45° SKEW VARIABLE BRIDGE WIDTH 2:1 FILL SLOPES WINGS PARALLEL TO ROADWAY

Bill of Reinforcement

MARK	A1					A2					A3			A4			A5					
TYPE	Str.					Str.					Str.			Str.			Str.					
SIZE											#5			#5			#5					
H	No.	Size	Length ft.	Length in.	Spacing	No.	Size	Length ft.	Length in.	Spacing	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	+Lb =	Length ft.	Length in.
15-16	131+Nb=	10	11	8	12	131+Nb=	7	11	8	12	24	57	0	24	44	0	24	27	0	+Lb=		
13-14	119+Nb=	9	10	8	12	119+Nb=	7	10	8	12	22	50	10	22	38	9	22	25	7	+Lb=		
11-12	104+Nb=	8	9	8	12	104+Nb=	6	9	8	12	20	43	7	20	32	7	20	24	2	+Lb=		
9-10	91+Nb=	7	8	8	12	91+Nb=	5	8	8	12	18	37	5	18	27	4	18	22	9	+Lb=		
7-8	75+Nb=	6	7	2	12	75+Nb=	5	7	2	12	16	29	10	16	20	9	16	21	1	+Lb=		
5-6	62+Nb=	5	6	2	12	62+Nb=	5	6	2	12	14	23	8	14	15	7	14	19	8	+Lb=		

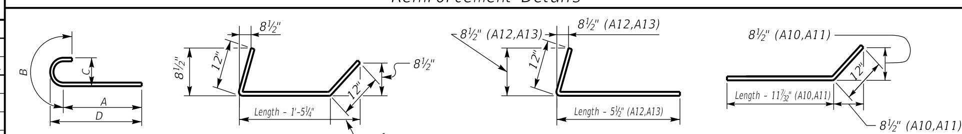
MARK	A6													A7					A8				
TYPE	4													Str.					Str.				
SIZE																							
H	No.	Size	Length ft.	Length in.	Spacing	A ft.	A in.	B ft.	B in.	C ft.	C in.	D ft.	D in.	No.	Size	Length ft.	Length in.	Spacing	No.	Size	Length ft.	Length in.	Spacing
15-16	91+Nb=	9	9	11	12	8	⅛	1	10	0	11¾	8	6	102+Nb=	5	4	11	12	91+Nb=	6	12	10	12
13-14	81+Nb=	8	8	3	12	6	11	1	3	0	8	7	3	92+Nb=	5	4	11	12	81+Nb=	6	10	10	12
11-12	69+Nb=	7	7	1	12	5	10½	1	2	0	7	6	2	80+Nb=	5	4	11	12	69+Nb=	5	8	10	12
9-10	59+Nb=	6	6	1	12	5	1	1	0	0	6	5	4	70+Nb=	5	4	11	12	59+Nb=	5	6	10	12
7-8	47+Nb=	5	5	7	12	4	8½	0	10	0	5	4	11	58+Nb=	5	4	11	12	47+Nb=	5	4	10	12
5-6	37+Nb=	5	5	7	12	4	8½	0	10	0	5	4	11	48+Nb=	5	4	11	12	37+Nb=	5	2	10	12

MARK	A9				A10			A11			A12			A13			A14						A15						A16			A17			A18		
TYPE	Str.				8			8			8			8			7						7						Str.			Str.			Str.		
SIZE	#5				#5			#5			#5			#5			#5						#5						#5			#5			#5		
H	No.	Length ft.	Length in.	Spacing	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	+Lb =	Length ft.	Length in.	No.	Length ft.	Length in.	+Lb =	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.
15-16	102+Nb=	12	10	12	14	44	0	14	42	7	14	44	0	14	46	0	14	15	0	+Lb=			14	15	0	+Lb=			2	48	10	2	52	10	200	5	9
13-14	92+Nb=	10	10	12	12	39	0	12	37	7	12	39	0	12	41	0	12	15	0	+Lb=			12	15	0	+Lb=			2	43	10	2	47	10	180	5	9
11-12	80+Nb=	8	10	12	10	33	0	10	31	7	10	33	0	10	35	0	10	15	0	+Lb=			10	15	0	+Lb=			2	37	10	2	41	10	156	5	9
9-10	70+Nb=	6	10	12	8	28	0	8	26	7	8	28	0	8	30	0	8	15	0	+Lb=			8	15	0	+Lb=			2	32	10	2	36	10	136	5	9
7-8	58+Nb=	4	10	12	6	22	0	6	20	7	6	22	0	6	24	0	6	15	0	+Lb=			6	15	0	+Lb=			2	26	10	2	30	10	112	5	9
5-6	48+Nb=	2	10	12	4	17	0	4	15	7	4	17	0	4	19	0	4	15	0	+Lb=			4	15	0	+Lb=			2	21	10	2	25	10	92	5	9

Table of Dimensions

H	W Length ft.	W Length in.	N Length ft.	N Length in.	M2 Length ft.	M2 Length in.	M3 Length ft.	M3 Length in.	T2 Length ft.	T2 Length in.	T3 Length ft.	T3 Length in.	L2 Length ft.	L3 Length ft.	S2 Length ft.	S2 Length in.	S2 + Lb/2 =	S2 Length ft.	S2 Length in.	S3 Length ft.	S3 Length in.	S3 + Lb/2 =	S3 Length ft.	S3 Length in.
15-16	12	0	5	0	31	½	40	11¼	31	½	40	11¼	41	41	14	2⅜	+0.5Lb=			14	2⅜	+0.5Lb=		
13-14	11	0	4	6	27	4⅜	36	6⅝	27	4⅜	36	6⅝	36	36	13	5⅞	+0.5Lb=			13	5⅞	+0.5Lb=		
11-12	10	0	4	0	22	11⅝	31	5½	22	11⅝	31	5½	30	30	12	9½	+0.5Lb=			12	9½	+0.5Lb=		
9-10	9	0	3	6	19	3½	27	¾	19	3½	27	¾	25	25	12	1	+0.5Lb=			12	1	+0.5Lb=		
7-8	7	6	2	9	14	9⅞	21	6½	14	9⅞	21	6½	19	19	11	¼	+0.5Lb=			11	¼	+0.5Lb=		
5-6	6	6	2	3	11	1¾	17	1⅞	11	1¾	17	1⅞	14	14	10	3¾	+0.5Lb=			10	3¾	+0.5Lb=		

Reinforcement Details



TYPE (4) TYPE (7) TYPE (8) TYPE (8)

Quantities

H	Concrete* C.Y.	Reinforcement LBS.
5	36.9+(0.71xLb) =	3443+(52.8xLb) =
6	40.03+(0.78xLb) =	3443+(52.8xLb) =
7	57.21+(0.93xLb) =	5214+(68.7xLb) =
8	61.08+(1.01xLb) =	5214+(68.7xLb) =
9	86.98+(1.19xLb) =	8069+(91xLb) =
10	91.74+(1.27xLb) =	8069+(91xLb) =
11	117.01+(1.41xLb) =	11902+(120.4xLb) =
12	122.51+(1.49xLb) =	11902+(120.4xLb) =
13	155.06+(1.64xLb) =	17799+(161xLb) =
14	161.45+(1.71xLb) =	17799+(161xLb) =
15	194.42+(1.86xLb) =	23895+(198.6xLb) =
16	201.55+(1.93xLb) =	23895+(198.6xLb) =

*Concrete quantities computed using 21" beam depth on ½" pad & Variable Bridge Width

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.

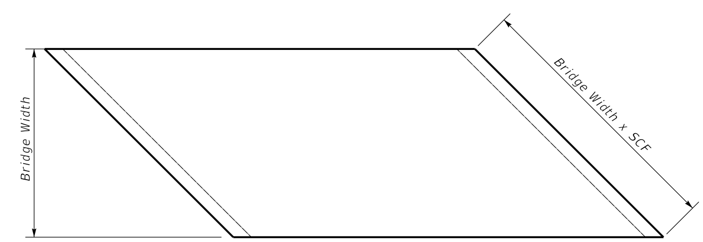
FOUNDATION PRESSURE: Construct abutment footings on solid rock bearing material that can support a pressure of 8000 psf service or 10,800 psf strength factored as recommended by a geotechnical engineer.

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 VARIABLE WIDTH ABUTMENT PARALLEL WINGS

STANDARD DRAWING NO. BSA-060

SUBMITTED _______ DIRECTOR DIVISION OF STRUCTURAL DESIGN 02-26-20 DATE

APPROVED _______ STATE HIGHWAY ENGINEER 02-26-20 DATE