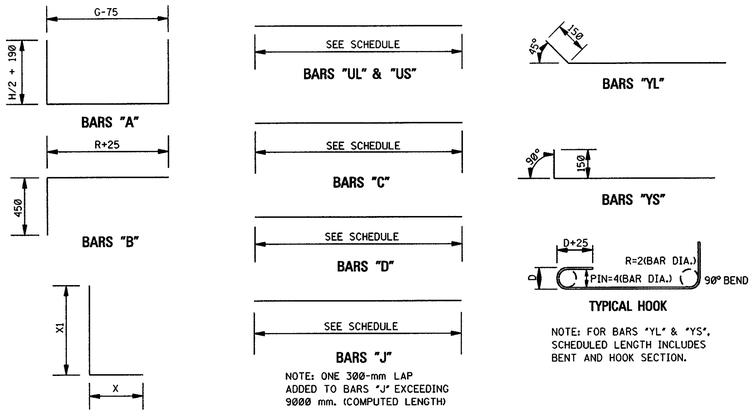
STATE	PROJECT NO.
MISS.	



BAR BENDING DETAILS

NOTE: ALL BARS ARE #13. IN BAR DESIGNATIONS (e.g. "YS" & "YL"), S DENOTES SHORT WING AND L DENOTES LONG WING.

FLARED HEADWALL FOR SINGLE AND DOUBLE LINE PIPE CULVERTS
REINFORCING STEEL REQUIRED FOR ONE HEADWALL ON SINGLE OR DOUBLE LINE PIPE CULVERTS

EQUAL PIPE SIZE	UL		US		YL1		YL2		YL3		YL4		YL5		YL6		YS1		YS2		YS3		YS4		YS5		YS6	
	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH
450	2	1025	2	800	1	775	1	1175									1	625	1	950								
600	2	1275	2	975	1	750	1	1400									1	625	1	1125								
750	2	1500	2	1150	1	775	1	1625	1	1650							1	625	1	1275	1	1300						
900	2	1750	2	1325	1	800	1	1650	1	1900							1	625	1	1275	1	1475						
1050	2	1975	2	1475	1	800	1	1625	1	2125							1	625	1	1250	1	1625						
1200	2	2250	2	1675	1	800	1	1650	1	2400	1	2400					1	625	1	1250	1	1825	1	1825				
1350	2	2475	2	1825	1	800	1	1625	1	2475	1	2625					1	600	1	1250	1	1875	1	1975				
1500	2	2750	2	2025	1	775	1	1600	1	2450	1	2900	1	2900			1	600	1	1225	1	1850	1	2175	1	2175		
1800	2	3200	2	2350	1	800	1	1600	1	2450	1	3275	1	3350	1	3350	1	600	1	1200	1	1825	1	2425	1	2500	1	2500

EQUAL PIPE SIZE	WL1		WL2		WL3		WL4		WL5		WL6		WS1		WS2		WS3		WS4	
	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH
450	2	775	2	450									2	700	1	450				
600	2	1100	2	650	1	525							2	1000	2	525				
750	2	1275	2	900	2	600							2	1175	2	600				
900	2	1475	2	1125	2	700							2	1400	2	850	1	700		
1050	2	1750	2	1400	2	950	1	775					2	1650	2	1125	2	775		
1200	2	1950	2	1625	2	1225	2	850					2	1850	2	1350	2	850		
1350	2	2225	2	1850	2	1475	2	1125	1	950			2	2150	2	1625	2	1100	1	950
1500	2	2500	2	2150	2	1750	2	1400	2	1050			2	2400	2	1850	2	1350	1	1050
1800	2	2950	2	2600	2	2225	2	1850	2	1450	1	1225	2	2875	2	2350	2	1825	2	1225

TABLE OF ADDED LENGTHS FOR 30° SKEWED PIPE

EQUAL PIPE SIZE	ADDED LENGTH EACH END
450	200
600	255
750	315
900	380
1050	440
1200	500
1350	555
1500	620
1800	745

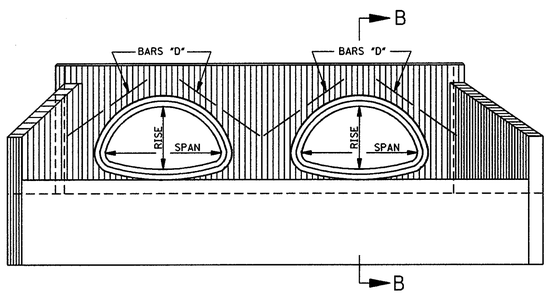
FLARED HEADWALL FOR SINGLE LINE PIPE CULVERT

EQUAL PIPE SIZE	DIMENSIONS			ADDITIONAL STEEL REQUIRED FOR ONE HEADWALL																								PAY QUANTITIES FOR ONE HEADWALL	
	G	X	Y	A		B		C		D		J1		J2		J3		J4		J5		J6		J7		J8		CONCRETE (m^3)	STEEL (kg)
				NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH		
450	1290	1740	990	4	2300	3	1225	2	750	2	675	1	1325	1	1625	1	1850											0.47	32
600	1505	2130	1205	4	2695	4	1400	2	925	2	750	1	1550	1	1850	1	2150	1	2250									0.65	43
750	1740	2540	1440	4	3035	5	1575	2	1025	2	825	1	1800	1	2100	1	2400	1	2650									0.84	54
900	2005	2975	1700	4	3425	6	1750	2	1175	2	900	1	2075	1	2375	1	2675	1	2975	1	3100							1.07	67
1050	2240	3365	1940	4	3800	7	1900	2	1300	2	1025	1	2300	1	2600	1	2900	1	3200	1	3475							1.30	78
1200	2480	3805	2180	4	4185	8	2100	2	1450	2	1150	1	2525	1	2825	1	3125	1	3425	1	3725	1	3925					1.61	98
1350	2715	4180	2405	4	4550	8	2250	2	1575	2	1275	1	2750	1	3050	1	3350	1	3650	1	3950	1	4300					1.89	109
1500	2965	4640	2665	4	4950	9	2450	2	1725	2	1400	1	3025	1	3325	1	3625	1	3925	1	4225	1	4525	1	4750			2.25	133
1800	3440	5440	3140	4	5700	11	2775	2	2000	2	1575	1	3500	1	3800	1	4100	1	4400	1	4700	1	5000	1	5300	1	5550	2.96	173

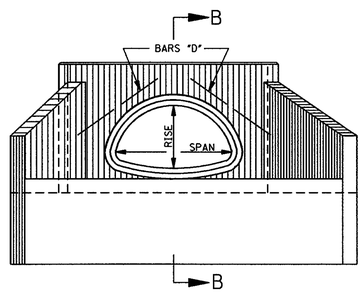
FLARED HEADWALL FOR DOUBLE LINE PIPE CULVERT

EQUAL PIPE SIZE	DIMENSIONS				ADDITIONAL STEEL REQUIRED FOR ONE HEADWALL																							PAY QUANTITIES FOR ONE HEADWALL	
	G	X	Y	Z	A		B		C		D		J1		J2		J3		J4		J5		J6		J7		J8	CONCRETE (m^3)	STEEL (kg)
					NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	NO	LGTH	
450	2420	2870	2120	300	4	3430	7	1225	3	750	4	675	1	2450	1	2750	1	2975										0.74	47
600	2865	3490	2565	300	4	4055	9	1400	3	925	4	750	1	2900	1	3200	1	3500	1	3600								1.01	63
750	3325	4120	3020	300	4	4620	10	1575	3	1025	4	825	1	3400	1	3700	1	4000	1	4225								1.30	77
900	3945	4920	3645	375	4	5365	12	1750	4	1175	4	900	1	4025	1	4325	1	4625	1	4925	1	5025						1.69	99
1050	4305	5525	4100	375	4	5865	14	1900	4	1300	4	1025	1	4475	1	4775	1	5075	1	5375	1	5650						2.05	115
1200	4980	6305	4680	450	4	6685	16	2100	4	1450	4	1150	1	5025	1	5325	1	5625	1	5925	1	6225	1	6425				2.54	144
1350	5525	7000	5225	525	4	7360	18	2250	4	1575	4	1275	1	5575	1	5875	1	6175	1	6475	1	6775	1	7125				3.02	165
1500	6120	7790	5815	600	4	8105	20	2450	4	1725	4	1400	1	6175	1	6475	1	6775	1	7075	1	7375	1	7675	1	7900		3.62	200
1800	7155	9150	6850	675	4	9415	23	2775	5	2000	4	1575	1	7225	1	7525	1	7825	1	8125	1	8425	1	8725	1	9025	1	9275	4.77	259

EQUAL PIPE SIZE	DIMENSIONS									DETAIL DIMENSIONS FOR WING WALL STEEL																						
	MIN THICK "T"	INSIDE SPAN	INSIDE RISE	H	R	S1	S2	W		WL1		WL2		WL3		WL4		WL5		WL6		WS1		WS2		WS3		WS4	
										X1	X	X1	X	X1	X	X1	X	X1	X	X1	X	X1	X	X1	X	X1	X	X1	X
450	63	560	345	705	750	940	1065	200		450	325	250	200									400	300	250	200				
600	75	725	460	885	925	1180	1305	250		625	475	375	275	300	225							575	425	300	225				
750	88	920	570	990	1100	1430	1555	300		725	550	525	375	350	250							675	500	350	250				
900	100	1110	675	1115	1275	1675	1800	350		850	625	650	475	400	300							800	600	500	350	400	300		
1050	113	1300	795	1255	1425	1890	2015	400		1000	750	800	600	550	400	450	325					950	700	650	475	450	325		
1200	125	1485	915	1400	1625	2175	2300	450		1125	825	925	700	700	525	500	350					1075	775	775	575	500	350		
1350	138	1650	1015	1530	1775	2390	2515	500		1275	950	1075	775	850	625	650	475	550	400			1225	925	925	700	625	475	550	400
1500	150	1855	1145	1680	1975	2670	2795	550		1425	1075	1225	925	1000	750	800	600	600	450			1375	1025	1075	775	775	575	600	450
1800	175	2235	1370	1955	2300	3125	3250	650		1700	1250	1500	1100	1275	950	1075	775	825	625	700	525	1650	1225	1350	1000	1050	775	700	525



FRONT ELEVATION



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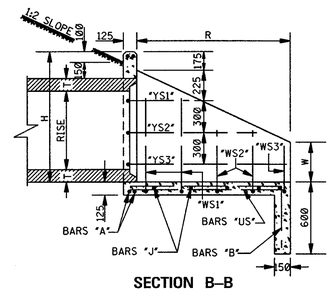
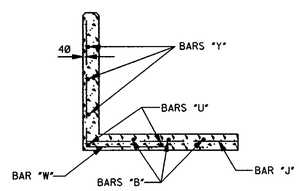
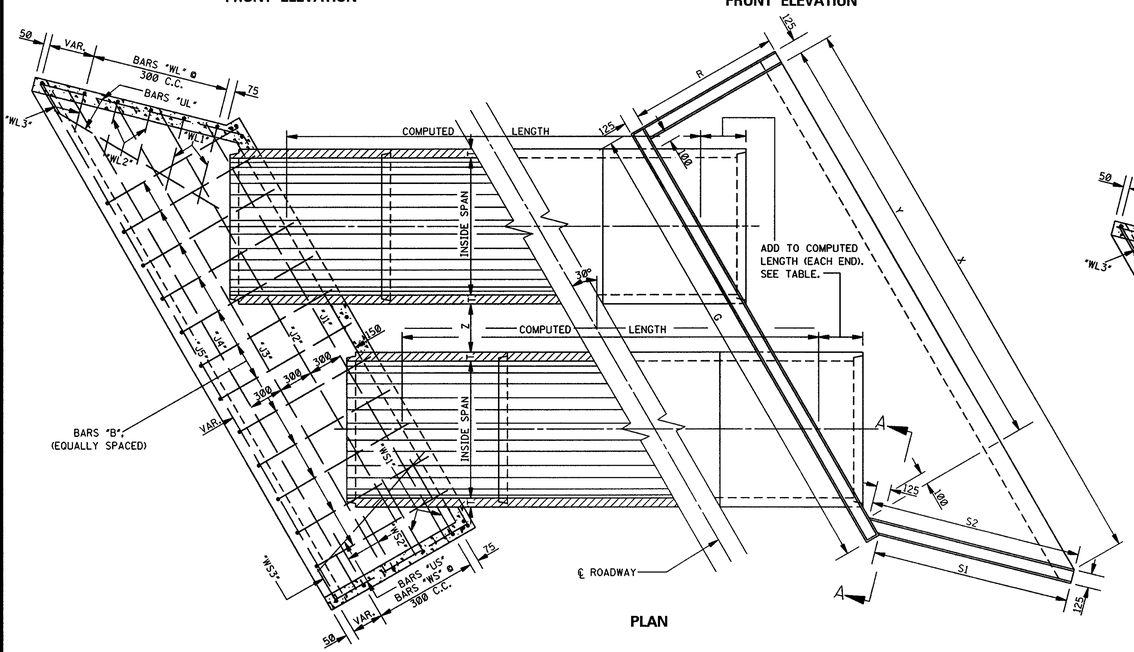


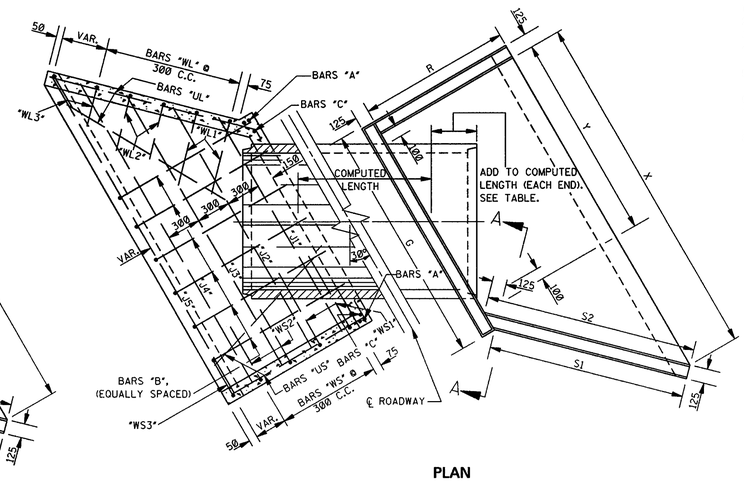
SECTION B–B



SECTION A–A



PLAN



PLAN

GENERAL NOTES:

1. SPECIFICATIONS: MISSISSIPPI DEPARTMENT OF TRANSPORTATION, LATEST EDITION.
2. ALL CONCRETE SHALL BE CLASS "B".
3. ALL EXPOSED EDGES SHALL BE CHAMFERED 20 mm.
4. EXPOSED CONCRETE SURFACES SHALL BE FINISHED IN ACCORDANCE WITH THE APPLICABLE SECTION OF THE MDOT SPECIFICATIONS.
5. ALL LENGTHS AND QUANTITIES IN THE TABLES HEREON ARE BASED ON CONCRETE TONGUE & GROOVE PIPE.
6. DIMENSIONS SHOWN FOR BAR SPACING ARE TO ℄ BARS.
7. ARCH PIPE SHALL CONFORM TO REQUIREMENTS OF AASHTO M 206M FOR CLASS OF PIPE SHOWN ON PLANS.
8. QUANTITIES SHOWN SHALL BE THE BASIS FOR FINAL PAYMENT UNLESS AUTHORIZED MODIFICATIONS ARE MADE.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

DATE	REVISION	BY

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

HEADWALLS FOR CONCRETE ARCH PIPE, 1:2 SLOPE, 30° SKEW

DEPARTMENT OF TRANSPORTATION METRIC MISSISSIPPI

WORKING NUMBER HWA-1230

ISSUE DATE: OCTOBER 1, 1998

SHEET NUMBER 350