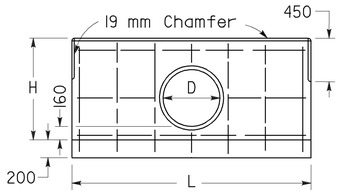
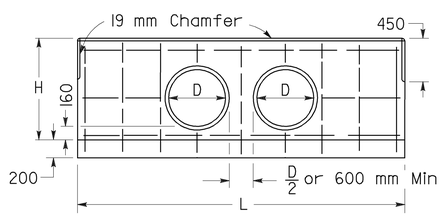
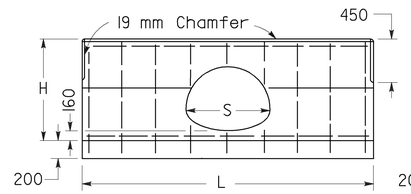


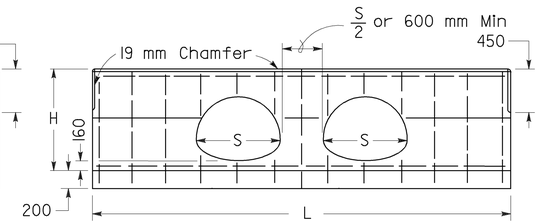
FRONT ELEVATION
SINGLE HEADWALL



FRONT ELEVATION
DOUBLE HEADWALL



FRONT ELEVATION
SINGLE HEADWALL



FRONT ELEVATION
DOUBLE HEADWALL

Caltrans Metric

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

October 26, 2000
PLANS APPROVAL DATE

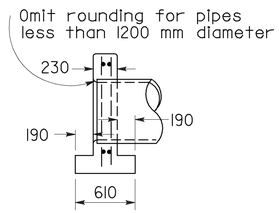
Glenn DeCou No. C34547 Exp. 9-30-03 CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated _____

D	H	SINGLE			DOUBLE		
		L	Steel	Conc	L	Steel	Conc
mm	mm	mm	kg	m^3	mm	kg	m^3
300	810	1500	16	0.45	2500	24	0.74
375	885	1800	18	0.56	2950	28	0.91
450	960	2100	22	0.68	3250	34	1.04
525	1035	2250	26	0.76	3550	40	1.18
600	1110	2550	34	0.90	3850	46	1.32
675	1185	2850	38	1.04	4300	52	1.53
750	1260	3000	40	1.13	4600	54	1.69
825	1335	3300	44	1.29	4900	58	1.86
900	1410	3600	46	1.46	5200	66	2.03
975	1485	3750	58	1.57	5500	78	2.21
1050	1560	4050	62	1.75	5800	84	2.39
1125	1635	4350	66	1.94	6100	88	2.58
1200	1710	4500	70	2.06	6400	90	2.78
1275	1785	4800	80	2.26	6850	102	3.06
1350	1860	5100	84	2.47	7150	108	3.27

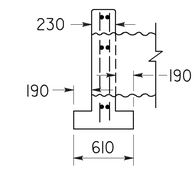
STRAIGHT HEADWALLS



SECTION, SINGLE & DOUBLE HEADWALLS

CMP ARCH SIZE	SINGLE				DOUBLE		
	H	L	Steel	Conc	L	Steel	Conc
mm	mm	mm	kg	m^3	mm	kg	m^3
530x380	885	2000	20	0.61	3000	28	0.91
610x460	960	2300	22	0.74	3500	32	1.10
710x510	1010	2600	28	0.85	4100	40	1.32
885x610	1110	3200	38	1.11	4700	54	1.58
1060x740	1235	3800	50	1.40	5500	66	1.95
1240x840	1335	4400	58	1.70	6400	78	2.37
1440x970	1460	5200	70	2.13	7450	96	2.91
1620x1100	1585	5800	80	2.50	8200	104	3.36
1800x1200	1685	6400	88	2.89	9100	116	3.88

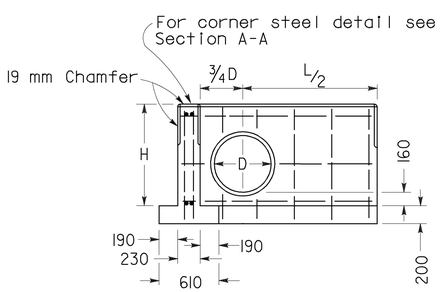
STRAIGHT HEADWALLS



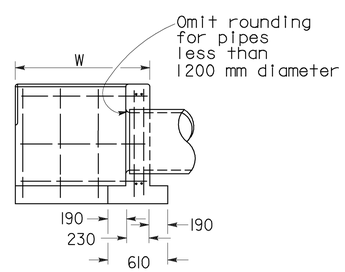
SECTION, SINGLE & DOUBLE HEADWALLS

NOTES

1. No deduction made in quantities for thickness of pipe walls.
2. All reinforcing steel #13 bars. All vertical and horizontal tie bars 450 mm maximum spacing.
3. Length of wall "W" may be varied to suit conditions encountered in the field, and straight line interpolation may be used to calculate quantities.
4. Quantities are for design purposes only.
5. Cable railing to be installed on top of headwall when shown on Project Plans. See Standard Plan B11-47 for cable railing details.



FRONT ELEVATION "L" HEADWALL

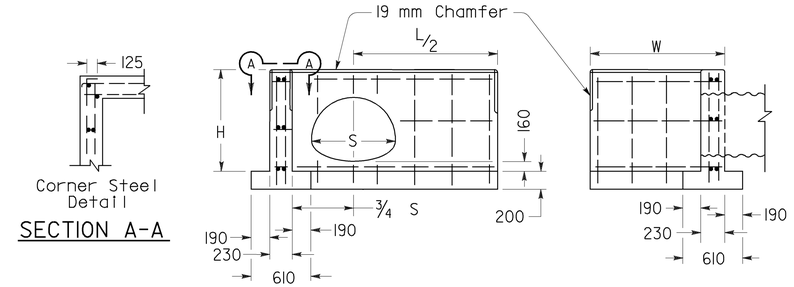


SECTION "L" HEADWALL

D	H	L/2	LENGTH OF W									
			1000		1450		1900		2350		2800	
			Steel	Conc	Steel	Conc	Steel	Conc	Steel	Conc	Steel	Conc
mm	mm	mm	kg	m^3	kg	m^3	kg	m^3	kg	m^3	kg	m^3
300	810	750	22	0.59	26	0.73	—	—	—	—	—	—
375	885	900	24	0.68	28	0.83	—	—	—	—	—	—
450	960	1050	28	0.78	32	0.94	—	—	—	—	—	—
525	1035	1125	32	0.86	40	1.02	—	—	—	—	—	—
600	1110	1275	38	0.96	44	1.13	48	1.30	—	—	—	—
675	1185	1425	40	1.07	46	1.25	50	1.43	—	—	—	—
750	1260	1500	42	1.16	48	1.34	52	1.53	60	1.72	—	—
825	1335	1650	46	1.28	52	1.47	60	1.67	66	1.86	—	—
900	1410	1800	48	1.40	54	1.61	62	1.81	68	2.01	74	2.21
975	1485	1875	—	—	66	1.71	74	1.92	80	2.13	88	2.33
1050	1560	2025	—	—	68	1.85	76	2.07	84	2.28	92	2.50
1125	1635	2175	—	—	—	—	78	2.22	88	2.45	94	2.67
1200	1710	2250	—	—	—	—	84	2.34	94	2.57	100	2.81
1275	1785	2400	—	—	—	—	—	—	96	2.75	102	2.98
1350	1860	2550	—	—	—	—	—	—	102	2.92	110	3.17

"L" HEADWALLS

CIRCULAR PIPE CULVERT HEADWALLS



FRONT ELEVATION "L" HEADWALL

SECTION "L" HEADWALL

CMP ARCH SIZE	H	LENGTH OF W										
		L/2	1000		1450		1900		2350		2800	
			Steel	Conc	Steel	Conc	Steel	Conc	Steel	Conc	Steel	Conc
mm	mm	mm	kg	m^3	kg	m^3	kg	m^3	kg	m^3	kg	m^3
530x380	885	1000	26	0.74	30	0.89	34	1.04	40	1.18	44	1.33
610x460	960	1150	28	0.84	32	1.00	36	1.15	42	1.30	50	1.46
710x510	1010	1300	32	0.93	36	1.09	40	1.25	44	1.41	52	1.57
885x610	1110	1600	44	1.13	50	1.30	54	1.47	62	1.64	70	1.81
1060x740	1235	1900	52	1.36	58	1.54	62	1.72	70	1.90	76	2.09
1240x840	1335	2200	58	1.58	64	1.77	70	1.96	76	2.16	82	2.35
1440x970	1460	2600	64	1.89	72	2.09	78	2.30	84	2.51	92	2.71
1620x1100	1585	2900	84	2.16	90	2.38	96	2.60	104	2.82	112	3.04
1800x1200	1685	3200	90	2.44	96	2.66	104	2.89	112	3.12	120	3.35

"L" HEADWALLS

CORRUGATED METAL PIPE ARCH CULVERT HEADWALLS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PIPE HEADWALLS

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP D89 DATED OCTOBER 26, 2000 SUPERSEDES STANDARD PLAN D89 DATED JULY 1, 1999-PAGE 121 OF THE STANDARD PLANS BOOK DATED JULY 1999.

REVISED STANDARD PLAN RSP D89

1999 REVISED STD. PLAN RSP D89