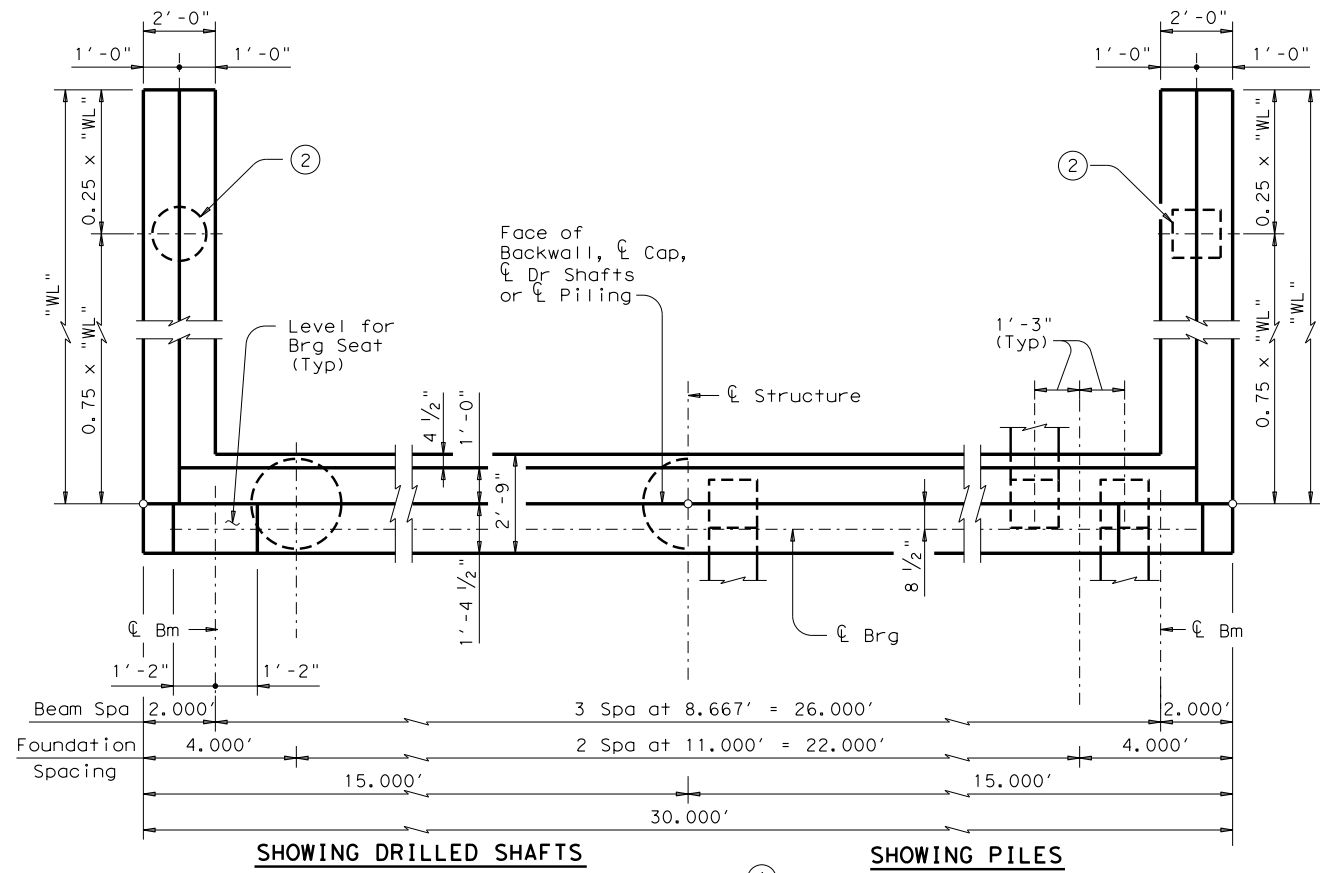
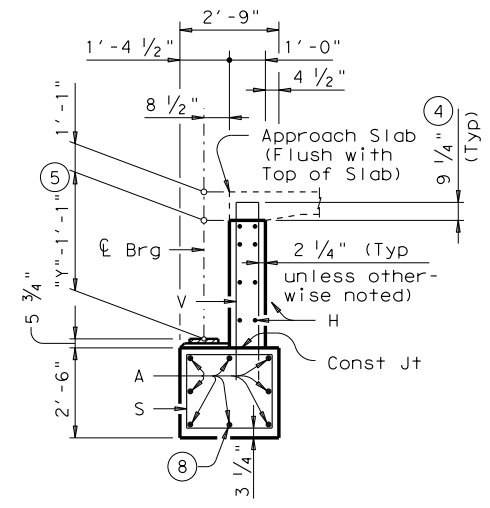


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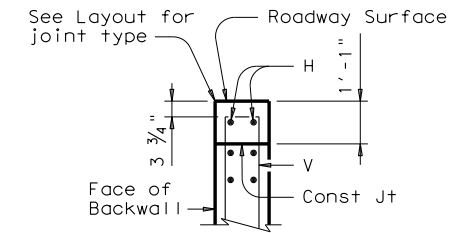
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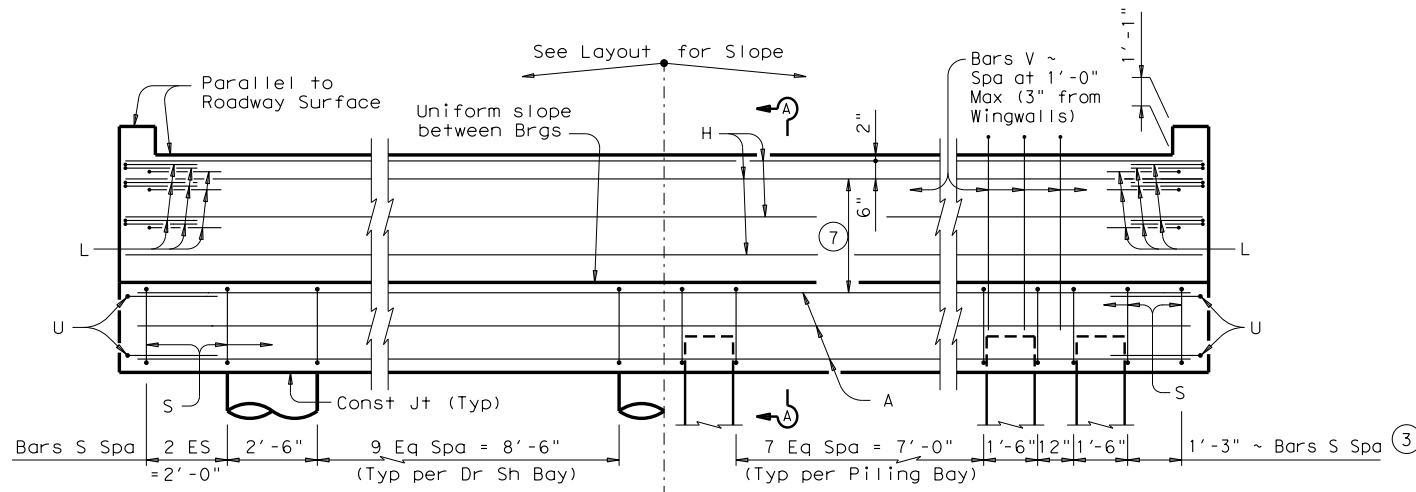
PLAN ①



SECTION A-A
(With Approach Slab) ⑥



BACKWALL DETAIL
(Without Approach Slab) ⑥



ELEVATION ③

TABLE A			
Header Slope	Beam Type	Wingwall Type	Wingwall Lgth "WL"
2:1	W18	Cantilevered	6.000'
	W21	Cantilevered	7.000'
	W24	Cantilevered	7.000'
	W27	Cantilevered	8.000'
	W33	Cantilevered	9.000'
	W36	Cantilevered	9.000'
3:1	W40	Cantilevered	10.000'
	W18	Cantilevered	9.000'
	W21	Cantilevered	10.000'
	W24	Cantilevered	11.000'
	W27	Cantilevered	12.000'
	W30	Cantilevered	12.000'
W33	Founded	13.000'	
W36	Founded	14.000'	
W40	Founded	14.000'	

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. These abutment details may be used with standard SSB-28 only.

- 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 SSB-28 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 7'-0" placed between piling groups. Deduct 80 Lbs from reinforcing steel total.

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Texas Department of Transportation Bridge Division Standard

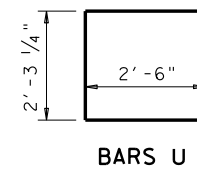
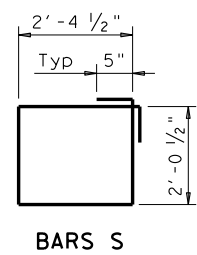
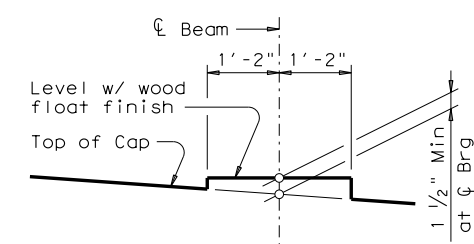
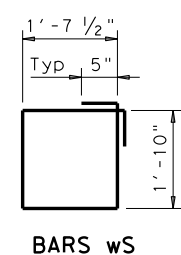
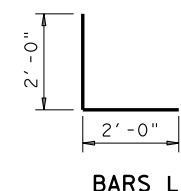
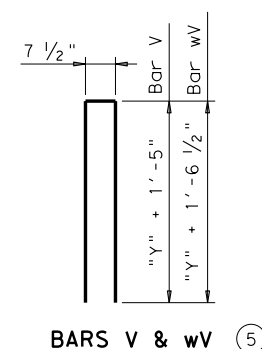
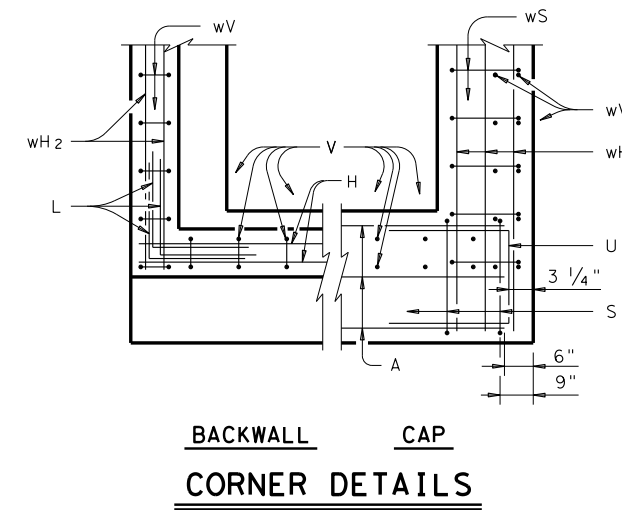
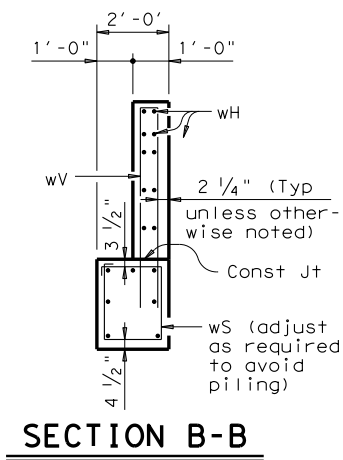
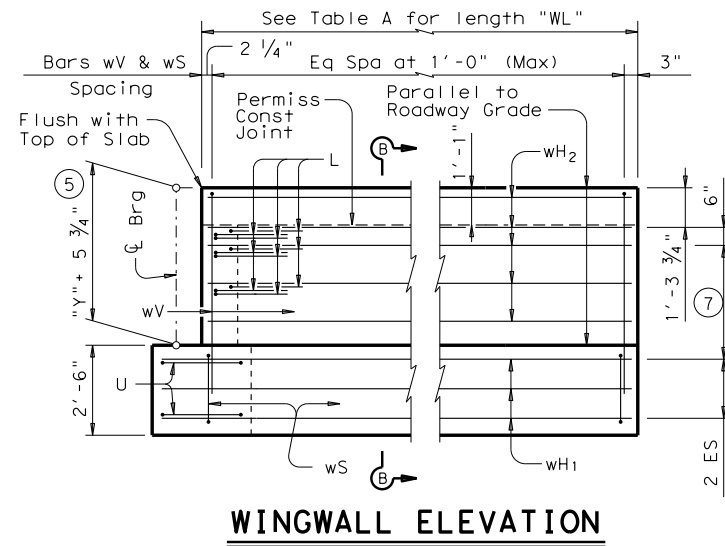
**ABUTMENTS
STEEL BEAM SPANS
28' ROADWAY**

ASB-28

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(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	47	40
35	49	41
40	54	44
45	58	46
50	61	47
55	64	49
60	67	50
65	70	52
70	73	54
75	76	55
80	80	57
85	83	59
90	86	60
95	90	62
100	94	64
105	98	66
110	101	68
115	104	70
120	108	72

- ⑤ See SBSD-28 standard for "y" value.
- ⑦ Use 2 Eq Spa for W18 thru W27 beams and 3 Eq Spa for W30 beams and larger.



**ABUTMENTS
STEEL BEAM SPANS
28' ROADWAY**

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2:1 HEADER SLOPE

3:1 HEADER SLOPE

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TABLE OF ESTIMATED QUANTITIES (W18 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	8'-4"	252
wH1	14	#6	7'-0"	147
wH2	16	#6	5'-8"	136
wS	14	#4	7'-9"	72
wV	14	#5	8'-7"	125
Reinforcing Steel				Lb 2,552
Class "C" Concrete				CY 12.6

TABLE OF ESTIMATED QUANTITIES (W21 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	8'-11"	270
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 2,654
Class "C" Concrete				CY 13.6

TABLE OF ESTIMATED QUANTITIES (W24 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	9'-5"	285
wH1	14	#6	8'-0"	168
wH2	16	#6	6'-8"	160
wS	16	#4	7'-9"	83
wV	16	#5	9'-8"	161
Reinforcing Steel				Lb 2,677
Class "C" Concrete				CY 14.0

TABLE OF ESTIMATED QUANTITIES (W18 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	8'-4"	252
wH1	14	#6	10'-0"	210
wH2	16	#6	8'-8"	208
wS	20	#4	7'-9"	104
wV	20	#5	8'-7"	179
Reinforcing Steel				Lb 2,773
Class "C" Concrete				CY 14.4

TABLE OF ESTIMATED QUANTITIES (W21 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	8'-11"	270
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 2,877
Class "C" Concrete				CY 15.4

TABLE OF ESTIMATED QUANTITIES (W24 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	9'-5"	285
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 2,979
Class "C" Concrete				CY 16.5

TABLE OF ESTIMATED QUANTITIES (W27 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	9'-11"	300
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 2,777
Class "C" Concrete				CY 15.1

TABLE OF ESTIMATED QUANTITIES (W30 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	10'-5"	315
wH1	14	#6	9'-0"	189
wH2	20	#6	7'-8"	230
wS	18	#4	7'-9"	93
wV	18	#5	10'-8"	200
Reinforcing Steel				Lb 2,937
Class "C" Concrete				CY 15.5

TABLE OF ESTIMATED QUANTITIES (W33 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	10'-11"	330
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 3,047
Class "C" Concrete				CY 16.6

TABLE OF ESTIMATED QUANTITIES (W27 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	6	#6	29'-8"	267
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	9'-11"	300
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 3,084
Class "C" Concrete				CY 17.6

TABLE OF ESTIMATED QUANTITIES (W30 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	10'-5"	315
wH1	14	#6	13'-0"	273
wH2	20	#6	11'-8"	351
wS	26	#4	7'-9"	135
wV	26	#5	10'-8"	289
Reinforcing Steel				Lb 3,273
Class "C" Concrete				CY 18.1

TABLE OF ESTIMATED QUANTITIES (W33 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	10'-11"	330
wH1	14	#6	14'-0"	294
wH2	20	#6	12'-8"	381
wS	28	#4	7'-9"	145
wV	28	#5	11'-2"	326
Reinforcing Steel				Lb 3,386
Class "C" Concrete				CY 19.3

TABLE OF ESTIMATED QUANTITIES (W36 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	11'-5"	345
wH1	14	#6	10'-0"	210
wH2	20	#6	8'-8"	260
wS	20	#4	7'-9"	104
wV	20	#5	11'-8"	243
Reinforcing Steel				Lb 3,072
Class "C" Concrete				CY 16.8

TABLE OF ESTIMATED QUANTITIES (W40 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	11'-11"	361
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 3,185
Class "C" Concrete				CY 18.0

TABLE OF ESTIMATED QUANTITIES (W36 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	11'-5"	345
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 3,501
Class "C" Concrete				CY 20.3

TABLE OF ESTIMATED QUANTITIES (W40 BEAMS) ^⑧

Bar	No.	Size	Length	Weight
A (8)	8	#11	29'-0"	1,233
H	8	#6	29'-8"	357
L	18	#6	4'-0"	108
S	26	#4	9'-8"	168
U	4	#6	7'-3"	44
V	29	#5	11'-11"	361
wH1	14	#6	15'-0"	315
wH2	20	#6	13'-8"	411
wS	30	#4	7'-9"	155
wV	30	#5	12'-2"	381
Reinforcing Steel				Lb 3,533
Class "C" Concrete				CY 20.9

⑧ With pile foundations, replace Bars A located at bottom centerline of cap with 2 - #11 x 7'-0" placed between piling groups. Deduct 80 Lbs from reinforcing steel total.

⑨ Quantities shown are for one Abutment only (with Approach Slab). With no Approach Slab, add 1.1 CY Class "C" Concrete and 89 Lb Reinforcing Steel for 2 additional H bars.

HL93 LOADING SHEET 3 OF 3



ABUTMENTS STEEL BEAM SPANS 28' ROADWAY

ASB-28

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