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DATE:
FILE:

DESIGNED BEAMS (STRAIGHT STRANDS)

OPTIONAL DESIGN

STRUCTURE	SPAN NO.	BEAM NO.	BEAM TYPE	PRESTRESSING STRANDS: NON-STD STRAND PATTERN	PRESTRESSING STRANDS: TOTAL NO.	PRESTRESSING STRANDS: SIZE (in)	PRESTRESSING STRANDS: STRGTH fpu (ksi)	PRESTRESSING STRANDS: "e" ℄ (in)	PRESTRESSING STRANDS: "e" END (in)	PRESTRESSING STRANDS: TOT NO. DEB	DEBONDED STRAND PATTERN PER ROW: DIST FROM BOTTOM (in)	DEBONDED STRAND PATTERN PER ROW: NO.OF STRANDS TOTAL	DEBONDED STRAND PATTERN PER ROW: NO.OF STRANDS DE-BONDED	NUMBER OF STRANDS DEBONDED TO (ft from end): 3	6	9	12	15	CONCRETE: RELEASE STRGTH ① f'ci (ksi)	CONCRETE: MINIMUM 28 DAY COMP STRGTH f'c (ksi)	OPTIONAL DESIGN: DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (ft-kips)	LIVE LOAD DISTRIBUTION FACTOR ②: Moment	LIVE LOAD DISTRIBUTION FACTOR ②: Shear

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.

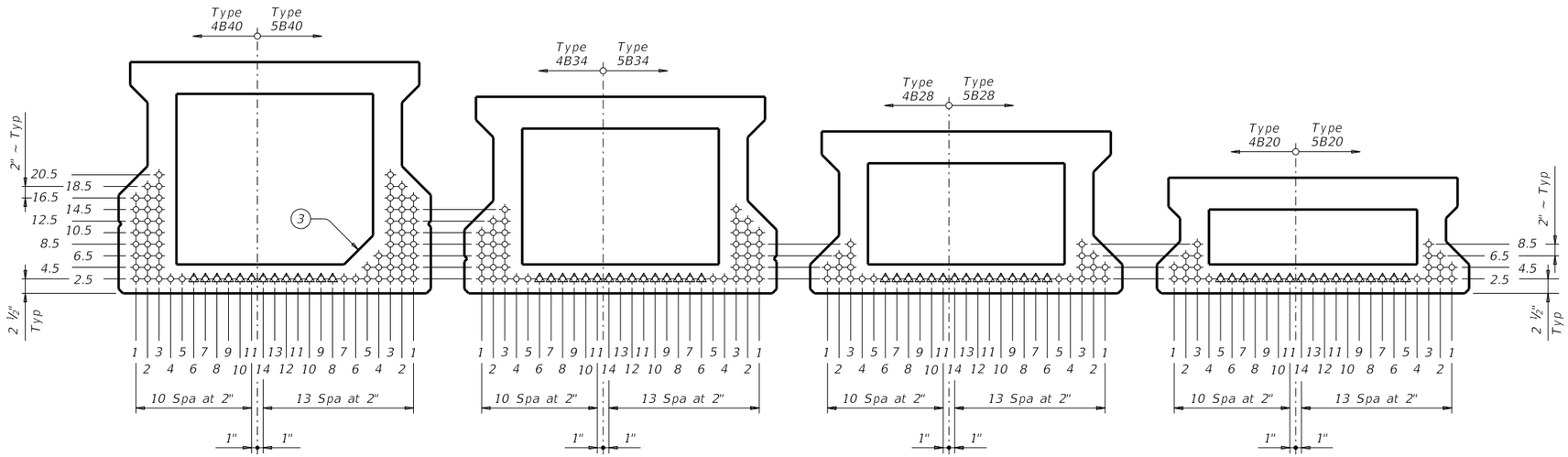
③ Bottom corner chamfer required for 4B40 and 5B40 boxes when beam lengths are greater than 100 ft.

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 percent. Optional designs must likewise conform.

FABRICATION NOTES:

Provide Class H concrete.
Provide Grade 60 reinforcing steel bars.
Use low relaxation strands, each pretensioned to 75 percent of fpu.
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 424.4.2.2.2.4.
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 △.



TxDOT B40 BOX BEAMS

TxDOT B34 BOX BEAMS

TxDOT B28 BOX BEAMS

TxDOT B20 BOX BEAMS

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE BOX BEAM DESIGNS
(NON-STANDARD SPANS)

BBND

FILE: bbstds07.dgn	DN: TxDOT	CK: TxDOT	DW: SFS	CK: SDB
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REVISIONS 04-11: f'ci and LLDF. 01-16: Notes.	DIST	COUNTY		SHEET NO.