

NO.	DESCRIPTION OF REVISIONS	DATE	BY
1	Original Issue		
2			
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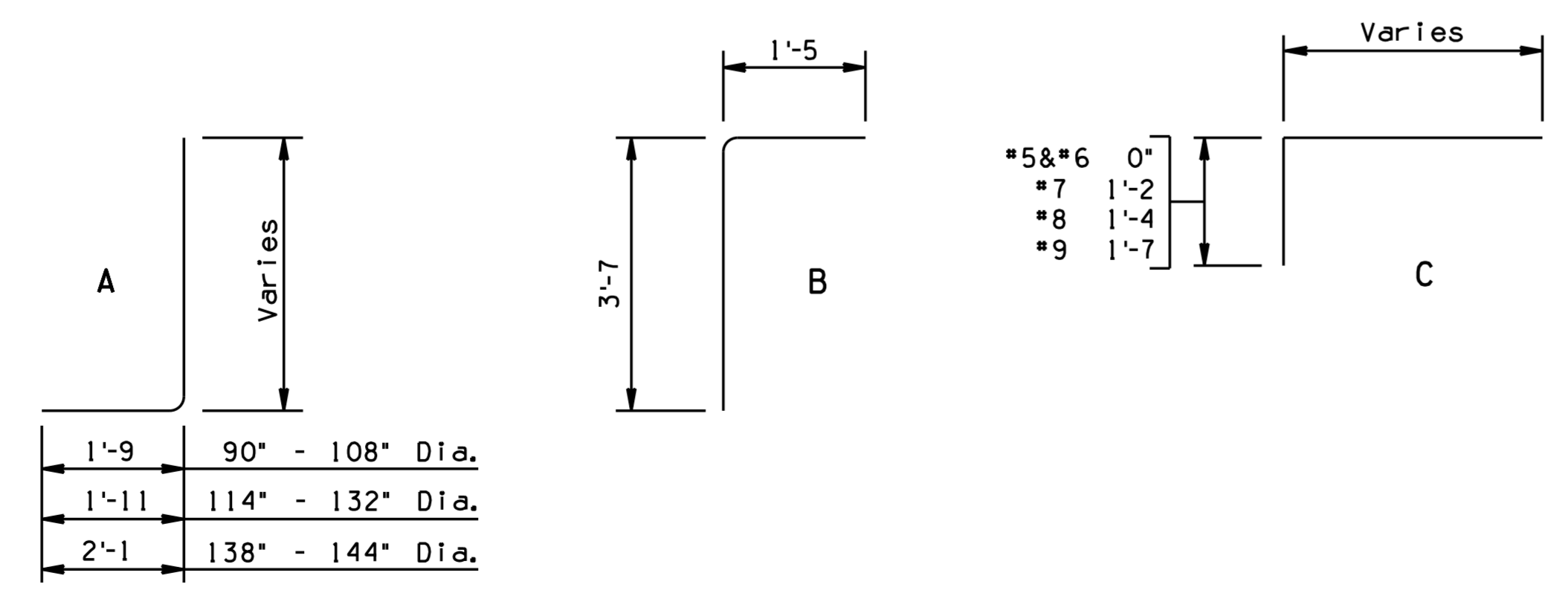
Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability 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	6	*5	6'-3	6	*5	6'-9	6	*5	7'-0	6	*5	7'-3	6	*5	7'-9	6	*5	8'-3	6	*5	8'-6	6	*5	8'-9	6	*5	9'-3	6	*5	9'-9		
a2	A	6	*5	7'-6	6	*5	8'-0	6	*5	8'-3	6	*5	8'-6	6	*5	9'-0	6	*5	9'-6	6	*5	9'-9	6	*5	9'-9	6	*5	10'-6	6	*5	11'-0		
a3	A	6	*5	8'-9	6	*5	9'-0	6	*5	9'-3	6	*5	9'-9	6	*5	10'-3	6	*5	10'-6	6	*5	11'-0	6	*5	11'-0	6	*5	11'-6	6	*6	12'-3		
a4	A	6	*5	10'-3	6	*5	10'-3	6	*6	10'-6	6	*6	11'-0	6	*6	11'-6	6	*6	11'-9	6	*6	12'-3	6	*6	12'-3	6	*6	12'-9	6	*6	13'-3		
a5	A	6	*6	11'-6	4	*6	11'-3	4	*6	11'-9	6	*6	12'-3	6	*7	13'-0	6	*7	13'-0	6	*7	13'-6	6	*7	13'-6	6	*7	14'-0	6	*7	14'-6		
a6	A				4	*6	12'-6	4	*7	13'-0	4	*7	13'-6	4	*7	14'-3	6	*7	14'-3	6	*7	14'-9	4	*7	14'-6	4	*7	15'-3	6	*8	15'-9		
a7	A																								4	*7	15'-6	4	*8	16'-6	4	*8	17'-0
b1	str	4	*4	15'-6	4	*4	16'-0	4	*4	16'-6	4	*4	17'-3	4	*4	17'-9	4	*4	18'-3	4	*4	18'-9	4	*4	19'-3	4	*4	19'-9	4	*4	20'-3		
b2	str	8	*4	14'-6	12	*4	15'-0	12	*4	15'-6	12	*4	16'-0	12	*4	16'-6	12	*4	17'-0	16	*4	17'-6	16	*4	18'-0	16	*4	18'-6	16	*4	19'-0		
b3	str	4	*4	13'-6	4	*4	11'-0	4	*4	12'-6	4	*4	14'-0	4	*4	15'-6	4	*4	16'-3	4	*4	17'-6	4	*4	18'-3	4	*4	19'-3	4	*4	20'-3		
b4	str	4	*4	9'-9	4	*4	7'-3	4	*4	8'-9	4	*4	10'-3	4	*4	11'-6	4	*4	12'-6	4	*4	13'-6	4	*4	14'-3	4	*4	15'-3	4	*4	16'-3		
b5	str	4	*4	5'-9	4	*4	3'-3	4	*4	5'-3	4	*4	6'-3	4	*4	7'-9	4	*4	8'-9	4	*4	9'-9	4	*4	10'-3	4	*4	11'-3	4	*4	12'-3		
b6	str	4	*4	2'-0				4	*4	1'-6	4	*4	2'-6	4	*4	4'-0	4	*4	5'-0	4	*4	6'-3	4	*4	7'-6	4	*4	9'-0	4	*4	10'-0		
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	6	*5	3'-0	6	*5	3'-3	6	*5	3'-6	6	*5	3'-9	6	*5	3'-9	6	*5	4'-0	6	*5	4'-3	8	*5	4'-3	8	*5	4'-6	8	*5	4'-9		
e2	C	6	*5	3'-9	6	*5	4'-0	6	*5	4'-3	6	*5	4'-6	6	*5	4'-6	6	*5	4'-9	6	*5	5'-0	6	*5	5'-3	6	*5	5'-6	8	*6	5'-9		
e3	C	6	*5	4'-3	6	*5	4'-6	6	*5	5'-0	6	*5	5'-3	6	*5	5'-3	6	*5	5'-9	6	*6	6'-0	6	*6	6'-0	6	*6	6'-6	6	*6	6'-9		
e4	C	4	*5	5'-0	6	*5	5'-3	6	*5	5'-9	6	*5	6'-0	6	*6	6'-3	6	*6	6'-6	6	*7	7'-6	6	*7	8'-0	6	*7	8'-3	6	*7	8'-9		
e5	C	4	*5	5'-9	4	*6	6'-0	4	*6	6'-6	6	*6	6'-9	6	*7	7'-6	6	*7	8'-0	6	*7	8'-6	6	*8	9'-3	6	*8	9'-6	6	*8	10'-0		
e6	C	4	*6	6'-6	4	*6	6'-9	4	*7	8'-3	4	*7	8'-6	4	*7	8'-9	6	*8	9'-3	6	*8	9'-6	6	*9	10'-3	6	*9	10'-6	6	*9	11'-0		
e7	C	4	*6	6'-6	4	*6	6'-9	4	*7	8'-6	4	*7	8'-9	4	*8	9'-3	4	*8	9'-6	6	*8	10'-0	6	*9	10'-6	6	*9	10'-9	6	*9	11'-3		
e8	C	9	*6	6'-6	9	*6	6'-9	10	*7	8'-6	10	*7	8'-9	11	*8	9'-3	11	*8	9'-6	12	*8	10'-0	12	*9	10'-6	13	*9	10'-9	13	*9	11'-3		
f1	str	6	*4	4'-6	6	*4	4'-9	6	*4	5'-3	6	*4	5'-6	6	*4	5'-9	6	*4	6'-3	6	*4	6'-6	6	*4	6'-9	6	*4	7'-3	6	*4	7'-6		
f2	str	6	*4	6'-3	6	*4	6'-6	6	*4	7'-0	6	*4	7'-6	6	*4	7'-9	6	*4	8'-0	6	*4	8'-6	6	*4	8'-9	6	*4	8'-9	6	*4	9'-3		
f3	str	4	*4	8'-0	4	*4	8'-6	6	*4	9'-0	6	*4	9'-3	6	*4	9'-6	6	*4	10'-0	6	*4	10'-3	6	*4	10'-6	6	*4	10'-6	6	*4	11'-3		
f4	str	4	*4	9'-9	4	*4	10'-0	4	*4	10'-9	4	*4	11'-3	4	*4	11'-6	6	*4	11'-9	6	*4	12'-3	6	*4	12'-6	4	*4	12'-3	4	*4	12'-9		
f5	str																								4	*4	13'-9	4	*4	14'-3			
g	str	2	*4	15'-0	2	*4	15'-6	2	*4	16'-0	2	*4	16'-6	2	*4	17'-0	2	*4	17'-6	2	*4	18'-0	2	*4	18'-6	2	*4	19'-0	2	*4	19'-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	8	*4	17'-9	8	*4	18'-3	10	*4	18'-9	10	*4	19'-3	10	*4	20'-0	10	*4	20'-9	10	*4	21'-6	12	*4	22'-0	12	*4	22'-9	12	*4	23'-3		
m2	str	2	*4	17'-9	2	*4	18'-3	2	*4	18'-9	2	*4	19'-3	2	*4	20'-0	2	*4	20'-9	2	*4	21'-6	2	*4	22'-0	2	*4	22'-9	2	*4	23'-3		
n1	str	4	*4	14'-3	4	*4	15'-0	5	*4	15'-9	5	*4	16'-6	5	*4	17'-3	5	*4	18'-0	5	*4	18'-9	6	*4	19'-6	6	*4	20'-3	6	*4	21'-0		
n2	str	1	*4	14'-3	1	*4	15'-0	1	*4	15'-9	1	*4	16'-6	1	*4	17'-3	1	*4	18'-0	1	*4	18'-9	1	*4	19'-6	1	*4	20'-3	1	*4	21'-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		1'- 4	1'- 6	1'- 7	1'- 9	1'-10	2'- 0	2'- 1	2'- 3	2'- 4	2'- 6
D		3'- 6	3'- 8	3'-10	4'- 0	4'- 2	4'- 4	4'- 6	4'- 8	4'-10	5'- 0
E		7'- 0	7'- 4	7'- 8	8'- 0	8'- 4	8'- 8	9'- 0	9'- 4	9'- 8	10'- 0
F		14'- 6	15'- 0	15'- 6	16'- 0	16'- 6	17'- 0	17'- 6	18'- 0	18'- 6	19'- 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		3'- 6	3'-10	4'- 2	4'- 6	4'-10	5'- 2	5'- 6	5'-10	6'- 2	6'- 6
K		17'-11	18'- 6 5/8	19'- 1 1/8	19'- 9 1/2	20'- 4 3/4	21'- 0 1/2	21'- 8 1/2	22'- 4 1/8	22'-11 3/8	23'- 7 1/8
L		7'- 4	7'- 8 5/8	8'- 0 1/8	8'- 5 1/2	8'- 9 3/4	9'- 2 1/2	9'- 7 1/2	10'- 0 1/8	10'- 4 3/8	10'- 9 1/8
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°	1315	26.0
96°	1440	28.3
102°	1795	30.6
108°	1930	33.0
114°	2235	35.5
120°	2455	38.2
126°	2690	43.1
132°	3115	46.0
138°	3405	49.0
144°	3745	53.0

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 2 : 1 SLOPE	
ROUTE	PROJECT NO.	FA NO.	DRAWING NO. SD 6.31 (2 of 8)
LOCATION			SHEET NO. OF