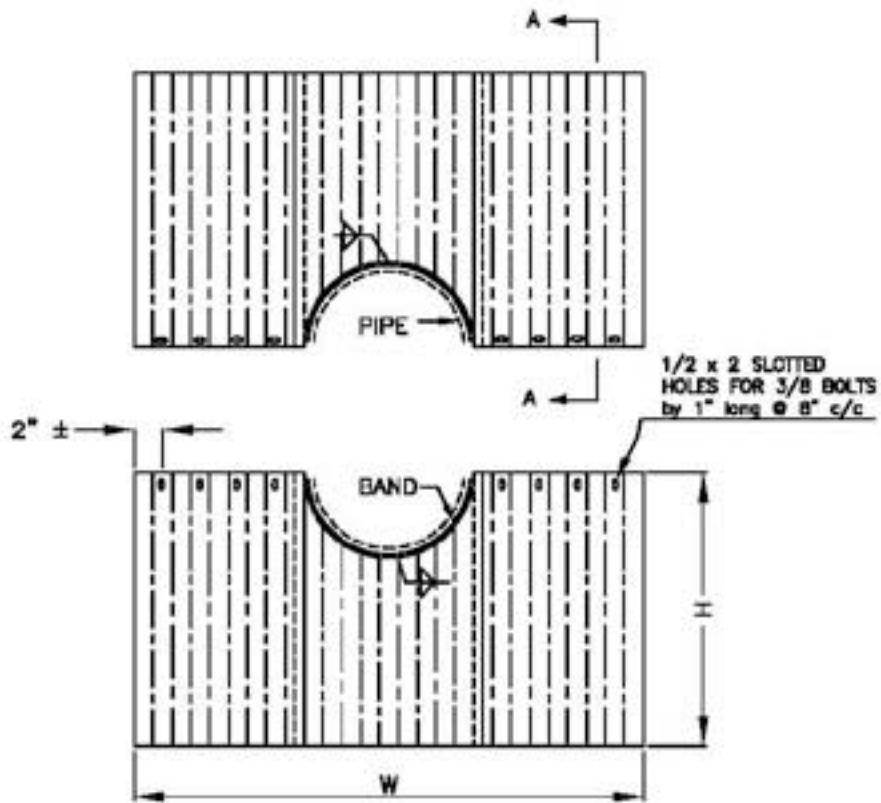
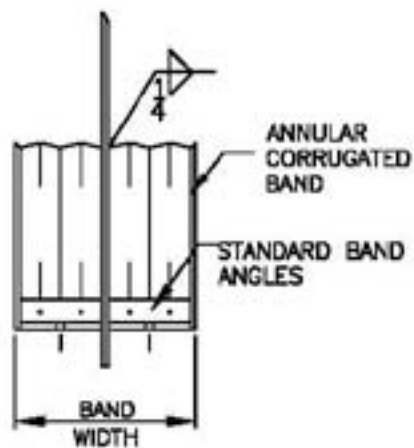




Technical Detail Drawings



TYPICAL TWO-PIECE DIAPHRAGM



SECTION A-A

TYPICAL DIMENSIONS OF STEEL DIAPHRAGMS

Pipe Dia. (In.)	Gage of Collar	BAND WIDTH (IN.)	DIMENSIONS OF DIAPHRAGM	
			W (In.)	H (In.)
12	16	7"	64	32 1/2
15	16	7"	64	34
18	16	7"	69 1/4	35 1/2
21	16	7"	72	37
24	14	7"	72	38 1/2
30	14	7"	82 1/2	41 1/2
36	12	7"	88	44 1/2
42	12	10 1/2"	93 1/4	47 1/2
48	12	10 1/2"	96	50 1/2
54	12	10 1/2"	106 1/2	53 1/2
60	10	10 1/2"	112	56 1/2
66	10	10 1/2"	117 1/4	59 1/2
72	10	10 1/2"	120	62 1/2
84	8	10 1/2"	136	68 1/2

NOTES:

1. Collar size based on placement @ pipe joints (20' c/c).
2. Band is corrugated to match rerolled end of pipe being joined.
3. Each diaphragm is delivered with (4) 1/2" x 6" bolts and (8) 3/8"x1" bolts



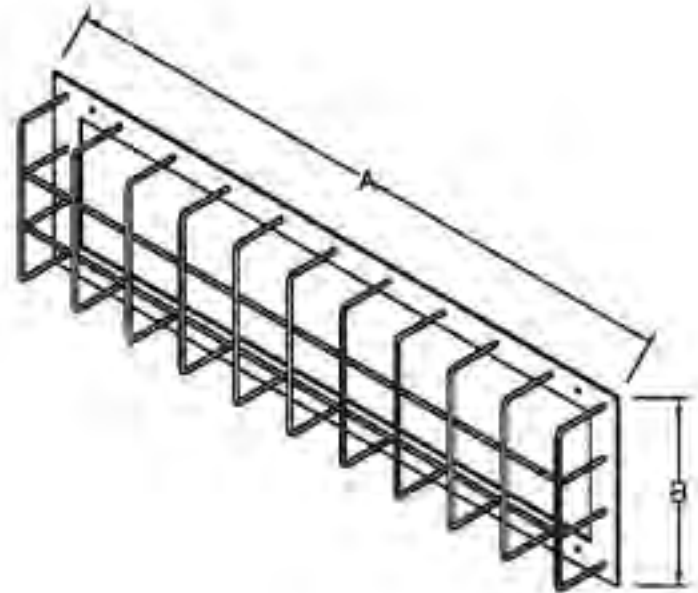
LANE ENTERPRISES, INC.

TITLE
TYPICAL DETAILS FOR A TWO-PIECE DIAPHRAGM (ANTI-SEEP COLLAR)

DRAWN BY: BLC

DRAWING NO. A0121 PAGE 1 OF 1 DATE 09/22/00

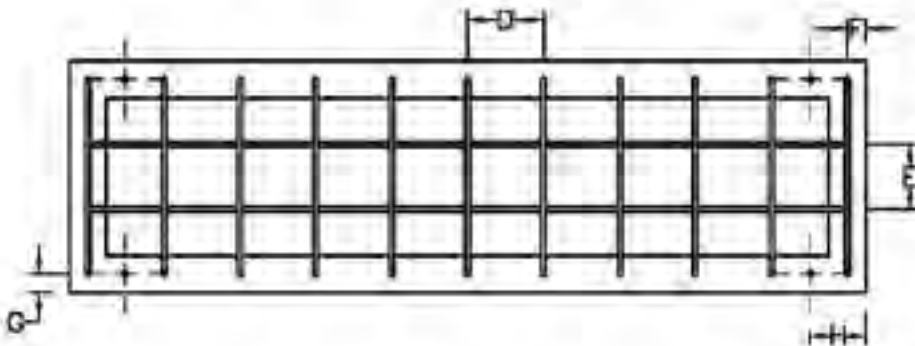
NO.	DATE	BY
REVISIONS		



DIMENSIONS

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____
- H: _____

- FLAT PLATE: _____
- BAR STOCK: _____
- HOLE SIZE: _____
- COATING: _____
- HINGED: _____



LANE ENTERPRISES, INC.

TITLE

TRASH RACK
LANE MODEL #126

DRAWN BY: BLC

DRAWING NO.
A0126

PAGE
1 OF 1

DATE
12/15/00

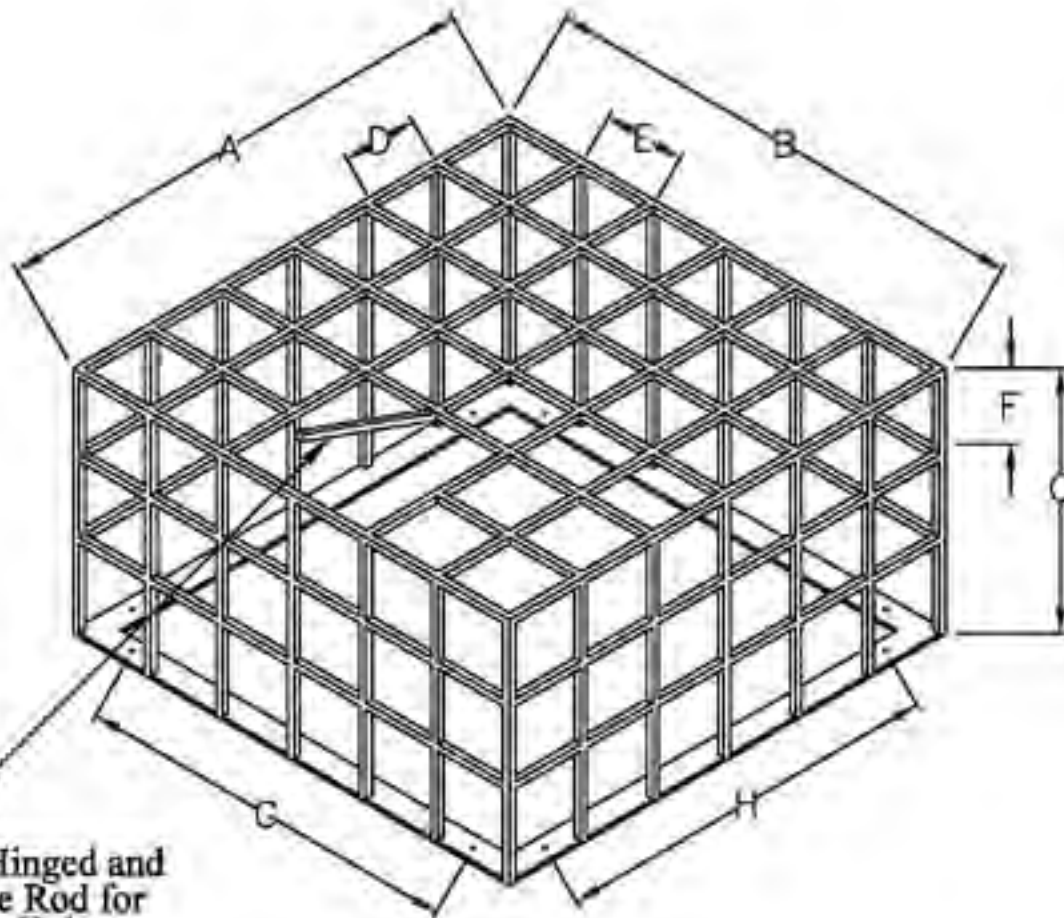
DIMENSIONS:

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____
- H: _____

MATERIALS:

- FLAT PLATE: _____
- BAR STOCK: _____
- HOLE SIZE: _____
- COATING: _____
- HINGED: YES / NO
- ANTI-VORTEX PLATE: YES / NO

NOTES:



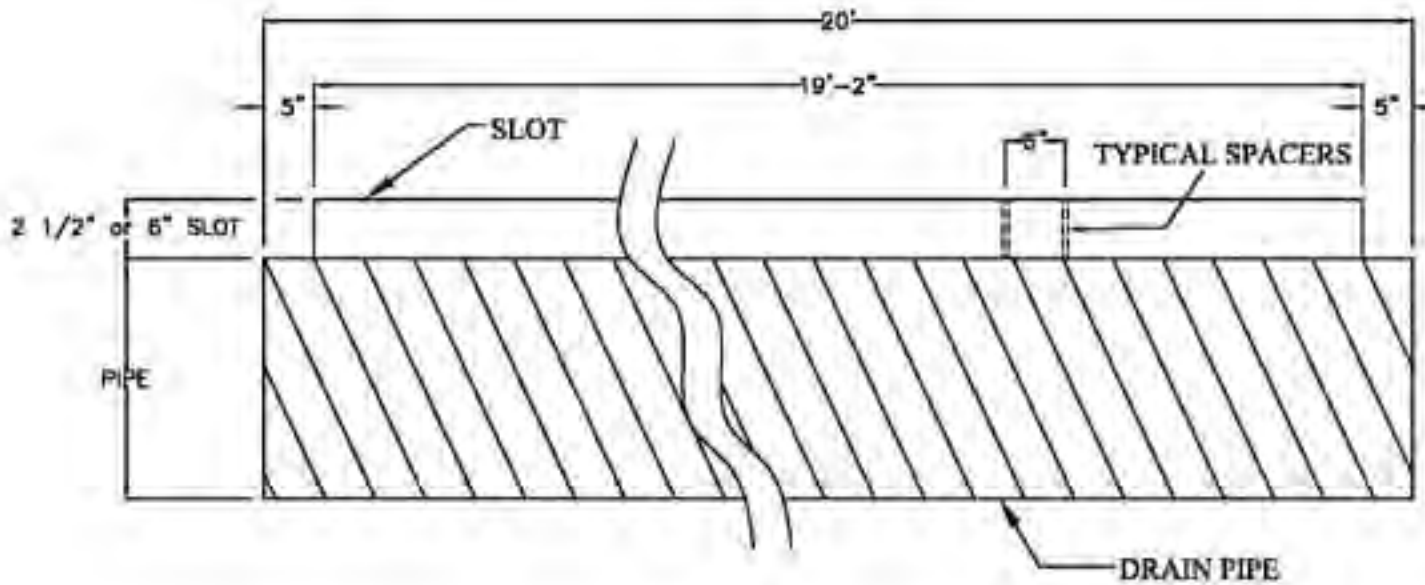
Provide Hinged and Lockable Rod for Access Hole (Option)



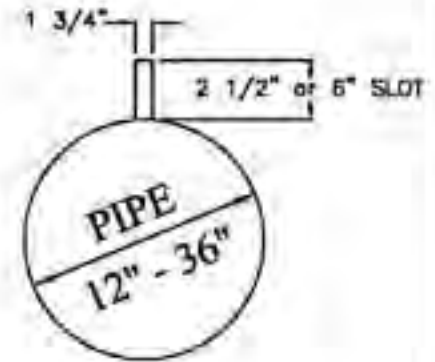
LANE ENTERPRISES, INC.

TITLE
 TRASH RACK
 LANE MODEL #127
 DRAWN BY: BLC

DRAWING NO. A0127	PAGE 1 OF 1	DATE 1/30/00
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SLOTTED DRAIN DETAILS



END VIEW



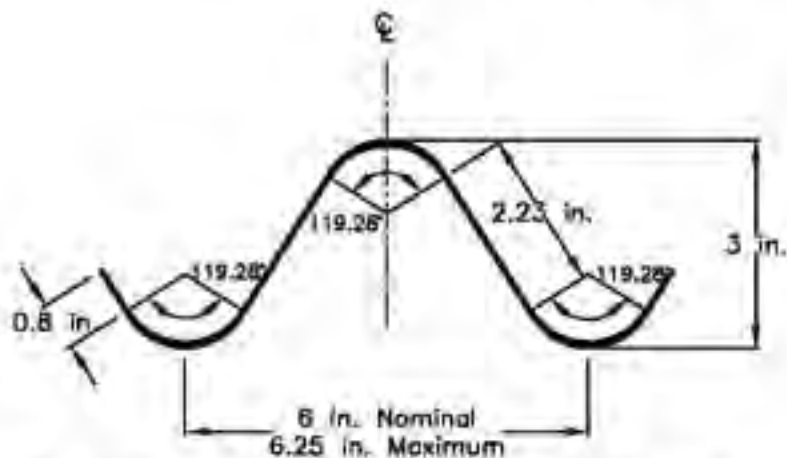
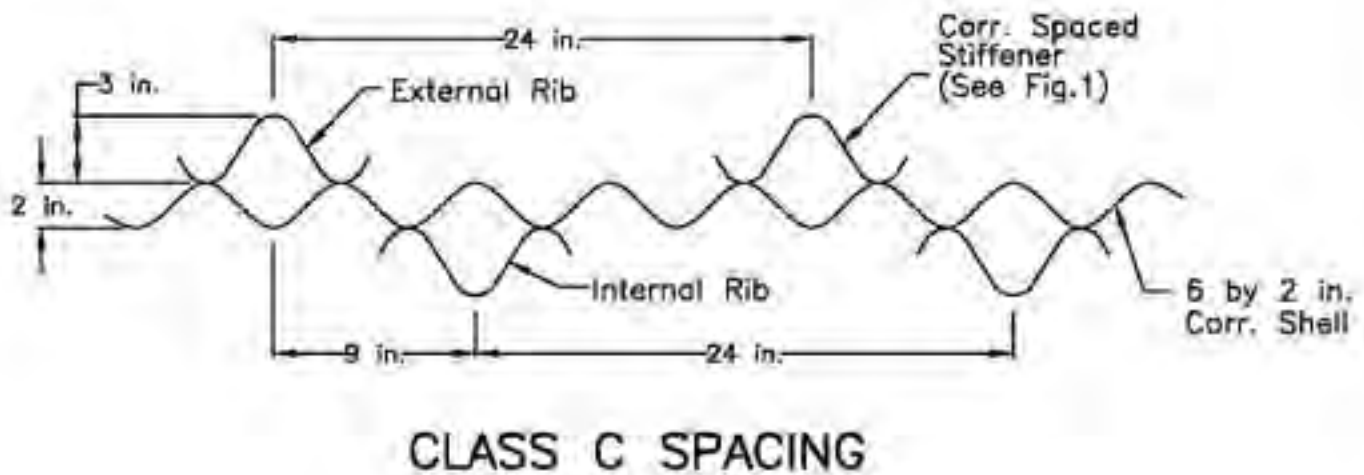
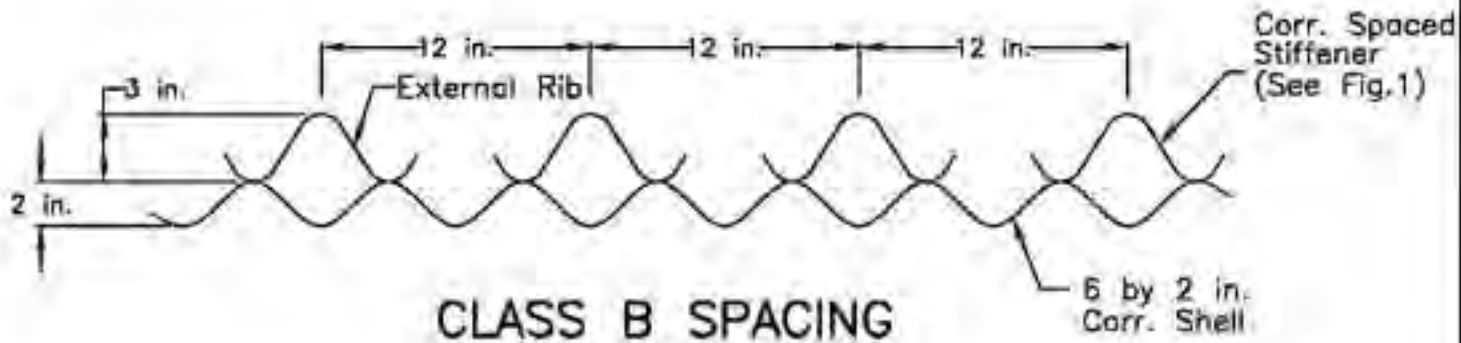
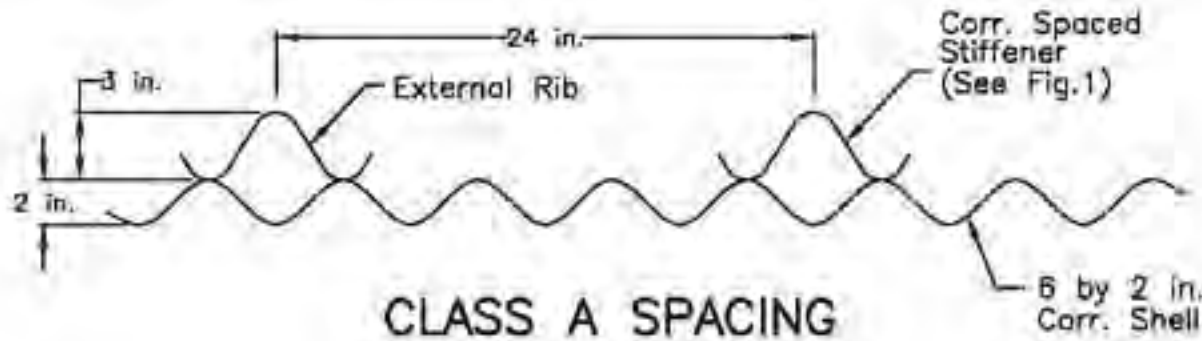
LANE ENTERPRISES, INC.

TITLE
**SLOTTED DRAIN
 DETAIL**

DRAWN BY: BLC

DRAWING NO. A0128 PAGE 1 OF 2 DATE 12/04/00

NO.	DATE	BY
REVISIONS		



1	01/17/05	BLC
NO.	DATE	BY
REVISIONS		

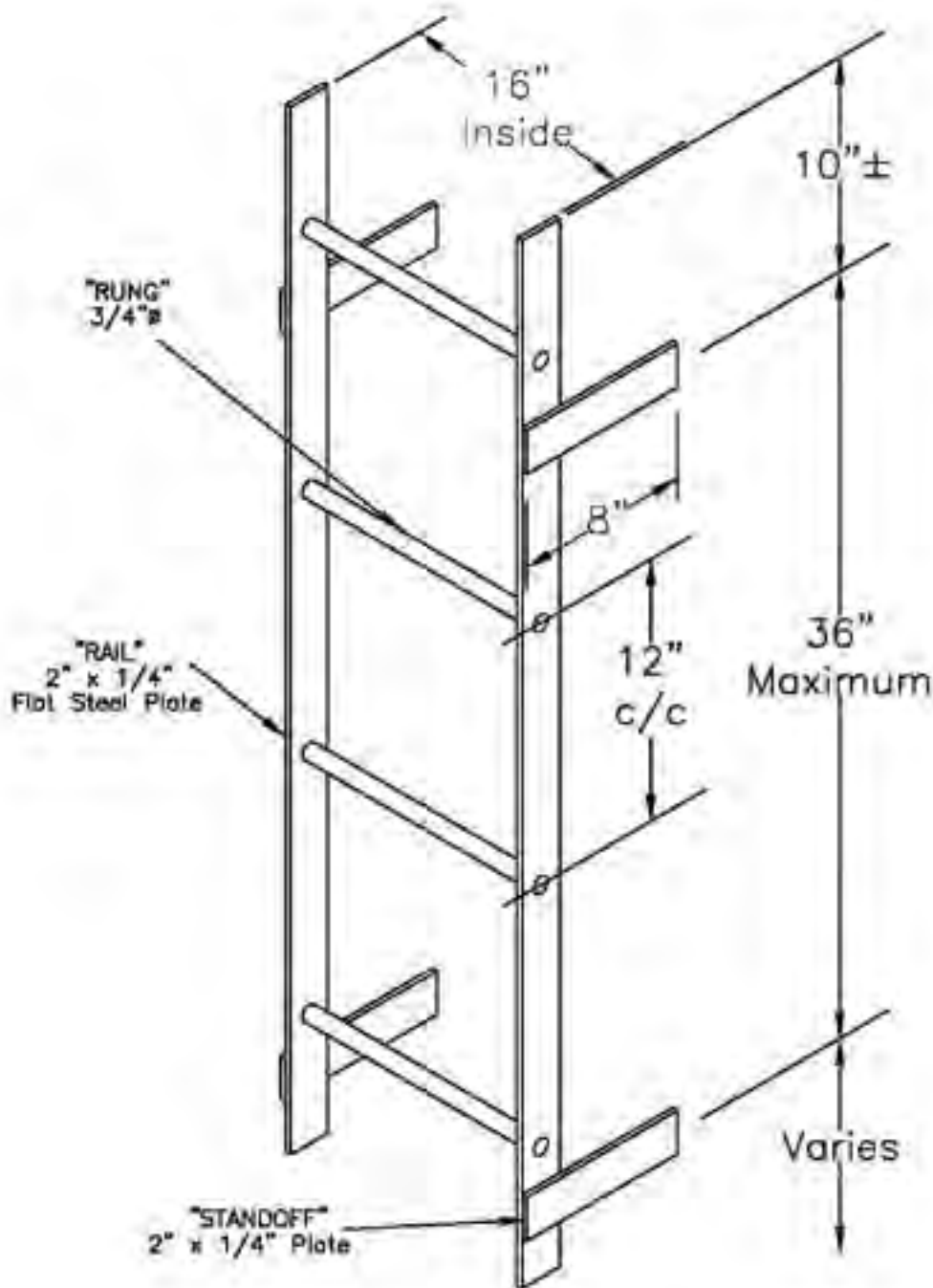
-Note all Dimensions are nominal.



LANE ENTERPRISES, INC.

TITLE		
RIB STIFFENER SPACING FOR STEEL BOX CULVERTS (PER ASTM A964)		
DRAWING NO.	PAGE	DATE
A0129	1 OF 1	01/02/01

DRAWN BY: BLC



1. 3/4" ϕ rungs are to be welded into 7/8" ϕ holes in the rails.
2. Standoff to be welded to rails and riser wall to locat rung at 7" spacing from pipe wall.
3. Maximum spacing of standoffs shall not exceed 36".
4. Ladder shall not be installed in riser w/diameter less then 36".
5. Detail at bottom of ladder will vary with type of manhole.
6. Maximum length of ladder rail is 19'-10".
7. Standard finish: Galvanized paint.



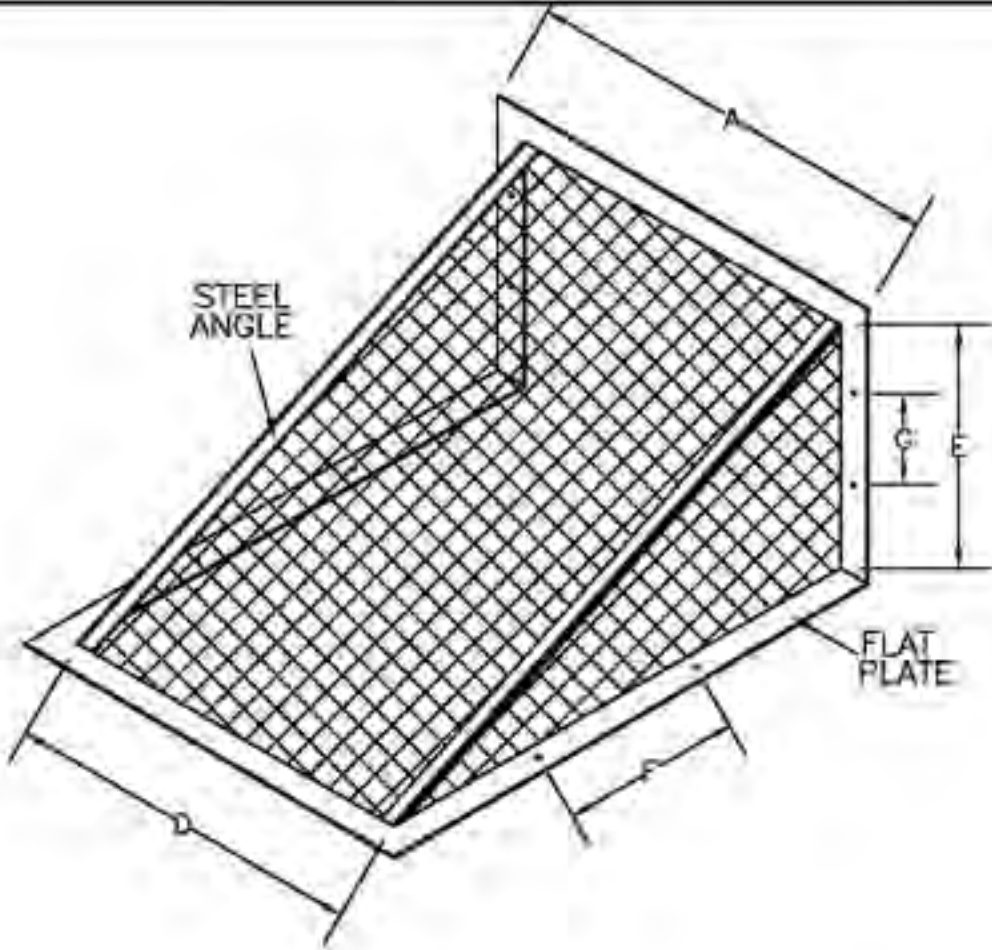
LANE ENTERPRISES, INC.

TITLE
LADDER DETAIL

DRAWN BY: BLC

DRAWING NO. A0137	PAGE 1 OF 1	DATE 10/31/01
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NO.	DATE	BY
REVISIONS		

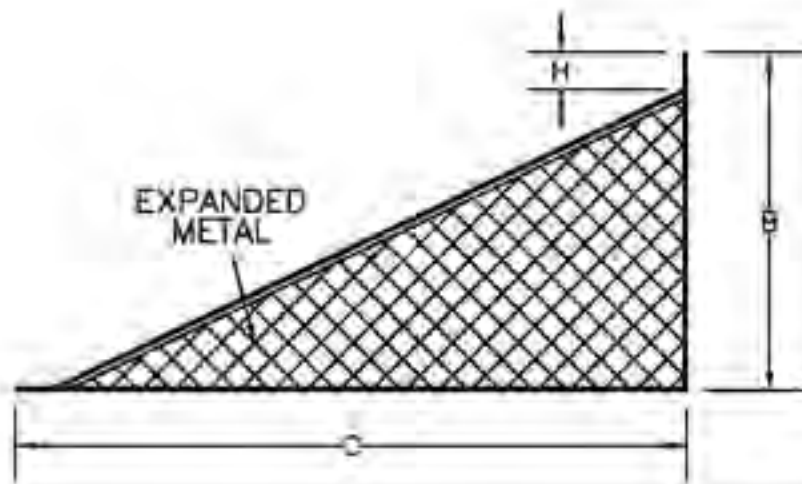


DIMENSIONS

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____
- H: _____

MATERIAL SIZE

- FLAT PLATE: _____
- ANGLE STOCK: _____
- HOLE SIZE: _____
- COATING: _____
- HINGED: _____
- EXPANDED METAL: _____



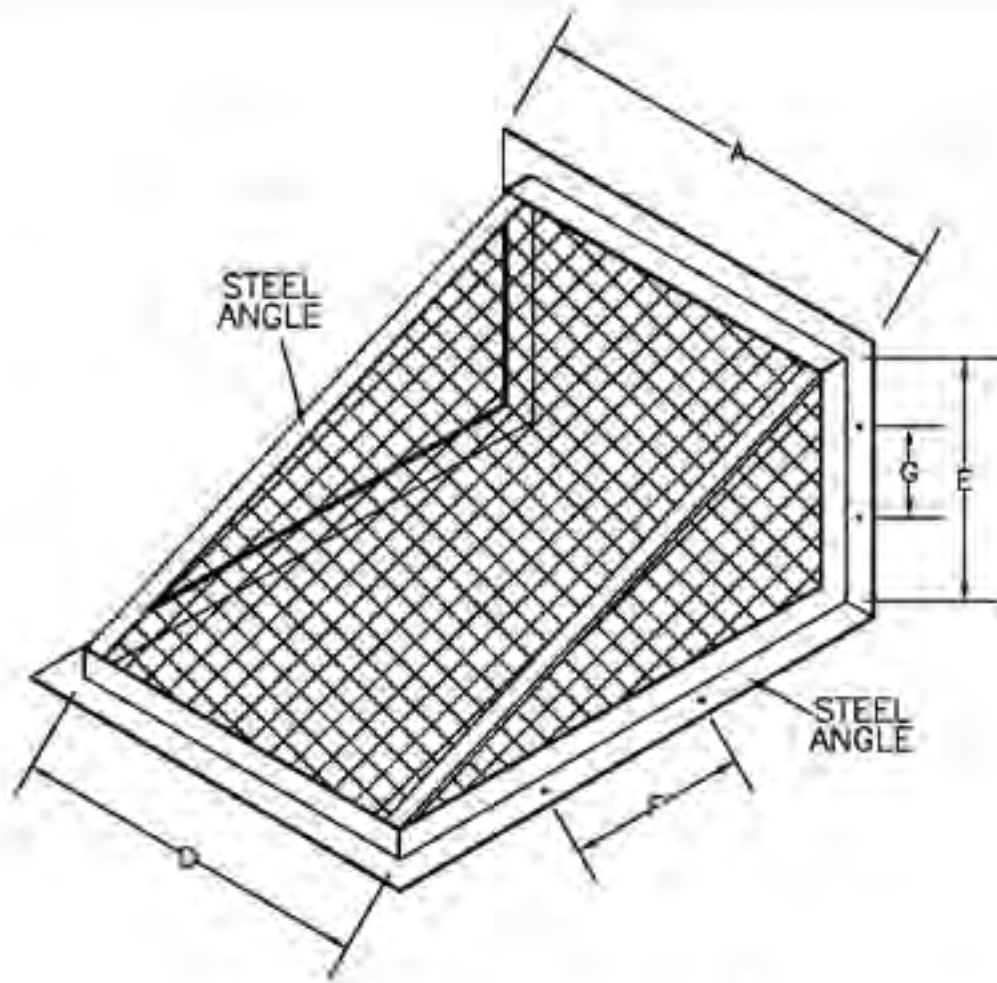
LANE ENTERPRISES, INC.

TITLE

TRASH RACK
LANE MODEL #138

DRAWN BY: E.L.C.

DRAWING NO. A0138	PAGE 1 OF 1	DATE 01/17/01
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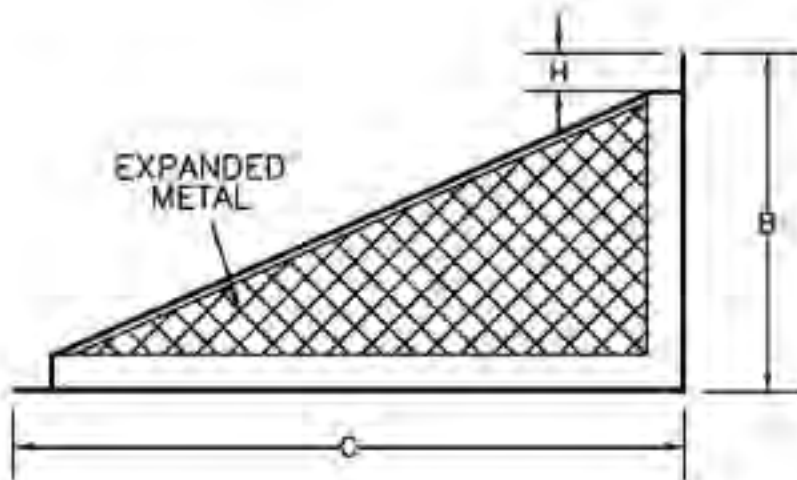


DIMENSIONS

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____
- H: _____

MATERIAL SIZE

- FLAT PLATE: _____
- ANGLE STOCK: _____
- HOLE SIZE: _____
- COATING: _____
- HINGED: _____
- EXPANDED METAL: _____

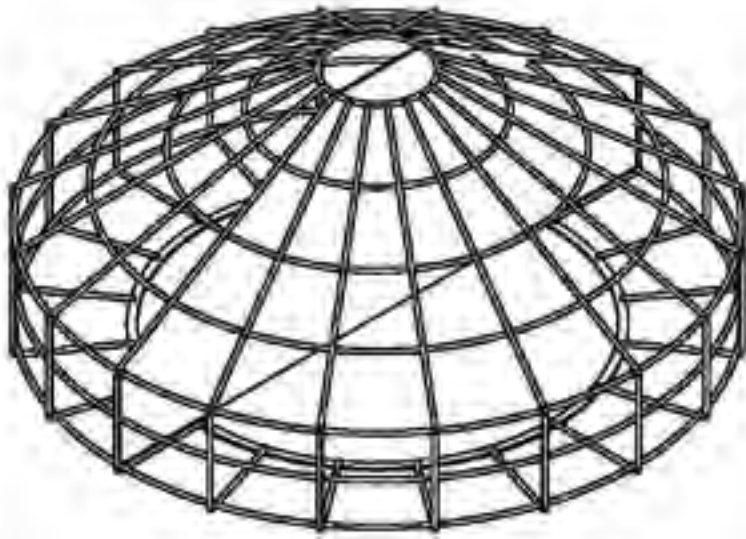


LANE ENTERPRISES, INC.

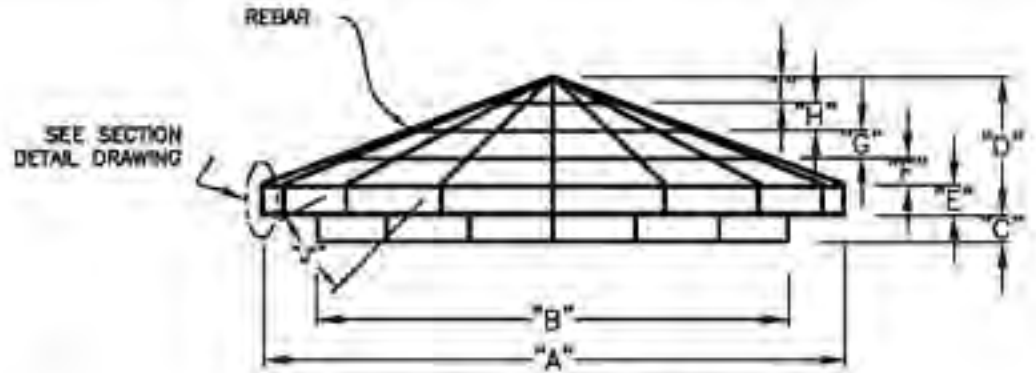
TITLE
TRASH RACK
LANE MODEL #139

DRAWING NO. A0139	PAGE 1 OF 1	DATE 01/17/01
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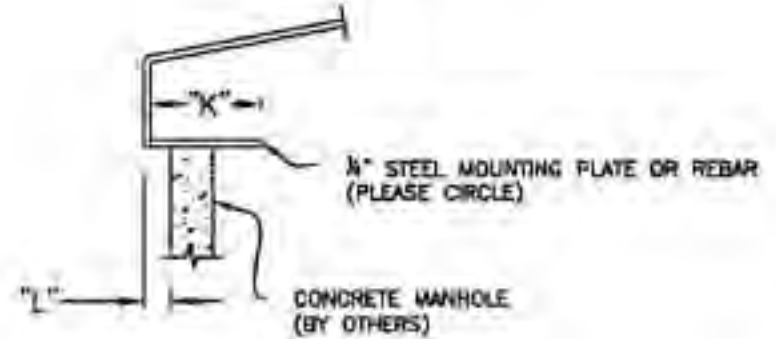
DRAWN BY: BLC



ISOMETRIC VIEW



ELEVATION VIEW



SECTION VIEW

DIMENSIONS*

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____
- H: _____
- I: _____
- J: _____
- K: _____
- L: _____

NOTES:

- 1) REBAR SIZE: _____
- 2) MOUNTING PLATE: YES / NO
- 3) SPLITTER PLATE: YES / NO
- 4) ACCESS DOOR: YES / NO
- 5) COATING: YES / NO
- 6) QUANTITY REQ'D: _____

* If dimension is not needed, then state N/A in the appropriate space provided.
 - All dimension lines are shown as centerline dimension.

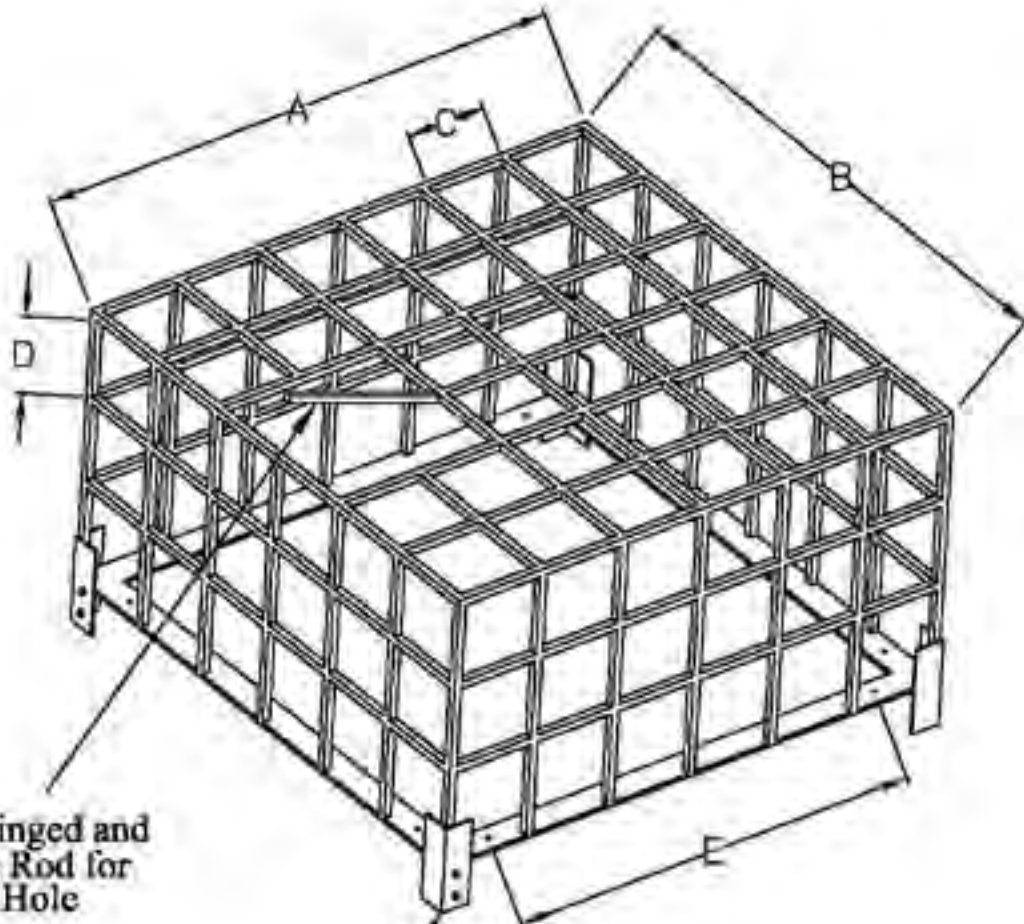
NO.	DATE	BY
1	8/15/08	JCH
REVISIONS		



LANE ENTERPRISES, INC.

TITLE		
CYLINDER TRASH RACK LANE MODEL #141		
DRAWING NO. A0141	PAGE 1 OF 2	DATE 01/25/01

DRAWN BY: JCH



DIMENSIONS:

A: _____
 B: _____
 C: _____
 D: _____
 E: _____

MATERIALS:

FLAT PLATE: _____
 FLAT ANGLE: _____
 BAR STOCK: _____
 HOLE SIZE: _____
 COATING: _____
 HINGED: _____

Provide Hinged and
 Lockable Rod for
 Access Hole

Flat Angle
 Bolted to Concrete



LANE ENTERPRISES, INC.

TITLE

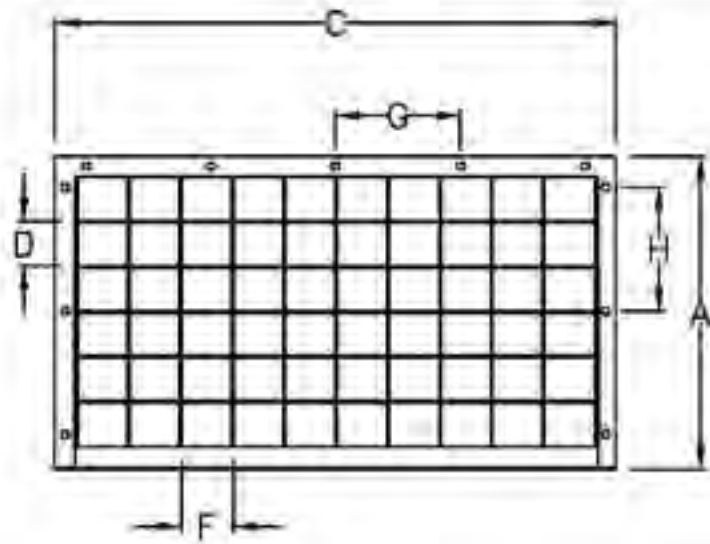
TRASH RACK
 LANE MODEL #144

DRAWN BY: BLC

DRAWING NO.
 A0144

PAGE
 1 OF 1

DATE
 1/30/00

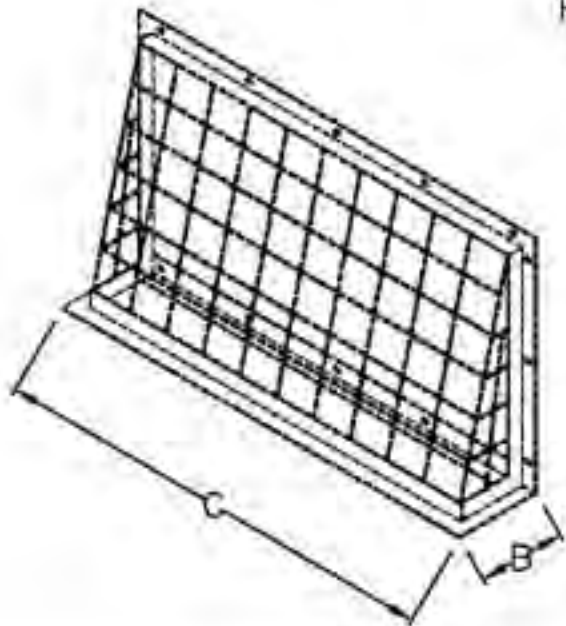


DIMENSIONS:

A: _____
 B: _____
 C: _____
 D: _____
 E: _____
 F: _____
 G: _____
 H: _____

MATERIALS:

FLAT PLATE: _____
 BAR STOCK: _____
 HOLE SIZE: _____
 COATING: _____
 HINGED: _____
 TYPE OF WELD: _____

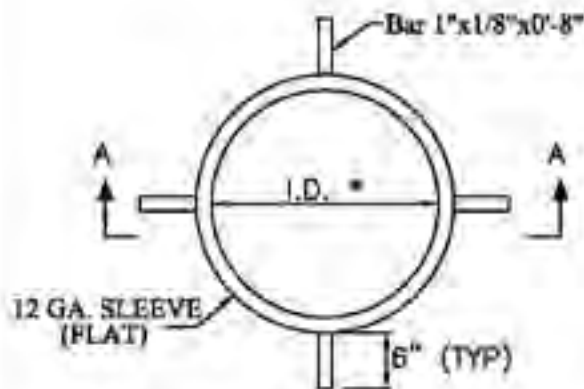


LANE ENTERPRISES, INC.

TITLE
TRASH RACK
LANE MODEL #145

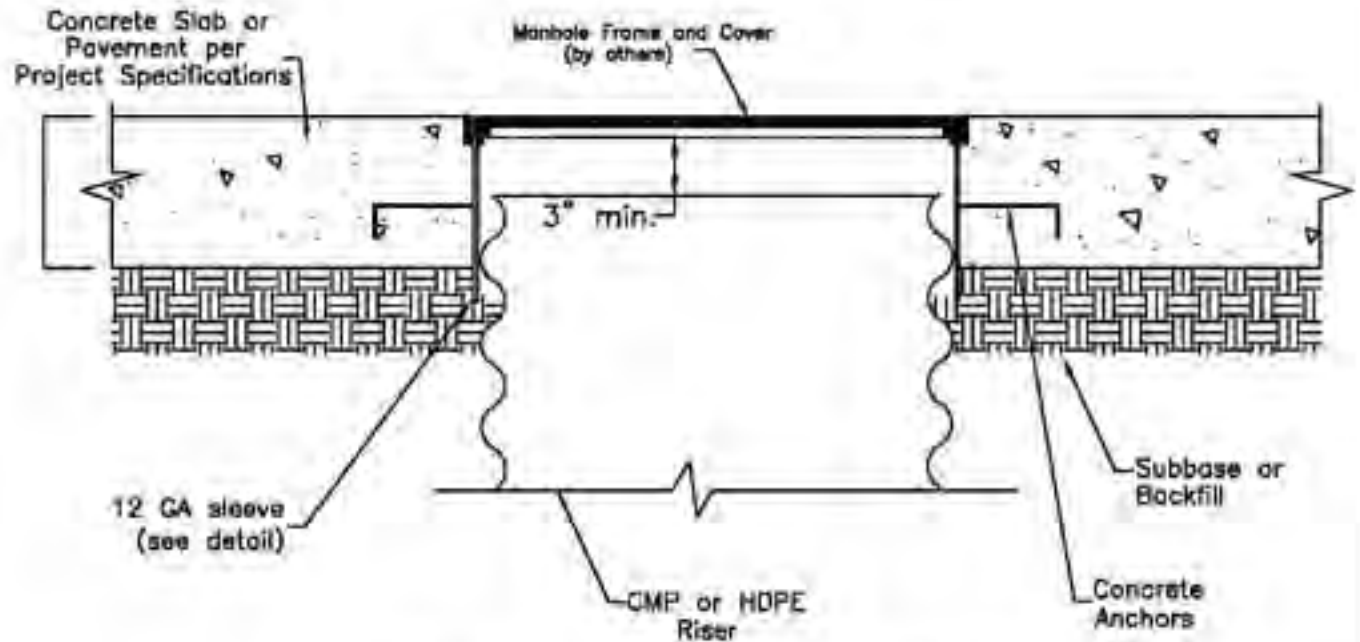
DRAWN BY: ELC

DRAWING NO. A0145	PAGE 1 OF 1	DATE 02/02/01
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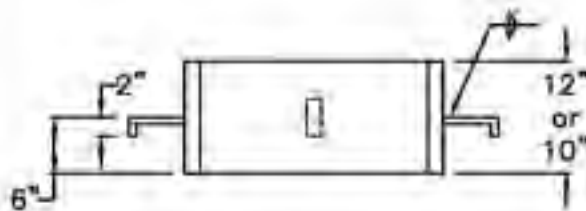


SLEEVE DETAIL

* I.D. Shall exceed O.D. of riser and be compatible w/MH cover.



TYPICAL MANHOLE COVER DETAIL



SECTION "A-A"

Use this detail when size of manhole cover equals or exceeds riser diameter.



LANE ENTERPRISES, INC.

TITLE	MANHOLE COVER DETAIL	
DRAWN BY:	BLC	

NO.	DATE	BY
2	8/4/04	BLC
1	4/8/04	BLC

REVISIONS

DRAWING NO.	PAGE	DATE
A0148	1 OF 1	03/07/01

PIPE ARCH DIMENSIONS (2 2/3" x 1/2" Corrugation)

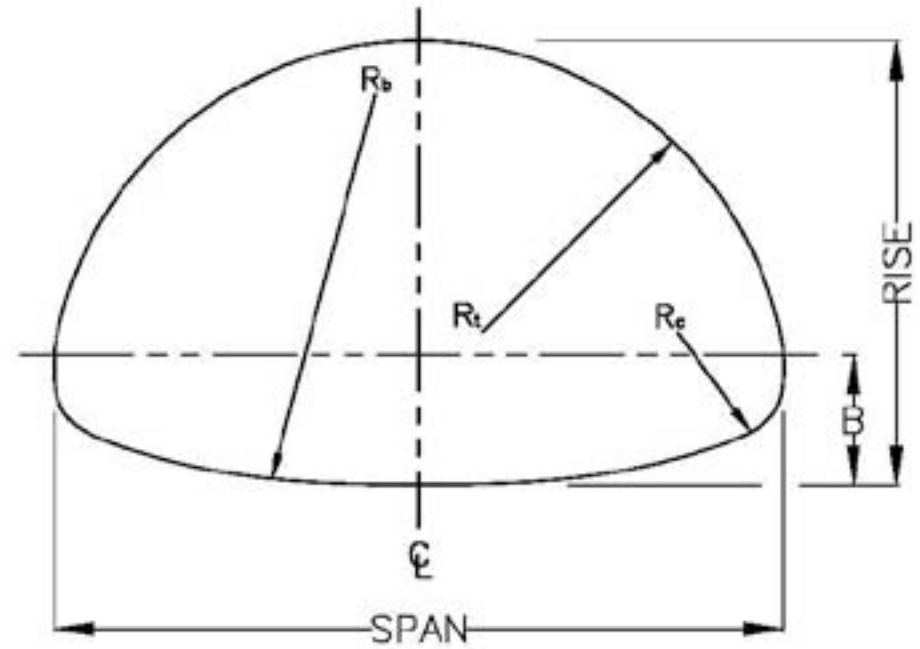
Equiv. Diameter	Span	Rise	Waterway Area	Layout Dimensions			
				B	R _c	R _t	R _b
in.	in.	in.	ft ²	in.	in.	in.	in.
15	17	13	1.1	4 1/8	3 1/2	8 5/8	25 5/8
18	21	15	1.6	4 7/8	4 1/8	10 3/4	33 1/8
21	24	18	2.2	5 5/8	4 7/8	11 7/8	34 5/8
24	28	20	2.9	6 1/2	5 1/2	14	42 1/4
30	35	24	4.5	8 1/8	6 7/8	17 7/8	55 1/8
36	42	29	6.5	9 3/4	8 1/4	21 1/2	66 1/8
42	49	33	8.9	11 3/8	9 5/8	25 1/8	77 1/4
48	57	38	11.6	13	11	28 5/8	88 1/4
54	64	43	14.7	14 5/8	12 3/8	32 1/4	99 1/4
60	71	47	18.1	16 1/4	13 3/4	35 3/4	110 1/4
66	77	52	21.9	17 7/8	15 1/8	39 3/8	121 1/4
72	83	57	26.0	19 1/2	15 1/2	43	132 1/4

PIPE ARCH DIMENSIONS (5"x1" or 3"x1" Corrugation)

Equiv. Diameter	Nominal Size	Design		Waterway Area	Layout Dimensions			
		Span	Rise		B	R _c	R _t	R _b
in.	in.	in.	in.	ft ²	in.	in.	in.	in.
48	53 x 41	53	41	11.7	15 1/4	10 3/16	28 1/16	73 7/16
54	60 x 46	58 1/2	48 1/2	15.6	20 1/2	18 3/4	29 3/8	51 1/8
60	66 x 51	65	54	19.3	22 3/4	20 3/4	32 5/8	56 1/4
66	73 x 55	72 1/2	58 1/4	23.2	25 1/8	22 7/8	36 3/4	63 3/4
72	81 x 59	79	62 1/2	27.4	23 3/4	20 7/8	39 1/2	82 5/8
78	87 x 63	86 1/2	67 1/4	32.1	25 3/4	22 5/8	43 3/8	92 1/4
84	95 x 67	93 1/2	71 3/4	37.0	27 3/4	24 3/8	47	100 1/4
90	103 x 71	101 1/2	75	42.4	29 3/4	26 1/8	51 1/4	111 5/8
96	112 x 75	109 1/2	80 1/2	48.0	31 5/8	27 3/4	54 7/8	120 1/4
102	117 x 79	116 1/2	84 3/4	54.2	33 5/8	29 1/2	59 3/8	131 3/4
108	128 x 83	123 1/2	89 1/4	60.5	35 5/8	31 1/4	63 1/4	139 3/4
114	137 x 87	131	93 3/4	67.4	37 5/8	33	67 3/8	149 1/2
120	142 x 91	139 1/2	98	74.5	39 1/2	34 3/4	71 5/8	162 3/8
126	150 x 95	146	102	81.0	41	36	76	172
132	157 x 101	153	107	89.0	43	38	80	180
138	164 x 105	159	113	98.0	45	40	82	184
144	171 x 110	165	118 1/2	107.0	47	41	85	190

PIPE ARCH DIMENSIONS (3/4" x 3/4" x 7 1/2" Corrugation)

Equiv. Diameter	Span	Rise	Waterway Area	Layout Dimensions			
				B	R _c	R _t	R _b
in.	in.	in.	ft ²	in.	in.	in.	in.
18	20	16	1.7	5 1/8	5	10 1/4	27 1/2
21	23	19	2.3	5 7/8	5 3/8	11 5/8	34 1/4
24	27	21	3.0	6 3/4	5 3/4	13 1/2	40 7/8
30	33	26	4.7	8 3/4	7 1/8	16 5/8	51 3/8
36	40	31	6.7	10 3/8	8 3/8	20 1/4	62 1/2
42	46	36	9.2	12 3/8	9 3/4	23 1/4	73
48	53	41	12.1	14	11 1/8	26 5/8	83 1/2
54	60	46	15.6	20 1/2	18 3/4	29 3/8	51 1/8
60	66	51	19.3	22 3/4	20 3/4	32 5/8	56 1/4
66	73	55	23.2	25 1/8	22 7/8	36 3/4	63 3/4
72	81	59	27.4	23 3/4	20 7/8	39 1/2	82 5/8
78	87	63	32.1	25 3/4	22 5/8	43 3/8	92 1/4
84	95	67	37.0	27 3/4	24 3/8	47	100 1/4



SECTION VIEW

NO.	DATE	BY
1	5/9/05	BLC
REVISIONS		

*Dimensions shown not for specification purposes, subject to manufacturing tolerances.
 *Aluminum Pipe not available in 5"x1" Corrugations.



LANE ENTERPRISES, INC.

TITLE

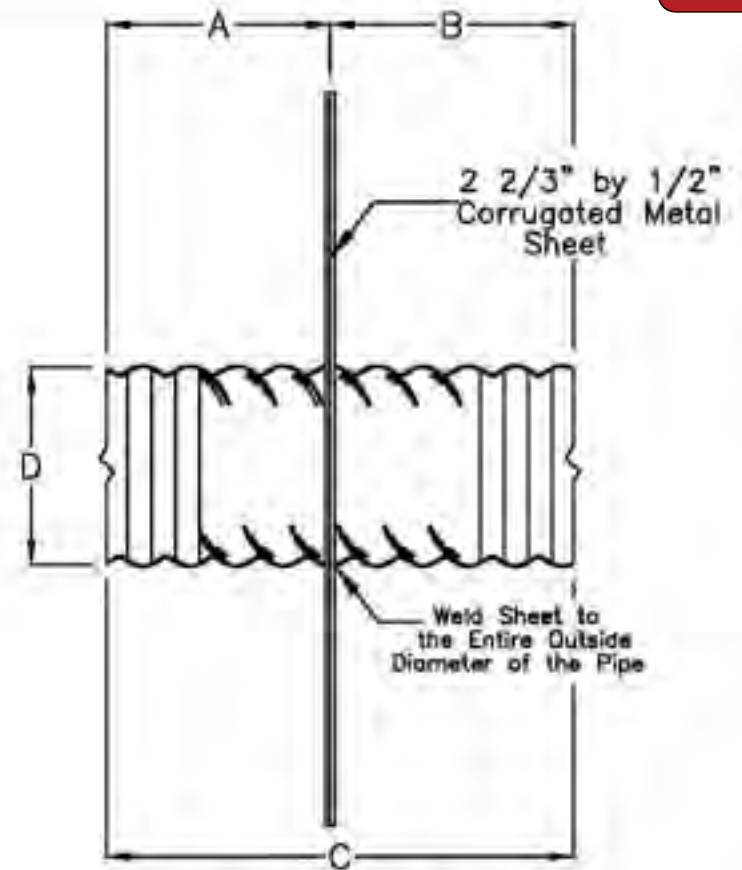
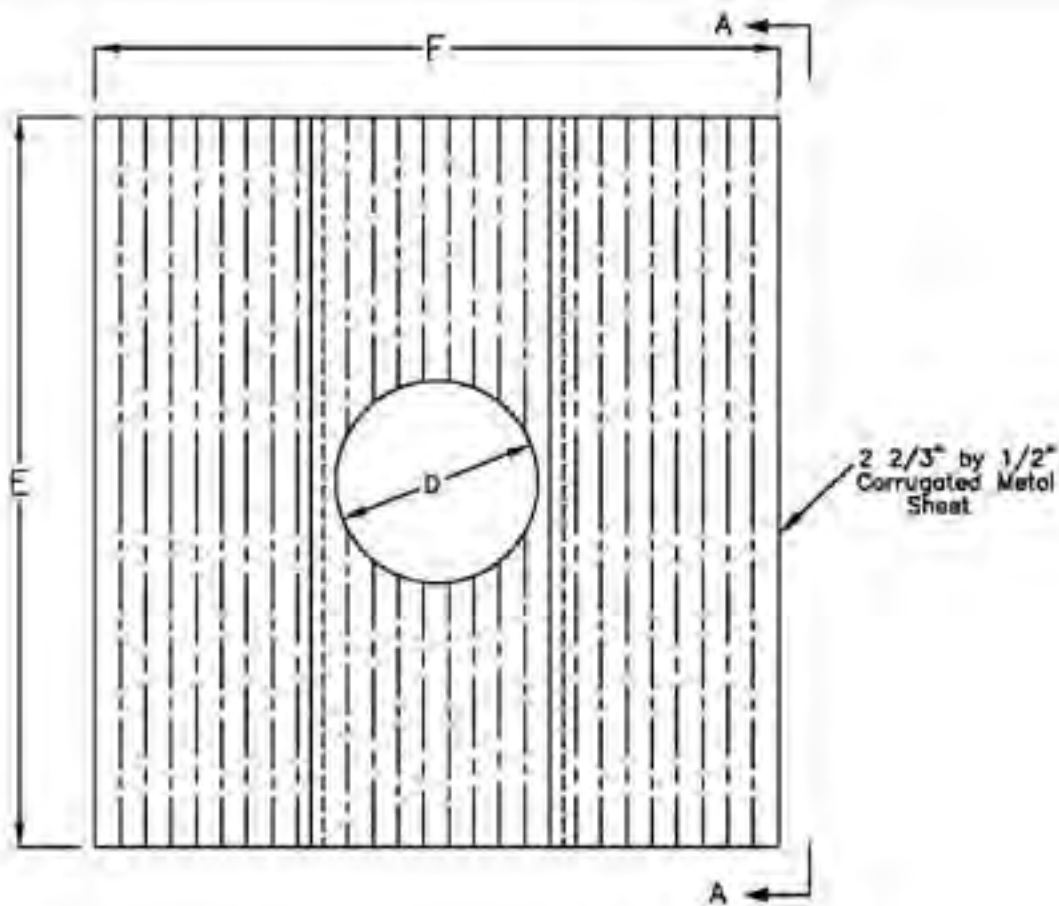
CORRUGATED METAL PIPE ARCH DIMENSIONS

DRAWING NO. A0152

PAGE 1 OF 1

DATE 04/11/01

DRAWN BY: BLC



SECTION A-A

DIMENSIONS:

- A _____
- B _____
- C _____
- D _____
- E _____
- F _____

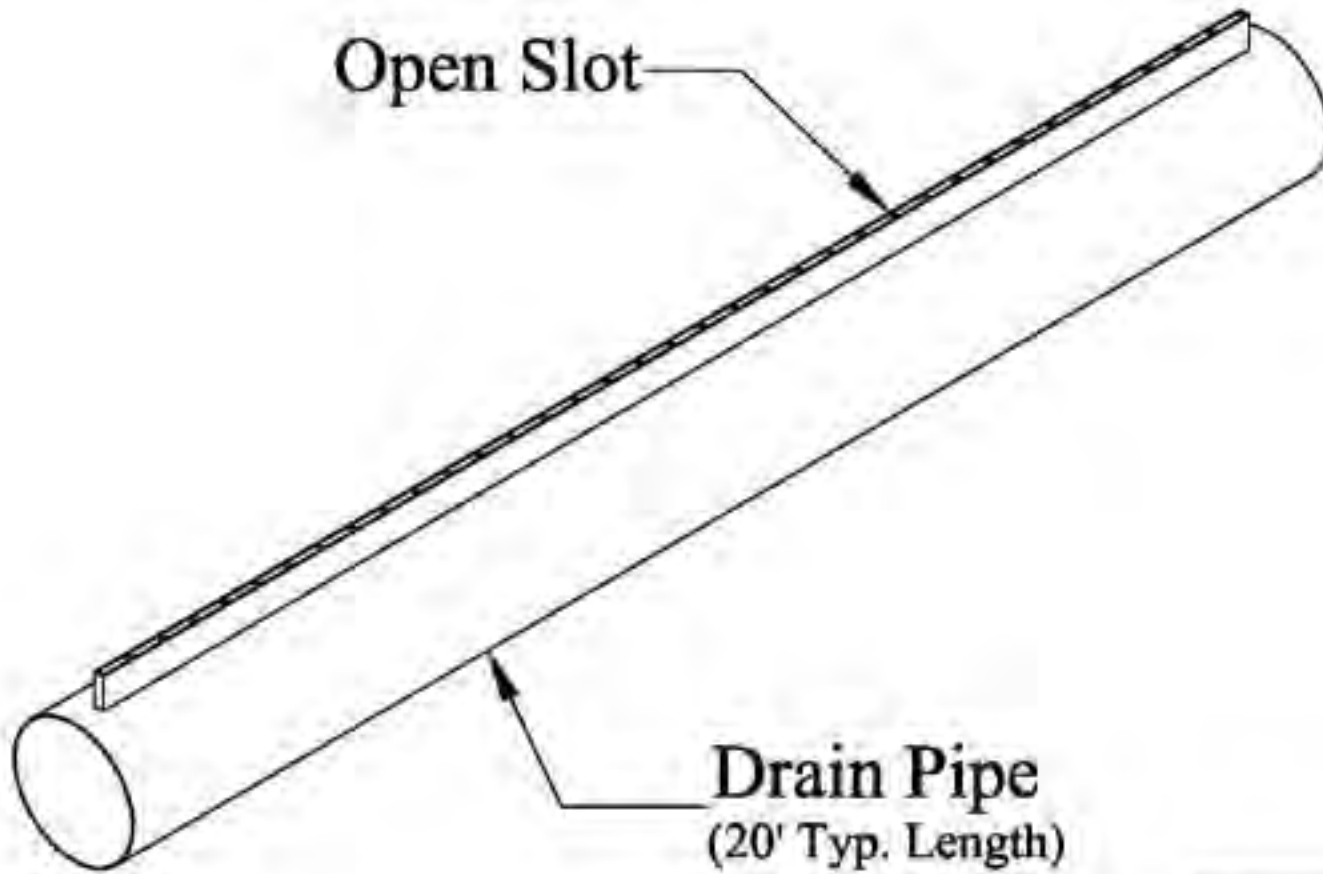
NO.	DATE	BY
1	10/28/02	BLC
1	7/24/02	BLC

REVISIONS



LANE ENTERPRISES, INC.

TITLE			DRAWN BY: ELC
TYPICAL DETAILS FOR A ONE-PIECE DIAPHRAGM (ANTI-SEEP COLLAR)			
DRAWING NO.	PAGE	DATE	
A0160	1 OF 1	07/10/01	



LANE ENTERPRISES, INC.

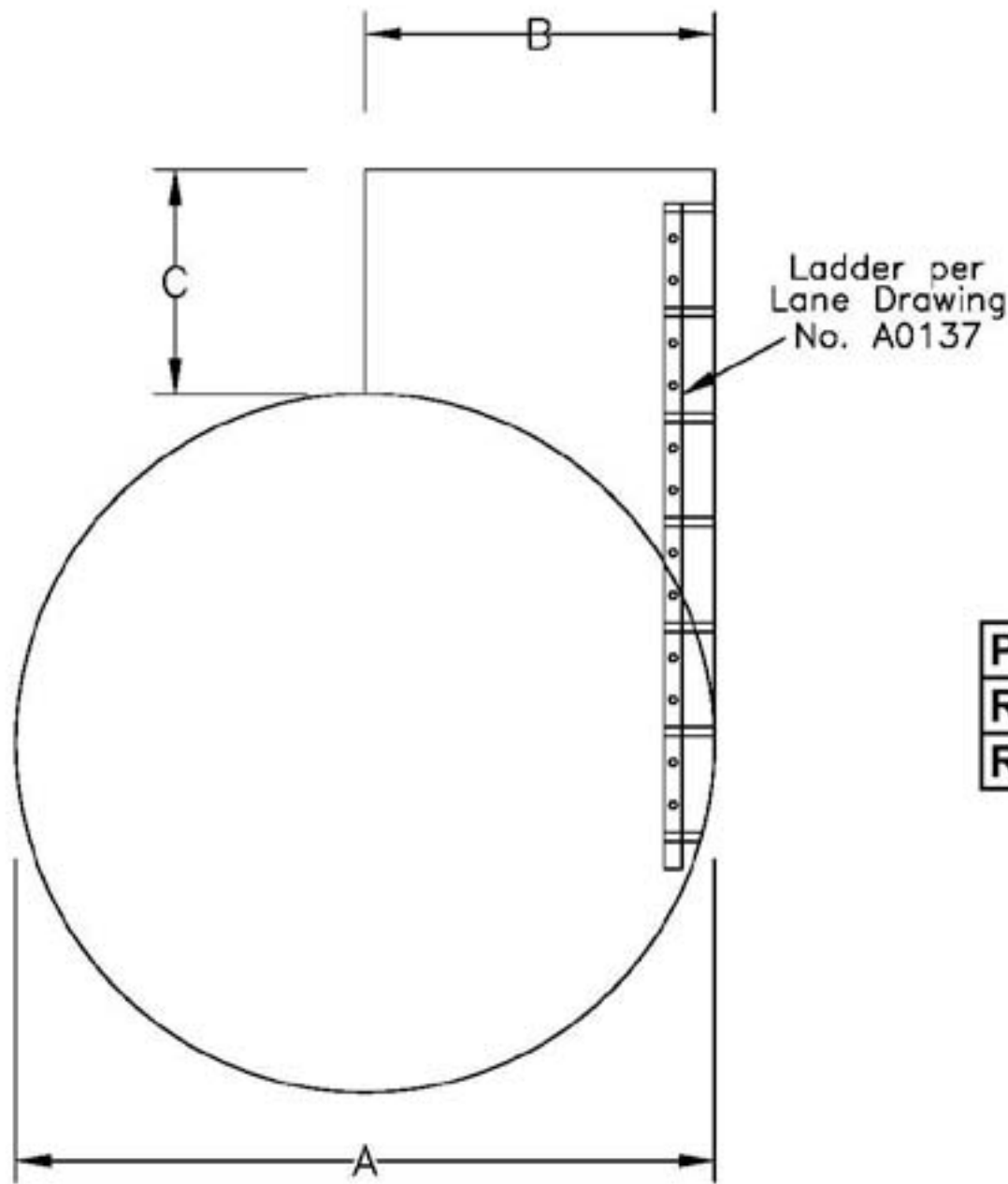
TITLE
SLOTTED DRAIN

DRAWN BY: BLC

DRAWING NO. A0165	PAGE 1 OF 1	DATE 07/19/01
----------------------	----------------	------------------

NO.	DATE	BY

REVISIONS



NOTES:

- 1.) No wheel loads are to be applied directly to the manhole riser.
- 2.) If the riser will be subjected to wheel loads, construct the manhole cover per Lane Drawing No. A0148.

PIPE DIAMETER: A	
RISER DIAMETER: B	
RISER LENGTH: C	

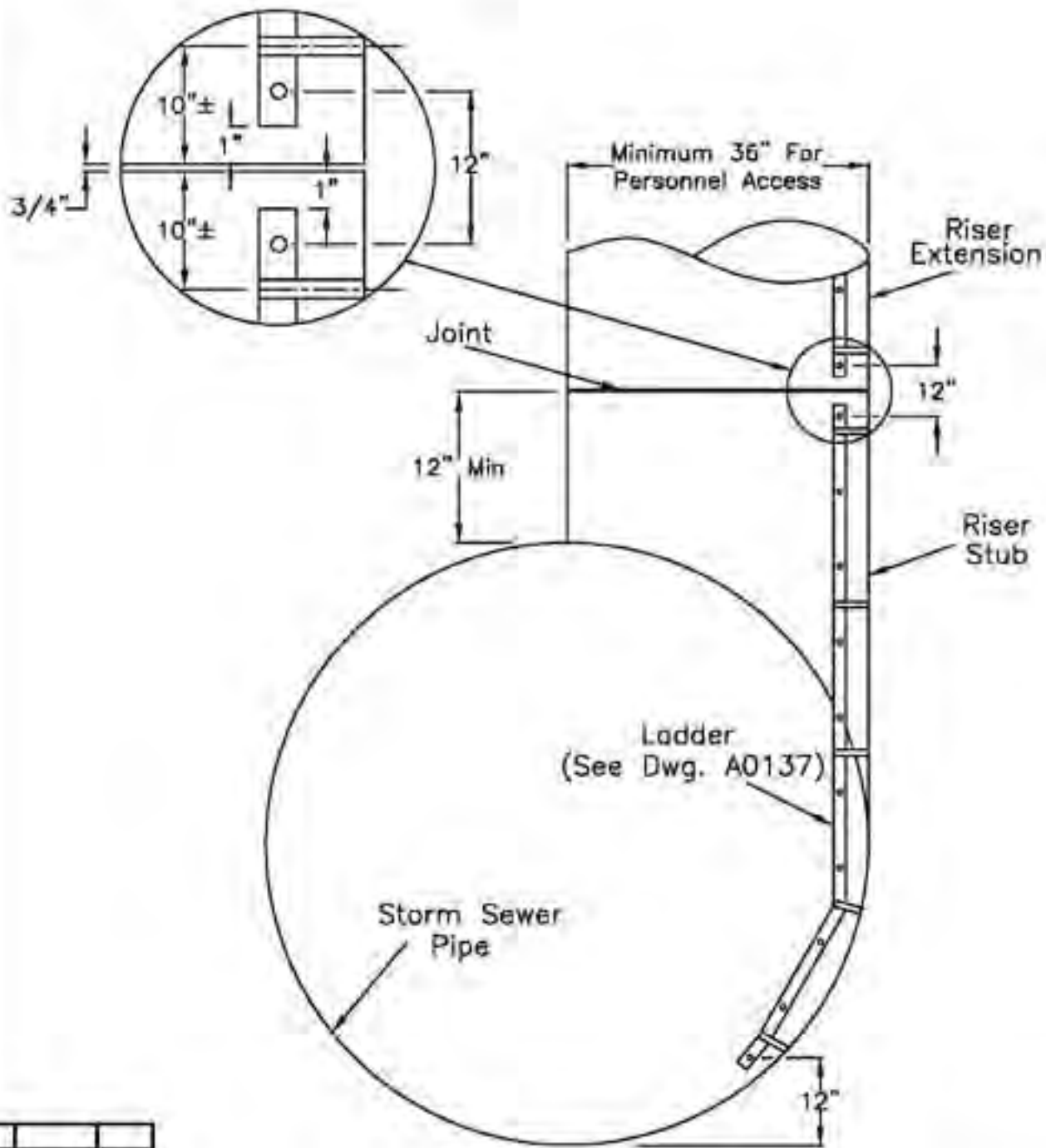
MANHOLE DETAIL

NO.	DATE	BY
REVISIONS		



LANE ENTERPRISES, INC.

TITLE		DRAWN BY: BLC
STANDARD MANHOLE DETAIL		
DRAWING NO. A0169	PAGE 1 OF 1	DATE 8/14/01



NOTES:

1. Use riser manhole when pipe is equal to or larger than the riser.
2. Refer to Lane Drawing No. A0137 for details of typical manhole ladder.
3. If cover over pipe is shallow, a riser extension may not be necessary.
4. If riser will be subjected to vehicular load, opening in top of pipe may require reinforcement.
5. Refer to Lane Drawing No. A0148 for manhole cover detail intended to keep vertical loads off riser.



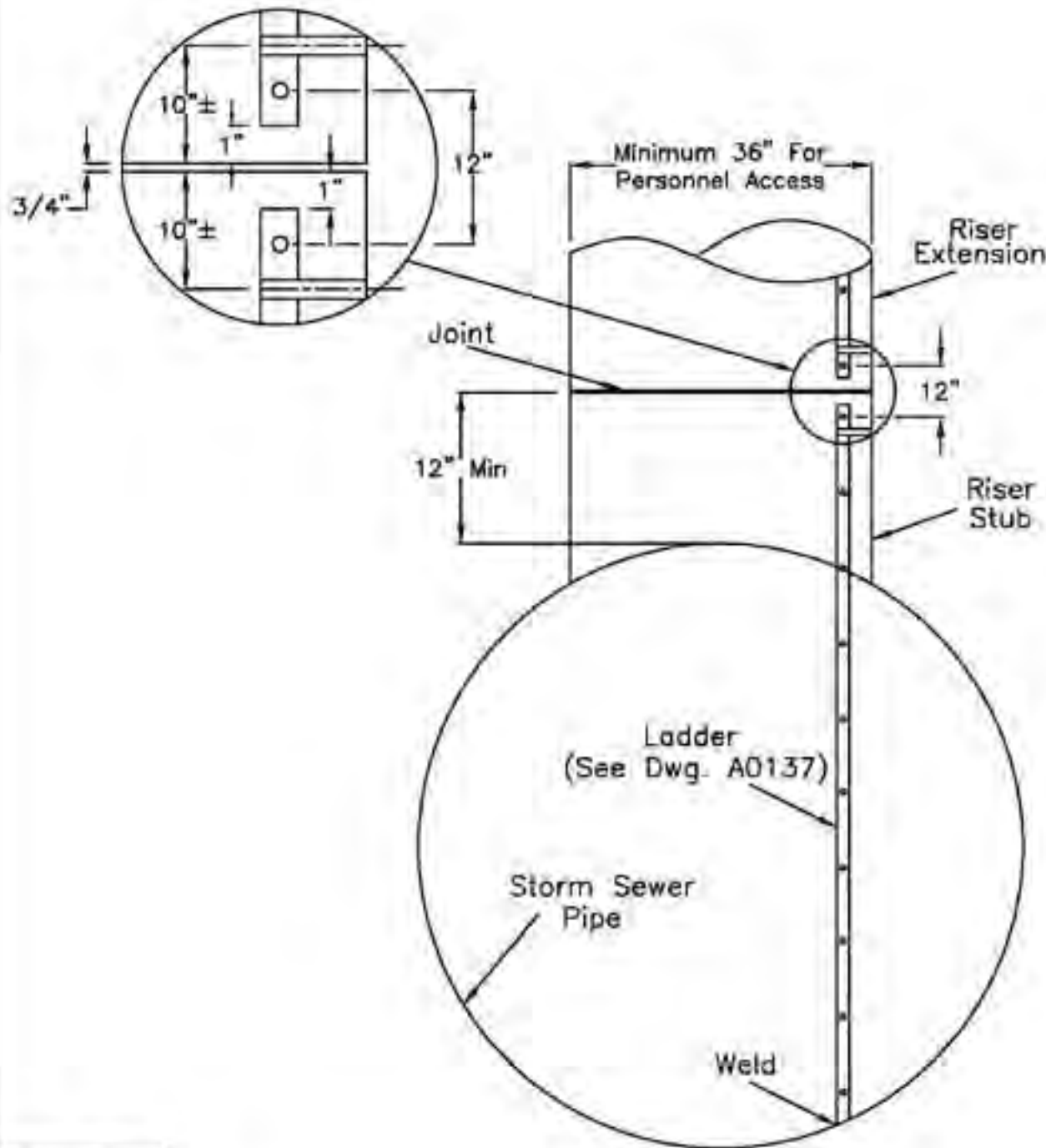
LANE ENTERPRISES, INC.

TITLE
**RISER MANHOLE
 (SIDE MOUNT)**

DRAWN BY: BLC

DRAWING NO. A0176	PAGE 1 OF 1	DATE 10/31/01
----------------------	----------------	------------------

NO.	DATE	BY
REVISIONS		



NOTES:

1. Use riser manhole when pipe is equal to or larger than the riser.
2. Refer to Lane Drawing No. A0137 for details of typical manhole ladder.
3. If cover over pipe is shallow, a riser extension may not be necessary.
4. If riser will be subjected to vehicular load, opening in top of pipe may require reinforcement.
5. Refer to Lane Drawing No. A0148 for manhole cover detail intended to keep vertical loads off riser.



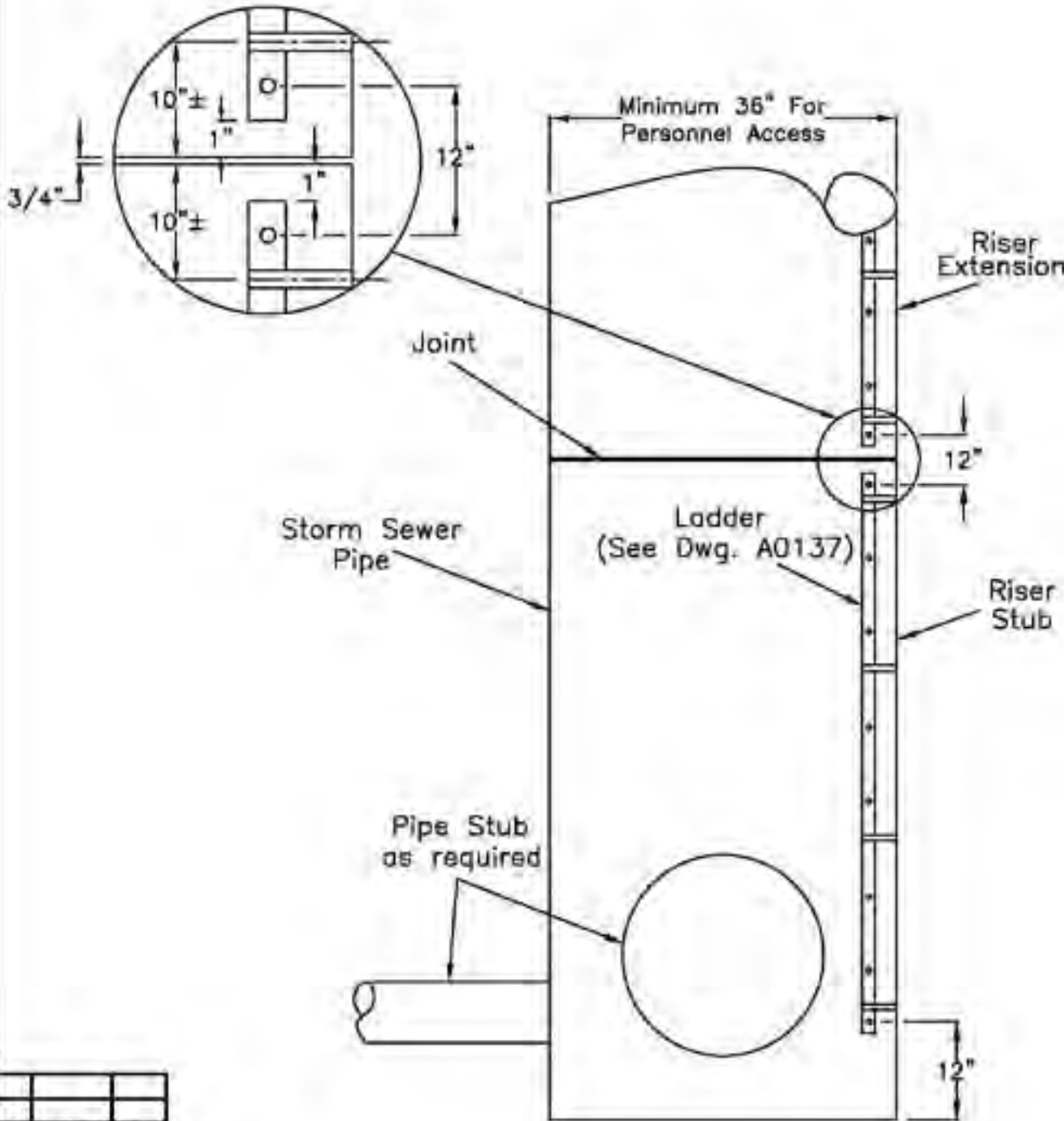
LANE ENTERPRISES, INC.

TITLE
**RISER MANHOLE
 (CENTER MOUNT)**

DRAWN BY: BLC

DRAWING NO. A0177	PAGE 1 OF 1	DATE 10/31/01
----------------------	----------------	------------------

NO.	DATE	BY
REVISIONS		



NOTES:

1. Use shaft manhole when pipe connecting to the manhole are smaller than the riser.
2. Refer to Lane Drawing No. A0137 for details of typical manhole ladder.
3. If cover over pipe is shallow, a riser extension may not be necessary.
4. If riser will be subjected to vehicular load, a foundation may be required to support the manhole.
5. Refer to Lane Drawing No. A0148 for manhole cover detail intended to keep vertical loads off riser.
6. Locate ladder so as to minimize interference with flow through manhole.



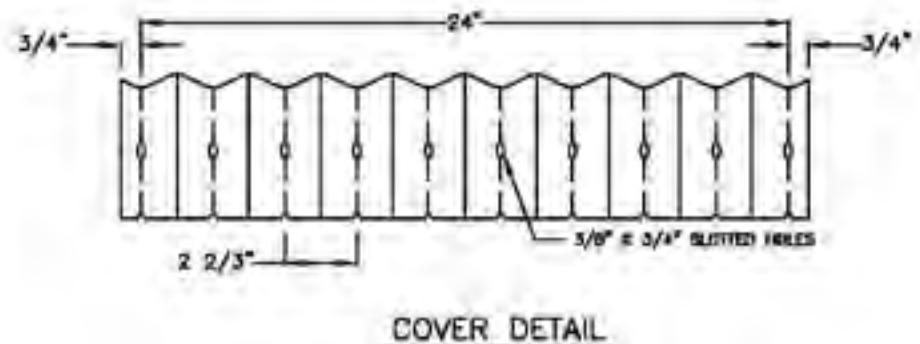
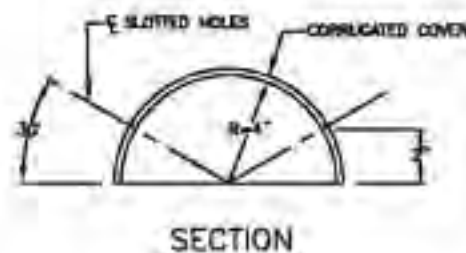
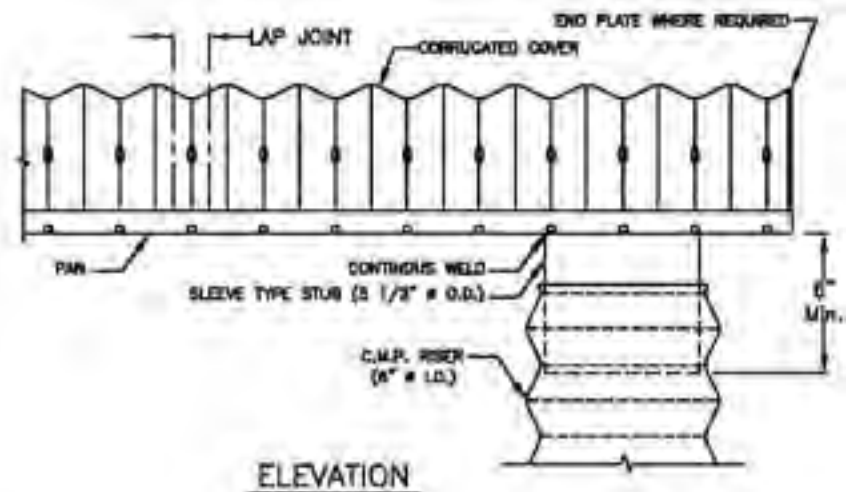
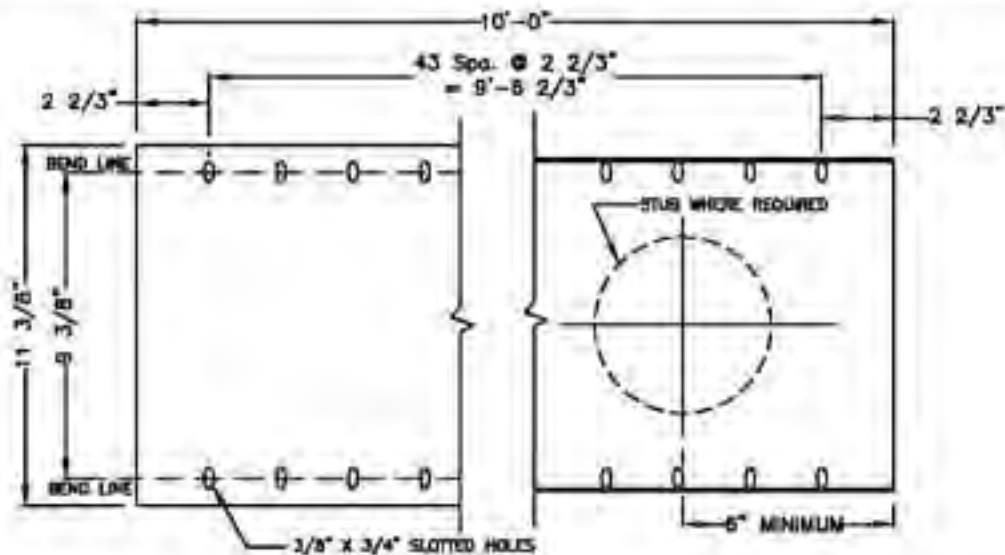
LANE ENTERPRISES, INC.

TITLE
**SHAFT MANHOLE
 (IN-LINE)**

DRAWN BY: BLC

DRAWING NO. A0178	PAGE 1 OF 1	DATE 11/01/01
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NO.	DATE	BY
REVISIONS		



NOTES:

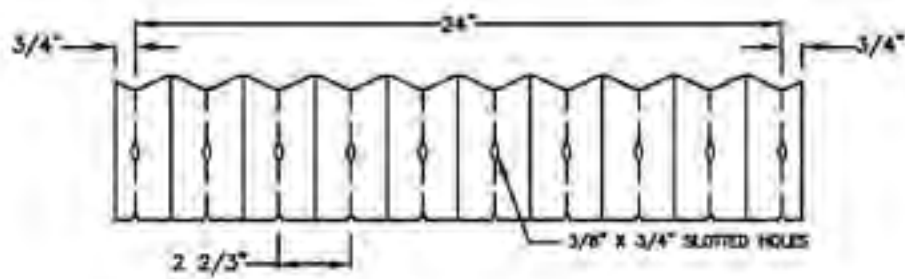
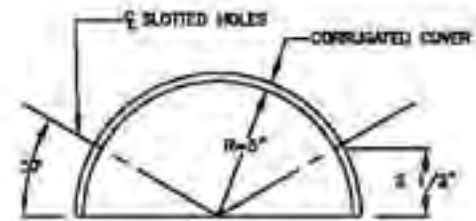
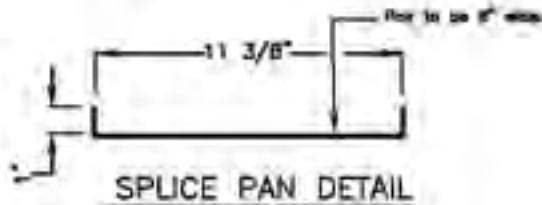
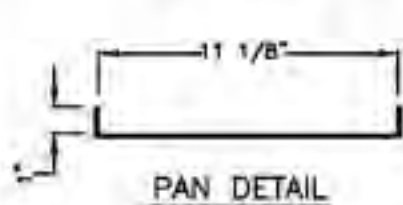
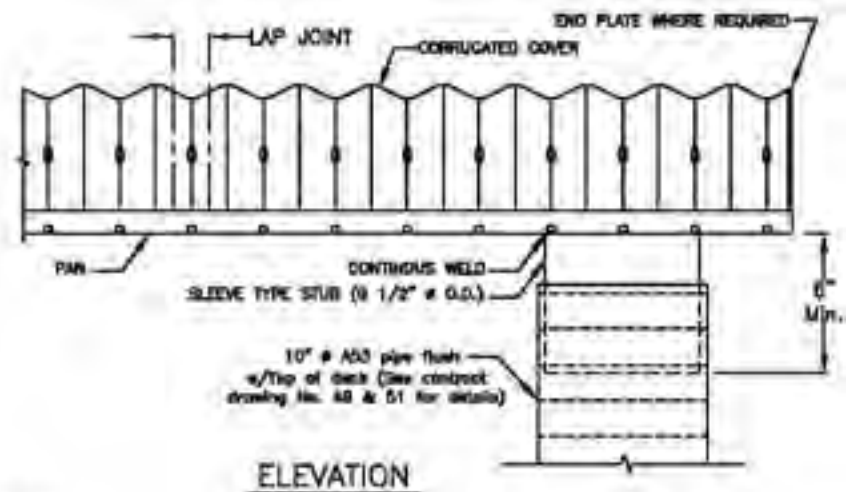
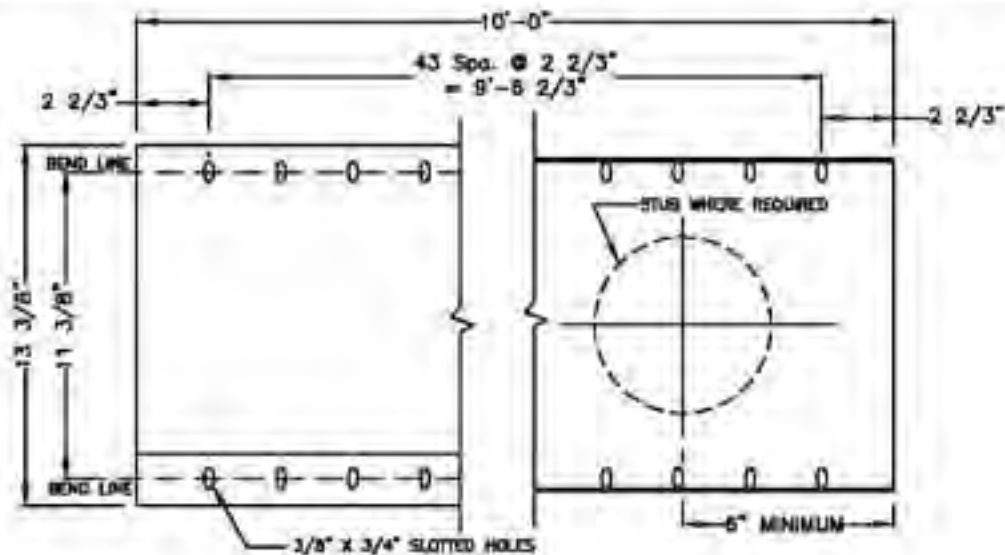
1. Corrugated Covers are furnished in 2' lengths only. Material shall be 2 2/3" x 1/2" Corrugations, galvanized in accordance with AASHTO M-218. Gauge shall be 12 Gauge. Perforations shall be as shown on cover detail.
2. Pans are furnished in 10' lengths only, receiving pans shall be 12 gauge with 2 oz. galvanized coating. Perforations shall be as shown on pan detail.
3. End Plates on corrugated covers shall be 12 gauge with 2 oz. galvanized coating.
4. Drop Outlet Stubs shall be furnished in 5 1/2" Outside Diameter. Minimum 12 gauge with 2 oz. galvanized coatings. Location of the drop outlet structure shall be per the installation criteria.
5. Asphalt Coatings when specified, shall conform to AASHTO M-190, type A.

NO.	DATE	BY
1	6/10/02	MLC



LANE ENTERPRISES, INC.

TITLE		DRAWN BY: BLC
8" DECK DRAIN (S-22286)		
DRAWING NO. A0182	PAGE 1 OF 1	DATE 1/25/02



COVER DETAIL

NOTES:

1. Corrugated Covers are furnished in 2' lengths only. Material shall be 2 2/3" x 1/2" Corrugations, galvanized in accordance with AASHTO M-218. Gauge shall be 12 Gauge. Perforations shall be as shown on cover detail.
2. Pans are furnished in 10' lengths only, receiving pans shall be 12 gauge with 2 oz. galvanized coating. Perforations shall be as shown on pan detail.
3. End Plates on corrugated covers shall be 12 gauge with 2 oz. galvanized coating.
4. Drop Outlet Stubs shall be furnished in 9 1/2" Outside Diameter. Minimum 12 gauge with 2 oz. galvanized coatings. Location of the drop outlet structure shall be per the installation criteria.
5. Asphalt Coatings when specified, shall conform to AASHTO M-190, type A.

NO.	DATE	BY
1	8/16/02	BLG



LANE

LANE ENTERPRISES, INC.

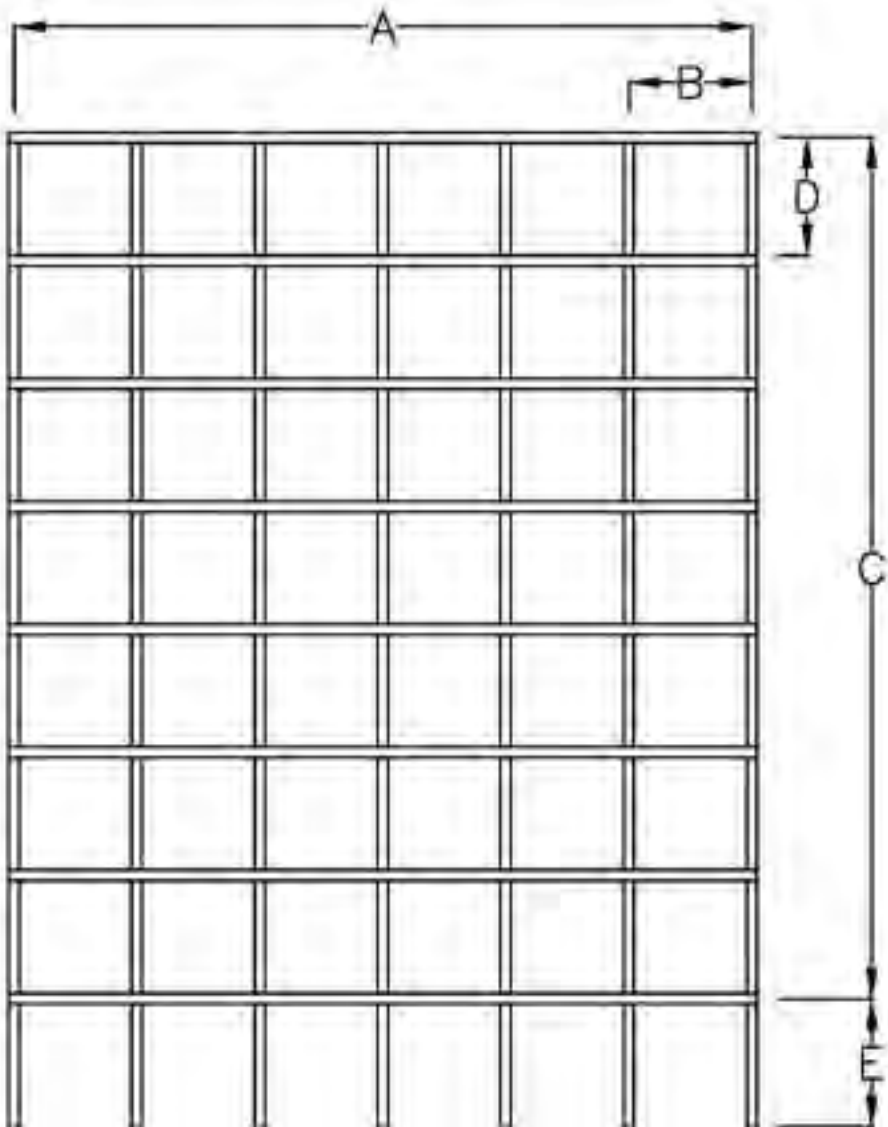
TITLE		DRAWN BY: BLG
10" DECK DRAIN (S-21914)		
DRAWING NO. A0183	PAGE 1 OF 1	DATE 1/25/02

DIMENSIONS

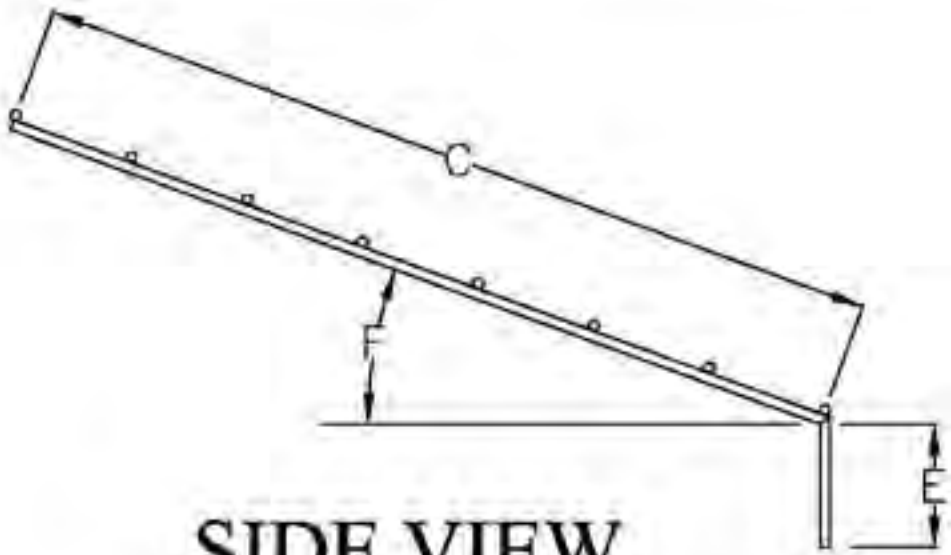
MATERIAL SIZE

A: _____
B: _____
C: _____
D: _____
E: _____
F: _____

BAR STOCK: _____
COATING: _____
NOTES: _____
CONTRACTOR: _____



TOP VIEW



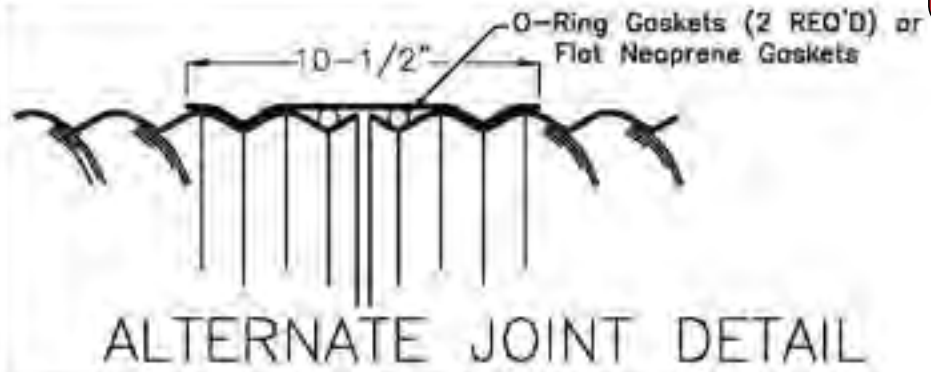
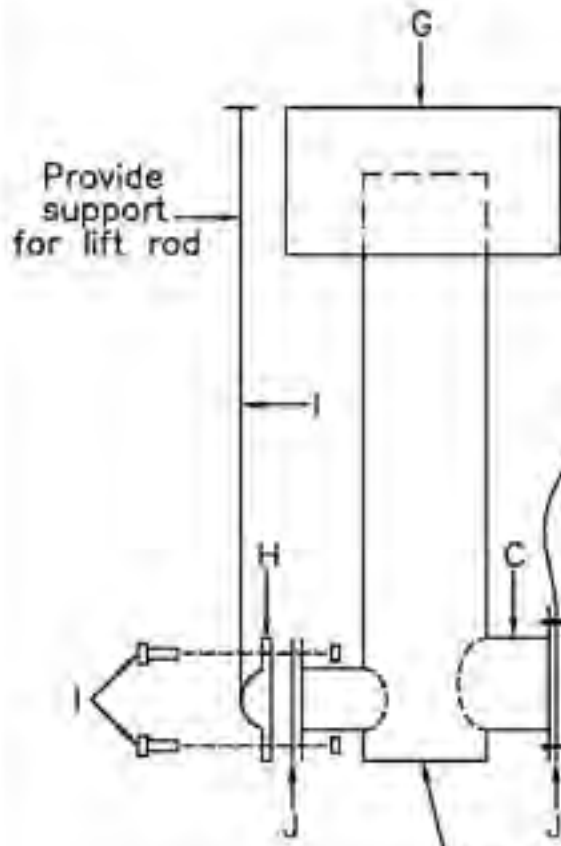
SIDE VIEW



LANE ENTERPRISES, INC.

TITLE		DRAWN BY: BLC
RCP END SECTION TRASH RACK LANE MODEL #200		

DRAWING NO. A0200	PAGE 1 OF 1	DATE 09/27/02
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CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____

FOR REVIEW ONLY

Set open bottom of riser in concrete

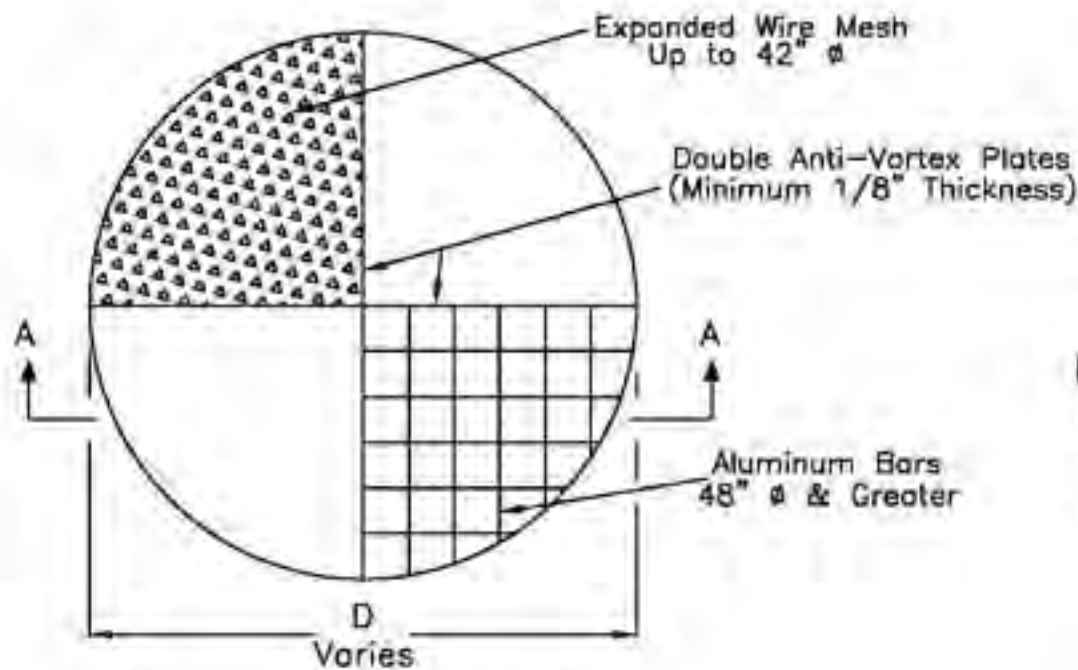
- | ITEM | DESCRIPTION |
|------|--|
| A | Single Flange Pipe |
| B | Double Flange Pipe |
| C | Double Flanged Pipe Tee Riser (to be set in concrete) |
| D | Regular Joint (with Rerolled Ends) |
| E | Regular Aluminum Pipe (with Rerolled Ends) |
| F | Anti-Seep Plate with Drain Pipe Cutout and Slotted for Bolts (Quantity Varies) |
| G | Trash Rack with Grate Top and Anti-Vortex Plate to rest on Riser |
| H | Shear Type Sluice Gate |
| I | Lift Rod (may require support for stabilization) |
| J | Closed Cell neoprene Flange Gasket |
| K | 3/8" Stainless Steel Nut, Bolt, and Washer Set |



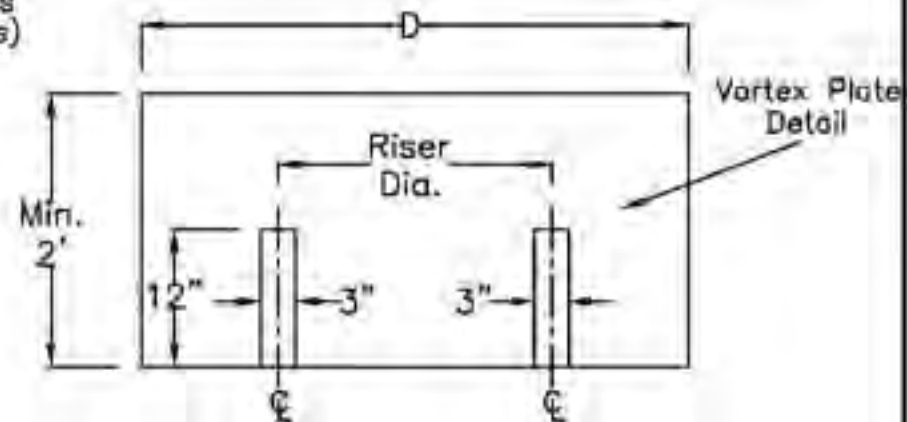
LANE ENTERPRISES, INC.

TITLE STANDARD POND KIT COMPONENTS		DRAWN BY: BLC
DRAWING NO. A0211	PAGE 1 OF 5	

NO.	DATE	BY
REVISIONS		



PLAN VIEW



SECTION A-A

-All Material to be Aluminum

TRASHRACK

FOR REVIEW ONLY



LANE ENTERPRISES, INC.

TITLE
STANDARD POND KIT COMPONENTS

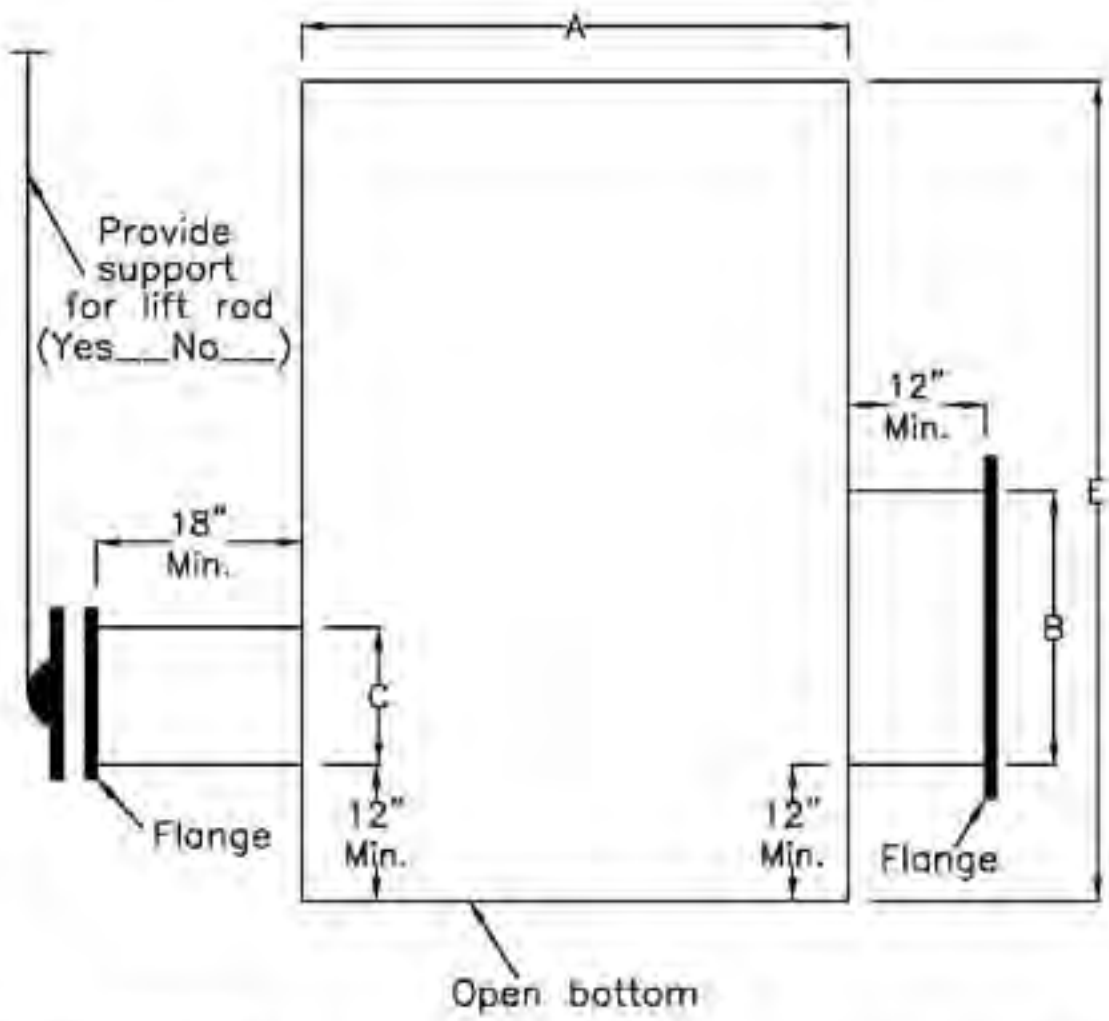
DRAWN BY: BLC

DRAWING NO. A0211 PAGE 2 OF 5 DATE 06/21/04

CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____

NO.	DATE	BY

REVISIONS



RISER DIMENSIONS

RISER Ø "A"	
OUTLET PIPE Ø "B"	
OUTLET PIPE Ø "C"	
RISER HEIGHT "E"	

FOR REVIEW ONLY

SPECIAL REQUEST:

RISER

CUSTOMER NAME: _____

PROJECT NAME: _____

QUANTITY: _____

NO.	DATE	BY

REVISIONS



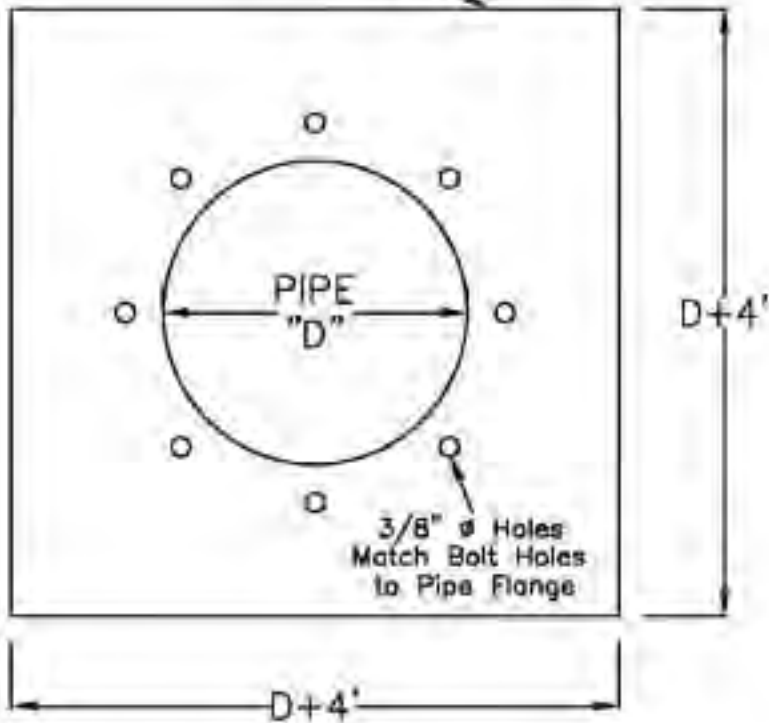
LANE ENTERPRISES, INC.

TITLE
STANDARD POND KIT COMPONENTS

DRAWING NO. A0211 PAGE 3 OF 5 DATE 06/21/04

DRAWN BY: BLC

Plate to be Minimum of 12 Gauge.
 If pipe diameter exceeds 30"
 then add reinforcement



# OF PLATES REQUIRED	PIPE DIAMETER "D"	HEIGHT	WIDTH

TOTAL =

ANTI-SEEP PLATE

CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____

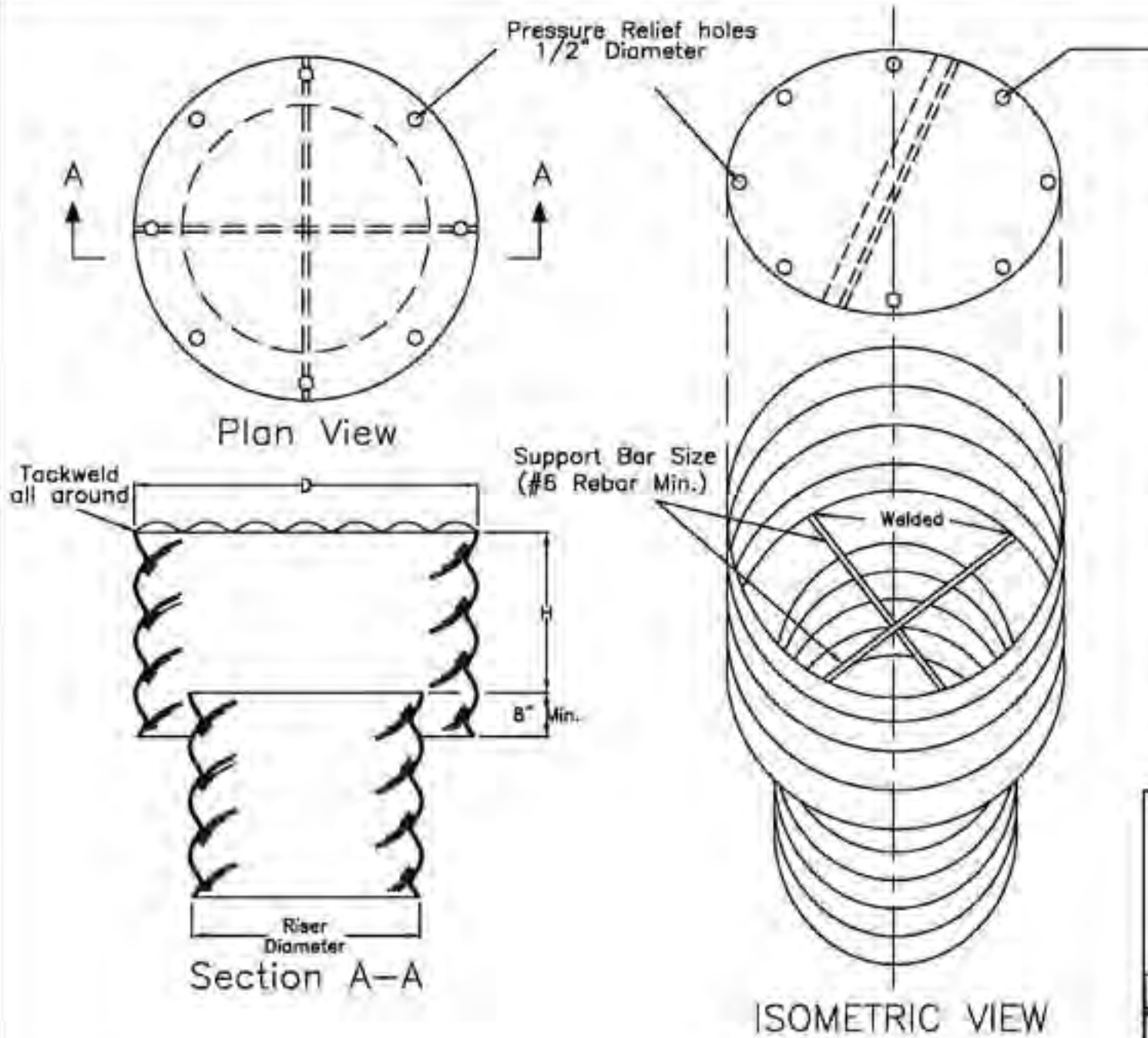
FOR REVIEW ONLY



LANE ENTERPRISES, INC.

TITLE STANDARD POND KIT COMPONENTS		DRAWN BY: BLC
DRAWING NO. A0211	PAGE 5 OF 5	DATE 06/21/04

NO.	DATE	BY
REVISIONS		



Top Stiffener (if required) is ___x___x___ angle welded to top and oriented perpendicular to corrugations.

Top is ___ gage corrugated metal or 1/8" steel plate. Pressure relief holes may be omitted, if ends of corrugations are left fully open when the top is attached.

Cylinder is ___ gage corrugated metal pipe or fabricated from 1/8" steel plate.

- Notes:
1. The cylinder must be firmly fastened to the top of the riser.
 2. Support bars are welded to the top of the riser or attached by straps bolted to top of riser.
 3. Dimensions given in design table on Page 2 of 2.



LANE ENTERPRISES, INC.

TITLE
**ANTI-VORTEX
DEVICE DESIGN**

DRAWN BY: BLC

NO.	DATE	BY
1	2/27/04	BLC
REVISIONS		

Source: Adapted from USDA-SCS and Carl M. Henshaw Drainage Products Information

DRAWING NO.	PAGE	DATE
A0212	1 OF 2	6/5/03

Riser Diameter D (in)	Cylinder		Height H (in)	Minimum Size Support Bar	Minimum Top	
	Diameter Inches	Thickness gage			Thickness	Stiffener
12	18	16	6	#6 Rebar or 1 1/2 x 1 1/2 x 3/16 Angle	16 ga (F&C)	" "
15	21	16	7	" "	" "	" "
18	27	16	8	" "	" "	" "
21	30	16	12	" "	16 ga (C) 14 ga (F)	" "
24	36	16	13	" "	" "	" "
27	42	16	15	" "	" "	" "
36	54	14	17	#8 Rebar	14 ga (C) 12 ga (F)	" "
42	60	16	19	" "	" "	" "
48	72	16	21	1 1/4" Pipe or 1 1/4 x 1 1/4 x 1/4 angle	14 ga (C) 10 ga (F)	" "
54	78	16	25	" "	" "	" "
60	90	14	29	1 1/2" Pipe or 1 1/2 x 1 1/2 x 1/4 angle	12 ga (C) 8 ga (F)	" "
66	96	14	33	2" Pipe or 2 x 2 x 3/16 angle	12 ga (C) 8 ga (F) w/stiffener	2 x 2 x 1/4 angle
72	102	14	36	" "	" "	2 1/2 x 2 1/2 x 1/4 angle
78	114	14	39	2 1/2" Pipe or 2 x 2 x 1/4 angle	" "	" "
84	120	12	42	2 1/2" Pipe or 2 1/2 x 2 1/2 x 1/4 angle	" "	2 1/2 x 2 1/2 x 5/16 angle

Notes₁: The criterion for sizing the cylinder is that the area between the inside of the cylinder and the outside of the riser is equal to or greater than the area inside the riser. Therefore, the above table is invalid for use with concrete pipe risers.

Notes₂: Corrugation for 12" - 36" pipe measures 2 2/3" x 1/2"; for 42" - 84" the corrugation measures 5" x 1" or 8" x 1".

Notes₃: C = Corrugated; F = flat.
5" x 1" or 8" x 1".



LANE ENTERPRISES, INC.

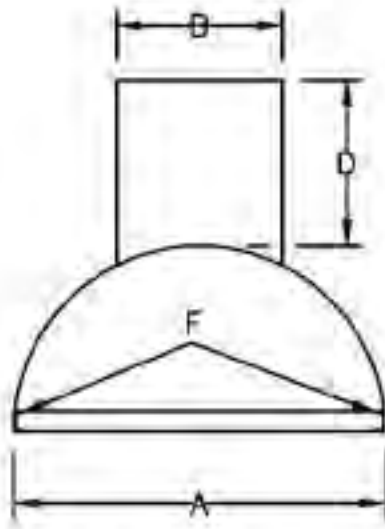
TITLE
ANTI-VORTEX
DEVICE DESIGN

DRAWN BY: BLC

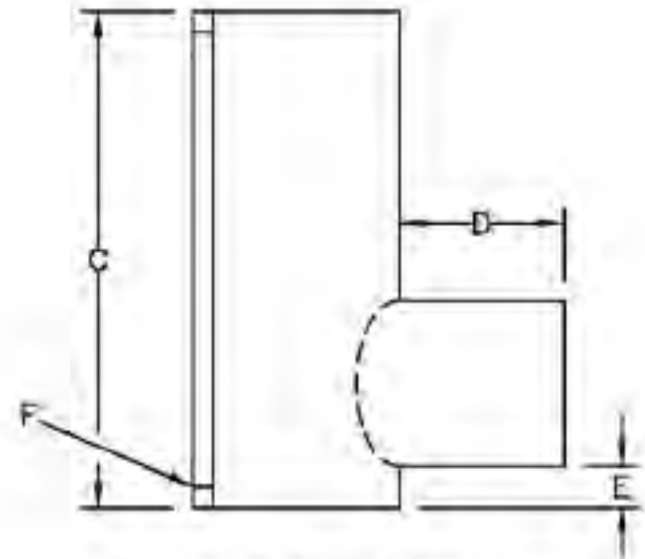
DRAWING NO. A0212 PAGE 2 OF 2 DATE 6/5/03

1	2/27/04	BLC
NO.	DATE	BY
REVISIONS		

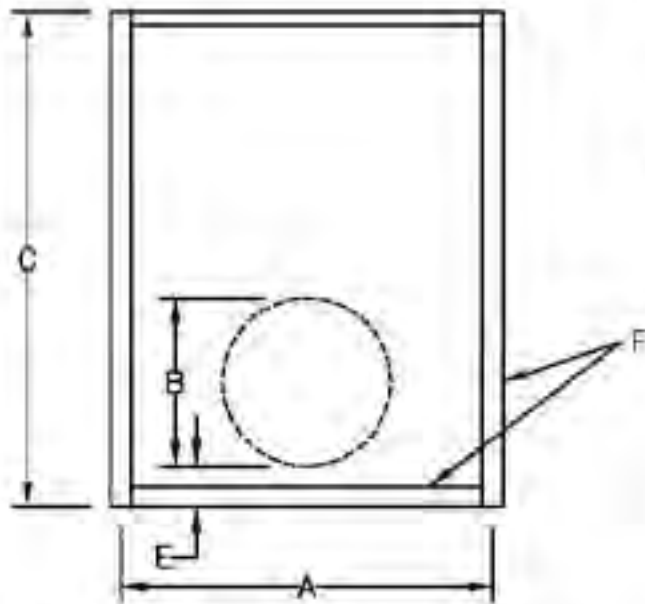
Source: Adapted from USDA-SCS and Carl M. Renshaw Drainage Products Information



PLAN VIEW



SIDE VIEW



FRONT ELEVATION

DIMENSIONS/MATERIAL

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____

Standard Sizes	
Riser Width	Stub Diameter
21"	12"
24"	15"
30"	21"
36"	24"
42"	30"



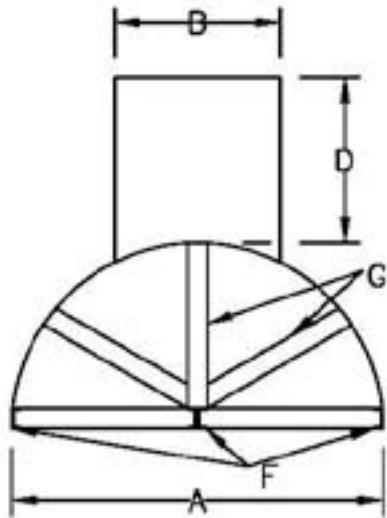
LANE ENTERPRISES, INC.

TITLE
FLASHBOARD RISER
TYPE A

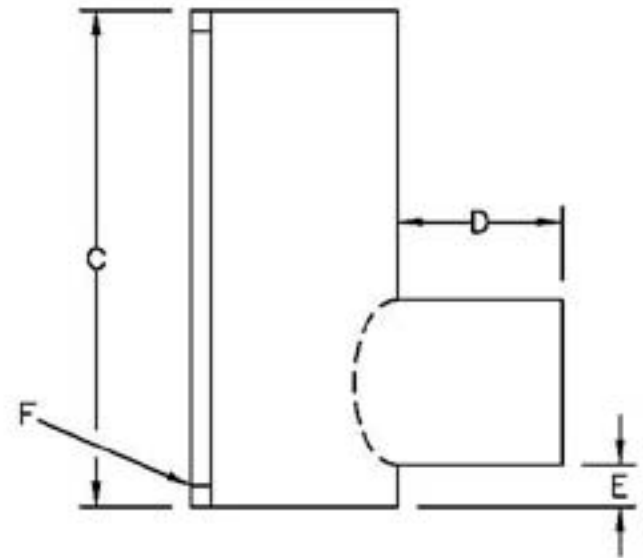
DRAWN BY BLC

NO.	DATE	BY
REVISIONS		

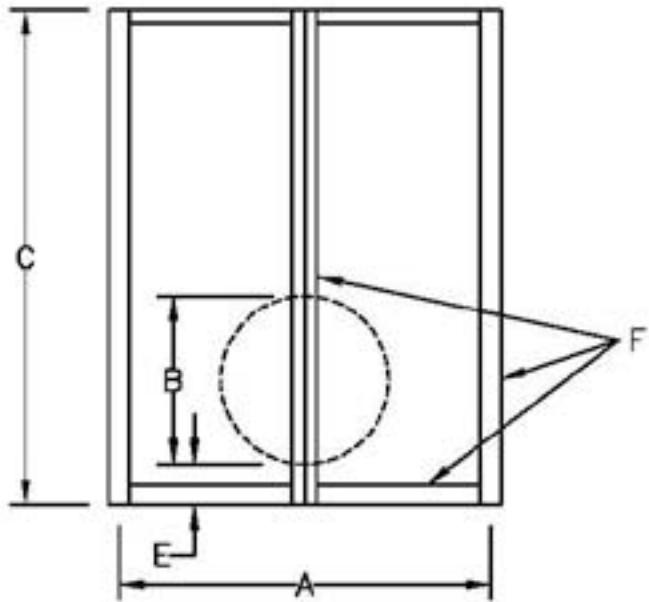
DRAWING NO.	PAGE	DATE
A0217	1 OF 1	8/1/03



PLAN VIEW



SIDE VIEW



FRONT ELEVATION

DIMENSIONS/MATERIAL

- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____

Standard Sizes	
Riser Width	Stub Diameter
48"	36"
60"	42"
72"	48"
84"	54"

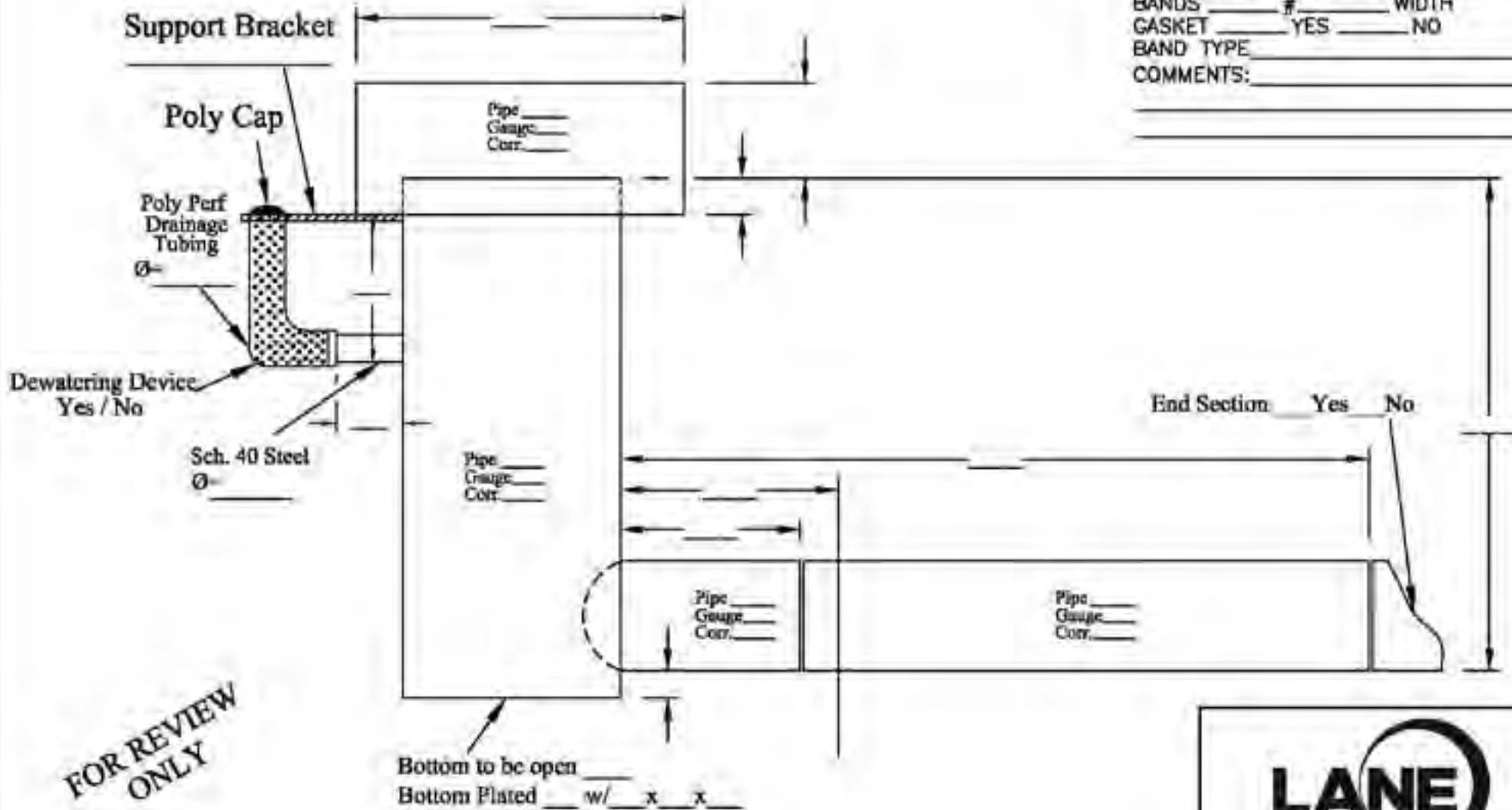


LANE ENTERPRISES, INC.

TITLE		DRAWN BY: BLC
FLASHBOARD RISER TYPE B		
DRAWING NO. A0218	PAGE 1 OF 1	DATE 8/1/03

NO.	DATE	BY
REVISIONS		

TYPE MATERIAL _____
 ANTI SEEP COLLARS _____ YES _____ NO
 QUANTITY _____
 SIZE (ANTI-SEEP) _____ x _____
 ON BANDS _____ ON PIPE _____
 BANDS _____ # _____ WIDTH _____
 GASKET _____ YES _____ NO
 BAND TYPE _____
 COMMENTS: _____



FOR REVIEW ONLY

CUSTOMER NAME: _____
 PROJECT NAME: _____
 DATE: _____

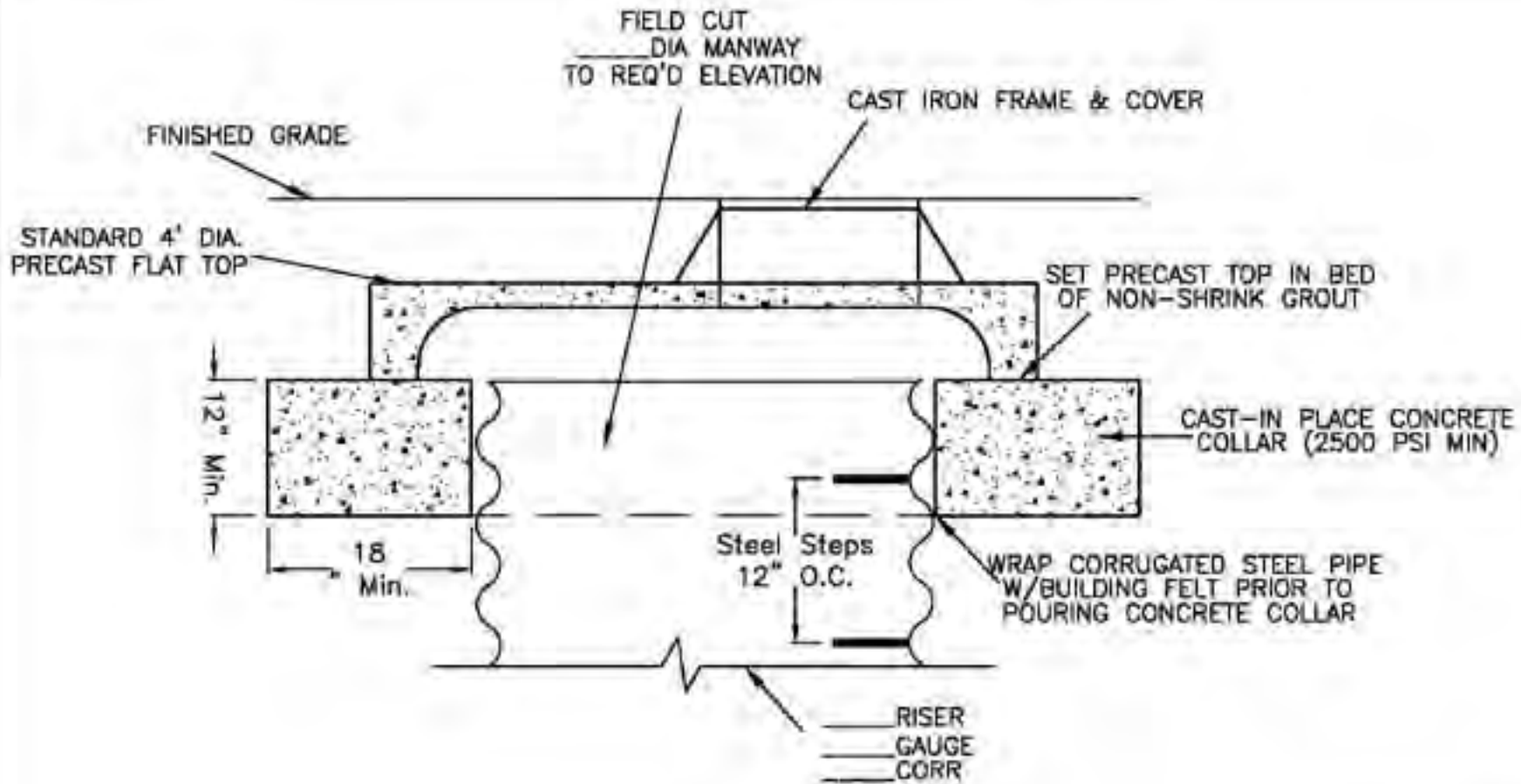
NO.	DATE	BY
1	2/9/04	BLC
REVISIONS		

LANE

LANE ENTERPRISES, INC.

TITLE: TYPICAL POND RISER DETAIL (LANE # A0220)

DRAWING NO. A0220 PAGE 1 OF 1 DATE 08/22/03



MANWAY ACCESS DETAIL



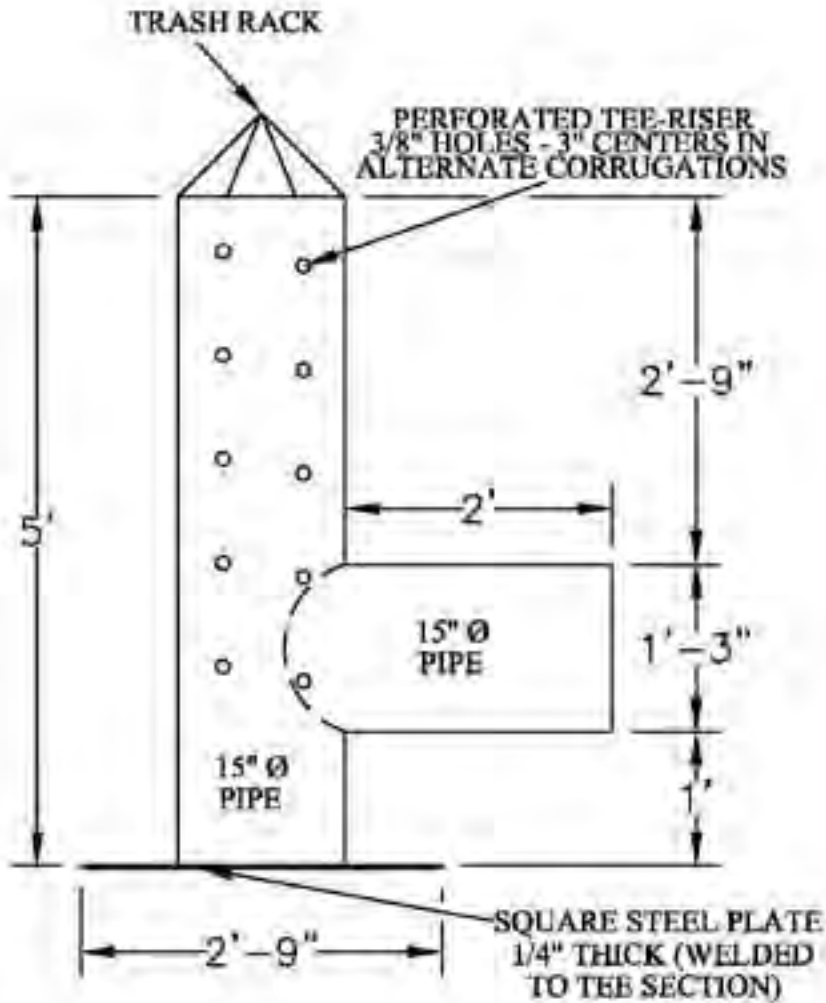
LANE ENTERPRISES, INC.

TITLE
MANWAY ACCESS
DETAIL

DRAWN BY: BLC

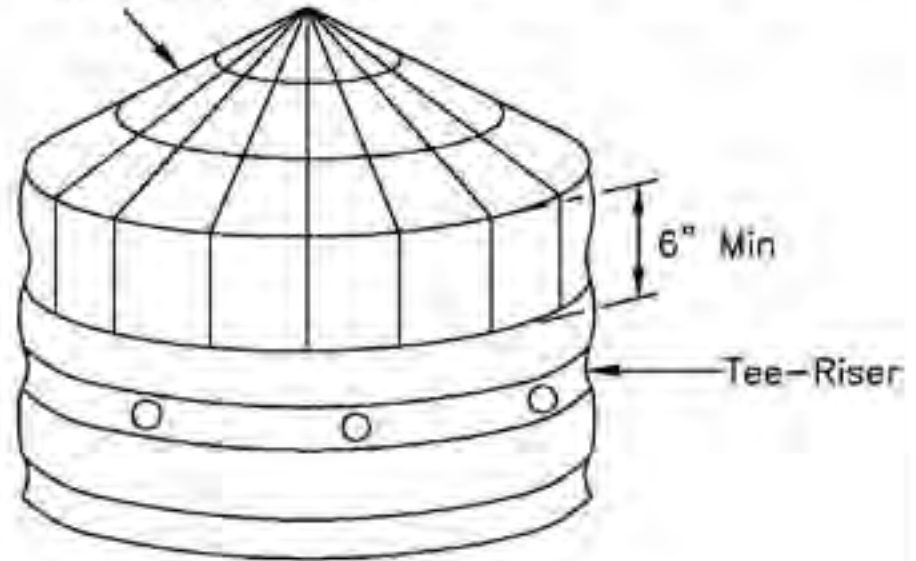
DRAWING NO. A0224 PAGE 1 OF 1 DATE 09/09/03

NO.	DATE	BY
REVISIONS		



SECTIONAL VIEW

#4 BAR LAYOUT SHOW IS SUGGESTED: HOWEVER,
OTHER LAYOUTS MAY BE USED PROVIDED OPENINGS
ARE 64" ± SQ/ IN. AREA



TRASH RACK DETAIL

FOR REVIEW
ONLY



LANE ENTERPRISES, INC.

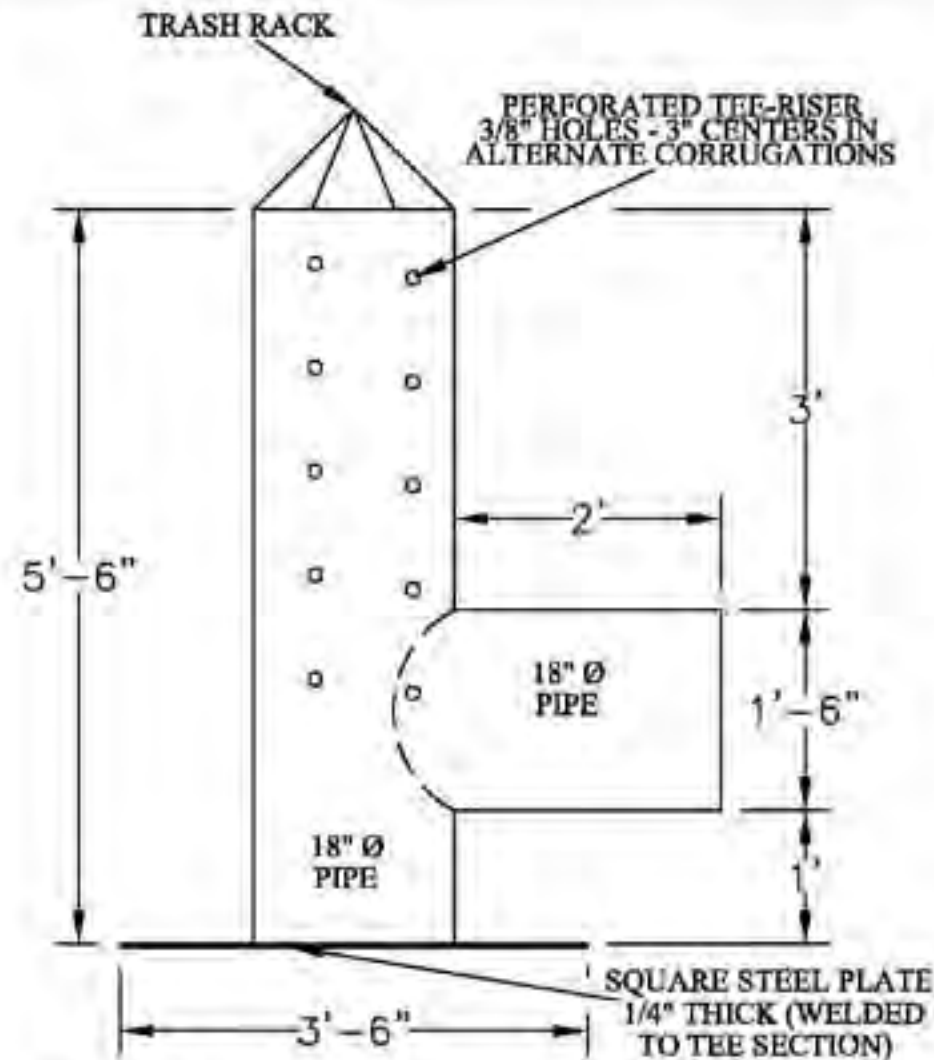
TITLE
NC SEDIMENT
BASIN STANDARDS
15" DIAMETER

DRAWN BY: BLC

DRAWING NO. A0225 PAGE 1 OF 5 DATE 09/11/03

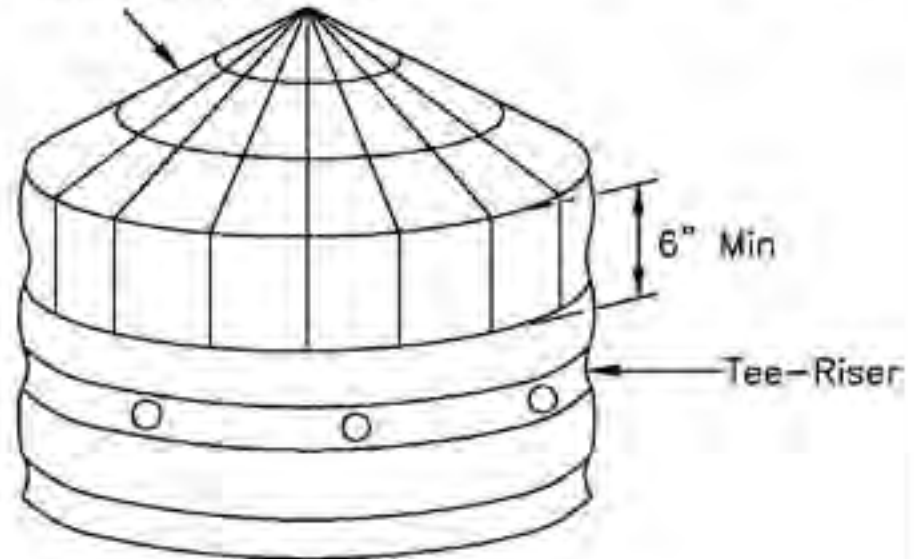
CUSTOMER NAME: _____
PROJECT NAME: _____
QUANTITY: _____

NO.	DATE	BY
1	5/9/05	BLC
REVISIONS		



SECTIONAL VIEW

#4 BAR LAYOUT SHOW IS SUGGESTED: HOWEVER, OTHER LAYOUTS MAY BE USED PROVIDED OPENINGS ARE 64" ± SQ/ IN. AREA



TRASH RACK DETAIL

FOR REVIEW ONLY

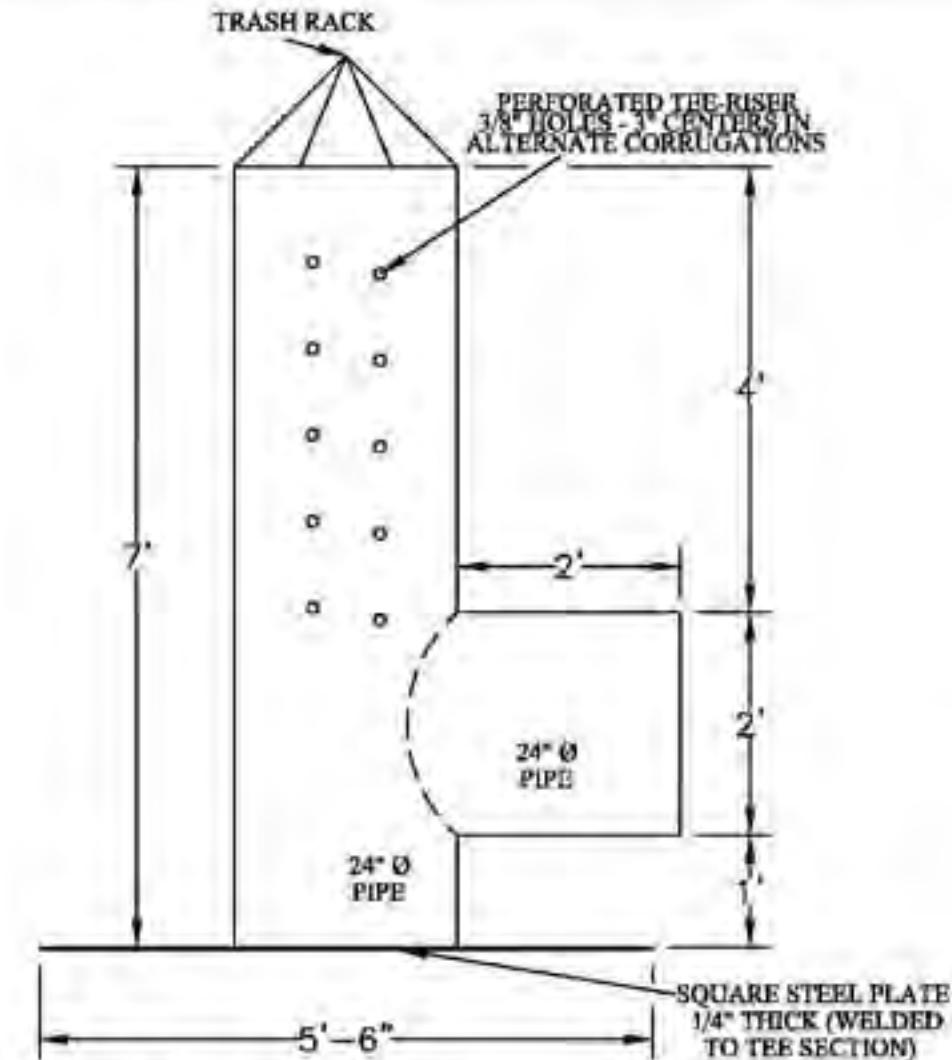
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 PROJECT NAME: _____
 QUANTITY: _____

NO.	DATE	BY
REVISIONS		



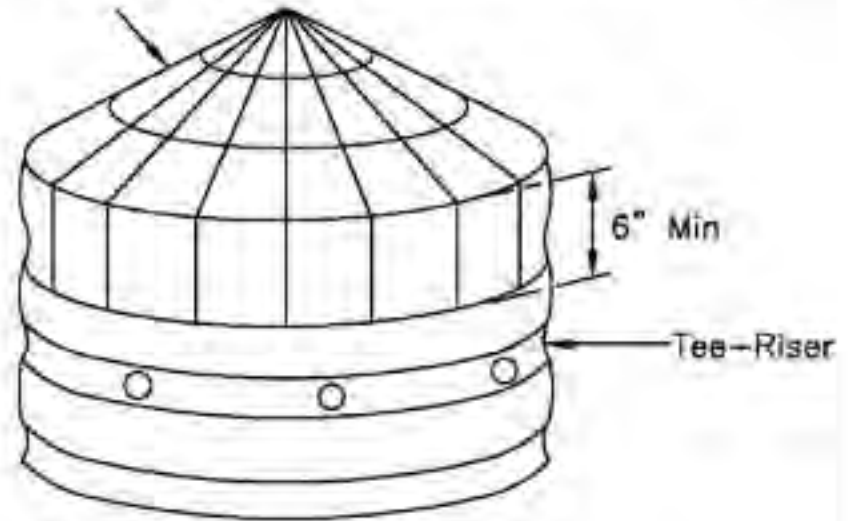
LANE ENTERPRISES, INC.

TITLE		DRAWN BY: BLC
NC SEDIMENT BASIN STANDARDS 18" DIAMETER		
DRAWING NO. A0225	PAGE 2 OF 5	DATE 05/09/05



SECTIONAL VIEW

#4 BAR LAYOUT SHOW IS SUGGESTED; HOWEVER, OTHER LAYOUTS MAY BE USED PROVIDED OPENINGS ARE 64" ± SQ. IN. AREA




TRASH RACK DETAIL

FOR REVIEW ONLY

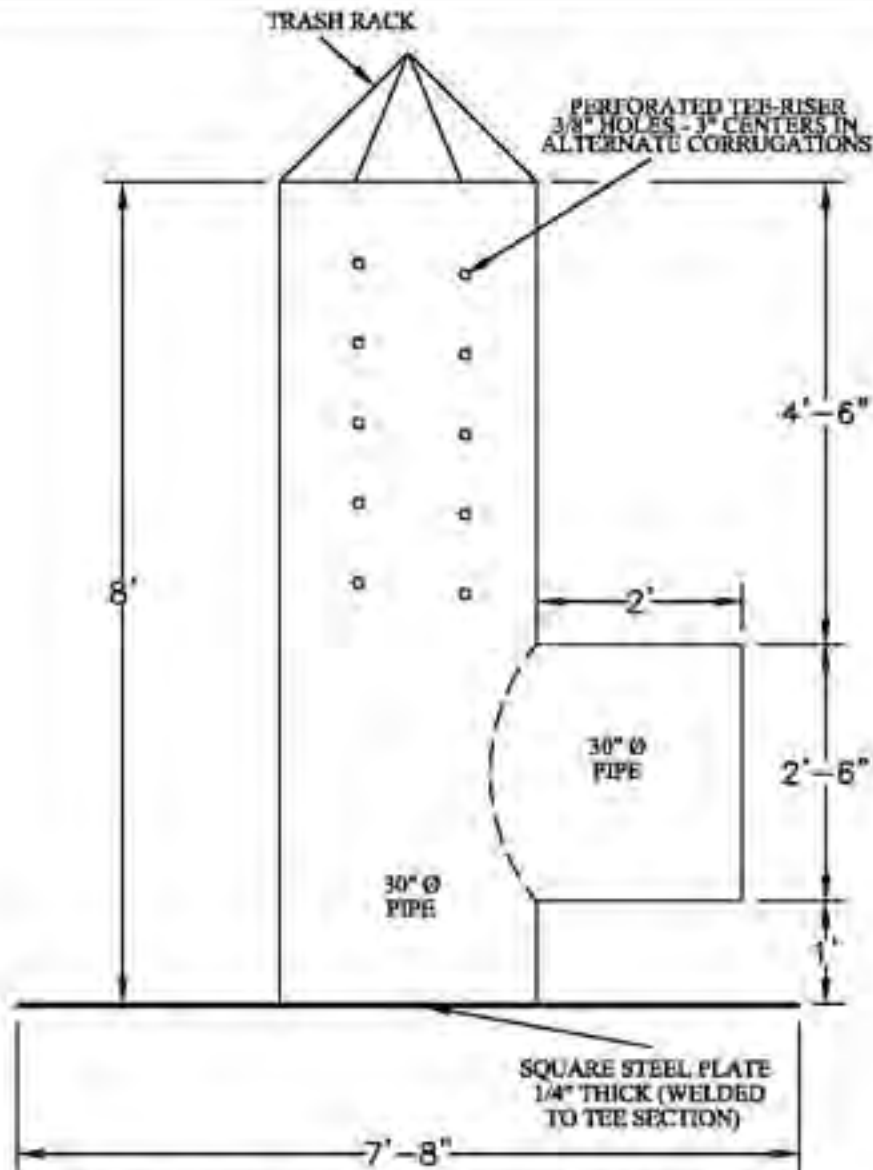
NO.	DATE	BY
REVISIONS		

CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____



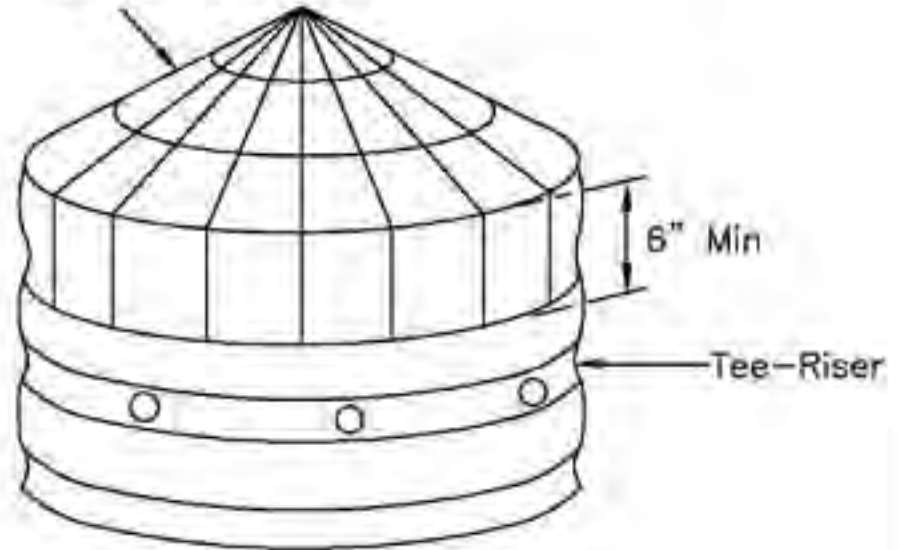
LANE ENTERPRISES, INC.

TITLE NC SEDIMENT BASIN STANDARDS 24" DIAMETER			DRAWN BY: BLC
DRAWING NO. A0225	PAGE 3 OF 5	DATE 05/09/05	



SECTIONAL VIEW

#4 BAR LAYOUT SHOW IS SUGGESTED; HOWEVER, OTHER LAYOUTS MAY BE USED PROVIDED OPENINGS ARE 64" ± SQ/IN. AREA



TRASH RACK DETAIL

FOR REVIEW ONLY

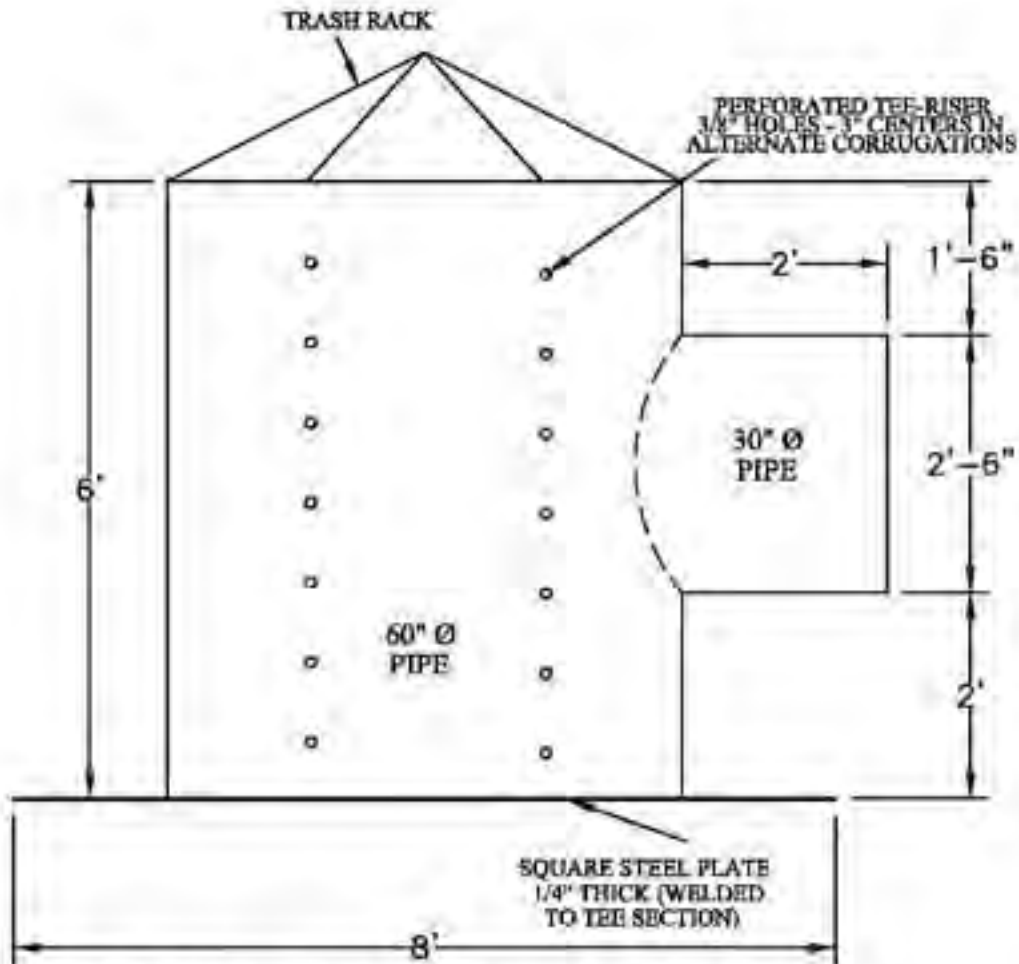
CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____



LANE ENTERPRISES, INC.

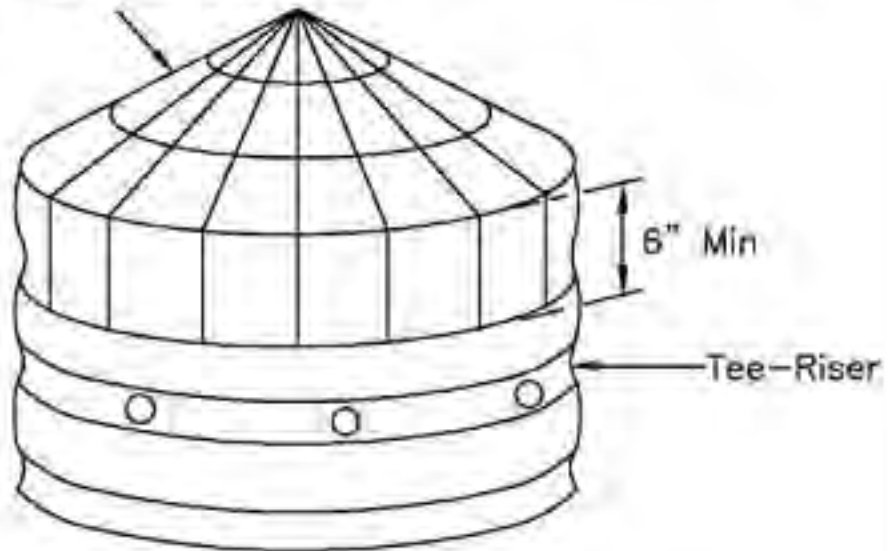
TITLE NC SEDIMENT BASIN STANDARDS 30" DIAMETER		DRAWN BY: BLC
DRAWING NO. A0225	PAGE 4 OF 5	DATE 05/09/05

NO.	DATE	BY
REVISIONS		



SECTIONAL VIEW

#4 BAR LAYOUT SHOWN IS SUGGESTED; HOWEVER, OTHER LAYOUTS MAY BE USED PROVIDED OPENINGS ARE 64" ± SQ/IN. AREA



TRASH RACK DETAIL

FOR REVIEW ONLY

NO.	DATE	BY
REVISIONS		

CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____

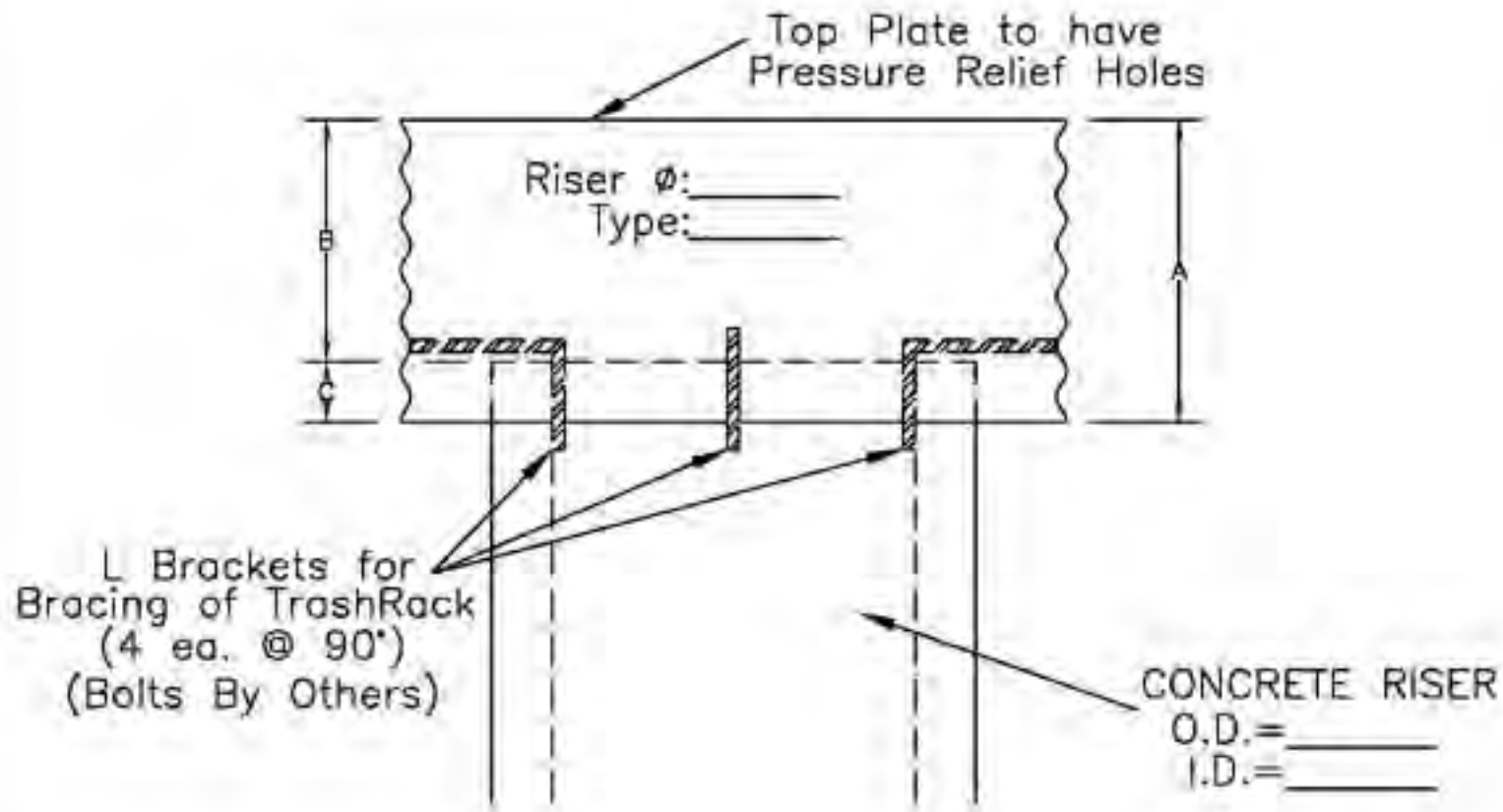


LANE ENTERPRISES, INC.

TITLE NC SEDIMENT
 BASIN STANDARDS
 60" DIAMETER

DRAWN BY: BLC

DRAWING NO. A0225	PAGE 5 OF 5	DATE 05/09/05
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DIMENSIONS

A: _____
 B: _____
 C: _____

CUSTOMER NAME: _____
 PROJECT NAME: _____
 QUANTITY: _____

NO.	DATE	BY
1	5/9/06	BLC

REVISIONS

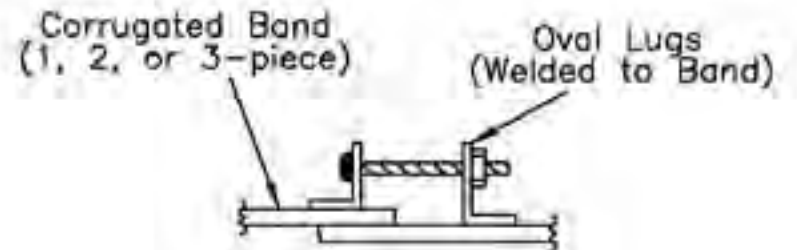
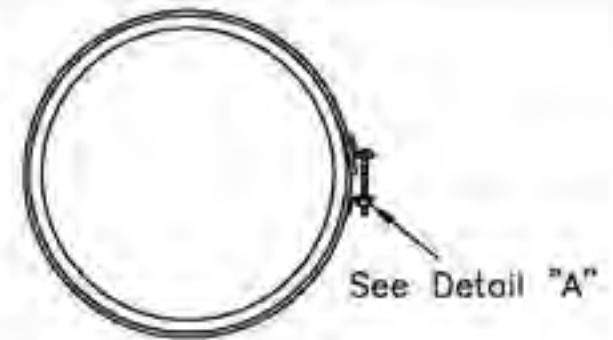
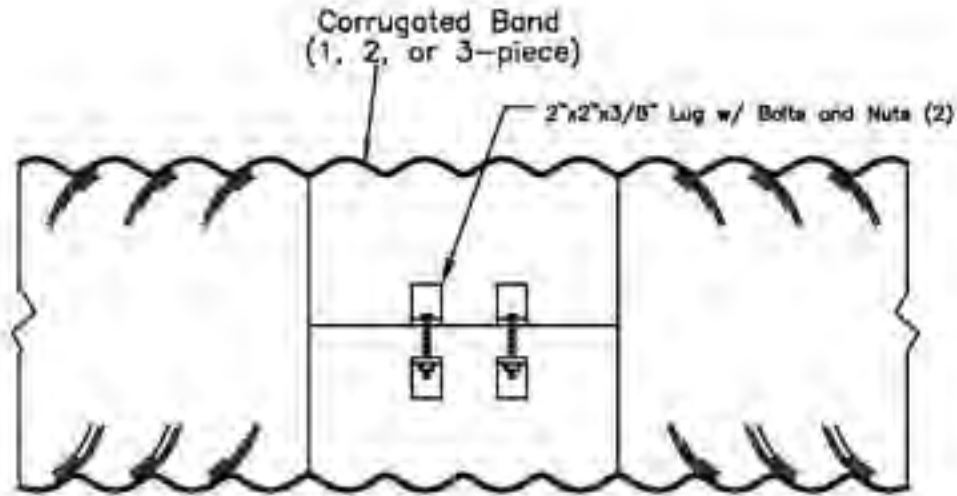


LANE ENTERPRISES, INC.

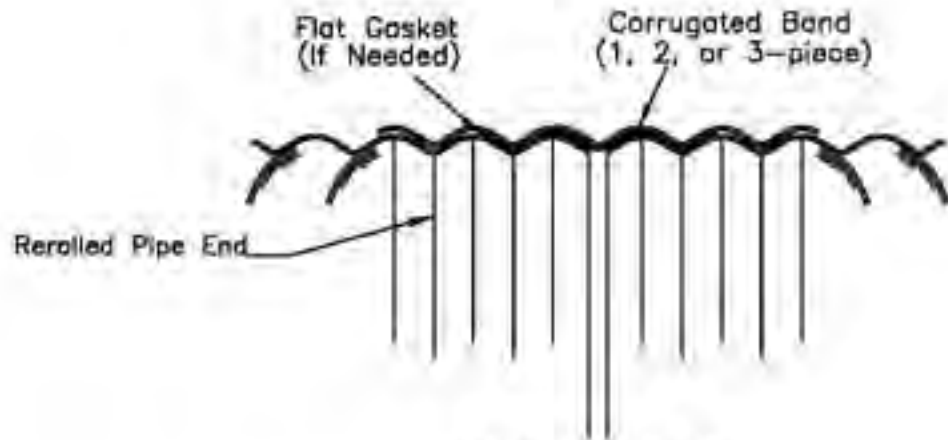
TITLE
**CSP TRASHRACK
 FOR RCP RISER**

DRAWN BY: BLC

DRAWING NO. A0229	PAGE 1 OF 1	DATE 09/15/03
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Detail "A"



SECTION VIEW

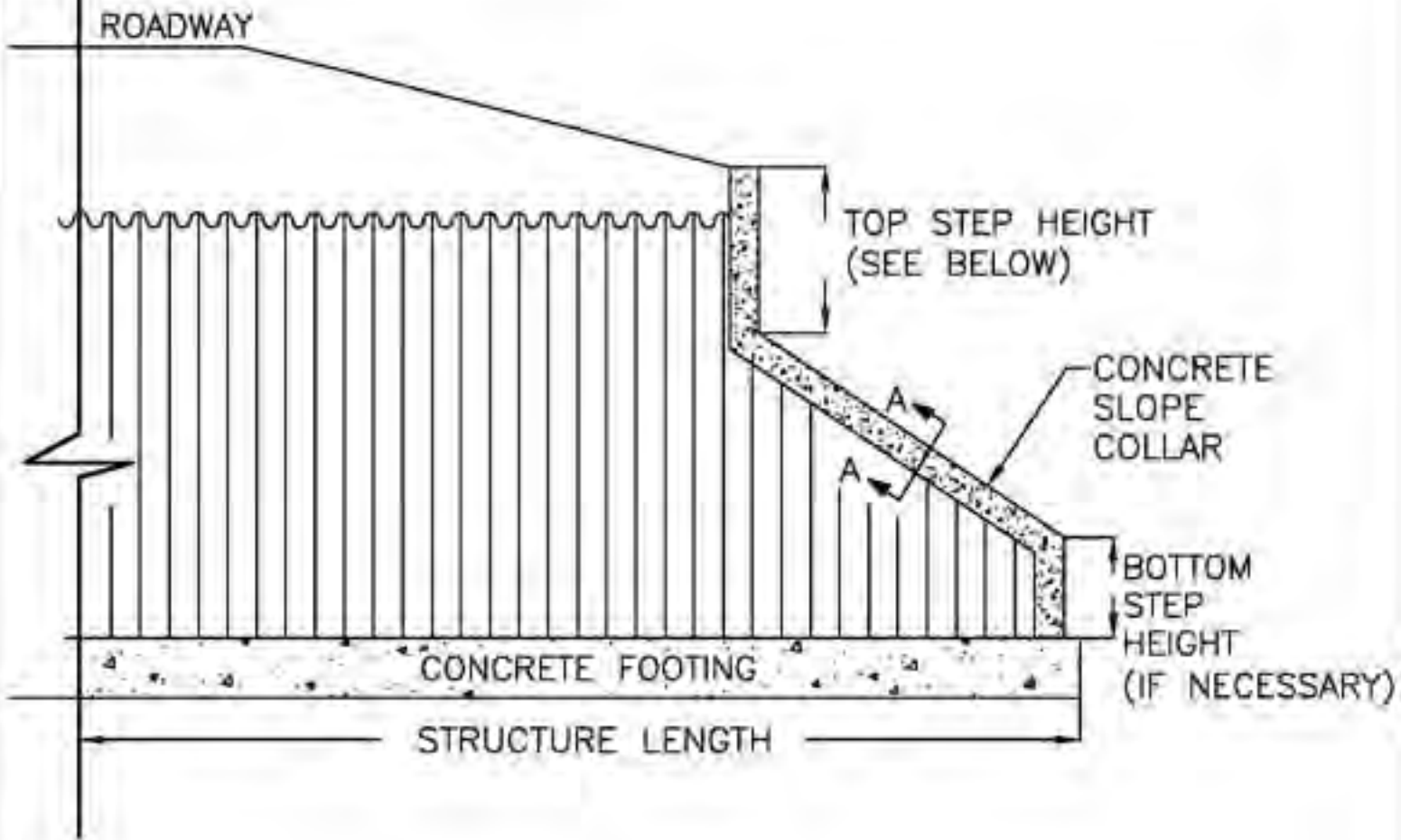
Flat Gasket shall be a minimum of 7" wide and 3/8" thick. Flat Gasket shall be in accordance with AASHTO M 36 & ASTM D1056.



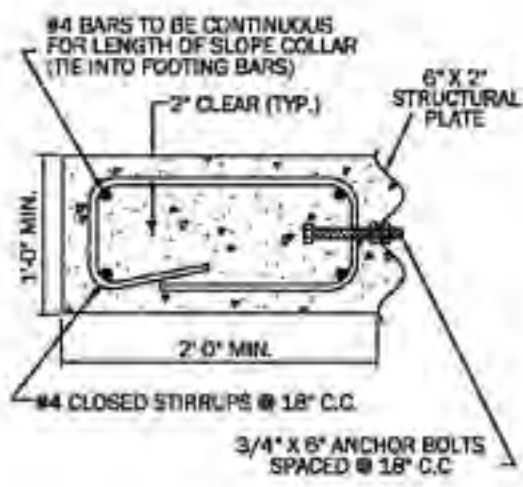
LANE ENTERPRISES, INC.

TITLE		DRAWN BY: BLC
BAND DETAIL		
DRAWING NO.	PAGE	DATE
A0234	1 OF 1	11/17/03

1	11/19/03	BLC
NO.	DATE	BY
REVISIONS		



CONCRETE SLOPE COLLAR

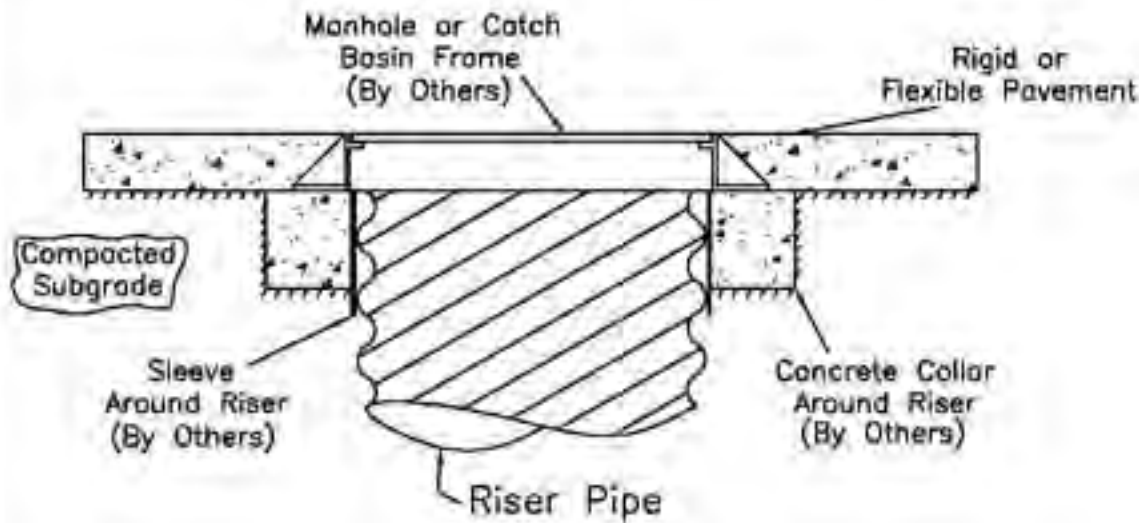


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LANE ENTERPRISES, INC.

<p>STRUCTURAL PLATE END TREATMENT (SLOPE COLLAR)</p>			DRAWN BY: BLC
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DETAIL 1

INSTALLATION NOTES

1. Minimum spacing between pipe shall be as shown in Table 1 to conform with ASTM A796.
2. Granular material used for pipe bedding and backfill shall conform to ASTM A796, Section 9.
3. Placement of bedding and backfill material for pipe shall meet requirements of ASTM A798, Section 10.
4. Minimum cover over top of pipe (for H-20 loading) shall be the greater of 12" or 1/8 pipe diameter or span.
5. Minimum cover over the top of the pipe for heavy construction loads shall be as shown in Table 2.
6. Length of riser pipe must be field cut to final grade.
7. Length of attached pipe stubs are determined by Lane Enterprises based on fabrication standards or shipping criteria.
8. Manholes or catch basins placed over CSP riser pipe shall be installed by the contractor in a manner that avoids wheel loads on riser and system pipe. (See Detail 1)
9. Upper portion of riser pipe shall be installed with a sleeve around the OD of the pipe. The sleeve shall be sufficiently rigid so as to avoid deformation when concrete is placed against the sleeve. Sleeve shall allow minimum settlement of concrete collar without any load being applied to riser pipe.
10. Manhole or catch basin frame shall be sized so that wheel load applied to frame is transferred to concrete collar around riser.

TABLE 1

Minimum Spacing Between Pipe

PIPE SPAN (IN)	MINIMUM SPACING (IN)
Up to 48"	24"
48" to 66"	1/2 Pipe Span
72" to 144"	36"

* Spacings shown are based on standard backfill materials, placement and compaction practices. Minimums can be reduced with the use of appropriate flowable fill materials or as directed by the design engineer.

TABLE 2

Guidelines for Minimum Cover for Heavy Construction Equipment

PIPE SPAN (IN)	Minimum Cover (H) for Indicated Axle Loads (kips)*			
	18-50	50-75	75-110	110-150
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

* Minimum cover may vary, depending on local conditions. The contractor must provide the additional cover required to avoid damage to the pipe. Minimum cover is measured from the top of the pipe to the top of the maintained construction roadway surface.



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SYSTEMS
INSTALLATION

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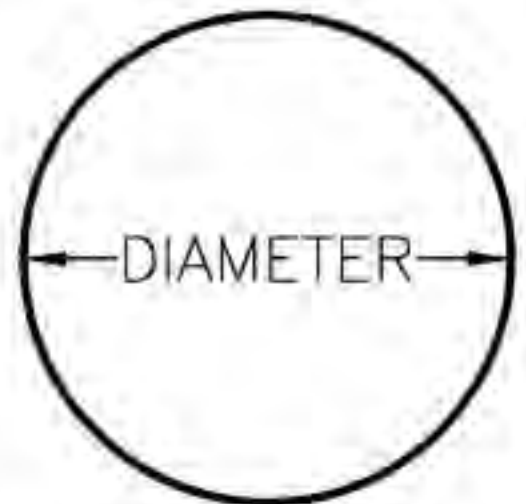
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NOMINAL DIAMETER		WATERWAY AREA SQ. FT.
FT.-IN.	IN.	
5-0	60	20
5-6	66	24
6-0	72	28
6-6	78	33
7-0	84	38
7-6	90	44
8-0	96	50
8-6	102	57
9-0	108	64
9-6	114	71
10-0	120	79
10-6	126	87
11-0	132	95
11-6	138	104
12-0	144	113
12-6	150	123
13-0	156	133
13-6	162	143
14-0	168	154
14-6	174	165
15-0	180	177
15-6	186	189
16-0	192	201
16-6	198	214
17-0	204	227
17-6	210	241
18-0	216	254
18-6	222	269
19-0	228	284
19-6	234	299
20-0	240	314
20-6	246	330
21-0	252	346
21-6	258	363
22-0	264	380
22-6	270	398
23-0	276	415
23-6	282	434
24-0	288	452
24-6	294	470
25-0	300	491
25-6	306	510
26-0	312	530



LANE ENTERPRISES, INC.

TITLE
 SIZES & END AREAS
 FOR ROUND PIPE OF
 STEEL STRUCTURAL PLATE

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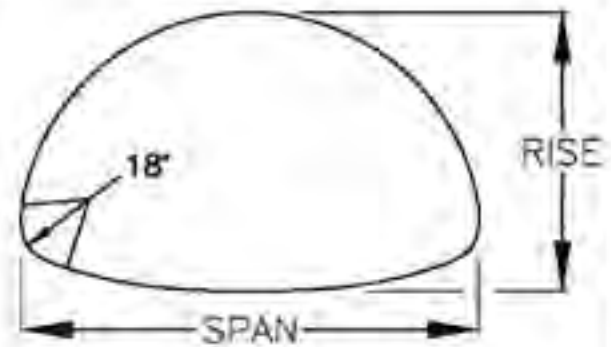
PAGE
 1 OF 1

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 08/17/05

NO.	DATE	BY

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NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
6-1	4-7	22
6-4	4-9	24
6-9	4-11	26
7-0	5-1	28
7-3	5-3	31
7-8	5-5	33
7-11	5-7	35
8-2	5-9	38
8-7	5-11	40
8-10	6-1	43
9-4	6-3	46
9-6	6-5	49
9-9	6-7	52
10-3	6-9	55
10-8	6-11	58
10-11	7-1	61
11-5	7-3	64
11-7	7-5	67
11-10	7-7	71
12-4	7-9	74
12-6	7-11	78
12-8	8-1	81
12-10	8-4	85
13-5	8-5	89
13-11	8-7	93
14-1	8-9	97
14-3	8-11	101
14-10	9-1	105
15-4	9-3	109
15-6	9-5	113
15-8	9-7	118
15-10	9-10	122
16-5	9-11	126
16-7	10-1	131



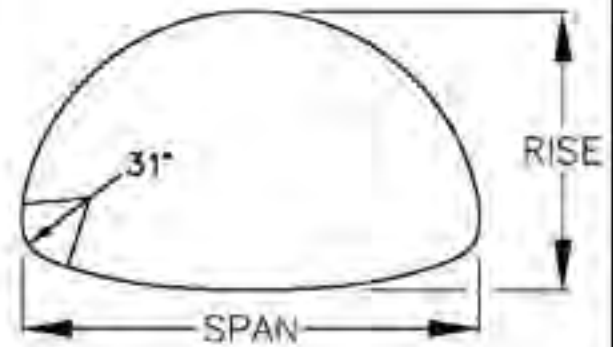


LANE ENTERPRISES, INC.

TITLE SIZES & END AREAS FOR PIPE ARCH WITH 18° CORNER RADIUS OF STEEL STRUCTURAL PLATE			DRAWN BY: BLC
DRAWING NO. A0259	PAGE 1 OF 1	DATE 08/23/05	

NO.	DATE	BY
REVISIONS		

NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
13-0	9-4	98
13-6	9-6	102
14-0	9-8	106
14-2	9-10	110
14-5	10-0	115
14-11	10-2	119
15-4	10-4	124
15-7	10-6	129
15-10	10-8	133
16-3	10-10	138
16-6	11-0	143
17-0	11-2	148
17-2	11-4	153
17-5	11-6	158
17-11	11-8	163
18-1	11-10	168
18-7	12-0	174
18-9	12-2	179
19-3	12-4	185
19-6	12-6	190
19-8	12-8	196
19-11	12-10	202
20-5	13-0	208
20-7	13-2	214





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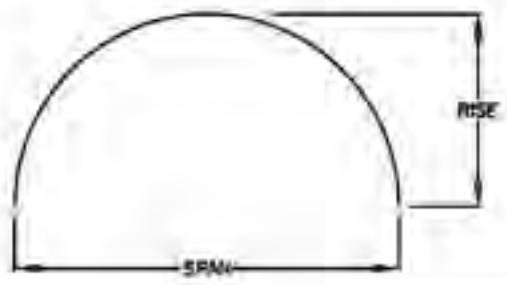
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DRAWING NO. A0250	PAGE 1 OF 1	DATE 08/23/05	

NO.	DATE	BY
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NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
8-0	2-7 $\frac{1}{2}$	10.5
	2-3 $\frac{1}{2}$	8.9
	1-8 $\frac{1}{2}$	6.5
8-0	3-1 $\frac{1}{2}$	15.0
	2-9	12.5
	2-4	10.0
	1-10	7.5
7-0	3-8	20.0
	3-3	17.5
	2-10	15.0
8-0	2-4 $\frac{1}{2}$	12.0
	4-2	26.5
	3-9	23.5
	3-4	20.0
8-0	2-11	17.0
	2-5	13.5
	4-8	33.5
	4-3 $\frac{1}{2}$	30.0
9-0	3-10 $\frac{1}{2}$	28.5
	3-5	23.0
	2-10 $\frac{1}{2}$	19.0
	5-2 $\frac{1}{2}$	41.0
10-0	4-8 $\frac{1}{2}$	37.0
	4-4 $\frac{1}{2}$	33.5
	3-11 $\frac{1}{2}$	29.5
	3-5 $\frac{1}{2}$	25.5
10-0	2-11 $\frac{1}{2}$	21.0
	5-8 $\frac{1}{2}$	49.5
	5-3 $\frac{1}{2}$	45.5
	4-11	41.0
11-0	4-5 $\frac{1}{2}$	37.0
	4-0	32.5
	3-8	27.5
	6-2 $\frac{1}{2}$	59.0
12-0	5-10	54.5
	5-5	49.5
	5-0	45.0
	4-8 $\frac{1}{2}$	40.0
12-0	4-0 $\frac{1}{2}$	35.0
	8-9	69.5
	6-4	64.5
	5-11	59.0
13-0	5-6	54.0
	5-0 $\frac{1}{2}$	49.0
	4-7	43.8
	7-3	50.5
14-0	6-10	73.0
	6-5 $\frac{1}{2}$	69.5
	8-0	64.0
	3-7	58.0
14-0	5-1 $\frac{1}{2}$	52.5
	4-7 $\frac{1}{2}$	48.5
	7-9	62.5
	7-4 $\frac{1}{2}$	58.5
15-0	6-11 $\frac{1}{2}$	80.5
	6-6 $\frac{1}{2}$	74.5
	6-1 $\frac{1}{2}$	69.5
	5-8	62.5
15-0	5-2	58.0
	4-7 $\frac{1}{2}$	50.0
	8-3	104.5
	7-10 $\frac{1}{2}$	98.5
16-0	7-5 $\frac{1}{2}$	92.0
	7-0 $\frac{1}{2}$	88.0

NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
16-0 (CONV'D)	8-7 $\frac{1}{2}$	79.5
	8-2	73.0
	5-8 $\frac{1}{2}$	66.5
	5-3 $\frac{1}{2}$	60.0
17-0	8-8 $\frac{1}{2}$	118.5
	8-4 $\frac{1}{2}$	111.5
	8-0	105.0
	7-7	98.0
	7-1 $\frac{1}{2}$	91.5
	6-8 $\frac{1}{2}$	84.5
	6-3 $\frac{1}{2}$	77.5
16-0	5-9	70.5
	5-2 $\frac{1}{2}$	63.0
	9-3 $\frac{1}{2}$	132.5
	8-11	125.5
	8-6	118.5
	8-1	111.5
	7-8	104.0
18-0	7-2 $\frac{1}{2}$	97.0
	8-8	89.5
	6-3 $\frac{1}{2}$	82.0
	5-6	74.0
	8-8 $\frac{1}{2}$	148.0
	9-5	140.0
	9-0	133.0
20-0	8-7 $\frac{1}{2}$	125.0
	8-2	117.5
	7-9	110.0
	7-3 $\frac{1}{2}$	102.5
	6-9 $\frac{1}{2}$	94.5
	6-3 $\frac{1}{2}$	86.5
	5-8 $\frac{1}{2}$	78.5
21-0	10-4	164.0
	9-11	156.0
	9-6 $\frac{1}{2}$	148.0
	9-1 $\frac{1}{2}$	140.0
	8-8 $\frac{1}{2}$	132.0
	8-3	124.0
	7-9 $\frac{1}{2}$	118.0
22-0	7-4	107.5
	6-10	99.5
	6-4	91.0
	10-10	180.5
	10-5 $\frac{1}{2}$	172.0
	10-0 $\frac{1}{2}$	164.0
	9-7 $\frac{1}{2}$	156.0
21-0	9-2 $\frac{1}{2}$	147.0
	8-9 $\frac{1}{2}$	139.0
	8-4	130.0
	7-10 $\frac{1}{2}$	121.5
	7-4 $\frac{1}{2}$	113.0
	6-10 $\frac{1}{2}$	104.0
	6-4	95.0
22-0	11-4 $\frac{1}{2}$	198.0
	10-1 $\frac{1}{2}$	189.0
	10-7	180.5
	10-2	172.0
	9-9	163.0
	9-3 $\frac{1}{2}$	154.5
	8-10 $\frac{1}{2}$	145.5
16-0	8-5	136.5
	7-11	127.5
	7-5	118.0
	6-11	108.5

NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
23-0	11-8	207.0
	11-1	198.0
	10-8	189.0
	10-3	180.0
	9-10	170.5
	9-4 $\frac{1}{2}$	161.5
	8-11	152.0
	8-5 $\frac{1}{2}$	142.5
	7-11 $\frac{1}{2}$	133.0
	7-5 $\frac{1}{2}$	123.0
24-0	5-11	113.0
	12-0	226.0
	11-7	216.5
	11-2	207.0
	10-8	197.5
	10-4	188.0
	9-11	178.0
	9-5 $\frac{1}{2}$	168.5
	9-0	158.5
	8-8	149.0
25-0	8-0	138.5
	7-8 $\frac{1}{2}$	129.0
	12-6	245.0
	12-1 $\frac{1}{2}$	236.0
	11-8 $\frac{1}{2}$	226.0
	11-3 $\frac{1}{2}$	216.0
	10-10	206.0
	10-5	196.0
	10-0	186.0
	9-8	176.0
26-0	9-0 $\frac{1}{2}$	165.0
	8-0 $\frac{1}{2}$	155.0
	8-0	144.0
	7-5	133.0
	13-0	266.0
	12-7 $\frac{1}{2}$	256.0
	12-2 $\frac{1}{2}$	246.0
	11-9 $\frac{1}{2}$	235.0
	11-4 $\frac{1}{2}$	225.0
	10-11	214.0
26-0	10-8	204.0
	10-0 $\frac{1}{2}$	193.0
	9-7	183.0
	9-1	172.0
	8-7	161.0
	8-0 $\frac{1}{2}$	149.0



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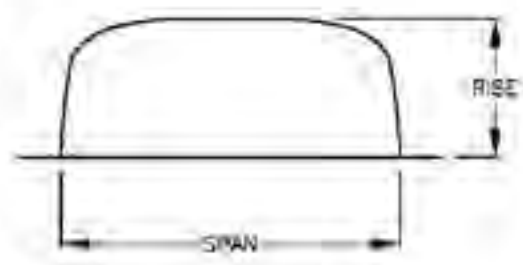
TITLE: **SIZES & END AREAS FOR ARCH SHAPE OF STEEL STRUCTURAL PLATE**

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DRAWING NO. A0261 PAGE 1 OF 1 DATE 08/23/05

NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
9-8	2-7	20.2
10-1	3-4	27.9
10-7	4-2	35.9
11-0	4-11	44.2
11-5	5-8	53.0
11-10	6-5	61.9
12-3	7-3	71.2
12-8	8-0	80.9
10-5	2-8	23.1
10-10	3-5	31.2
11-2	4-3	39.7
11-7	5-0	48.4
12-0	5-9	57.7
12-5	6-7	67.0
12-10	7-4	76.9
13-3	8-2	85.1
11-1	2-9	25.1
11-6	3-6	34.0
11-10	4-4	43.1
12-3	5-1	52.5
12-7	5-10	62.3
13-0	6-8	72.3
13-5	7-5	82.6
13-9	8-0	93.2
11-10	2-10	29.0
12-2	3-8	37.4
12-6	4-5	47.0
12-10	5-2	57.0
13-3	6-0	67.1
13-7	6-9	77.6
13-11	7-6	88.2
14-3	8-4	97.5
15-3	3-5	43.3
15-6	4-2	55.9
15-9	5-0	68.1
16-0	5-9	80.7
16-2	6-7	93.2
16-5	7-4	106.5
16-8	8-2	119.7
16-10	8-11	133.0
16-0	3-6	47.1
16-2	4-4	59.9
16-4	5-1	72.8
16-7	5-11	85.6
16-9	6-9	99.1
17-0	7-6	112.4
17-2	8-4	126.0
17-5	9-1	137.0
16-8	3-8	50.7
16-10	4-6	64.1
17-0	5-3	77.8
17-2	6-1	91.3
17-4	6-10	105.1
17-6	7-8	119.1
17-8	8-5	133.2
17-10	9-3	147.4
17-4	3-10	55.0
17-6	4-7	68.8
17-7	5-5	82.6
17-9	6-2	96.8
17-11	7-0	111.1
18-1	7-9	125.4
18-3	8-7	139.6
18-5	9-4	151.2

NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
12-6	2-11	30.6
12-10	3-9	40.6
13-2	4-6	50.8
13-6	5-4	61.4
13-10	6-1	72.2
14-2	6-10	83.1
14-6	7-8	94.4
14-10	8-5	105.9
13-3	3-1	33.8
13-6	3-10	44.3
13-10	4-8	55.1
14-1	5-5	66.0
14-5	6-2	77.2
14-9	7-0	88.8
15-0	7-9	100.5
15-4	8-7	110.1
13-11	3-2	36.6
14-2	3-11	47.8
14-6	4-9	59.1
14-9	5-6	70.7
15-0	6-4	82.4
15-4	7-1	94.3
15-7	7-11	106.6
15-10	8-8	119.2
14-7	3-3	40.2
14-10	4-1	51.8
15-1	4-10	63.6
15-4	5-8	75.6
15-7	6-5	88.0
15-10	7-3	100.3
16-1	8-0	113.0
16-4	8-10	123.0
16-0	3-11	56.8
16-1	4-9	73.3
16-3	5-7	87.9
16-4	6-4	102.6
16-6	7-2	117.3
16-7	7-11	132.3
16-8	8-9	147.3
16-10	9-6	162.4
16-8	4-1	63.4
16-9	4-11	78.4
16-10	5-8	93.4
16-11	6-6	106.5
16-1	7-4	123.6
16-2	8-1	138.9
16-3	8-11	154.2
16-4	9-8	166.0
16-4	4-3	67.7
16-5	5-1	83.3
16-6	5-10	98.9
16-6	6-8	114.6
16-7	7-5	126.6
16-8	8-3	146.2
16-8	9-1	162.0
16-10	9-10	178.0
20-8	4-7	77.5
20-8	5-5	94.1
20-8	6-2	110.7
20-8	7-0	127.4
20-9	7-10	143.3
20-9	8-7	160.7
20-9	9-5	177.4
20-9	10-2	194.2





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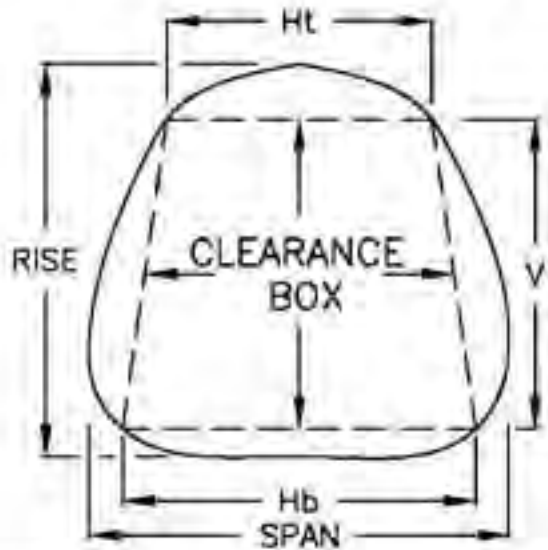
TITLE
SIZES & END AREAS
FOR BOX CULVERTS OF
STEEL STRUCTURAL PLATE

DRAWN BY: BLC

DRAWING NO. A0262	PAGE 1 OF 1	DATE 08/23/05
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NO.	DATE	BY
REVISIONS		

NOMINAL SIZE		WATERWAY AREA SQ. FT.	CLEARANCE BOX		
SPAN	RISE		Hb	Ht	V
FT.-IN.			FT.-IN.		
5-8	5-9	27			
5-8	6-1	29			
5-9	6-6	32			
5-9	7-0	32			
5-9	7-4	36			
5-10	7-8	38			
5-10	8-2	41			
8-6	8-6	58	4-6	4-6	7-6
8-8	8-8	62	5-0	5-0	7-6
8-11	8-11	65	6-0	6-0	7-2
9-8	9-4	73	6-0	6-0	7-9
10-10	9-6	81	7-0	7-0	7-5
11-5	10-3	93	8-0	8-0	7-6
12-2	11-0	107	8-0	8-0	8-0
12-11	11-2	116	8-0	8-0	8-6
13-2	11-10	126	8-0	8-0	9-6
13-10	12-2	136	8-0	8-0	10-0
14-1	12-10	147	12-0	10-0	9-0
14-6	13-5	158	12-0	10-0	9-6
14-10	14-0	169	12-0	10-0	10-6
15-6	14-4	180	12-0	10-0	11-0
15-8	15-0	192	12-0	10-0	12-0
16-4	15-5	204	12-0	10-0	12-6
16-5	16-0	217	12-0	10-0	13-0
16-9	16-3	227	12-0	10-0	13-6
17-3	17-0	239	12-0	10-0	14-0
18-4	16-11	252	16-0	12-0	12-0
19-1	17-2	266	16-0	12-0	13-0
19-6	17-7	280	16-0	12-0	13-6
20-4	17-9	298	16-0	12-0	14-0



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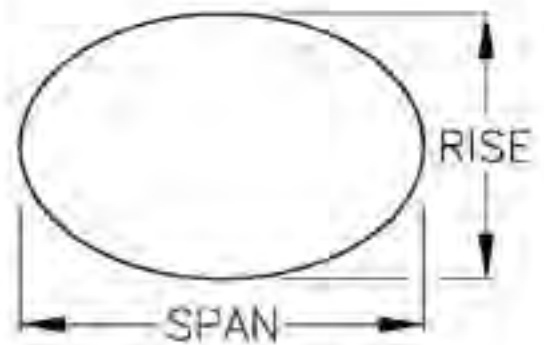
TITLE: **SIZES & END AREAS FOR UNDERPASS SHAPE OF STEEL STRUCTURAL PLATE**

DRAWING NO. A0263 PAGE 1 OF 1 DATE 08/23/05

DRAWN BY: BLC

NO.	DATE	BY
REVISIONS		

NOMINAL SIZE		WATERWAY AREA SQ. FT.
SPAN	RISE	
FT.-IN.		
7-4	5-6	31.3
8-1	5-9	36.4
8-10	6-0	41.1
9-2	6-9	48.2
9-7	6-4	46.7
9-11	7-0	54.0
10-4	6-7	52.2
10-8	7-3	60.1
11-0	8-0	68.2
11-1	6-10	58.1
11-4	7-6	66.4
11-8	8-3	75.1
12-0	8-11	84.1
11-9	7-1	64.2
12-1	7-10	73.0
12-5	8-6	82.2
12-9	9-2	91.7
12-6	7-4	70.5
12-10	8-1	79.9
13-2	8-9	89.6
13-6	9-6	99.6
13-7	8-4	87.1
13-11	9-0	97.3
14-3	9-9	107.8
14-7	10-5	118.7
14-11	11-2	129.9





LANE ENTERPRISES, INC.

TITLE
**SIZES & END AREAS
 FOR HORIZONTAL ELLIPSES OF
 STEEL STRUCTURAL PLATE**

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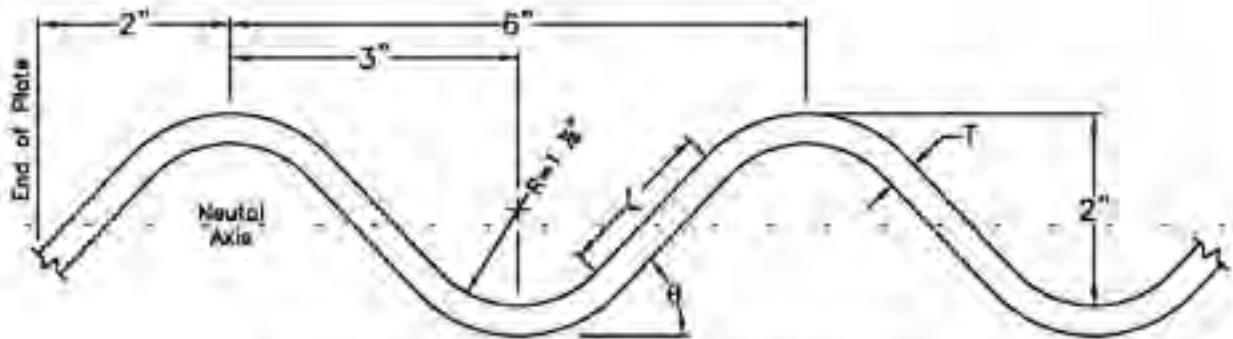
DRAWING NO. A0264	PAGE 1 OF 1	DATE 08/23/05
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NO.	DATE	BY
REVISIONS		

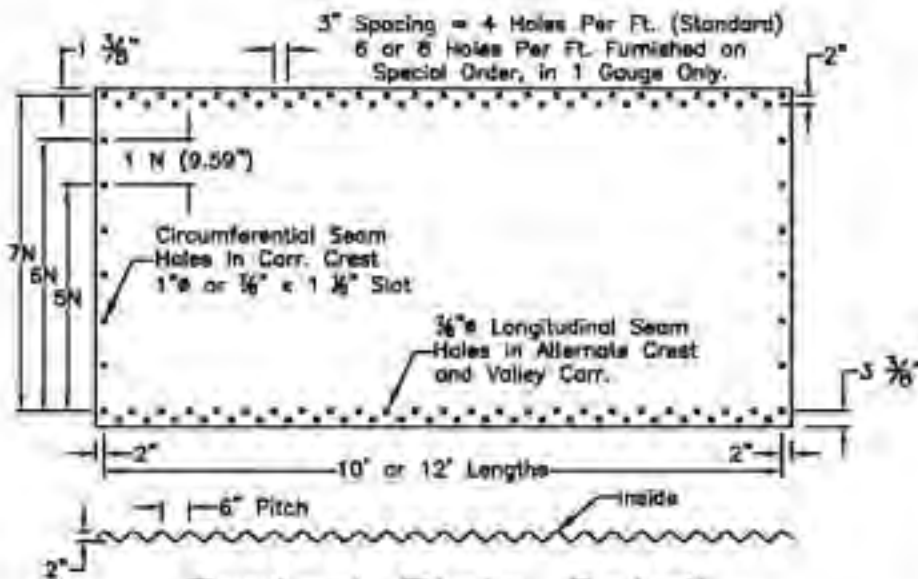
GEOMETRIC PROPERTIES OF STEEL PLATE

GAGE OR THICKNESS (inches)	UNIT WEIGHT (lb./sq.ft.)	THICKNESS T (inches)	TANGENT LENGTH L (inches)	THICKNESS θ (degrees)	AREA OF SECTION A (sq.in./ft.)	MOMENT OF INERTIA I (in. ⁴ /ft.)	SECTION MODULUS S (in. ³ /ft.)	RADIUS OF GYRATION R (inches)	DEVELOPED WIDTH FACTOR
12	4.575	0.110	1.893	44.47	1.556	0.725	0.689	0.682	1.240
10	5.625	0.140	1.861	44.73	2.003	0.938	0.879	0.684	1.241
8	6.875	0.170	1.828	45.00	2.449	1.154	1.066	0.686	1.242
7	7.500	0.188	1.807	45.18	2.739	1.296	1.187	0.688	1.242
5	8.750	0.218	1.773	45.47	3.199	1.523	1.378	0.690	1.243
3	10.000	0.249	1.738	45.77	3.650	1.754	1.562	0.692	1.244
1	11.250	0.280	1.702	46.09	4.118	1.990	1.748	0.695	1.245
5/16"	12.770	0.318	1.653	46.47	4.671	2.260	1.972	0.698	1.246
3/8"	15.340	0.380	1.581	47.17	5.613	2.784	2.340	0.704	1.247

Notes: 1. Values for "A", "I", "S", and "R" are one foot of horizontal projection.



Typical Plate Corrugation



Typical Plate Detail



LANE ENTERPRISES, INC.

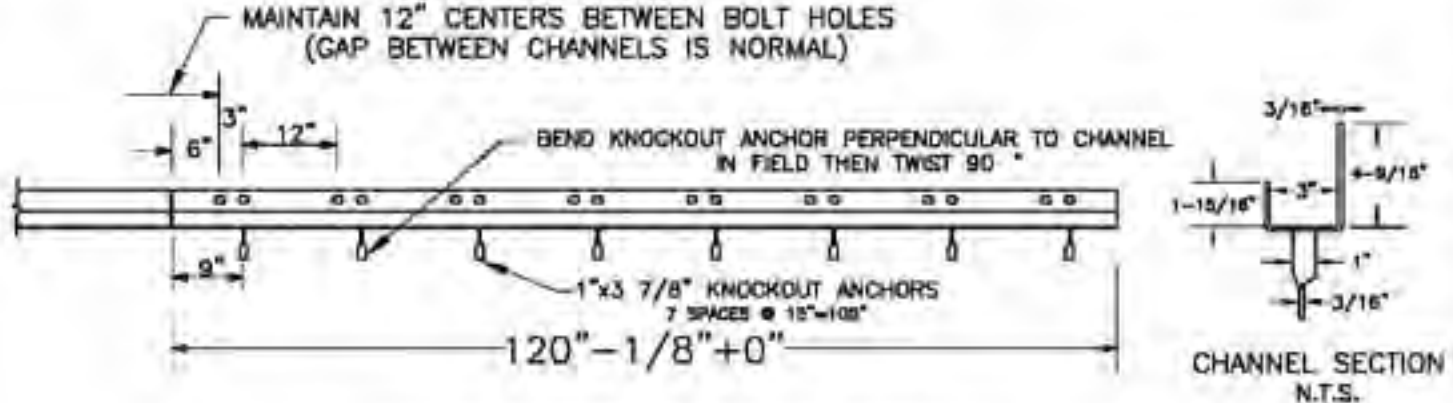
TITLE
**PRODUCT TECHNICAL
INFORMATION FOR
STEEL STRUCTURAL PLATE**

DRAWN BY: BLC

DRAWING NO. A0265	PAGE 1 OF 1	DATE 08/23/05
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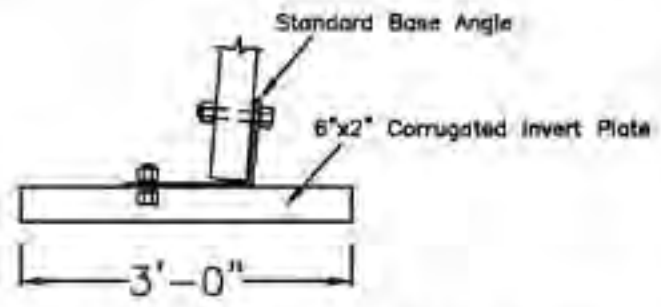
IMPORTANT



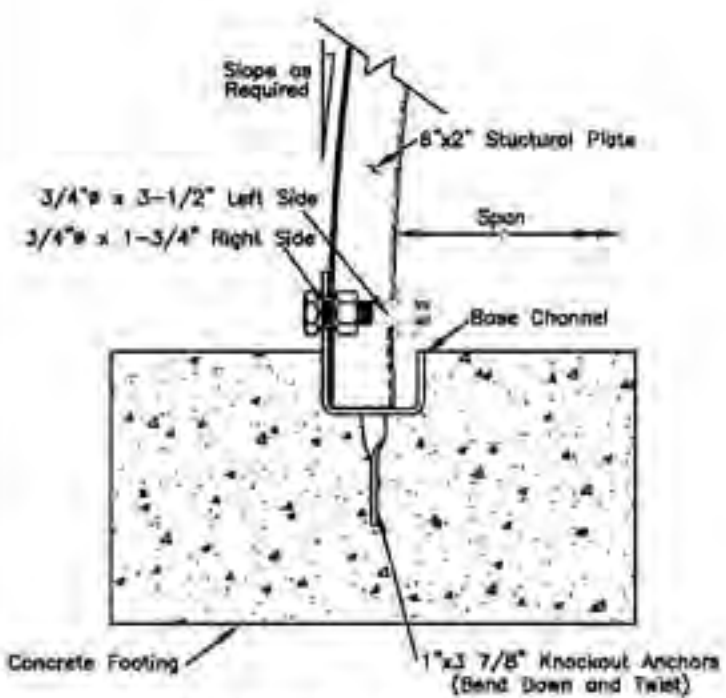
UNBALANCED CHANNEL DETAIL



CORRUGATED INVERT PLATE



CORRUGATED FOOTER PLATE



CONCRETE FOUNDATION



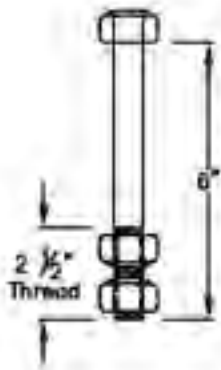
LANE ENTERPRISES, INC.

TITLE
**FOUNDATION OPTIONS FOR
 STEEL STRUCTURAL PLATE**

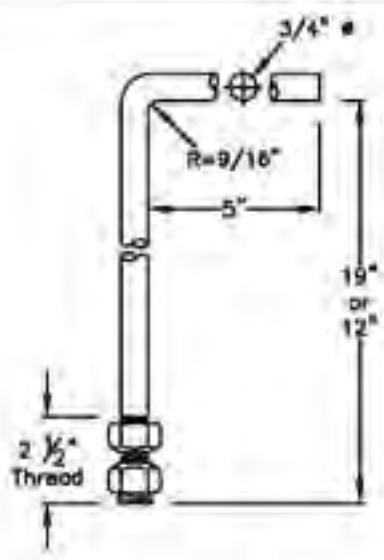
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DRAWING NO. A0266	PAGE 1 OF 1	DATE 08/23/05
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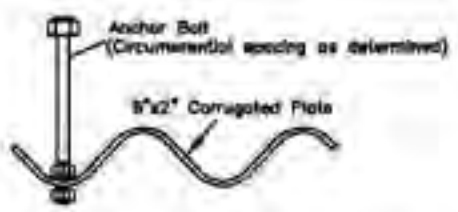
NO.	DATE	BY
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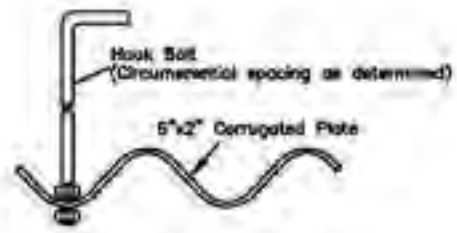
TYPICAL ANCHOR BOLT



TYPICAL HOOK BOLT



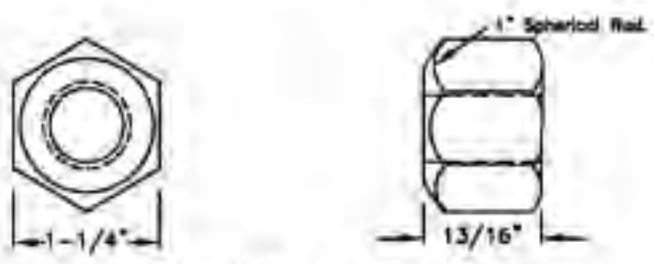
ANCHOR BOLT PLACEMENT



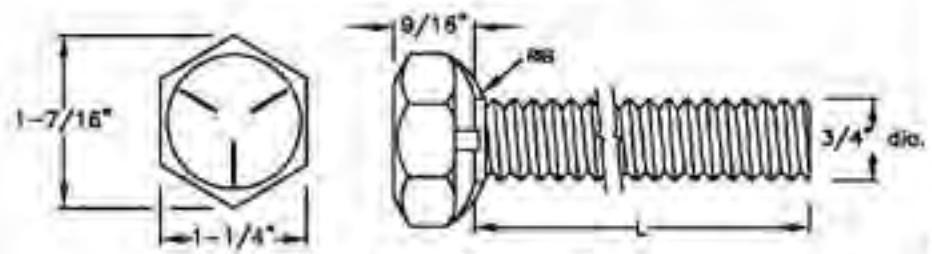
HOOK BOLT PLACEMENT

Anchor & Hook Bolts

Anchor Bolts are available for anchoring the ends of structural plate conduits into concrete headwalls or other end treatment (when required). Material for these special 3/4" bolts conform to ASTM Spec A307, and A563 Grade C for the nuts. Galvanizing of bolts and nuts conforms to ASTM A153. Other sizes are available.



STRUCTURAL PLATE NUT



STRUCTURAL PLATE BOLT

Bolts

High strength 3/4" diameter bolts & nuts provided with Lane Structural Plate Structures conform to the requirements of ASTM A449 and ASTM A563 Grade C, respectively. They are hot dip galvanized to meet the requirements of ASTM A153.



LANE ENTERPRISES, INC.

TITLE
BOLT DETAILS FOR STEEL STRUCTURAL PLATE

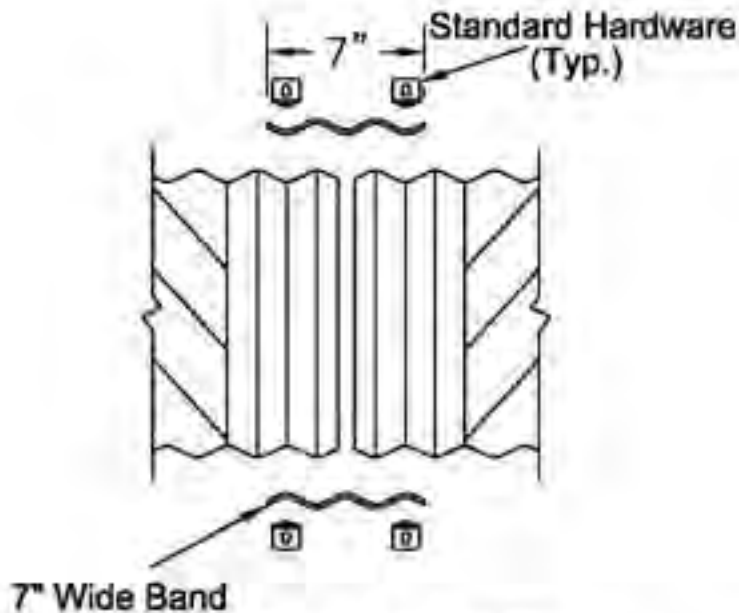
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REVISIONS		



ELEVATION VIEW



SECTION VIEW

Standard Hardware No Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.



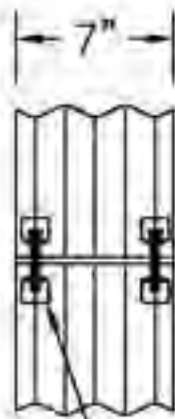
LANE ENTERPRISES, INC.

TITLE
**7" WIDE BAND
 STANDARD DETAIL**

DRAWN BY: BLC

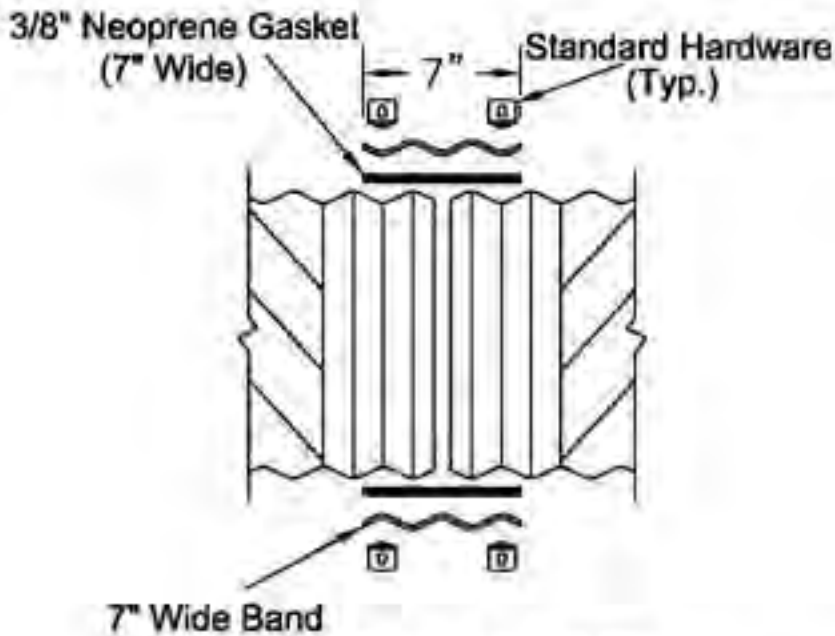
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Standard Hardware
(Typ.)

ELEVATION VIEW



SECTION VIEW

Standard Hardware 7" Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.



LANE ENTERPRISES, INC.

TITLE

7" WIDE BAND
STANDARD DETAIL

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DRAWING NO.

A0268

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DATE

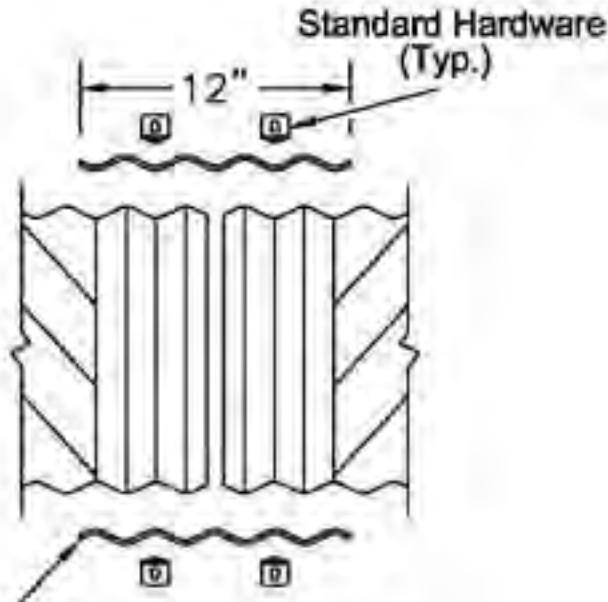
09/30/05

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Standard Hardware
(Typ.)

ELEVATION VIEW



12" Wide Band

SECTION VIEW

Standard Hardware No Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

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LANE ENTERPRISES, INC.

TITLE

12" WIDE BAND
STANDARD DETAIL

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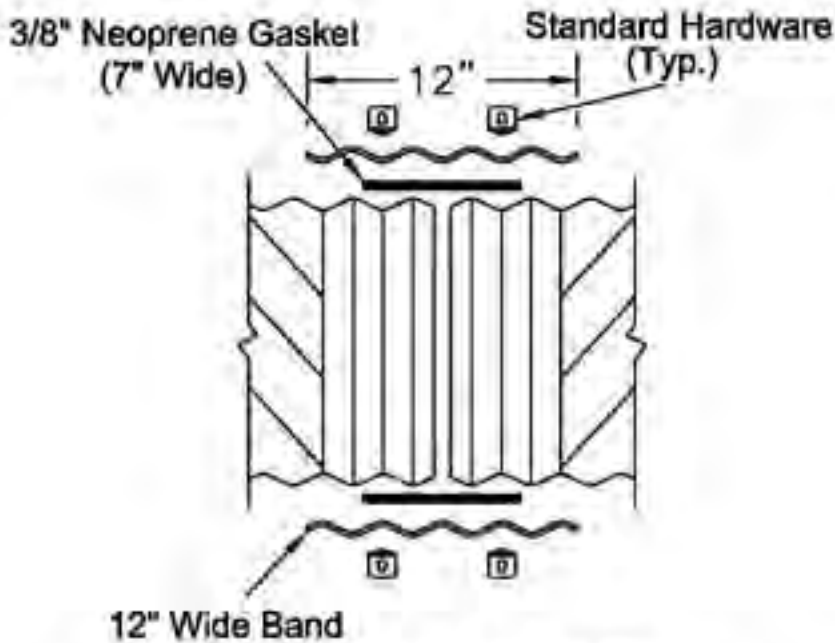
DRAWING NO.
A0269

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DATE 09/30/05



Standard Hardware
(Typ.)

ELEVATION VIEW



SECTION VIEW

Standard Hardware 7" Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

NO.	DATE	BY
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LANE ENTERPRISES, INC.

TITLE

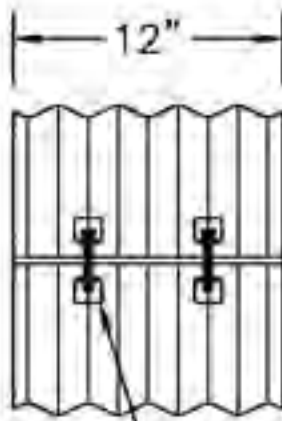
12" WIDE BAND
STANDARD DETAIL

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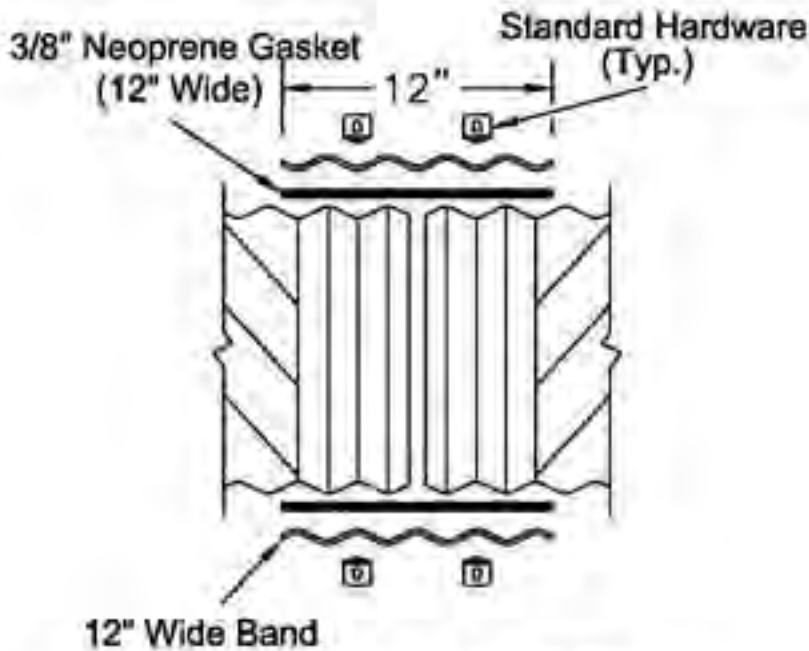
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2 OF 4

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Standard Hardware
(Typ.)

ELEVATION VIEW



12" Wide Band

SECTION VIEW

Standard Hardware 12" Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

NO.	DATE	BY
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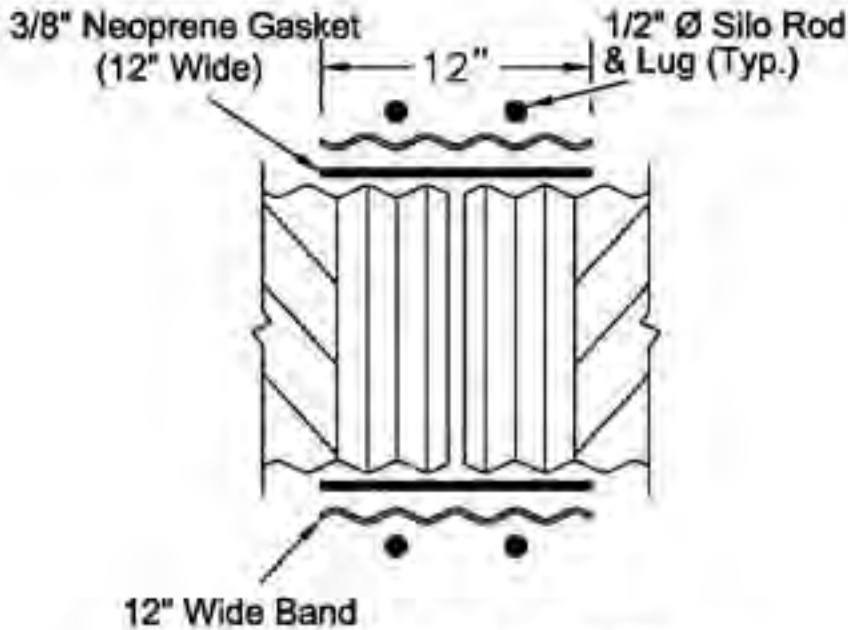


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<p>12" WIDE BAND STANDARD DETAIL</p>			DRAWN BY: BLC
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ELEVATION VIEW



SECTION VIEW

Rod & Lug 12" Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

LANE

LANE ENTERPRISES, INC.

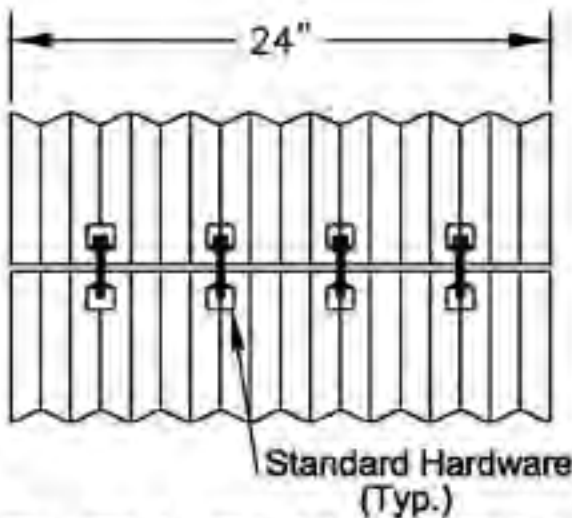
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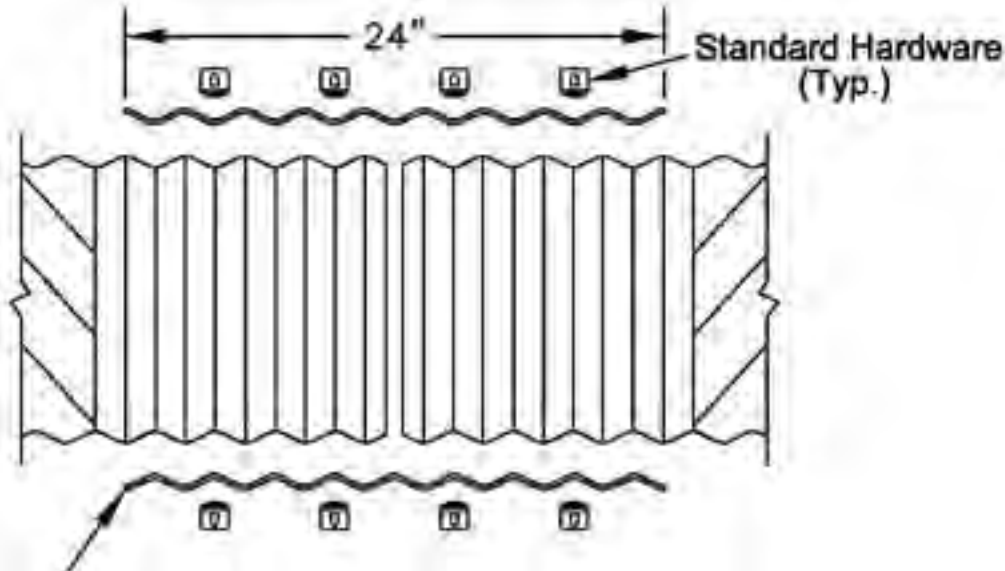
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ELEVATION VIEW



SECTION VIEW

Standard Hardware No Gasket

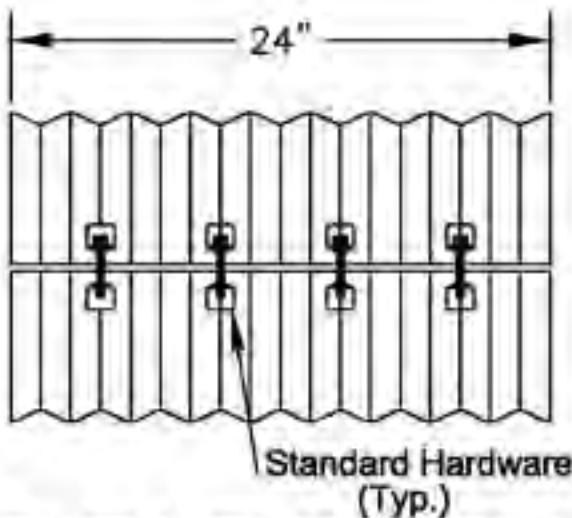
- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

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REVISIONS		

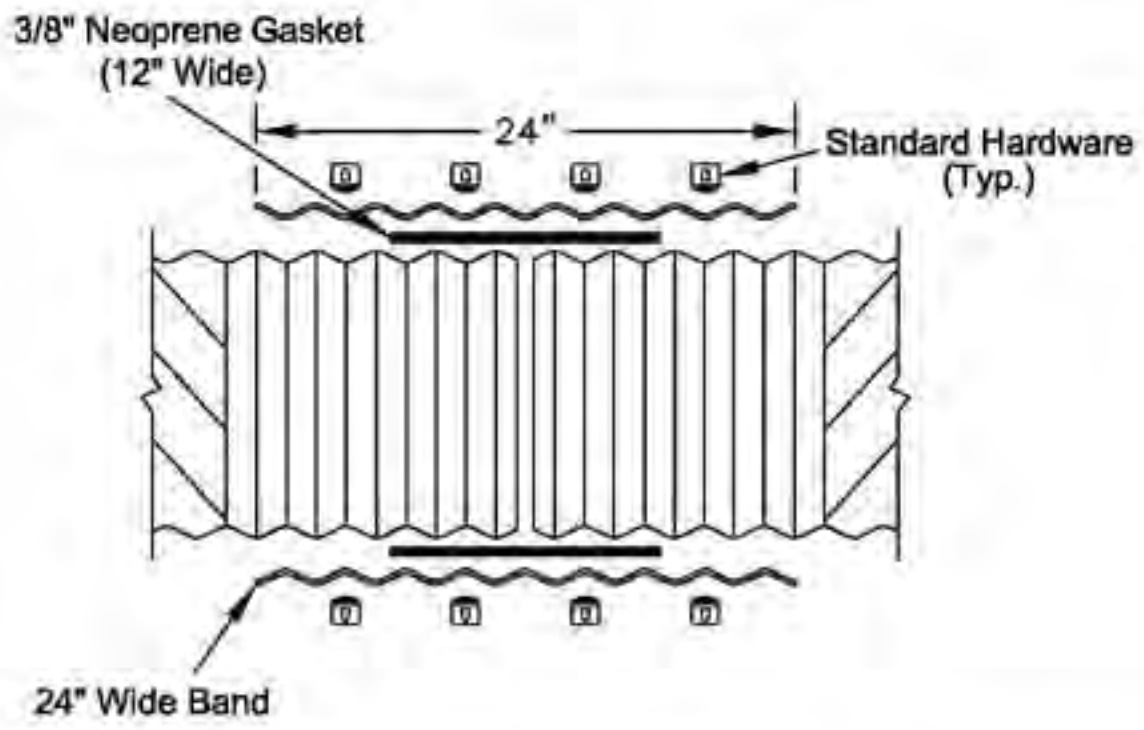


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TITLE			DRAWN BY: BLC
<p>24" WIDE BAND STANDARD DETAIL</p>			
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ELEVATION VIEW



SECTION VIEW

Standard Hardware 12" Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A780 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

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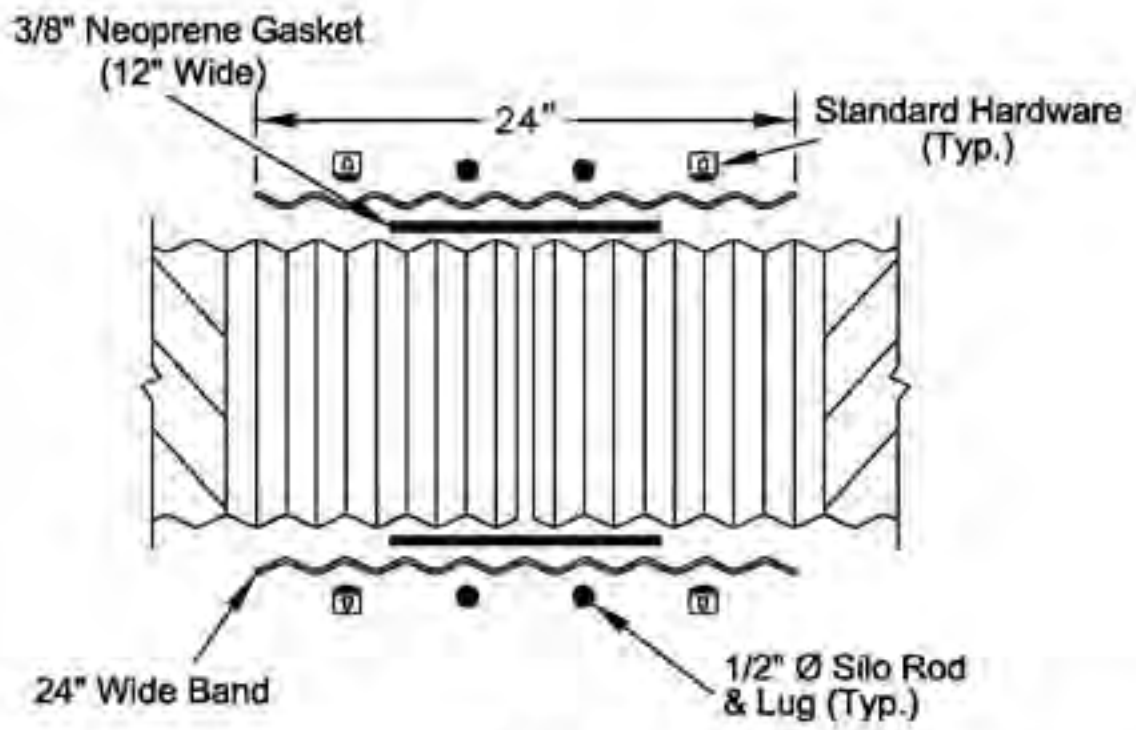
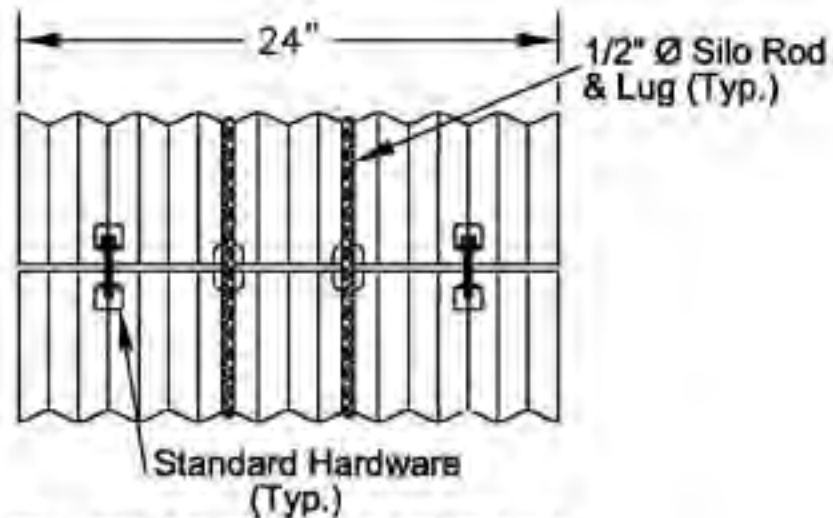
LANE ENTERPRISES, INC.

TITLE

24" WIDE BAND STANDARD DETAIL

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**Standard Hardware/Rod & Lug
12" Gasket**

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

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LANE

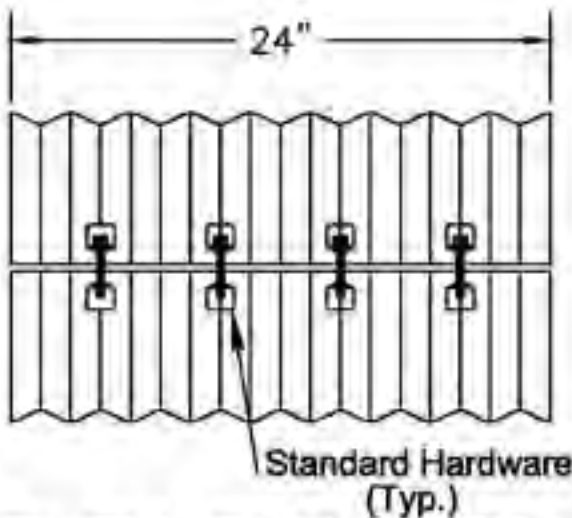
LANE ENTERPRISES, INC.

TITLE

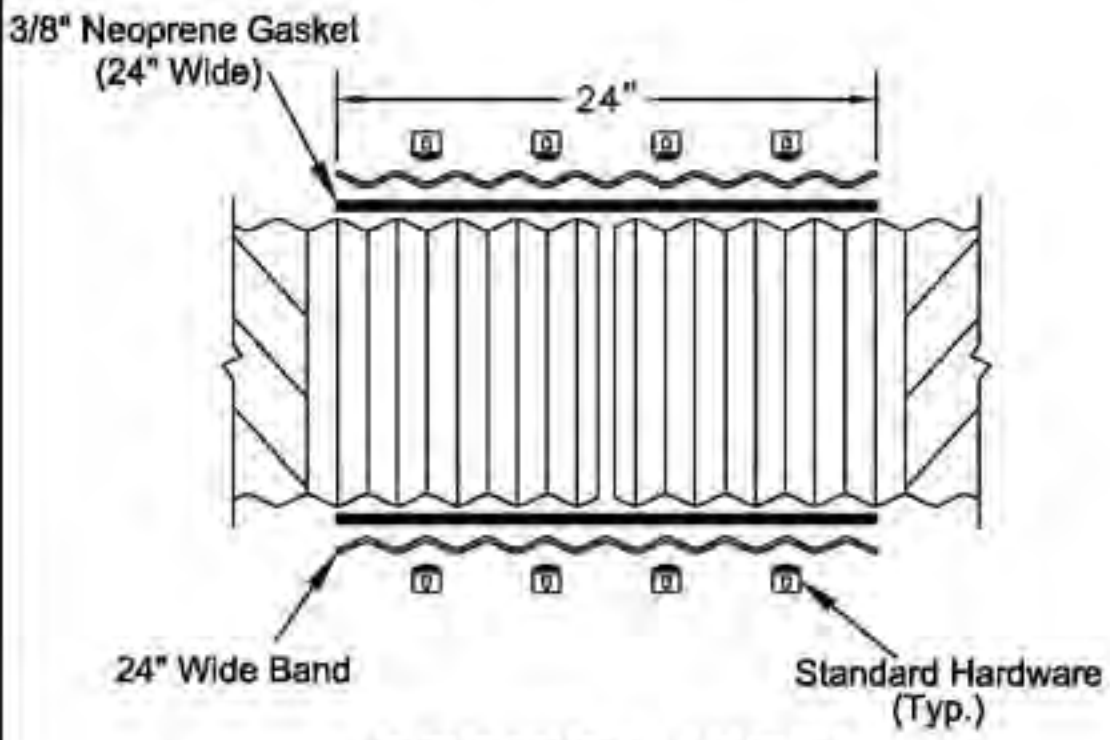
**24" WIDE BAND
STANDARD DETAIL**

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ELEVATION VIEW



SECTION VIEW

Standard Hardware 24" Gasket

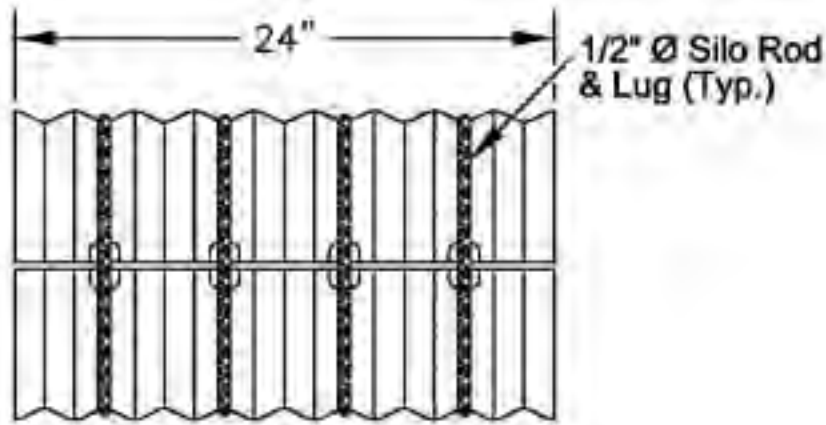
- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A780 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056.

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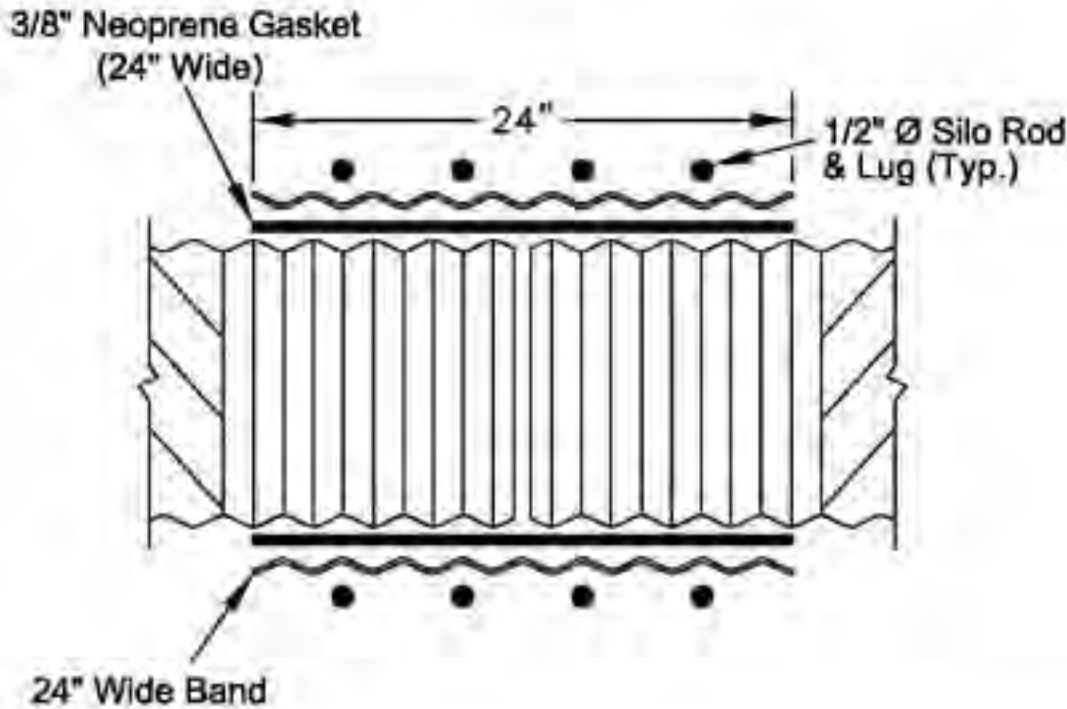


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<p>24" WIDE BAND STANDARD DETAIL</p>		<p>DRAWN BY: BLC</p>
<p>DRAWING NO. A0270</p>	<p>PAGE 4 OF 5</p>	<p>DATE 09/30/05</p>



ELEVATION VIEW



SECTION VIEW

Rod & Lug 24" Gasket

- Dimensions are subject to manufacturing tolerances.
- Band and Hardware shall be galvanized and in conformance with ASTM A760 unless otherwise noted.
- Flat gasket shall be in accordance with ASTM D1056 unless otherwise noted.
- This configuration meets the requirements of MD 378 pond specifications for pipes 24" Ø and larger.

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24" WIDE BAND STANDARD DETAIL			
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