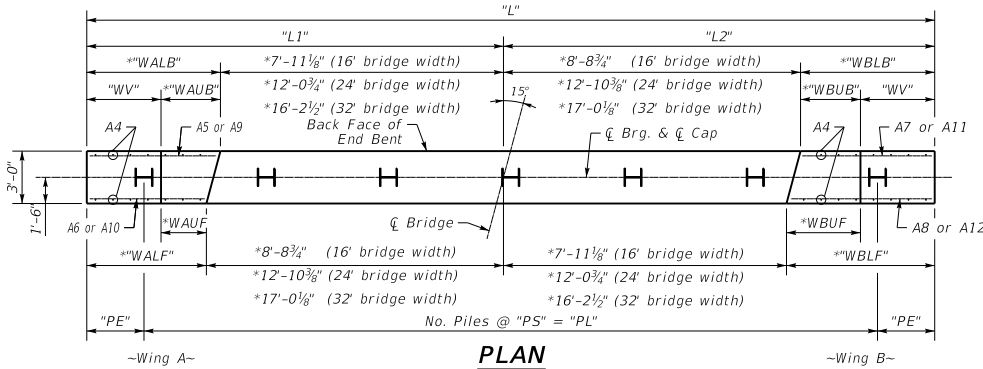


| SUPERSTRUCTURE HEIGHT SDH=Beam Height +pad height +(haunch+slab) [if applicable] | | CAP BILL OF REINFORCEMENT | | | | | | | | | | | | | | | WING BILL OF REINFORCEMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------|---------------------------|------|-----|------|--------|---------------------|------|-----|------|--------|---------------------|------|-----|------|--------|----------------------------|------|-----|------|--------|--------|------|-----|------|--------|------|------|-----|------|--------|-----|------|---|---|------|-----|------|---|---|-------|-----|------|---|---|-------|-----|------|---|---|-----|-----|------|---|---|-----|------|------|---|---|------|-----|------|---|---|------|-----|------|---|---|-------|-----|------|---|---|-------|-----|------|---|---|------|-----|------|---|---|-----|------|------|---|---|-----|
| | | 16'-0" BRIDGE WIDTH | | | | | 24'-0" BRIDGE WIDTH | | | | | 32'-0" BRIDGE WIDTH | | | | | WING A | | | | | WING B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MARK | TYPE | NO. | SIZE | LENGTH | MARK | TYPE | NO. | SIZE | LENGTH | MARK | TYPE | NO. | SIZE | LENGTH | MARK | TYPE | NO. | SIZE | LENGTH | MARK | TYPE | NO. | SIZE | LENGTH | MARK | TYPE | NO. | SIZE | LENGTH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H1 | 12" ≤SDH≤27" | A1e | 14s | 22 | 5 | 11-0 | A1e | 14s | 29 | 5 | 11-0 | A1e | 14s | 36 | 5 | 11-0 | A4e | Str. | 14 | 5 | 4-0 | A7e | Str. | 2 | 5 | 3-4 | A10e | Str. | 1 | 6 | 2-6 | A2e | Str. | 9 | 8 | 23-7 | A2e | Str. | 9 | 8 | 31-11 | A2e | Str. | 9 | 8 | 40-2 | A5e | Str. | 2 | 5 | 3-2 | A8e | Str. | 2 | 5 | 4-1 | A11e | Str. | 1 | 6 | 3-4 | A3e | Str. | 4 | 5 | 23-7 | A3e | Str. | 4 | 5 | 31-11 | A3e | Str. | 4 | 5 | 40-2 | A6e | Str. | 2 | 5 | 2-6 | A9e | Str. | 1 | 6 | 3-2 | A12e | Str. | 1 | 6 | 4-1 |
| H2 | 27" <SDH≤35" | A1e | 14s | 24 | 5 | 11-0 | A1e | 14s | 34 | 5 | 11-0 | A1e | 14s | 41 | 5 | 11-0 | A4e | Str. | 20 | 5 | 4-8 | A7e | Str. | 3 | 5 | 4-8 | A10e | Str. | 1 | 6 | 3-11 | A2e | Str. | 9 | 8 | 26-4 | A2e | Str. | 9 | 8 | 34-8 | A2e | Str. | 9 | 8 | 42-11 | A5e | Str. | 3 | 5 | 4-7 | A8e | Str. | 3 | 5 | 5-4 | A11e | Str. | 1 | 6 | 4-8 | A3e | Str. | 4 | 5 | 26-4 | A3e | Str. | 4 | 5 | 34-8 | A3e | Str. | 4 | 5 | 42-11 | A6e | Str. | 3 | 5 | 3-11 | A9e | Str. | 1 | 6 | 4-7 | A12e | Str. | 1 | 6 | 5-4 |
| H3 | 35" <SDH≤50" | A1e | 14s | 29 | 5 | 11-0 | A1e | 14s | 36 | 5 | 11-0 | A1e | 14s | 44 | 5 | 11-0 | A4e | Str. | 30 | 5 | 5-11 | A7e | Str. | 4 | 5 | 7-4 | A10e | Str. | 1 | 6 | 7-0 | A2e | Str. | 9 | 8 | 31-7 | A2e | Str. | 9 | 8 | 39-11 | A2e | Str. | 9 | 8 | 48-2 | A5e | Str. | 4 | 5 | 7-2 | A8e | Str. | 4 | 5 | 8-0 | A11e | Str. | 1 | 6 | 7-10 | A3e | Str. | 4 | 5 | 31-7 | A3e | Str. | 4 | 5 | 39-11 | A3e | Str. | 4 | 5 | 48-2 | A6e | Str. | 4 | 5 | 6-6 | A9e | Str. | 1 | 6 | 7-8 | A12e | Str. | 1 | 6 | 8-6 |

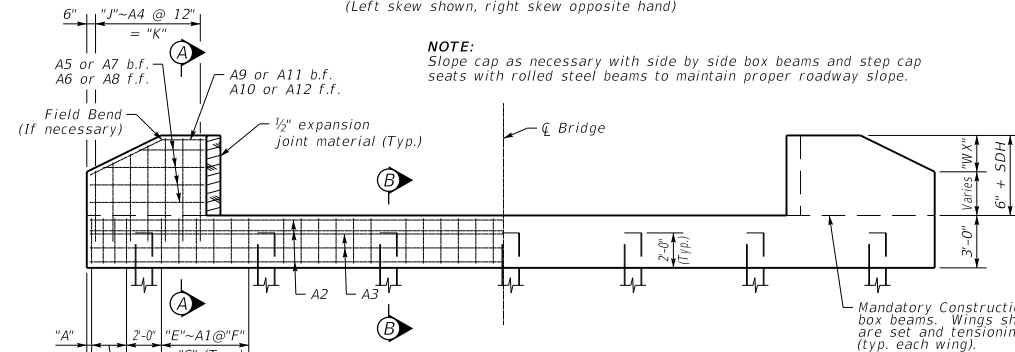
| BRIDGE WIDTH | PILE LOAD | PILES | | | | | | | | | | | | | | | | | | | | WING A | | | | | | | | | | | | WING B | | | | | | | | | | | | QUANTITIES | |
|--------------|-----------|----------|------|------------|-------|--------|---------------|-------------|-------------|--------|-----|-----------|-------|-----|-------|-------|------------|-----------|-----------|-------|-------|-----------|------------|------------|-----------|-------|------------|-------|-----------|-----------|-----------|--------------|--------------|--------|-----------|-----------|-----------|-------|-------|-------|-------|------|------|--|--|------------|--|
| | | Geometry | | | | | Reinforcement | | | | | Back Face | | | | | Front Face | | | | | Back Face | | | | | Front Face | | | | | CONC. (C.Y.) | STEEL (LBS.) | | | | | | | | | | | | | | |
| | | SIZE | TONS | NO. | PE | PS | L | L1 | L2 | A | B | C | D | E | F | G | H | WALB | WAUB | WV | WX | J | K | WALF | WAUF | WV | WX | J | K | WBLB | WBUB | | | WV | WX | J | K | WBLF | WBUF | WV | WX | J | K | | | | |
| 16 | H1 | 95 | 3 | 3'-11 1/8" | 8'-0" | 18'-0" | 23'-11 1/8" | 17'-6 1/8" | 12'-4 1/8" | 2 1/2" | 4 | 11" | 2'-9" | 7 | 12" | 6'-0" | 2 | 3'-7 1/8" | 0 | 0 | 0 | 3 | 2'-0" | 2'-10 1/8" | 0 | 0 | 0 | 3 | 2'-0" | 3'-8 1/8" | 0 | 0 | 0 | 4 | 3'-0" | 4'-5 1/8" | 0 | 0 | 0 | 4 | 3'-0" | 10.2 | 1024 | | | | |
| | H2 | 87 | 4 | 2'-10 3/4" | 7'-0" | 21'-0" | 26'-8 3/4" | 12'-11 3/4" | 13'-8 3/4" | 4 3/8" | 3 | 9" | 1'-6" | 6 | 12" | 5'-0" | 3 | 5'-0 1/8" | 0 | 0 | 0 | 5 | 4'-0" | 4'-3 3/8" | 0 | 0 | 0 | 4 | 3'-0" | 5'-0 1/8" | 0 | 0 | 0 | 5 | 4'-0" | 5'-9 1/8" | 0 | 0 | 0 | 6 | 5'-0" | 12.6 | 1203 | | | | |
| | H3 | 108 | 4 | 3'-11 1/8" | 8'-0" | 24'-0" | 31'-11 3/8" | 16'-4 1/8" | 2 1/2" | 4 | 11" | 2'-9" | 7 | 12" | 6'-0" | 4 | 7'-7 1/8" | 3'-4 1/8" | 4'-3" | 2'-1" | 7 | 6'-0" | 6'-10 1/8" | 2'-7 1/8" | 4'-3" | 2'-1" | 7 | 6'-0" | 7'-8 1/8" | 3'-5 1/8" | 4'-3" | 2'-1" | 8 | 7'-0" | 8'-5 1/8" | 4'-2 1/8" | 4'-3" | 2'-1" | 8 | 7'-0" | 17.5 | 1578 | | | | | |
| 24 | H1 | 99 | 4 | 3'-11 1/8" | 8'-0" | 24'-0" | 32'-3 1/8" | 15'-8 3/8" | 16'-6 3/8" | 4 3/8" | 4 | 11" | 2'-9" | 7 | 12" | 6'-0" | 2 | 3'-7 1/8" | 0 | 0 | 0 | 3 | 2'-0" | 2'-10 1/8" | 0 | 0 | 0 | 3 | 2'-0" | 3'-8 1/8" | 0 | 0 | 0 | 4 | 3'-0" | 4'-5 1/8" | 0 | 0 | 0 | 4 | 3'-0" | 12.9 | 1340 | | | | |
| | H2 | 98 | 5 | 2'-6 1/8" | 7'-6" | 30'-0" | 35'-0 1/8" | 17'-1 1/8" | 17'-10 1/8" | 4 1/8" | 3 | 7" | 1'-2" | 7 | 11" | 5'-6" | 3 | 5'-0 1/8" | 0 | 0 | 0 | 5 | 4'-0" | 4'-3 3/8" | 0 | 0 | 0 | 4 | 3'-0" | 5'-0 1/8" | 0 | 0 | 0 | 5 | 4'-0" | 5'-9 1/8" | 0 | 0 | 0 | 6 | 5'-0" | 15.4 | 1553 | | | | |
| | H3 | 123 | 5 | 4'-1 1/8" | 8'-0" | 32'-0" | 40'-3 1/8" | 19'-8 3/8" | 20'-6 3/8" | 4 3/8" | 4 | 11" | 2'-9" | 7 | 12" | 6'-0" | 4 | 7'-7 1/8" | 3'-4 1/8" | 4'-3" | 2'-1" | 7 | 6'-0" | 6'-10 1/8" | 2'-7 1/8" | 4'-3" | 2'-1" | 7 | 6'-0" | 7'-8 1/8" | 3'-5 1/8" | 4'-3" | 2'-1" | 8 | 7'-0" | 8'-5 1/8" | 4'-2 1/8" | 4'-3" | 2'-1" | 8 | 7'-0" | 20.2 | 1887 | | | | |
| 32 | H1 | 87 | 6 | 2'-9 1/4" | 7'-0" | 35'-0" | 40'-6 1/4" | 19'-10 1/4" | 20'-8 1/4" | 3 1/2" | 3 | 9" | 1'-6" | 6 | 12" | 5'-0" | 2 | 3'-7 1/8" | 0 | 0 | 0 | 3 | 2'-0" | 2'-10 1/8" | 0 | 0 | 0 | 3 | 2'-0" | 3'-8 1/8" | 0 | 0 | 0 | 4 | 3'-0" | 4'-5 1/8" | 0 | 0 | 0 | 4 | 3'-0" | 15.7 | 1653 | | | | |
| | H2 | 108 | 6 | 2'-10 3/4" | 7'-6" | 37'-6" | 43'-3 1/4" | 21'-3 1/4" | 22'-0 1/4" | 2 3/4" | 3 | 10" | 1'-8" | 7 | 11" | 5'-6" | 3 | 5'-0 1/8" | 0 | 0 | 0 | 5 | 4'-0" | 4'-3 3/8" | 0 | 0 | 0 | 4 | 3'-0" | 5'-0 1/8" | 0 | 0 | 0 | 5 | 4'-0" | 5'-9 1/8" | 0 | 0 | 0 | 6 | 5'-0" | 18.2 | 1866 | | | | |
| | H3 | 115 | 7 | 3'-3 3/4" | 7'-0" | 42'-0" | 48'-6 3/4" | 23'-10 3/4" | 24'-8 3/4" | 3 1/2" | 4 | 8" | 2'-0" | 6 | 12" | 5'-0" | 4 | 7'-7 1/8" | 3'-4 1/8" | 4'-3" | 2'-1" | 7 | 6'-0" | 6'-10 1/8" | 2'-7 1/8" | 4'-3" | 2'-1" | 7 | 6'-0" | 7'-8 1/8" | 3'-5 1/8" | 4'-3" | 2'-1" | 8 | 7'-0" | 8'-5 1/8" | 4'-2 1/8" | 4'-3" | 2'-1" | 8 | 7'-0" | 23.0 | 2219 | | | | |

NOTES:

- 1) Conform to KYTC, Standard Specifications, Current Edition.
- 2) Concrete to be Class "A", 3500 psi.
- 3) Rebar to be epoxy coated A615, Grade 60.
- 4) Maintain 2" clear cover to reinforcement unless otherwise noted.
- 5) End Bents are designed for the maximum span of the following steel and concrete beams as shown in the current standards:
 H1 - B12, CB12, B17, CB17, B21 or rolled steel beams up to 16" nominal depth.
 H2 - CB21, B27, CB27, B33 or rolled steel beams up to 24" nominal depth.
 H3 - CB33, B42, CB42 or rolled steel beams up to 36" nominal depth.
- 6) Piles may be HP12x53 or 16" Steel Pipes with 1/2" wall thickness.
- 7) Piles driven to rock must be driven to Refusal. Friction Piles must be driven to (Pile Load/0.4) using the Gates Method.
- 8) Pile load given is Factored Strength Load.
- 9) Piles must be driven 10' into existing ground or to refusal on bedrock. Piles at wet crossings must be driven to 10' below stream bed or to refusal on bedrock. A minimum pile length of 10' is required in all circumstances.
- 10) Contractor shall provide a hammer capable of driving the piling to refusal or capacity without encountering excessive blow counts or damaging the pile. Contractor shall be responsible for all damaged piling.

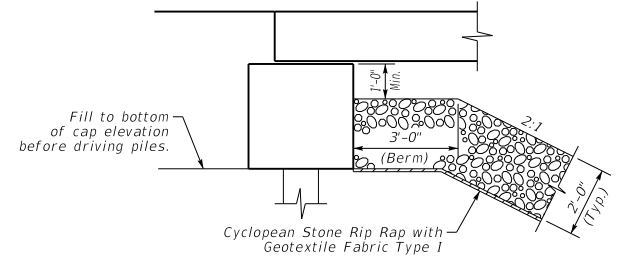


PLAN



ELEVATION

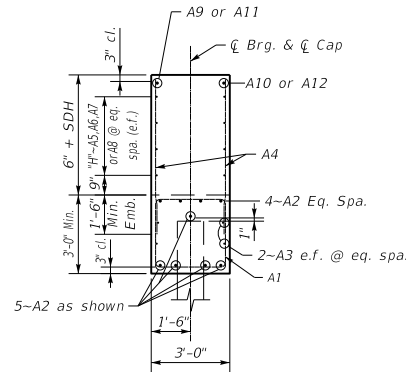
NOTE: Trim A4-A12 bars as necessary.



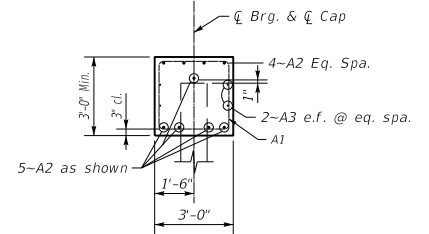
SECTION THRU END BENT

(Showing berm and fill slope)

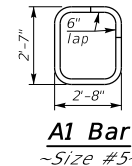
*Adjust 9 3/8" as necessary for rolled beam superstructure



SECTION A-A



SECTION B-B



A1 Bar
~Size #5~

**KENTUCKY
DEPARTMENT OF HIGHWAYS**

**PILE END BENT
15° SKEW**

STANDARD DRAWING NO. BSE-002

SUBMITTED: *[Signature]* 02-26-20
DIRECTOR DIVISION OF STRUCTURAL DESIGN DATE

APPROVED: *[Signature]* 02-26-20
STATE HIGHWAY ENGINEER DATE