Bridge Design Details 7.8 August 2025

Bent Cap Section Details (Over 20º Skew)

Details of bent cap reinforcement for concrete Box Girders and T-Beams where deck reinforcement is placed **normal** to skew.

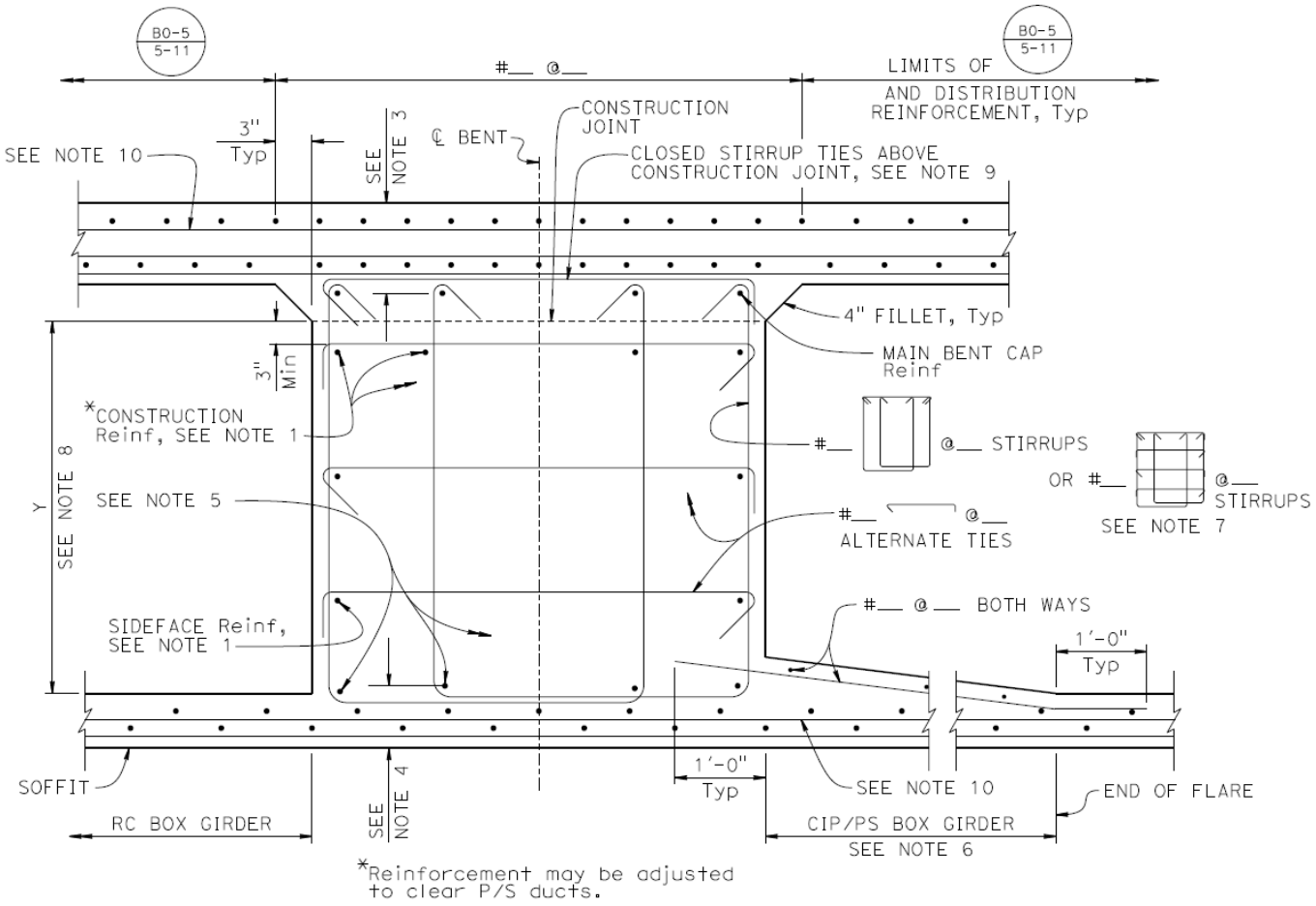

Figure 7.8.1 Typical Bent Cap Section

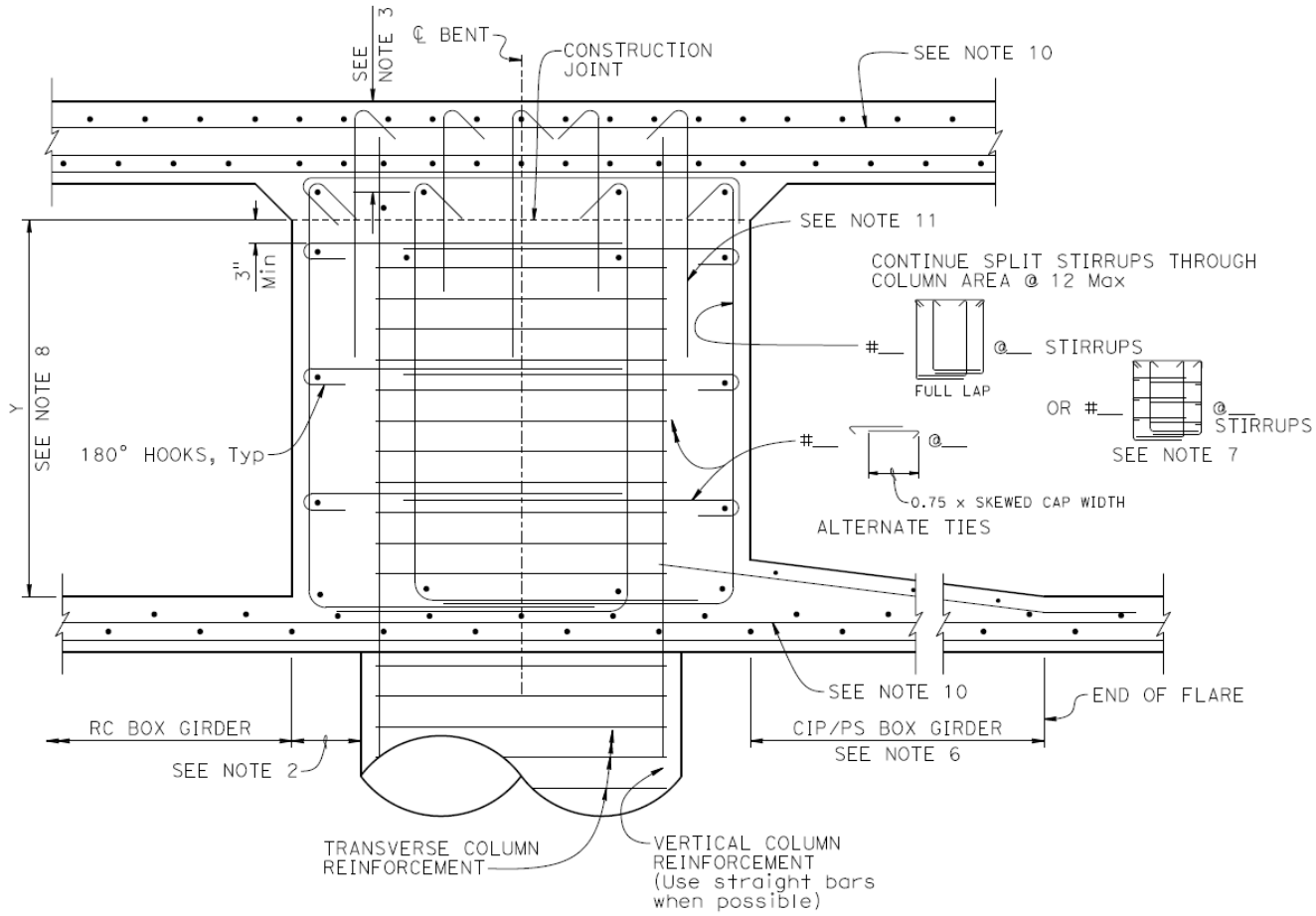

Figure 7.8.2 Bent Cap Section at Columns (For details not shown, see Figure 7.8.1)

Notes:

1. Adequate bent cap, overhang, construction, and side face reinforcement must be detailed. Different sizes and spacings may be required by designer, and large bars may not have adequate clearance when extended into overhang.
2. Bent caps should be at least 1’-0” wider than columns; additional width may be required by the designer.
3. Dimension clearance to top main cap reinforcement so that longitudinal deck reinforcement will be above reinforcement provided in bent cap.
4. Dimension clearance to bottom main cap reinforcement so that longitudinal soffit reinforcement will be below reinforcement provided in bent cap.
5. Special consideration should be given in layout and spacing of bottom reinforcement in bent cap and vertical reinforcement in round columns to avoid conflicts. Place reinforcement as symmetrically as possible. Use minimum of 4 - #11 bars on top and bottom.

6. Soffit flares are typically required for CIP/PS Box Girders. Soffit flare dimensions should be shown on GIRDER LAYOUT sheet.
7. If multiple stirrup legs are required, they should be equally spaced. If equal spaces are not possible, stirrup width should be dimensioned on plans. Stirrups should be placed perpendicular to ℄ Bent. Limits and spacing of stirrups and horizontal cross ties may be shown together or separated. Consider placing stirrups parallel to girders near utility openings when required.
8. When Y > 3’-0”, add stirrup tie at 3’-0” max vertical spacing. Hook ties around side face reinforcement and match size and horizontal spacing of stirrups.
9. Alternate 135° hooks on ties. Use completely closed (135° hooks only) at outrigger bents beyond the box section.
10. Reinforcement shall satisfy Seismic Design Criteria articles. Layout of reinforcement shall be shown in PLAN on BENT LAYOUT and/or GIRDER REINFORCEMENT sheets.
11. J-dowels hooked around longitudinal top deck reinforcement and extended alternatively 2’-0” and 2’-6” into bent cap.
12. The 180° hooks shown on side face reinforcement through column section may be substituted for 135° hooks detailed in the current *Seismic Design Criteria* and 7.1 Bent Detailing Examples. The 135° hooks are constructability compromise that is satisfied with lap shown through column hoops. Hook length will vary based on degree of hooks shown on plans.