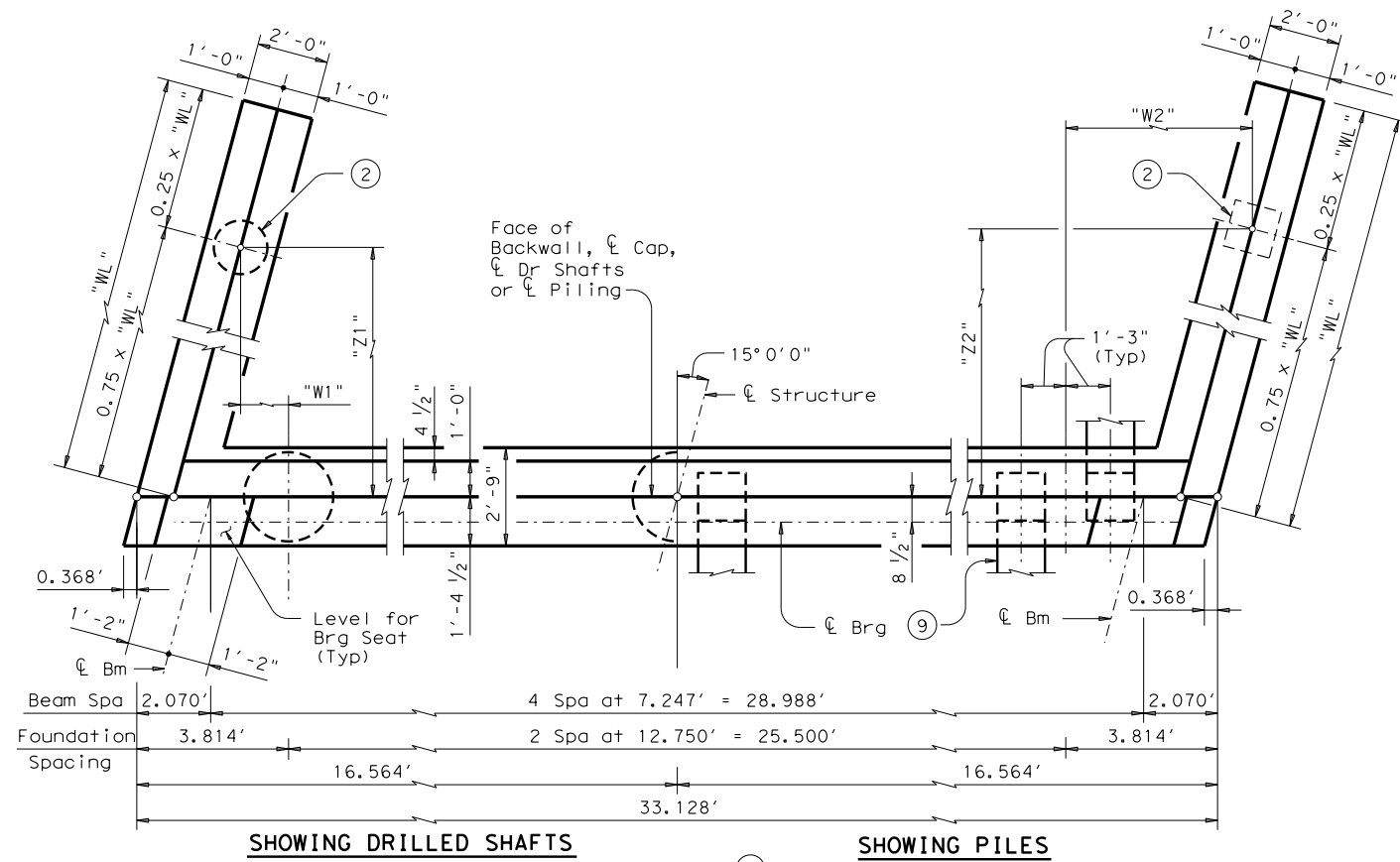


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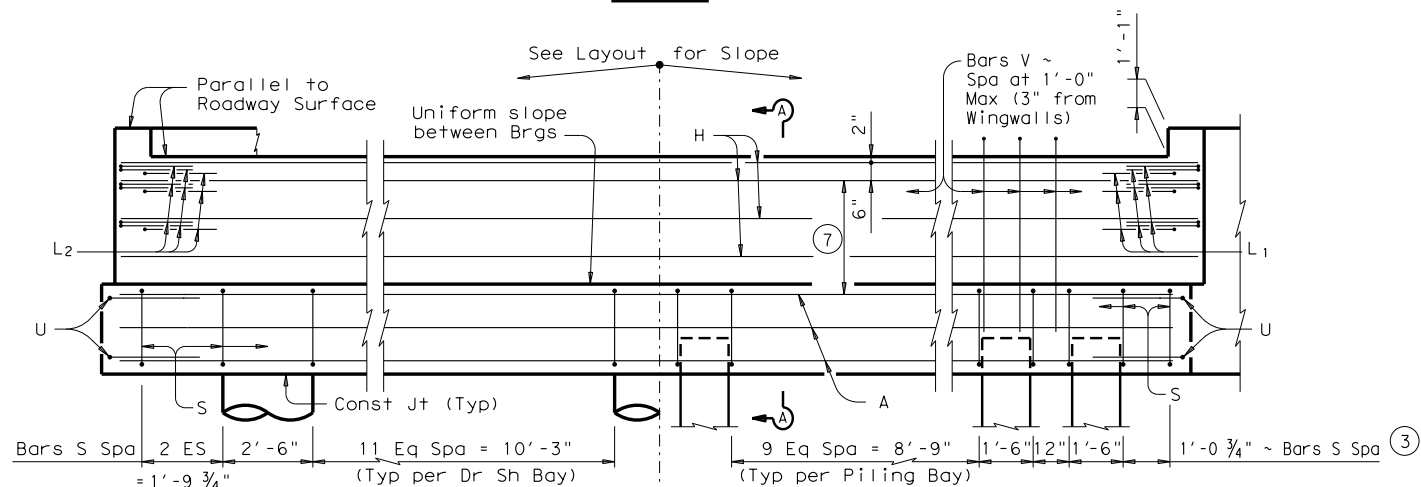
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SHOWING DRILLED SHAFTS

SHOWING PILES

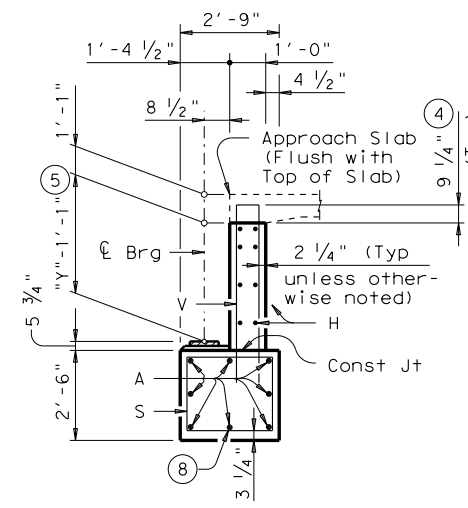
PLAN ①



SHOWING DRILLED SHAFTS

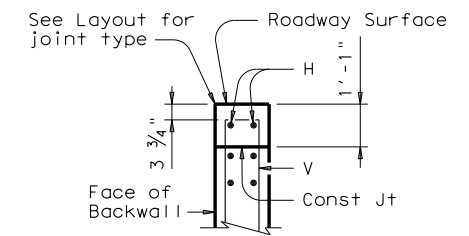
SHOWING PILES

ELEVATION ③



SECTION A-A

(With Approach Slab) ⑥



BACKWALL DETAIL

(Without Approach Slab) ⑥

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications. Concrete compressive strength $f'_c = 3,600$ psi. All cap and wall reinforcing shall be Grade 60. See Bridge Layout for beam type, header slope, and foundation type, size and length. See standard FD for foundation details and notes. See standard CRR for riprap attachment details, if applicable. See standard SBBR for location and size of anchor bolt required for erection bracing. See applicable rail details for rail anchorage in wingwalls. Details are drawn showing Right Forward skew. See Bridge Layout for actual skew direction. These abutment details may be used with Standard SSB-30-15 only.

Header Slope	Beam Type	Wingwall Type	Wingwall Lgth "WL"	"W1"	"Z1"	"W2"	"Z2"				
2:1	W18	Cantilevered	7.000'	Not Applicable							
	W21	Cantilevered	7.000'								
	W24	Cantilevered	8.000'								
	W27	Cantilevered	8.000'								
	W30	Cantilevered	9.000'								
	W36	Cantilevered	10.000'								
3:1	W18	Cantilevered	10.000'	Not Applicable							
	W21	Cantilevered	10.000'								
	W24	Cantilevered	11.000'								
	W27	Cantilevered	12.000'								
	W30	Founded	13.000'					0.255'	9.418'	5.302'	9.418'
	W33	Founded	14.000'					0.061'	10.142'	5.496'	10.142'
	W36	Founded	14.000'					0.061'	10.142'	5.496'	10.142'
W40	Founded	15.000'	-0.133'	10.867'	5.690'	10.867'					

Negative values for the "W1" dimension indicates a wingwall foundation on the other side of the cap foundation from what is shown in plan view.

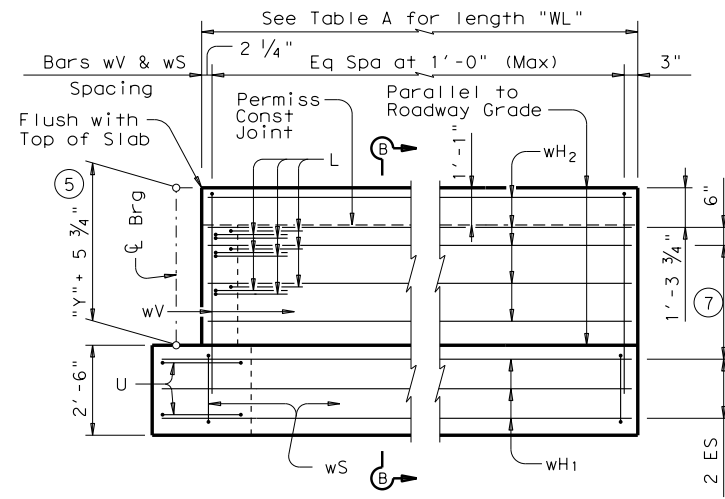
- ① See Table A for variable dimensions based on header slope and beam type.
- ② See Table A to determine if wingwall foundations are required.
- ③ For Piling larger than 16", adjust Bars S spacing as required to avoid Piling.
- ④ Increase as required to maintain 3 3/4" from Finished Grade.
- ⑤ See SBSD-30 standard for "Y" value.
- ⑥ See Layout to determine if Approach Slab is present.
- ⑦ Use 2 Eq Spa for W18 thru W27 beams and 3 Eq Spa for W30 beams and larger.
- ⑧ With pile foundations, replace Bar A located at bottom centerline of cap with 2 ~ #11 x 8'-9" placed between piling groups. Deduct 78 Lbs from reinforcing steel total.
- ⑨ See Detail "A" on FD standard.

HL93 LOADING SHEET 1 OF 3

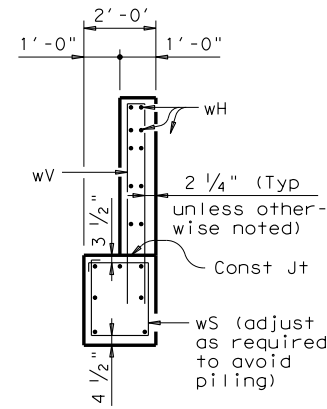
		Bridge Division Standard	
ABUTMENTS STEEL BEAM SPANS 30' ROADWAY 15° SKEW			
ASB-30-15			
FILE: sbstd27.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
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REVISIONS			
DIST		COUNTY	
		SHEET NO.	

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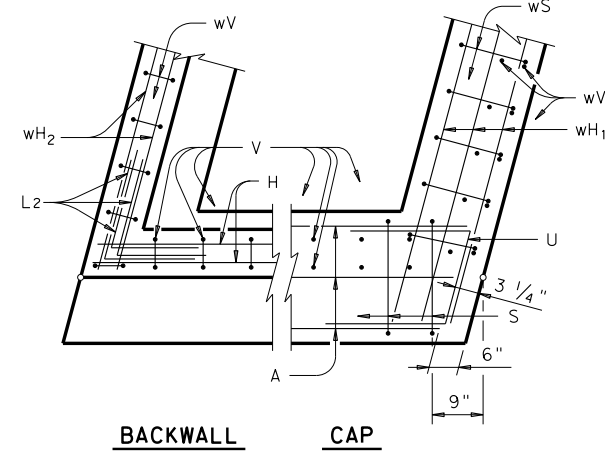
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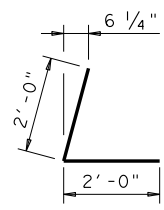
WINGWALL ELEVATION



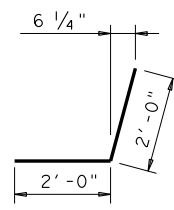
SECTION B-B



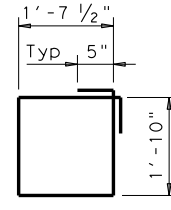
**BACKWALL CAP
CORNER DETAILS**



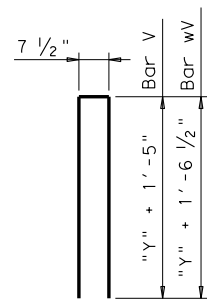
BARS L2



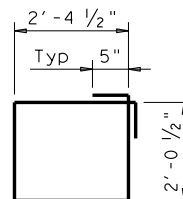
BARS L1



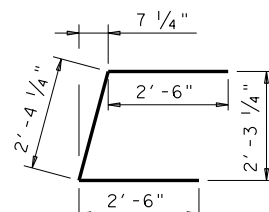
BARS wS



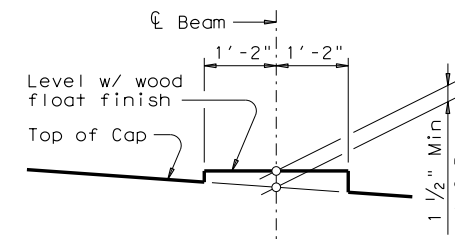
BARS V & wV ⑤



BARS S



BARS U



BEARING SEAT DETAIL

(Bearing surface shall be clean and free of all loose material before placing bearing pad.)

TABLE OF FOUNDATION LOADS

Span Length	Shaft Load	Pile Load
Ft	Tons/Shaft	Tons/Pile
30	49	43
35	53	45
40	57	47
45	60	49
50	64	51
55	67	52
60	70	54
65	73	55
70	76	57
75	79	58
80	82	60
85	86	62
90	90	64
95	93	66
100	96	67
105	100	69
110	104	71
115	107	73
120	110	74

⑤ See SBSD-30 standard for "Y" value.

⑦ Use 2 Eq Spa for W18 thru W27 beams and 3 Eq Spa for W30 beams and larger.

HL93 LOADING SHEET 2 OF 3



**ABUTMENTS
STEEL BEAM SPANS
30' ROADWAY 15° SKEW**

ASB-30-15

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2:1 HEADER SLOPE

3:1 HEADER SLOPE

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TABLE OF ESTIMATED QUANTITIES (W18 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	8'-4"	278
wH1	14	#6	8'-0"	168
wH2	16	#6	6'-8"	160
wS	16	#4	7'-9"	83
wV	16	#5	8'-7"	143
Reinforcing Steel				Lb 2,841
Class "C" Concrete				CY 14.2

TABLE OF ESTIMATED QUANTITIES (W21 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	8'-11"	298
wH1	14	#6	8'-0"	168
wH2	16	#6	6'-8"	160
wS	16	#4	7'-9"	83
wV	16	#5	9'-2"	153
Reinforcing Steel				Lb 2,871
Class "C" Concrete				CY 14.6

TABLE OF ESTIMATED QUANTITIES (W24 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	9'-5"	314
wH1	14	#6	9'-0"	189
wH2	16	#6	7'-8"	184
wS	18	#4	7'-9"	93
wV	18	#5	9'-8"	182
Reinforcing Steel				Lb 2,971
Class "C" Concrete				CY 15.8

TABLE OF ESTIMATED QUANTITIES (W18 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	8'-4"	278
wH1	14	#6	11'-0"	231
wH2	16	#6	9'-8"	232
wS	22	#4	7'-9"	114
wV	22	#5	8'-7"	197
Reinforcing Steel				Lb 3,061
Class "C" Concrete				CY 15.9

TABLE OF ESTIMATED QUANTITIES (W21 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	8'-11"	298
wH1	14	#6	11'-0"	231
wH2	16	#6	9'-8"	232
wS	22	#4	7'-9"	114
wV	22	#5	9'-2"	210
Reinforcing Steel				Lb 3,094
Class "C" Concrete				CY 16.5

TABLE OF ESTIMATED QUANTITIES (W24 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	9'-5"	314
wH1	14	#6	12'-0"	252
wH2	16	#6	10'-8"	256
wS	24	#4	7'-9"	124
wV	24	#5	9'-8"	242
Reinforcing Steel				Lb 3,197
Class "C" Concrete				CY 17.6

TABLE OF ESTIMATED QUANTITIES (W27 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	9'-11"	331
wH1	14	#6	9'-0"	189
wH2	16	#6	7'-8"	184
wS	18	#4	7'-9"	93
wV	18	#5	10'-2"	191
Reinforcing Steel				Lb 2,997
Class "C" Concrete				CY 16.2

TABLE OF ESTIMATED QUANTITIES (W30 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	10'-5"	348
wH1	14	#6	10'-0"	210
wH2	20	#6	8'-8"	260
wS	20	#4	7'-9"	104
wV	20	#5	10'-8"	223
Reinforcing Steel				Lb 3,252
Class "C" Concrete				CY 17.2

TABLE OF ESTIMATED QUANTITIES (W33 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	10'-11"	364
wH1	14	#6	10'-0"	210
wH2	20	#6	8'-8"	260
wS	20	#4	7'-9"	104
wV	20	#5	11'-2"	233
Reinforcing Steel				Lb 3,278
Class "C" Concrete				CY 17.7

TABLE OF ESTIMATED QUANTITIES (W27 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	6	#6	32'-10"	296
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	9'-11"	331
wH1	14	#6	13'-0"	273
wH2	16	#6	11'-8"	280
wS	26	#4	7'-9"	135
wV	26	#5	10'-2"	276
Reinforcing Steel				Lb 3,304
Class "C" Concrete				CY 18.8

TABLE OF ESTIMATED QUANTITIES (W30 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	10'-5"	348
wH1	14	#6	14'-0"	294
wH2	20	#6	12'-8"	381
wS	28	#4	7'-9"	145
wV	28	#5	10'-8"	312
Reinforcing Steel				Lb 3,587
Class "C" Concrete				CY 19.8

TABLE OF ESTIMATED QUANTITIES (W33 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	10'-11"	364
wH1	14	#6	15'-0"	315
wH2	20	#6	13'-8"	411
wS	30	#4	7'-9"	155
wV	30	#5	11'-2"	350
Reinforcing Steel				Lb 3,702
Class "C" Concrete				CY 21.1

TABLE OF ESTIMATED QUANTITIES (W36 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	11'-5"	381
wH1	14	#6	11'-0"	231
wH2	20	#6	9'-8"	290
wS	22	#4	7'-9"	114
wV	22	#5	11'-8"	268
Reinforcing Steel				Lb 3,391
Class "C" Concrete				CY 18.7

TABLE OF ESTIMATED QUANTITIES (W40 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	11'-11"	398
wH1	14	#6	11'-0"	231
wH2	20	#6	9'-8"	290
wS	22	#4	7'-9"	114
wV	22	#5	12'-2"	279
Reinforcing Steel				Lb 3,419
Class "C" Concrete				CY 19.2

TABLE OF ESTIMATED QUANTITIES (W36 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	11'-5"	381
wH1	14	#6	15'-0"	315
wH2	20	#6	13'-8"	411
wS	30	#4	7'-9"	155
wV	30	#5	11'-8"	365
Reinforcing Steel				Lb 3,734
Class "C" Concrete				CY 21.5

TABLE OF ESTIMATED QUANTITIES (W40 BEAMS)⁽¹⁰⁾

Bar	No.	Size	Length	Weight
A (8)	8	#11	32'-2"	1,367
H	8	#6	32'-10"	394
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	30	#4	9'-8"	194
U	4	#6	7'-4"	44
V	32	#5	11'-11"	398
wH1	14	#6	16'-0"	336
wH2	20	#6	14'-8"	441
wS	32	#4	7'-9"	166
wV	32	#5	12'-2"	406
Reinforcing Steel				Lb 3,854
Class "C" Concrete				CY 22.7

- (8) With pile foundations, replace Bars A located at bottom centerline of cap with 2 - #11 x 8'-9" placed between piling groups. Deduct 78 Lbs from reinforcing steel total.
- (10) Quantities shown are for one Abutment only (with Approach Slab). With no Approach Slab, add 1.2 CY Class "C" Concrete and 99 Lb Reinforcing Steel for 2 additional H bars.

HL93 LOADING SHEET 3 OF 3



**ABUTMENTS
STEEL BEAM SPANS
30' ROADWAY 15° SKEW**

ASB-30-15

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