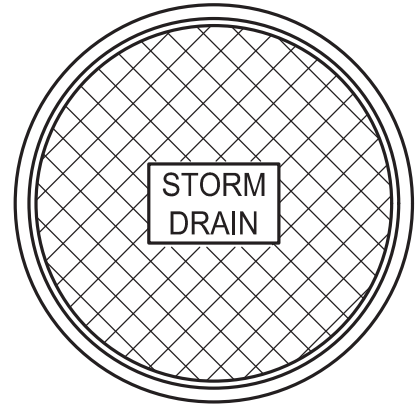
DRAWING NUMBER  
**SD - 19.1**



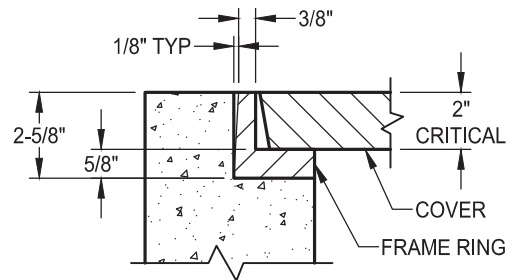
**GUTTER TRANSITION ELEVATION**



**GUTTER TRANSITION PLAN**



**CURB INLET DETAIL**



**FRAME AND LID DETAIL**

WEIGHT	
CAST IRON COVER	91 LBS
CAST IRON FRAME RING	52 LBS

**NOTES:**

1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE, OR FORMED AND CAST-IN-PLACE P.C.C.
2. ALL METAL SHALL BE HOT DIPPED GALVANIZED ASTM A123.
3. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B
4. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.
5. BEARING SURFACES ARE MACHINE BEVELED TO ASSURE A CLOSE, NON ROCKING SURFACE.
6. FRAME AND COVER SHALL HAVE A COATING OF BLACK BITUMINOUS MATERIAL CONFORMING TO ASTM 48-30.
7. SEE ARTICLE 50-31 "SEWER AND STORM DRAIN CASTINGS" OF SECTION 50, CONSTRUCTION SPECIFICATIONS.
8. INSTALL "NO DUMPING, DRAINS TO CREEK" PLACARD ON TOP OF CURB.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE


CITY OF ELK GROVE - PUBLIC WORKS

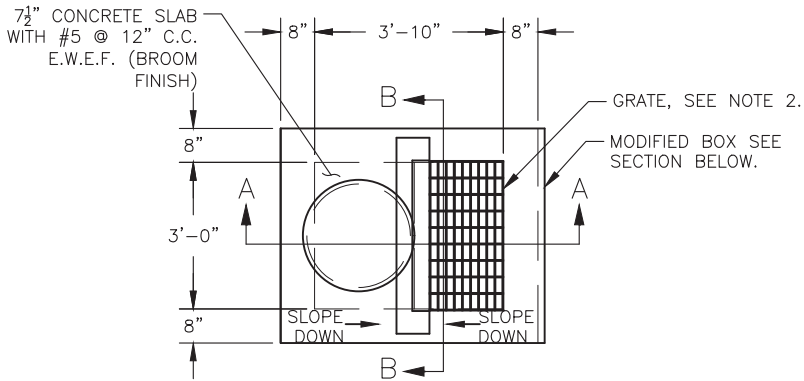
**DROP INLET TYPE G  
TYPE 2 C&G ONLY  
(SHEET 2 OF 2)**

APPROVED BY:  
*Paul M. Mudd*  
CITY ENGINEER

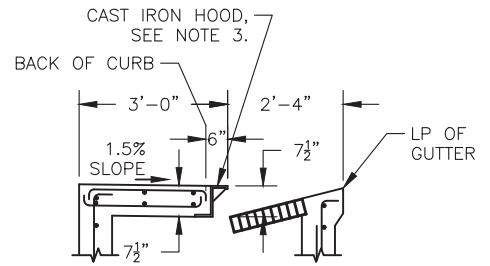
10/24/2018  
DATE

DRAWING NUMBER  
**SD - 19.2**





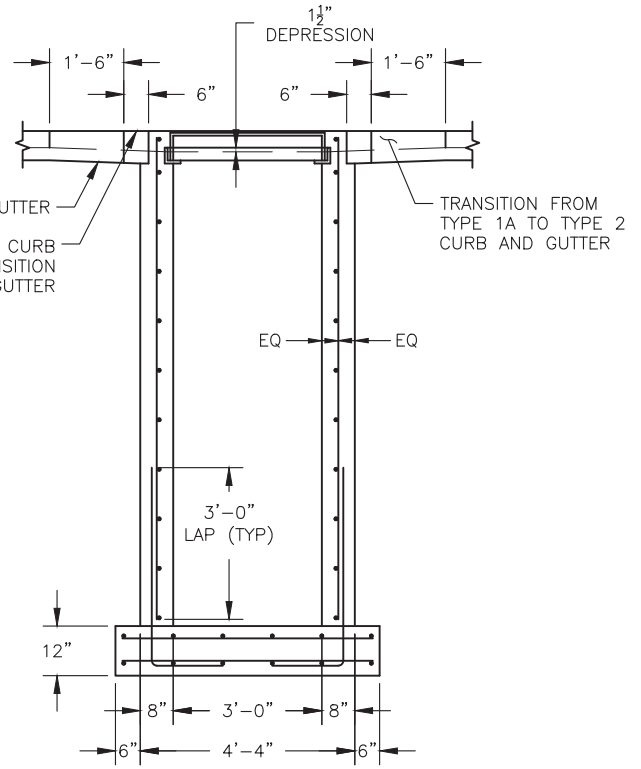
PLAN VIEW



SECTION A-A

TYPE 2 CURB AND GUTTER

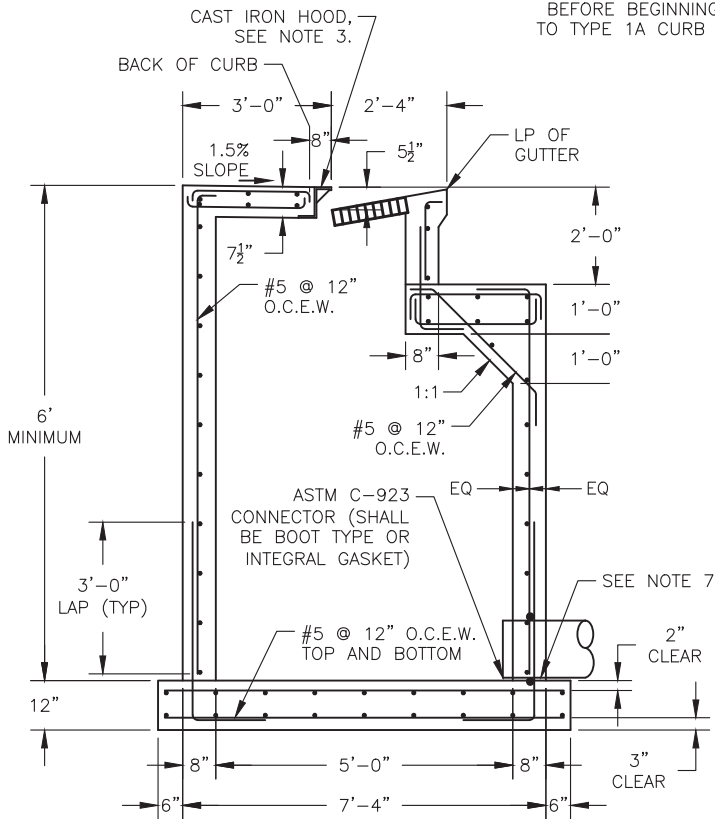
(FOR INFORMATION NOT SHOWN OR NOTED REFER TO SECTION A-A TYPE 1A CURB AND GUTTER)



SECTION B-B

NOTES:

1. STANDARD DEPRESSION FOR INLET IS 1 1/2".
2. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWINGS SD-14 AND SD-15.
3. OPEN BACK CAST IRON HOOD SHALL BE H-20 RATED, 3/4" THICK AND CONFORM TO STANDARD DRAWING SD-12.
4. ALL EXPOSED EDGES SHALL HAVE A 1/4" RADIUS (MINIMUM).
5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.
6. EXPOSED SURFACES OF THE GRATES, FRAMES, AND HOODS WITH THE PARTS ASSEMBLED DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
7. THE MINIMUM PIPE SIZE IS 12" IF THE INLET DEPTH IS GREATER THAN 4', THE MINIMUM PIPE SIZE SHALL BE 15".
8. THE MANHOLE FRAME AND COVER SHALL BE PER STANDARD DRAWING SD-9.



SECTION A-A  
TYPE 1A CURB AND GUTTER

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

*Robert M. ...*

10/24/2018

CITY ENGINEER

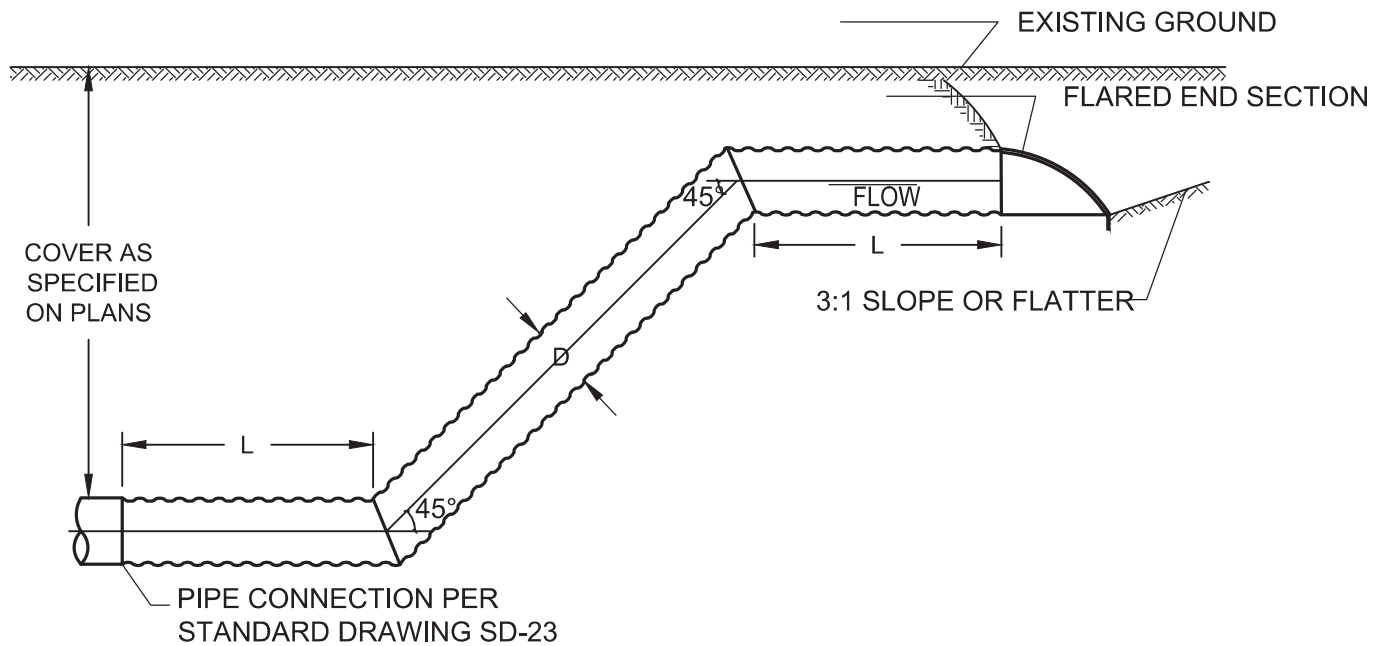
DATE

MODIFIED TYPE J INLET



DRAWING NUMBER

SD - 19.3



RISER DIAMETER, D	LENGTH OF HORIZONTAL PIPE, L
15"	1'-0"
18"	1'-6"
21"	1'-6"
24"	1'-6"
30"	2'-0"
36"	3'-0"
42"	4'-0"
48"	4'-0"

**NOTES**

1. USE 2-PIECE ELBOW AT BOTH ENDS OF RISER. ELBOWS SHALL CONFORM TO STANDARD DRAWING SD-22.
2. TO BE USED ONLY WITH THE SPECIFIC APPROVAL OF THE CITY ENGINEER.
3. PIPE MATERIAL TO BE CMP.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE


CITY OF ELK GROVE - PUBLIC WORKS

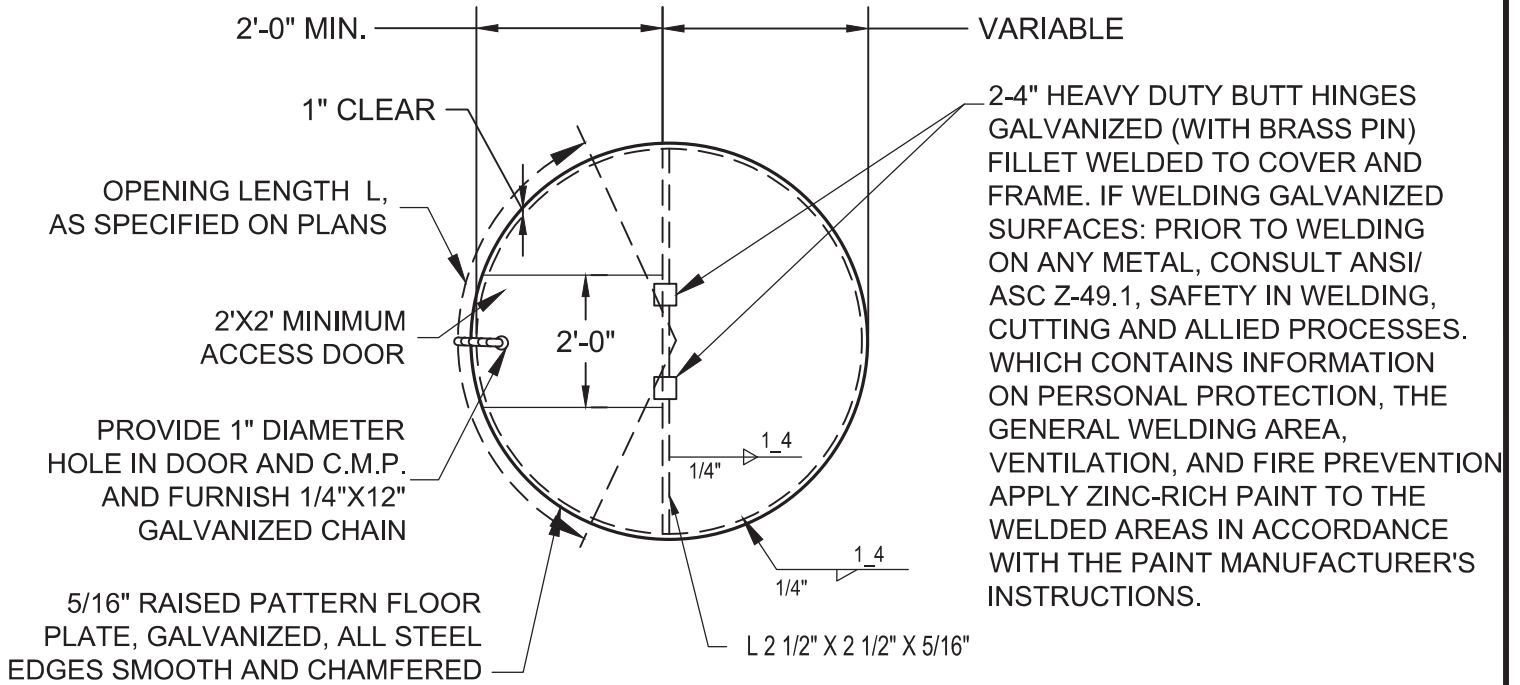
**DRAINAGE INLET  
TYPE H**

APPROVED BY:  
*Paul M. Muddoch*  
CITY ENGINEER

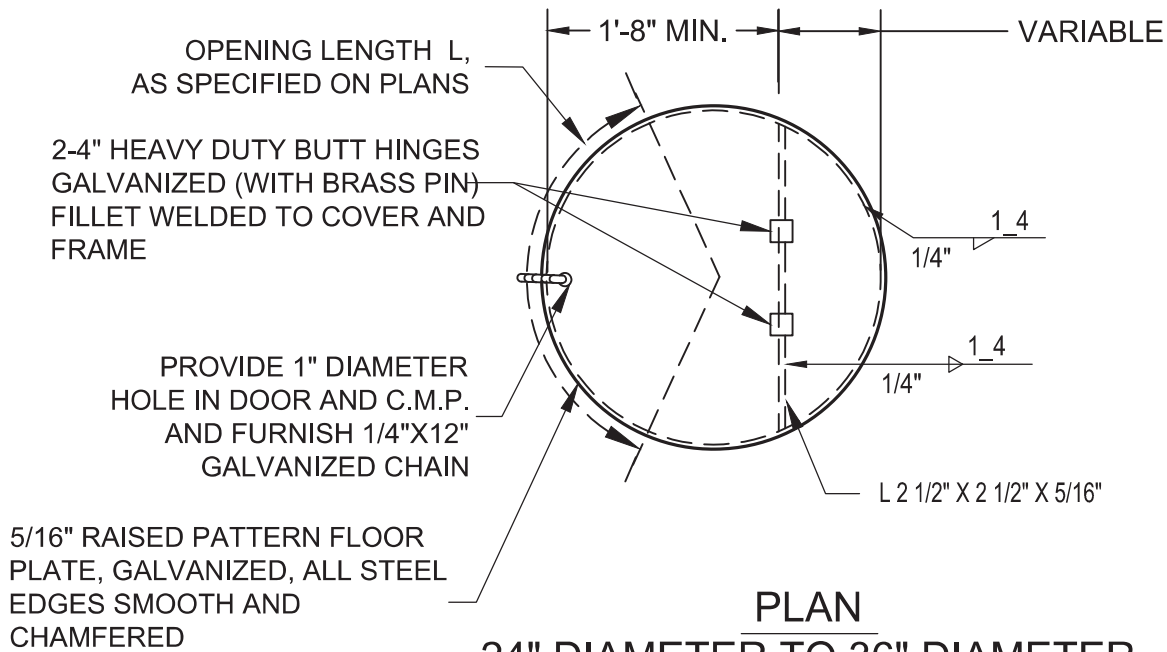
10/24/2018  
DATE

DRAWING NUMBER  
**SD - 20**





**PLAN**  
**42" DIAMETER TO 72" DIAMETER**  
**C.M.P. INLET**

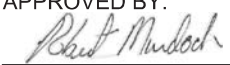


**PLAN**  
**24" DIAMETER TO 36" DIAMETER**  
**C.M.P. INLET**


DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

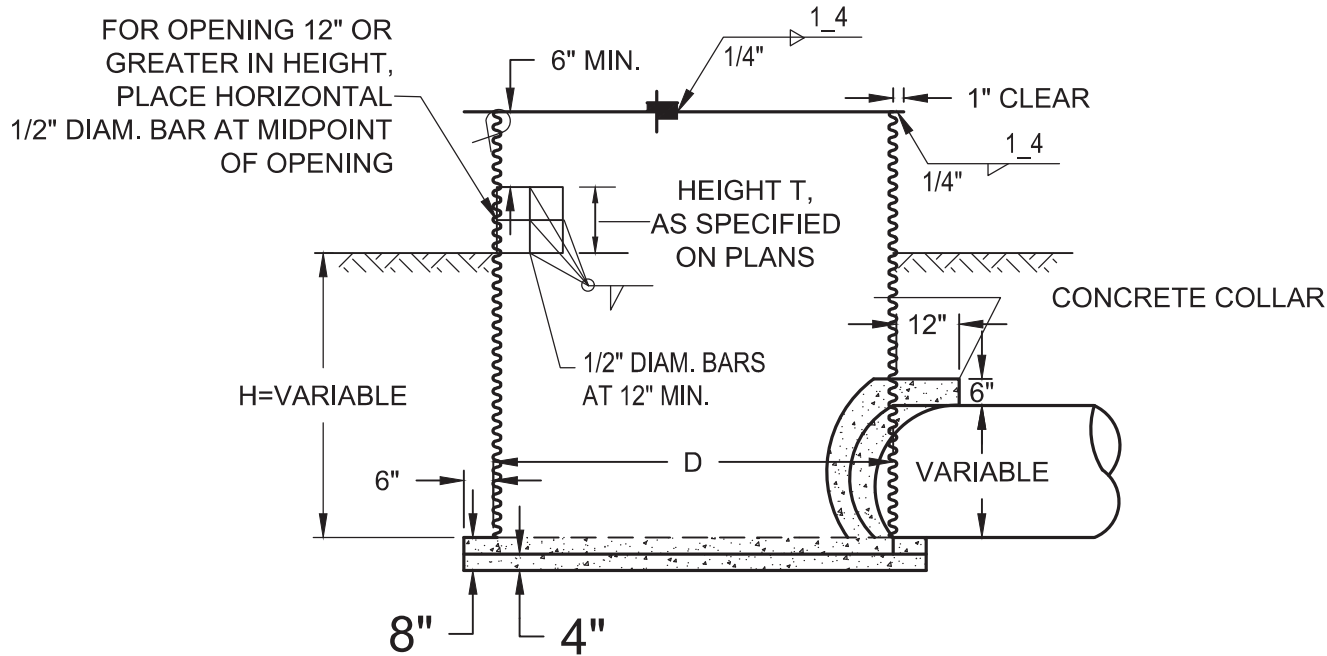
CITY OF ELK GROVE - PUBLIC WORKS

**CORRUGATED METAL PIPE**  
**DRAINAGE INLET**  
**TYPE I (PG 1 OF 2)**

APPROVED BY:  
  
 10/24/2018  
 CITY ENGINEER DATE

DRAWING NUMBER  
**SD - 21.1**





**SECTION**  
**24" DIAMETER TO 36" DIAMETER**  
**C.M.P. INLET**

**NOTES:**

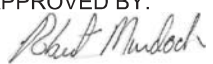
1. LOCATIONS, HEIGHTS, AND LENGTH OF OPENINGS SHALL BE AS SHOW ON THE PLANS.
2. AREA OF OPENING SHALL NOT BE LESS THAN AREA OF OUTFALL PIPE.
3. OUTFALL PIPE TO BE CUT FLUSH WITH INSIDE OF RISER.
4. NOT TO BE USED AS A JUNCTION STRUCTURE.
5. DIAMETER OF RISER PIPE SHALL BE AT LEAST ONE SIZE LARGER THAN OUTFALL PIPE.
6. TO BE USED ONLY WITH THE SPECIFIC APPROVAL OF THE CITY ENGINEER.

RISER DIAMETER, D	H, MAX.	HEIGHT T, MAX.	GAGES (MINIMUM)
24"	4'	8"	0.079"
30"	4'	8"	0.079"
36"	5'	8"	0.109"
42"	8'	12"	0.109"
48"	8'	12"	0.109"
54"	10'	18"	0.109"
60"	10'	18"	0.109"
72"	10'	18"	0.109"


DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

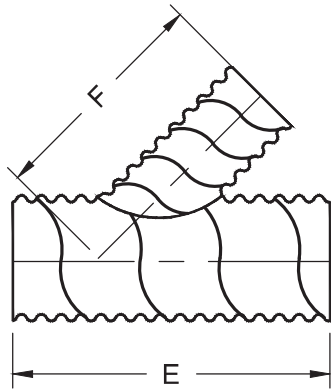
**CORRUGATED METAL PIPE  
DRAINAGE INLET  
TYPE I (PG 2 OF 2)**

APPROVED BY:  
  
10/24/2018  
CITY ENGINEER DATE

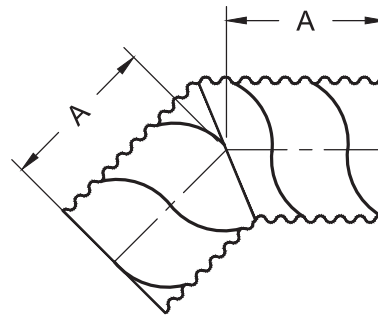
DRAWING NUMBER  
**SD - 21.2**







WYE LATERAL



ELBOW  
0° to 45°

**FITTING SIZES**

DIAM (IN)	A (FT)	E (FT)	F (FT)
15	1	4	4
18	1	4	4
21	2	6	4
24	2	6	4
30	2	6	4
36	2	8	6
42	2	8	6
48	2	10	8
54	3	10	8
60	3	12	10
66	3	12	10
72	3	14	10
78	3	14	10
84	3	16	12
90	3	16	12
96	3	16	12

**NOTES**

1. TO USE TABLE, REFER TO DIAGRAM AND SELECT LETTER REPRESENTING DESIRED DIMENSION, THEN ENTER TABLE AT CORRECT PIPE DIMENSION AND READ DIMENSION IN COLUMN UNDER APPROPRIATE LETTER HEADING.
2. DIMENSIONS ON TABLE ALLOW FOR USE OF STANDARD 12 INCH WIDE BAND COUPLER ON SIZES 15 INCH THROUGH 54 INCH AND 24 INCH WIDE BAND ON 60 INCH AND LARGER SIZES.
3. FOR PIPE-ARCH FITTINGS, CHOOSE PIPE DIAMETER EQUAL TO OR GREATER THAN ARCH SPAN. (EXAMPLE: 35 INCH X 24 INCH PIPE-ARCH; USE DIMENSIONS FOR 36 INCH PIPE).
4. STRUCTURAL REINFORCEMENT MAY BE REQUIRED ON SOME LARGER SIZES.

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REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

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**CORRUGATED PIPE FITTINGS**

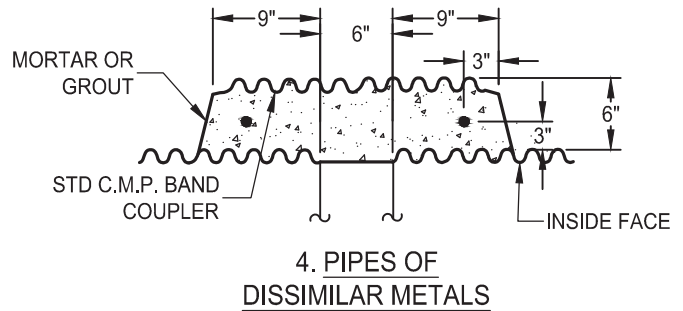
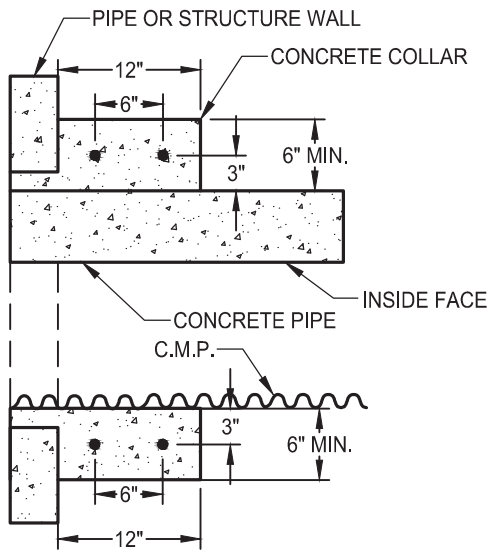
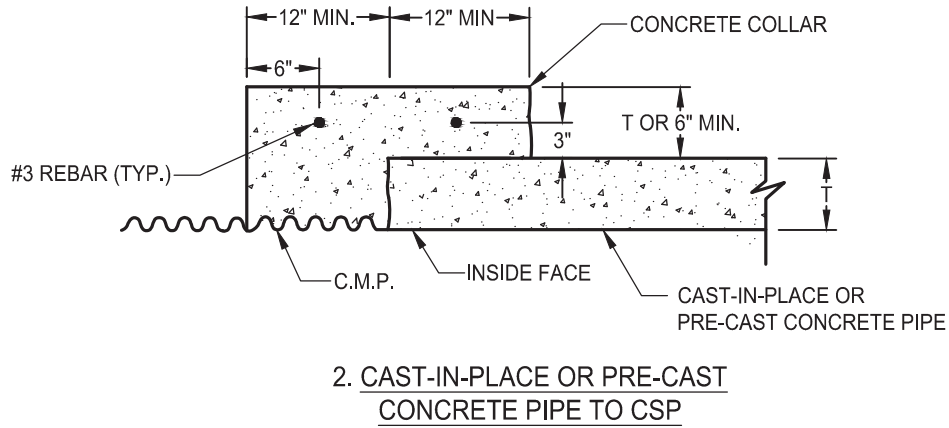
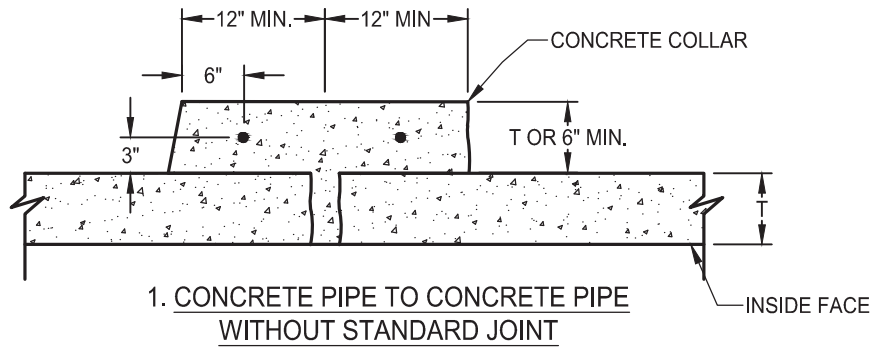
APPROVED BY:  
*Paul M. Muddoch*  
CITY ENGINEER

10/24/2018  
DATE

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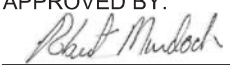
DRAWING NUMBER  
**SD - 22**





DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:  
  
 10/24/2018  
 CITY ENGINEER DATE

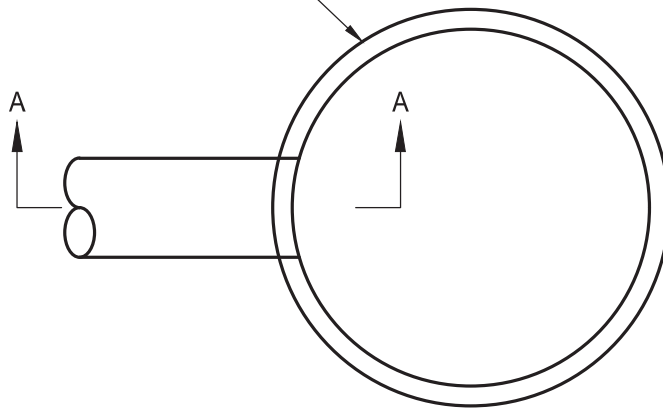
**PIPE CONNECTIONS**



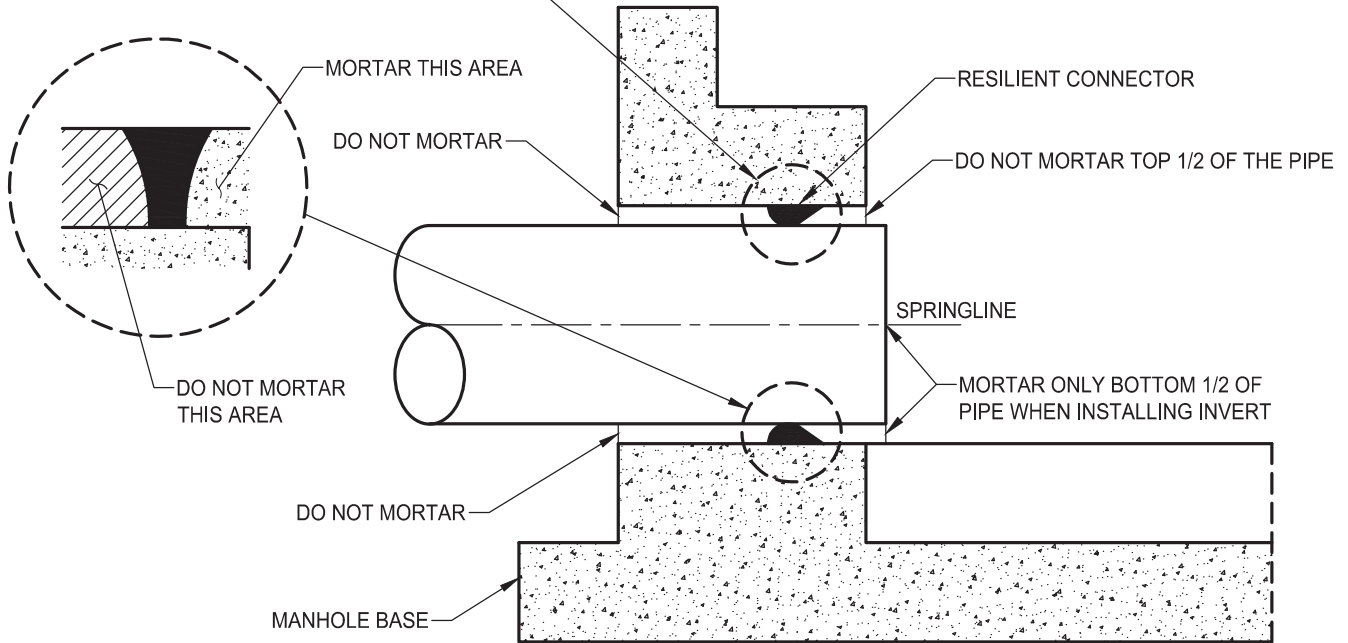
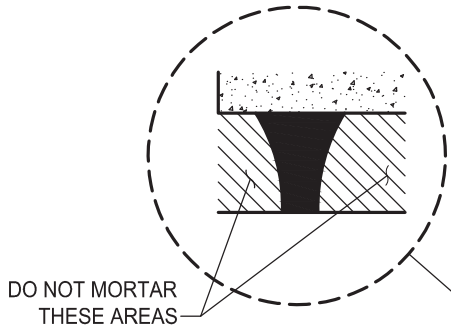
DRAWING NUMBER

**SD - 23**

MANHOLE BASE AND BARREL SECTION, MANHOLE CONE, FRAME, AND COVER OMITTED FOR CLARITY.



**PLAN**



**SECTION A-A**

**NOTES:**

1. TO HELP CREATE A FLEXIBLE, WATERTIGHT JOINT, DO NOT PLACE MORTAR AROUND THE CONNECTOR ON THE OUTSIDE OF THE STRUCTURE OR AROUND THE TOP HALF OF THE CONNECTOR ON THE INSIDE WHEN COMPLETING THE INVERT WORK.
2. RESILIENT CONNECTORS SHALL BE A FLEXIBLE COMPRESSION GASKET OR BOOT CONNECTOR PER SECTION 39-2.01 "PRECAST CONCRETE STORM DRAIN MANHOLES" OF THE CITY OF ELK GROVE CONSTRUCTION SPECIFICATIONS.
3. ALL CONNECTORS SHALL MEET OR EXCEED THE REQUIREMENTS OF A.S.T.M. C-923.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

**FLEXIBLE PIPE TO MANHOLE CONNECTION**

APPROVED BY:

*Paul M. Muddoch*

10/24/2018

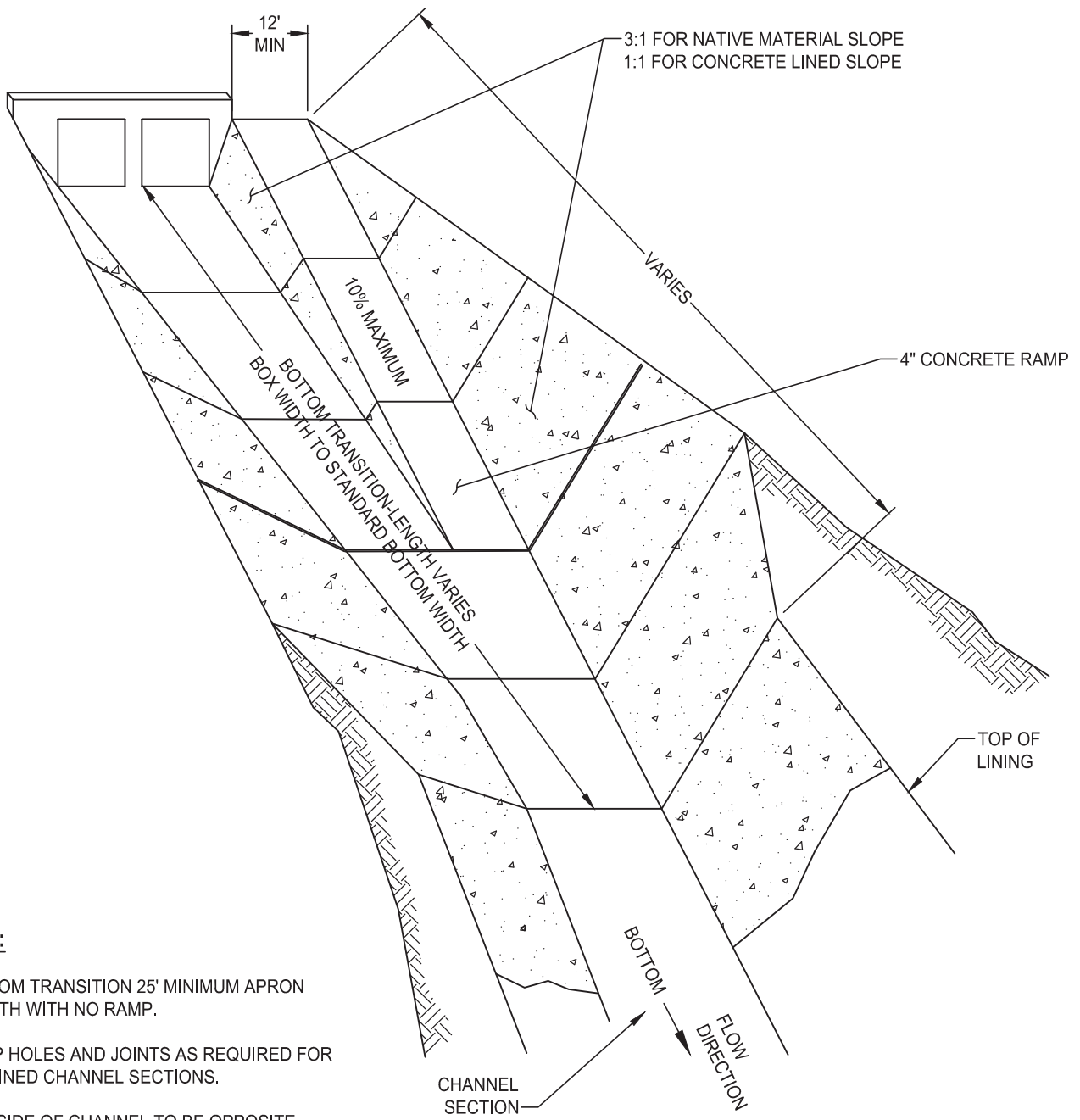
CITY ENGINEER

DATE



DRAWING NUMBER

**SD - 24**



**NOTES:**

1. BOTTOM TRANSITION 25' MINIMUM APRON LENGTH WITH NO RAMP.
2. WEEP HOLES AND JOINTS AS REQUIRED FOR ALL LINED CHANNEL SECTIONS.
3. LOW SIDE OF CHANNEL TO BE OPPOSITE RAMP.
4. SIDE SLOPE LINING MAY BE USED AT RAMP LOCATIONS TO INCREASE SLOPE TO MAXIMUM 1:1. TOP OF SLOPE GREATER THAN 3:1 MUST BE FENCED.

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CITY OF ELK GROVE - PUBLIC WORKS

**TYPICAL RAMP AND TRANSITION  
DETAIL**

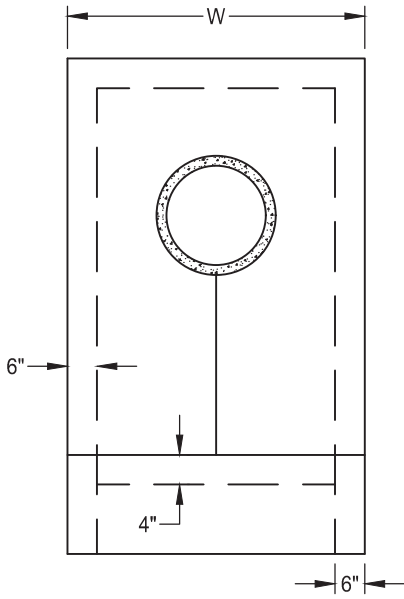
APPROVED BY:  
*Paul Muroch*  
CITY ENGINEER

10/24/2018  
DATE

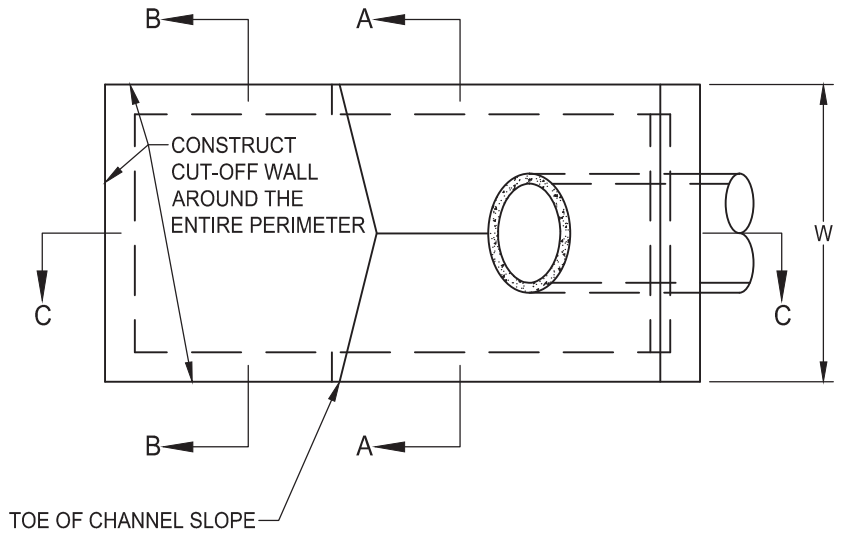
DRAWING NUMBER  
**SD - 25**



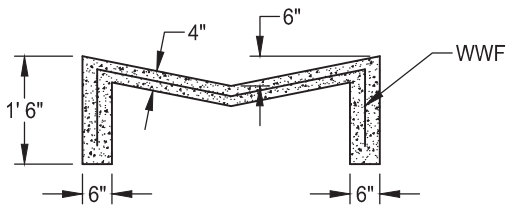
W = 6' 0" MINIMUM  
 W = 2 x PIPE DIAM. (3'+)



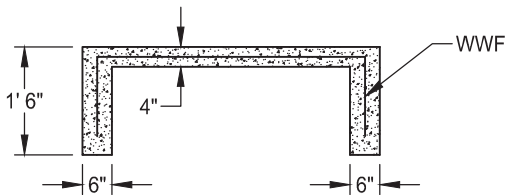
**FRONT VIEW**



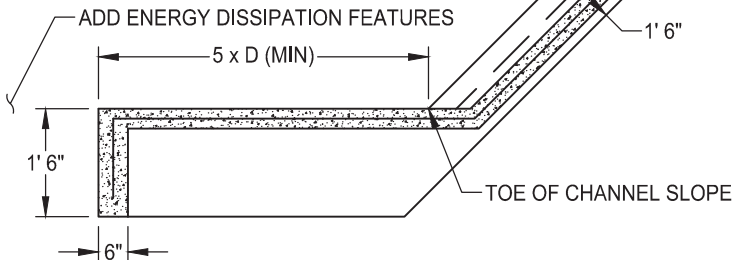
**TOP VIEW**



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**

MITER CUT PIPE TO FIT FLUSH WITH SLOPE

**NOTES:**

1. USE CLASS "B" CONCRETE.
2. 6" x 6" - W6 x W6 WWF THROUGHOUT CONCRETE.
3. ADD ENERGY DISSIPATION FEATURES SUCH AS COBBLES, RIP-RAPS, OR MOLDED CONCRETE AT END OF APRON.

DATE: 09/22/2017		NOT TO SCALE	
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CITY OF ELK GROVE - PUBLIC WORKS

**OUTLET PIPE HEADWALL AND APRON**

APPROVED BY:

*Paul M. Muddock*

10/24/2018

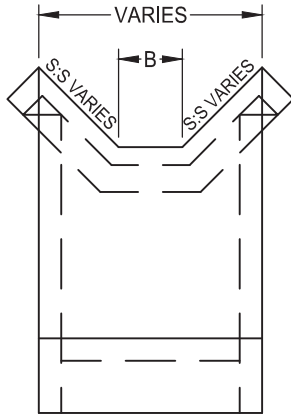
CITY ENGINEER

DATE

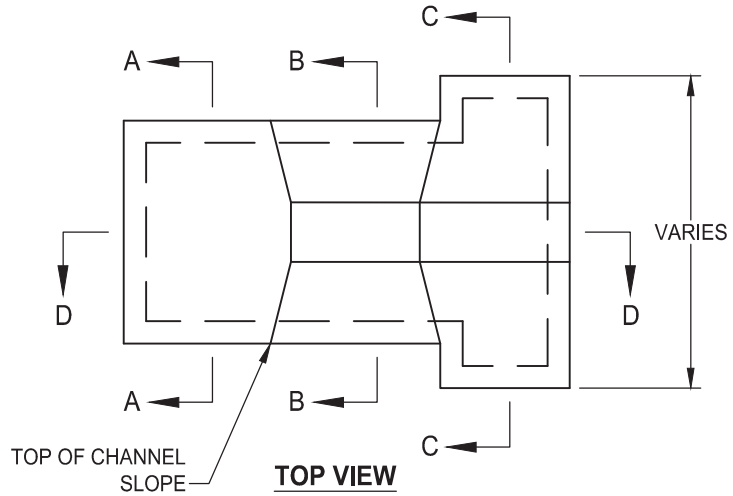


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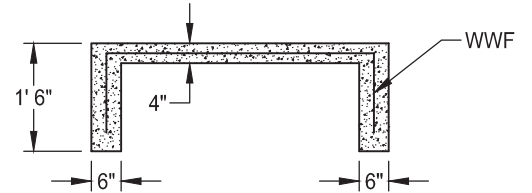
**SD - 26**



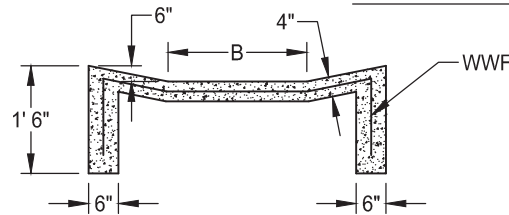
**FRONT VIEW**



**TOP VIEW**



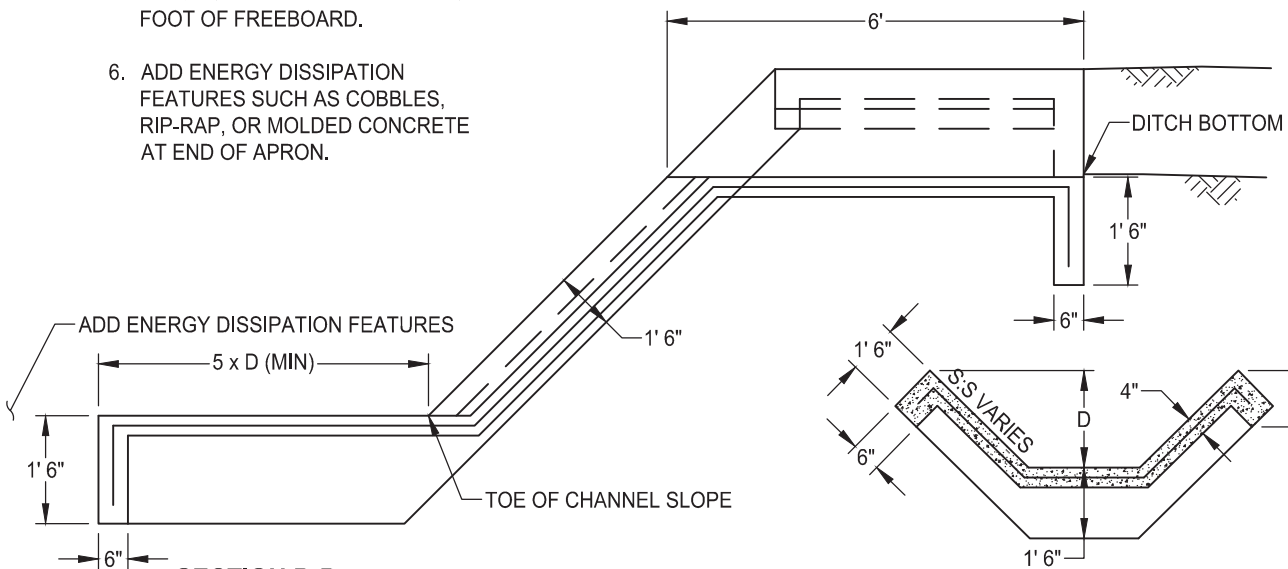
**SECTION A-A**



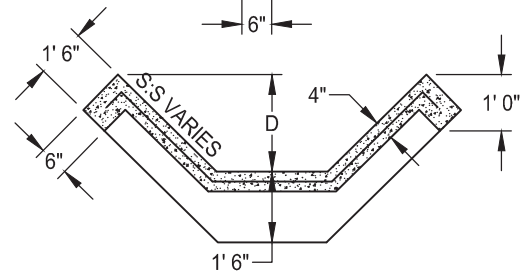
**SECTION B-B**

**NOTES:**

1. USE CLASS "B" CONCRETE OR GROUTED COBBLES AS SPECIFIED.
2. 6" x 6" -W6 x W6 WWF THROUGHOUT CONCRETE.
3. ON LINED CHANNELS APRON SHALL CONNECT TO SIDE LINING.
4. B = DITCH BOTTOM WIDTH OR AS SHOWN ON PLANS.
5. D = DITCH WATER DEPTH PLUS ONE FOOT OF FREEBOARD.
6. ADD ENERGY DISSIPATION FEATURES SUCH AS COBBLES, RIP-RAP, OR MOLDED CONCRETE AT END OF APRON.



**SECTION D-D**



**SECTION C-C**

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE


CITY OF ELK GROVE - PUBLIC WORKS

**DITCH DISCHARGE CONTROL AND APRON**

APPROVED BY:  
*Paul M. Muddoch*  
CITY ENGINEER

10/24/2018  
DATE

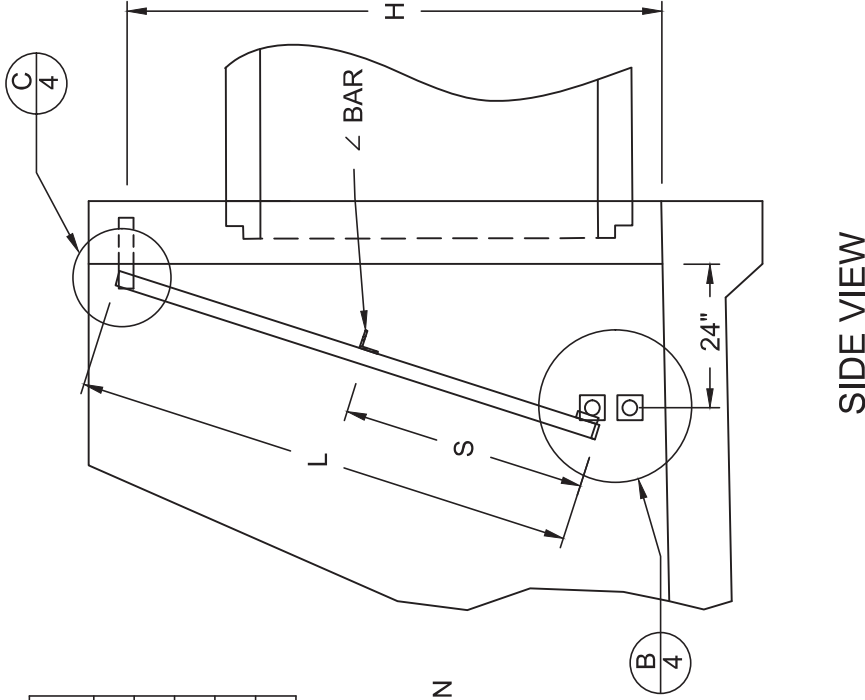
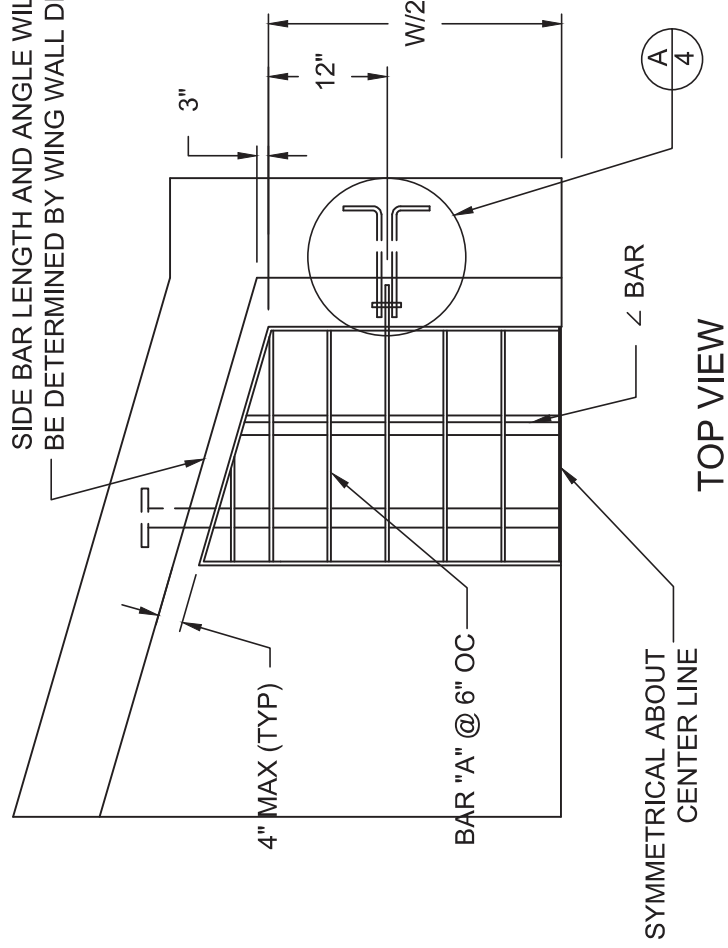
DRAWING NUMBER  
**SD - 27**



PIPE DIA. (IN)	PIPE OD (IN)	QUANTITY* BAR "A"	BAR "A" SIZE (IN)	H (IN)	W (IN)	L (IN)	S (IN)
24	30	11	3/8x2 1/2	46	48	40	18
27	33.5	11	3/8x2 1/2	50	48	42	19
30	37	11	3/8x2 1/2	53	48	46	21
33	40.5	11	3/8x2 1/2	57	48	52	24
36	44	13	3/8x2 1/2	60	60	52	24

\*INCLUDES OUTSIDE FRAME

SIDE BAR LENGTH AND ANGLE WILL BE DETERMINED BY WING WALL DESIGN



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CITY OF ELK GROVE - PUBLIC WORKS

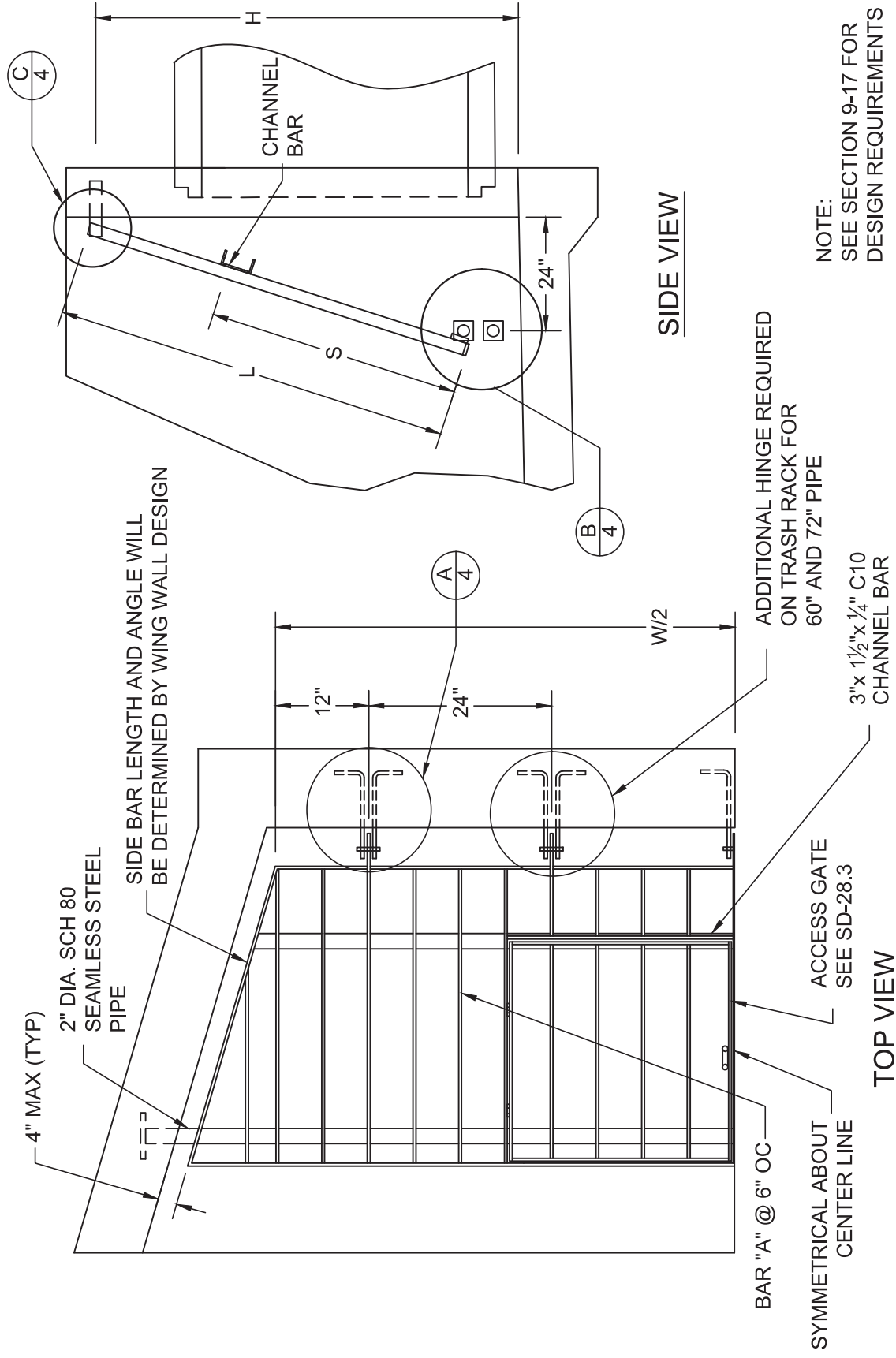
**TRASH RACK**  
**24"-36" PIPE**  
**(SHEET 1 OF 4)**

APPROVED BY: *Paul F. Muddick*  
CITY ENGINEER

10/24/2018  
DATE

DRAWING NUMBER  
**SD - 28.1**





NOTE:  
SEE SECTION 9-17 FOR  
DESIGN REQUIREMENTS

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	DATE

CITY OF ELK GROVE - PUBLIC WORKS

**TRASH RACK  
42" PIPE AND LARGER  
(SHEET 2 OF 4)**

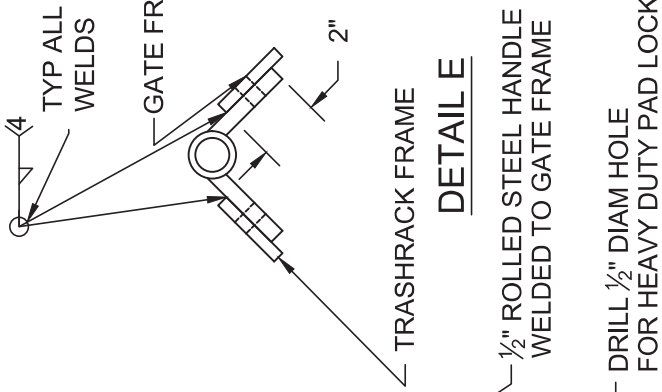
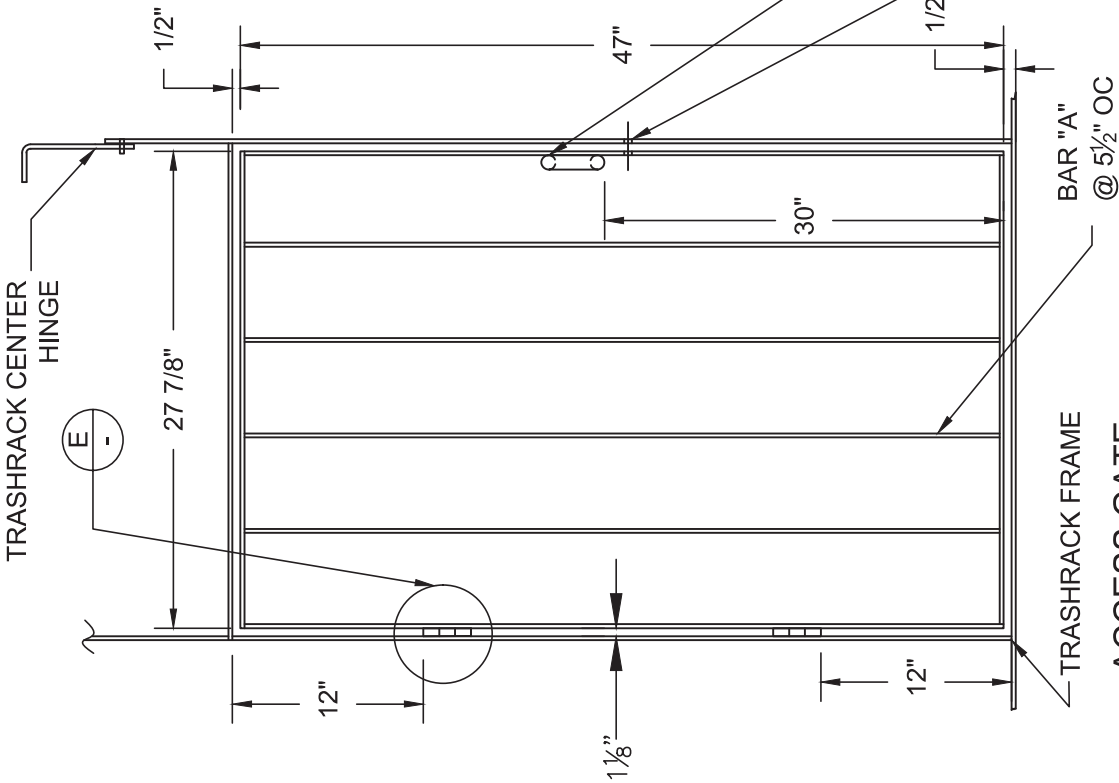
APPROVED BY:  
*Robert M. Mudd*  
CITY ENGINEER

DATE:  
10/24/2018

DRAWING NUMBER  
**SD - 28.2**







\*INCLUDES OUTSIDE FRAME

PIPE DIAM (IN)	PIPE OD (IN)	QUANTITY* BAR "A"	BAR "A" SIZE (IN)	H (IN)	W (IN)	L (IN)	S (IN)
42	51	15	3/8x2 1/2	67	72	60	47-3/4
48	58	17	3/8x2 1/2	74	84	70	47-3/4
54	65	21	3/8x2 1/2	81	108	72	47-3/4
60	72	23	3/8x2 1/2	88	120	80	47-3/4
72	86	27	3/8x2 1/2	102	144	96	47-3/4

NOTES:

- ① SEE STANDARD DRAWINGS SD-29.1 AND SD-29.2 FOR PIPE HEADWALL DETAILS.
- ② MATERIAL TO CONFORM TO ASTM DESIGNATION A-36. GALVANIZE ALL EXPOSED FERROUS PARTS AFTER FABRICATION.
- ③ ALL FILLET WELDS TO BE 3/16".
- ④ ALL STEEL SHALL CONFORM TO SECTION 75 OF THE STATE SPECIFICATIONS AND ASTM A36, A575 AND A576.
- ⑤ GATE HINGES TO BE COATED TO RESIST CORROSION.

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REVISION	APPROVED
BY	DATE


CITY OF ELK GROVE - PUBLIC WORKS

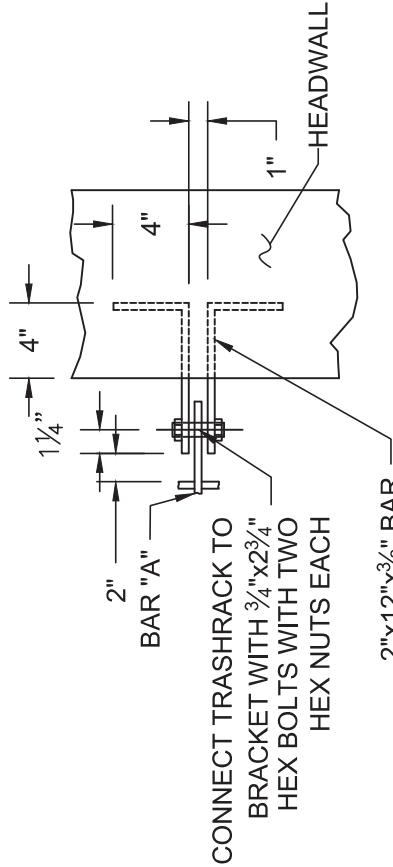
**TRASH RACK  
42" PIPE AND LARGER  
(SHEET 3 OF 4)**

APPROVED BY: *Paul F. Muddick*  
CITY ENGINEER

DATE: 10/24/2018

DRAWING NUMBER: **SD - 28.3**

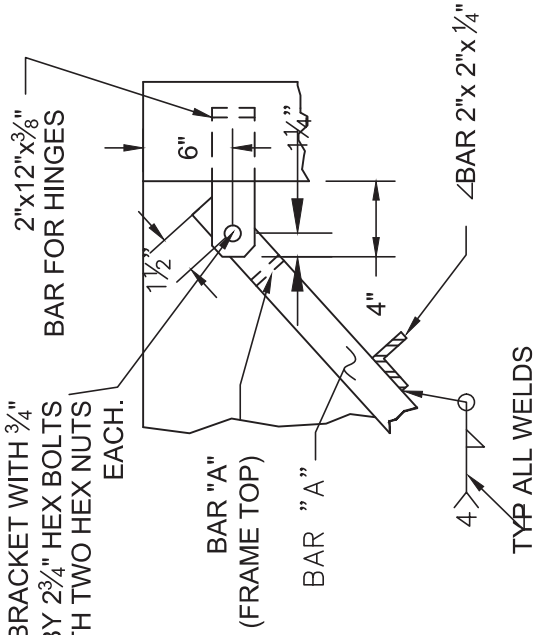




**DETAIL A**

CONNECT TRASHRACK TO BRACKET WITH 3/4"x2 3/4" HEX BOLTS WITH TWO HEX NUTS EACH

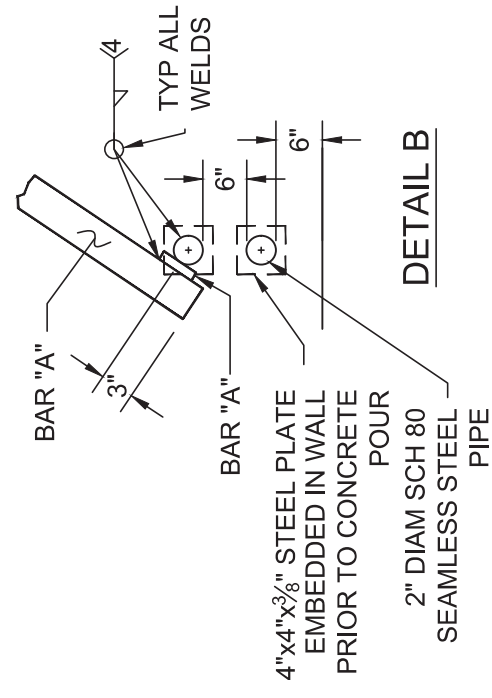
DRILL 13/16" HOLE, CONNECT TRASH RACK TO BRACKET WITH 3/4" BY 2 3/4" HEX BOLTS WITH TWO HEX NUTS EACH.



**DETAIL C**

**NOTES:**

- ① SEE STANDARD DRAWINGS SD-29.1 AND SD-29.2 FOR PIPE HEADWALL DETAILS.
- ② MATERIAL TO CONFORM TO ASTM DESIGNATION A-36. GALVANIZE ALL EXPOSED FERROUS PARTS AFTER FABRICATION.
- ③ ALL FILLET WELDS TO BE 3/16".
- ④ ALL STEEL SHALL CONFORM TO SECTION 75 OF THE STATE SPECIFICATIONS AND ASTM A36, A575 AND A576.



**DETAIL B**

4"x4"x3/8" STEEL PLATE EMBEDDED IN WALL PRIOR TO CONCRETE POUR  
2" DIAM SCH 80 SEAMLESS STEEL PIPE

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CITY OF ELK GROVE - PUBLIC WORKS

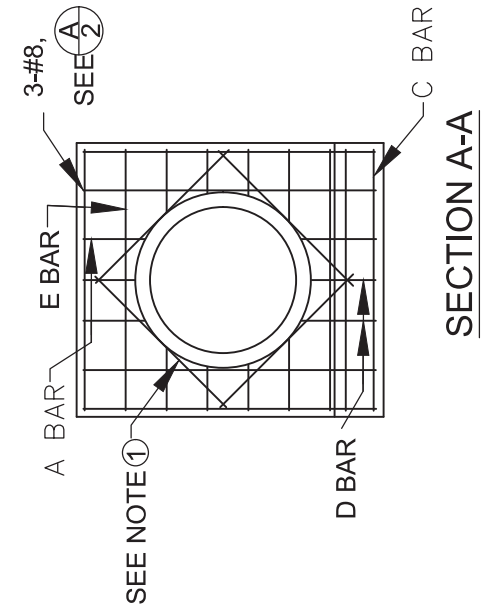
**TRASH RACK DETAILS**  
**(SHEET 4 OF 4)**

APPROVED BY: *Robert M. Mudd*  
CITY ENGINEER

DATE: 10/24/2018

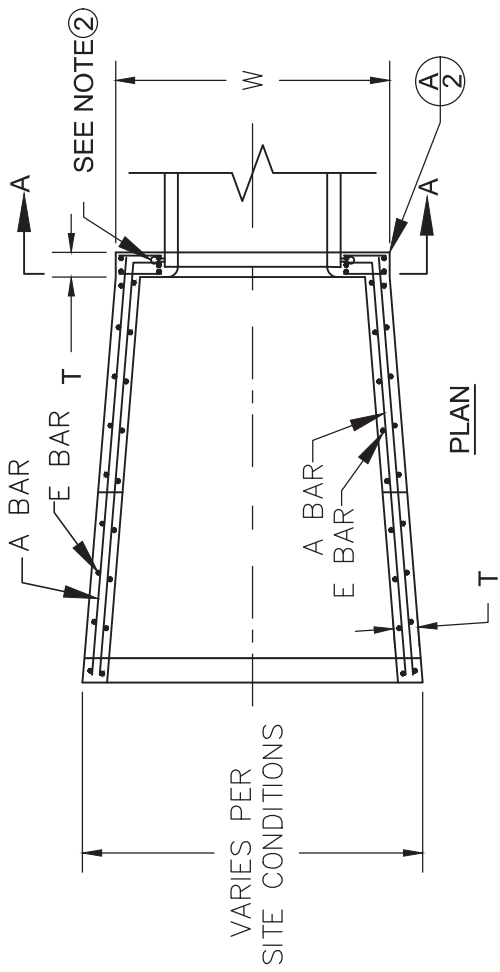
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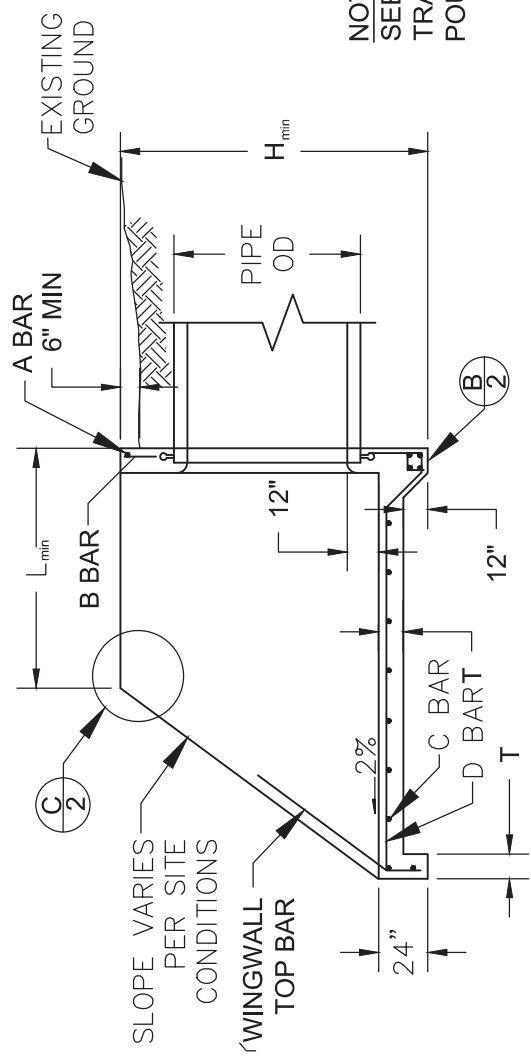


**SECTION A-A**

**NOTE**  
SEE DWG SD-28 FOR EMBEDMENT OF TRASH RACK COMPONENTS PRIOR TO POURING CONCRETE




**PLAN**



**SIDE ELEVATION**

APPROVED BY: *Robert Muddick*  
 CITY ENGINEER  
 DATE: 10/24/2018

DRAWING NUMBER  
**SD - 29.1**



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CITY OF ELK GROVE - PUBLIC WORKS

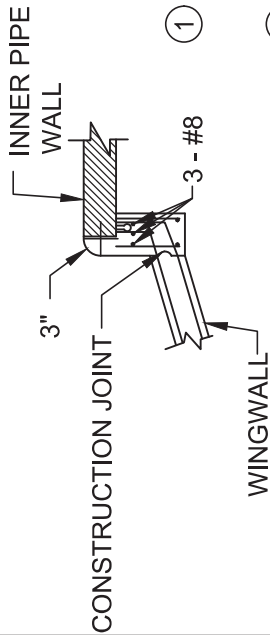
**INLET PIPE HEADWALL  
WINGWALL STRUCTURE  
(SHEET 1 OF 2)**

HEADWALL DIMENSIONS

PIPE DIA	PIPE OD	W	H <sub>min</sub>	T	L <sub>min</sub>
24"	30"	4'-6"	4'-8"	8"	2'-9"
27"	33.5"	4'-6"	4'-10"	8"	3'-0"
30"	37"	4'-6"	5'-3"	8"	3'-3"
33"	40.5"	4'-6"	5'-9"	8"	3'-6"
36"	44"	5'-6"	5'-9"	8"	3'-9"
42"	51"	6'-6"	6'-6"	8"	4'-3"
48"	58"	7'-6"	7'-5"	10"	5'-3"
54"	65"	9'-6"	7'-7"	10"	5'-9"
60"	72"	10'-6"	8'-3"	10"	6'-0"
72"	86"	12'-6"	9'-8"	10"	7'-3"

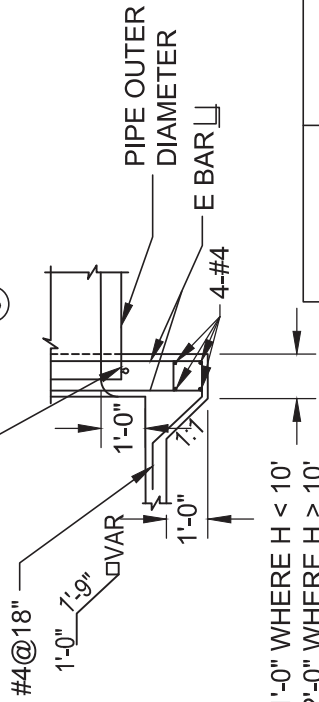
NOTES

- 1 PLACE #5 REBAR ON DIAGONALS @ 4" FROM PIPE OD.
- 2 PIPE CONNECTIONS SHALL CONFORM TO ASTM C-923. UNITS SHALL INCLUDE A WATER STOP.
- 3 CHAMFER ALL EXPOSED EDGES 3/4".
- 4 ALL STEEL MINIMUM 2" FROM CONCRETE EDGES.
- 5 ALL LAP SPLICES MINIMUM 12".



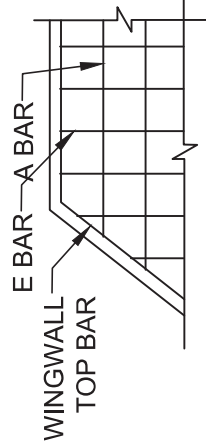
DETAIL A

1/2" EXPANSION JOINT FILLER, WHERE "H" MAX > 10'-0"



DIM IS 1'-0" WHERE H < 10'  
DIM IS 2'-0" WHERE H > 10'

DETAIL B



DETAIL C

REINFORCING STEEL DIMENSIONS AND DATA

	A BAR	B BAR	C BAR	D BAR	E BAR	WINGWALL TOP BAR
H ≤ 7'	#4@12"OC	#4@12"OC	#4@12"OC	#4@12"OC	#4@12"OC	#4
7' < H ≤ 8'	#4@12"OC EF	#4@12"OC EF	#4@12"OC EF	#4@12"OC EF	#4@12"OC EF	#4
8' < H ≤ 10'	#5@12"OC EF	#5@6"OC EF	#5@12"OC EF	#5@12"OC EF	#5@12"OC EF	#5

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		DATE

CITY OF ELK GROVE - PUBLIC WORKS


**INLET PIPE HEADWALL  
WINGWALL STRUCTURE  
(SHEET 2 OF 2)**

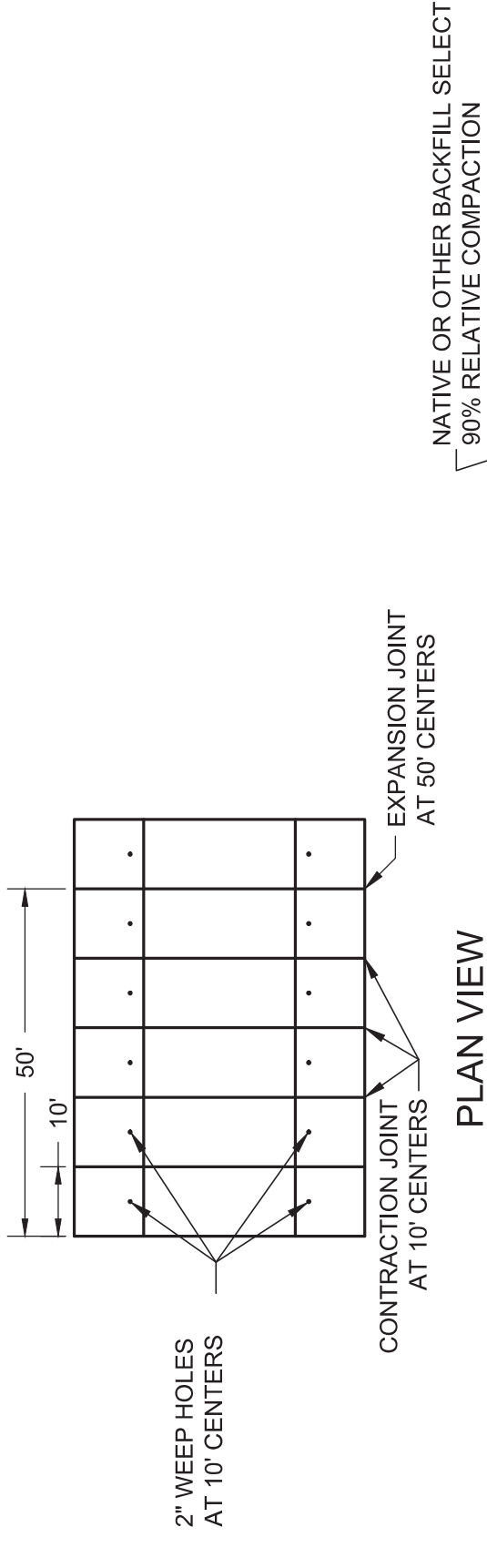
APPROVED BY: *Paul F. Muddick*

CITY ENGINEER

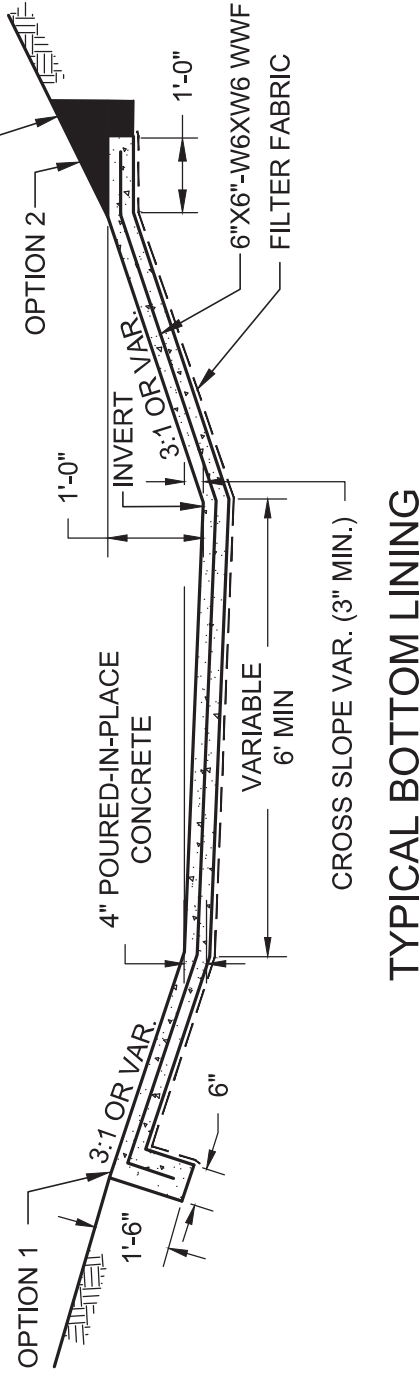
DATE: 10/24/2018

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NATIVE OR OTHER BACKFILL SELECT  
90% RELATIVE COMPACTION



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CITY OF ELK GROVE - PUBLIC WORKS

**LINED CHANNEL SECTION**  
(SHEET 1 OF 2)

APPROVED BY: *Paul F. Muddick*  
CITY ENGINEER

10/24/2018  
DATE

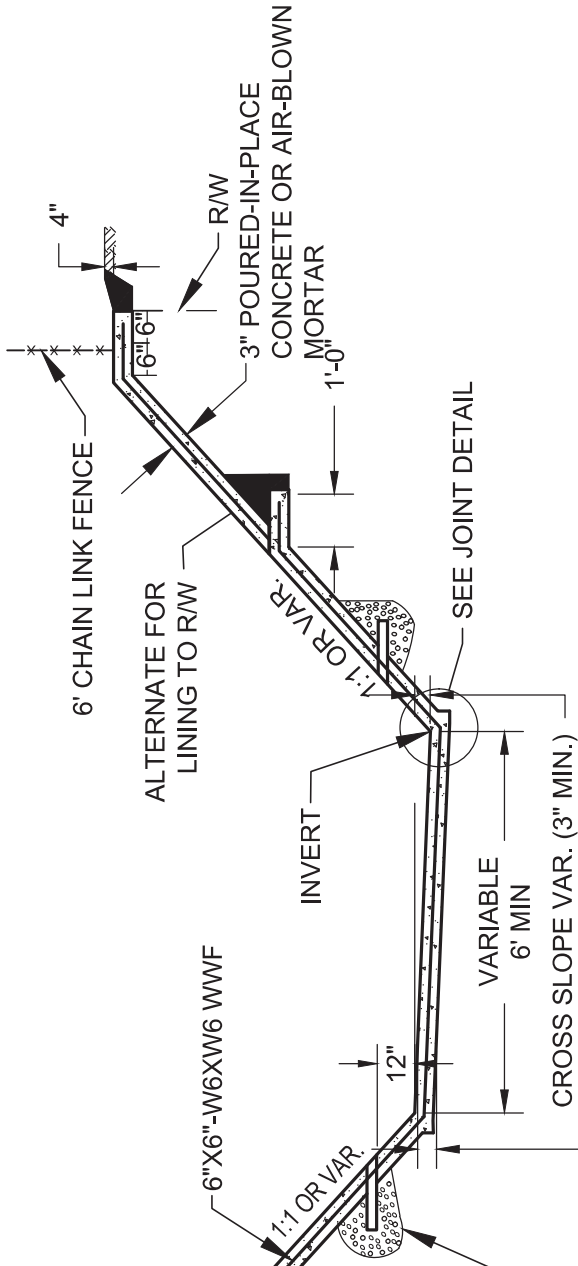
DRAWING NUMBER  
**SD - 30.1**



**OPTION 2**

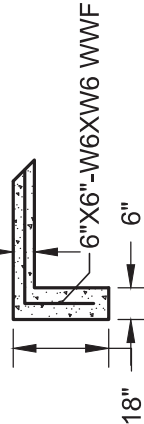
NATIVE OR OTHER SELECT BACKFILL 90% RELATIVE COMPACTION

WEEP HOLE SHALL BE CENTERED IN A MINIMUM OF 1 C.F. OF 3/4" CRUSHED ROCK CONFORMING TO SECTION 50 "CLEAN CRUSHED ROCK", TYPE B. ROCK SHALL BE WRAPPED IN FABRIC CONFORMING TO SECTION 50 "GEOTEXTILE FABRIC". HOLE SHALL BE 2" DIAMETER PIPE CUT TO FIT FLUSH WITH CHANNEL FACE. (TYPICAL)



**TYPICAL FULL LINING**

**OPTION 1 - VAR.**



**CUTOFF WALL**

TO BE PLACED ALONG ENTIRE END OF LINED SECTION AT BEGINNING AND AT END OF LINING

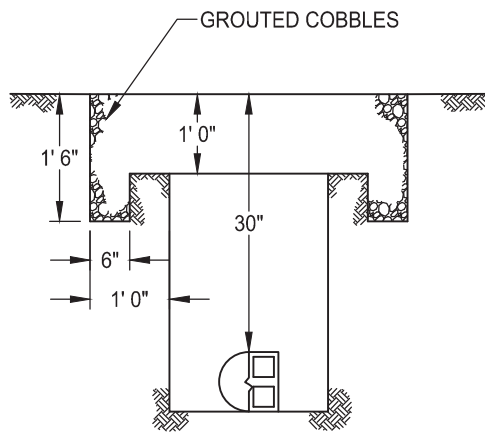
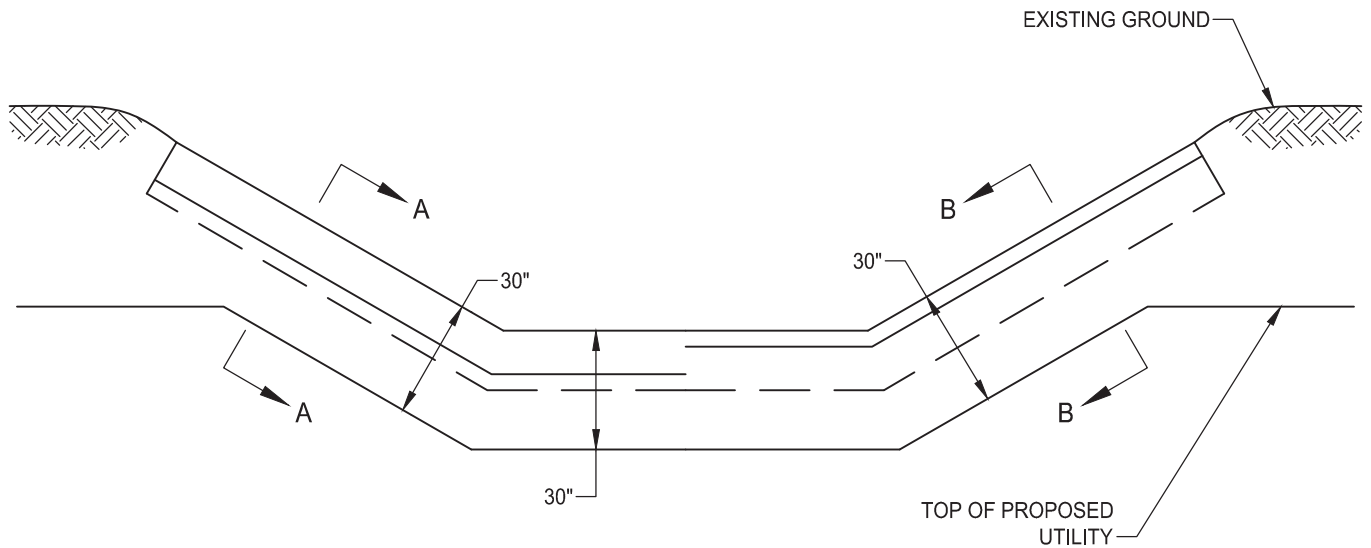


**JOINT DETAIL**

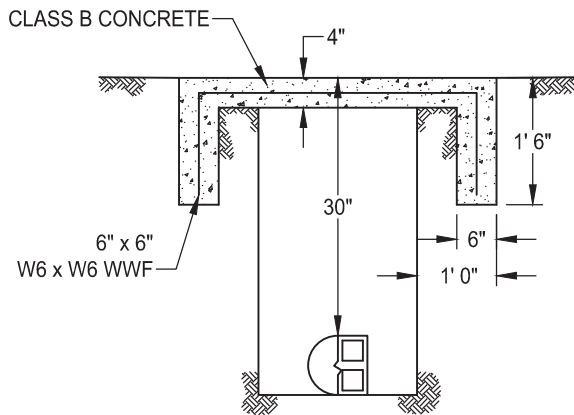
DATE: 09/22/2007		NOT TO SCALE	
REVISION	BY	APPROVED	DATE
CITY OF ELK GROVE - PUBLIC WORKS		APPROVED BY: <i>Robert Muddick</i>	
		CITY ENGINEER	
		DATE: 10/24/2018	
		DRAWING NUMBER	
		SD - 30.2	

**LINED CHANNEL SECTION  
(SHEET 2 OF 2)**





**SECTION A-A**



**SECTION B-B**

**NOTES:**

1. ALL UTILITY CROSSINGS OF EXISTING STREAMS SHALL BE AT LEAST 30" BELOW EXISTING CHANNEL SIDES AND BOTTOMS. DEEPER PLACEMENT MAY BE REQUIRED IF FUTURE CHANNEL IMPROVEMENTS ARE ANTICIPATED.
2. THE CUT SHALL BE SEALED AS SHOWN WITH GROUTED COBBLES OR CLASS B CONCRETE TO A WIDTH OF 1 FOOT EACH SIDE OF THE UTILITY TRENCH. ALL NATURAL STREAMS, AS SHOWN ON THE NATURAL STREAMS PLAN, SHALL UTILIZED GROUTED COBBLES.
3. CONSTRUCTION IS TO CONFORM TO SECTION 44 OF THE CITY OF ELK GROVE CONSTRUCTION SPECIFICATIONS WITH CUT OFF WALLS CONFORMING TO STANDARD DRAWING SD-30.

DATE: 09/22/2017		NOT TO SCALE	
REVISION	BY	APPROVED	DATE

CITY OF ELK GROVE - PUBLIC WORKS

**UTILITY STREAM CROSSING**

APPROVED BY:

*Paul M. Muelich*

10/24/2018

CITY ENGINEER

DATE



DRAWING NUMBER

**SD - 31**