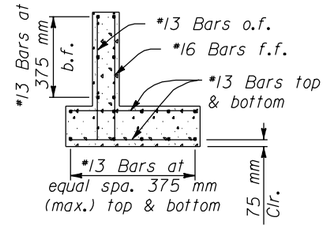
STATE	PROJECT	SHEET NUMBER

WINGWALLS FOR CONCRETE HEADWALLS

DIMENSIONS, REINFORCING STEEL AND CONCRETE TABLE OF QUANTITIES

D	H	0° WINGWALL SKEW			15° WINGWALL SKEW			30° WINGWALL SKEW			45° WINGWALL SKEW			60° WINGWALL SKEW		
		W	CONC.	STEEL	W	CONC.	STEEL	W	CONC.	STEEL	W	CONC.	STEEL	W	CONC.	STEEL
mm	m	m	m^3	kg	m	m^3	kg	m	m^3	kg	m	m^3	kg	m	m^3	kg
1200	1.500	1.8	2.11	77	1.8	2.13	77	1.8	2.13	77	1.8	2.14	77	1.8	2.15	77
1350	1.575	1.8	2.14	79	1.8	2.15	79	1.8	2.16	79	1.8	2.17	79	2.1	2.40	86
1500	1.650	1.8	2.17	82	1.8	2.19	82	1.8	2.19	82	1.8	2.20	82	2.3	2.67	98
1650	1.725	1.8	2.20	82	1.8	2.22	82	1.8	2.22	82	1.8	2.23	82	2.5	2.94	107
1800	1.800	1.8	2.24	84	1.8	2.25	84	1.8	2.26	84	2.0	2.42	88	2.7	3.21	116
1950	1.875	1.8	2.27	86	1.8	2.28	86	1.8	2.29	86	2.1	2.61	95	3.0	3.49	127
2100	1.950	1.8	2.30	86	1.8	2.31	86	1.8	2.32	86	2.3	2.81	104	3.2	3.77	138
2250	2.025	1.8	2.33	88	1.8	2.34	88	2.0	2.52	93	2.4	3.00	111	3.4	4.06	147
2400	2.100	1.8	2.36	88	1.9	2.45	93	2.1	2.71	102	2.6	3.20	118	3.6	4.36	159

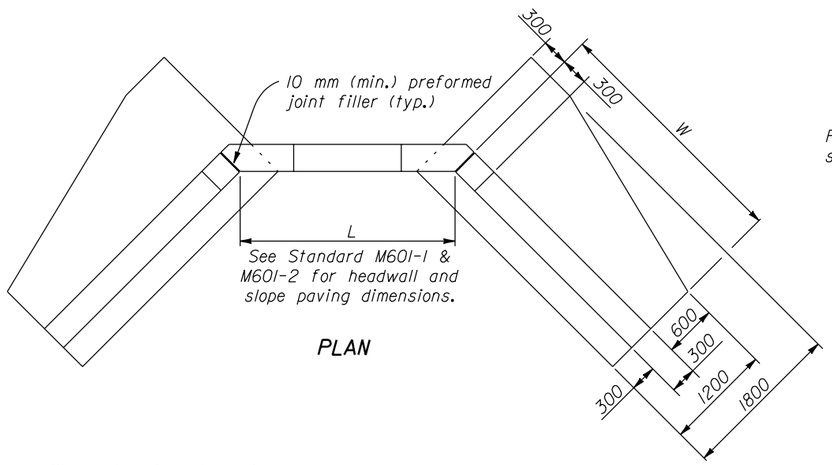
RECOMMENDED WINGWALL SKEWS				
	PIPE SKEW			
WINGWALL	0°	15°	30°	45°
①	45°	45°	60°	60°
②	45°	30°	15°	0°
③	45°	30°	15°	0°
④	45°	45°	60°	60°



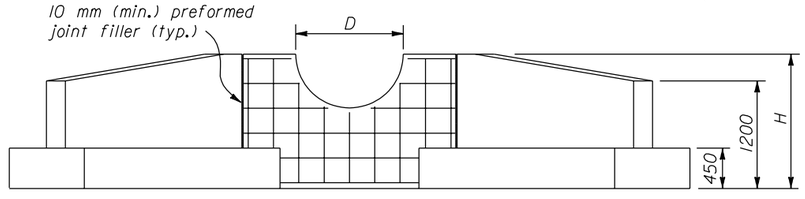
SECTION A-A

NOTE:

1. Dimensions not labeled are in millimeters.
2. Concrete conforms to Section 601. Chamfer all exposed edges 20 mm and finish all exposed surfaces with a Class 1 ordinary finish.
3. Clearance for reinforcing steel is 50 mm unless otherwise noted.
4. For skew angles shown in table, the length W and quantities for wingwalls are computed for a 1:1.5 side slope. For slopes other than 1:1.5 compute length W with the following equations:
   (1:2 slope) W= (H-0.9) x 2 x secant (wingwall skew angle)
   (1:2.5 slope) W= (H-0.9) x 2.5 x secant (wingwall skew angle)
   Minimum W not less than 1.8 meters
5. Quantities shown in table are for one wing wall only. For lengths not shown in table, compute quantities with the following method:
   Multiply the quantities for 0° skew and a given height, H, by the factor 1 + [(W-1.8) x 0.14].
6. Final quantities will be determined by using the tables on this standard.
7. Do not order materials until the length, skew angle, and slope bevel in the field have been approved.



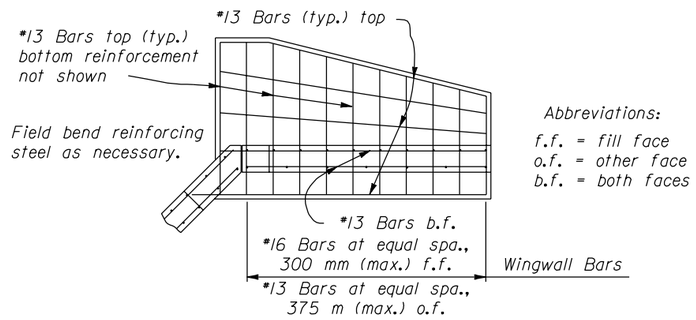
PLAN



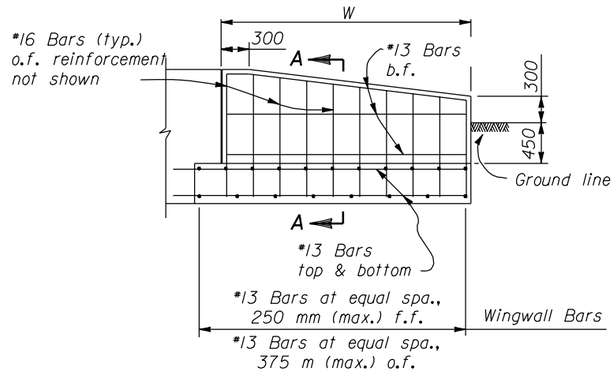
See Standard M601-1 & M601-2 for headwall and slope paving quantities and details.

ELEVATION

HEADWALL AND WINGWALL



PLAN

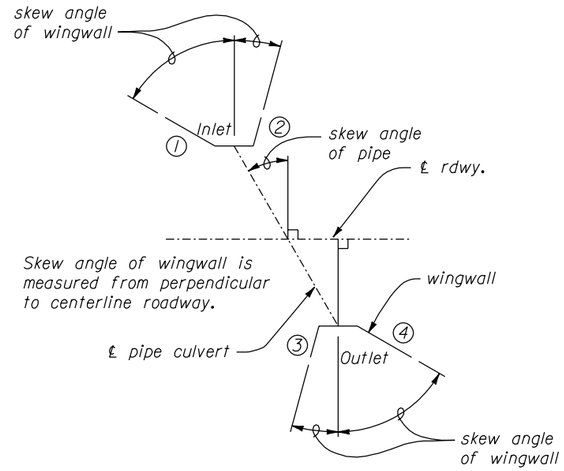


ELEVATION

TYPICAL WINGWALL

Abbreviations:

f.f. = fill face
o.f. = other face
b.f. = both faces



WINGWALL LAYOUT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

METRIC STANDARD

WINGWALLS FOR CONCRETE HEADWALLS

STANDARD APPROVED FOR USE 3/1996
REVISED: 8/1997

STANDARD M601-3

16 NOV 2000

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