

| Dimensions |            |            |
|------------|------------|------------|
| "S" (%)    | "H1" (In.) | "H2" (In.) |
| 1          | 16.33      | 16.89      |
| 2          | 16.67      | 17.78      |
| 3          | 17.00      | 18.67      |
| 4          | 17.33      | 19.56      |
| 5          | 17.67      | 20.45      |
| 6          | 18.00      | 21.34      |

DETAIL 'A'

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

Remove cover plate before constructing concrete barrier.

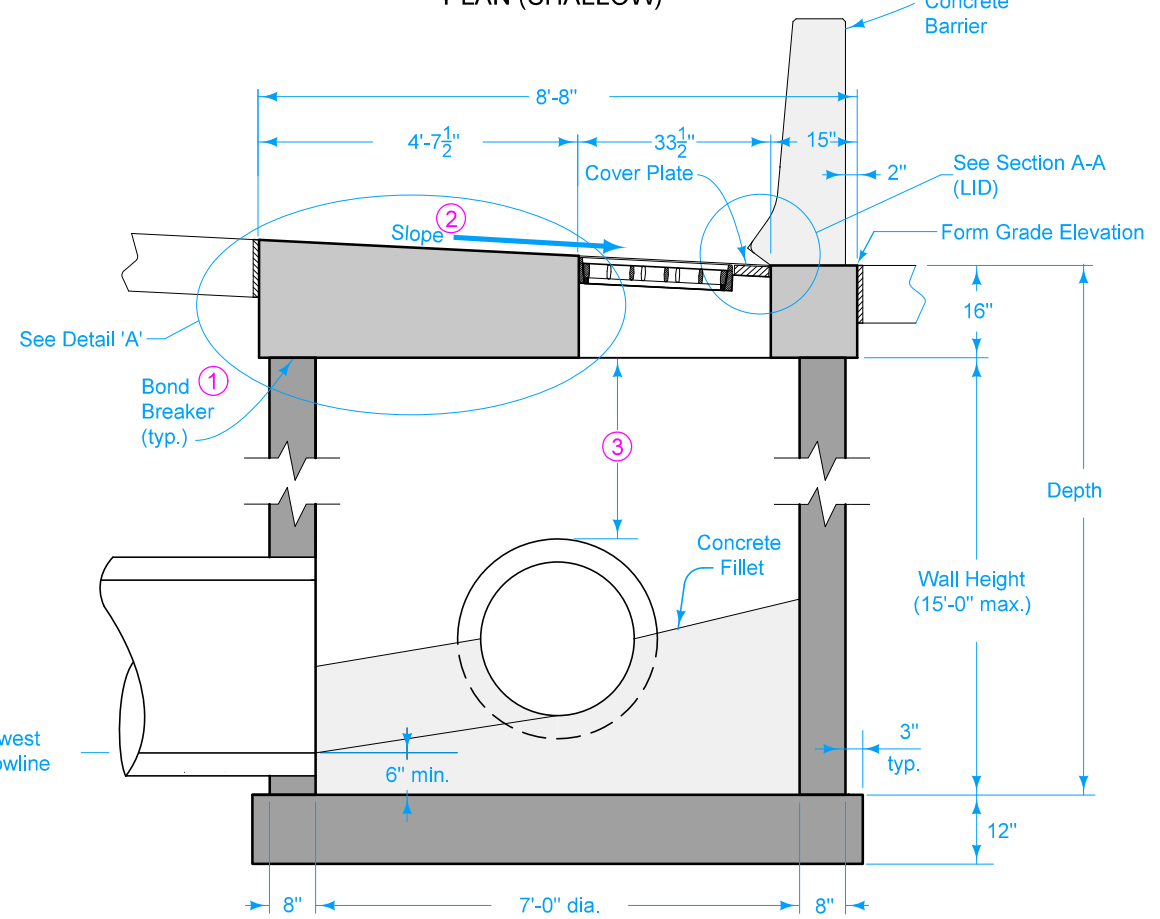
Cast frames into intake top so tops of grates are  $\frac{1}{4}$ " below Form Grade Elevation. Bolt intake frames together on both sides with four  $\frac{1}{2}$ " x 4" bolts.

For joint details, refer to PV-101.

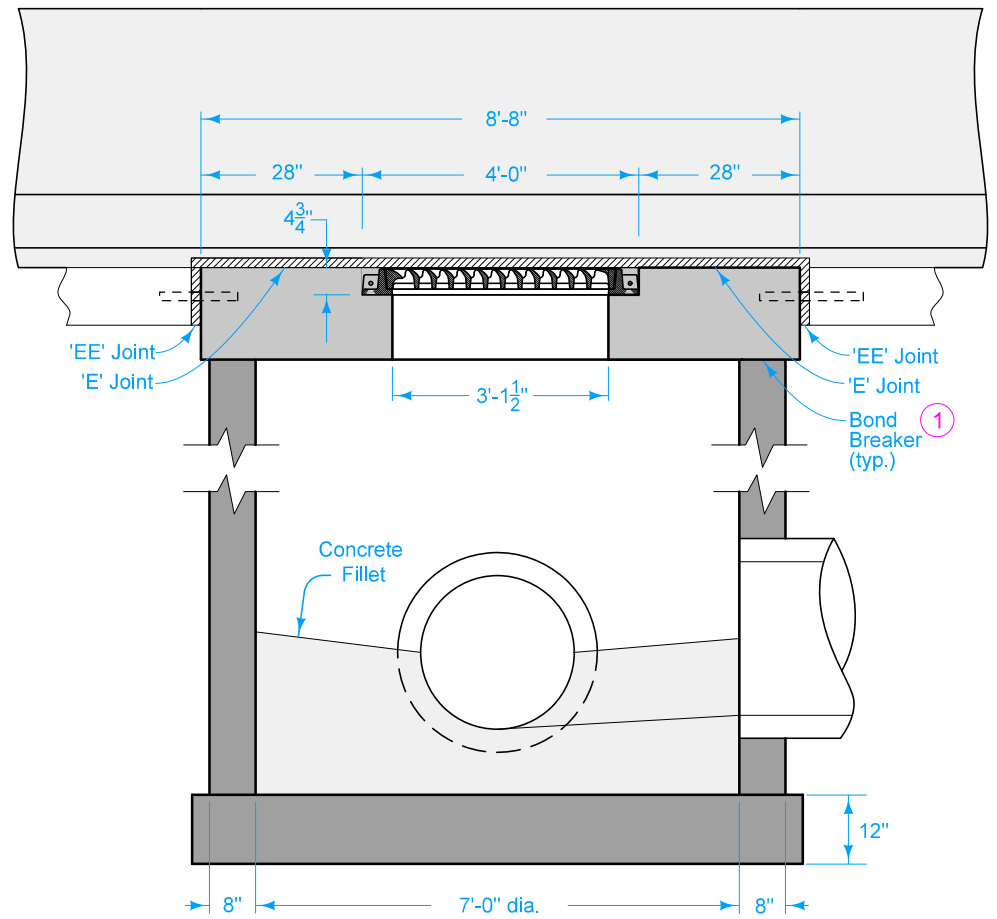
| Maximum Pipe Diameter for 2 Pipes |                   |
|-----------------------------------|-------------------|
| at 180° Separation                | At 90° Separation |
| 48 inches                         | 36 inches         |

- ① Trowel smooth and place two layers of 30 pound roofing felt to prevent bond.
- ② Match slope of top and grate to adjacent pavement.
- ③ 12 inch minimum above all pipes.

PLAN (SHALLOW)



SECTION A-A (SHALLOW)



SECTION B-B (SHALLOW)

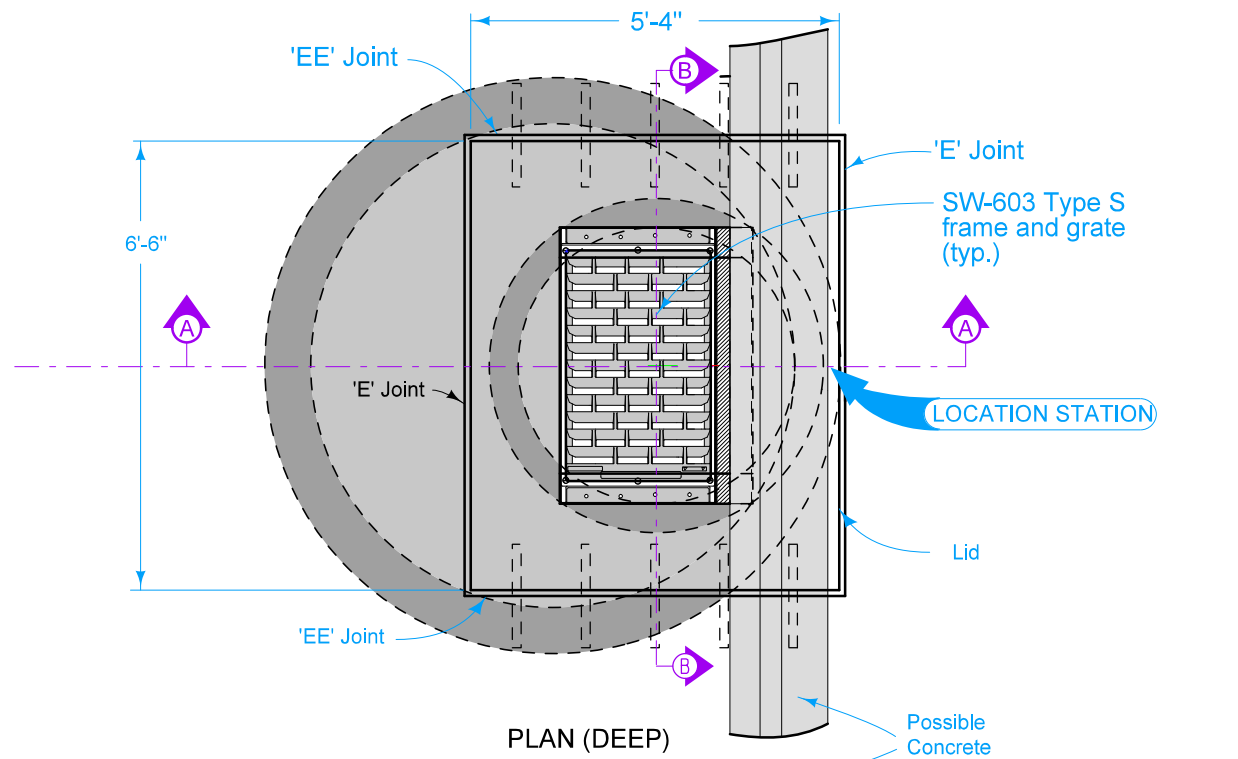
Shallow circular intake  
H = 3'-0" to 15'-0"  
7' barrel diameter

Deep circular option:  
H = 15'-0" to 28'-0"  
4' and 7' barrel diameters

Possible Contract Item:  
Barrier Intake, SW-548

Possible Tabulation:  
104-5B

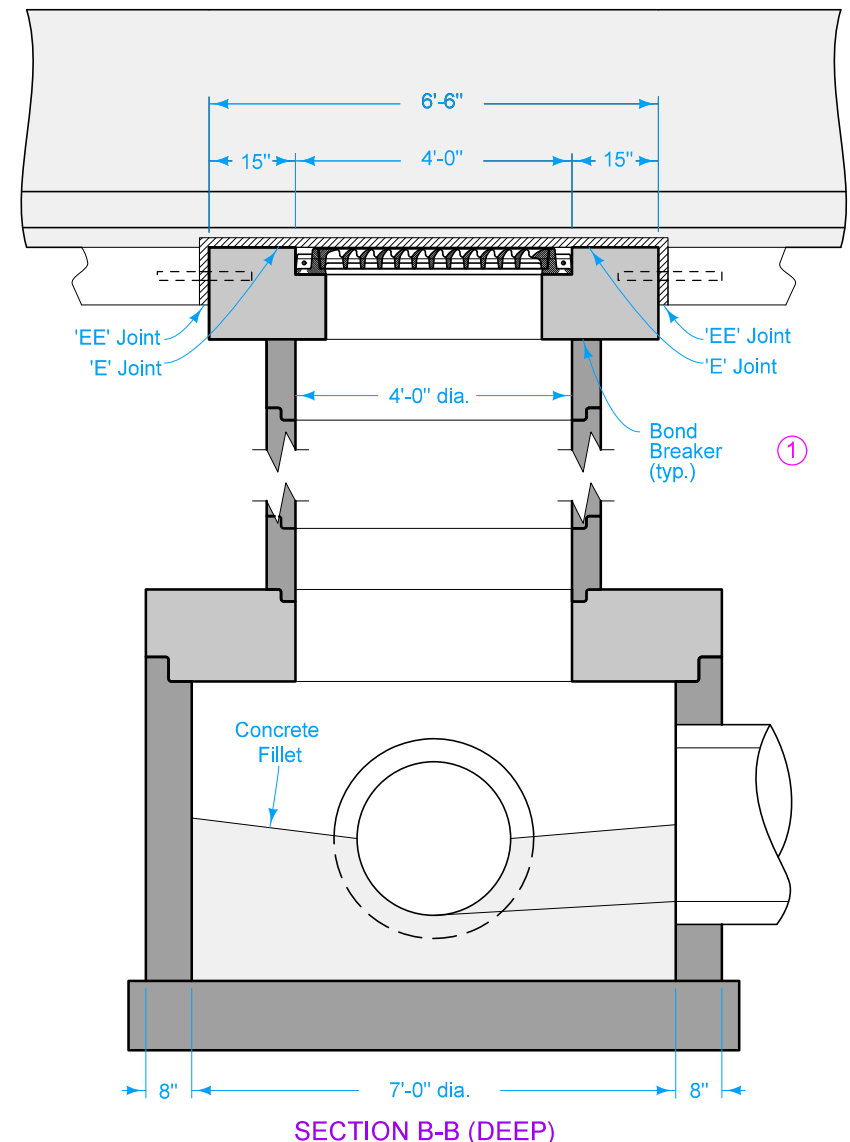
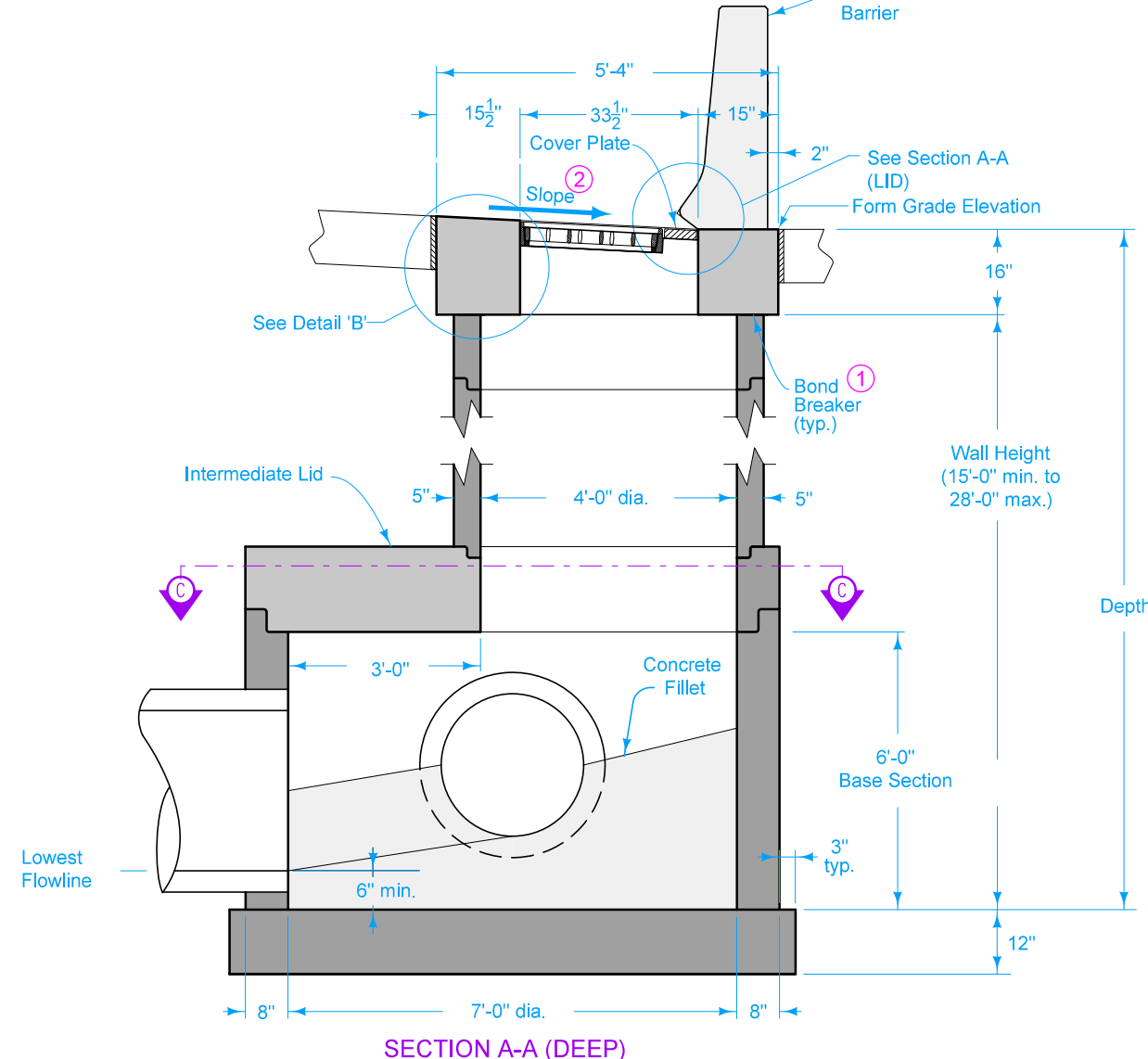
|  |          |               |
|--|----------|---------------|
|  | REVISION |               |
|  | 6        | 10-16-18      |
| <b>STANDARD ROAD PLAN</b>  |          | <b>SW-548</b> |
|  |          | SHEET 1 of 6  |
| REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the "Form Grade Location" call out on Sheet 3 to be consistent with Sheet 1. |          |               |
|  |          |               |
| APPROVED BY DESIGN METHODS ENGINEER  |          |               |
| <b>SINGLE-GRATE BARRIER INTAKE,<br/>CIRCULAR</b>   |          |               |



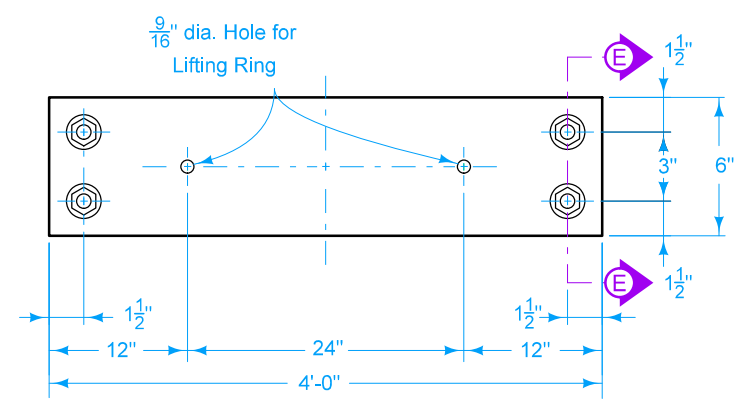
DETAIL 'B'

| Dimensions |            |            |
|------------|------------|------------|
| "S" (%)    | "H1" (In.) | "H2" (In.) |
| 1          | 16.33      | 16.59      |
| 2          | 16.67      | 16.98      |
| 3          | 17.00      | 17.47      |
| 4          | 17.33      | 17.96      |
| 5          | 17.67      | 18.45      |
| 6          | 18.00      | 18.94      |

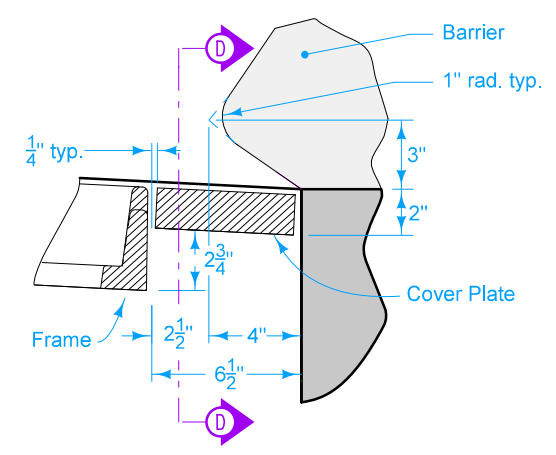
- 1 Trowel smooth and place two layers of 30-pound roofing felt to prevent bond.
- 2 Match slope of top and grate to adjacent pavement.



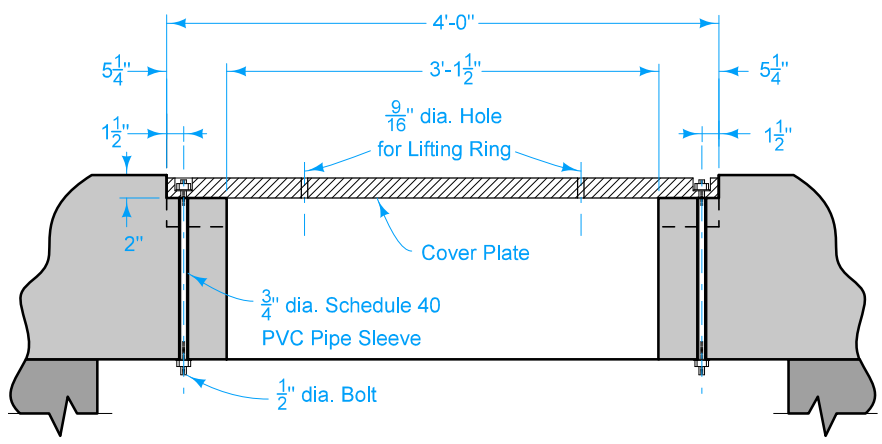
|  |          |               |
|--|----------|---------------|
|  | REVISION |               |
|  | 6        | 10-16-18      |
| <b>STANDARD ROAD PLAN</b>  |          | <b>SW-548</b> |
|  |          | SHEET 2 of 6  |
| REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1. |          |               |
| <br>APPROVED BY DESIGN METHODS ENGINEER  |          |               |
| <b>SINGLE-GRATE BARRIER INTAKE,<br/>CIRCULAR</b>   |          |               |



PLAN

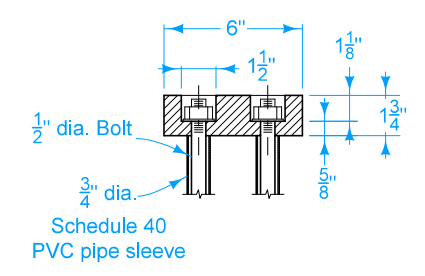


SECTION A-A  
(LID)

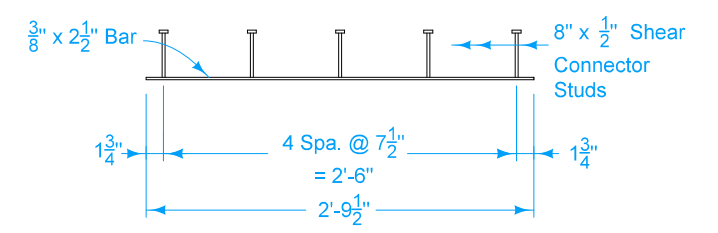


SECTION D-D

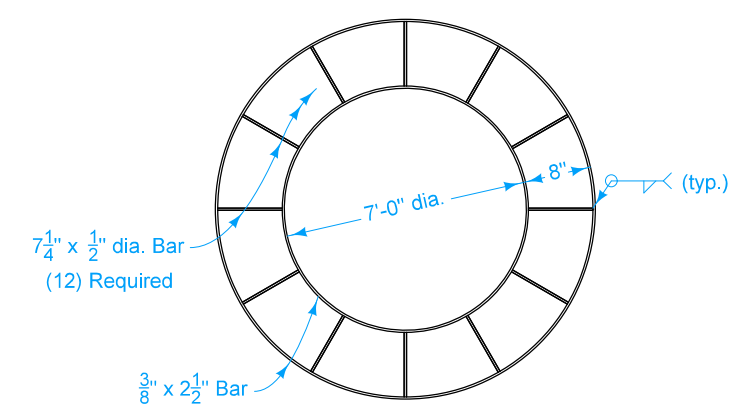
COVER PLATE



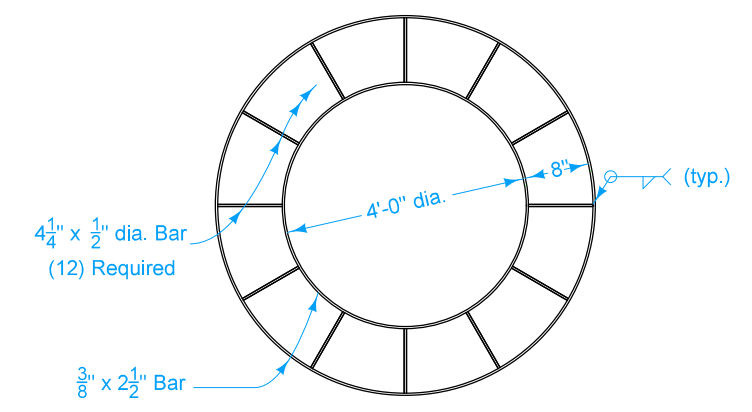
SECTION E-E



FRAME RING  
(2 required)



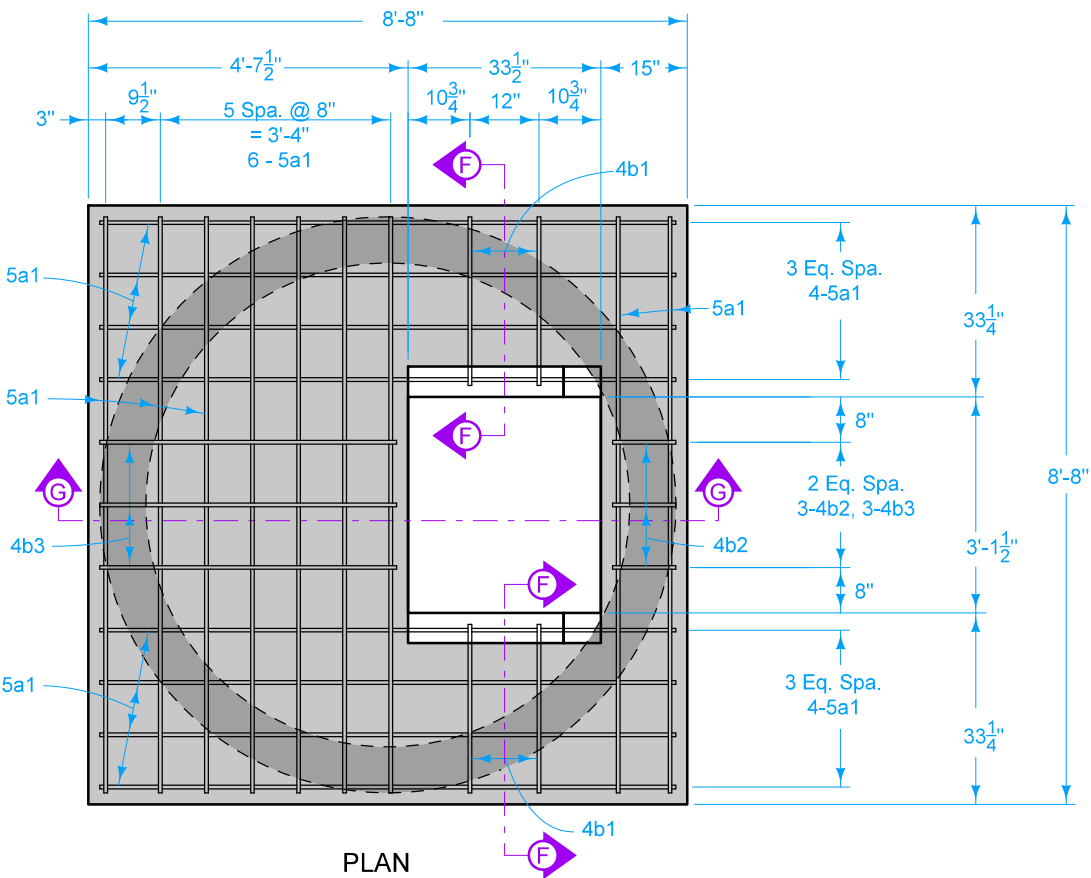
WALL (SHALLOW)



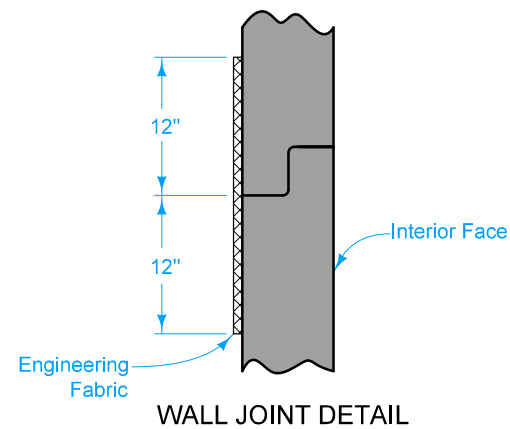
WALL (DEEP)

EDGE ARMOR

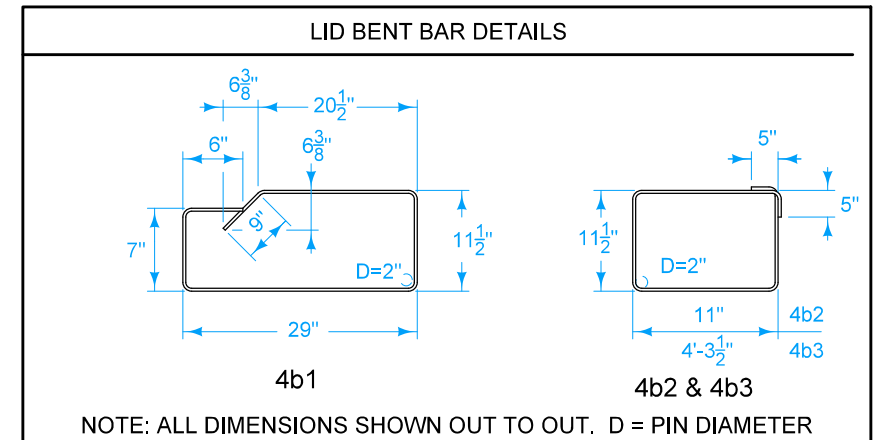
|  |          |               |
|--|----------|---------------|
|  | REVISION |               |
|  | 6        | 10-16-18      |
| <b>STANDARD ROAD PLAN</b>  |          | <b>SW-548</b> |
|  |          | SHEET 3 of 6  |
| REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the "Form Grade Location" call out on Sheet 3 to be consistent with Sheet 1. |          |               |
|  |          |               |
| APPROVED BY DESIGN METHODS ENGINEER  |          |               |
| <b>SINGLE-GRATE BARRIER INTAKE,<br/>CIRCULAR</b>   |          |               |



PLAN



WALL JOINT DETAIL



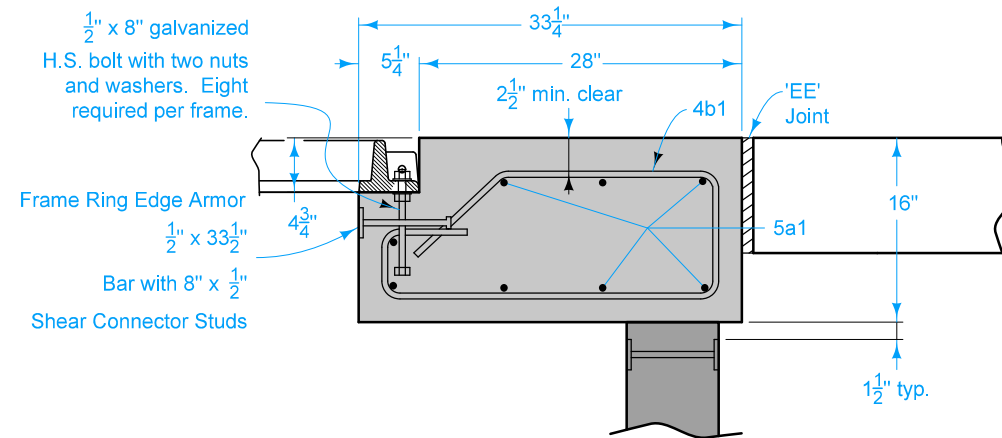
NOTE: ALL DIMENSIONS SHOWN OUT TO OUT. D = PIN DIAMETER

| LID REINFORCING BAR LIST               |                                |           |        |        |     |
|--|--------------------------------|-----------|--------|--------|-----|
| EPOXY-COATED                           |                                |           |        |        |     |
| BAR                                    | LOCATION                       | SHAPE NO. | LENGTH | WEIGHT |     |
| 5a1                                    | Lid, Longitudinal & Transverse | —         | 34     | 8'-4"  | 296 |
| 4b1                                    | Lid Hoop                       |           | 4      | 6'-11" | 18  |
| 4b2                                    | Lid Hoop                       |           | 3      | 4'-7"  | 9   |
| 4b3                                    | Lid Hoop                       |           | 3      | 11'-4" | 23  |
| EPOXY COATED REINFORCING STEEL - TOTAL |                                |           |        |        | 346 |

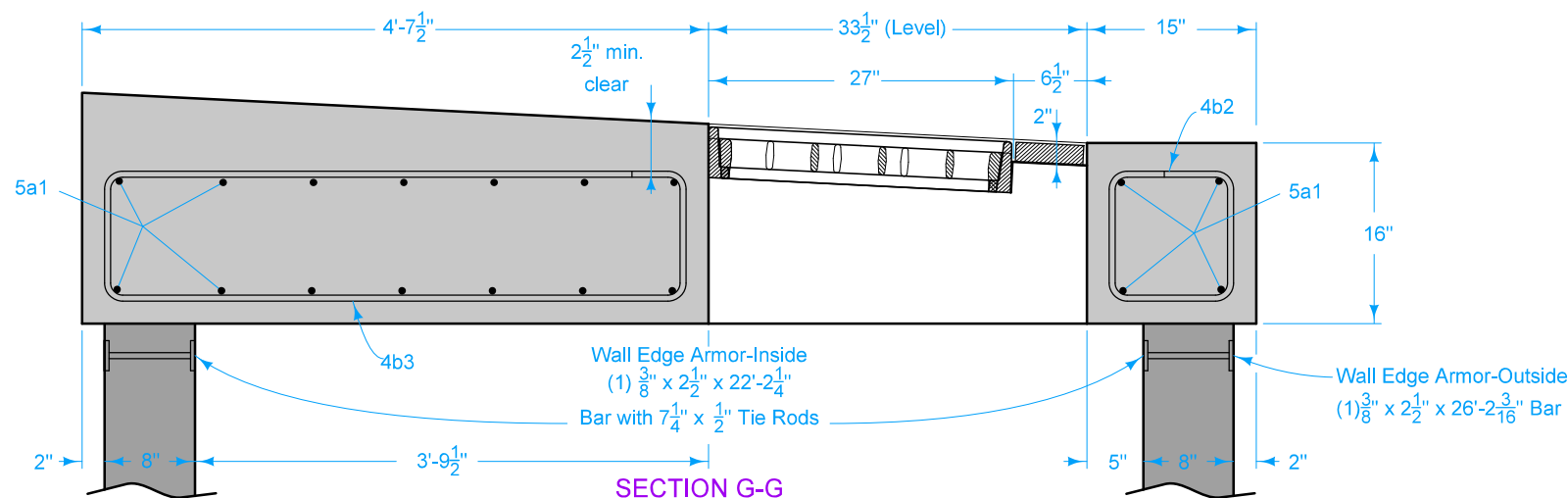
| LID QUANTITY SUMMARY (SHALLOW) |         |
|--------------------------------|---------|
| Concrete                       | 3.2 CY* |
| Epoxy Coated Reinforcing Steel | 346 LB  |

\* Based on Minimum thickness = 16"

| Maximum Pipe Diameter for Pipes at: |                 |
|-------------------------------------|-----------------|
| 90° Separation                      | 180° Separation |
| 36                                  | 48              |



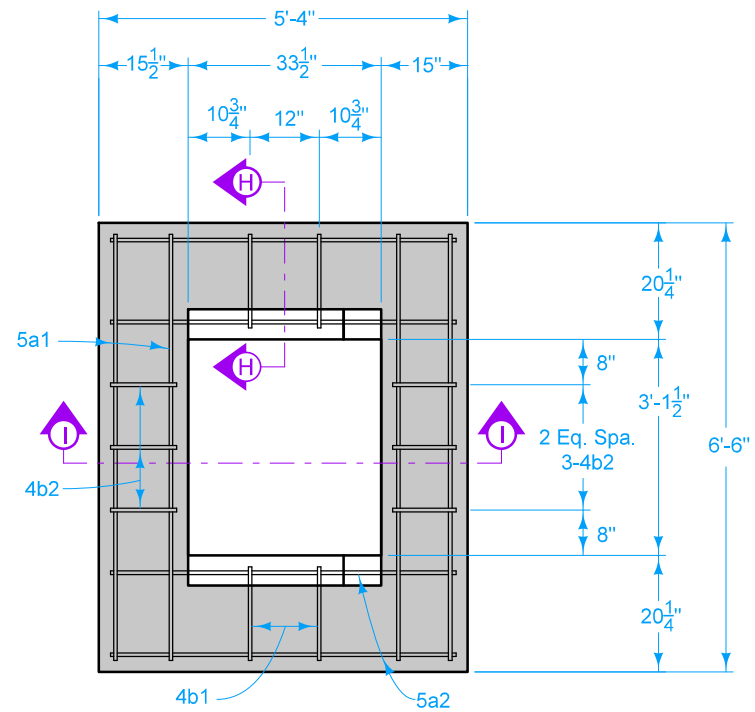
SECTION F-F



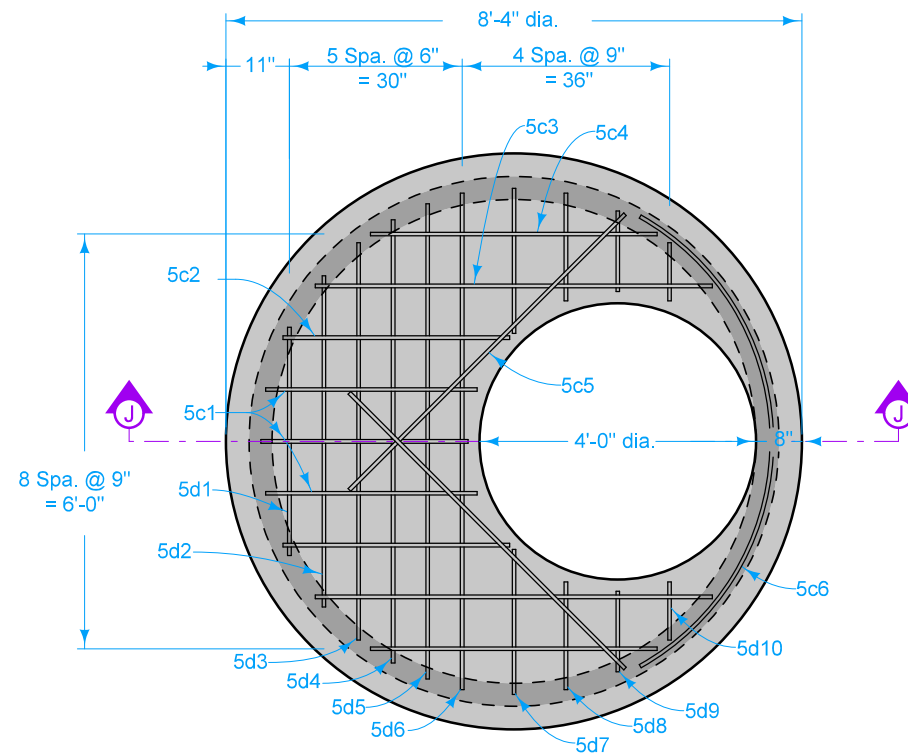
SECTION G-G

LID (SHALLOW)

|  |          |               |
|--|----------|---------------|
|  | REVISION |               |
|  | 6        | 10-16-18      |
| <b>STANDARD ROAD PLAN</b>  |          | <b>SW-548</b> |
|  |          | SHEET 4 of 6  |
| REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1. |          |               |
|  |          |               |
| APPROVED BY DESIGN METHODS ENGINEER  |          |               |
| <b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b>   |          |               |

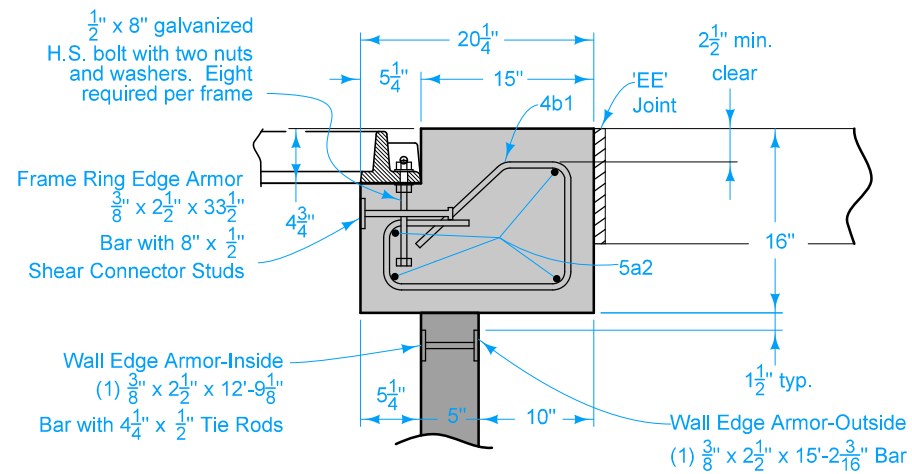


PLAN

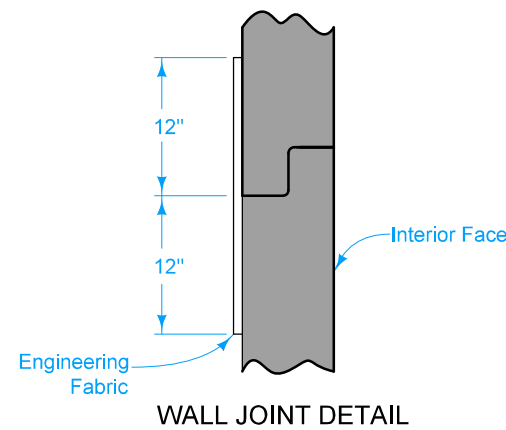


SECTION C-C  
INTERMEDIATE LID

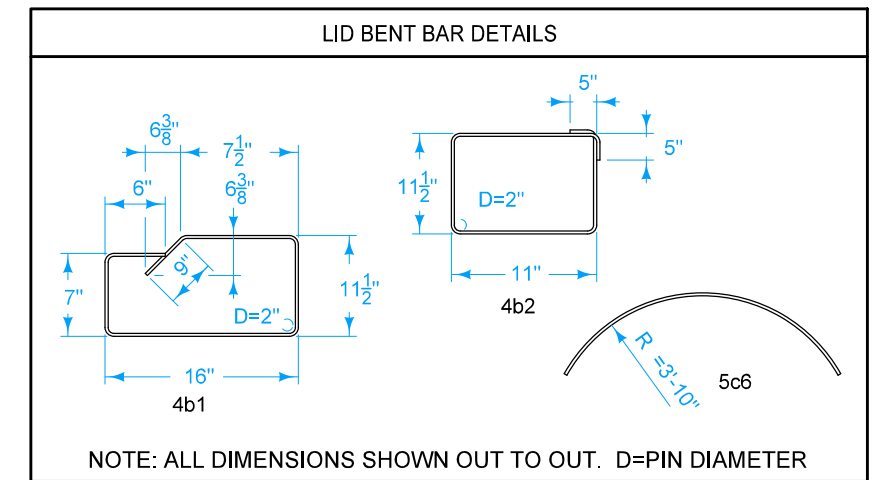
| LID REINFORCING BAR LIST               |                   |       |     |        |        |
|--|-------------------|-------|-----|--------|--------|
| EPOXY-COATED                           |                   |       |     |        |        |
| BAR                                    | LOCATION          | SHAPE | NO. | LENGTH | WEIGHT |
| 5a1                                    | Lid, Longitudinal | —     | 8   | 6'-2"  | 51     |
| 5a2                                    | Lid, Transverse   | —     | 8   | 5'-0"  | 42     |
| 4b1                                    | Lid Hoop          | ⊔     | 4   | 4'-9"  | 13     |
| 4b2                                    | Lid Hoop          | ⊔     | 6   | 4'-7"  | 18     |
| 5c1                                    | Intermediate Lid  | —     | 3   | 3'-0"  | 9      |
| 5c2                                    | Intermediate Lid  | —     | 2   | 3'-3"  | 7      |
| 5c3                                    | Intermediate Lid  | —     | 2   | 5'-9"  | 12     |
| 5c4                                    | Intermediate Lid  | —     | 2   | 4'-2"  | 9      |
| 5c5                                    | Intermediate Lid  | —     | 2   | 5'-8"  | 12     |
| 5c6                                    | Intermediate Lid  | ⤿     | 1   | 8'-2"  | 9      |
| 5d1                                    | Intermediate Lid  | —     | 1   | 3'-5"  | 4      |
| 5d2                                    | Intermediate Lid  | —     | 1   | 4'-10" | 5      |
| 5d3                                    | Intermediate Lid  | —     | 1   | 5'-9"  | 6      |
| 5d4                                    | Intermediate Lid  | —     | 1   | 6'-5"  | 7      |
| 5d5                                    | Intermediate Lid  | —     | 1   | 6'-10" | 7      |
| 5d6                                    | Intermediate Lid  | —     | 1   | 7'-2"  | 7      |
| 5d7                                    | Intermediate Lid  | —     | 2   | 2'-1"  | 4      |
| 5d8                                    | Intermediate Lid  | —     | 2   | 1'-6"  | 3      |
| 5d9                                    | Intermediate Lid  | —     | 2   | 1'-2"  | 2      |
| 5d10                                   | Intermediate Lid  | —     | 2   | 0'-11" | 2      |
| EPOXY COATED REINFORCING STEEL - TOTAL |                   |       |     |        | 229    |



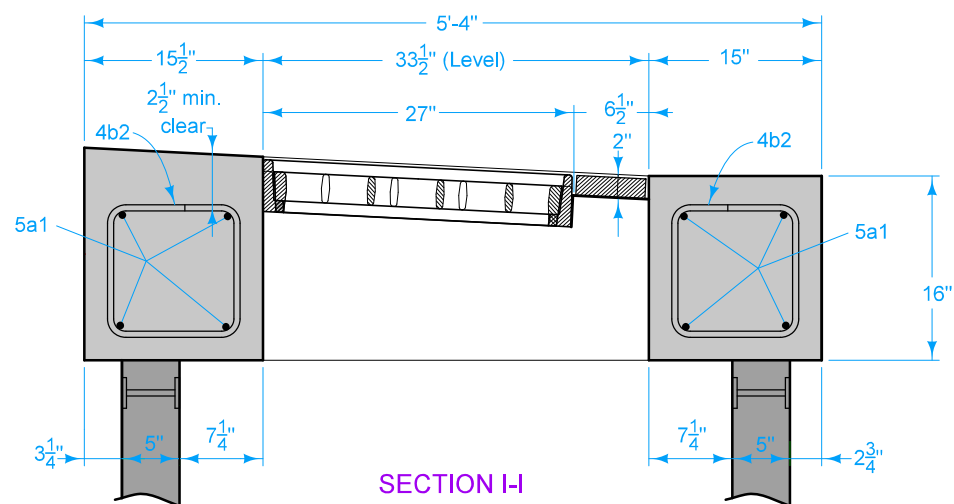
SECTION H-H



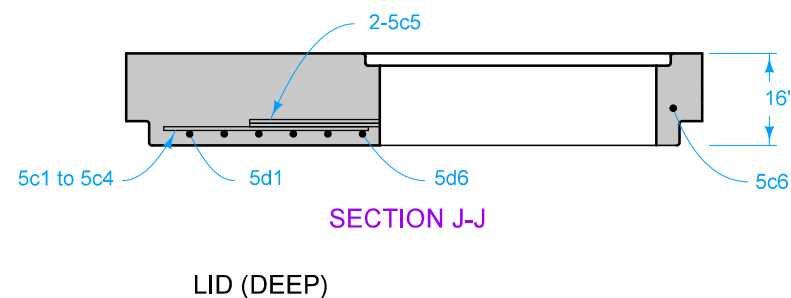
WALL JOINT DETAIL



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



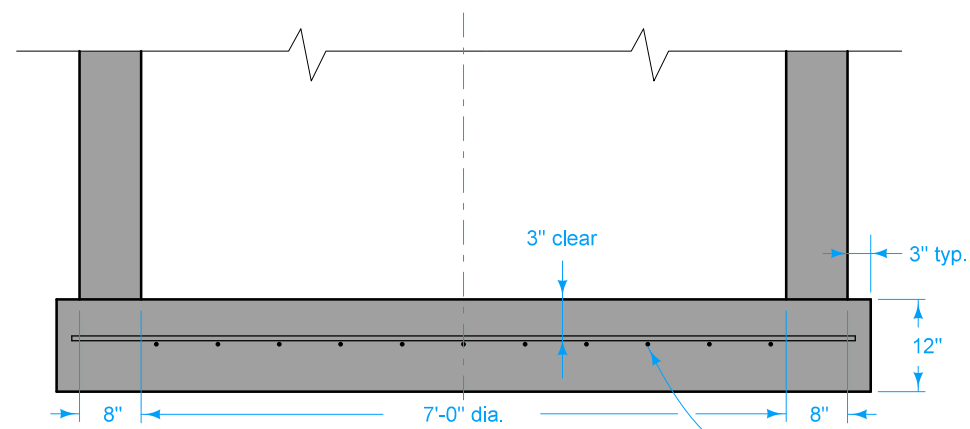
SECTION I-I



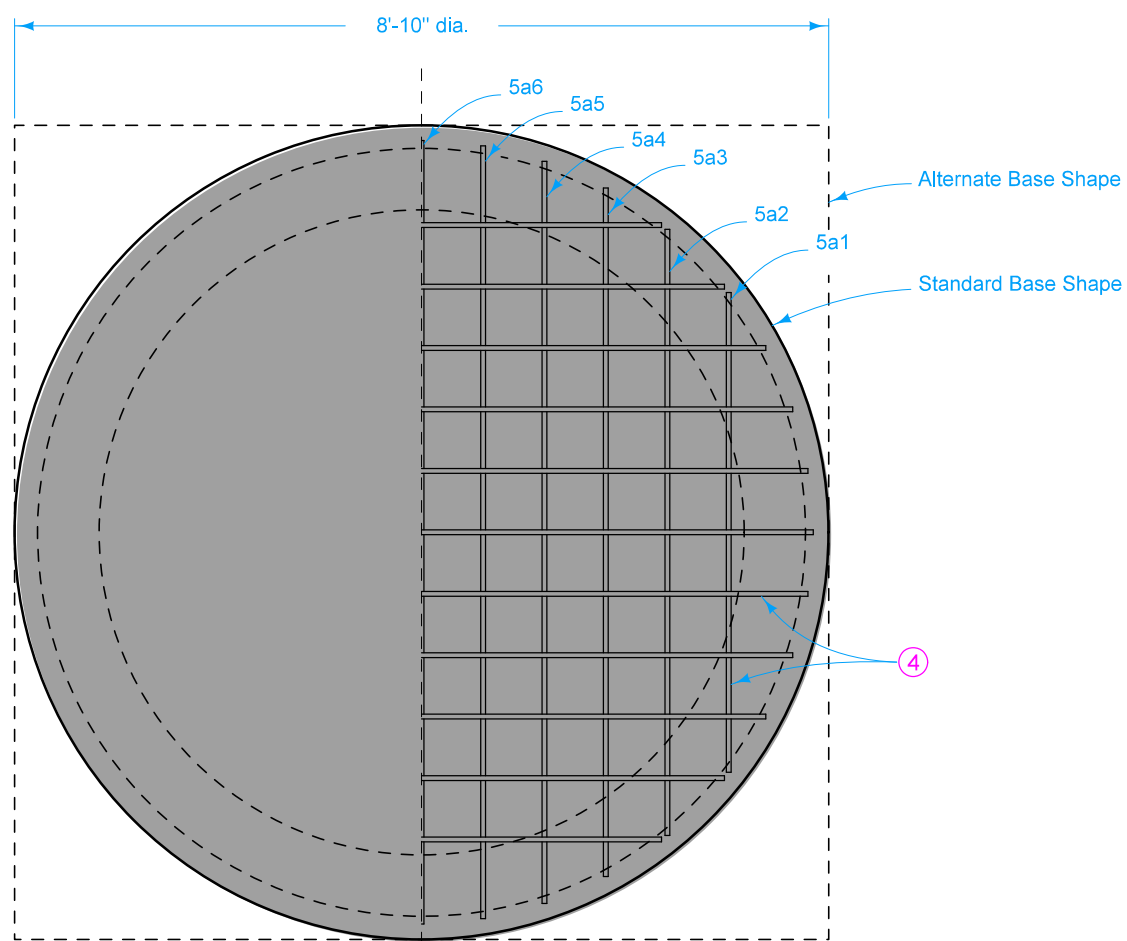
LID (DEEP)

| LID QUANTITY SUMMARY (DEEP)    |        |
|--------------------------------|--------|
| Concrete - Lid                 | 1.2 CY |
| Concrete - Intermediate Lid    | 2.1 CY |
| Epoxy Coated Reinforcing Steel | 229 LB |

|  |                               |          |
|--|-------------------------------|----------|
|  | REVISION                      |          |
|  | 6                             | 10-16-18 |
|  | <b>SW-548</b><br>SHEET 5 of 6 |          |
| REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1. |                               |          |
| <br>APPROVED BY DESIGN METHODS ENGINEER  |                               |          |
| <b>SINGLE-GRATE BARRIER INTAKE,<br/>CIRCULAR</b>   |                               |          |



PROFILE



PLAN

BASE

| BASE REINFORCING BAR LIST              |                            |          |         |        |     |
|--|----------------------------|----------|---------|--------|-----|
| EPOXY-COATED                           |                            |          |         |        |     |
| BAR                                    | LOCATION                   | SHAPENO. | 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          |          |
|--------------------------------|----------|
| Concrete                       | 2.3 CY * |
| Epoxy Coated Reinforcing Steel | 166 LB * |

\* Based on Standard Base Shape

- (4) #5 at 8 inch centers each direction or equivalent welded wire fabric.
- (5) 4el bar length to be pipe diameter plus 12 inches. Place 4el bar inside of vertical reinforcing. Shift main reinforcing bars as required for pipe entrance. Filed cut bars to maintain 3 inch clearance from bottom. Maintain 2 inch clearance from face of walls. Four 4el bars required per pipe entrance.

|                           |          |               |
|---------------------------|----------|---------------|
|                           | REVISION |               |
|                           | 6        | 10-16-18      |
| <b>STANDARD ROAD PLAN</b> |          | <b>SW-548</b> |
|                           |          | SHEET 6 of 6  |

REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1.

*Shawn Miller*  
APPROVED BY DESIGN METHODS ENGINEER

**SINGLE-GRATE BARRIER INTAKE,  
CIRCULAR**