VERTICAL CURVES
DESCRIPTION
Comes with 1'-0" straight track both ends unless otherwise specified
8' RADIUS x 12° SINGLE VERTICAL CURVE
8' RADIUS x 15° SINGLE VERTICAL CURVE
8' RADIUS x 20° SINGLE VERTICAL CURVE
8' RADIUS x 30° SINGLE VERTICAL CURVE
8' RADIUS x 45° SINGLE VERTICAL CURVE
10' RADIUS x 12° SINGLE VERTICAL CURVE
10' RADIUS x 15° SINGLE VERTICAL CURVE
10' RADIUS x 20° SINGLE VERTICAL CURVE
10' RADIUS x 30° SINGLE VERTICAL CURVE
10' RADIUS x 45° SINGLE VERTICAL CURVE
12' RADIUS x 12° SINGLE VERTICAL CURVE
12' RADIUS x 15° SINGLE VERTICAL CURVE
12' RADIUS x 20° SINGLE VERTICAL CURVE
12' RADIUS x 30° SINGLE VERTICAL CURVE
12' RADIUS x 45° SINGLE VERTICAL CURVE
15' RADIUS x 12° SINGLE VERTICAL CURVE
15' RADIUS x 15° SINGLE VERTICAL CURVE
15' RADIUS x 20° SINGLE VERTICAL CURVE
15' RADIUS x 30° SINGLE VERTICAL CURVE
15' RADIUS x 45° SINGLE VERTICAL CURVE
20' RADIUS x 12° SINGLE VERTICAL CURVE
20' RADIUS x 15° SINGLE VERTICAL CURVE
20' RADIUS x 20° SINGLE VERTICAL CURVE
20' RADIUS x 30° SINGLE VERTICAL CURVE
20' RADIUS x 45° SINGLE VERTICAL CURVE

		CO	MPOUND	VERTICAL	CURVE-12	'-0" R W/1'-0	" STRAIGH	T @ B.E.					CO	MPOUND	VERTICAL	CURVE-12	-0" R W/1'-	0" STI
DROP	DEGREES	TAN/TAN	ARC @ 12'-	CHORD @	CHORD @	TOTAL ARC @	DIFFERENCE	TRUE LENGTH @	BEVEL		DROP	DEGREES	TAN/TAN	ARC @ 12'-0	CHORD @	CHORD @	TOTAL ARC @	DIFFI
	$\theta = \cos^{-1}(1 - \frac{D}{2 \times R})$	2(RSIN 0)	OR 21.P(-R-0 360	$12'-0 R$ $2 = R(SIN\frac{\theta}{2})$	11'-10 R ×-#1(MN [#] ₂)	12 -U K	(2 * ARC) - L	12'-0 R (2 × ABC) + 2' 0"	B = TAN 8 = 12	МК		$A = c_0 e^{-k} \left(1 - \frac{D}{2 \circ R}\right)$	2(RSIN 0)	R 2+P(+R+0 100	$12'-0 R$ $2 * R(SIN\frac{\theta}{2})$	11'-10 R	12'-0 R 2 = ARC	(2 × A
D	A	L*	A1 *	C1 *	C2 *	TA*	D1 *	TL*	В*		D	А	L*	A1 *	C1 *	C2 *	TA*	E
1/8	8.28*	3'-5 1/2"	1'-8 13/16"	1'-8 13/16"	1'-8 1/2"	3'-5 5/8"	1/8"	5'-5 5/8"	1 3/4"		1'-1	17.28*	7'-1 9/16"	3'-7 7/16"	3'-7 1/4"	3'-6 11/16"	7'-2 7/8"	15
1/4											1'-1 1/4							
3/8											1'-1 3/8							
1/2											1'-1 1/2		⊢—					_
13/4											1'-13/4							+
7/8											1'-1 7/8							
	9.56*	3"-11 13/16"	2'-0"	2"-0"	1'-11 11/16"	4'-0"	3/16"	6"-0"	2"		1'-2	17.94"	7'-4 11/16"	3'-9 1/16"	3'-8 7/8"	3'-8 1/4"	7'-6 1/8"	17
1/8											1'-2 1/8		—					+
3/8											1'-2 3/8							
1/2											1'-2 1/2							
5/8											1'-2 5/8		⊢—					_
3/4 7/8											1'-2 3/4 1'-2 7/8							+
	10.69*	4'-5 7/16"	2"-2 7/8"	2'-2 13/16"	2'-2 7/16"	4'-5 3/4"	5/16"	6'-5 3/4"	2 1/4"		1'-3	18.57*	7'-8 11/16"	3'-10 11/16"	3'-10 1/2"	3'-9 13/16"	7'-9 3/8"	11
1/8											1'-3 1/8							
1/4											1'-3 1/4		—					-
1/2					—	l					1'-3 3/8			1		l	l	1
5/8											1'-3 5/8							┖
3/4											1'-3 3/4		\vdash					
7/8	11.71*	4'-10 7/16"	25.57/46*	2'.5 2/0*	2'-5"	4"-10 7/8"	7/16"	6'-10 7/8"	2 1/2"		1'-3 7/8 1'-4	19.19*	7'-10 11/16"	4'-0 1 /A"	4"-0"	3'-11 5/16"	8'-0 1/2"	11
1/8	11./1	÷-10 //16	2-5 //16"	2-5 5/8	2-5	4-107/8"	//10	6-10 //8"	21/2		1'-4 1/8	19.19	/ -10 11/16"	4-01/4"	4-0	2-112/10	8-01/2"	1.1
1/4											1'-4 1/4							┖
3/8											1'-4 3/8		\vdash					
1/2 5/8											1'-4 1/2 1'-4 5/8		—					-
3/4											1'-4 3/4		—					+
7/8											1'-4 7/8							
	12.66*	5'-3 1/8"	2'-7 13/16"	2'-7 3/4"	2'-7 5/16"	5'-3 5/8"	1/2"	7'-3 5/8"	2 11/16*		1'-5	19.78*	8'-1 1/2"	4'-1 11/16"	4'-1 1/2"	4'-0 3/4"	8'-3 3/8"	1
1/8											1'-5 1/8 1'-5 1/4		—					-
3/8											1'-5 3/8							+
1/2											1'-5 1/2							
5/8											1'-5 5/8		<u> </u>					
3/4 7/8											1'-5 3/4		—					+
7/0	13.54*	5'-77/16"	2'-10"	2"-9 15/16"	2'-9 1/2"	5'-8"	9/16"	7"-8"	2 7/8"		1'-6	20.36°	8'-4 3/16"	4'-3 3/16"	4'-2 7/8"	4'-2 3/16"	8'-6 3/8"	23
1/8											1'-6 1/8							
1/4											1'-6 1/4		⊢—					_
3/8 1/2											1'-6 3/8		—					+
5/8											1'-6 5/8							
3/4											1'-6 3/4							
7/8	14.26*	5'-11 7/16"	2' 0 1 /16"	2" 0"	2'-11 1/2"	6'-0 1/8"	11/16"	8'-0 1/8"	3 1/16"		1'-6 7/8 1'-7	20.93*	0' 6 7 /0"	A' A E /O"	A' A E /4 6*	4'-3 9/16"	8'-9 1/4"	2
1/8	14.30	5-11 //16	3-01/16	3-0	2-111/2	6-01/8	11/16	8-01/8	31/16		1'-7 1/8	20.93	8-67/8	4-45/8	4-45/10	4-39/16	8-91/4	- 2
1/4											1'-7 1/4							
3/8											1'-7 3/8		\vdash					
1/2											1'-7 1/2		—					-
5/8 3/4			 	 	 						1'-7 5/8			1	 	l	-	+
7/8											1'-7 7/8							r
0	15.14*	6'-3 1/4"	3'-2 1/16"	3'-1 15/16"	3'-1 7/16"	6'-4 1/8"	7/8"	8'-4 1/8"	3 1/4"		1'-8	21.48"	8'-9 7/16"	4'-6"	4'-5 11/16"	4'-4 15/16"	9'-0"	2.9
01/8	-	 	-	-	-	-	-	l			1'-8 1/8	-	-	1	-	 		+-
0 3/8	l —	l —	-	-	-		l —	l			1'-8 1/4	l —	l	1	-	l —		+
1/2											1'-8 1/2							1
05/8											1'-8 5/8							
0 3/4	-						-				1'-8 3/4	-	⊢—			-		+-
07/8	15.89*	6'-6 7/8"	3'-3 15/16"	3'-3 13/16"	3'-3 1/4"	6'-7 7/8"	1"	8'-7 7/8"	3 7/16"		1'-8 7/8 1'-9	22.02°	9'-0"	4'-7 5/16"	4'-7"	4'-6 1/4"	9'-2 5/8"	2
1 1/8	23.03	3 0 7 7 3	2 2 23/10		3 32/4	3 7 770	<u> </u>	0 7 7 70	37/10		1'-9 1/8	*****			7.	1 0 2/4	3 2 3/3	Ť
1 1/4											1'-9 1/4							
13/8											1'-9 3/8		⊢					1
1 1/2	l —	l —	-	-	-		l —	l			1'-9 1/2	l —	l	1	-	l —		+
13/4											1'-9 3/4							1
17/8											1'-9 7/8							
-0	16.6*	6'-10 1/4"	3'-5 3/4"	3'-5 9/16"	3'-5"	6'-11 1/2"	1 1/4"	8'-11 1/2"	3 9/16"		1'-10	22.54"	9'-2 3/8"	4'-8 5/8"	4'-8 5/16"	4'-7 1/2"	9'-5 1/4"	2
-0 1/8 -0 1/4	-	-	-	-		-	-				1'-10 1/8	-			-	-	-	+-
-0 3/8					—	l					1'-10 1/4			1		l	l	1
											1'-10 1/2							
-0 1/2																		
'-0 1/2 '-0 5/8 '-0 3/4											1'-10 5/8							-

		CC				-0" R W/1'-0	" STRAIGH			
DROP	DEGREES	TAN/TAN	ARC @ 12'-0	CHORD @	CHORD @	TOTAL ARC @	DIFFERENCE	TRUE LENGTH @	BEVEL	
		2(RSIN 0)	R 2 + P(+ R + D 200	12'-0 R $2 * R(SIN\frac{\theta}{2})$	11'-10 R	12'-0 R 2 = ARC	(2 * ARC) - L	12'-0 R	ļ 1	MK
	$h = cov^{-1}\left(1 - \frac{D}{2 + R}\right)$			1 -	$t \sim H1(MN\frac{d}{2})$	1	1	(2 × ARC) + 2' = 0	1 1	IVIK
D	A	L*	A1 *	C1 *	C2 *	TA*	D1 *	TL*	В*	
1'-1	17.28*	7'-1 9/16"	3'-77/16"	3'-7 1/4"	3'-6 11/16"	7'-2 7/8"	15/16"	9'-2 7/8"	3 3/4"	
1'-1 1/8										
1'-1 1/4									_	
1'-1 1/2										
1'-1 5/8										
1'-1 3/4										
1'-1 7/8	17.94"	7'-4 11/16"	3'-9 1/16"	3'-8 7/8"	3'-8 1/4"	7'-6 1/8"	17/16"	9'-6 1/8"	3 7/8"	
1'-2 1/8	17.54	7 411/10	3 3 2) 20	3 0 1/0	3 0 2/4	7 0 2/0	17/10	3 0 1/0	37,0	
1'-2 1/4										
1'-2 3/8										
1'-2 1/2 1'-2 5/8									_	
1'-2 3/4										
1'-2 7/8										
1'-3	18.57*	7'-8 11/16"	3'-10 11/16"	3'-10 1/2"	3'-9 13/16"	7'-9 3/8"	11/16"	9'-9 3/8"	4 1/6"	
1'-3 1/8 1'-3 1/4	l —	l —	1	l —	l —		-		1	
1'-3 3/8										
1'-3 1/2										
1'-3 5/8	-			-	-					
1'-3 3/4	l —	l —	1	l —	l —		-		1	
1'-4	19.19*	7'-10 11/16"	4'-0 1/4"	4'-0"	3'-11 5/16"	8'-0 1/2"	1 13/16"	10'-0 1/2"	4 3/16"	
1'-4 1/8										
1'-4 1/4										
1'-4 3/8									_	
1'-4 5/8										
1'-4 3/4										
1'-4 7/8	19.78*	8'-1 1/2"	41 4 44 /4 (1)	4'-1 1/2"	41.0.2./47	01.0.0 (01	17/8"	401.3.3/05	45 (45)	
1'-5 1/8	19.78	8-11/2	4'-1 11/16"	4-11/2	4'-0 3/4"	8'-3 3/8"	1 //8	10'-3 3/8"	45/16"	
1'-5 1/4										
1'-5 3/8										
1'-5 1/2										
1'-5 3/4										
1'-5 7/8										
1'-6	20.36*	8'-4 3/16"	4'-3 3/16"	4'-2 7/8"	4'-2 3/16"	8'-6 3/8"	2 3/16"	10'-6 3/8"	4 7/16"	
1'-6 1/8										
1'-6 3/8										
1'-6 1/2										
1'-6 5/8										
1'-6 3/4									_	
1'-7	20.93°	8'-6 7/8"	4'-4 5/8"	4'-45/16"	4'-3 9/16"	8'-9 1/4"	2 5/8"	10"-9 1/4"	4 9/16"	
1'-7 1/8										
1'-7 1/4	-	 	-	-	-	-	-		1	
1'-7 1/2	-	-		 	-	-				
1'-7 5/8										
1'-7 3/4										
1'-7 7/8	21.48*	8'-9 7/16"	4'-6"	4"-5 11/16"	4'-4 15/16"	9'-0"	2 9/16"	11'-0"	4 3/4"	
1'-8 1/8	21.40	0.2 1/10	470	~ ·3 11/10	~~4 13/1D	3-0	2 9/10	11-0	43/4	
1'-8 1/4										
1'-8 3/8										
1'-8 1/2	-	-		-	-	-		-		
1'-8 3/4									1 1	
1'-8 7/8										
1'-9	22.02*	9'-0"	4'-75/16"	4'-7"	4'-6 1/4"	9'-2 5/8"	2 5/8"	11'-2 5/8"	4 7/8"	
1'-9 1/8 1'-9 1/4	-	-			-	-		-	1	
1'-9 3/8										
1'-9 1/2										
1'-9 5/8	-			-	-					
1'-9 3/4	l —	l —	1	l —	l —		-		1	
1'-10	22.54"	9'-2 3/8"	4'-8 5/8"	4'-8 5/16"	4'-7 1/2"	9'-5 1/4"	2 7/8"	11'-5 1/4"	5"	
1'-10 1/8										
1'-10 1/4	l	ļ	-	l	l		-		1	
1'-10 3/8	l —	l —	1	l —	l —		-		1	
1'-10 5/8										
1'-10 3/4										

		co	MPOUND '	VERTICAL	CURVE-12	-0" R W/1'-0	" STRAIGHT	@ B.E.		
DROP	DEGREES	TAN/TAN	ARC @ 12'-0	CHORD @ 12'-0 R	CHORD @ 11'-10 R	TOTAL ARC @ 12'-0 R	DIFFERENCE	TRUE LENGTH @	BEVEL	ì
	$\theta = \cos^{-1}(1 - \frac{D}{2 \times R})$	2(RSIN 0)	R 2+Py+R+0 200	$2 * R(SIN \frac{\theta}{2})$	11'-10 R	12'-0 R 2 × ARC	(2 * ARC) - L	12"-0 R (2 = ARC) = 2" 0"	B - TAN 8 - 12	MK
	ſ			_	_					1
D	A	L*	A1 *	C1 *	C2 *	TA *	D1 *	TL*	В*	
1'-11	23.05*	9'-4 3/4"	4'-9 15/16"	4'-9 9/16"	4'-8 3/4"	9'-7 7/8"	3 1/8"	11'-7 7/8"	5 1/8"	
1'-11 1/8										
1'-11 3/8										
1'-11 1/2										
1'-11 5/8										
1'-11 3/4										
2'-0	23.56°	9'-7 1/8"	4'-11 3/16"	4'-10 13/16"	4"-10"	9'-10 3/8"	3 1/4"	11'-10 3/8"	5 1/4"	
2'-0 1/8										
2'-0 1/4										
2'-0 3/8 2'-0 1/2										
2'-0 5/8										
2'-0 3/4										
2'-0 7/8										
2'-1 2'-1 1/8	24.05*	9'-9 3/8"	5'-0 7/16"	5'-0"	4'-11 1/16"	10'-0 7/8"	3 1/2"	12'-0 7/8"	5 3/8"	
2-1 1/8				1						
2'-1 3/8										
2'-1 1/2										
2'-1 5/8 2'-1 3/4	-		 	1	 	-				
2-13/4	 		 		 					
2'-2	24.53°	9'-11 9/16"	5'-1 5/8"	5' 1-3/16"	5'-0 5/16"	10'-3 1/4"	3 11/16"	12'-3 1/4"	5 1/2"	
2'-2 1/8										
2'-2 1/4 2'-2 3/8										
2'-2 1/2										
2'-2 5/8										
2'-2 3/4										
2'-2 7/8										
2'-3 2'-3 1/8	25.00°	10'-1 11/16"	5'-2 13/16"	5'-2 5/16"	5'-1 1/2"	10" 5 5/8"	3 15/16"	12'-5 5/8"	5 5/8"	
2'-3 1/4										
2'-3 3/8										
2'-3 1/2										
2'-3 5/8 2'-3 3/4										
2'-3 7/8										
2'-4	25.47*	10"-3 7/8"	5'-4"	5'-3 1/2"	5'-2 5/8"	10'-8"	4 1/8"	12'-8"	5 3/4"	
2'-4 1/8										
2'-4 1/4 2'-4 3/8										
2'-4 1/2										
2'-4 5/8										
2'-4 3/4										
2'-4 7/8 2'-5	25.93°	10'-5 15/16"	5'-5 3/16"	5'-4 5/8"	5'-3 3/4"	10'-10 3/8"	4 7/16"	12'-10 3/8"	5 13/16"	
2'-5 1/8	23.33	10 3 13/10	3 3 3) 10	3 43/0	3 33/4	10 10 3/0	47/10	11 10 3/0	3 13/10	
2'-5 1/4										
2'-5 3/8										
2'-5 1/2 2'-5 5/8										
2'-5 3/4	l									
2'-5 7/8										
2'-6	26.38*	10'-7 15/16"	5'-6 5/16"	5'-5 3/4"	5'-4 13/16"	11"-0 5/8"	4 11/16"	13'-0 5/8"	5 15/16"	
2'-6 1/8 2'-6 1/4	-		 	1	 	-				
2'-6 3/8	 		 		 					
2'-6 1/2										
2'-6 5/8										
2'-6 3/4	-		 	1	 	-				
2'-6 7/8 2'-7	26.83°	10'-10"	5'-7 7/16"	5'-6 13/16"	5'-5 7/8"	11'-2 7/8"	4 7/8"	13'-2 7/8"	6 1/16"	
2"-7 1/8	20.03	10 10	- / / 10	_ 0 23, 20	3 37,3	11 1/10	47,0	13 27/0	0 1/10	
2'-7 1/4										
2'-7 3/8										
2'-7 1/2 2'-7 5/8										
2'-7 3/4	-		-		-					
2'-7 7/8										
2'-8	27.27*	10'-11 15/16"	5'-8 9/16"	5'-7 7/8"	5'-6 15/16"	11'-5 1/8"	5 3/16"	13'-5 1/8"	6 3/16"	
2'-8 1/8										
2'-8 3/16	-		-		-					
				1						
. —		· ·	. —	1	. —			1 -		
3"-2 9/16"	30.00*	12'-0"	6'-3 3/8"	6'-2 9/16"	6'-1 1/2"	12'-6 3/4"	6 3/4"	14'-6 3/4"	6 15/16"	