

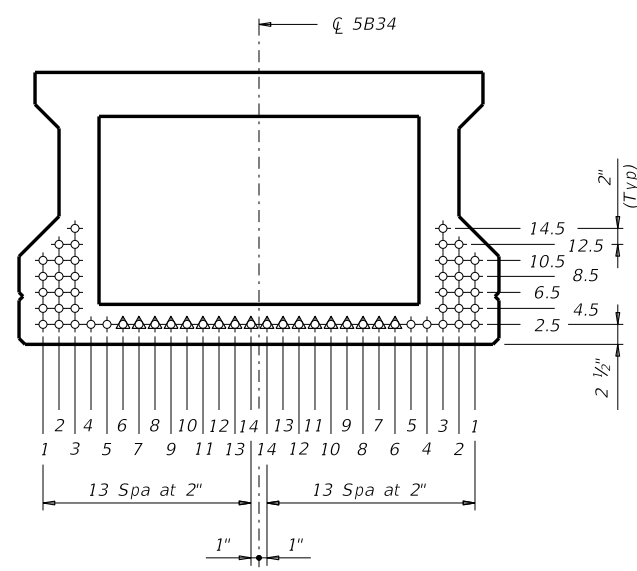
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STANDARD SBBS-B34-28	DESIGNED BEAMS (STRAIGHT STRANDS)																	OPTIONAL DESIGN							
	SPAN LENGTH (ft)	BEAM NO.	BEAM TYPE	PRESTRESSING STRANDS							DEBONDED STRAND PATTERN PER ROW							CONCRETE		DESIGN LOAD COMP STRESS (TOP ϵ) (SERVICE I)	DESIGN LOAD TENSILE STRESS (BOTT ϵ) (SERVICE III)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I)	LIVE LOAD DISTRIBUTION FACTOR		
				NON- STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH f_{pu} (ksi)	"e" \bar{c} (in)	"e" END (in)	TOT NO. DEB	DIST FROM BOTTOM (in)	NO. OF STRANDS		NUMBER OF STRANDS DEBONDED TO (ft from end)					RELEASE STRGTH f'_{ci} (ksi)				MINIMUM 28 DAY COMP STRGTH f'_c (ksi)	②	
												TOTAL	DE- BONDED	3	6	9	12	15						Moment	Shear
28' Roadway 5" Slab	30	ALL	5B34		8	0.6	270	13.78	13.78	0	2.50	8	0	0	0	0	0	0	4.000	5.000	0.375	-0.411	782	0.465	0.705
	35	ALL	5B34		8	0.6	270	13.78	13.78	0	2.50	8	0	0	0	0	0	0	4.000	5.000	0.491	-0.531	983	0.450	0.693
	40	ALL	5B34		10	0.6	270	13.78	13.78	0	2.50	10	0	0	0	0	0	0	4.000	5.000	0.623	-0.666	1202	0.438	0.684
	45	ALL	5B34		10	0.6	270	13.78	13.78	0	2.50	10	0	0	0	0	0	0	4.000	5.000	0.771	-0.819	1449	0.427	0.675
	50	ALL	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	0	4.000	5.000	0.942	-0.995	1739	0.418	0.668
	55	ALL	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	0	4.000	5.000	1.127	-1.185	1891	0.410	0.662
	60	ALL	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	0	4.000	5.000	1.327	-1.389	1875	0.403	0.656
	65	ALL	5B34		14	0.6	270	13.78	13.78	0	2.50	14	0	0	0	0	0	0	4.000	5.000	1.540	-1.606	2040	0.396	0.650
	70	ALL	5B34		14	0.6	270	13.78	13.78	0	2.50	14	0	0	0	0	0	0	4.000	5.000	1.769	-1.837	2308	0.390	0.645
	75	ALL	5B34		18	0.6	270	13.78	13.78	0	2.50	18	0	0	0	0	0	0	4.000	5.000	2.013	-2.084	2592	0.385	0.641
	80	ALL	5B34		20	0.6	270	13.78	13.78	0	2.50	20	0	0	0	0	0	0	4.000	5.000	2.272	-2.343	2889	0.380	0.637
	85	ALL	5B34		24	0.6	270	13.78	13.78	0	2.50	24	0	0	0	0	0	0	4.000	5.000	2.545	-2.617	3198	0.375	0.633
	90	ALL	5B34		26	0.6	270	13.78	13.78	2	2.50	26	2	2	0	0	0	0	4.000	5.000	2.833	-2.905	3523	0.371	0.629
	95	ALL	5B34		30	0.6	270	13.65	13.62	6	2.50	28	6	2	2	0	2	0	4.000	5.000	3.137	-3.208	3861	0.367	0.626
100	ALL	5B34		34	0.6	270	13.43	13.32	8	2.50	28	8	2	2	2	0	2	4.300	5.000	3.454	-3.524	4211	0.363	0.622	

DESIGN NOTES:
 Designed in accordance with AASHTO LRFD Bridge Design Specifications.
 Prestress losses for the designed beams have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.
 Beam designs are applicable for 5" concrete slabs without overlay and 0 degree skew.

FABRICATION NOTES:
 Provide Class H concrete.
 Provide Grade 60 reinforcing steel bars.
 Use low relaxation strands, each pretensioned to 75 percent of f_{pu} .
 When shown on this sheet, the Fabricator has the option of furnishing either the designed beam or an approved optional beam design. All optional design submittals and shop drawings must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.
 Locate strands for the designed beam as low as possible on the 2" grid system unless a non-standard stand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc. Place strands within a row as follows:
 1) Locate a strand in each "1" position.
 2) Place strand symmetrically about vertical centerline of box.
 3) Space strands as equally as possible across the entire width.
 Strand debonding must comply with Item 424.4.2.2.4.
 Do not debond strands in position "1". Distribute debonded strands equally about the vertical centerline. Decrease debonded lengths working inward, with debonding staggered in each row.
 Full-length debonded strands are only permitted in positions marked Δ .



- ① Based on the following allowable stresses (ksi):
 Compression = $0.65 f'_{ci}$
 Tension = $0.24 \sqrt{f'_{ci}}$
 Optional designs must likewise conform.
- ② Portion of full HL93.

HL93 LOADING

		Bridge Division Standard	
PRESTR CONC BOX BEAM STANDARD DESIGNS TYPE B34 28' RDWY (WITH SLAB)			
BBSDS-B34-28			
FILE: bbstds29.dgn	DN: SRW	CK: BMP	DW: SFS
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REVISIONS			
04-11: f'ci and LLDF.	DIST		COUNTY
01-16: Notes, 0.6" strand designs.			SHEET NO.