TABLE OF DIMENSIONS

CULVERT HEIGHT	"J"	"LW1"	"LW2"	"N1"	"N2"	"P"	"R1"	"R2"	"R3"	"U"	"W"	"Z"
4'	3'-10"	12'-5 9/16"	21'-1 3/8"			1.414Q+1.40	4 15/16"	7 5/8"	2 13/16"	6"	Per Supplementary Drawing	11'-6"
5'	4'-6"	14'-7 15/16"	24'-9 7/16"			1.414Q+1.40	4 15/16"	7 5/8"	2 13/16"	6"		13'-6"
6'	5'-9"	18'-9 8/16"	31'-8 1/16"			1.414Q+1.63	5 3/4"	8 5/16"	3 1/4"	7"		17'-3"
8'	7'-4"	23'-11 5/16"	40'-4 3/4"			1.414Q+1.98	7"	10 1/16"	3 15/16"	8 1/2"		22'-0"
10'	8'-4"	27'-2 3/8"	45'-10 13/16"	2'-11"	6'-6"	1.414Q+2.33	8 1/4"	11 5/8"	4 11/16"	10"		25'-0"
12'	9'-7"	31'-3 9/16"	52'-9 7/16"	3'-3"	7'-0"	1.414Q+2.56	9 11/16"	1'-1 1/16"	5 1/8"	11"		28'-9"

NOTE: Q for Single Cell Culvert = S (Clear Span)
Q for Double Cell Culvert = 2S + V

TABLE OF V BARS ~ #4

CULVERT HEIGHT	BARS V1		BARS VL1-VLn		BARS VS1-VSn	
	NO.	DIM. X	NO.	DIM. X	NO.	DIM. X
4'	Same As Basic Culvert Drawing	15'-9"	3	11'-1" To 3'-8"	3	11'-6" To 4'-0"
5'		18'-7"	4	13'-11" To 2'-10"	4	14'-4" To 3'-1"
6'		23'-11"	5	19'-6" To 4'-8"	5	19'-11" To 5'-0"
8'		30'-7"	7	26'-8" To 4'-6"	7	27'-2" To 4'-8"
10'		34'-10"	8	31'-5" To 5'-6"	8	31'-10" To 5'-7"
12'		40'-2"	10	37'-0" To 3'-8"	10	37'-6" To 3'-9"

TABLE OF T BARS ~ #4

CULVERT HEIGHT	BAR	NO.	LENGTH
4'	T1 To T12	1 Ea.	P-2" To P+10'-7"
		3	P+11'-7"
5'	T1 To T14	1 Ea.	P-2" To P+12'-8"
		3	P+13'-8"
6'	T1 To T16	1 Ea.	P-2" To P+16'-8"
		3	P+17'-8"
8'	T1 To T22	1 Ea.	P+4" To P+22'-9"
		3	P+22'-9"
10'	T1 To T25	1 Ea.	P+4" To P+25'-0"
		3	P+26'-0"
12'	T1 To T29	1 Ea.	P To P+28'-11"
		3	P+29'-11"

TABLE OF U BARS ~ #4

CULVERT HEIGHT	UL, NO. & LENGTH	US, NO. & LENGTH
	LONG WING	SHORT WING
4'	2 @ 20'-9"	2 @ 12'-1"
5'	2 @ 24'-5"	2 @ 14'-3"
6'	3 @ 31'-4"	3 @ 18'-5"
8'	3 @ 40'-0"	3 @ 23'-7"
10'	3 @ 45'-6"	3 @ 26'-10"
12'	3 @ 52'-5"	3 @ 30'-11"

TABLE OF Y BARS ~ #4

CULVERT HEIGHT	BAR	NO.	YL-LENGTH	YS-LENGTH
			LONG WING	SHORT WING
4'	Y1 To Y3	1 Ea.	6'-8" To 17'-8"	3'-10" To 10'-4"
	Y4	1	20'-9"	12'-1"
5'	Y1 To Y3	1 Ea.	7'-7" To 18'-7"	4'-5" To 10'-11"
	Y4	2	24'-5"	14'-3"
6'	Y1 To Y5	1 Ea.	8'-6" To 30'-6"	4'-11" To 18'-0"
	Y6	1	31'-4"	18'-5"
8'	Y1 To Y6	2 Ea.	8'-6" To 36'-1"	4'-11" To 21'-3"
	Y7	4	40'-0"	23'-7"
10'	Y1 To Y6	2 Ea.	9'-5" To 43'-10"	5'-6" To 25'-11"
	Y7	4	45'-6"	26'-10"
12'	Y1 To Y7	2 Ea.	9'-11" To 51'-2"	5'-9" To 30'-3"
	Y8	6	52'-5"	30'-11"

TABLE OF WL BARS

CULVERT HEIGHT	BAR	NO.	SIZE	LONG WING DIM. X	LONG WING DIM. X1
4'	W1 To W24	1 Ea.	#4	2'-6" To 1'-7"	K+3'-8" To K
5'	W1 To W31	1 Ea.	#4	3'-0" To 1'-9"	K+4'-4" To K
6'	W1 To W39	1 Ea.	#4	4'-0" To 2'-0"	K+5'-7" To K
8'	W1 To W24	1 Ea.	#5	4'-6" To 3'-4"	K+7'-2" To K+13'-11"
	W25 To W46	1 Ea.	#4	3'-3" To 2'-0"	K+13'-9" To K
10'	W1 To W17	1 Ea.	#6	5'-10" To 5'-2"	K+16'-2" To K+16'-5"
	W18 To W36	1 Ea.	#5	5'-1" To 4'-3"	K+16'-4" To K+14'-9"
	W37 To W62	1 Ea.	#4	4'-2" To 2'-8"	K+14'-0" To K
12'	W1 To W28	1 Ea.	#7	6'-5" To 5'-2"	K+18'-4" To K+16'-0"
	W29 To W38	1 Ea.	#6	5'-1" To 4'-7"	K+15'-10" To K+14'-4"
	W39 To W48	1 Ea.	#5	4'-6" To 3'-11"	K+14'-2" To K+12'-6"
	W49 To W62	1 Ea.	#4	3'-10" To 3'-0"	K+12'-4" To K

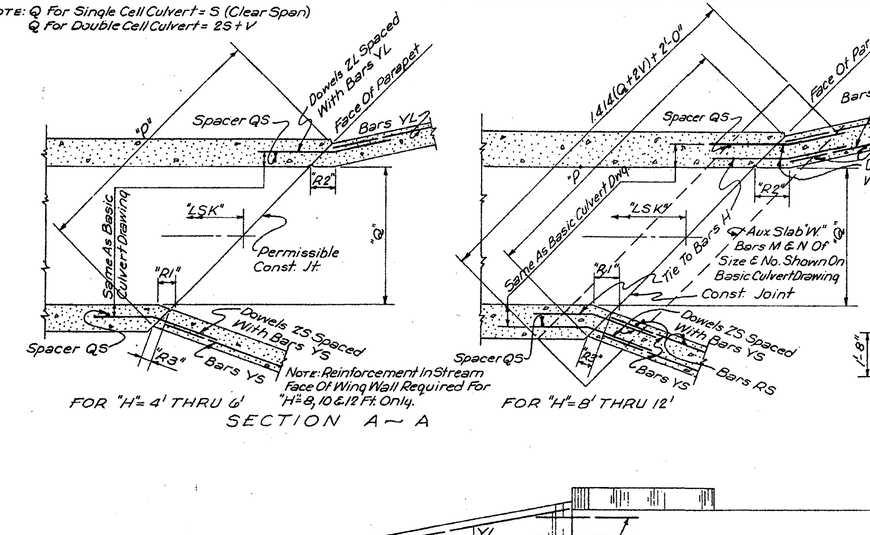
TABLE OF WS BARS

CULVERT HEIGHT	BAR	NO.	SIZE	SHORT WING DIM. X	SHORT WING DIM. X1
4'	W1 To W14	1 Ea.	#4	2'-6" To 1'-7"	K+3'-7" To K
5'	W1 To W19	1 Ea.	#4	3'-0" To 1'-9"	K+4'-3" To K
6'	W1 To W24	1 Ea.	#4	4'-0" To 2'-0"	K+5'-6" To K
8'	W1 To W15	1 Ea.	#5	4'-6" To 3'-4"	K+7'-2" To K+13'-11"
	W16 To W28	1 Ea.	#4	3'-3" To 2'-0"	K+13'-8" To K
10'	W1 To W10	1 Ea.	#6	5'-10" To 5'-2"	K+18'-2" To K+16'-5"
	W11 To W22	1 Ea.	#5	5'-1" To 4'-2"	K+16'-3" To K+14'-0"
	W23 To W37	1 Ea.	#4	4'-1" To 2'-8"	K+13'-10" To K
12'	W1 To W17	1 Ea.	#7	6'-5" To 5'-2"	K+19'-4" To K+15'-11"
	W18 To W23	1 Ea.	#6	5'-1" To 4'-6"	K+15'-8" To K+14'-3"
	W24 To W29	1 Ea.	#5	4'-5" To 3'-10"	K+13'-11" To K+12'-5"
	W30 To W37	1 Ea.	#4	3'-9" To 3'-0"	K+12'-1" To K

TABLE OF R BARS ~ #4

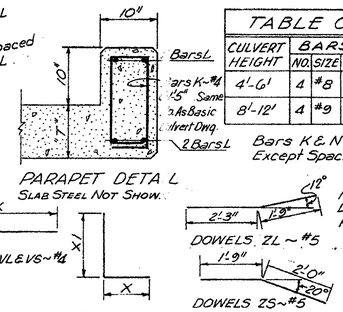
CULVERT HEIGHT	BAR	NO.	LENGTH
8'	RS1 To RS14	1 Ea.	W+6'-7" To W+7"
	RL1 To RL25	1 Ea.	W+6'-8" To W+1"
10'	RS1 To RS16	1 Ea.	W+7'-7" To W+8"
	RL1 To RL29	1 Ea.	W+7'-8" To W+1"
12'	RS1 To RS19	1 Ea.	W+8'-10" To W+6"
	RL1 To RL33	1 Ea.	W+8'-11" To W+2"

K = W+4" For H = 4' & 5'
K = W+5" For H = 6'
K = W+6" For H = 8'
K = W+8" For H = 10'
K = W+9" For H = 12'



FOR "H"= 4' THRU 6' FOR "H"= 8' THRU 12'

SECTION A ~ A



BAR BENDING DETAILS
DIMENSIONS ARE OUT TO OUT

TABLE OF L & M BARS

CULVERT HEIGHT	BARS L			BARS M		
	NO.	SIZE	LENGTH	NO.	SIZE	LENGTH
4'-6"	4	#8	P-4"	NONE		
8'-12"	4	#9	P-4"	2	#4	1.414(Q+2V)+1'-8"

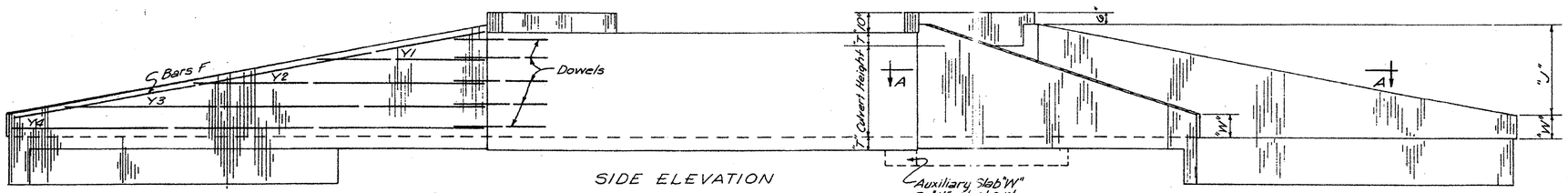
Bars K & N Per Basic Culvert Drawing Except Spacing Shall Be 1'-5"

TABLE OF FL, FS, QS, ZL & ZS BARS

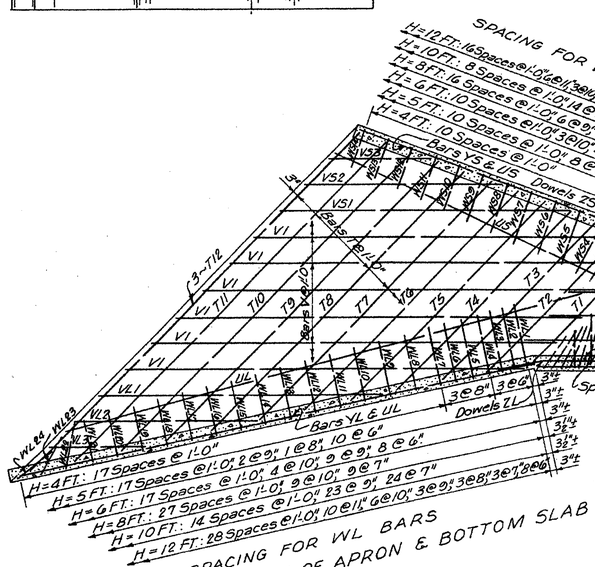
CULVERT HEIGHT	BARS FL~#4		BARS FS~#4		SPACERS QS~#4		DOWELS ZL~#5		DOWELS ZS~#5	
	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
4'	2	21'-1"	2	12'-8"	2	3'-7"	5	4'-0"	5	3'-9"
5'	2	24'-10"	2	15'-0"	2	4'-7"	6	4'-0"	6	3'-9"
6'	2	31'-10"	2	19'-3"	2	5'-7"	7	4'-0"	7	3'-9"
8'	2	40'-8"	2	24'-8"	2	7'-7"	18	4'-0"	18	3'-9"
10'	2	46'-3"	2	28'-1"	2	9'-7"	18	4'-0"	18	3'-9"
12'	2	55'-3"	2	32'-4"	2	11'-7"	22	4'-0"	22	3'-9"

NOTE: The Number Of Bars Shown In The Tables Is The Number Required For One Complete Headwall Assembly At One End Of Culvert.

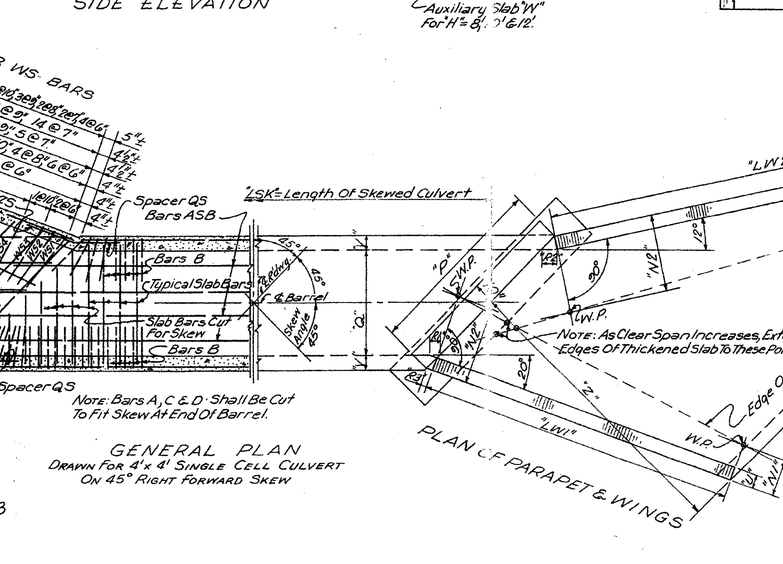
Note: Vertical Spacers QS And Dowels ZL And ZS Located Per Section A~A.



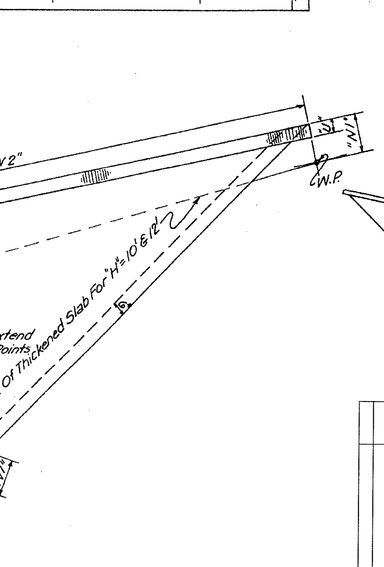
SIDE ELEVATION



SPACING FOR WL BARS
PLAN OF APRON & BOTTOM SLAB



GENERAL PLAN
DRAWN FOR 4' x 4' SINGLE CELL CULVERT ON 45° RIGHT FORWARD SKEW



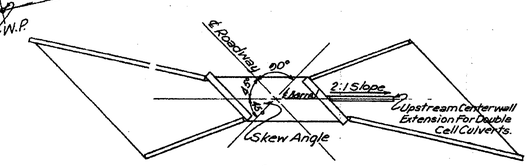
PLAN OF PARAPET & WINGS

GENERAL NOTES:

This Drawing Shows The General Details Necessary To Modify A Single Or Double Cell Culvert With Wings With 3:1 Slope For A 45° Skew.

All Governing Dimensions, Reinforcement Details And General Requirements Of Basic Culvert Drawings, Drawings IWS-3 And IWD-3 And Or Drawings IBSM-3W And IBDM-3W Shall Apply Except As Specifically Modified Hereon.

A Complete Placing Plan Showing All Governing Dimensions, Bar List And Bending Details Shall Be Submitted To The Project Engineer For Approval Prior To Fabrication Of The Reinforcing Steel.



PLAN OF 45° LEFT FORWARD SKEW

DATE	REVISION	BY

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

BOX CULVERT DRAWING
45° SKEW DETAILS
WINGS WITH 3:1 SLOPE
SINGLE & DOUBLE CELL CULVERTS

WORKING NUMBER
SD-ISK-45-3W
SHEET NUMBER

FILENAME:
DESIGN TEAM ____ CHECKED ____ DATE ____

COUNTY:
DESIGN TEAM:
PROJECT NO.:
FILENAME: