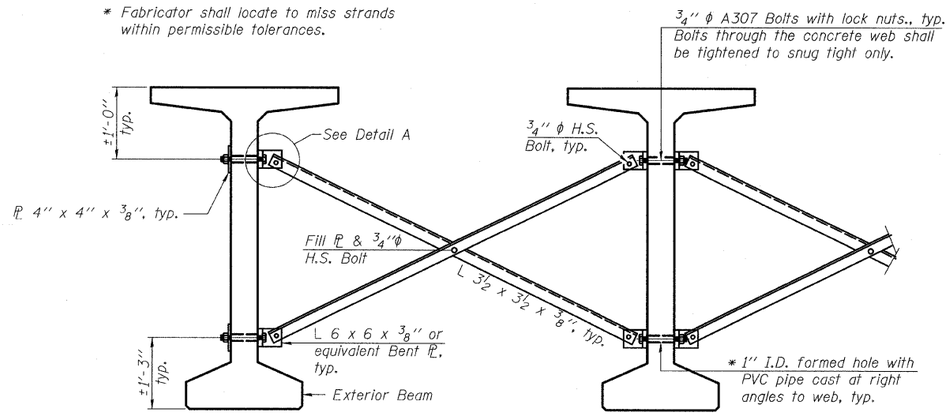
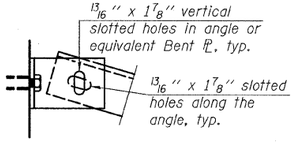
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION




Notes:
All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.
Two hardened washers are required for each set of oversized holes.
All holes shall be 15/16 "ϕ unless otherwise noted.
5/16" x 3" x 3" plate washers are required over all slotted holes.
All bolts shall be galvanized according to AASHTO M232.
Bracing shall be installed as beams are erected and tightened as soon as possible during erection.




DETAIL A

## PERMANENT BRACING DETAILS

Cost of permanent bracing included with Furnishing and Erecting Precast Prestressed Concrete Bulb T-Beams, 72"

| INTERIOR BEAM MOMENT TABLE | | | | |
|---|---|---|---|---|
| | | 0.4 Sp. 1<br>0.6 Sp. 3 | Pier | 0.5 Sp. 2 |
| $I$ | ($in^4$) | 545894 | | 545894 |
| $I'$ | ($in^4$) | 1040040 | | 1040040 |
| $S_b$ | ($in^3$) | 14915 | | 14915 |
| $S_b'$ | ($in^3$) | 19980 | | 19980 |
| $S_t$ | ($in^3$) | 15421 | | 15421 |
| $S_t'$ | ($in^3$) | 56520 | | 56520 |
| $D_L$ | (k/') | 1.571 | | 1.571 |
| $M_{DL}$ | ('k) | 415 | | 2923 |
| $S_{DL}$ | (k/') | 0.5 | 0.5 | 0.5 |
| $M_{sDL}$ | ('k) | -81 | 534 | 427 |
| $M_L$ | ('k) | 328 | 658 | 719 |
| $M_I$ | ('k) | 96 | 158 | 144 |

$I$: Non-composite moment of inertia of beam section ($in.^4$).
$I'$: Composite moment of inertia of beam section ($in.^4$).
$S_b$: Non-composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
$S_b'$: Composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
$S_t$: Non-composite section modulus for the top fiber of the prestressed beam ($in.^3$).
$S_t'$: Composite section modulus for the top fiber of the prestressed beam ($in.^3$).
$D_L$: Un-factored non-composite dead load (kips/ft.).
$M_{DL}$: Un-factored moment due to non-composite dead load conservatively taken at 0.5 of the span (kip-ft.).
$S_{DL}$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
$M_{sDL}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
$M_L$: Un-factored live load moment on the composite section (kip-ft.).
$M_I$: Un-factored moment due to impact on the composite section (kip-ft.).

| INTERIOR BEAM REACTION TABLE | | | | | |
|---|---|---|---|---|---|
| | | | Abut. | Pier 1 Span 1<br>Pier 2 Span 3 | Pier 1 Span 2<br>Pier 2 Span 2 |
| | $R_{DL}$ | (k) | 36.1 | 38.1 | 97.4 |
| * | $R_{sDL}$ | (k) | 0.4 | 27.0 | 27.0 |
| * | $R_L$ | (k) | 36.9 | 31.8 | 31.8 |
| * | $R_I$ | (k) | 10.7 | 7.6 | 7.6 |
| | $R_{Total}$ | (k) | 84.1 | 104.5 | 163.8 |

* The total $R_{sDL}$, $R_L$, and impact reactions are assumed to be distributed evenly to each bearing line at a pier regardless of the span ratios. The bearing design at a pier is based on the maximum reactions of either span.

## 72" PPC BULB-T BEAM DETAILS
## PERMANENT BRACING
## AND MOMENT TABLES

## STRUCTURE NO. 006-0174 (EB)
## STRUCTURE NO. 006-0175 (WB)

| | |
|---|---|
| DESIGNED | IM |
| CHECKED | PDF |
| DRAWN | IM |
| CHECKED | PDF |

TY·LIN INTERNATIONAL

| SHEET NO. 20 | F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|---|
| 39 SHEETS | 80 | * | BUREAU | 344 | 218 |
| | | | CONTRACT NO. 66908 | | |
| | FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT | | |

* 06-17BR & BR-1,7VB-M, 6BR & 6, 7 RS-1 & I]