

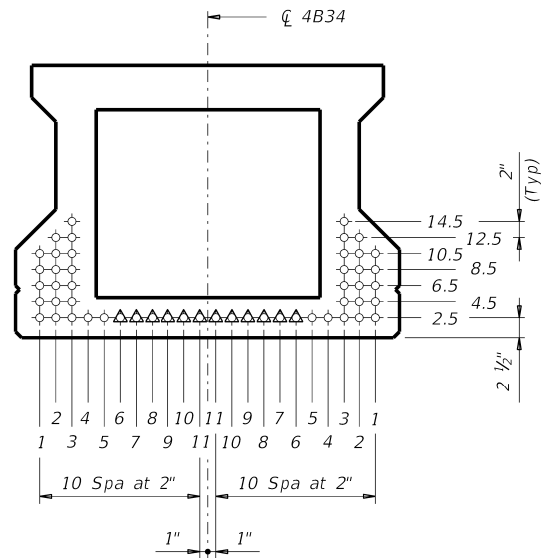
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STANDARD SBBS-B34-30	DESIGNED BEAMS (STRAIGHT STRANDS)																		OPTIONAL DESIGN						
	SPAN LENGTH (ft)	BEAM NO.	BEAM TYPE	PRESTRESSING STRANDS						DEBONDED STRAND PATTERN PER ROW						CONCRETE		DESIGN LOAD COMP STRESS (TOP ϵ) (SERVICE I)	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 (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 (1) f'_{ci} (ksi)	MINIMUM 28 DAY COMP STRGTH f'_c (ksi)	LIVE LOAD DISTRIBUTION FACTOR (2)		
												TOTAL	DE-BONDED	3	6	9	12						15	Moment	Shear
30' Roadway 5" Slab	30	1267	5B34		8	0.6	270	13.78	13.78	0	2.50	8	0	0	0	0	0	4.000	5.000	0.371	-0.405	767	0.451	0.704	
	30	3-5	4B34		6	0.6	270	13.58	13.58	0	2.50	6	0	0	0	0	0	4.000	5.000	0.401	-0.422	660	0.383	0.522	
	35	1267	5B34		8	0.6	270	13.78	13.78	0	2.50	8	0	0	0	0	0	4.000	5.000	0.487	-0.525	965	0.436	0.693	
	35	3-5	4B34		8	0.6	270	13.58	13.58	0	2.50	8	0	0	0	0	0	4.000	5.000	0.523	-0.544	823	0.364	0.509	
	40	1267	5B34		10	0.6	270	13.78	13.78	0	2.50	10	0	0	0	0	0	4.000	5.000	0.617	-0.659	1181	0.424	0.683	
	40	3-5	4B34		8	0.6	270	13.58	13.58	0	2.50	8	0	0	0	0	0	4.000	5.000	0.664	-0.684	1009	0.354	0.499	
	45	1267	5B34		10	0.6	270	13.78	13.78	0	2.50	10	0	0	0	0	0	4.000	5.000	0.766	-0.811	1426	0.414	0.675	
	45	3-5	4B34		8	0.6	270	13.58	13.58	0	2.50	8	0	0	0	0	0	4.000	5.000	0.825	-0.844	1221	0.346	0.491	
	50	1267	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	4.000	5.000	0.935	-0.986	1712	0.405	0.668	
	50	3-5	4B34		10	0.6	270	13.58	13.58	0	2.50	10	0	0	0	0	0	4.000	5.000	1.008	-1.027	1465	0.338	0.486	
	55	1267	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	4.000	5.000	1.119	-1.174	1891	0.397	0.661	
	55	3-5	4B34		10	0.6	270	13.58	13.58	0	2.50	10	0	0	0	0	0	4.000	5.000	1.207	-1.225	1559	0.332	0.481	
	60	1267	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	4.000	5.000	1.318	-1.376	1875	0.390	0.655	
	60	3-5	4B34		10	0.6	270	13.58	13.58	0	2.50	10	0	0	0	0	0	4.000	5.000	1.422	-1.437	1543	0.326	0.477	
	65	1267	5B34		12	0.6	270	13.78	13.78	0	2.50	12	0	0	0	0	0	4.000	5.000	1.531	-1.593	2009	0.384	0.650	
	65	3-5	4B34		12	0.6	270	13.58	13.58	0	2.50	12	0	0	0	0	0	4.000	5.000	1.654	-1.664	1726	0.321	0.473	
	70	1267	5B34		14	0.6	270	13.78	13.78	0	2.50	14	0	0	0	0	0	4.000	5.000	1.759	-1.823	2276	0.378	0.645	
	70	3-5	4B34		14	0.6	270	13.58	13.58	0	2.50	14	0	0	0	0	0	4.000	5.000	1.900	-1.906	1956	0.316	0.469	
	75	1267	5B34		18	0.6	270	13.78	13.78	0	2.50	18	0	0	0	0	0	4.000	5.000	2.003	-2.068	2557	0.373	0.640	
	75	3-5	4B34		16	0.6	270	13.58	13.58	0	2.50	16	0	0	0	0	0	4.000	5.000	2.163	-2.162	2197	0.311	0.466	
80	1267	5B34		20	0.6	270	13.78	13.78	0	2.50	20	0	0	0	0	0	4.000	5.000	2.260	-2.326	2851	0.368	0.636		
80	3-5	4B34		18	0.6	270	13.58	13.58	0	2.50	18	0	0	0	0	0	4.000	5.000	2.442	-2.434	2451	0.307	0.463		
85	1267	5B34		24	0.6	270	13.78	13.78	0	2.50	24	0	0	0	0	0	4.000	5.000	2.532	-2.598	3156	0.363	0.632		
85	3-5	4B34		20	0.6	270	13.58	13.58	2	2.50	20	2	2	0	0	0	4.000	5.100	2.738	-2.723	2720	0.304	0.460		
90	1267	5B34		26	0.6	270	13.78	13.78	2	2.50	26	2	2	0	0	0	4.000	5.000	2.820	-2.885	3478	0.359	0.629		
90	3-5	4B34		24	0.6	270	13.42	13.36	6	2.50	22	6	4	2	0	0	4.000	5.000	3.049	-3.024	2997	0.300	0.457		
95	1267	5B34		30	0.6	270	13.65	13.62	6	2.50	28	6	2	2	0	2	4.000	5.000	3.122	-3.186	3812	0.355	0.625		
95	3-5	4B34		28	0.6	270	13.15	12.98	8	2.50	22	8	2	2	0	2	4.000	5.000	3.377	-3.343	3288	0.297	0.455		
100	1267	5B34		34	0.6	270	13.43	13.32	8	2.50	28	8	2	0	2	2	4.100	5.000	3.440	-3.503	4164	0.352	0.622		
100	3-5	4B34		32	0.6	270	12.71	12.42	8	2.50	22	8	2	0	2	2	4.400	5.100	3.721	-3.675	3591	0.294	0.453		

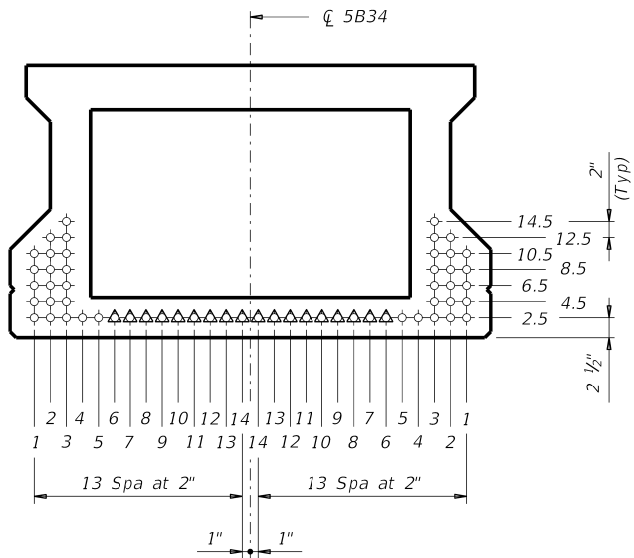
DESIGN NOTES:
 Designed in accordance with AASHTO LRFD Bridge Design Specifications.
 Prestress losses for the designed beams have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.
 Beam designs are applicable for 5" concrete slabs without overlay and 0 degree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



TxDOT 4B34 BOX BEAM



TxDOT 5B34 BOX BEAM

HL93 LOADING



**PRESTR CONC BOX BEAM
 STANDARD DESIGNS
 TYPE B34 30' RDWY
 (WITH SLAB)**

BBSDBS-B34-30

FILE: BB-SDB3430-16.dgn	DN: SRW	CK: BMP	DW: SFS	CK: SDB
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS				
04-11: f'_{ci} and LLDf.	DIST	COUNTY	SHEET NO.	
01-16: Notes, 0.6" strand designs.				

DATE:
FILE: