

# 20° SKEW VARIABLE BRIDGE WIDTH 2:1 FILL SLOPES WINGS SKEWED 50% FROM ROADWAY TO BREASTWALL

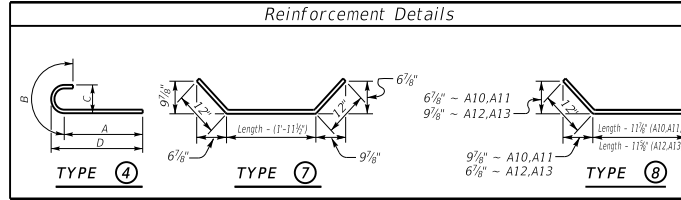
## Bill of Reinforcement

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	8	7	7	Str.	Str.	Str.													
SIZE			#5		#5		#5		#5		#5		#5		#5		#5														
H	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length													
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.													
15-16	63+Nb=	10 11 8	12 63+Nb=	7 11 8	12 24 21	7 24 28	5 24 12	7 +Lb=	51+Nb=	9 9 11	12 8 1/2	1 10 0	11 3/8	8 6	54+Nb=	5 4 11	12 51+Nb=	6 12 10	12 54+Nb=	12 10 12	14 29 5	14 27 5	14 20 9	14 19 10	14 13 0	+Lb=	14 9 11	+Lb=	2 31 1	2 22 6	109 5 9
13-14	55+Nb=	9 10 8	12 55+Nb=	7 10 8	12 22 18	4 22 24	3 22 12	2 +Lb=	44+Nb=	8 8 3	12 6 11	1 3 0	8 7 3	47+Nb=	5 4 11	12 44+Nb=	6 10 10	12 47+Nb=	10 10 12	12 25 6	12 23 5	12 17 9	12 16 10	12 13 0	+Lb=	12 9 11	+Lb=	2 27 1	2 19 6	95 5 9	
11-12	49+Nb=	8 9 8	12 49+Nb=	6 9 8	12 20 16	1 20 21	1 20 11	9 +Lb=	39+Nb=	7 7 1	12 5 10 1/2	1 2 0	7 6 2	42+Nb=	5 4 11	12 39+Nb=	5 8 10	12 42+Nb=	8 10 12	10 22 6	10 20 5	10 15 9	10 14 10	10 13 1	+Lb=	10 9 11	+Lb=	2 24 1	2 17 6	85 5 9	
9-10	43+Nb=	7 8 8	12 43+Nb=	5 8 8	12 18 13	10 18 17	11 18 11	4 +Lb=	34+Nb=	6 6 1	12 5 1 1 0	0 6 5	4 37+Nb=	5 4 11	12 34+Nb=	5 6 10	12 37+Nb=	6 10 12	8 19 6	8 17 5	8 13 9	8 12 10	8 13 1	+Lb=	8 9 11	+Lb=	2 21 1	2 15 6	75 5 9		
7-8	35+Nb=	6 7 2	12 35+Nb=	5 7 2	12 16 10	3 16 13	4 16 10	4 +Lb=	27+Nb=	5 5 7	12 4 8 1/2	0 10 0	5 4 11	30+Nb=	5 4 11	12 27+Nb=	5 4 10	12 30+Nb=	4 10 12	6 15 6	6 13 5	6 10 9	6 9 10	6 13 1	+Lb=	6 9 11	+Lb=	2 17 1	2 12 6	61 5 9	
5-6	29+Nb=	5 6 2	12 29+Nb=	5 6 2	12 14 8	0 14 10	2 14 9	11 +Lb=	22+Nb=	5 5 7	12 4 8 1/2	0 10 0	5 4 11	25+Nb=	5 4 11	12 22+Nb=	5 2 10	12 25+Nb=	2 10 12	4 12 6	4 10 5	4 8 9	4 7 10	4 13 1	+Lb=	4 9 11	+Lb=	2 14 1	2 10 6	51 5 9	

### 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	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.
15-16	12	0	5	0	16	2 1/2	17	8 3/4	23	1 1/4	12	5	26	18	7	11 1/4	+0.5Lb=	4	4	+0.5Lb=
13-14	11	0	4	6	13	9 1/2	15	3 1/2	19	8 3/4	10	6 1/2	22	15	7	7 7/8	+0.5Lb=	4	3	+0.5Lb=
11-12	10	0	4	0	11	1 3/4	13	2 1/2	17	1 3/8	9	3	19	13	7	3 3/4	+0.5Lb=	4	2 1/2	+0.5Lb=
9-10	9	0	3	6	10	2 1/2	11	4 1/4	14	6 3/8	7	11 3/8	16	11	6	1 1 3/8	+0.5Lb=	4	1 1/2	+0.5Lb=
7-8	7	6	2	9	7	8 1/2	8	7	11	3/8	6	1/2	12	8	6	5 1/2	+0.5Lb=	3	1 3/4	+0.5Lb=
5-6	6	6	2	3	5	11 1/2	6	8 3/4	8	5 3/8	4	8 1/2	9	6	6	1 1/2	+0.5Lb=	3	10 3/8	+0.5Lb=

### Reinforcement Details



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

### Quantities

H	Concrete*		Reinforcement	
	C.Y.		LBS.	
5	19.26	+(0.71xLb) =	1802	+(52.8xLb) =
6	20.97	+(0.78xLb) =	1802	+(52.8xLb) =
7	29.54	+(0.93xLb) =	2692	+(68.7xLb) =
8	31.63	+(1.01xLb) =	2692	+(68.7xLb) =
9	45.85	+(1.19xLb) =	4226	+(91xLb) =
10	48.45	+(1.27xLb) =	4226	+(91xLb) =
11	61.2	+(1.41xLb) =	6144	+(120.4xLb) =
12	64.18	+(1.49xLb) =	6144	+(120.4xLb) =
13	78.78	+(1.64xLb) =	8921	+(161xLb) =
14	82.13	+(1.71xLb) =	8921	+(161xLb) =
15	102.49	+(1.86xLb) =	12387	+(198.6xLb) =
16	106.35	+(1.93xLb) =	12387	+(198.6xLb) =

ABUTMENT SKEW CORRECTION FACTOR (SCF) = 1.064

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.

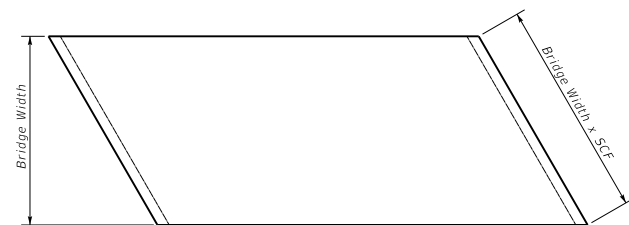
**FOUNDATION PRESSURE:** Construct abutment footings on solid rock bearing material that can support a pressure of 8000 psf service or 10,800 psf strength factored as recommended by a geotechnical engineer.

**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

**20° SKEW VARIABLE**  
**WIDTH ABUTMENT**  
**50% SKEWED WINGS**

STANDARD DRAWING NO. BSA-010

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

APPROVED *Boj Adams* STATE REGISTERED ENGINEER 02-26-20  
DATE