

NO	DESCRIPTION OF REVISIONS	DATE
1	Original Issue	7-12
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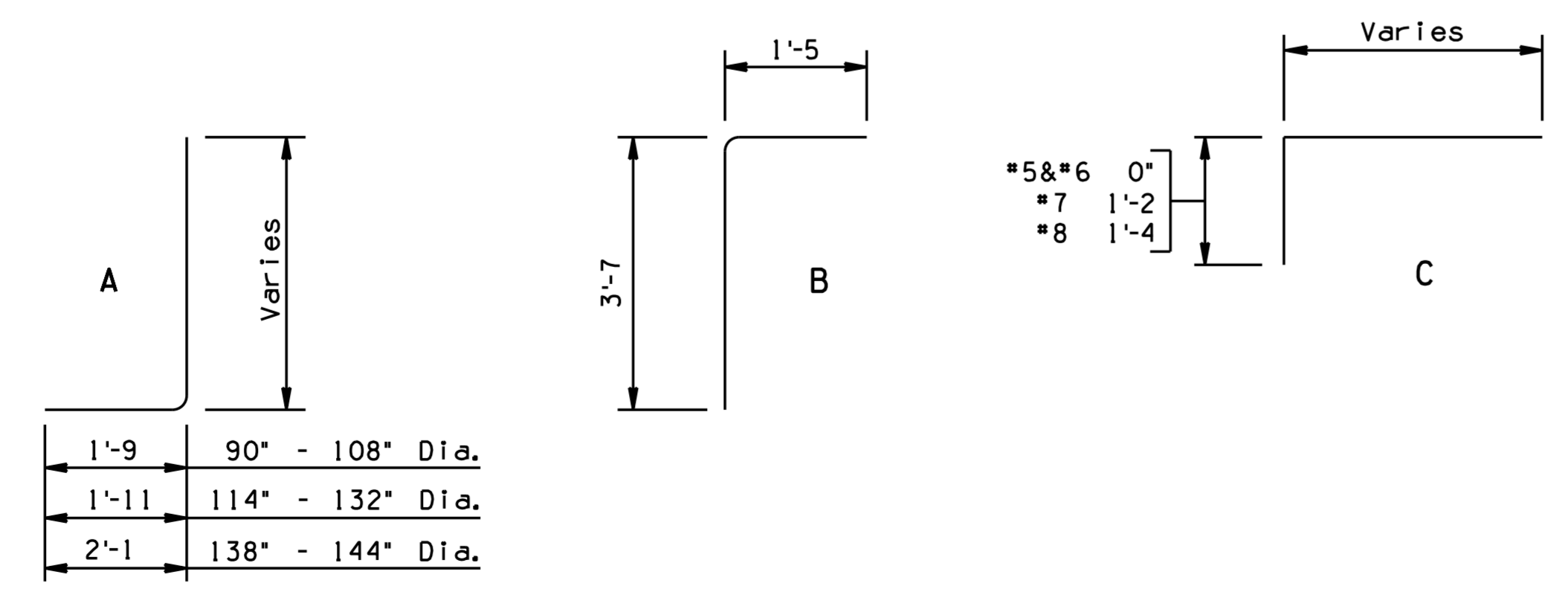
Note to Designer:  
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

STEEL LIST																															
Mark	Bend	90° Dia.			96° Dia.			102° Dia.			108° Dia.			114° Dia.			120° Dia.			126° Dia.			132° Dia.			138° Dia.			144° Dia.		
		No	Size	Lgth	No	Size	Lgth	No	Size	Lgth	No	Size	Lgth	No	Size	Lgth	No	Size	Lgth	No	Size	Lgth	No	Size	Lgth	No	Size	Lgth			
a1	A	8	#5	9'-3"	8	#5	9'-9"	8	#5	10'-0"	10	#5	10'-3"	10	#5	10'-9"	10	#5	11'-3"	10	#5	11'-6"	10	#5	11'-9"	12	#6	12'-3"	12	#6	12'-9"
a2	A	8	#5	9'-9"	8	#5	10'-3"	8	#5	10'-6"	8	#5	10'-9"	10	#5	11'-3"	10	#6	11'-9"	10	#5	12'-0"	10	#6	12'-3"	10	#6	13'-0"	12	#6	13'-6"
a3	A	8	#5	10'-3"	8	#5	10'-9"	8	#5	11'-0"	8	#6	11'-3"	8	#6	12'-0"	10	#6	12'-6"	10	#6	12'-9"	10	#6	13'-0"	10	#7	13'-6"	12	#7	14'-0"
a4	A	6	#5	10'-6"	8	#5	11'-0"	8	#6	11'-6"	8	#6	11'-9"	8	#6	12'-6"	10	#7	13'-0"	10	#6	13'-3"	10	#7	13'-6"	10	#7	14'-3"	10	#7	14'-9"
a5	A	6	#5	11'-0"	8	#6	11'-6"	8	#6	12'-0"	8	#6	12'-3"	8	#7	13'-0"	8	#7	13'-6"	10	#7	14'-0"	10	#7	14'-3"	10	#7	15'-0"	10	#8	15'-6"
a6	A	6	#6	11'-6"	6	#6	12'-0"	8	#6	12'-6"	8	#7	13'-0"	8	#7	13'-9"	8	#7	14'-3"	8	#7	14'-6"	10	#7	14'-9"	10	#8	15'-6"	10	#8	16'-0"
a7	A	6	#6	12'-0"	6	#6	12'-6"	6	#7	13'-0"	8	#7	13'-6"	8	#7	14'-3"	8	#7	14'-9"	8	#7	15'-3"	10	#8	15'-6"	10	#8	16'-3"	10	#8	16'-9"
b1	str	4	#4	23'-6"	4	#4	25'-0"	4	#4	26'-9"	4	#4	28'-3"	4	#4	29'-9"	4	#4	31'-3"	4	#4	32'-9"	4	#4	34'-3"	4	#4	35'-9"	4	#4	37'-3"
b2	str	16	#4	23'-6"	16	#4	25'-0"	20	#4	26'-6"	20	#4	28'-0"	20	#4	29'-6"	20	#4	31'-0"	20	#4	32'-6"	24	#4	34'-0"	24	#4	35'-6"	24	#4	37'-0"
b3	str	4	#4	18'-3"	4	#4	23'-6"	4	#4	14'-6"	4	#4	19'-0"	4	#4	22'-6"	4	#4	25'-3"	4	#4	32'-0"	4	#4	23'-0"	4	#4	28'-6"	4	#4	31'-6"
b4	str	4	#4	7'-3"	4	#4	11'-0"	4	#4	3'-6"	4	#4	7'-0"	4	#4	8'-6"	4	#4	13'-3"	4	#4	19'-6"	4	#4	9'-6"	4	#4	16'-3"	4	#4	18'-9"
b5	str																														
b6	str																														
c	str	4	#4	10'-6"	4	#4	11'-0"	4	#4	11'-6"	4	#4	12'-0"	4	#4	12'-6"	4	#4	13'-0"	4	#4	13'-6"	4	#4	14'-0"	4	#4	14'-6"	4	#4	15'-0"
d	A	6	#6	12'-3"	6	#6	12'-9"	6	#7	13'-3"	6	#7	13'-9"	6	#7	14'-6"	6	#7	15'-0"	6	#7	15'-6"	6	#8	16'-0"	6	#8	16'-6"	6	#8	17'-0"
e1	C	8	#5	4'-0"	10	#5	4'-3"	10	#5	4'-6"	10	#5	4'-9"	10	#5	5'-0"	12	#5	5'-0"	12	#5	5'-3"	12	#5	5'-6"	12	#5	5'-6"	14	#6	5'-9"
e2	C	8	#5	4'-3"	8	#5	4'-6"	10	#5	4'-9"	10	#5	5'-0"	10	#5	5'-3"	10	#5	5'-3"	12	#5	5'-6"	12	#5	5'-9"	12	#6	6'-0"	12	#6	6'-3"
e3	C	8	#5	4'-6"	8	#5	4'-9"	10	#5	5'-0"	10	#5	5'-3"	10	#5	5'-6"	10	#6	5'-9"	12	#5	6'-0"	12	#5	6'-3"	12	#7	7'-9"	12	#7	8'-0"
e4	C	8	#5	4'-9"	8	#5	5'-0"	8	#5	5'-3"	10	#5	5'-9"	10	#6	5'-9"	10	#6	6'-3"	10	#6	6'-6"	12	#6	6'-9"	12	#7	8'-3"	12	#7	8'-6"
e5	C	8	#5	5'-0"	8	#5	5'-3"	8	#5	5'-6"	8	#5	6'-0"	10	#6	6'-0"	10	#6	6'-6"	10	#6	6'-9"	10	#6	7'-0"	12	#7	8'-9"	12	#7	9'-0"
e6	C	8	#5	5'-3"	8	#5	5'-6"	8	#6	5'-9"	8	#6	6'-3"	10	#7	7'-9"	10	#7	8'-3"	10	#7	8'-6"	10	#7	8'-9"	12	#8	9'-3"	12	#8	9'-9"
e7	C	4	#5	5'-3"	4	#5	5'-6"	4	#6	5'-9"	4	#6	6'-3"	4	#7	7'-9"	6	#7	8'-3"	6	#7	8'-6"	6	#7	8'-9"	6	#8	9'-3"	6	#8	9'-9"
e8	C	9	#5	5'-3"	9	#5	5'-6"	10	#6	5'-9"	10	#6	6'-3"	11	#7	7'-9"	11	#7	8'-3"	12	#7	8'-6"	12	#7	8'-9"	13	#8	9'-3"	13	#8	9'-9"
f1	str	8	#4	7'-6"	8	#4	7'-9"	8	#4	8'-3"	8	#4	8'-6"	8	#4	8'-9"	10	#4	9'-3"	10	#4	9'-6"	10	#4	9'-9"	10	#4	10'-3"	10	#4	10'-6"
f2	str	6	#4	8'-0"	8	#4	8'-6"	8	#4	9'-0"	8	#4	9'-3"	8	#4	9'-6"	8	#4	10'-0"	10	#4	10'-3"	10	#4	10'-9"	10	#4	11'-3"	10	#4	11'-6"
f3	str	6	#4	8'-9"	6	#4	9'-0"	8	#4	9'-6"	8	#4	10'-0"	8	#4	10'-3"	8	#4	10'-9"	8	#4	11'-3"	10	#4	11'-6"	10	#4	12'-0"	10	#4	12'-3"
f4	str	6	#4	9'-3"	6	#4	9'-9"	6	#4	10'-3"	8	#4	10'-9"	8	#4	11'-3"	8	#4	11'-9"	8	#4	12'-3"	8	#4	12'-6"	10	#4	13'-0"	10	#4	13'-3"
f5	str	6	#4	10'-0"	6	#4	10'-6"	6	#4	11'-0"	6	#4	11'-6"	8	#4	12'-0"	8	#4	12'-6"	8	#4	13'-0"	8	#4	13'-6"	8	#4	14'-0"	10	#4	14'-3"
g	str	2	#4	24'-0"	2	#4	25'-6"	2	#4	27'-0"	2	#4	28'-6"	2	#4	30'-0"	2	#4	31'-6"	2	#4	33'-0"	2	#4	34'-6"	2	#4	36'-0"	2	#4	37'-6"
j	str	2	#4	8'-9"	2	#4	9'-3"	2	#4	9'-9"	2	#4	10'-3"	2	#4	10'-9"	2	#4	11'-3"	2	#4	11'-9"	2	#4	12'-3"	2	#4	12'-9"	2	#4	13'-3"
m1	str	6	#4	26'-0"	6	#4	27'-9"	6	#4	29'-3"	8	#4	31'-0"	8	#4	32'-6"	8	#4	34'-3"	8	#4	35'-9"	10	#4	37'-6"	10	#4	39'-0"	10	#4	40'-9"
m2	str	2	#4	26'-0"	2	#4	27'-9"	2	#4	29'-3"	2	#4	31'-0"	2	#4	32'-6"	2	#4	34'-3"	2	#4	35'-9"	2	#4	37'-6"	2	#4	39'-0"	2	#4	40'-9"
n1	str	3	#4	13'-0"	3	#4	13'-9"	3	#4	14'-6"	4	#4	15'-3"	4	#4	16'-0"	4	#4	16'-9"	4	#4	17'-6"	5	#4	18'-6"	5	#4	19'-3"	5	#4	20'-0"
n2	str	1	#4	13'-0"	1	#4	13'-9"	1	#4	14'-6"	1	#4	15'-3"	1	#4	16'-0"	1	#4	16'-9"	1	#4	17'-6"	1	#4	18'-6"	1	#4	19'-3"	1	#4	20'-0"
p	str	4	#5	10'-0"	4	#5	10'-6"	4	#5	11'-0"	4	#5	11'-6"	4	#5	12'-0"	4	#5	12'-6"	4	#5	13'-3"	4	#5	13'-9"	4	#5	14'-3"	4	#5	14'-9"
q	str	2	#6	12'-0"	2	#6	12'-6"	2	#6	13'-0"	2	#6	13'-6"	2	#6	14'-0"	2	#6	14'-6"	2	#6	15'-3"	2	#6	15'-9"	2	#6	16'-3"	2	#6	16'-9"
u	B	6	#4	5'-0"	7	#4	5'-0"	7	#4	5'-0"	7	#4	5'-0"	8	#4	5'-0"	8	#4	5'-0"	8	#4	5'-0"	9	#4	5'-0"	9	#4	5'-0"	9	#4	5'-0"

PIPE DIAMETER										
	90°	96°	102°	108°	114°	120°	126°	132°	138°	144°
A	0'-6"	0'-3"	0'-6"	0'-3"	0'-6"	0'-3"	0'-6"	0'-3"	0'-6"	0'-3"
B	2'-2"	2'-2"	2'-3"	2'-3"	2'-4"	2'-4"	2'-5"	2'-5"	2'-6"	2'-6"
C	2'-4"	2'-6"	2'-7"	2'-9"	2'-10"	3'-0"	3'-1"	3'-3"	3'-4"	3'-6"
D	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"
E	5'-8"	6'-0"	6'-4"	6'-8"	7'-0"	7'-4"	7'-8"	8'-0"	8'-4"	8'-8"
F	23'-6"	25'-0"	26'-6"	28'-0"	29'-6"	31'-0"	32'-6"	34'-0"	35'-6"	37'-0"
G	4'-11"	5'-2"	5'-5"	5'-8"	5'-11"	6'-2"	6'-5"	6'-8"	6'-11"	7'-2"
H	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"
J	6'-6"	6'-10"	7'-2"	7'-6"	7'-10"	8'-2"	8'-6"	8'-10"	9'-2"	9'-6"
K	26'-4 3/8"	28'-0"	29'-7 1/4"	31'-2 1/8"	32'-10 1/8"	34'-5 1/8"	36'-1 1/8"	37'-9 1/2"	39'-4 3/4"	41'-0 1/2"
L	6'-9 3/8"	7'-2"	7'-6 1/4"	7'-10 1/8"	8'-3 1/8"	8'-7 1/8"	9'-0 1/8"	9'-5 1/2"	9'-9 3/4"	10'-2 1/2"
M	4'-5 1/4"	4'-8 1/4"	4'-10 3/4"	5'-1 3/4"	5'-4 3/8"	5'-7 3/8"	5'-10 3/4"	6'-1 3/4"	6'-4 3/8"	6'-7 3/8"
N	5'-2"	5'-5"	5'-8"	5'-11"	6'-2"	6'-5"	6'-10 3/4"	7'-1 3/4"	7'-4 3/4"	7'-7 3/4"

QUANTITIES		
PIPE Dia.	RE INF Lbs.	CONCRETE C. Y.
90°	1915	36.6
96°	2145	40.6
102°	2530	44.8
108°	2920	49.2
114°	3420	53.8
120°	3885	58.6
126°	4020	68.1
132°	4670	73.7
138°	5765	79.5
144°	6255	85.6

NOTE:  
Quantities and steel list shown are for one headwall.



BENDS

NOTE:  
For General Notes and additional Details, see SD 6.30 (1 of 5) and SD 6.31 (1 of 8).

DESIGN APPROVED <i>Shafiq U. Hasan</i>	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL	
APPROVED FOR DISTRIBUTION <i>Teon A. Nehme</i>	PIPE CULVERT HEADWALLS RIGHT ANGLE INLET 6 : 1 SLOPE	
ROUTE	PROJECT NO.	FA NO.
LOCATION	DRAWING NO. <b>SD 6.31 (4 of 8)</b>	
		SHEET NO. <b>OF</b>