

45° SKEW VARIABLE BRIDGE WIDTH 2:1 FILL SLOPES WINGS SKEWED 50% FROM ROADWAY TO BREASTWALL

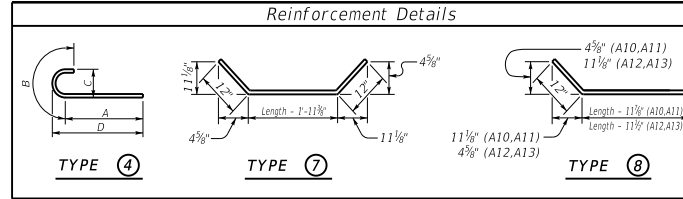
Bill of Reinforcement

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				7				7				Str.				Str.				Str.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
SIZE					#5				#5				#5																#5				#5				#5				#5				#5				#5				#5				#5				#5				#5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
H	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No.	Length ft. in.	Size	Spacing	No

Table of Dimensions

H	W	N	M2	M3	T2	T3	L2	L3	S2	S3
Length	Length	Length	Length	Length	Length	Length	Length	Length	Length	Length
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
15-16	12 0 5 0	14 8 1/4	19 1 1/4	35 5 3/8	7 11 37	16 12 8 3/4	+0.5Lb=	7 11 37	16 12 8 3/4	+0.5Lb=
13-14	11 0 4 6	13 1 1/2	16 1 1/4	31 8 1/4	7 1/4	33 14 12 1 1/4	+0.5Lb=	2 1 1/4	+0.5Lb=	
11-12	10 0 4 0	11 2 14 9 1/2	26 1 1/8	6 1 1/2	28 12 11 6	+0.5Lb=	2 3 1/4	+0.5Lb=		
9-10	9 0 3 6	9 2 12 7 1/2	23 3 3/8	5 2 1/2	23 10 10 10 1/4	+0.5Lb=	2 5 1/4	+0.5Lb=		
7-8	7 6 2 9	7 3 10 3 1/2	17 6 4 3 3/8	18 8 10 0	+0.5Lb=	2 8 3/4	+0.5Lb=			
5-6	6 6 2 3	5 3 3/8	8 2 12 9 1/4	3 4 1/8	13 6 9 4 1/4	+0.5Lb=	2 10 3/4	+0.5Lb=		

Reinforcement Details



*Concrete quantities computed using 21" beam depth on 1/2" pad & Variable Bridge Width

Quantities

H	Concrete* C.Y.	Reinforcement LBS.
5	24.42+(0.71xLb) =	2258+(52.8xLb) =
6	26.59+(0.78xLb) =	2258+(52.8xLb) =
7	38.13+(0.93xLb) =	3425+(68.7xLb) =
8	40.82+(1.01xLb) =	3425+(68.7xLb) =
9	56.56+(1.19xLb) =	5154+(91xLb) =
10	59.77+(1.27xLb) =	5154+(91xLb) =
11	76.76+(1.41xLb) =	7598+(120.4xLb) =
12	80.49+(1.49xLb) =	7598+(120.4xLb) =
13	100.06+(1.64xLb) =	11157+(161xLb) =
14	104.31+(1.71xLb) =	11157+(161xLb) =
15	124.53+(1.86xLb) =	14883+(198.6xLb) =
16	129.22+(1.93xLb) =	14883+(198.6xLb) =

ABUTMENT SKEW CORRECTION FACTOR (SCF) = 1.414

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.

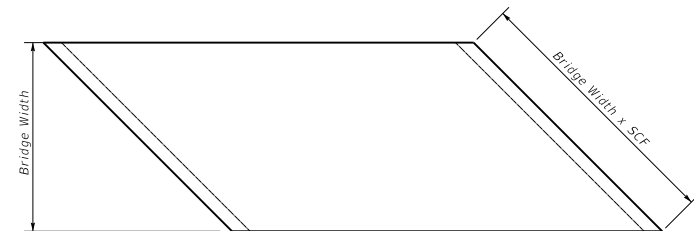
FOUNDATION PRESSURE: Construct abutment footings on solid rock bearing material that can support a pressure of 8000 psf service or 10,800 psf strength factored as recommended by a geotechnical engineer.

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



PLAN OF SUPERSTRUCTURE SLAB

KENTUCKY DEPARTMENT OF HIGHWAYS	
45° SKEW SUPPORT VARIABLE WIDTH ABUTMENT 50% SKEWED WINGS	
STANDARD DRAWING NO. BSA-020	
SUBMITTED DIRECTOR DIVISION OF STRUCTURAL DESIGN	02-26-20 DATE
APPROVED STATE ENGINEER	02-26-20 DATE