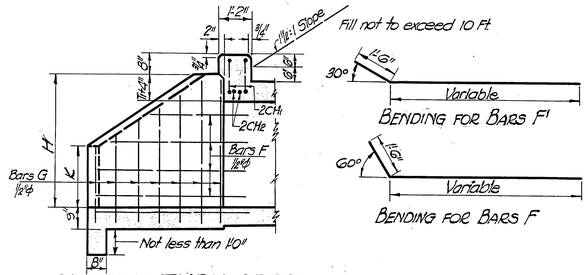
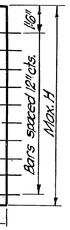
FED. ROAD DIST. NO.	STATE	AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

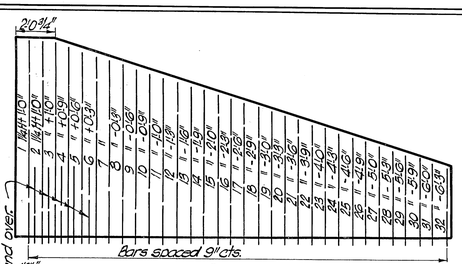
Revised - 1951
Rev. Note for Reinf. Wts. 5-7-63



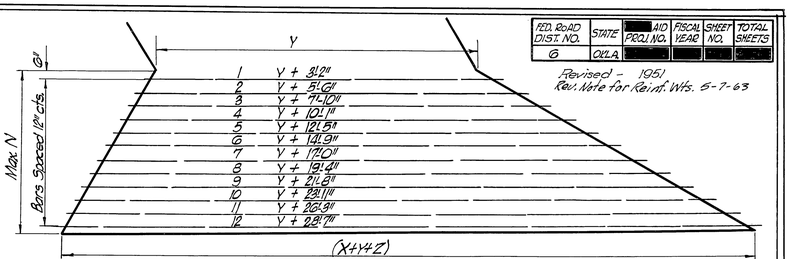
SECTION THRU APRON



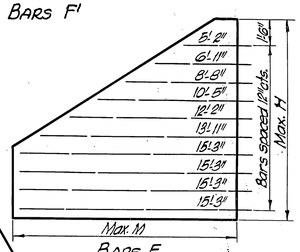
BARS F'



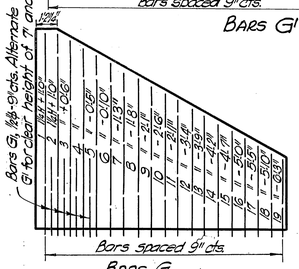
BARS G'



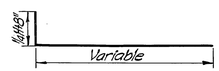
BARS E



BARS F

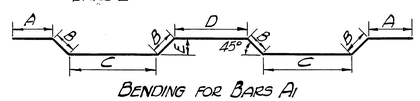


BARS G

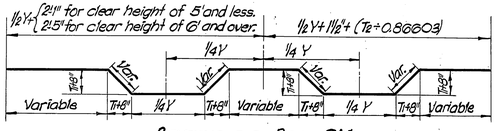


BENDING FOR BARS G & G'

BENDING FOR BARS G'

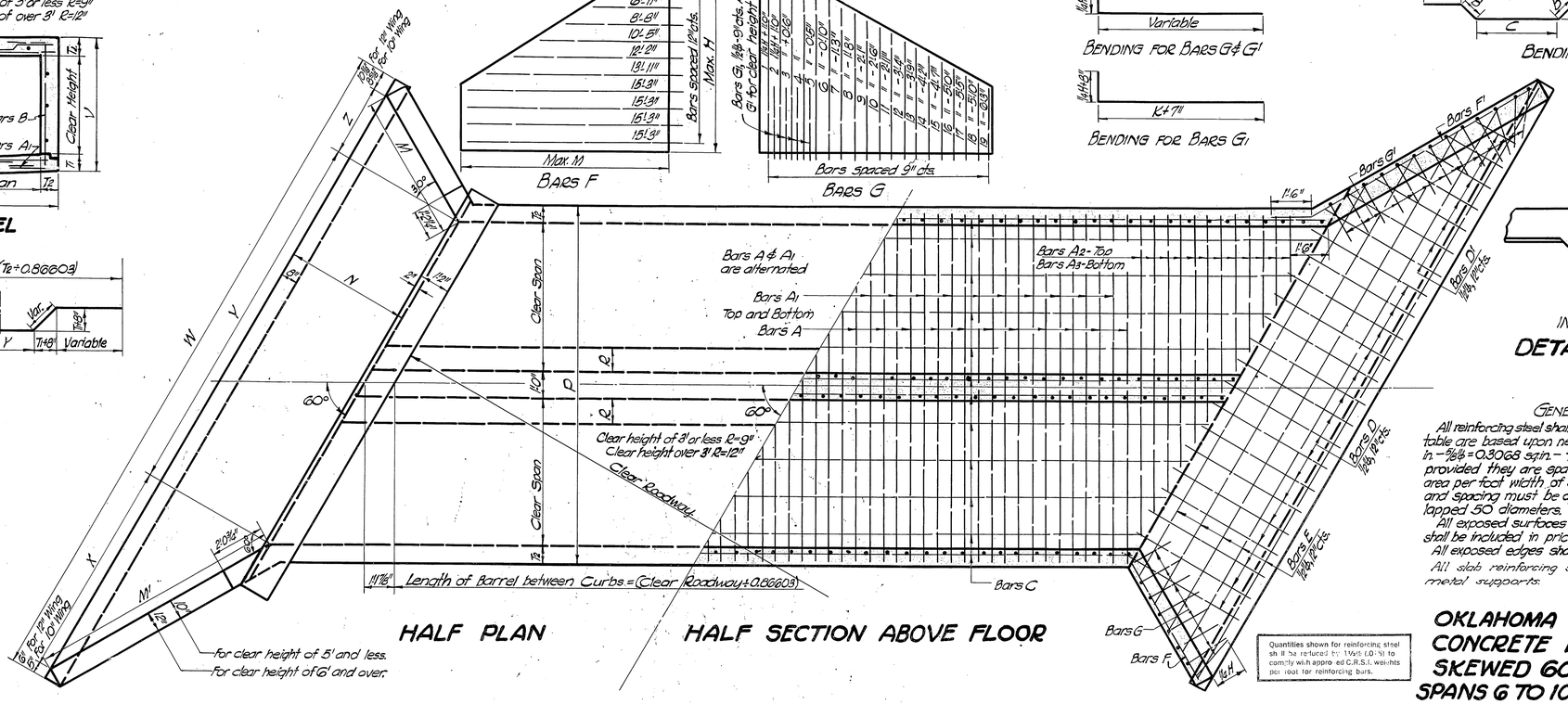


BENDING FOR BARS A1



BENDING FOR BARS CH1

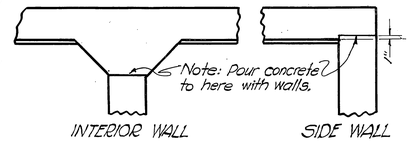
BENDING FOR BARS A2



HALF PLAN

HALF SECTION ABOVE FLOOR

DESIGN DATA
Dead Load 1000 Lbs.
Live Load None
Impact None



DETAIL OF CONST. JOINT

GENERAL NOTES

All reinforcing steel shall be deformed round bars. The design and table are based upon net areas of bars as follows: 1 1/4ϕ = 0.1963 sq. in. - 7/8ϕ = 0.3068 sq. in. - 3/4ϕ = 0.4418 sq. in. Other sizes may be used provided they are spaced so as to give as much net sectional area per foot width of slab. Plans showing such changed sizes and spacing must be approved. Bars when lapped shall be lapped 50 diameters.

All exposed surfaces to have a carborundum finish and this shall be included in price bid per cu. yd. for concrete.

All exposed edges shall have 3/4" chamfer.

All slab reinforcing steel shall be supported on approved metal supports.

Quantities shown for reinforcing steel shall be reduced by 1% (0.01) to comply with approved C.R.S.I. weights per foot for reinforcing bars.

OKLAHOMA STATE STANDARD CONCRETE BOX CULVERTS SKEWED 60° RIGHT FORWARD SPANS 6 TO 10 FT. - FOR FILLS 3 TO 10 FT.

DESIGN NO.	WATERWAY Clear Span	Clear Height	Area of Opening	DIMENSIONS T1	T2	V	P	BARREL OF CULVERT REINFORCING STEEL BARS A & A1 Size and Spacing	A Length	A1 Length	A1 Bending A	B	C	D	E	BARS A2 & A3 Size and Spacing	No.	A2 Length	A3 Length	BARS B 1 1/4ϕ cts. Length	BARS C 1 1/4ϕ 18" cts. No.	BARS H 1 1/4ϕ cts. Length	QUANTITIES Steel per Lin. Ft. Lbs.	Concrete per Lin. Ft. Cu. Yds.
1		2'-0"	24.0	9"	6"	3'-6"	1'-0"	3/4ϕ-12"	13'-8"	1'-1'-4"	11'-1 1/2"	7"	3'-7"	2'-7"	5"	3/4ϕ-6"	26	1'-0 7/8"	0'-6 1/2"	6'-2"	26	3'-8 1/2"	94.94	0.947
2		3'-0"	36.0	9"	8"	4'-6"	1'-4"	"	14'-0"	1'-4'-8"	13'-1 1/2"	7"	3'-7"	2'-7"	5"	"	26	1'-2 7/8"	0'-8 1/2"	7'-2"	30	4'-3 1/2"	102.70	1.076
3	6	4'-0"	48.0	9"	8"	5'-6"	1'-4"	"	14'-0"	1'-4'-8"	13'-1 1/2"	7"	3'-7"	2'-7"	5"	"	26	1'-2 7/8"	0'-8 1/2"	8'-2"	30	5'-1 0"	110.56	1.179
4		5'-0"	60.0	9"	10"	6'-6"	1'-4"	"	14'-0"	1'-5'-0"	13'-3 1/2"	7"	3'-7"	2'-7"	5"	"	26	1'-3 1/8"	0'-8 1/2"	9'-2"	32	6'-1 0"	113.41	1.340
5		6'-0"	72.0	9"	10"	7'-6"	1'-4"	"	14'-1 1/2"	1'-5'-0"	13'-5 1/2"	7"	3'-7"	2'-7"	5"	"	26	1'-3 1/8"	0'-8 1/2"	10'-2"	38	7'-1 0"	120.66	1.444
6		3'-0"	48.0	12"	8"	5'-0"	1'-5'-4"	3/4ϕ-12"	18'-0"	1'-9'-1"	11'-5 1/4"	1'-1 1/4"	4'-9 1/8"	2'-10 1/2"	8"	3/4ϕ-6"	32	1'-9 0 3/8"	0'-7 1/2"	8'-8"	32	5'-1 4"	151.19	1.638
7		4'-0"	64.0	12"	8"	6'-0"	1'-5'-4"	"	18'-0"	1'-9'-1"	11'-5 1/4"	1'-1 1/4"	4'-9 1/8"	2'-10 1/2"	8"	"	32	1'-9 0 3/8"	0'-7 1/2"	9'-8"	36	6'-5"	157.69	1.741
8	8	5'-0"	80.0	12"	10"	7'-0"	1'-8'-8"	"	18'-1 4"	1'-9'-5"	11'-7 1/4"	1'-1 1/4"	4'-9 1/8"	2'-10 1/2"	8"	"	32	1'-9 5 3/8"	0'-7 1/2"	10'-8"	40	7'-5"	165.91	1.918
9		6'-0"	96.0	12"	10"	8'-0"	1'-8'-8"	"	18'-1 4"	1'-9'-5"	11'-7 1/4"	1'-1 1/4"	4'-9 1/8"	2'-10 1/2"	8"	"	32	1'-9 7 3/8"	0'-7 1/2"	11'-6"	40	8'-5"	169.53	2.012
10		7'-0"	112.0	12"	10"	9'-0"	1'-8'-8"	"	18'-1 4"	1'-9'-5"	11'-7 1/4"	1'-1 1/4"	4'-9 1/8"	2'-10 1/2"	8"	"	32	1'-9 7 3/8"	0'-7 1/2"	12'-8"	44	9'-5"	176.88	2.111
11		8'-0"	128.0	12"	1'-1"	10'-0"	1'-8'-10"	"	18'-6"	1'-9'-7"	11'-9 3/4"	1'-1 1/4"	4'-9 7/8"	2'-10 7/8"	8"	"	32	1'-9 8 3/8"	0'-7 1/2"	13'-8"	48	10'-5"	183.16	2.272
12		6'-0"	120.0	14 1/2"	10"	8'-5"	2'-2'-8"	3/4ϕ-12"	22'-4"	2'-3'-9"	15'-9 1/2"	1'-2 3/4"	5'-0 3/8"	2'-10 1/2"	10"	3/4ϕ-6"	52	2'-0 1/8"	0'-10 1/2"	13'-1"	46	8'-1"	239.27	2.659
13		7'-0"	140.0	14 1/2"	10"	9'-5"	2'-2'-8"	"	22'-4"	2'-3'-9"	15'-9 1/2"	1'-2 3/4"	5'-0 3/8"	2'-10 1/2"	10"	"	52	2'-0 1/8"	0'-10 1/2"	14'-1"	50	9'-1 1"	245.62	2.757
14	10	8'-0"	160.0	14 1/2"	1'-1"	10'-5"	2'-2'-10"	"	22'-6"	2'-3'-11"	15'-10 1/2"	1'-2 7/8"	5'-0 7/8"	2'-10 7/8"	10"	"	52	2'-0 3/8"	0'-10 1/2"	15'-1"	50	10'-1 1"	250.46	2.980
15		9'-0"	180.0	14 1/2"	1'-2"	11'-5"	2'-3'-0"	"	22'-8"	2'-4'-1"	15'-11 1/2"	1'-3'-0"	5'-1 3/8"	2'-11 1/8"	10"	"	52	2'-0 7/8"	0'-10 1/2"	16'-1"	54	11'-1 1"	258.03	3.096
16		10'-0"	200.0	14 1/2"	1'-2"	12'-5"	2'-3'-0"	"	22'-8"	2'-4'-1"	15'-11 1/2"	1'-3'-0"	5'-1 3/8"	2'-11 1/8"	10"	"	52	2'-1 3/8"	0'-10 1/2"	17'-1"	58	12'-1 1"	264.37	3.207

DESIGN NO.	TWO WINGS AND ONE APRON DIMENSIONS H	K	M	M'	N	W	X	Y	Z	REINFORCING STEEL Bars D No.	Bars D Length	Bars D' No.	Bars D' Length	Bars E Length	Bars F No.	Bars F Length	Bars F No.	Bars F Length	Bars F1 No.	Bars F1 Length	Bars G No.	Bars G Length	Bars G1 No.	Bars G1 Length	Bars G1 No.	Bars G1 Length	QUANTITIES Reinf. Steel Lbs.	Class A Concrete Cu. Yds.
1	3'-1"	1'-1 1/2"	3'-2 1/8"	5'-6"	2'-9 1/2"	22'-5 7/8"	4'-9 7/8"	15'-0 1/8"	1'-7 1/4"	17	3'-2"	2	2'-6 1/2"		2	4'-8"			2	7'-6"	4		7				131	2.29
2	4'-1"	2'-1 2"	4'-6"	7'-9 1/2"	3'-10 3/8"	25'-1 3/4"	6'-5"	2'-3"		17	4'-4"	4	3'-8 1/2"	4	1	5'-2"	2	6'-0"	1	8'-4"	2	9'-9"	6		10		206	3.60
3	5'-1"	2'-1 2"	4'-6"	7'-9 1/2"	3'-10 3/8"	25'-1 3/4"	6'-5"	2'-3"		17	5'-6"	6	4'-0 3/8"	5	2	Var.	2	7'-4"	2	Var.	2	10'-1"	8		13		293	5.15
4	6'-1"	2'-1 2"	4'-6"	7'-9 1/2"	3'-10 3/8"	25'-1 3/4"	6'-5"	2'-3"		17	6'-8"	8	5'-0 3/8"	6	3	Var.	3	8'-8"	2	Var.	2	11'-5"	10		16		391	6.93
5	7'-1"	2'-1 2"	4'-6"	7'-9 1/2"	3'-10 3/8"	25'-1 3/4"	6'-5"	2'-3"		17	7'-9"	10	6'-0 1/2"	7	3	Var.	3	10'-0"	3	Var.	3	16'-8"	12		20		509	9.77
6	4'-3"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		22	4'-4"	4	3'-8 1/2"	4	1	5'-2"	2	6'-0"	1	8'-4"	2	9'-9"	6		10		237	4.19
7	5'-1"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		22	5'-6"	6	4'-0 3/8"	5	2	Var.	2	7'-4"	2	Var.	2	12'-1"	8		13		331	5.93
8	6'-1"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		22	6'-8"	8	5'-0 3/8"	6	2	Var.	2	8'-8"	2	Var.	3	14'-5"	10		16		438	7.89
9	7'-1"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		22	7'-9"	10	6'-0 1/2"	7	3	Var.	3	10'-0"	3	Var.	3	16'-8"	12		20		562	10.93
10	4'-3"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		22	8'-1 11"	12	6'-6 3/8"	9	4	Var.	3	11'-4"	4	Var.	3	19'-0"	13		23		671	13.57
11	5'-1"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		22	10'-1 1"	14	8'-6 3/8"	10	5	Var.	3	12'-8"	5	Var.	3	21'-4"	15		26		1053	16.48
12	6'-1"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		26	7'-9"	10	7'-2 5/8"	7	3	Var.	4	10'-1"	4	Var.	4	16'-8"	12		20		629	12.07
13	7'-1"	2'-1 0"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		26	8'-11 11"	12	8'-6 3/8"	9	4	Var.	4	11'-4"	4	Var.	4	19'-0"	13		23		956	14.89
14	8'-1"	2'-1 1"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		26	10'-1 1"	14	9'-6 3/8"	10	5	Var.	4	12'-8"	5	Var.	4	21'-4"	15		26		1148	17.98
15	9'-1"	2'-1 1"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		26	11'-3"	16	10'-6 3/8"	11	5	Var.	5	14'-0"	5	Var.	5	23'-8"	17		29		1354	21.26
16	10'-1"	2'-1 1"	5'-7 3/8"	7'-11 1/2"	4'-0 1/8"	29'-10 5/8"	6'-9"	2'-3 1/2"		26	12'-5"	18	11'-6 3/8"	12	6	Var.	5	15'-3"	6	Var.	5	25'-1"	19		32		1574	24.79

DESIGN NO.	TWO CURBS Reinf. bars same size as A bars. 4CH1 Length	4CH2 Length	Quant's. Steel Lbs.	Concrete cu. Yds.	Concrete in one Curtain Wall Cu. Yds. per Foot of Depth.	TOTAL QUANTITIES 38' ROADWAY Reinf. Steel Lbs.	Class A Concrete cu. Yds.	DESIGN NO.
1	1'-6"	1'-6"	7					
2	1'-6"	1'-6"	7			131	2.29	1
3	1'-6"	1'-6"	7			206	3.60	3
4	1'-6"	1'-6"	7			293	5.15	4
5	1'-6"	1'-6"	7			391	6.93	5
6	1'-6"	1'-6"	7			509	9.77	7
7	1'-6"	1'-6"	7			237	4.19	6
8	1'-6"	1'-6"	7			331	5.93	8
9	1'-6"	1'-6"	7			438	7.89	9
10	1'-6"	1'-6"	7			562	10.93	10
11	1'-6"	1'-6"	7			671	13.57	11
12	1'-6"	1'-6"	7			1053	16.48	12
13	1'-6"	1'-6"	7			629	12.07	13
14	1'-6"	1'-6"	7			956	14.89	14
15	1'-6"	1'-6"	7			1148	17.98	15
16	1'-6"	1'-6"	7			1354	21.26	16

	4CH1 Length	4CH2 Length	Steel Lbs.	Concrete cu. Yds.	Concrete in one Curtain Wall Cu. Yds. per Foot of Depth.	Reinf. Steel Lbs.	Class A Concrete cu. Yds.	
	1'-6"	1'-6"	7			1354	21.26	
	1'-6"	1'-6"	7			1574	24.79	
	1'-6"	1'-6"	7			1797	28.32	
	1'-6"	1'-6"	7			2020	31.85	
	1'-6"	1'-6"	7			2243	35.38	
	1'-6"	1'-6"	7			2466	38.91	
	1'-6"	1'-6"	7			2689	42.44	
	1'-6"	1'-6"	7			2912	45.97	
	1'-6"	1'-6"	7			3135	49.50	
	1'-6"	1'-6"	7			3358	53.03	
	1'-6"	1'-6"	7			3581	56.56	
	1'-6"	1'-6"	7			3804	60.09	
	1'-6"	1'-6"	7			4027	63.62	
	1'-6"	1'-6"	7			4250	67.15	
	1'-6"	1'-6"	7			4473	70.68	
	1'-6"	1'-6"	7			4696	74.21	
	1'-6"	1'-6"	7			4919	77.74	
	1'-6"	1'-6"	7			5142	81.27	
	1'-6"	1'-6"	7			5365	84.80	
	1'-6"	1'-6"	7			5588	88.33	
	1'-6"	1'-6"	7			5811	91.86	
	1'-6"	1'-6"	7			6034	95.39	
	1'-6"	1'-6"	7			6257	98.92	
	1'-6"	1'-6"	7			6480	102.45	
	1'-6"	1'-6"	7			6703	105.98	
	1'-6"	1'-6"	7			6926	109.51	
	1'-6"	1'-6"	7			7149	113.04	
	1'-6"	1'-6"	7			7372	116.57	
	1'-6"	1'-6"	7			7595	120.10	
	1'-6"	1'-6"	7			7818	123.63	
	1'-6"	1'-6"	7			8041	127.16	
	1'-6"	1'-6"	7			8264	130.69	
	1'-6"	1'-6"	7			8487	134.22	
	1'-6"	1'-6"	7			8710	137.75	
	1'-6"	1'-6"	7			8933	141.28	
	1'-6"	1'-6"	7			9156	144.81	
	1'-6"	1'-6"	7			9379	148.34	
	1'-6"	1'-6"	7			9602	151.87	
	1'-6"	1'-6"	7			9825	155.40	
	1'-6"	1'-6"	7			10048	158.93	
	1'-6"	1'-6"	7			10271	162.46	
	1'-6"	1'-6"	7			10494	165.99	
	1'-6"	1'-6"	7			10717	169.52	
	1'-6"	1'-6"	7			10940	173.05	
	1'-6"	1'-6"	7			11163	176.58	
	1'-6"	1'-6"	7			11386	180.11	
	1'-6"	1'-6"	7			11609	183.64	
	1'-6"	1'-6"	7			11832	187.17	
	1'-6"	1'-6"	7			12055	190.70	
	1'-6"	1'-6"	7			12278	194.23	
	1'-6"	1'-6"	7			12501	197.76	
	1'-6"	1'-6"	7			12724	201.29	
	1'-6"	1'-6"	7			12947	204.82	
	1'-6"	1'-6"	7			13170	208.35	
	1'-6"	1'-6"	7			13393	211.88	
	1'-6"	1'-6"	7			13616	215.41	
	1'-6"	1'-6"	7			13839	218.94	
	1'-6"	1'-6"	7			14062	222.47	
	1'-6"	1'-6"	7			14285	226.00	
	1'-6"	1'-6"	7			14508	229.53	
	1'-6"	1'-6"	7			14731	233.06	
	1'-6"	1'-6"	7			14954	236.59	
	1'-6"	1'-6"	7			15177	240.12	
	1'-6"	1'-6"	7			15400	243.65	
	1'-6"	1'-6"	7			15623	247.18	
	1'-6"	1'-6"	7			15846	250.71	
	1'-6"	1'-6"	7			16069	254.24	
	1'-6"	1'-6"	7			16292	257.77	
	1'-6"	1'-6"	7			16515	261.30	
	1'-6"	1'-6"	7			16738	264.83	
	1'-6"	1'-6"	7			16961	268.36	
	1'-6"	1'-6"	7			17184	271.89	
	1'-6"	1'-6"	7			17407	275.42	
	1'-6"	1'-6"	7			17630	278.95	
	1'-6"	1'-6"	7			17853	282.48	
	1'-6"	1'-6"	7			18076	286.01	
	1'-6"	1'-6"	7			18299	289.54	
	1'-6"	1'-6"	7			18522	293.07	
	1'-6"	1'-6"	7			18745	296.60	
	1'-6"	1'-6"	7			18968	300.13	
	1'-6"	1'-6"	7			19191	303.66	
	1'-6"	1'-6"	7			19414	307.19	
	1'-6"	1'-6"	7			19637	310.72	
	1'-6"	1'-6"	7			19860	314.25	
	1'-6"	1'-6"	7			20083	317.78	
	1'-6"	1'-6"	7			20306	321.31	
	1'-6"	1'-6"	7			20529	324.84	
	1'-6"	1'-6"	7			20752	328.37	
	1'-6"	1'-6"	7			20975	331.90	
	1'-6"	1'-6"	7			21198	335.43	
	1'-6"	1'-6"	7			21421	338.96	
	1'-6"	1'-6"	7			21644	342.49	
	1'-6"	1'-6"	7			21867	346.02	
	1'-6"	1'-6"	7			22090	349.55	
	1'-6"	1'-6"	7			22313	353.08	
	1'-6"	1'-6"	7			22536	356.61	
	1'-6"	1'-6"	7			22759	360.14	
	1'-6"	1'-6"	7			22982	363.67	
	1'-6"	1'-6"	7			23205	367.20	
	1'-6"	1'-6"	7			23428	370.73	
	1'-6"	1'-6"	7			23651	374.26	
	1'-6"	1'-6"	7			23874	377.79	
	1'-6"	1'-6"	7			24097	381.32	
	1'-6"	1'-6"	7			24320	384.85	
	1'-6"	1'-6"	7			24543	388.38	
	1'-6"	1'-6"	7			24766	391.91	
	1'-6"	1'-6"	7			24989	395.44	
	1'-6"	1'-6"	7			25212	398.97	
	1'-6"	1'-6"	7			25435	402.50	
	1'-6"	1'-6"	7			25658	406.03	
	1'-6"	1'-6"	7			25881	409.56	
	1'-6"	1'-6"	7			26104	413.09	
	1'-6"	1'-6"	7			26327	416.62	
	1'-6"	1'-6"	7			26550	420.15	
	1'-6"	1'-6"	7			26773	423.68	
	1'-6"	1'-6"	7			26996	427.21	
	1'-6"	1'-6"	7			27219	430.74	
	1'-6"	1'-6"	7			27442	434.27	
	1'-6"	1'-6"	7			27665	437.80	
	1'-6"	1'-6"	7			27888	441.33	
	1'-6"	1'-6"	7			28111	444.86	
	1'-6"	1'-6"	7			28334	448.39	
	1'-6"	1'-6"	7			28557	451.92	
	1'-6"	1'-6"	7			28780	455.45	
	1'-6"	1'-6"	7			29003	458.98	
	1'-6"	1'-6"	7			29226	462.51	
	1'-6"	1'-6"	7			29449	466.04	
	1'-6"	1'-6"	7			29672	469.57	
	1'-6"	1'-6"	7			29895	473.10	
	1'-6"	1'-6"	7			30118	476.63	
	1'-6"	1'-6"	7			30341	480.16	
	1'-6"	1'-6"	7			30564	483.69	
	1'-6"	1'-6"	7			30787	487.22	
	1'-6"	1'-6"	7			31010	490.75	
	1'-6"	1'-6"	7			31233	494.28	
	1'-6"	1'-6"	7			31456	497.81	
	1'-6"	1'-6"	7			31679	501.34	
	1'-6"	1'-6"	7			31902	504.87	
	1'-6"	1'-6"	7			32125	508.40	
	1'-6"	1'-6"	7			32348	511.93	
	1'-6"	1'-6"	7			32571	515.46	
	1'-6"	1'-6"	7			32794	518.99	
	1'-6"	1'-6"	7			33017	522.52	
	1'-6"	1'-6"	7			33240	526.05	
	1'-6"	1'-6"	7			33463	529.58	
	1'-6"	1'-6"	7			33686	533.11	
	1'-6"	1'-6"	7			33909	536.64	
	1'-6"	1'-6"	7			34132	540.17	
	1'-6"	1'-6"	7			34355	543.70	
	1'-6"	1'-6"	7			34578	547.23	
	1'-6"	1'-6"	7			34801	550.76	
	1'-6"	1'-6"	7			35024	554.29	
	1'-6"	1'-6"	7			35247	557.82	
	1'-6"	1'-6"	7			35470	561.35	
	1'-6"	1'-6"	7			35693	564.88	
	1'-6"	1'-6"	7			35916	568.41	
	1'-6"	1'-6"	7			36139	571.94	
	1'-6"	1'-6"	7			36362	575.47	
	1'-6"	1'-6"	7			36585	579.00	
	1'-6"	1'-6"	7			36808	582.53	
	1'-6"	1'-6"	7			37031	586.06	
	1'-6"	1'-6"	7			37254	589.59	
	1'-6"	1'-6"	7			37477	593.12	
	1'-6"	1'-6"	7			37700	596.65	
	1'-6"	1'-6"	7			37923	600.18