1. Work this index with the Table of Beam Variables in Structures Plans.
2. All bar bend dimensions are out to out.
3. Concrete cover: 2 inches minimum.
4. Strands N: ⅛ Ø minimum, stressed to 10,000 lbs. each.
5. Place one (1) Bar 4K or 5Z at each location. Alternate the direction of the ends for each bar.
6. Tie Bars 4K and 5Z to the fully bonded strands in the bottom or center row (see "STRAND PATTERN" on the Table of Beam Variables sheet in Structures Plans).
7. Place Bars 3C1, 3D1 and 4M1 in beam END 1, and Bars 3C2, 3D2 and 4M2 in beam END 2.
8. For Beams with vertically beveled end conditions:
   A. Place first row of Bars 3D1, 3D2, 4K, 4Y and 5Z parallel to the end of the beam. Progressively rotate remaining bars within the limits of Bars 5Z until vertical by adjusting the spacing at the top of the beam up to a maximum of ⅛.
   B. For deformed WWR, cut top cross wire and rotate bars as required or reduce end cover at top of the beam to minimum ⅛.
9. For Beams with skewed end conditions:
   A. WWR is not permitted for end reinforcement Bars 3D1, and 3D2 on skewed ends; use bar reinforcement.
   B. Place end reinforcement parallel to the skewed end of the beam. End reinforcement is defined as Bars 3D1, 3D2, 4K, 4Y and 5Z placed within the limits of the spacing for Bars 3D in "ELEVATION AT END OF BEAM".
   C. Beyond the limits of the spacing for Bars 3D, place Bars 3D3 and 4K perpendicular to the longitudinal axis of the beam. For placement see "SKEWED BEAM END DETAILS FOR WIDENING EXISTING BRIDGES" (Sheet 2).
10. Contractor Options:
    A. Deformed WWR may be used in lieu of Bars 3D, 4K, and 5Z as shown on Sheet 4; except at skewed ends (See Note 9).
    B. Bars 3D1 and 3D2 may be fabricated as a two-piece bar with a 1'-0" minimum lap splice of the bottom legs.
    C. For deformed WWR, supplemental transverse #4 bars are permitted to support Pieces K and S under the cross wires on the bottom row of strands or above Strands N.
11. Embedment of Safety Line Anchorages Devices are permitted in the top flange to accommodate fall protection systems. See shop drawings for details and spacing of required anchorages.
12. For beams with ends that will not be encased in concrete diaphragms, cut wedges and recess Prestressing Strands at the end of the beam without damaging the surrounding concrete. See "STRAND CUTTING AND PROTECTING DETAIL" on Sheet 2.

**SCHEMATIC PLAN VIEWS AT BEAM ENDS**

**SCHEMATIC END ELEVATIONS OF BEAMS** (Showing Vertical Bevel of Beam End)
When Intermediate Diaphragms are Required by Design

1. Insert for Diaphragm Reinforcing

   - Bars 3D1 or 3D2 (Pairs)
   - Bars 4K (Typ.)
   - Bars 5Z (shown dotted, Typ.)

   **INSERT DETAIL**
   **INSERT NOTES**

   1. Provide 1" B, zinc-electroplated, ferrule wing nut or coil inserts, UNC threads, 1/0 minimum gage wire, not more than 4" in depth with a minimum ultimate tensile strength of 11,400 lbs. in 4,000 psi concrete.
   2. If inserts are needed on both sides (faces) of beam webs, an assembly as long as the thickness of the beam web, consisting of two (2) ferrule or coil inserts attached by two (2) or more struts may be utilized. The connecting struts shall have a minimum ultimate tensile strength of 11,400 lbs.
   3. Inserts for diaphragm reinforcing are required at each end of each intermediate diaphragm shown on the Beam Framing Plan and may be required at the end of the beams when end diaphragms are shown. See Superstructure and Beam Framing Plans for longitudinal location of inserts for each face of beam.

**PARTIAL PLAN VIEW (SHOWING TOP FLANGE)**
(End 1 Shown, End 2 Similar)
(Bars 5A, 4Y & Strands N not shown for clarity)

**PARTIAL SECTION THRU WEB (SHOWING BOTTOM FLANGE)**
(Bars 4Y & Strands not shown for clarity)

**SKewed BEAM END DETAILS FOR WIDENING EXISTING BRIDGES**
**ALTERNATE REINFORCING STEEL WWR DETAILS**

**NOTES:**
- See Sheet 3 for placement details & Table of Beam Variables in Structures Plans for variables S1, S2, S3, S4 & V1.
- Place Conventional Reinforcement Bars 5A as shown on Sheet 3. Place additional Bars 4Y as shown in Section A-A for WWR. Bars 5Z will not be used with the WWR Option.
- Pieces may be fabricated in multiple length sections.
- For beams with skewed end conditions, Pieces D-1 & D-2 shall not be used; Conventional Reinforcement Bars D1 & D2 shall be used. See Sheet 2 Skew Details and Sheet 1 Note 9 for placement details. Shift Pieces K & Bars 4Y to accommodate skewed end conditions and align with Bars D.

**LEGEND:**
- EF = Each Face
- FF = Front Face
- BF = Back Face
- 1" extension (Typ.)
- 2" Cover

**SECTION A-A**
FOR WELDED WIRE REINFORCEMENT

**PARTIAL BEAM END VIEW**
(Conventional Reinforcing Bars A, Y and Bottom Strands not shown for Clarity)

**PARTIAL SECTION AT CENTER BEAM**

**STANDARD DETAILS**

**DESCRIPTION:**
ALTERNATE REINFORCING STEEL WWR DETAILS

**INDEX:**
AASHTO TYPE II BEAM

**SHEET:**
FY 2018-19
STANDARD PLANS

**REV.:**
11/01/16

**REV:**
450-120
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