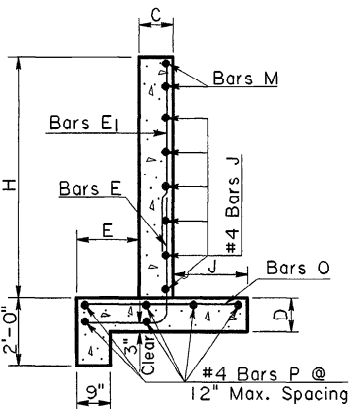
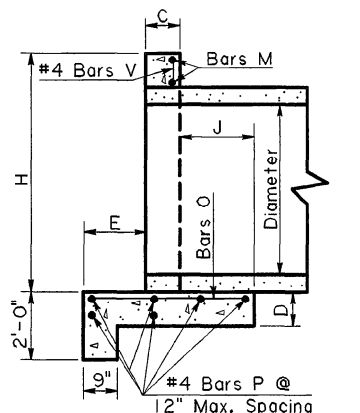


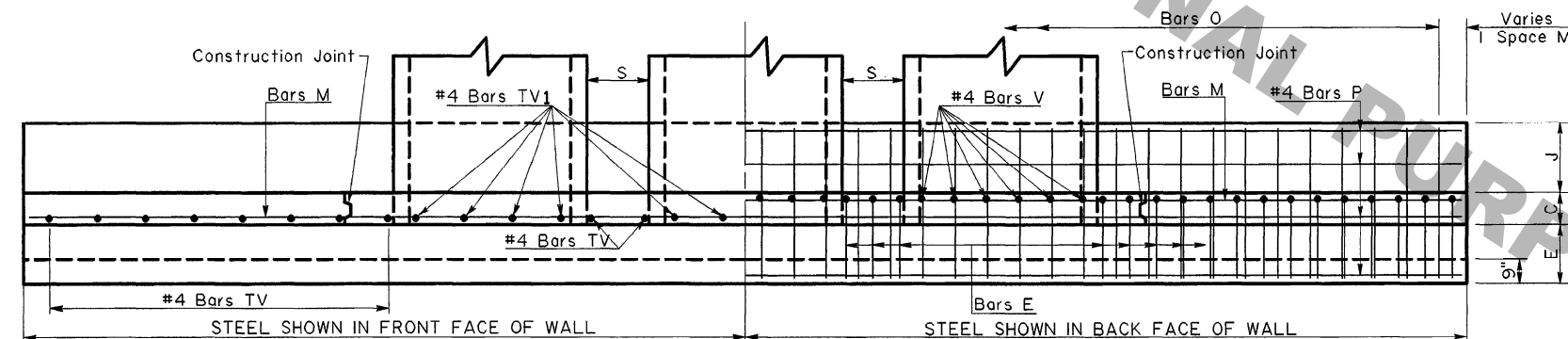
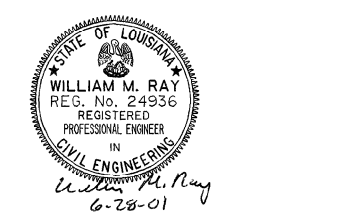
OPENING		H	E	C	J	D	L	M	S	BARS E					BARS E ₁		#4 BARS J	BARS O		#4 BARS P	#4 BARS H	#4 BARS V	BARS M	#4 BARS TH	#4 BARS TH ₁	#4 BARS TV	#4 BARS TV ₁	CONC.	STEEL
Dia. in.	Area sq.ft.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Lgth. ft.in.	Sp. in.	X ft.in.	Y ft.in.	Z ft.in.	Lgth. ft.in.	Sp. in.	No.	Lgth. ft.in.	Sp. in.	No.	Lgth. ft.in.	No.	Lgth. ft.in.	No.	Lgth. ft.in.	No.	Lgth. ft.in.	CU. YDS.	LBS.
60	19.6	7	1	1	1	1	1	1	1	34	1	1	4	3	34	1	1	4	3	34	1	1	33	1	1	1	1	14.62	954
60	19.6	7	1	1	1	1	1	1	1	41	1	1	4	3	41	1	1	4	3	41	1	1	40	1	1	1	1	17.49	1105
60	19.6	7	1	1	1	1	1	1	1	49	1	1	4	3	49	1	1	4	3	49	1	1	48	1	1	1	1	20.36	1259
60	19.6	7	1	1	1	1	1	1	1	55	1	1	4	3	55	1	1	4	3	55	1	1	54	1	1	1	1	23.23	1414
60	19.6	7	1	1	1	1	1	1	1	63	1	1	4	3	63	1	1	4	3	63	1	1	62	1	1	1	1	26.10	1568
60	19.6	7	1	1	1	1	1	1	1	73	1	1	4	3	73	1	1	4	3	73	1	1	72	1	1	1	1	28.97	1723
72	28.8	7	1	1	1	1	1	1	1	44	1	1	4	4	44	1	1	4	4	44	1	1	43	1	1	1	1	20.09	1446
72	28.8	7	1	1	1	1	1	1	1	52	1	1	4	4	52	1	1	4	4	52	1	1	51	1	1	1	1	23.85	1669
72	28.8	7	1	1	1	1	1	1	1	61	1	1	4	4	61	1	1	4	4	61	1	1	60	1	1	1	1	27.61	1892
72	28.8	7	1	1	1	1	1	1	1	71	1	1	4	4	71	1	1	4	4	71	1	1	70	1	1	1	1	31.37	2114
72	28.8	7	1	1	1	1	1	1	1	81	1	1	4	4	81	1	1	4	4	81	1	1	80	1	1	1	1	35.13	2337
72	28.8	7	1	1	1	1	1	1	1	91	1	1	4	4	91	1	1	4	4	91	1	1	90	1	1	1	1	38.89	2560
84	38.0	7	1	1	1	1	1	1	1	54	1	1	4	4	54	1	1	4	4	54	1	1	53	1	1	1	1	27.98	2609
84	38.0	7	1	1	1	1	1	1	1	63	1	1	4	4	63	1	1	4	4	63	1	1	62	1	1	1	1	33.53	3030
84	38.0	7	1	1	1	1	1	1	1	73	1	1	4	4	73	1	1	4	4	73	1	1	72	1	1	1	1	39.09	3451
84	38.0	7	1	1	1	1	1	1	1	83	1	1	4	4	83	1	1	4	4	83	1	1	82	1	1	1	1	44.64	3878
84	38.0	7	1	1	1	1	1	1	1	93	1	1	4	4	93	1	1	4	4	93	1	1	92	1	1	1	1	50.19	4299
84	38.0	7	1	1	1	1	1	1	1	103	1	1	4	4	103	1	1	4	4	103	1	1	102	1	1	1	1	55.74	4720
96	50.0	7	1	1	1	1	1	1	1	66	1	1	4	4	66	1	1	4	4	66	1	1	65	1	1	1	1	39.62	3667
96	50.0	7	1	1	1	1	1	1	1	76	1	1	4	4	76	1	1	4	4	76	1	1	75	1	1	1	1	47.08	4250
96	50.0	7	1	1	1	1	1	1	1	86	1	1	4	4	86	1	1	4	4	86	1	1	85	1	1	1	1	54.55	4833
96	50.0	7	1	1	1	1	1	1	1	96	1	1	4	4	96	1	1	4	4	96	1	1	95	1	1	1	1	62.01	5416
96	50.0	7	1	1	1	1	1	1	1	106	1	1	4	4	106	1	1	4	4	106	1	1	105	1	1	1	1	69.48	5999
96	50.0	7	1	1	1	1	1	1	1	116	1	1	4	4	116	1	1	4	4	116	1	1	115	1	1	1	1	76.94	6582
108	63.0	7	1	1	1	1	1	1	1	78	1	1	4	4	78	1	1	4	4	78	1	1	77	1	1	1	1	52.38	5020
108	63.0	7	1	1	1	1	1	1	1	88	1	1	4	4	88	1	1	4	4	88	1	1	87	1	1	1	1	61.82	5781
108	63.0	7	1	1	1	1	1	1	1	98	1	1	4	4	98	1	1	4	4	98	1	1	97	1	1	1	1	71.27	6531
108	63.0	7	1	1	1	1	1	1	1	108	1	1	4	4	108	1	1	4	4	108	1	1	107	1	1	1	1	80.71	7292
108	63.0	7	1	1	1	1	1	1	1	118	1	1	4	4	118	1	1	4	4	118	1	1	117	1	1	1	1	90.16	8052
120	78.0	7	1	1	1	1	1	1	1	90	1	1	4	4	90	1	1	4	4	90	1	1	89	1	1	1	1	67.62	6703
120	78.0	7	1	1	1	1	1	1	1	100	1	1	4	4	100	1	1	4	4	100	1	1	99	1	1	1	1	77.06	7653
120	78.0	7	1	1	1	1	1	1	1	110	1	1	4	4	110	1	1	4	4	110	1	1	109	1	1	1	1	86.50	8603
120	78.0	7	1	1	1	1	1	1	1	120	1	1	4	4	120	1	1	4	4	120	1	1	119	1	1	1	1	95.94	9553
120	78.0	7	1	1	1	1	1	1	1	130	1	1	4	4	130	1	1	4	4	130	1	1	129	1	1	1	1	105.38	10503
144	113.0	7	1	1	1	1	1	1	1	122	1	1	4	4	122	1	1	4	4	122	1	1	121	1	1	1	1	115.82	12453
144	113.0	7	1	1	1	1	1	1	1	132	1	1	4	4	132	1	1	4	4	132	1	1	131	1	1	1	1	125.26	13403
144	113.0	7	1	1	1	1	1	1	1	142	1	1	4	4	142	1	1	4	4	142	1	1	141	1	1	1	1	134.70	14353
144	113.0	7	1	1	1	1	1	1	1	152	1	1	4	4	152	1	1	4	4	152	1	1	151	1	1	1	1	144.14	15303
144	113.0	7	1	1	1	1	1	1	1	162	1	1	4	4	162	1	1	4	4	162	1	1	161	1	1	1	1	153.58	16253



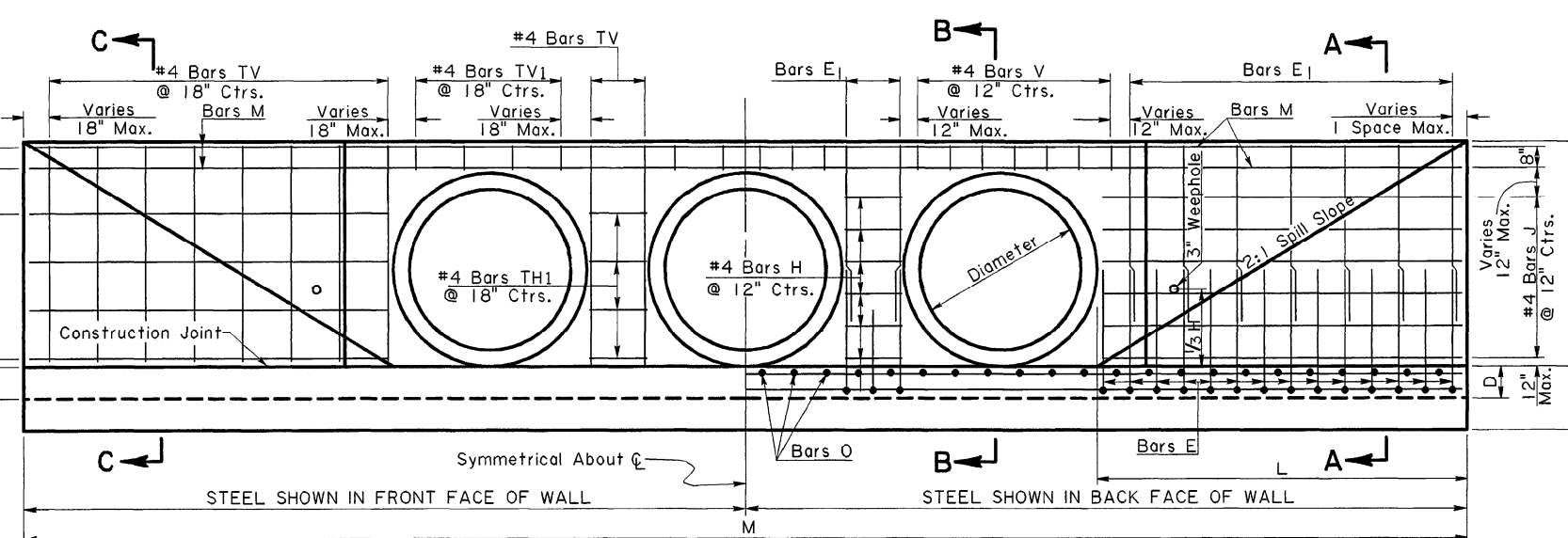
SECTION A-A
STEEL SHOWN IN BACK
FACE OF WALL



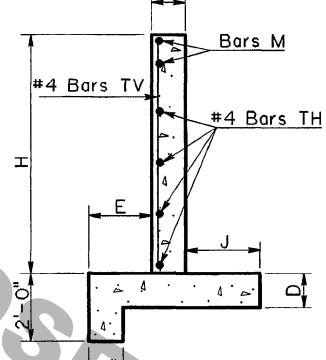
SECTION B-B
STEEL SHOWN IN BACK
FACE OF WALL



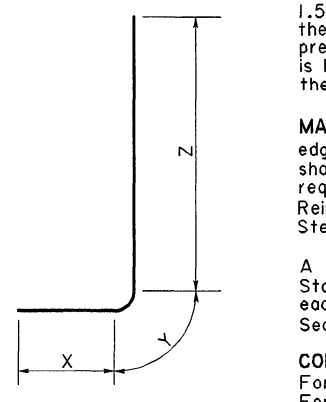
PLAN



ELEVATION



SECTION C-C
STEEL SHOWN IN FRONT
FACE OF WALL



BARS E

GENERAL NOTES

DESIGN: Method- Headwalls are designed as retaining walls according to current AASHTO working stress procedures. Walls are designed for a lateral earth pressure of 40 psf with 2.0 feet of surcharge. **Overturning-** A minimum safety factor of 2.0 is provided against overturning. The resultant of loads is within the middle third of the footing. **Sliding -** A minimum safety factor of 1.5 is provided against sliding. The coefficient of friction between the footing and soil is 0.5. **Foundation -** The design soil bearing pressure is 1800 psf. When strength of the soil at the site is less than 1800 psf, bedding material shall be added under the footing as directed.

MATERIALS: Concrete- All concrete shall be class A. All exposed edges shall be 3/4 inch chamfered. **Reinforcing Steel-** Reinforcement shall be Grade 60. Bar spacing dimensions are to bar centers. Steel required for lap splices not detailed shall not be measured for payment. Reinforcing steel shall have 2" cover unless otherwise specified. Steel and concrete quantities shown in table are for one headwall.

A 1'-6" square of geotextile fabric (see Section 1019 of the LA DOTD Standard Specifications) shall be placed in contact with concrete behind each weephole in addition to approximately 2 cu.ft. of concrete sand (see Section 1003.02 of the LA DOTD Standard Specifications).

CONSTRUCTION JOINTS: All construction joints shown are optional. For details of keyed construction joints see Standard Plan CM-49. For construction joints without key, the joint surface shall be roughened. Hardened surface shall be cleaned. Immediately before new concrete is placed, joint surface shall be saturated with water.

SHEET NUMBER		PARISH		FEDERAL PROJECT		STATE PROJECT	
2		8-11-00		New Sheet Added, Minor Drafting Revisions		JCM	
1		11-14-97		Revised General Notes And Added Name HW-90RCP2		JCM	
DATE		DATE		REVISION DESCRIPTION		BY	
6-28-01		6-28-01		6-28-01		6-28-01	
WILLIAM M. RAY		WILLIAM M. RAY		WILLIAM M. RAY		WILLIAM M. RAY	
REGISTERED PROFESSIONAL ENGINEER		REGISTERED PROFESSIONAL ENGINEER		REGISTERED PROFESSIONAL ENGINEER		REGISTERED PROFESSIONAL ENGINEER	
IN CIVIL ENGINEERING		IN CIVIL ENGINEERING		IN CIVIL ENGINEERING		IN CIVIL ENGINEERING	
6-28-01		6-28-01		6-28-01		6-28-01	
STRAIGHT HEADWALL FOR RCP ON A 90° CROSSING 60" THRU 144"		STRAIGHT HEADWALL FOR RCP ON A 90° CROSSING 60" THRU 144"		STRAIGHT HEADWALL FOR RCP ON A 90° CROSSING 60" THRU 144"		STRAIGHT HEADWALL FOR RCP ON A 90° CROSSING 60" THRU 144"	
HYDRAULICS SECTION		HYDRAULICS SECTION		HYDRAULICS SECTION		HYDRAULICS SECTION	