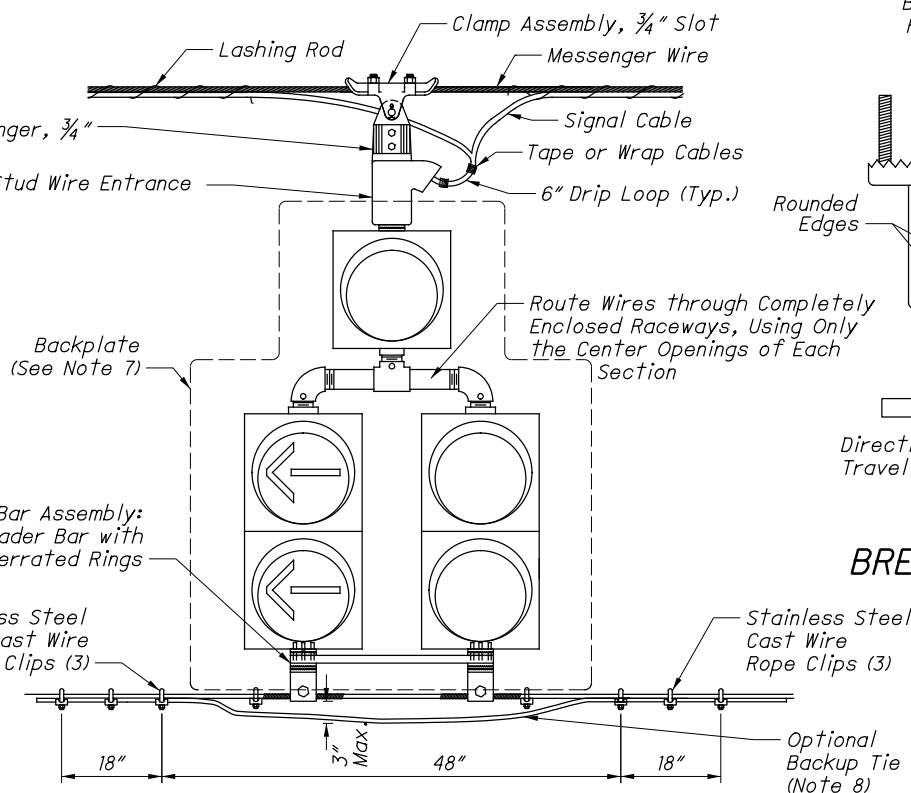
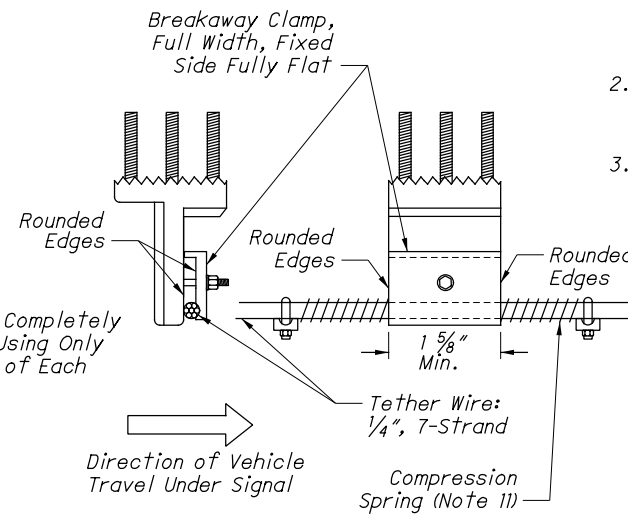


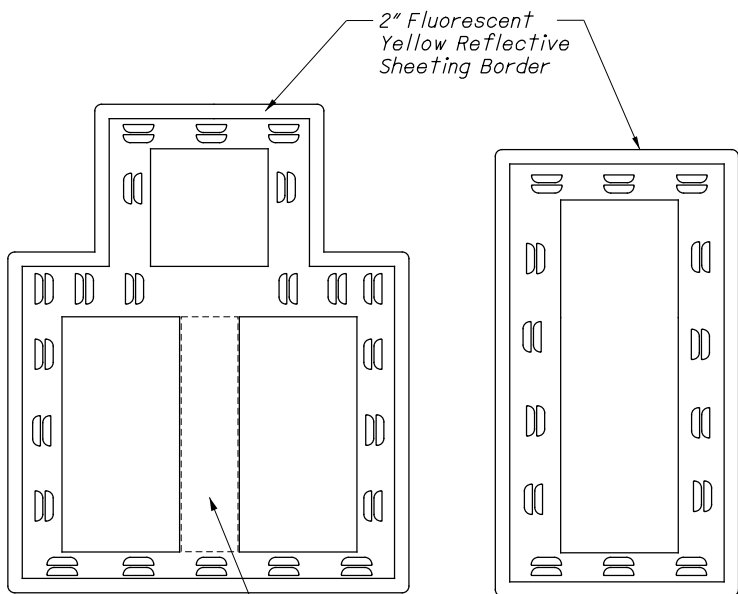
1 - 4 SECTION SIGNAL HEAD SUSPENSION
(See Note 10)



5 SECTION SIGNAL HEAD SUSPENSION
(See Note 10)



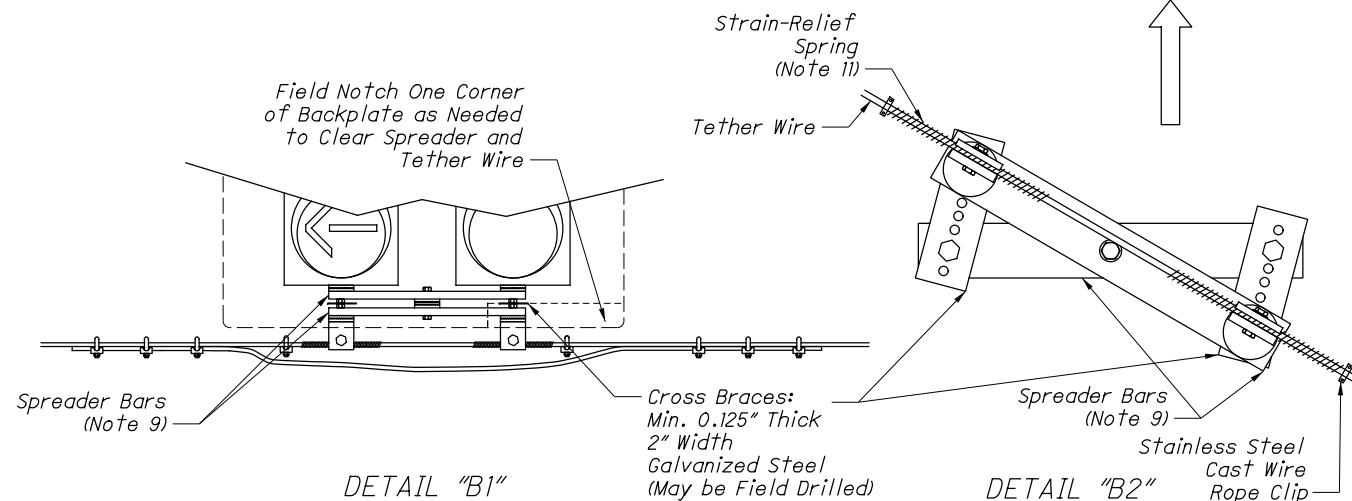
DETAIL "A"
BREAKAWAY TETHER ANCHOR
(Typ.)
(See Note 6)



BACKPLATE LOUVER CONFIGURATION (Typ.)

Integral Center Panel may be Omitted if a Separable Part of Backplate Assembly, but a Center Panel must be Installed in all Finished Heads such that there is No Gap through which Light will Shine.

(See Note 7)



DOUBLE SPREADER BARS AND CROSS-BRACING ON DIAGONAL SPANS (FRONT VIEW)

DOUBLE SPREADER BARS AND CROSS-BRACING ON DIAGONAL SPANS (BOTTOM VIEW) (Typ.)

NOTES:

- Adjust hanger and span wire clamp to eliminate all play between hanger and clamp by using shim washers as necessary. Cast $\frac{3}{4}$ " aluminum matching clamps and hangers with a tight initial fit shall be used.
- All signal head assemblies shall be installed in a plumb position and perpendicular to the approach lane.
- All signal heads shall be installed with their lowest part (including tether attachment hardware and backplates) with a clearance above the roadway pavement at all points of 17' to 19'. It is intended that this clearance be obtained without the use of bottom extenders, but rather by the careful selection of foundation heights, attachment heights, span wire sag, and other factors during the installation. If the installation cannot be adjusted to the proper clearance the Contractor shall advise the Engineer of all signals which exceed the maximum. The Engineer will, in consultation with the maintaining agency, direct the use of extenders or waive the maximum clearance requirement for each head. If extenders are necessary, adjustable signal hangers as detailed may be used. Only top extenders shall be used; see Note 6.
- Signal head rotation shall be prevented by the use of serrated rings and tri-studs or other positive devices incorporated in the signal housing and at critical locations in the supporting hardware. Only single-piece tri-stud entrance ports shall be used, not inserts. Nylon locking or deformed-thread nuts shall be used.
- All conductors shall have adequate clearance between hangers, thimbles, bullrings, etc. in order to avoid damage from rubbing.
- For all tethered installations, breakaway tether anchor(s) shall be installed in bottom bracket. Bottom tether anchor extender shall be used only if there is interference between backplate and tether wire. Signal height adjustment shall be made by top-mounted extenders only. Breakaway clamp shall be full width with rounded edges. Clamp should compress tether wire only against a flat surface (Detail A).
- All backplates shall have louvers and 2" fluorescent yellow reflective border. Border shall not be applied over louvers. Louvers should be oriented to scoop air from the front side and oriented with the openings facing alternate directions by groups, as shown. Louver open area shall be at least 8 percent of the total backplate area. 5-section backplates shall have notched top corners, as shown.
- Backup tie shall be $\frac{1}{4}$ " 7-strand wire identical to tether wire. Three cast wire rope clips on each side shall be used with 18" overlap and spacing as shown. Tie shall hang no lower than 16.5' above pavement, and must not rub against the breakaway clamp. Ties are recommended in windy areas; shall be installed if specified in plans, or if directed by the Engineer. Spacing of clips may be adjusted to accommodate adjacent heads. Closely spaced adjacent heads may share a single backup tie and wire rope clips. There shall be a minimum of three wire rope clips between heads.
- On diagonal spans, a double spreader bar assembly shall be used. Each spreader bar shall be cast aluminum or steel with integral serrations, two on the ends, one in the middle on the opposite side. These shall be attached as shown in Details B1 and B2. All spreader bar hardware shall be stainless steel, with nylon locking or deformed-thread nuts.
- Multi-way heads with backplates shall not be used on tethered spans. Existing multi-way heads shall be separated as directed by the Engineer. Rewire as necessary to separate the heads per the proper alignment.
- Compression spring, 0.375" OD, 0.054" wire diameter, 10-12 coils per inch, stainless steel 6" minimum length.

THIS DRAWING REPLACES TC-85.22 DATED 07-15-2016.