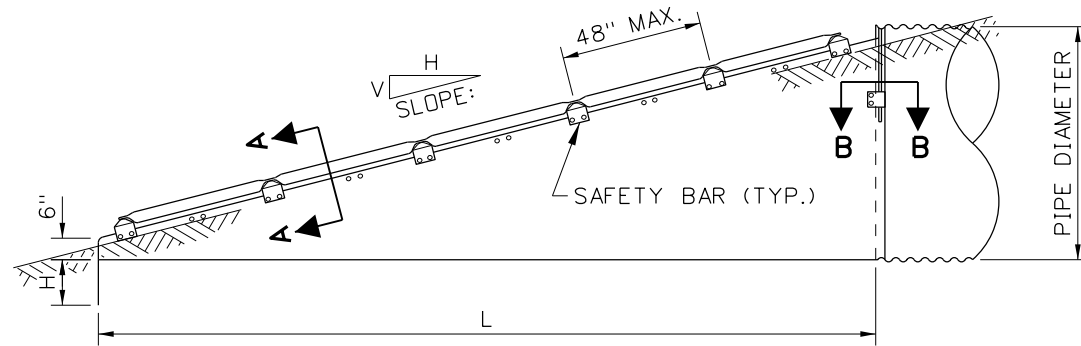
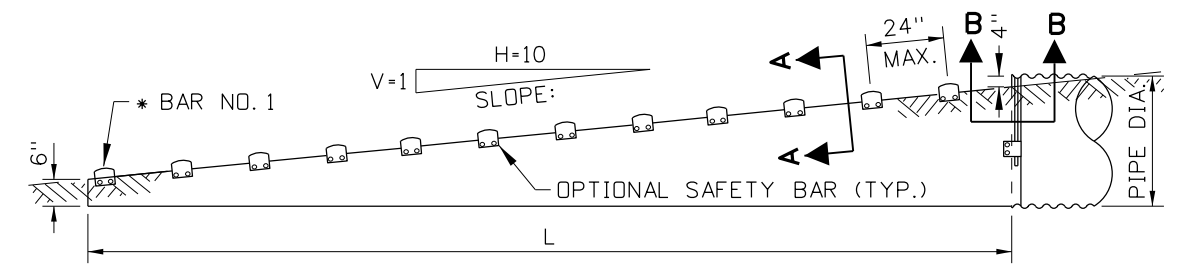


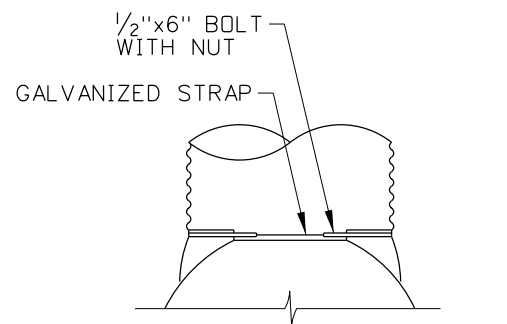
SIDE VIEW - PARALLEL DRAINAGE APRON



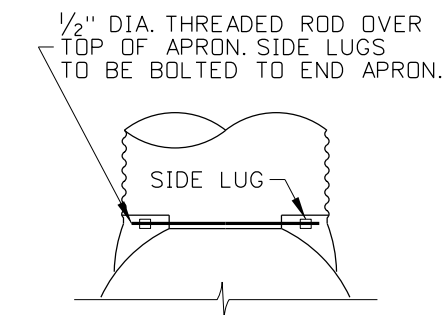
SIDE VIEW OF CROSS DRAINAGE APRON



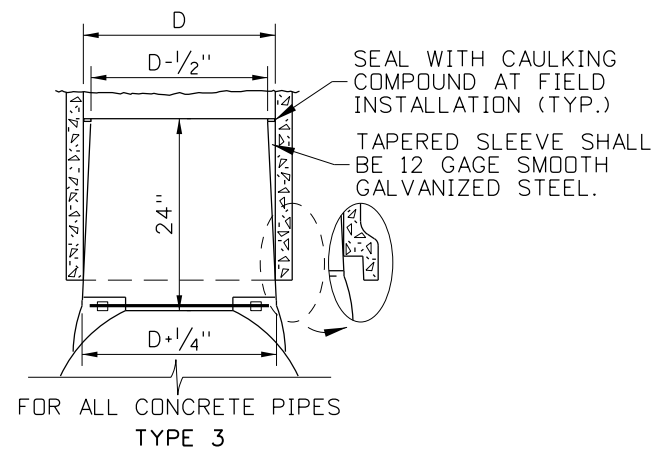
\* THE NUMBER OF BARS REQUIRED WILL VARY DEPENDING ON THE APRON LENGTH (L)  
SIDE VIEW - PARALLEL DRAINAGE APRON



CIRCULAR PIPES 15" THROUGH 24"  
TYPE 1

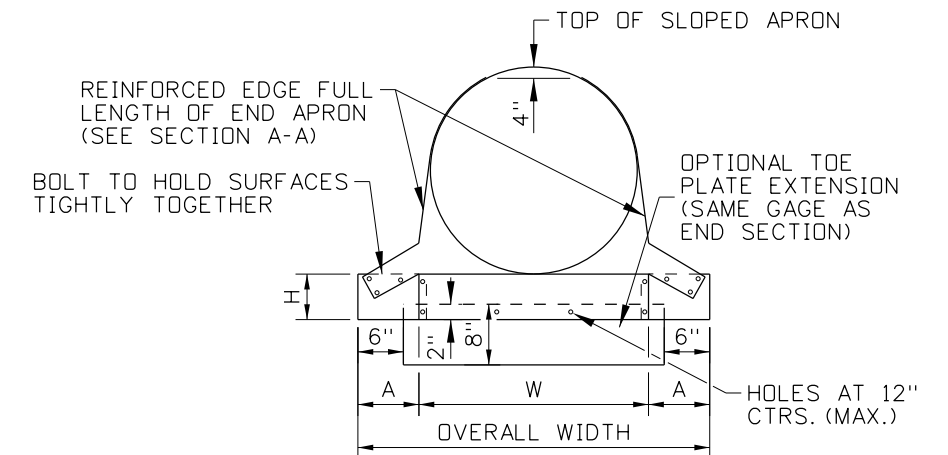


FOR 30" DIA. & LARGER CIRCULAR PIPES, & ALL ARCHED PIPES  
TYPE 2

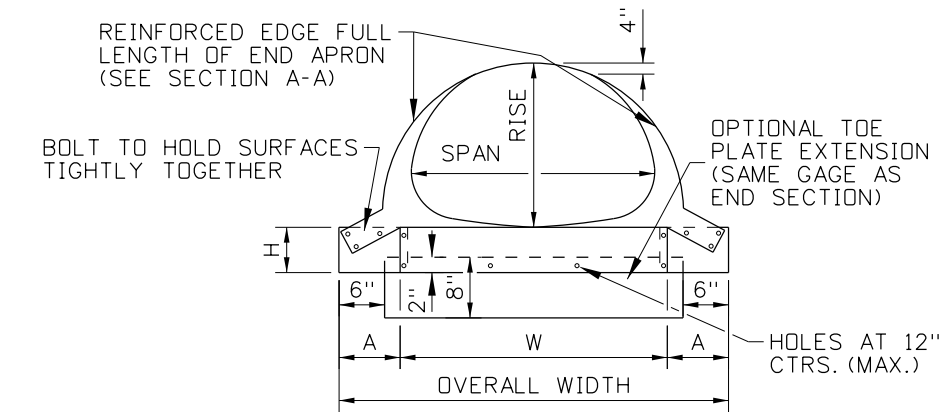


FOR ALL CONCRETE PIPES  
TYPE 3

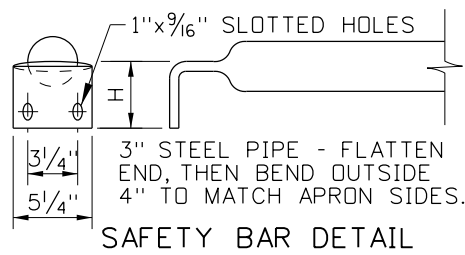
CONNECTIONS



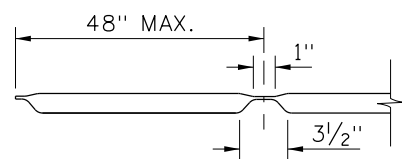
FRONT VIEW - ROUND PIPE



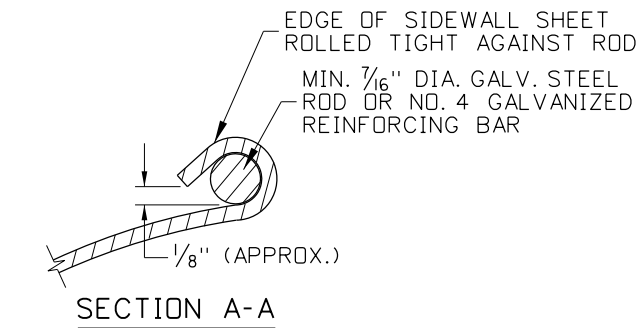
FRONT VIEW - ARCHED PIPE



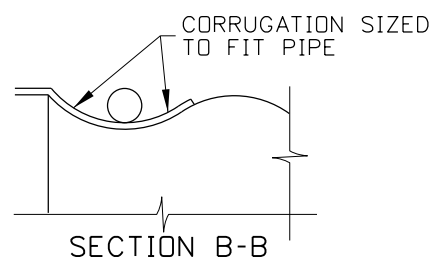
SAFETY BAR DETAIL



LONGITUDINAL BAR DETAIL



SECTION A-A



SECTION B-B

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	7-92	MSM						
2	6-97	MSM						
3	11-00	MSM						
4	3-05	MSM						
5	12-12	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY  
CADD FILE NAME: 608-3\_1212.dgn  
DRAWING DATE: NOVEMBER, 1990

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS  
HIGHWAYS PROGRAM OVERSIGHT ENGINEER  
ORIGINAL SIGNED BY: TOM COLE  
CHIEF ENGINEER

STANDARD DRAWING

METAL SAFETY SLOPE APRON

REQUIRES SHEET 2 OF 2

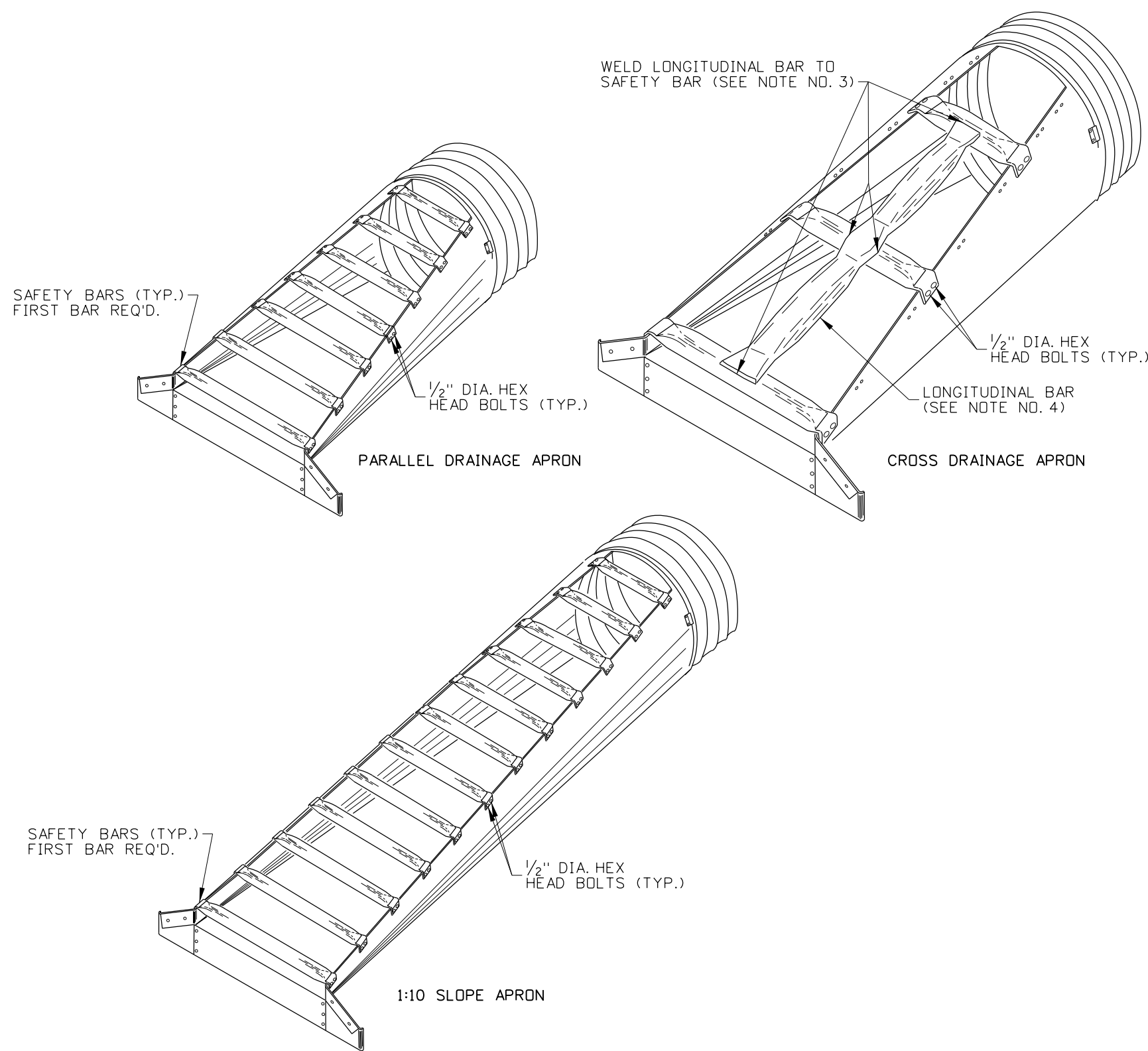
English

STANDARD DRAWING NO. 608-3

SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER  
DATE ORIGINAL SIGNED: DECEMBER 17, 2012



WELD LONGITUDINAL BAR TO SAFETY BAR (SEE NOTE NO. 3)

1/2" DIA. HEX HEAD BOLTS (TYP.)

LONGITUDINAL BAR (SEE NOTE NO. 4)

1/2" DIA. HEX HEAD BOLTS (TYP.)

PERSPECTIVE VIEWS - APRONS

APRONS FOR CIRCULAR PIPES												
PIPE DIA. (IN.)	MIN. THICK. IN.	GAGE	DIMENSIONS (IN.)				L DIMENSIONS					
			A	H	W	OVERALL WIDTH	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)
15	.064	16	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	16	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	16	8	6	27	43	4:1	44	6:1	60	10:1	120
24	.064	16	8	6	30	46	4:1	56	6:1	84		N/A
30	.109	12	12	9	36	60	4:1	80	6:1	114		N/A
36	.109	12	12	9	42	66	4:1	104	6:1	138		N/A
42	.109	12	16	12	48	80	4:1	128	6:1	168		N/A
48	.109	12	16	12	54	86	4:1	152	6:1	198		N/A
54	.109	12	16	12	60	92	4:1	176	6:1	222		N/A
60	.109	12	16	12	66	98	4:1	200	6:1	282		N/A

APRONS FOR ARCHED PIPES														
EQUIV. DIA. (IN.)	(INCHES)		MIN. THICK. IN.	GAGE	DIMENSIONS (IN.)			L DIMENSIONS						
	SPAN	RISE			A	H	W	OVERALL WIDTH	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)
18	21	15	.064	16	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064	16	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064	16	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079	14	12	9	41	65	4:1	56	6:1	84		N/A
36	42	29	.109	12	12	9	48	72	4:1	76	6:1	114		N/A
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138		N/A
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168		N/A
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198		N/A
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222		N/A
72	83	57	.109	12	16	12	89	121	4:1	188	6:1	282		N/A

NOTES

1. USE APRONS SHOWN FOR 4:1 TO 10:1 SLOPES ONLY.
2. A LONGITUDINAL BAR IS REQUIRED FOR CROSS DRAINAGE APRONS WHEN THE SPAN OR DIAMETER IS GREATER THAN 30". ADD LONGITUDINAL BARS IF SPACING EXCEEDS 30" ON LARGER APRONS.
3. SAFETY AND LONGITUDINAL BARS ARE NOT REQUIRED ON 30" AND SMALLER CROSS DRAINAGE APRONS.
4. SAFETY BARS ARE NOT REQUIRED ON 18" AND SMALLER PARALLEL DRAINAGE APRONS EXCEPT FOR THE FIRST BAR AT THE APRON OPENING.
5. PROVIDE SLOTTED HOLES FOR SAFETY BAR ATTAINMENT.
6. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	7-92	MSM						
2	6-97	MSM						
3	11-00	MSM						
4	3-05	MSM						
5	12-12	RDL						

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BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS  
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

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 CHIEF ENGINEER

STANDARD DRAWING

**METAL SAFETY SLOPE APRON**

REQUIRES SHEET 1 OF 2

**English**

STANDARD DRAWING NO.  
**608-3**

SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:  
 RYAN D. LANCASTER  
 DATE ORIGINAL SIGNED:  
 DECEMBER 17, 2012