

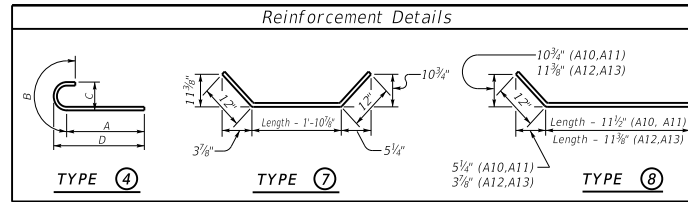
5° SKEW VARIABLE BRIDGE WIDTH 2:1 FILL SLOPES WINGS SKEWED 25% FROM ROADWAY TO BREASTWALL

Bill of Reinforcement

MARK	A1		A2		A3		A4		A5		A6				A7		A8		A9		A10	A11	A12	A13	A14		A15		A16	A17	A18		
TYPE	Str.		Str.		Str.		Str.		Str.		4				Str.		Str.		Str.		8	8	8	8	7		7		Str.	Str.	Str.		
SIZE					#5		#5		#5										#5		#5	#5	#5	#5	#5		#5		#5	#5	#5		
H	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	No.	Length ft. in.	
15-16	70+Nb=	10 11 8	12 70+Nb=	7 11 8	12 24 26	10 24 27	3 24 15	5 +Lb=							52+Nb=	9 9 11	12 8 1/2	1 10 0	11 3/8	8 6	57+Nb=	5 4 11 12	52+Nb=	6 12 10 12	57+Nb=	12 10 12 14 25	6 14 24 11 14 24	6 14 24 2 14 11 7	+Lb=	14 10 4	+Lb=	2 28 7 2 27 7	112 5 9
13-14	63+Nb=	9 10 8	12 63+Nb=	7 10 8	12 22 23	6 22 23	11 22 14	9 +Lb=							46+Nb=	8 8 3	12 6 11 1	3 0 8 7 3	51+Nb=	5 4 11 12	46+Nb=	6 10 10 12	51+Nb=	10 10 12 12 23	7 12 21 11 12 21	6 12 21 2 12 11 7	+Lb=	12 10 4	+Lb=	2 25 7 2 24 7	100 5 9		
11-12	54+Nb=	8 9 8	12 54+Nb=	6 9 8	12 20 19	1 20 19	7 20 14	1 +Lb=							38+Nb=	7 7 1	12 5 10 1/2	1 2 0 7 6 2	43+Nb=	5 4 11 12	38+Nb=	5 8 10 12	43+Nb=	8 10 12 10 18	7 10 17 11 10 17	6 10 17 2 10 11 7	+Lb=	10 10 4	+Lb=	2 21 7 2 20 7	84 5 9		
9-10	48+Nb=	7 8 8	12 48+Nb=	5 8 8	12 18 16	9 18 17	4 18 13	5 +Lb=							34+Nb=	6 6 1	12 5 1 1 0 0	6 5 4	39+Nb=	5 4 11 12	34+Nb=	5 6 10 12	39+Nb=	6 10 12 8 16	7 8 15 11 8 15	6 8 15 2 8 11 7	+Lb=	8 10 4	+Lb=	2 19 7 2 18 7	76 5 9		
7-8	39+Nb=	6 7 2	12 39+Nb=	5 7 2	12 16 13	2 16 12	9 16 12	3 +Lb=							27+Nb=	5 5 7	12 4 8 1/2	0 10 0 5 4 11	32+Nb=	5 4 11 12	27+Nb=	5 4 10 12	32+Nb=	4 10 12 6 12	7 6 11 11 6 12	6 6 12 2 6 11 7	+Lb=	6 10 4	+Lb=	2 15 7 2 15 7	62 5 9		
5-6	34+Nb=	5 6 2	12 34+Nb=	5 6 2	12 14 10	9 14 10	5 14 11	7 +Lb=							23+Nb=	5 5 7	12 4 8 1/2	0 10 0 5 4 11	28+Nb=	5 4 11 12	23+Nb=	5 2 10 12	28+Nb=	2 10 12 4 10	7 4 9 11 4 10	6 4 10 2 4 11 7	+Lb=	4 10 4	+Lb=	2 13 7 2 13 7	54 5 9		

Table of Dimensions

H	W		N		M2		M3		T2		T3		L2		L3		S2		S3	
	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.	Length ft. in.
15-16	12	0 5	0 24	6 25	7 12	1 8	8 8	23	22	8 1/2	+0.5Lb=	7 5 1/2	+0.5Lb=							
13-14	11	0 4	6 21	6 22	4 10	7 7	20	19	7 8	+0.5Lb=	7 1 3/4	+0.5Lb=								
11-12	10	0 4	0 17	8 18	3 8	8 8	6 2	16	15	7 3	+0.5Lb=	6 9 1/2	+0.5Lb=							
9-10	9	0 3	6 15	7 16	3 7	8 8	5 5	14	13	6 1 1/2	+0.5Lb=	6 6 1/2	+0.5Lb=							
7-8	7	6 2	9 11	7 12	8 4	5 8	4 3	10	10	6 5	+0.5Lb=	6 1/2	+0.5Lb=							
5-6	6	6 2	3 9	6 10	5 4	8 8	3 6	8	8	6 1/2	+0.5Lb=	5 8 1/2	+0.5Lb=							



*Concrete quantities computed using 21" beam depth on 3/8" pad & Variable Bridge Width

Quantities

H	Concrete*		Reinforcement	
	C.Y.	LBS.		
5	20.61+(0.71xLb) =	1993+(52.8xLb) =		
6	22.45+(0.78xLb) =	1993+(52.8xLb) =		
7	30.23+(0.93xLb) =	2857+(68.7xLb) =		
8	32.37+(1.01xLb) =	2857+(68.7xLb) =		
9	46.71+(1.19xLb) =	4466+(91xLb) =		
10	49.36+(1.27xLb) =	4466+(91xLb) =		
11	60.69+(1.41xLb) =	6377+(120.4xLb) =		
12	63.64+(1.49xLb) =	6377+(120.4xLb) =		
13	83.39+(1.64xLb) =	9769+(161xLb) =		
14	86.93+(1.71xLb) =	9769+(161xLb) =		
15	105.73+(1.86xLb) =	13211+(198.6xLb) =		
16	109.71+(1.93xLb) =	13211+(198.6xLb) =		

ABUTMENT SKEW CORRECTION FACTOR (SCF) = 1.004

NUMBER OF BARS TO ADD (Nb) = Bridge Width (feet) x SCF (round up to nearest whole number)

LENGTH OF ABUTMENT TO ADD (Lb) = Bridge Width (feet) x SCF (convert decimal to architectural)

GENERAL NOTES

SPECIFICATIONS: Construct abutments according to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. Abutments are designed for side by side box beams as detailed in Standard Drawings BDP-001 through BDP-012, current edition. Dimensions may be adjusted to allow for any out to out bridge width. Abutments are also adequate for Std. Dwg. slabs or steel beam superstructures.

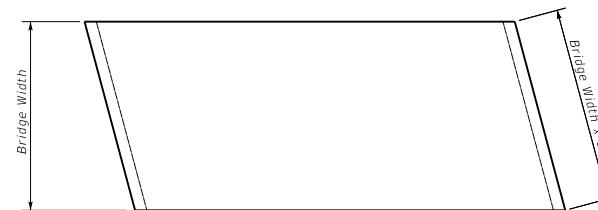
FOUNDATION PRESSURE: Construct abutment footings on solid rock bearing material that can support a pressure of 8000 psf service or 10,800 psf strength factored as recommended by a geotechnical engineer.

WING LENGTHS: Calculated assuming 21" superstructure depth and stream bank elevation at top of footing.

FOOTING ELEVATION: Construct bottom of footing below the anticipated scour elevation. (This typically entails embedding the footings 1'-0" to 2'-0" into rock and pouring concrete directly against cut rock faces, as recommended by geotechnical engineer.)

NOTE: Distances to bars shown are clear dimensions unless otherwise noted.

MATERIAL SPECIFICATIONS:
Concrete, Class "A" = 3500 psi
Steel Reinforcement = Grade 60



KENTUCKY
DEPARTMENT OF HIGHWAYS

5° SKEW VARIABLE
WIDTH ABUTMENT
25% SKEWED WINGS

STANDARD DRAWING NO. BSA-024

SUBMITTED: *Bert Adams* 02-26-20
DIRECTOR DIVISION OF STRUCTURAL DESIGN DATE

APPROVED: *[Signature]* 02-26-20
STATE ENGINEER DATE