

Unless specified otherwise, the contractor has the option to either install a precast circular structure or construct a rectangular structure.

All plate and edge armor steel to be ASTM A 36, galvanized after fabrication.

Remove center grate before constructing concrete barrier.

Cast frames into intake top so tops of grates are  $\frac{1}{4}$ " below Form Grade Elevation. Bolt intake frames together on both sides with four  $\frac{1}{2}$ " x 4" bolts.

For joint details, refer to PV-101.

Maximum pipe size for the rectangular option is 60 inches. Refer to the table below for maximum pipe size information related to the circular option.

MAXIMUM PIPE DIAMETER FOR 2 PIPES	
at 180° Separation	At 90° Separation
48 inches	36 inches

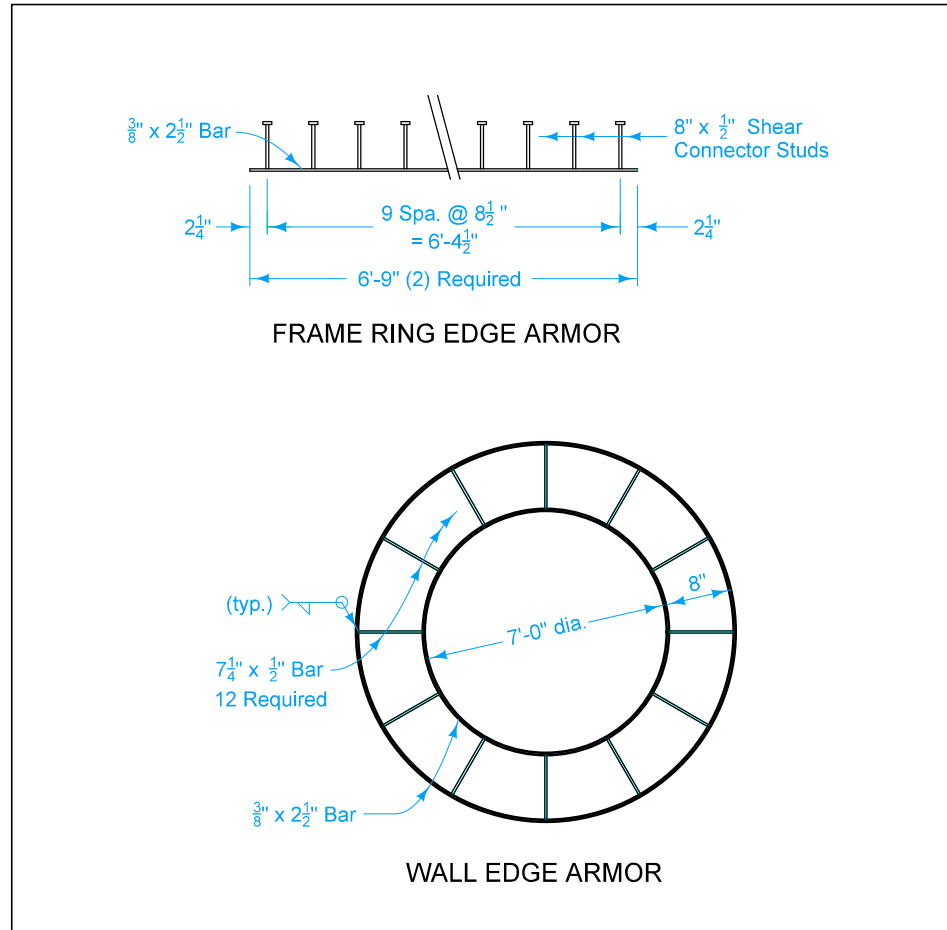
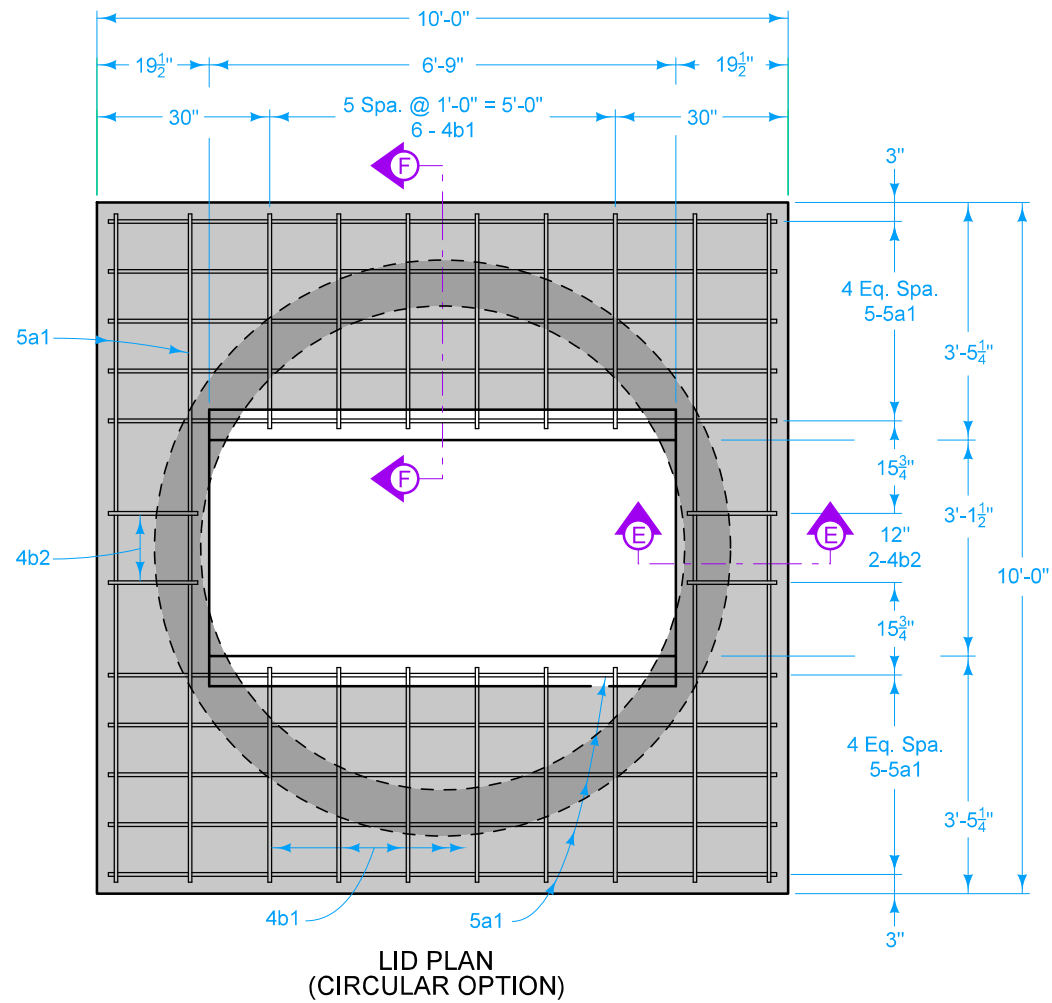
- ① Trowel smooth and place two layers of 30 pound roofing felt to prevent bond.
- ② Leave 3 inch opening through barrier over the intake.
- ③ Match slope of top and grate to adjacent pavement.
- ④ 12 inch minimum wall height above all pipes.

Possible Contract Item:  
Barrier Intake, SW-547

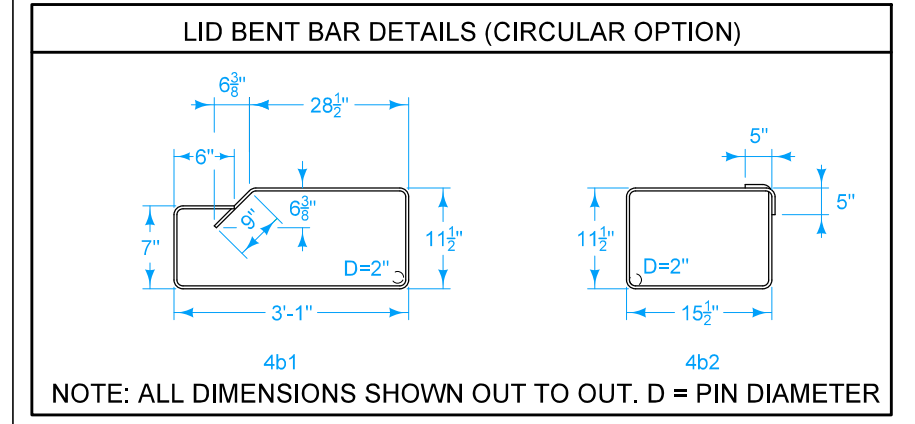
Possible Tabulation:  
104-5B

	REVISION	
	5	04-17-18
STANDARD ROAD PLAN		SW-547
		SHEET 1 of 7
REVISIONS: Changed 'Invert' callout to 'Concrete Fillet'. Added maximum pipe size information.		
APPROVED BY DESIGN METHODS ENGINEER		

TRIPLE-GRATE BARRIER INTAKE

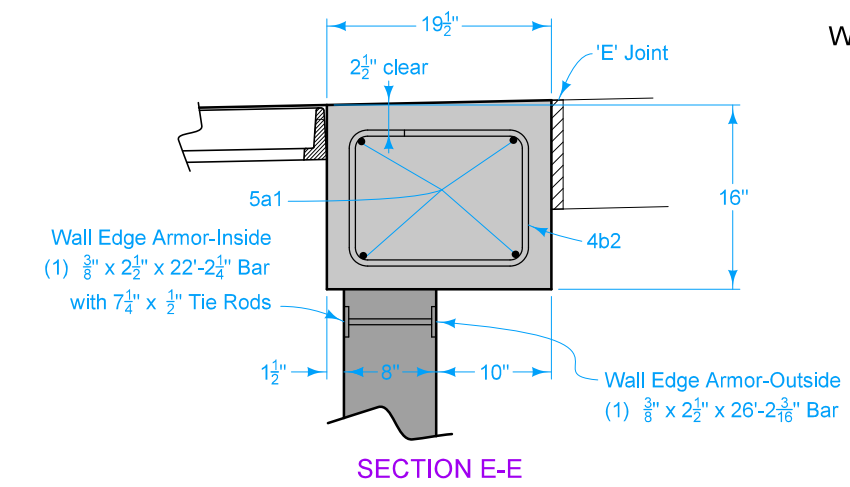
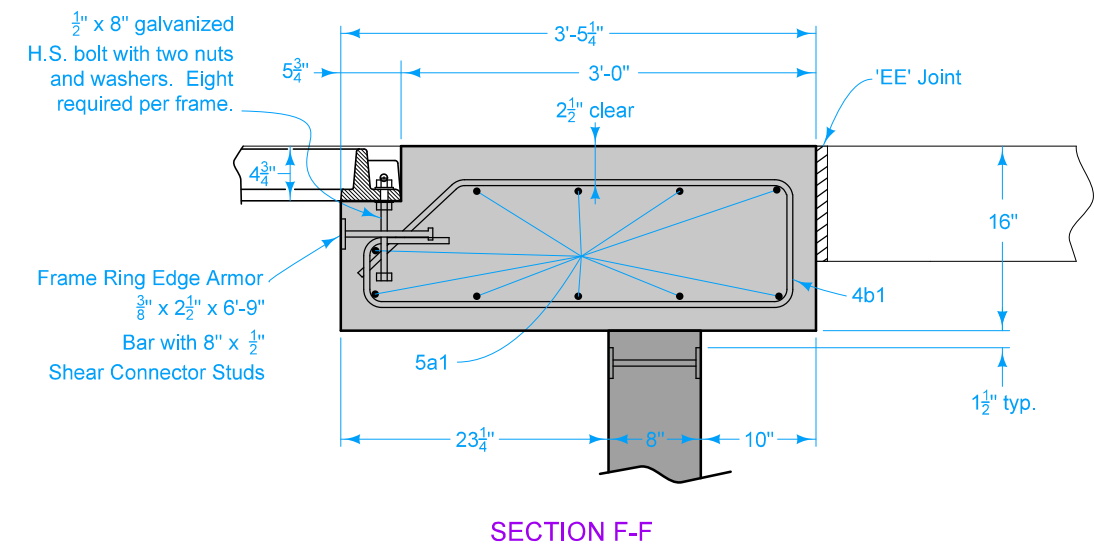
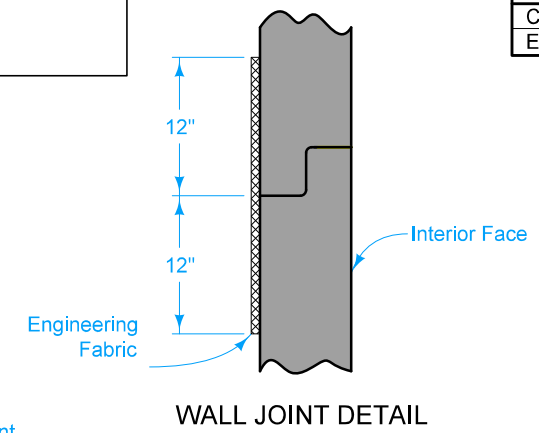


LID REINFORCING BAR LIST - EPOXY COATED					
(CIRCULAR OPTION)					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Lid, Longitudinal & Transverse	—	28	9'-8"	282
4b1	Lid Hoop	□	12	8'-3"	66
4b2	Lid Hoop	□	4	5'-4"	14
EPOXY COATED REINFORCING STEEL - TOTAL					362



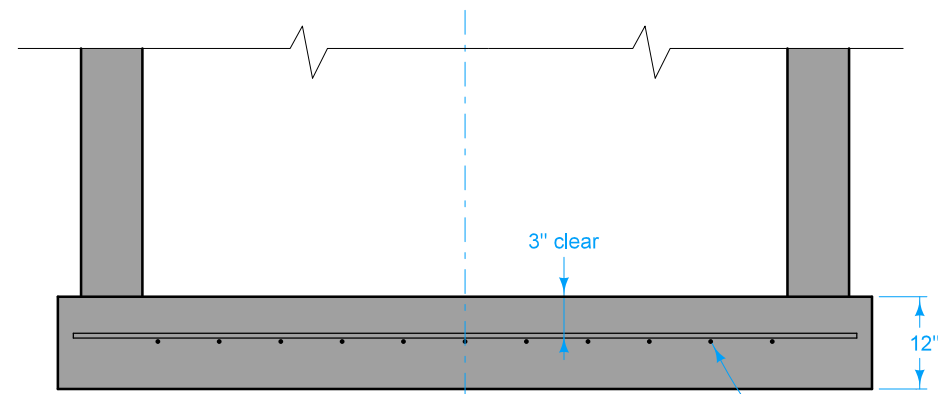
LID QUANTITY SUMMARY (CIRCULAR OPTION)	
Concrete	3.8 CY*
Epoxy Coated Reinforcing Steel	362 LB

\* Based on Minimum thickness = 16"

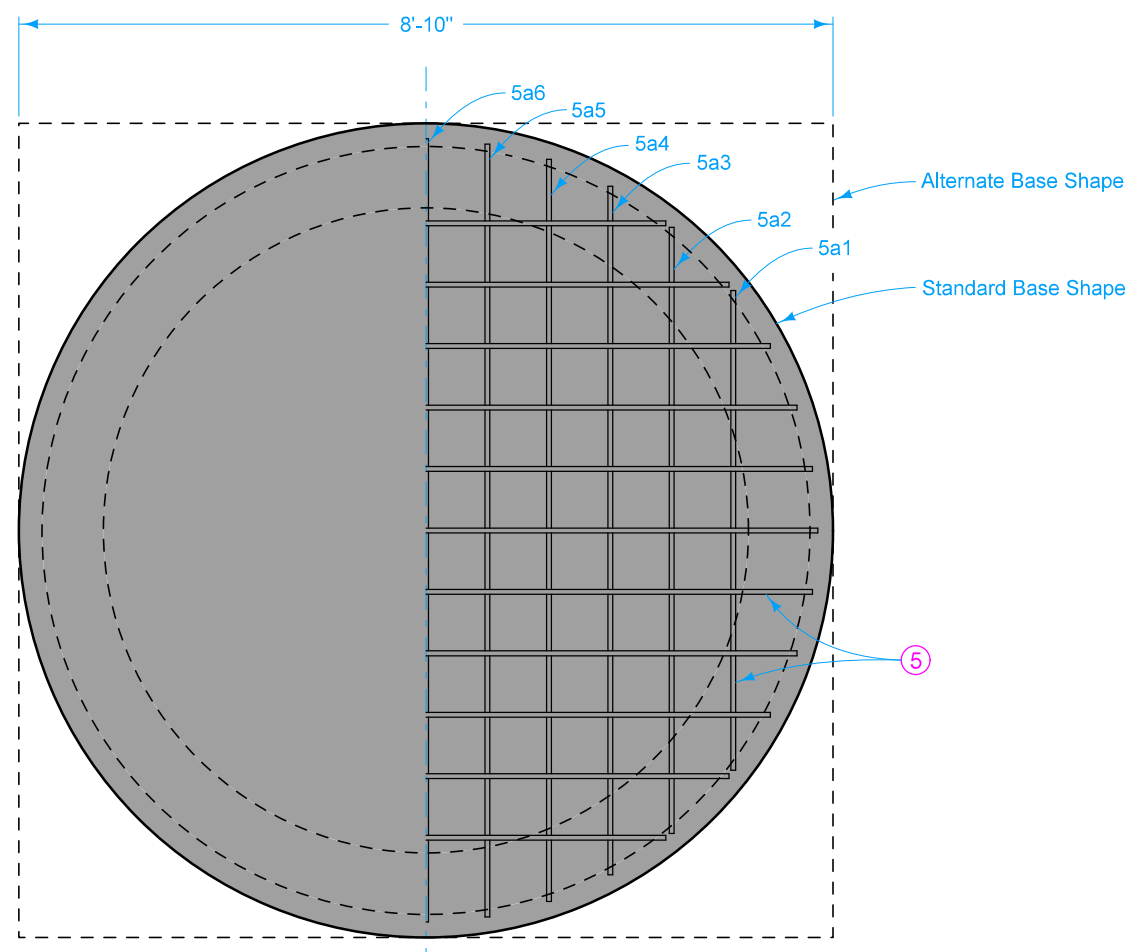


LID (CIRCULAR OPTION)

	REVISION
	5   04-17-18
<b>STANDARD ROAD PLAN</b>	
<b>SW-547</b>	
SHEET 2 of 7	
REVISIONS: Changed 'Invert' callout to 'Concrete Fillet'. Added maximum pipe size information.	
APPROVED BY DESIGN METHODS ENGINEER	
<b>TRIPLE-GRATE BARRIER INTAKE</b>	



PART SECTION A-A



BASE PLAN (CIRCULAR OPTION)

BASE (CIRCULAR OPTION)

BASE REINFORCING BAR LIST - EPOXY COATED					
(CIRCULAR OPTION)					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Base, Longit. & Transverse	—	4	5'-3"	22
5a2	Base, Longit. & Transverse	—	4	6'-7"	27
5a3	Base, Longit. & Transverse	—	4	7'-6"	31
5a4	Base, Longit. & Transverse	—	4	8'-0"	33
5a5	Base, Longit. & Transverse	—	4	8'-4"	35
5a6	Base, Longit. & Transverse	—	2	8'-6"	18
EPOXY COATED REINFORCING STEEL - TOTAL					166

BASE QUANTITY SUMMARY (CIRCULAR OPTION)	
Concrete	2.3 CY*
Epoxy Coated Reinforcing Steel	166 LB*

\* Based on Standard Base Shape

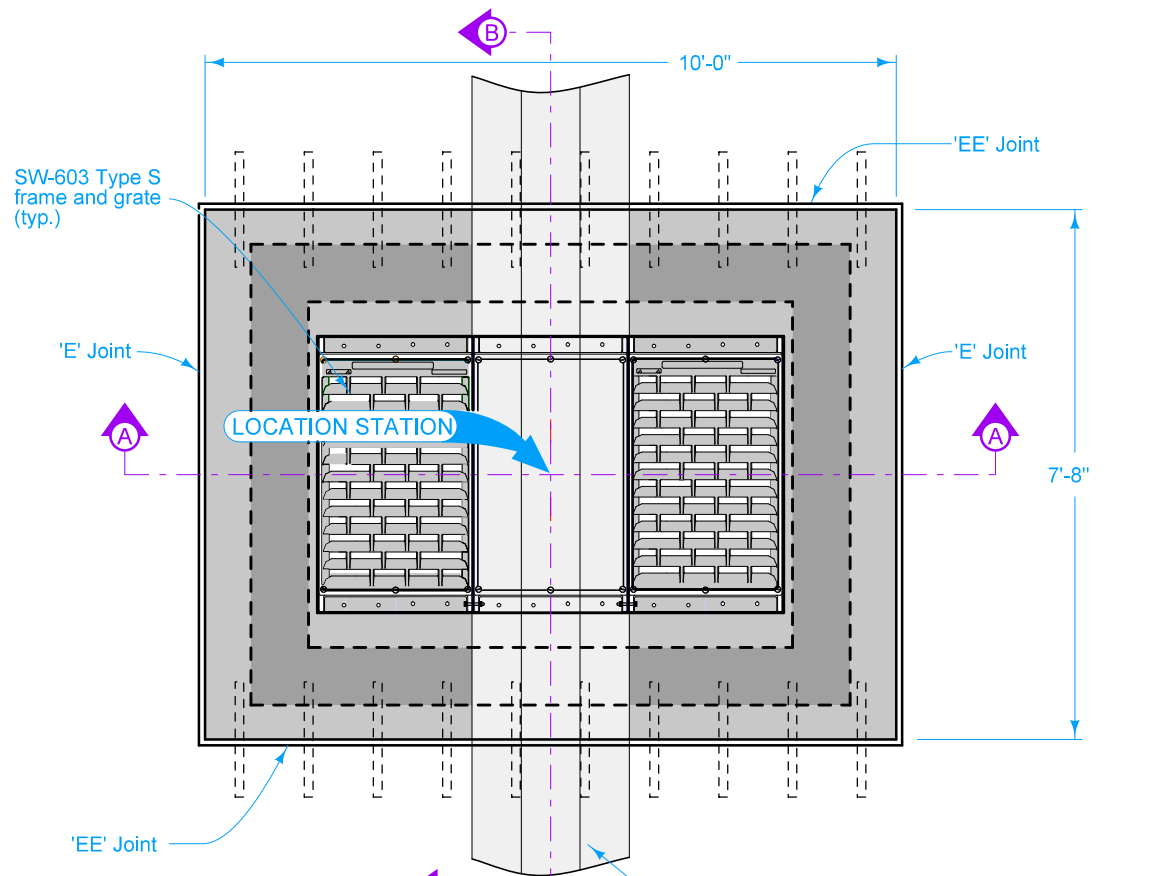
⑤ #5 at 8 inch centers each direction or equivalent welded wire fabric.

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<b>STANDARD ROAD PLAN</b>		<b>SW-547</b>
		SHEET 3 of 7

REVISIONS: Changed 'Invert' callout to 'Concrete Fillet'. Added maximum pipe size information.

*Shawn Miller*  
APPROVED BY DESIGN METHODS ENGINEER

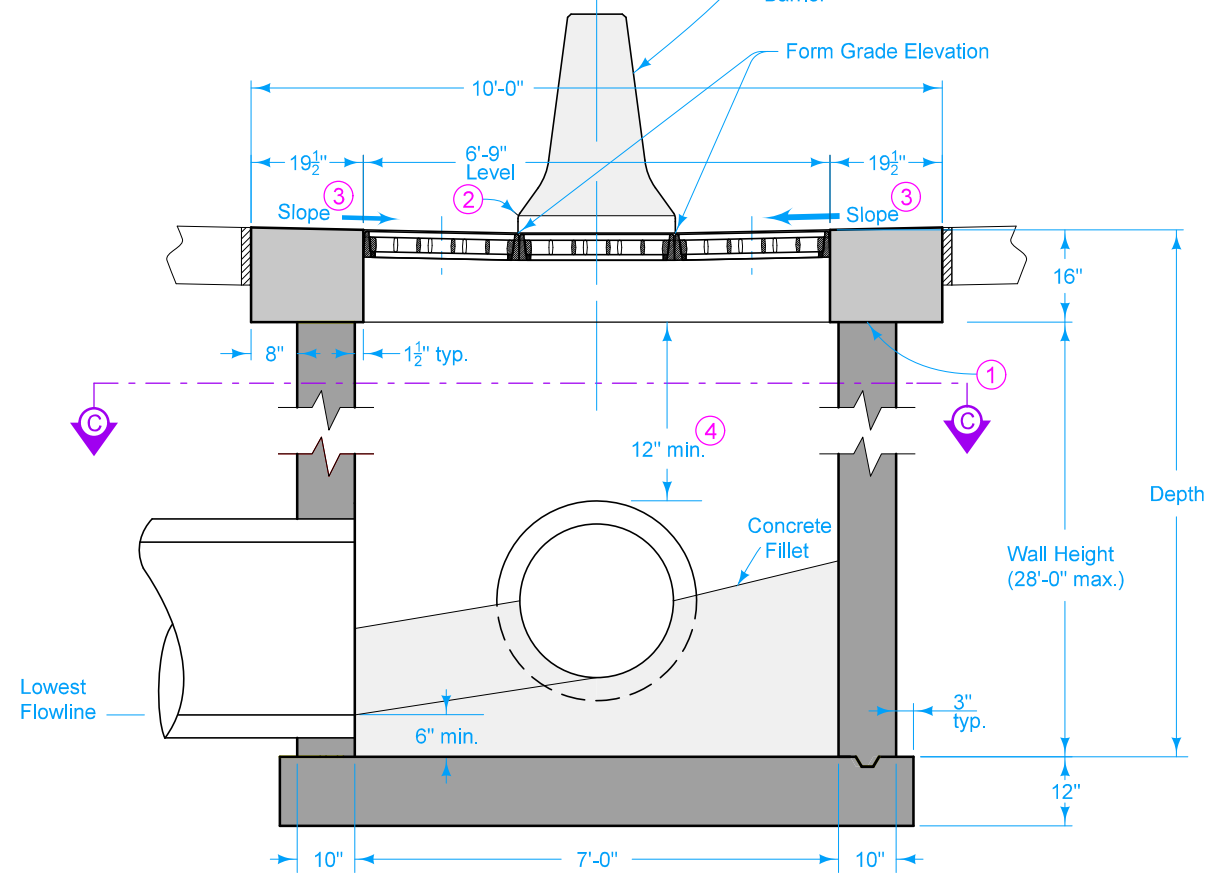
**TRIPLE-GRATE BARRIER INTAKE**



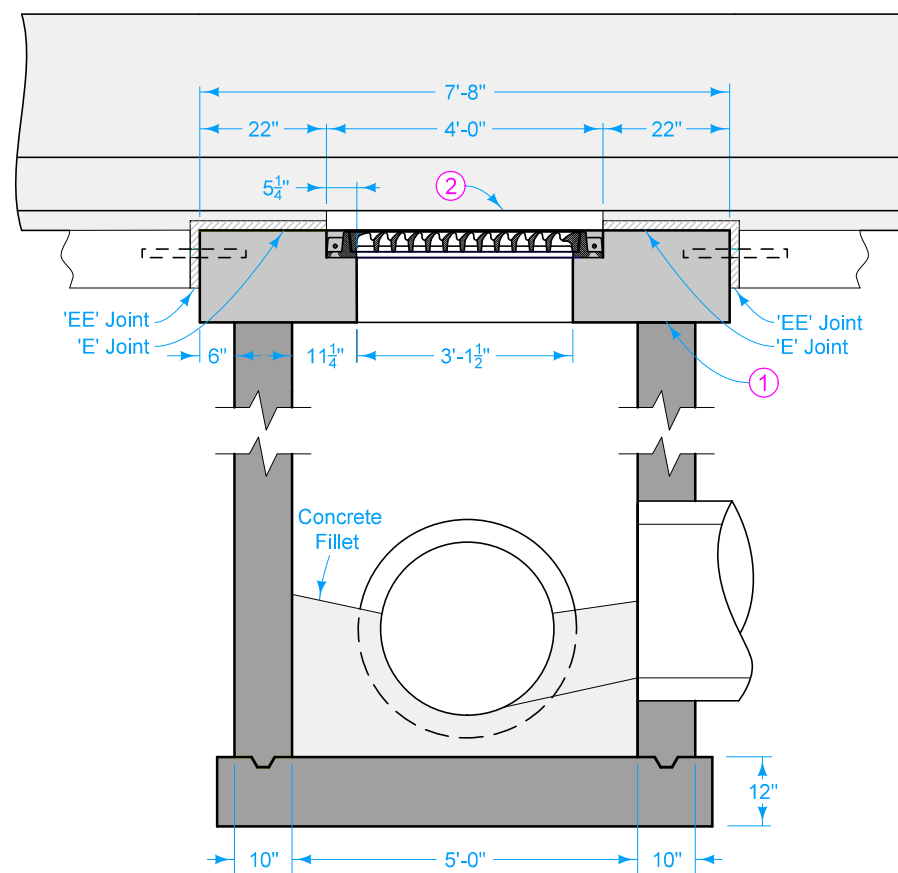
PLAN  
(RECTANGULAR)

Possible  
Concrete  
Barrier

Form Grade Elevation



SECTION A-A  
(RECTANGULAR OPTION)

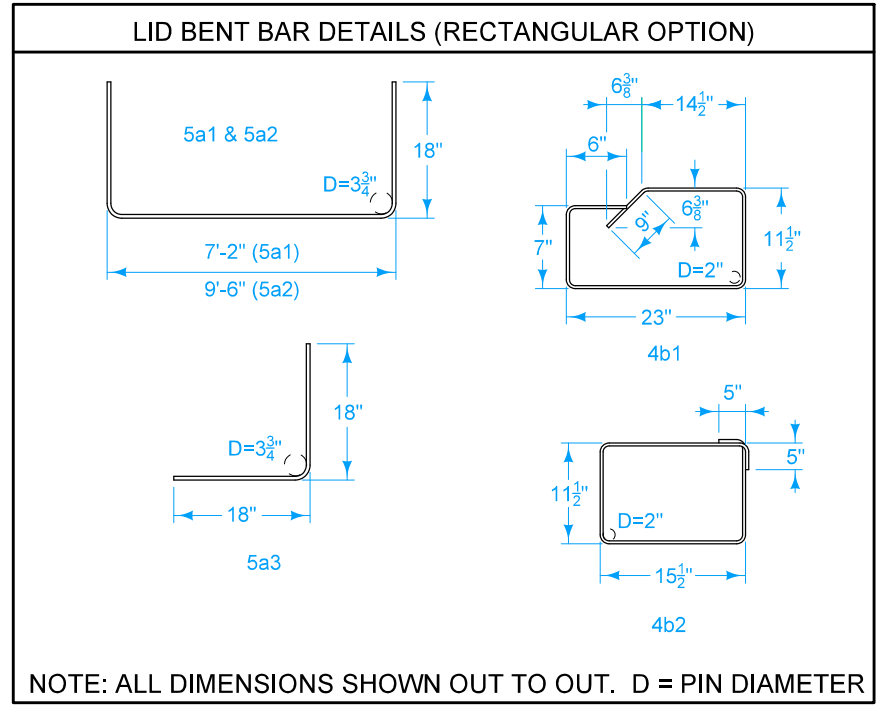
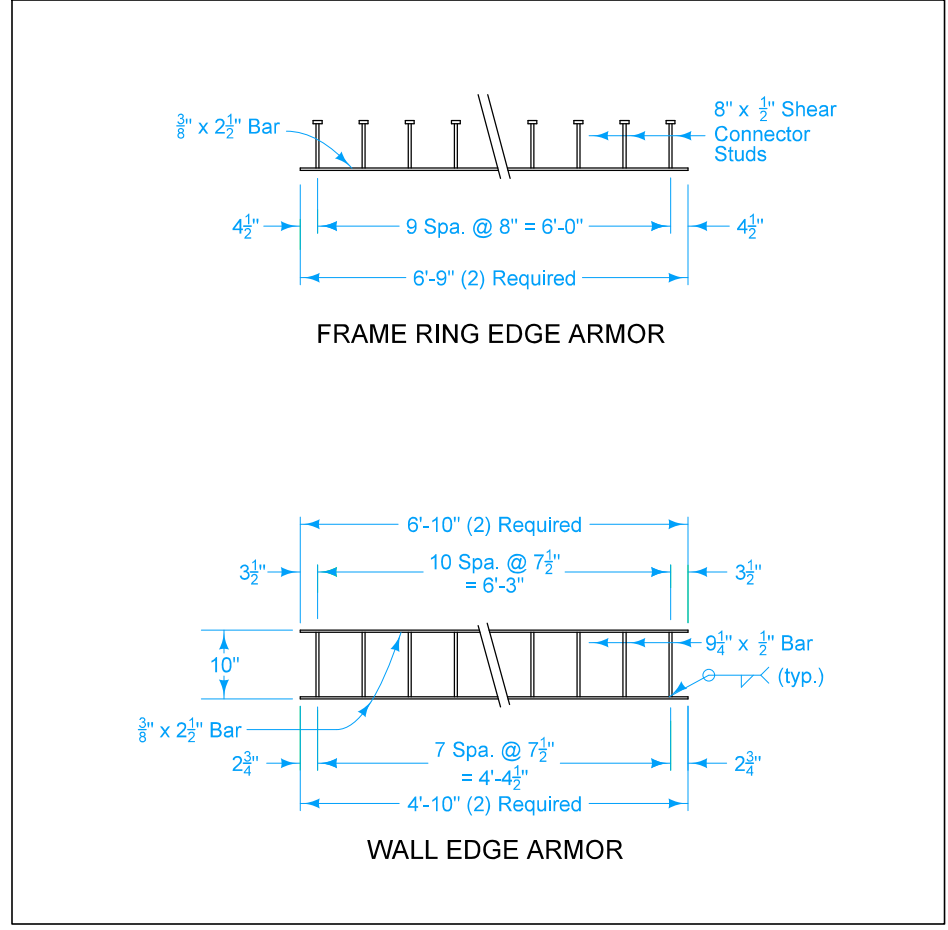
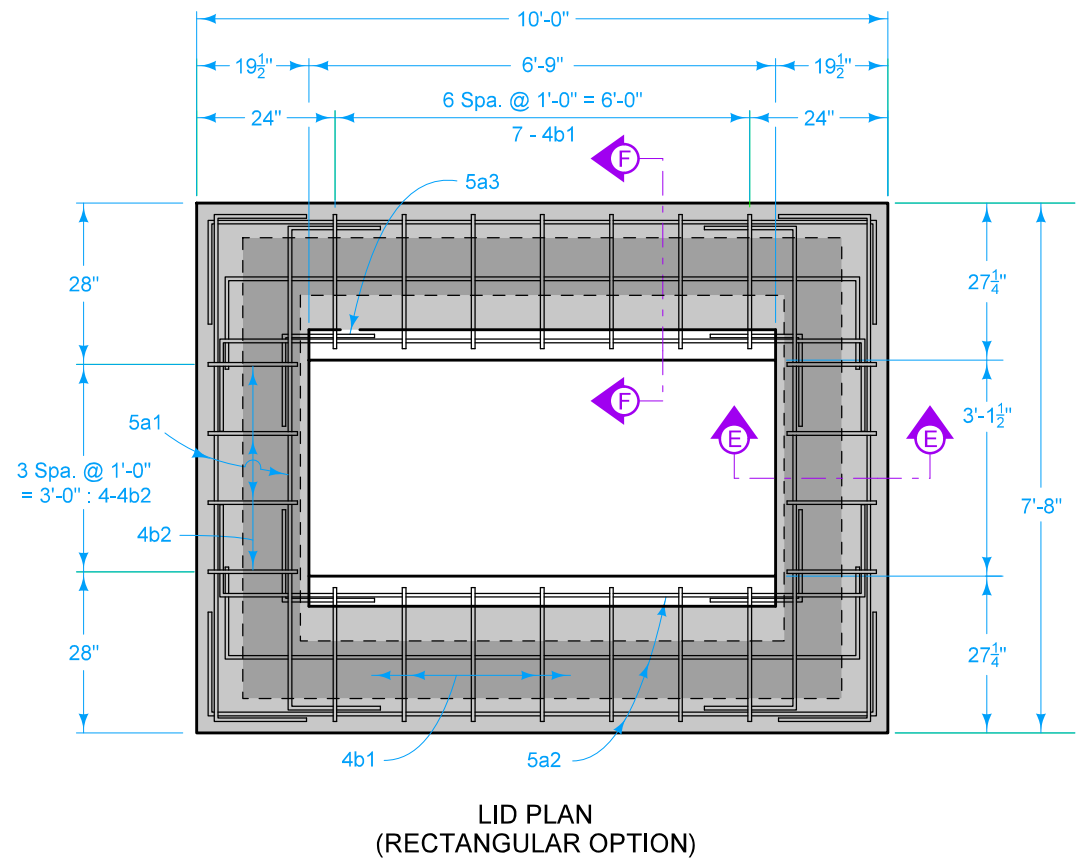


SECTION B-B  
(RECTANGULAR OPTION)

- ① Trowel smooth and place two layers of 30 pound roofing felt to prevent bond.
- ② Leave 3 inch opening through barrier over the intake.
- ③ Match slope of top and grate to adjacent pavement.
- ④ 12 inch minimum wall height above all pipes.

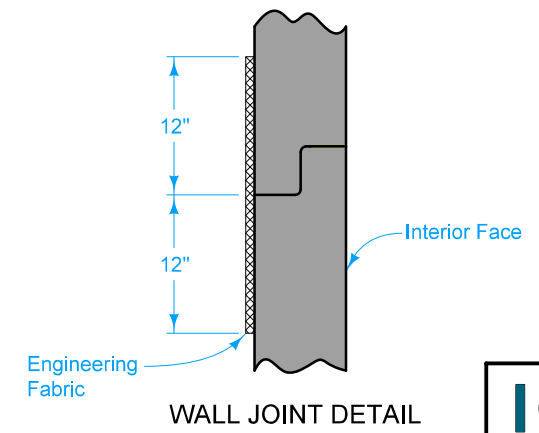
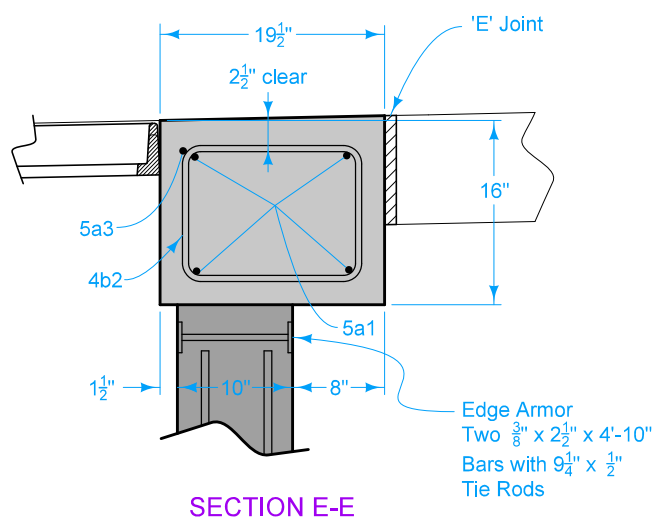
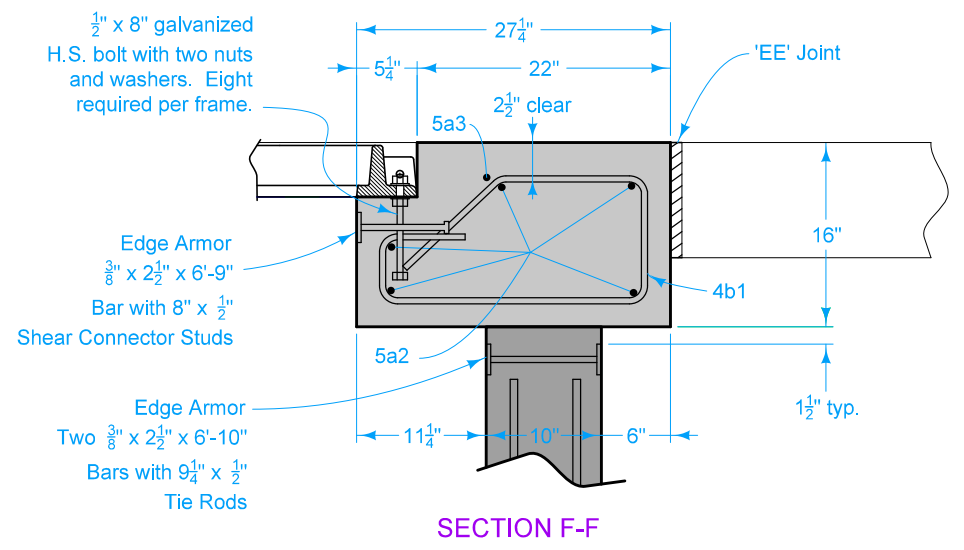
	REVISION	
	5	04-17-18
<b>STANDARD ROAD PLAN</b>		<b>SW-547</b>
		SHEET 4 of 7
REVISIONS: Changed 'Invert' callout to 'Concrete Fillet'. Added maximum pipe size information.		
APPROVED BY DESIGN METHODS ENGINEER		
<b>TRIPLE-GRATE BARRIER INTAKE</b>		

LID REINFORCING BAR LIST - EPOXY COATED					
(RECTANGULAR OPTION)					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Lid, Longitudinal	U	8	10'-2"	85
5a2	Lid, Transverse	U	10	12'-6"	130
5a3	Lid, Interior, Corners	J	4	3'-0"	13
4b1	Lid Hoop	□	14	5'-11"	55
4b2	Lid Hoop	□	8	5'-4"	29
EPOXY COATED REINFORCING STEEL - TOTAL					312



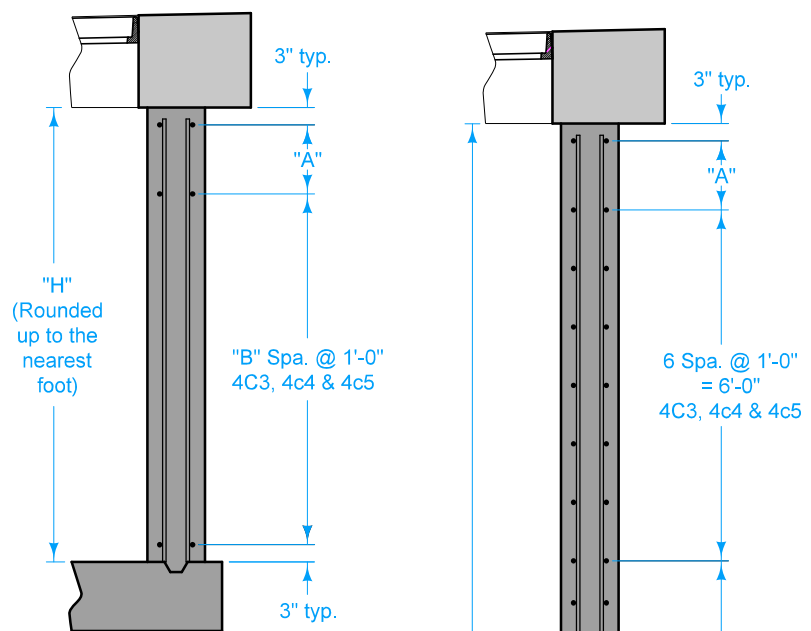
NOTE: ALL DIMENSIONS SHOWN OUT TO OUT. D = PIN DIAMETER

LID QUANTITY SUMMARY (RECTANGULAR OPTION)	
Concrete	2.7 CY
Epoxy Coated Reinforcing Steel	312 LB

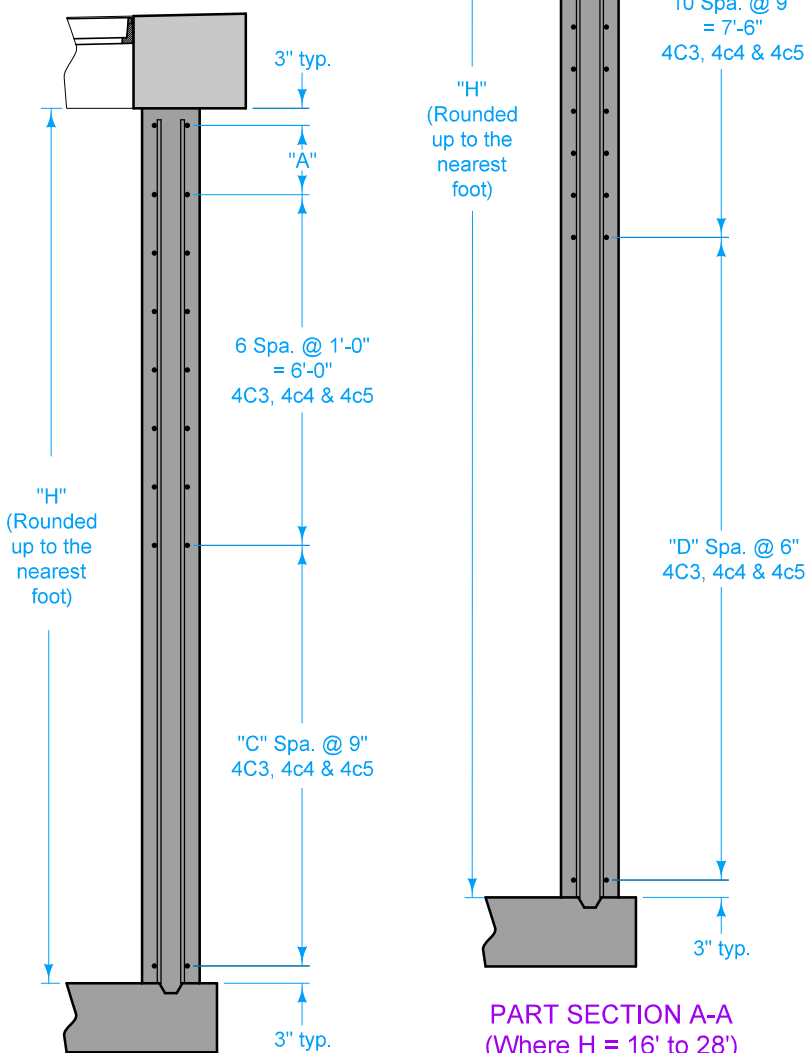


LID (RECTANGULAR OPTION)

	REVISION
	5   04-17-18
	<b>SW-547</b>
STANDARD ROAD PLAN	
SHEET 5 of 7	
REVISIONS:	Changed 'Invert' callout to 'Concrete Fillet'. Added maximum pipe size information.
APPROVED BY DESIGN METHODS ENGINEER	
<b>TRIPLE-GRATE BARRIER INTAKE</b>	

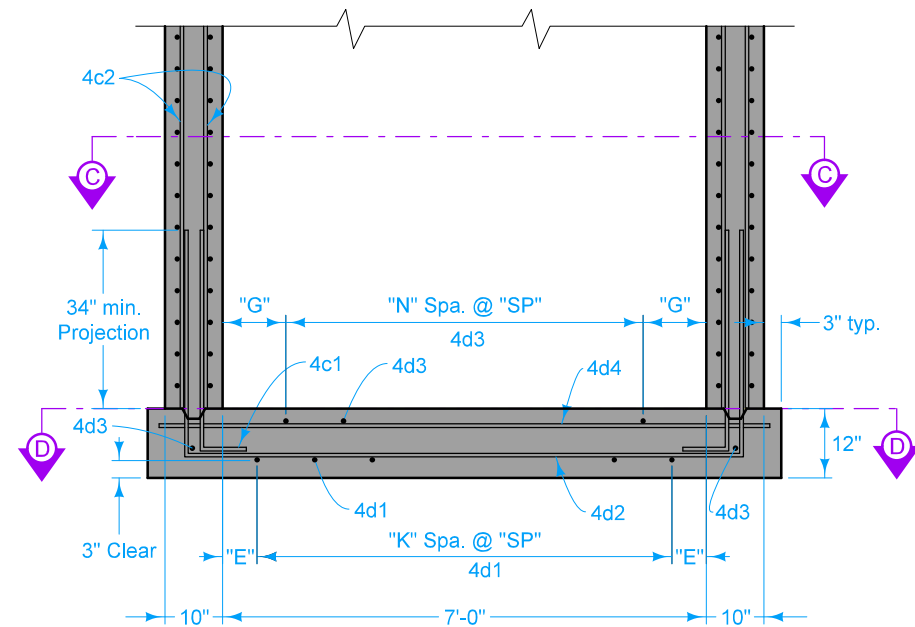


**PART SECTION A-A**  
(Where H = 3' to 7')

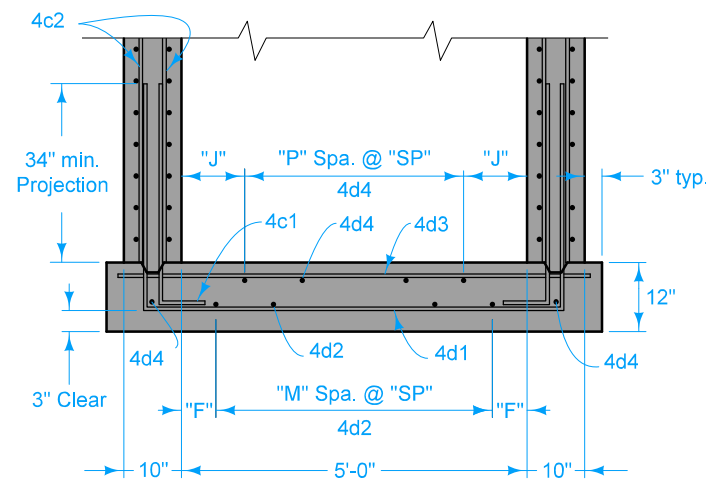


**PART SECTION A-A**  
(Where H = 16' to 28')

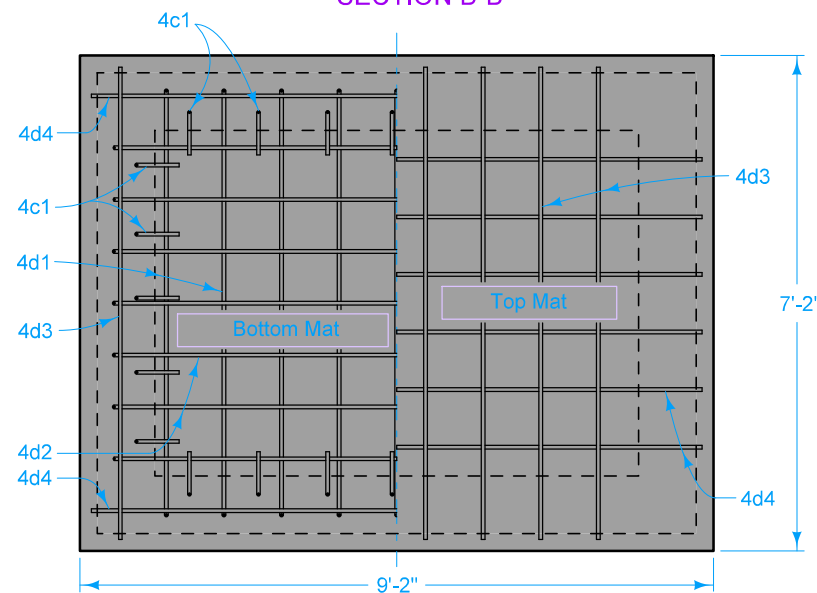
**PART SECTION A-A**  
(Where H = 8' to 15')



**SECTION A-A**

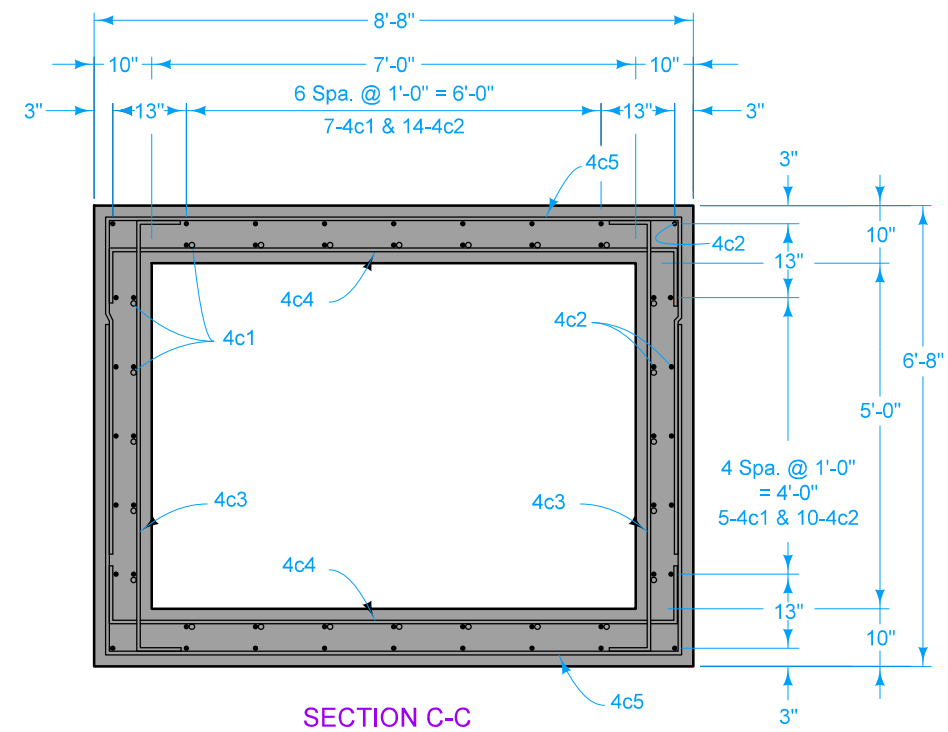


**SECTION B-B**

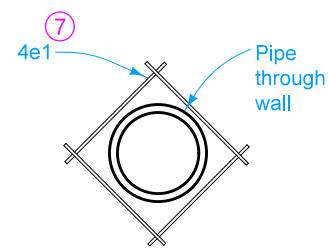


**SECTION D-D**  
BASE REINFORCING

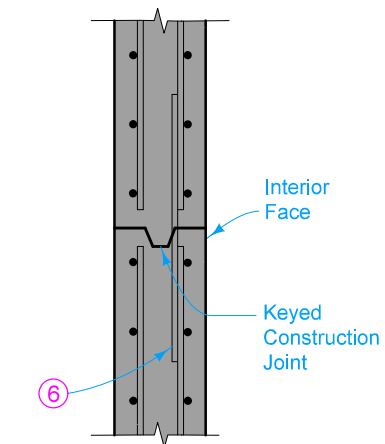
WALLS (RECTANGULAR OPTION)



**SECTION C-C**



PIPE REINFORCING



C.I.P. Wall  
CONSTRUCTION JOINT

- ⑥ Install one set of 4r1 x 3'-0" dowel bars @ 12 inch spacing at any wall joints. Twenty-eight 4r1 bars required per joint, total weight = 56 lbs.
- ⑦ 4e1 bar length to be pipe diameter plus 12 inches. Place 4e1 bar inside of vertical reinforcing. Shift main reinforcing bars as required for pipe entrance. Field cut bars to maintain 3 inch clearance from bottom and 2 inch clearance from face of walls. Eight 4e1 bars required per pipe entrance.

 <b>STANDARD ROAD PLAN</b>	REVISION	
	5	04-17-18
<b>SW-547</b>		
SHEET 6 of 7		
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<b>TRIPLE-GRATE BARRIER INTAKE</b>		

