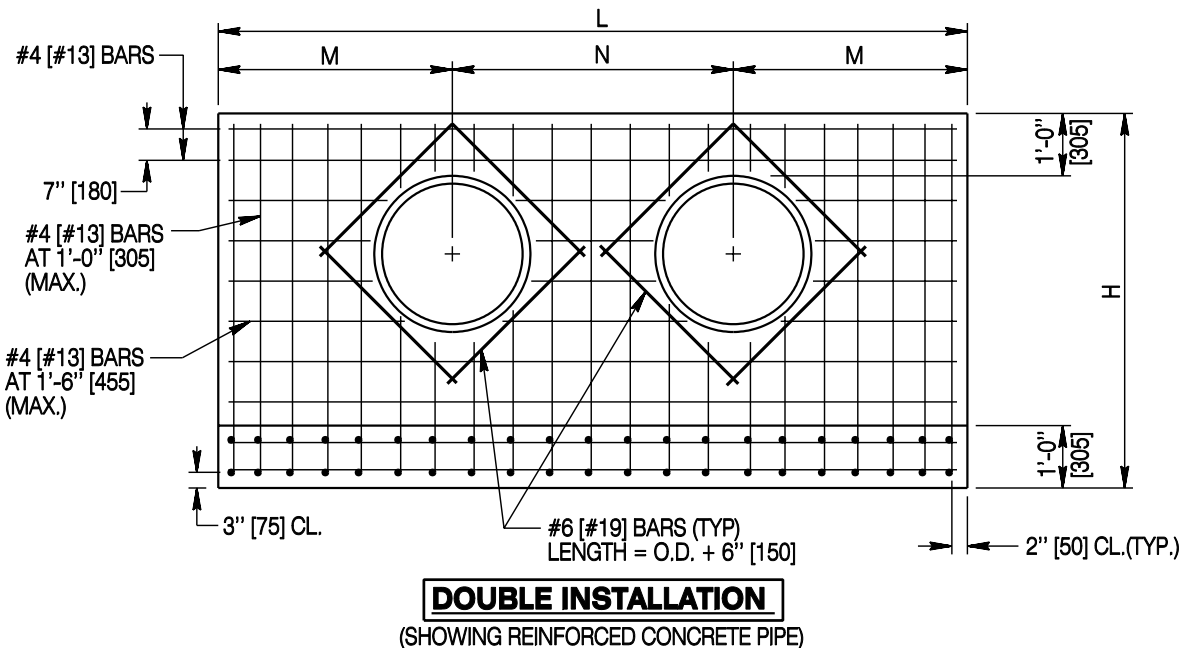


SINGLE INSTALLATION
(SHOWING CORRUGATED METAL PIPE)



DOUBLE INSTALLATION
(SHOWING REINFORCED CONCRETE PIPE)

GENERAL NOTES

Anchor Bolts:
Space anchor bolts equally around the circumference of head walls, in cut-off walls and in cut-off wall portions of full beveled head walls.

Rebar:
Provide #4 #13 bars unless shown otherwise.

Clearance:
Provide a minimum clearance of 2 in [50] between reinforcing steel and the outside face of concrete unless shown otherwise.

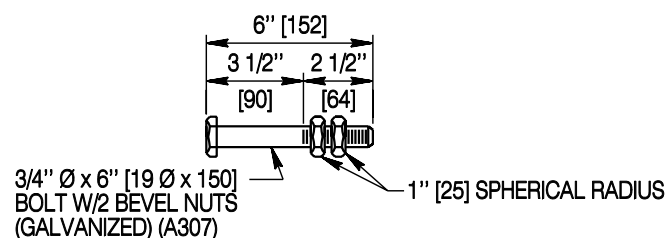
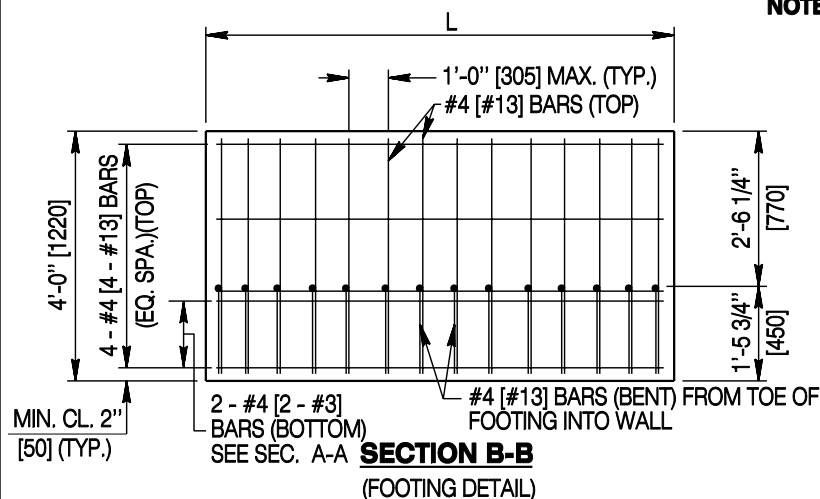
DESIGN COMMENTARY

Taller headwalls require a site specific structural design.

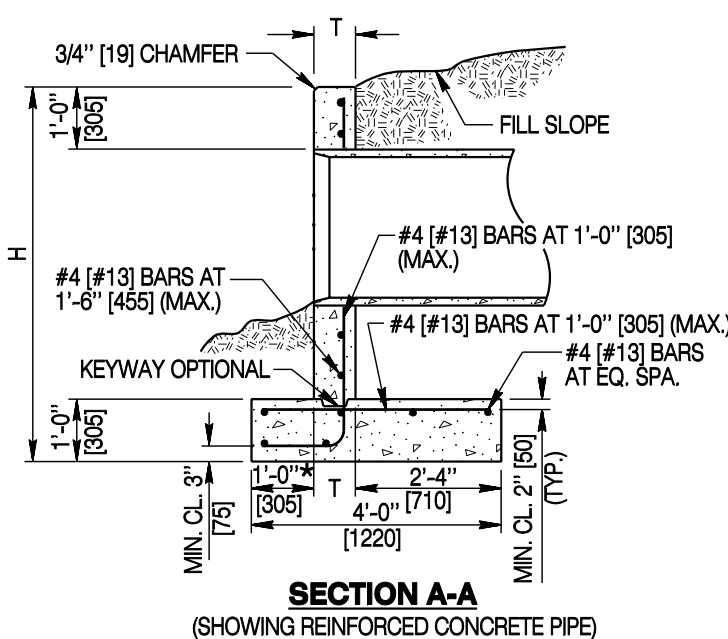
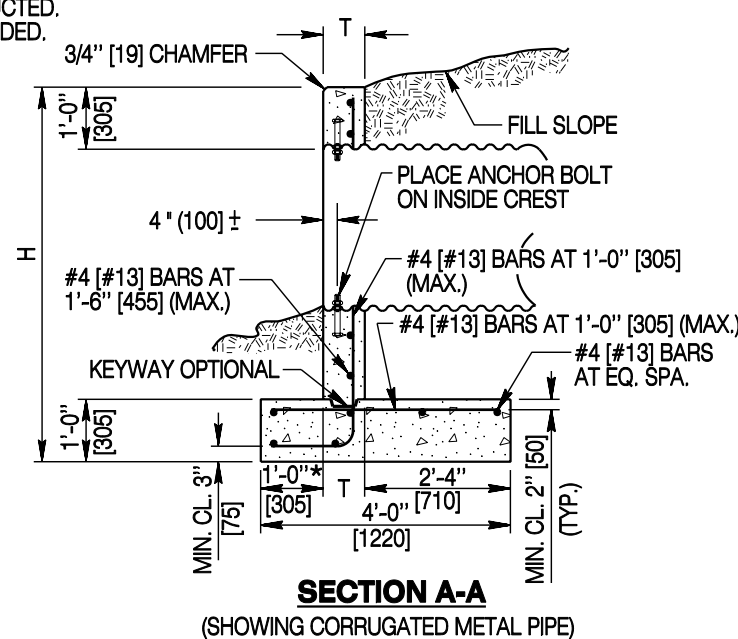
SINGLE INSTALLATION														
DIMENSIONS								QUANTITIES				WALL		
INSIDE DIA. (CMP AND RCP)		OUTSIDE DIA. (RCP ONLY)		H (CMP AND RCP)		L (CMP AND RCP)		CONCRETE (CMP AND RCP)		REINF. STEEL (CMP AND RCP)		NUMBER ANCHOR BOLTS CMP ONLY		T
IN	mm	IN	mm	FT - IN	mm	FT - IN	mm	CY	m³	LB	kg	EA	IN	mm
18	450	23	575	5-0	1530	4-6	1370	1.1	0.84	70	31.8	3	8	205
24	600	30	750	5-6	1675	6-0	1830	1.5	1.15	90	40.8	4	8	205
30	750	37	925	6-0	1830	7-6	2285	1.9	1.45	120	54.4	5	8	205
36	900	44	1100	6-6	1980	9-0	2750	2.4	1.83	150	68.0	5	8	205
42	1050	51	1275	7-6	2285	10-6	3200	3.4	2.60	190	86.2	7	10	255
48	1200	58	1450	8-0	2440	12-0	3660	4.0	3.05	220	99.8	8	10	255

DOUBLE INSTALLATION																		
DIMENSIONS												QUANTITIES				WALL		
INSIDE DIA. (CMP AND RCP)		OUTSIDE DIA. (RCP ONLY)		H (CMP AND RCP)		L (CMP AND RCP)		M (CMP AND RCP)		N (CMP AND RCP)		CONCRETE (CMP AND RCP)		REINF. STEEL (CMP AND RCP)		NUMBER ANCHOR BOLTS CMP ONLY		T
IN	mm	IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	CY	m³	LB	kg	EA	IN	mm
18	450	23	575	5-0	1530	8-0	2440	2-3	685	3-6	1070	1.9	1.45	130	59.0	6	8	205
24	600	30	750	5-6	1675	10-0	3050	3-0	915	4-0	1220	2.5	1.91	160	72.6	8	8	205
30	750	37	925	6-0	1830	12-0	3660	3-9	1145	4-6	1370	3.0	2.29	200	90.7	10	8	205
36	900	44	1100	6-6	1980	14-0	4270	4-6	1370	5-0	1530	3.7	2.82	250	113.4	10	8	205
42	1050	51	1275	7-6	2285	16-0	4875	5-3	1600	5-6	1675	4.7	3.59	290	131.5	14	10	255
48	1200	58	1450	8-0	2440	18-0	5490	6-0	1830	6-0	1830	5.8	4.43	350	158.8	16	10	255

- NOTE:** 1.) CONCRETE QUANTITIES: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.
2.) REINFORCING QUANTITIES: AREA OCCUPIED BY PIPE HAS BEEN INCLUDED.
3.) QUANTITIES ARE ESTIMATES BASED ON USING CMP.



NOTE: CLEAN BOLTS AND NUTS AFTER GALVANIZING TO PROVIDE A FREE RUNNING FIT.



* USE 10 IN [255] WHEN T = 10 IN [255]

Designed by: BOS
Drawn by: GLD
Checked by: RRC
Previous Dep. No. 617-01A

VERTICAL HEAD WALLS FOR ROUND RCP AND CMP - 48 IN [1200] MAXIMUM DIAMETER

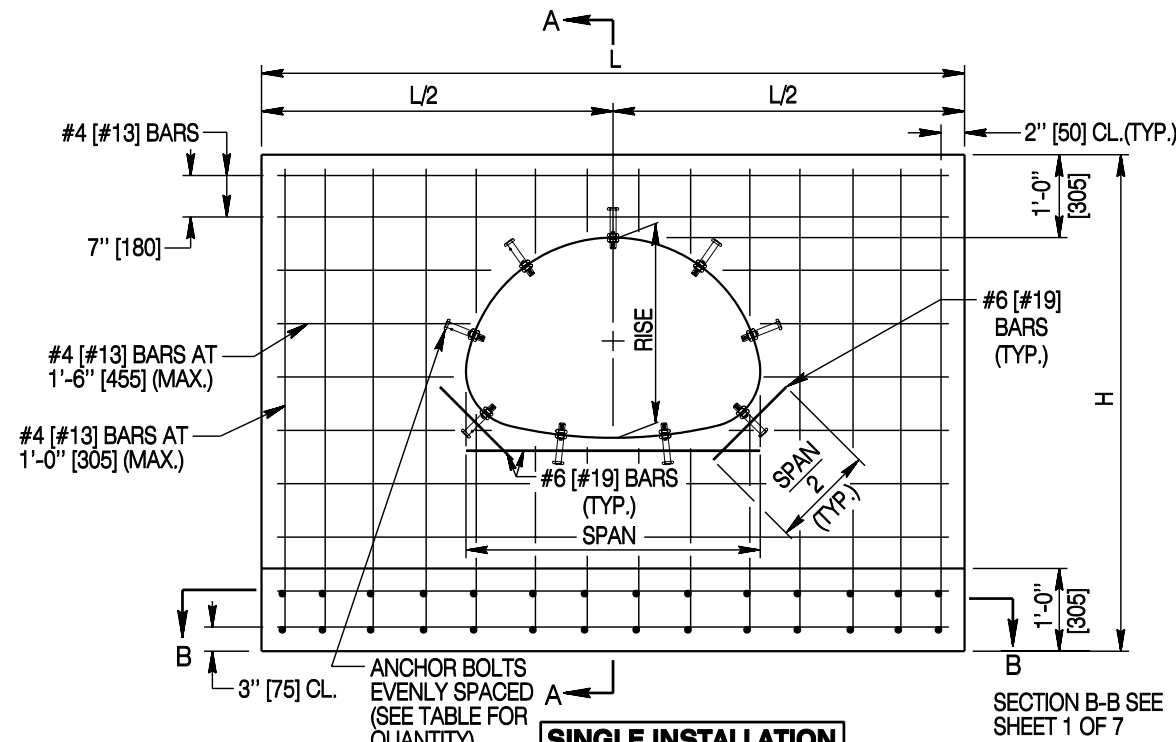
Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



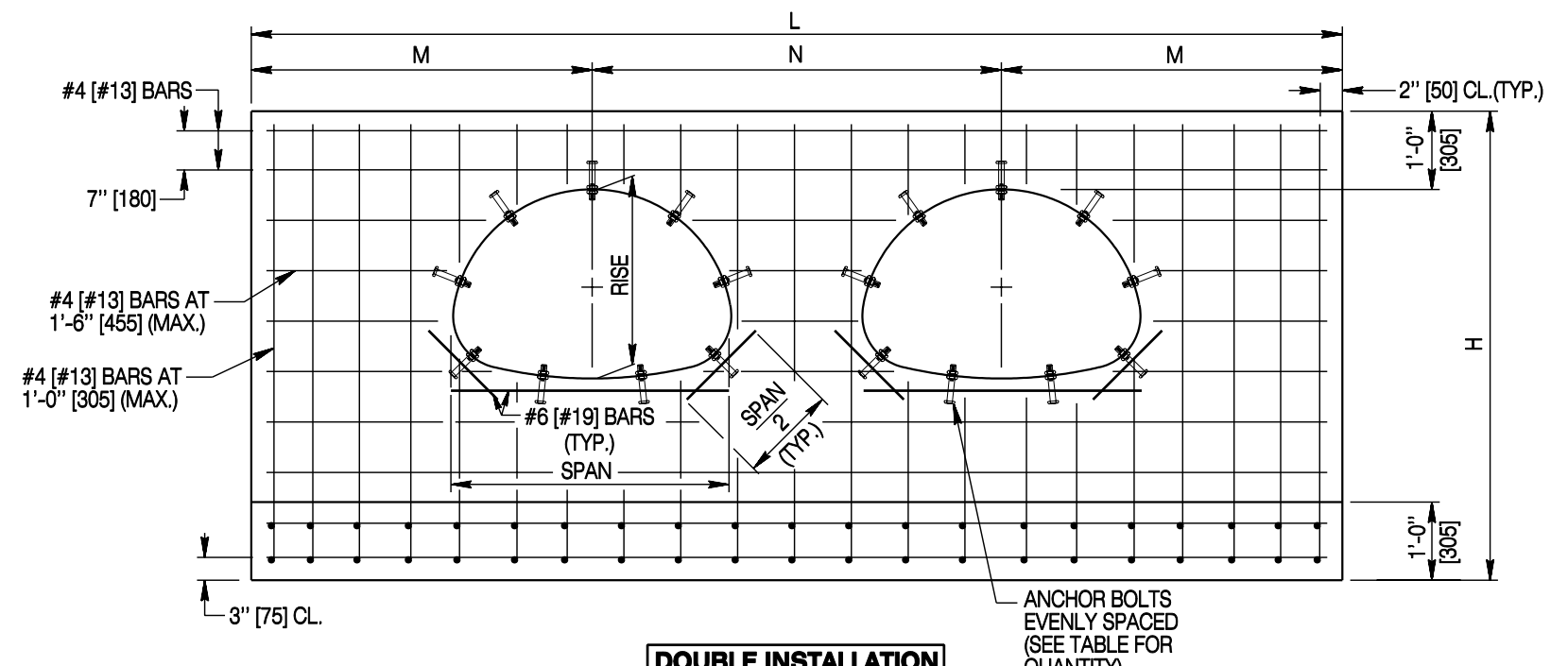
BEVEL END FINISH, CUT-OFF WALLS AND HEAD WALLS

STANDARD PLAN

STANDARD PLAN NUMBER
617-1
SHEET 1 of 7
Issued by: ENGINEERING SERVICES
Date Issued: NOVEMBER, 2004
FILE: j:\StanDuel_Std_VWK6171_01.dgn



SINGLE INSTALLATION

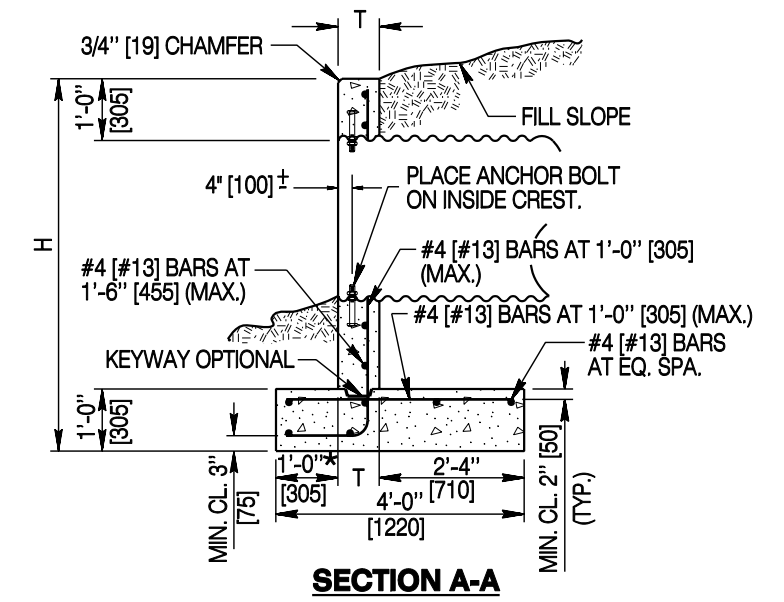


DOUBLE INSTALLATION

DIMENSIONS						QUANTITIES					WALL	
PIPE - ARCH (SPAN x RISE)		H		L		CONCRETE		REINF. STEEL		NUMBER ANCHOR BOLTS	T	
IN x IN	mm x mm	FT - IN	mm	FT - IN	mm	CY	m³	LB	kg	EA	IN	mm
17 x 13	425 x 325	4 - 6	1370	3 - 6	1065	0.8	0.61	50	22.7	3	8	205
21 x 15	525 x 375	4 - 6	1370	4 - 6	1370	1.0	0.76	60	27.2	3	8	205
24 x 18	600 x 450	5 - 0	1530	5 - 0	1530	1.2	0.92	70	31.8	4	8	205
28 x 20	700 x 500	5 - 0	1530	5 - 6	1675	1.3	0.99	80	36.3	5	8	205
35 x 24	875 x 600	5 - 6	1675	7 - 0	2135	1.7	1.30	100	45.4	5	8	205
42 x 29	1050 x 725	6 - 0	1830	8 - 6	2590	2.1	1.61	130	59.0	6	8	205
49 x 33	1225 x 825	6 - 0	1830	9 - 6	2895	2.4	1.83	140	63.5	7	8	205
57 x 38	1425 x 950	6 - 6	1980	11 - 0	3355	2.8	2.14	170	77.1	8	8	205
64 x 43	1600 x 1075	7 - 0	2135	12 - 6	3810	3.7	2.83	200	90.7	9	10	255
71 x 47	1775 x 1175	7 - 6	2285	14 - 0	4265	4.3	3.29	230	104.3	10	10	255

DIMENSIONS										QUANTITIES					WALL	
PIPE - ARCH (SPAN x RISE)		H		L		M		N		CONCRETE		REINF. STEEL		NUMBER ANCHOR BOLTS	T	
IN x IN	mm x mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	CY	m³	LB	kg	EA	IN	mm
17 x 13	425 x 325	4 - 6	1370	7 - 0	2135	1 - 9	535	3 - 6	1065	1.6	1.22	90	40.8	6	8	205
21 x 15	525 x 375	4 - 6	1370	8 - 0	2440	2 - 0	610	4 - 0	1220	1.8	1.38	100	45.4	6	8	205
24 x 18	600 x 450	5 - 0	1530	9 - 0	2750	2 - 6	765	4 - 0	1220	2.1	1.60	130	59.0	8	8	205
28 x 20	700 x 500	5 - 0	1530	10 - 0	3050	2 - 9	840	4 - 6	1370	2.2	1.68	140	63.5	10	8	205
35 x 24	875 x 600	5 - 6	1675	12 - 0	3660	3 - 6	1065	5 - 0	1530	2.9	2.22	180	81.6	10	8	205
42 x 29	1050 x 725	6 - 0	1830	14 - 0	4265	4 - 3	1295	5 - 6	1675	3.2	2.45	210	95.3	12	8	205
49 x 33	1225 x 825	6 - 0	1830	15 - 6	4720	4 - 9	1445	6 - 0	1830	3.6	2.75	240	108.9	14	8	205
57 x 38	1425 x 950	6 - 6	1980	18 - 6	5635	5 - 6	1675	7 - 6	2285	4.1	3.13	300	136.1	16	8	205
64 x 43	1600 x 1075	7 - 0	2135	21 - 0	6400	6 - 3	1905	8 - 6	2590	6.1	4.66	350	158.8	18	10	255
71 x 47	1775 x 1175	7 - 6	2285	22 - 6	6860	6 - 9	2055	9 - 0	2750	6.8	5.20	380	172.4	20	10	255

NOTE: 1.) CONCRETE QUANTITIES: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.
2.) REINFORCING QUANTITIES: AREA OCCUPIED BY PIPE HAS BEEN INCLUDED.



* USE 10 IN [255] WHEN T = 10 IN [255]

Designed by: BOS
 Drawn by: GLD
 Checked by: RRC
 Previous Dep. No. 617-01A

VERTICAL HEAD WALLS FOR CMP ARCH
 71 IN x 47 IN [1775 x 1175] MAXIMUM SIZE

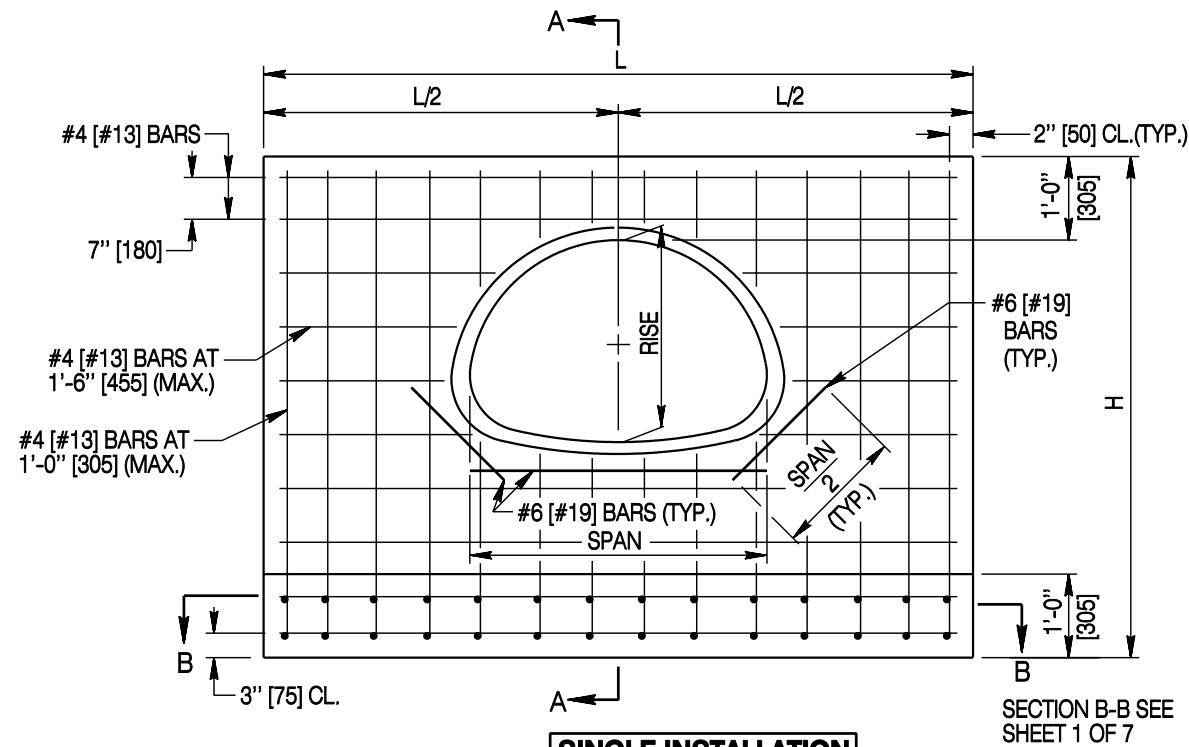
Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

WYOMING DEPARTMENT OF TRANSPORTATION

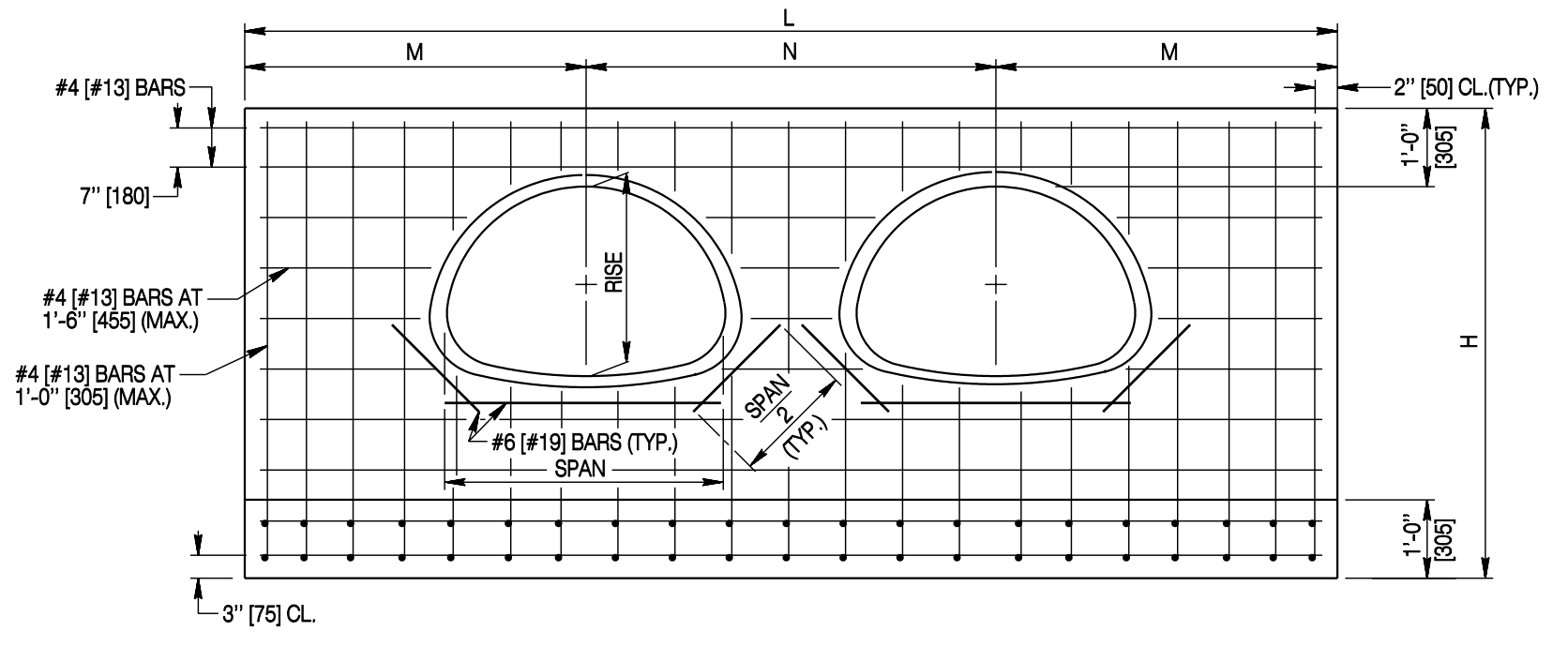
BEVEL END FINISH, CUT-OFF WALLS AND HEAD WALLS

STANDARD PLAN

STANDARD PLAN NUMBER
617-1
 SHEET 2 of 7
 Issued by: ENGINEERING SERVICES
 Date Issued: NOVEMBER, 2004
 FILE: j:\StanDual_Std_Wrk617_02.dgn



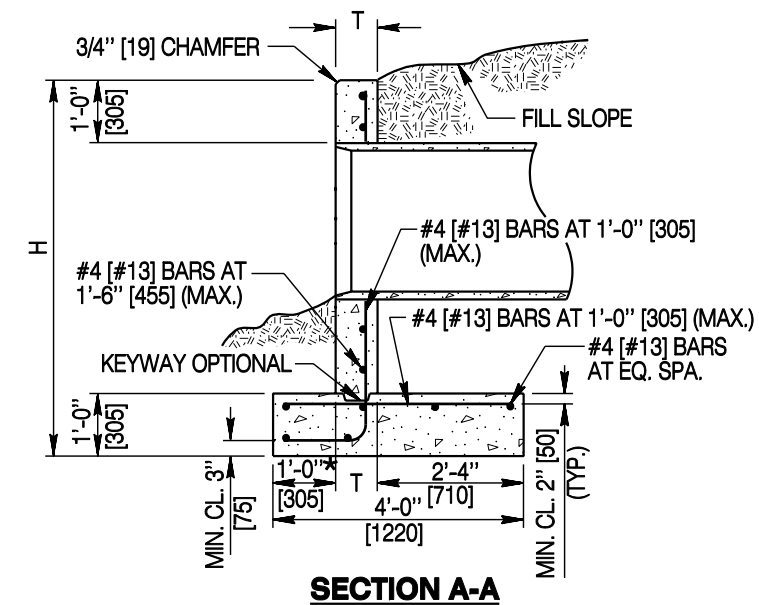
SINGLE INSTALLATION



DOUBLE INSTALLATION

SINGLE INSTALLATION													
DIMENSIONS								QUANTITIES				WALL	
ELLIPTICAL (SPAN X RISE)		PIPE - ARCH (SPAN X RISE)		H		L		CONCRETE		REINFORCING STEEL		T	
IN X IN	mm x mm	IN X IN	mm x mm	FT - IN	mm	FT - IN	mm	CY	m³	LB	kg	IN	mm
23 x 14	575 x 350	22 x 14	550 x 350	5 - 0	1530	4 - 6	1370	1.1	0.84	60	27.2	8	205
30 x 19	750 x 475	29 x 18	725 x 450	5 - 6	1675	5 - 6	1675	1.4	1.07	80	36.3	8	205
38 x 24	950 x 600	36 x 23	900 x 575	6 - 0	1830	7 - 0	2135	1.8	1.38	100	45.4	8	205
45 x 29	1125 x 725	44 x 27	1100 x 675	6 - 0	1830	8 - 0	2440	2.0	1.53	130	59.0	8	205
53 x 34	1325 x 850	51 x 31	1275 x 775	6 - 6	1980	9 - 6	2895	2.5	1.91	150	68.0	8	205
60 x 38	1500 x 950	59 x 36	1475 x 900	7 - 0	2135	11 - 0	3355	3.3	2.52	180	81.6	10	255
68 x 43	1700 x 1075	65 x 40	1625 x 1000	7 - 6	2285	12 - 0	3660	3.7	2.83	200	90.7	10	255
76 x 48	1900 x 1200	73 x 45	1825 x 1125	7 - 6	2285	13 - 6	4115	4.2	3.21	230	104.3	10	255

DOUBLE INSTALLATION																	
DIMENSIONS										QUANTITIES				WALL			
ELLIPTICAL (SPAN X RISE)		PIPE - ARCH (SPAN X RISE)		H		L		M		N		CONCRETE		REINFORCING STEEL		T	
IN X IN	mm x mm	IN X IN	mm x mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	CY	m³	LB	kg	IN	mm
23 x 14	575 x 350	22 x 14	550 x 350	5 - 0	1530	8 - 0	2440	2 - 0	610	4 - 0	1220	1.9	1.45	113	51.3	8	205
30 x 19	750 x 475	29 x 18	725 x 450	5 - 6	1675	10 - 0	3050	2 - 9	840	4 - 6	1370	2.5	1.91	140	63.5	8	205
38 x 24	950 x 600	36 x 23	900 x 575	6 - 0	1830	12 - 0	3660	3 - 6	1065	5 - 0	1530	3.1	2.37	180	81.6	8	205
45 x 29	1125 x 725	44 x 27	1100 x 675	6 - 0	1830	14 - 0	4270	4 - 0	1220	6 - 0	1830	3.5	2.68	211	95.7	8	205
53 x 34	1325 x 850	51 x 31	1275 x 775	6 - 6	1980	16 - 0	4880	4 - 9	1450	6 - 6	1980	4.1	3.13	260	117.9	8	205
60 x 38	1500 x 950	59 x 36	1475 x 900	7 - 0	2135	18 - 6	5645	5 - 9	1755	7 - 0	2135	5.5	4.21	310	140.6	10	255
68 x 43	1700 x 1075	65 x 40	1625 x 1000	7 - 6	2285	20 - 6	6245	6 - 6	1980	7 - 6	2285	6.3	4.82	350	158.8	10	255
76 x 48	1900 x 1200	73 x 45	1825 x 1125	7 - 6	2285	23 - 0	7010	7 - 6	2285	8 - 0	2440	6.9	5.28	390	176.9	10	255



SECTION A-A

* USE 10 IN [255] WHEN T = 10 IN [255]

NOTE: 1.) CONCRETE QUANTITIES: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.
2.) REINFORCING QUANTITIES: AREA OCCUPIED BY PIPE HAS BEEN INCLUDED.
3.) QUANTITIES ARE ESTIMATES BASED ON USING RCP ARCH.

Designed by: BOS
Drawn by: GLD
Checked by: RRC
Previous Dep. No. 617-01A

**VERTICAL HEAD WALLS FOR RCP ARCH AND
ELLIPTICAL, 76 IN x 48 IN [1900 x 1200] MAXIMUM**

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



**WYOMING DEPARTMENT
OF
TRANSPORTATION**

**BEVEL END FINISH, CUT-OFF
WALLS AND HEAD WALLS**

STANDARD PLAN

STANDARD PLAN NUMBER

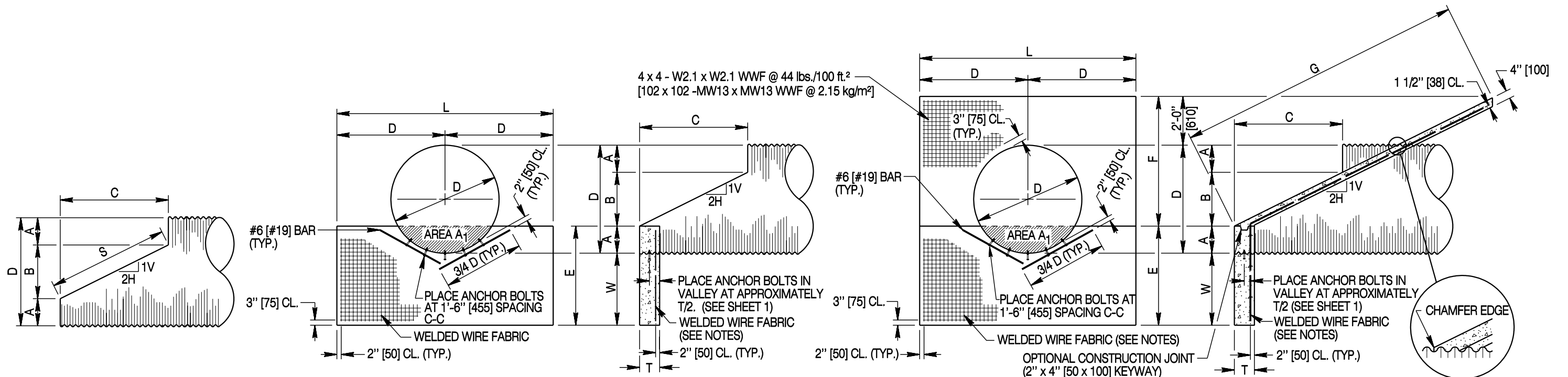
617-1

SHEET 3 of 7

Issued by: ENGINEERING SERVICES

Date Issued: NOVEMBER, 2004

FILE: j:\StanDual_Std_VHW6171_03.dgn



STEP BEVEL - END FINISH

CUT - OFF WALL FOR STEP BEVEL END FINISH

HEAD WALL FOR STEP BEVEL END FINISH

NOTES

WELDED WIRE FABRIC IN CUT - OFF WALL
 4 x 4 - W2.1 x W2.1 WWF [102 x 102 - MW13 x MW13 WWF] @
 44 lbs./100 ft.² [2.15 kg/m²] FOR 54 in [1350] ≤ D < 120 in [3050]
 4 x 4 - W4 x W4 WWF [102 x 102 - MW26 x MW26 WWF] @
 85 lbs./100 ft.² [4.15 kg/m²] FOR 120 in [3050] ≤ D ≤ 180 in [4600]
 SEE SHEET 5 OF 7 FOR DIMENSIONS AND QUANTITIES.

Designed by: BOS
 Drawn by: GLD
 Checked by: RRC
 Previous Dep. No. 617-01A

CUT-OFF WALLS AND SLOPED HEADWALLS FOR ROUND METAL AND CORRUGATED STRUCTURAL PLATE PIPE DIA. 54 IN [1350] - 180 IN [4600]

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



BEVEL END FINISH, CUT-OFF WALLS AND HEAD WALLS

STANDARD PLAN

STANDARD PLAN NUMBER
617-1
 SHEET 4 of 7
 Issued by: ENGINEERING SERVICES
 Date Issued: NOVEMBER, 2004
 FILE: j:\StanDual_Std_VWk6171_04.dgn

DIMENSIONS																							QUANTITIES								
INSIDE DIAMETER (D)	A	B	C	S	E	F	L	G	T	W	AREA A ₁	CUT-OFF WALL				HEAD WALL															
												CONCRETE	REINFORCING STEEL	CONCRETE *	REINFORCING STEEL *																
CORRUGATED METAL PIPE (1V:2H STEP BEVEL END)																															
IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT	mm	FT - IN	mm	IN	mm	FT	mm	FT ²	m ²	CY	m ³	LB	kg	CY	m ³	LB	kg
54	1350	1 - 1 1/2	345	2 - 3	685	4 - 6	1370	5 - 0	1530	4 - 1 1/2	1260	5 - 5	1640	9	2745	12 - 0	3660	10	255	3	915	3.1	0.29	1.1	0.84	20	9.1	2.1	1.61	60	27.2
60	1500	1 - 3	380	2 - 6	760	5 - 0	1520	5 - 7	1705	4 - 3	1295	5 - 10	1750	10	3040	12 - 11	3920	10	255	3	915	3.8	0.35	1.2	0.92	20	9.1	2.4	1.83	80	36.3
66	1650	1 - 4 1/2	420	2 - 9	840	5 - 6	1680	6 - 2	1875	4 - 4 1/2	1335	6 - 1	1865	11	3350	13 - 8	4175	10	255	3	915	4.6	0.43	1.3	0.99	20	9.1	2.6	1.99	90	40.8
72	1800	1 - 6	460	3 - 0	915	6 - 0	1830	6 - 8	2045	4 - 6	1370	6 - 6	1980	12	3660	14 - 6	4430	10	255	3	915	5.5	0.51	1.5	1.15	30	13.6	3.0	2.29	100	45.4
78	1950	1 - 7 1/2	495	3 - 3	990	6 - 6	1980	7 - 4	2215	4 - 7 1/2	1410	6 - 11	2095	13	3960	15 - 5	4685	10	255	3	915	6.5	0.60	1.7	1.30	30	13.6	3.4	2.60	120	54.4
84	2100	1 - 9	535	3 - 6	1065	7 - 0	2130	7 - 10	2385	4 - 9	1450	7 - 4	2210	14	4260	16 - 2	4940	10	255	3	915	7.5	0.70	1.8	1.38	30	13.6	3.7	2.83	130	59.0
90	2250	1 - 10 1/2	575	3 - 9	1145	7 - 6	2290	8 - 5	2555	4 - 10 1/2	1485	7 - 7	2325	15	4570	17 - 1	5200	10	255	3	915	8.6	0.80	2.0	1.53	40	18.1	4.2	3.21	150	68.0
96	2400	2 - 0	610	4 - 0	1220	8 - 0	2440	8 - 11	2725	5 - 0	1520	8 - 0	2440	16	4875	17 - 11	5450	12	305	3	915	9.8	0.91	2.6	1.99	40	18.1	5.0	3.82	160	72.6
102	2550	2 - 1 1/2	650	4 - 3	1295	8 - 6	2590	9 - 6	2900	5 - 1 1/2	1560	8 - 5	2555	17	5180	18 - 8	5710	12	305	3	915	11.1	1.03	2.8	2.14	40	18.1	5.5	4.21	180	81.6
108	2700	2 - 3	685	4 - 6	1370	9 - 0	2740	10 - 1	3065	5 - 3	1600	8 - 10	2665	18	5485	19 - 7	5965	12	305	3	915	12.4	1.15	3.1	2.37	50	22.7	6.0	4.59	200	90.7
114	2850	2 - 4 1/2	725	4 - 9	1450	9 - 6	2900	10 - 7	3235	5 - 4 1/2	1640	9 - 1	2780	19	5790	20 - 5	6220	12	305	3	915	13.9	1.29	3.3	2.52	50	22.7	6.5	4.97	220	99.8
120	3000	2 - 6	760	5 - 0	1520	10 - 0	3040	11 - 2	3410	5 - 6	1675	9 - 6	2895	20	6095	21 - 2	6475	12	305	3	915	15.4	1.43	3.5	2.68	60	27.2	7.0	5.35	240	108.9
STRUCTURAL PLATE PIPE (1V:2H STEP BEVEL END)																															
IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT	mm	FT - IN	mm	IN	mm	FT	mm	FT ²	m ²	CY	m ³	LB	kg	CY	m ³	LB	kg
60	1500	1 - 3	380	2 - 6	760	5 - 0	1520	5 - 7	1705	4 - 3	1295	5 - 10	1750	10	3050	12 - 11	3920	10	255	3	915	3.8	0.35	1.2	0.92	20	9.1	2.4	1.83	80	36.3
66	1655	1 - 4 1/2	420	2 - 9	840	5 - 6	1680	6 - 2	1875	4 - 4 1/2	1335	6 - 1	1865	11	3350	13 - 8	4175	10	255	3	915	4.6	0.43	1.3	0.99	20	9.1	2.6	1.99	90	40.8
72	1810	1 - 6	460	3 - 0	915	6 - 0	1830	6 - 8	2045	4 - 6	1370	6 - 6	1985	12	3660	14 - 6	4430	10	255	3	915	5.5	0.51	1.5	1.15	30	13.6	3.0	2.29	100	45.4
78	1965	1 - 7 1/2	495	3 - 3	990	6 - 6	1980	7 - 4	2215	4 - 7 1/2	1410	6 - 11	2095	13	3960	15 - 5	4685	10	255	3	915	6.5	0.60	1.7	1.30	30	13.6	3.4	2.60	120	54.4
84	2120	1 - 9	535	3 - 6	1065	7 - 0	2130	7 - 10	2385	4 - 9	1450	7 - 4	2210	14	4260	16 - 2	4940	10	255	3	915	7.5	0.70	1.8	1.40	30	13.6	3.7	2.83	130	59.0
90	2275	1 - 10 1/2	575	3 - 9	1145	7 - 6	2290	8 - 5	2555	4 - 10 1/2	1485	7 - 7	2325	15	4570	17 - 1	5200	10	255	3	915	8.6	0.80	2.0	1.53	40	18.1	4.2	3.21	150	68.0
96	2430	2 - 0	610	4 - 0	1220	8 - 0	2440	8 - 11	2725	5 - 0	1520	8 - 0	2440	16	4875	17 - 11	5450	12	305	3	915	9.8	0.91	2.6	1.99	40	18.1	5.0	3.82	160	72.6
102	2585	2 - 1 1/2	650	4 - 3	1295	8 - 6	2590	9 - 6	2900	5 - 1 1/2	1560	8 - 5	2555	17	5180	18 - 8	5710	12	305	3	915	11.1	1.03	2.8	2.14	40	18.1	5.5	4.21	180	81.6
108	2740	2 - 3	685	4 - 6	1370	9 - 0	2740	10 - 1	3065	5 - 3	1600	8 - 10	2665	18	5485	19 - 7	5965	12	305	3	915	12.4	1.15	3.0	2.29	50	22.7	6.0	4.59	200	90.7
114	2895	2 - 4 1/2	725	4 - 9	1450	9 - 6	2900	10 - 7	3235	5 - 4 1/2	1640	9 - 1	2780	19	5790	20 - 5	6220	12	305	3	915	13.9	1.29	3.3	2.52	50	22.7	6.5	4.97	220	99.8
120	3050	2 - 6	760	5 - 0	1520	10 - 0	3040	11 - 2	3410	5 - 6	1675	9 - 6	2895	20	6095	21 - 2	6475	12	305	3	915	15.4	1.43	3.5	2.68	60	27.2	7.0	5.35	240	108.9
126	3205	2 - 7 1/2	800	5 - 3	1600	10 - 6	3200	11 - 8	3580	6 - 7 1/2	2020	9 - 11	3010	21	6400	22 - 1	6730	15	380	4	1220	16.9	1.57	5.7	4.36	120	54.4	9.5	7.26	320	145.1
132	3360	2 - 9	840	5 - 6	1675	11 - 0	3350	12 - 4	3750	6 - 9	2060	10 - 4	3125	22	6705	22 - 11	6985	15	380	4	1220	18.6	1.73	6.0	4.59	130	59.0	10.1	7.72	350	158.8
138	3515	2 - 10 1/2	880	5 - 9	1750	11 - 6	3500	12 - 11	3920	6 - 10 1/2	2095	10 - 7	3240	23	7010	23 - 10	7240	15	380	4	1220	20.3	1.89	6.4	4.89	140	63.5	10.8	8.26	370	167.8
144	3670	3 - 0	915	6 - 0	1830	12 - 0	3660	13 - 5	4090	7 - 0	2130	11 - 0	3350	24	7315	24 - 7	7500	15	380	4	1220	22.1	2.05	6.8	5.20	150	68.0	11.6	8.87	400	181.4
150	3825	3 - 1 1/2	955	6 - 3	1905	12 - 6	3810	14 - 0	4260	7 - 1 1/2	2170	11 - 5	3465	25	7620	25 - 5	7755	15	380	4	1220	24.0	2.23	7.1	5.43	160	72.6	12.2	9.33	430	195.0
156	3980	3 - 3	990	6 - 6	1980	13 - 0	3960	14 - 6	4430	7 - 3	2210	11 - 10	3580	26	7925	26 - 4	8010	15	380	4	1220	26.0	2.42	7.5	5.73	160	72.6	13.0	9.94	460	208.7
162	4135	3 - 4 1/2	1030	6 - 9	2060	13 - 6	4120	15 - 1	4600	7 - 4 1/2	2250	12 - 1	3695	27	8230	27 - 1	8260	15	380	4	1220	28.0	2.60	7.9	6.04	170	77.1	13.8	10.55	490	222.3
168	4290	3 - 6	1065	7 - 0	2130	14 - 0	4260	15 - 8	4770	7 - 6	2285	12 - 6	3810	28	8535	28 - 0	8520	15	380	4	1220	30.1	2.80	8.3	6.35	180	81.6	14.5	11.09	520	235.9
174	4445	3 - 7 1/2	1105	7 - 3	2210	14 - 6	4420	16 - 2	4940	7 - 7 1/2	2325	12 - 11	3925	29	8840	28 - 10	8775	15	380	4	1220	32.3	3.00	8.7	6.65	190	86.2	15.3	11.70	550	249.5
180	4600	3 - 9	1145	7 - 6	2285	15 - 0	4570	16 - 10	5110	7 - 9	2360	13 - 2	4040	30	9145	29 - 7	9030	15	380	4	1220	34.6	3.21	9.2	7.03	200	90.7	16.2	12.39	590	267.6

NOTE: * INCLUDES QUANTITIES IN BOTH CUT-OFF WALL AND SLOPE PAVING.
USE ANCHOR BOLTS IN CUT-OFF WALL ONLY.

Designed by: BOS
Drawn by: GLD
Checked by: RRC
Previous Des. No. 617-01A

CUT-OFF WALLS AND SLOPED HEAD WALLS FOR ROUND METAL AND CORRUGATED STRUCTURAL PLATE PIPE DIA. 54 IN [1350] - 180 IN [4600] (CON'T)

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



WYOMING DEPARTMENT OF TRANSPORTATION



BEVEL END FINISH, CUT-OFF WALLS AND HEAD WALLS

STANDARD PLAN

STANDARD PLAN NUMBER

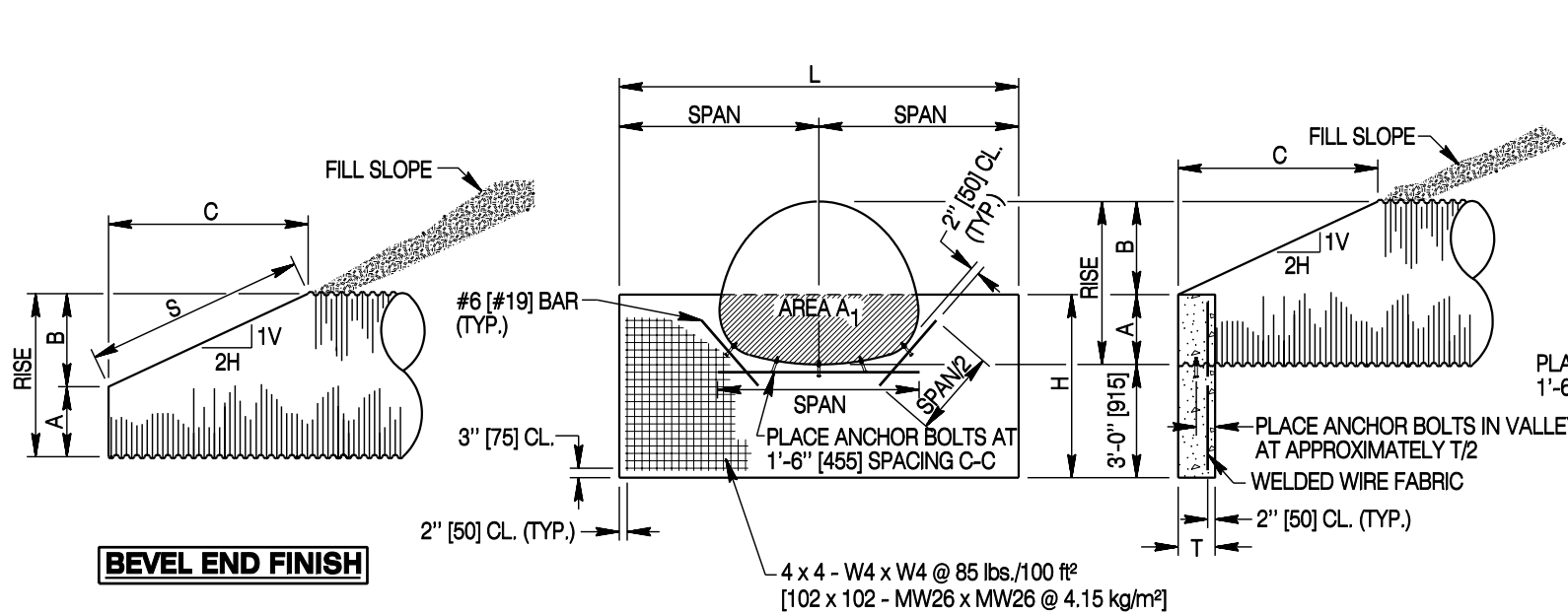
617-1

SHEET 5 of 7

Issued by: ENGINEERING SERVICES

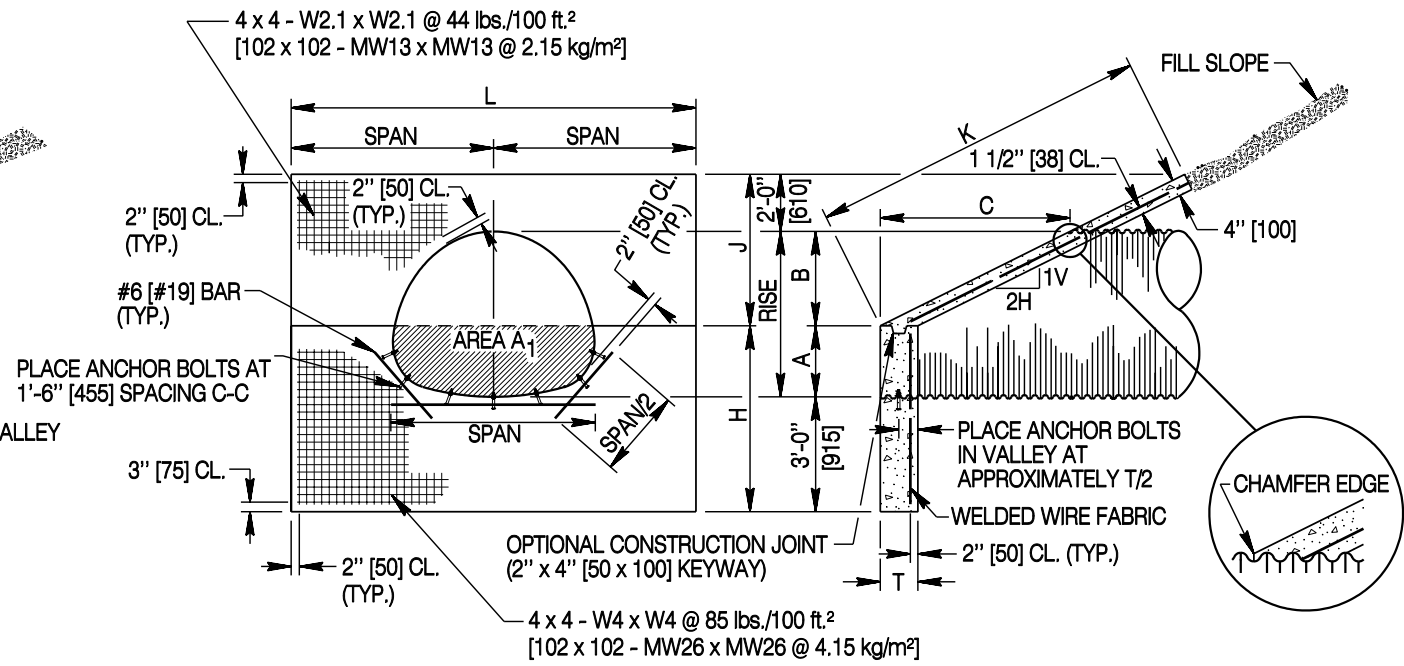
Date Issued: NOVEMBER, 2004

FILE: j:\StanDual_Std_VWR\6171_05.dgn

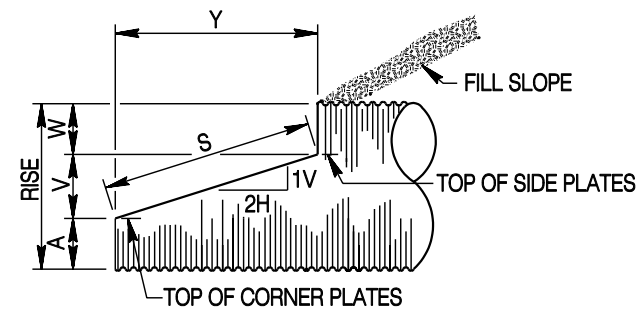


BEVEL END FINISH

CUT - OFF WALL FOR BEVEL END FINISH



HEAD WALL FOR BEVEL END FINISH



STRUCTURAL PLATE PIPE - ARCH STOCK PASS - STEP BEVEL END

STRUCTURAL PLATE STOCK PASS, CORRUGATED, ARCH (1V:2H STEP BEVEL END FINISH)

PIPE - ARCH DIMENSIONS SPAN X RISE		CORNER RADIUS		A	V	W	Y	S					
IN X IN	mm x mm	IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm				
68 x 78	1730 x 1980	18	450	1 - 6	455	3 - 5	1035	1 - 7	490	6 - 10	2075	7 - 7	2315
70 x 92	1780 x 2340	18	450	1 - 6	455	4 - 11	1495	1 - 4	395	9 - 10	2985	11 - 0	3355

Designed by: BOS
 Drawn by: GLD
 Checked by: RRC
 Previous Desg. No. 617-01A

CUT-OFF WALLS AND SLOPED HEAD WALLS FOR STRUCTURAL PLATE PIPE-ARCH AND STOCK PASSES

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



BEVEL END FINISH, CUT-OFF WALLS AND HEAD WALLS

STANDARD PLAN

STANDARD PLAN NUMBER
617-1
 SHEET 6 of 7
 Issued by: ENGINEERING SERVICES
 Date Issued: NOVEMBER, 2004

FILE: j:\StanDual_Std_Wk6171_06.dgn

CORRUGATED STRUCTURAL PLATE PIPE - ARCH (1V:2H BEVEL END)

PIPE - ARCH DIMENSIONS SPAN X RISE		CORNER RADIUS		DIMENSIONS																		QUANTITIES									
				A		B		C		L		H		J		K		S		T		AREA A ₁		CUT-OFF WALL				HEAD WALL			
				FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	FT - IN	mm	IN	mm	FT ²	m ²	CY	m ³	LB	kg	CY	m ³
73 x 55	1850 x 1400	18	460	2 - 4	700	2 - 4	700	4 - 7	1400	12 - 2	3710	5 - 4	1620	4 - 4	1310	9 - 7	2930	5 - 1	1570	9	230	12	1.11	1.5	1.14	60	27.2	2.7	2.06	110	49.9
76 x 57	1930 x 1450	18	460	2 - 1	640	2 - 8	820	5 - 5	1640	12 - 8	3860	5 - 1	1550	4 - 8	1430	10 - 6	3200	6 - 0	1840	9	230	11	1.02	1.5	1.14	60	27.2	2.8	2.14	120	54.4
81 x 59	2060 x 1500	18	460	2 - 5	730	2 - 6	760	5 - 0	1520	13 - 6	4110	5 - 5	1650	4 - 6	1370	10 - 1	3070	5 - 7	1700	9	230	14	1.30	1.6	1.22	70	31.8	3.0	2.29	130	59.0
84 x 61	2130 x 1550	18	460	2 - 4	700	2 - 10	860	5 - 7	1720	14 - 0	4270	5 - 4	1620	4 - 10	1460	10 - 8	3270	6 - 4	1910	9	230	13	1.21	1.7	1.30	70	31.8	3.1	2.37	130	59.0
87 x 63	2210 x 1600	18	460	2 - 1	640	3 - 2	970	6 - 5	1950	14 - 6	4420	5 - 1	1550	5 - 2	1590	11 - 7	3540	7 - 2	2180	9	230	14	1.30	1.7	1.30	70	31.8	3.3	2.52	140	63.5
92 x 65	2340 x 1650	18	460	2 - 4	700	3 - 1	950	6 - 2	1900	15 - 4	4670	5 - 4	1620	5 - 1	1550	11 - 5	3480	6 - 11	2110	9	230	16	1.50	1.8	1.38	80	36.3	3.5	2.68	150	68.0
95 x 67	2410 x 1700	18	460	2 - 2	670	3 - 5	1040	6 - 10	2080	15 - 10	4830	5 - 2	1590	5 - 5	1650	12 - 1	3680	7 - 7	2320	9	230	15	1.39	2.2	1.68	80	36.3	4.0	3.06	160	72.6
98 x 69	2490 x 1750	18	460	2 - 0	610	3 - 10	1160	7 - 7	2320	16 - 4	4980	5 - 0	1520	5 - 10	1770	13 - 0	3950	8 - 6	2590	9	230	15	1.39	1.9	1.45	80	36.3	3.8	2.91	170	77.1
103 x 71	2620 x 1800	18	460	2 - 4	700	3 - 7	1100	7 - 2	2200	17 - 2	5230	5 - 4	1620	5 - 7	1710	12 - 6	3820	8 - 0	2450	9	230	17	1.58	2.1	1.61	90	40.8	4.1	3.13	180	81.6
106 x 73	2690 x 1850	18	460	2 - 2	670	3 - 11	1190	7 - 10	2380	17 - 8	5380	5 - 2	1590	5 - 11	1800	13 - 2	4020	8 - 8	2660	9	230	17	1.58	2.1	1.61	90	40.8	4.3	3.29	190	86.2
112 x 75	2840 x 1910	18	460	2 - 5	730	3 - 10	1160	7 - 7	2320	18 - 8	5690	5 - 5	1650	5 - 10	1770	13 - 0	3950	8 - 6	2590	9	230	19	1.77	2.3	1.76	100	45.4	4.6	3.52	200	90.7
114 x 77	2900 x 1960	18	460	2 - 4	700	4 - 1	1250	8 - 2	2500	19 - 0	5790	5 - 4	1620	6 - 1	1860	13 - 7	4160	9 - 2	2790	9	230	20	1.86	2.2	1.68	100	45.4	4.6	3.52	210	95.3
117 x 79	2970 x 2010	18	460	2 - 2	670	4 - 5	1340	8 - 10	2680	19 - 6	5940	5 - 2	1590	6 - 5	1950	14 - 4	4360	9 - 10	3000	9	230	19	1.77	2.3	1.76	100	45.4	4.8	3.67	220	99.8
123 x 81	3120 x 2060	18	460	2 - 5	730	4 - 4	1310	8 - 7	2620	20 - 6	6250	5 - 5	1650	6 - 4	1920	14 - 1	4290	9 - 7	2930	9	230	22	2.04	2.5	1.91	110	49.9	5.2	3.98	230	104.3
128 x 83	3250 x 2110	18	460	2 - 10	850	4 - 2	1280	8 - 5	2560	21 - 4	6500	5 - 10	1770	6 - 2	1890	13 - 11	4230	9 - 5	2860	9	230	25	2.32	2.7	2.06	120	54.4	5.4	4.13	240	108.9
131 x 85	3330 x 2160	18	460	2 - 7	790	4 - 6	1370	9 - 0	2740	21 - 10	6660	5 - 7	1710	6 - 6	1980	14 - 6	4430	10 - 1	3070	9	230	24	2.23	2.7	2.06	120	54.4	5.6	4.28	250	113.4
137 x 87	3480 x 2210	18	460	2 - 10	850	4 - 5	1340	8 - 10	2680	22 - 10	6960	5 - 10	1770	6 - 5	1950	14 - 4	4360	9 - 10	3000	9	230	27	2.51	2.9	1.68	130	59.0	5.9	4.51	270	122.5
139 x 89	3530 x 2260	18	460	2 - 8	820	4 - 10	1460	9 - 7	2920	23 - 2	7060	5 - 8	1740	6 - 10	2070	15 - 2	4640	10 - 8	3270	9	230	26	2.42	3.0	2.29	130	59.0	6.2	4.74	280	127.0
142 x 91	3610 x 2310	18	460	2 - 6	760	5 - 1	1560	10 - 2	3120	23 - 8	7210	5 - 6	1680	7 - 1	2160	15 - 11	4840	11 - 5	3480	9	230	26	2.42	2.9	1.68	120	54.4	6.3	4.82	290	131.5
148 x 93	3760 x 2360	18	460	2 - 10	850	4 - 11	1490	9 - 10	2980	24 - 8	7520	5 - 10	1770	6 - 11	2100	15 - 5	4700	11 - 0	3340	9	230	29	2.69	3.2	2.45	140	63.5	6.7	5.12	300	136.1
150 x 95	3810 x 2410	18	460	2 - 8	820	5 - 4	1620	10 - 7	3240	25 - 0	7620	5 - 8	1740	7 - 4	2230	16 - 4	4980	11 - 11	3610	9	230	29	2.69	3.2	2.45	140	63.5	6.8	5.20	310	140.6
152 x 97	3860 x 2460	18	460	2 - 6	760	5 - 7	1710	11 - 2	3420	25 - 4	7720	5 - 6	1680	7 - 7	2320	17 - 0	5180	12 - 6	3820	9	230	27	2.51	3.1	2.37	130	59.0	6.9	5.28	320	145.1
154 x 100	3910 x 2540	18	460	2 - 4	700	6 - 0	1830	12 - 0	3660	25 - 8	7820	5 - 4	1620	8 - 0	2440	17 - 11	5450	13 - 5	4090	9	230	25	2.32	3.1	2.37	130	59.0	7.1	5.43	330	149.7
159 x 112	4040 x 2840	31	785	3 - 11	1190	5 - 5	1650	10 - 10	3300	26 - 6	8080	6 - 11	2100	7 - 5	2260	16 - 6	5040	12 - 1	3680	12	305	46	4.27	5.1	3.90	170	77.1	9.1	6.96	360	163.3
162 x 114	4110 x 2900	31	785	3 - 8	1130	5 - 10	1770	11 - 7	3540	27 - 0	8230	6 - 8	2040	7 - 10	2380	17 - 5	5320	13 - 0	3950	12	305	45	4.18	5.0	3.82	170	77.1	9.2	7.03	370	167.8
168 x 116	4270 x 2950	31	785	4 - 0	1220	5 - 8	1740	11 - 5	3480	28 - 0	8530	7 - 0	2130	7 - 8	2350	17 - 2	5250	12 - 8	3890	12	305	49	4.55	5.4	4.13	180	81.6	9.8	7.49	390	176.9
170 x 118	4320 x 3000	31	785	3 - 11	1190	5 - 11	1800	11 - 10	3600	28 - 4	8640	6 - 11	2100	7 - 11	2410	17 - 8	5380	13 - 2	4020	12	305	50	4.65	5.4	4.13	180	81.6	9.9	7.57	400	181.4
173 x 120	4390 x 3050	31	785	3 - 8	1130	6 - 4	1920	12 - 7	3840	28 - 10	8790	6 - 8	2040	8 - 4	2530	18 - 7	5660	14 - 1	4290	12	305	47	4.37	5.4	4.13	180	81.6	10.1	7.72	410	186.0
179 x 122	4550 x 3100	31	785	4 - 0	1220	6 - 2	1890	12 - 5	3780	29 - 10	9090	7 - 0	2130	8 - 2	2500	18 - 4	5590	13 - 11	4230	12	305	53	4.92	5.8	4.43	190	86.2	10.7	8.18	430	195.0
184 x 124	4670 x 3150	31	785	4 - 4	1310	6 - 0	1830	12 - 0	3660	30 - 8	9350	7 - 4	2230	8 - 0	2440	17 - 11	5450	13 - 5	4090	14	360	58	5.39	7.2	5.50	210	95.3	12.2	9.33	450	204.1
187 x 126	4750 x 3200	31	785	4 - 2	1280	6 - 4	1920	12 - 7	3840	31 - 2	9500	7 - 2	2200	8 - 4	2530	18 - 7	5660	14 - 1	4290	14	360	58	5.39	7.2	5.50	210	95.3	12.4	9.48	460	208.7
190 x 128	4830 x 3250	31	785	3 - 11	1190	6 - 10	2070	13 - 7	4140	31 - 8	9650	6 - 11	2100	8 - 10	2680	19 - 8	6000	15 - 2	4630	14	360	53	4.92	7.2	5.50	210	95.3	12.7	9.71	470	213.2
195 x 130	4950 x 3300	31	785	4 - 4	1310	6 - 6	1980	13 - 0	3960	32 - 6	9910	7 - 4	2230	8 - 6	2590	19 - 0	5790	14 - 6	4430	14	360	62	5.76	7.6	5.81	220	99.8	13.1	10.02	490	222.3
198 x 132	5030 x 3350	31	785	4 - 1	1250	6 - 11	2100	13 - 10	4200	33 - 0	10 060	7 - 1	2160	8 - 11	2710	19 - 11	6070	15 - 5	4700	14	360	59	5.48	7.6	5.81	220	99.8	13.4	10.25	500	226.8
204 x 134	5180 x 3400	31	785	4 - 5	1340	6 - 10	2070	13 - 7	4140	34 - 0	10 360	7 - 5	2260	8 - 10	2680	19 - 8	6000	15 - 2	4640	14	360	65	6.04	8.1	6.19	230	104.3	14.1	10.78	520	235.9
206 x 136	5230 x 3450	31	785	4 - 2	1280	7 - 1	2160	14 - 2	4320	34 - 4	10 460	7 - 2	2200	9 - 1	2770	20 - 4	6200	15 - 11	4840	14	360	63	5.85	8.0	6.12	230	104.3	14.1	10.78	530	240.4
209 x 138	5310 x 3510	31	785	4 - 0	1220	7 - 6	2290	15 - 0	4580	34 - 10	10 620	7 - 0	2130	9 - 6	2900	21 - 2	6480	16 - 10	5110	14	360	62	5.76	7.9	6.04	230	104.3	14.4	11.01	550	249.5
215 x 140	5460 x 3560	31	785	4 - 5	1340	7 - 4	2230	14 - 7	4460	35 - 10	10 920	7 - 5	2260	9 - 4	2840	20 - 10	6340	16 - 4	4980	14	360	67	6.22	8.6	6.58	250	113.4	15.1	11.54	570	258.5
217 x 142	5510 x 3610	31	785	4 - 1	1250	7 - 8	2350	15 - 5	4700	36 - 2	11 020	7 - 1	2160	9 - 8	2960	21 - 8	6610	17 - 2	5250	14	360	66	6.13	8.3	6.35	240	108.9	15.2	11.62	580	263.1
223 x 144	5660 x 3660	31	785	4 - 6	1370	7 - 6	2290	15 - 0	4580	37 - 2	11 330	7 - 6	2290	9 - 6	2900	21 - 2	6480	16 - 10	5110	14	360	71	6.60	9.0	6.88	260	117.9	15.9	12.16	600	272.2