### DESIGN BEAMS (STRAIGHT STRANDS)

<table>
<thead>
<tr>
<th>STANDARD SBBS-B20-28</th>
<th>DESIGNED BEAMS (STRAIGHT STRANDS)</th>
<th>OPTIONAL DESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEAM NO.</strong></td>
<td><strong>BEAM TYPE</strong></td>
<td><strong>TOTAL SIZE</strong></td>
</tr>
<tr>
<td>55</td>
<td>ALL</td>
<td>5B20</td>
</tr>
<tr>
<td>65</td>
<td>ALL</td>
<td>5B20</td>
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<tr>
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</tr>
<tr>
<td>35</td>
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<td>5B20</td>
</tr>
<tr>
<td>28' Roadway</td>
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<tr>
<td>30</td>
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<td>5B20</td>
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<td>5B20</td>
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</tbody>
</table>

### 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.
- Beam designs are applicable for 5" concrete slabs without overlay and 0-deg skew.

### FABRICATION NOTES:
- Provide Class H concrete.
- Provide Grade 60 reinforcing steel bars.
- Provide Grade 60 reinforcing steel bars in the slab and foundation.
-ining sheet bars.
- Use low-relaxation strands, each pretensioned to 75 percent of f'cs.
- When shown on this sheet, the Fabricator has the option of furnishing either the designed beam or an approved optional design beam. 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 strand pattern is indicated. Fill row "2.5", then row "6.5", etc. Place strands within a row as follows:
- Locate a strand in each "1" position.
- Locate strands for the designed beam as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "6.5", etc. Place strands within a row as follows:
- Place strand symmetrically about vertical centerline. Decrease debonded lengths working inward, with debonding staggered in each row.
- Full-length debonded strands are only permitted in positions marked "X".
- Based on the following allowable stresses (ksi):
  - Compression = 0.65 f'cs
  - Tension = 0.24 f'cs
- Optional designs must likewise conform.

![Diagram of TxDOT 5B20 Box Beam]

**TxDOT 5B20 BOX BEAM**

**PRESTR CONC BOX BEAM STANDARD DESIGNS**

**TYPE B20**

**28' RDWY (WITH SLAB)**

**BBSDS-B20-28**

**REVISIONS**

**FILE:**

**DATE:**

**CONT:**

**BMP:**

**SFS:**

**JOB:**

**HIGHWAY:**

**SECT:**

**SDB:**

**SRW:**

**DIN:**

**FILE:**

**01-16:** Notes, 0.6" strand designs.

**04-11:** f'cs and LLDF.