

Illinois Tollway Base Sheet Revisions

[illegible]

NOTES:

1. EXPANSION JOINT SHALL FOLLOW ROADWAY GRADE & CROSS SLOPE. EXPANSION JOINT TO BE SET TO GRADE BY ATTACHING FRAME RAILS TO BACKWALL AND BEAMS.
2. FRAME RAILS AND OTHER STEEL SHALL BE AASHTO M270 GRADE 36, (ASTM A36).
3. STUD ANCHORS SHALL BE AASHTO M169 (ASTM A108).
4. EXPANSION ANCHORS SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS, SECTION 1211.
5. FRAME RAIL ASSEMBLY SHALL BE FABRICATED IN 20 FT. MAXIMUM LENGTHS. SHOP AND FIELD SPLICES SHALL BE PLACED AT CROWN BREAKS, CONSTRUCTION STAGE LINES, AND TRANSVERSE BREAKS IN DECK.
6. AT SPLICES, A CONTINUOUS GROUND SMOOTH WELD SHALL BE PROVIDED EXCEPT ON SURFACES IN LOCKING CONTACT WITH SEAL WHICH SHALL HAVE NO BURRS.
7. ALL STUD ANCHORS TO BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
8. AFTER FABRICATION IS COMPLETE FRAME RAILS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M232 (ASTM A153).
9. CORRESPONDING SECTIONS SHALL BE TEMPORARILY SHOP ASSEMBLED, CHECKED FOR FIT, AND MATCH MARKED WITH STENCIL AND BLACK PAINT FOR SHIPMENT.
10. NEOPRENE SEAL SHALL BE CONTINUOUS. FACTORY VULCANIZED HORIZONTAL MITERS SHALL BE REQUIRED FOR ALL SKEWS.
11. NEOPRENE SEAL SHALL BE INSTALLED CONTINUOUS, SPLICING OF SEAL IN THE FIELD IS NOT PERMITTED.
12. NEOPRENE SEAL SHALL BE BONDED TO THE FRAME RAILS WITH AN ADHESIVE MEETING THE REQUIREMENTS OF ASTM D4070.
13. SUPPORT PLATES, NUTS AND WASHERS CONNECTED TO FRAME RAILS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M111 AND M232 (ASTM A123 AND A153).
14. SUPPORT PLATES ON STEEL GIRDERS SHALL BE WELDED IN ACCORDANCE WITH ARTICLES 505.04 (q) & 505.08 (n) OF THE IDOT STANDARD SPECIFICATIONS.
15. FURNISHING AND INSTALLING EXPANSION JOINT FRAME RAIL SUPPORT SYSTEM SHALL BE INCLUDED IN THE COST OF BRIDGE EXPANSION JOINT SYSTEM.
16. JOINT OPENINGS SHALL BE ADJUSTED IN ACCORDANCE WITH THE FIELD ENGINEER'S INSTRUCTIONS.
17. UPON COMPLETION OF FIELD WELDING, THE CONTRACTOR SHALL CLEAN THE WELD AREA AND APPLY A COATING OF ORGANIC ZINC-RICH PAINT IN ACCORDANCE WITH SSPC-PS12.01.

NOTE TO DESIGNER

FOR SKEWS > 30°, DESIGNER SHALL REPLACE PARAPET DETAILS SHOWN WITH SLIDING PLATE DETAILS ON THE LATEST IDOT BASE SHEET EJ-SS

NOTE TO DESIGNER

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WORK THIS DRAWING WITH THE BASE SHEET FOR EXPANSION JOINT FRAME RAIL SUPPORT SYSTEM.

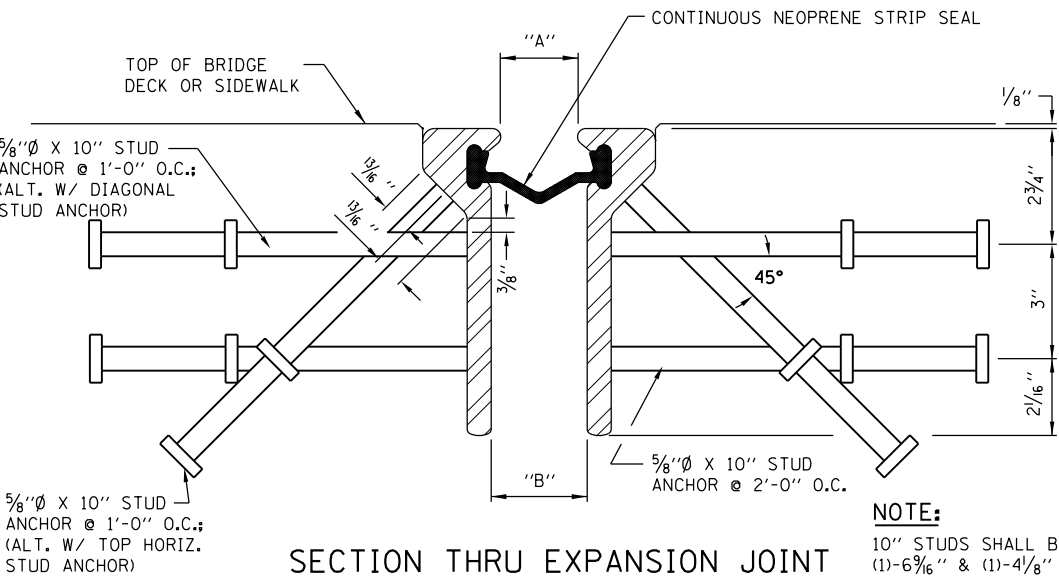
M-BRG-500



EXPANSION JOINT
FRAME RAIL AND SEAL
ALTERNATIVE A

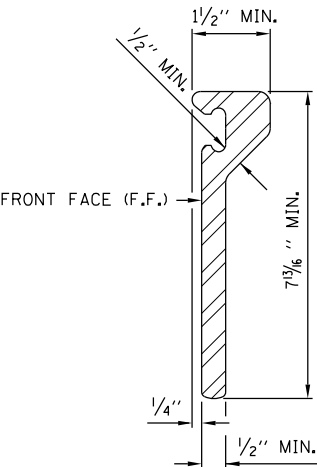
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03-01-2019

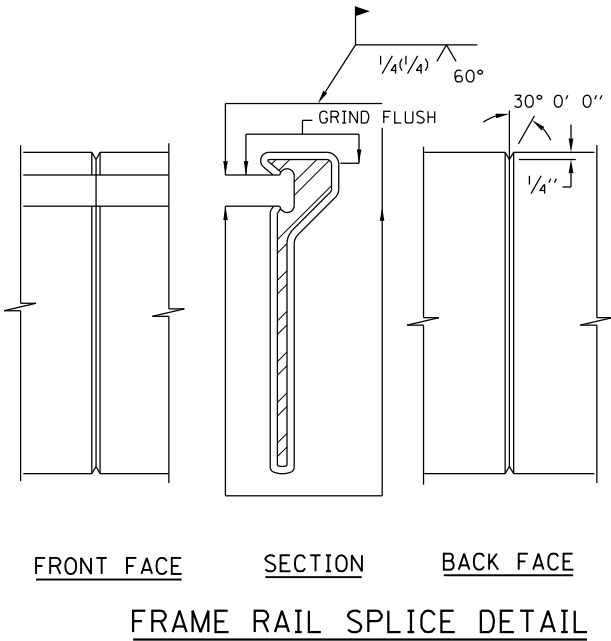


SECTION THRU EXPANSION JOINT

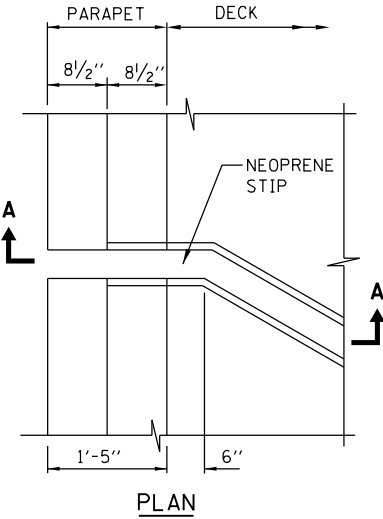
NOTE:
DIMENSIONS "A" AND "B" ARE PERPENDICULAR TO THE EXPANSION JOINT



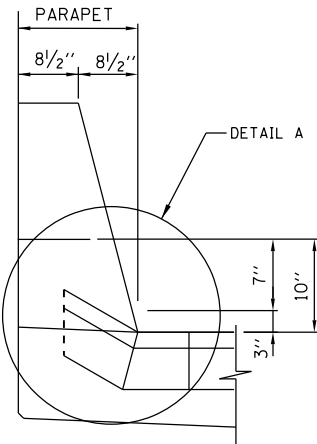
TYPICAL SECTION
THRU FRAME RAIL



NOTE:
WELD ON FRONT SIDE OF FRAME MAY BE OMITTED AT STAGE CONSTRUCTION LINES

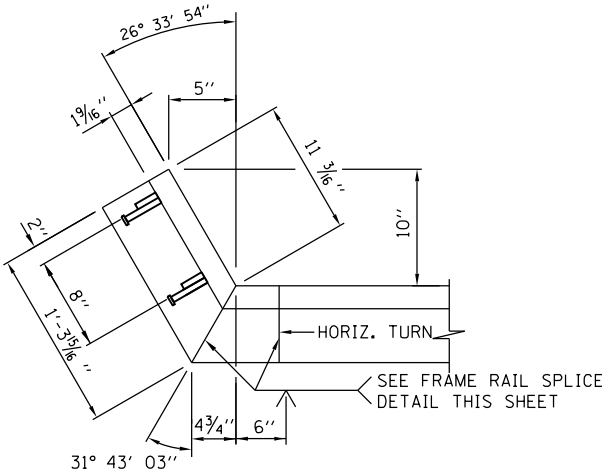


PLAN

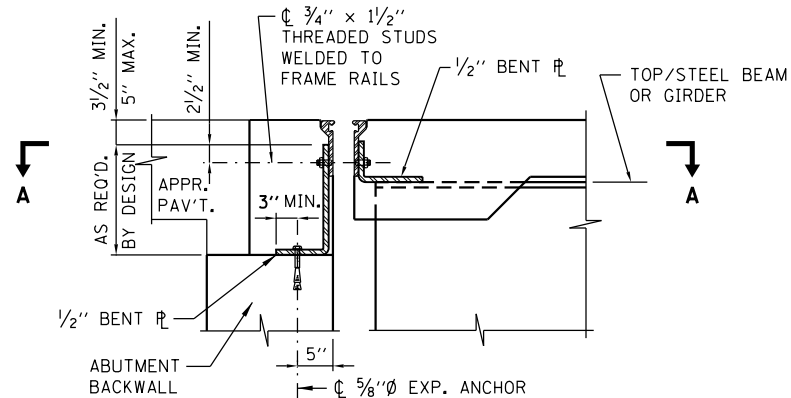


SECTION A-A

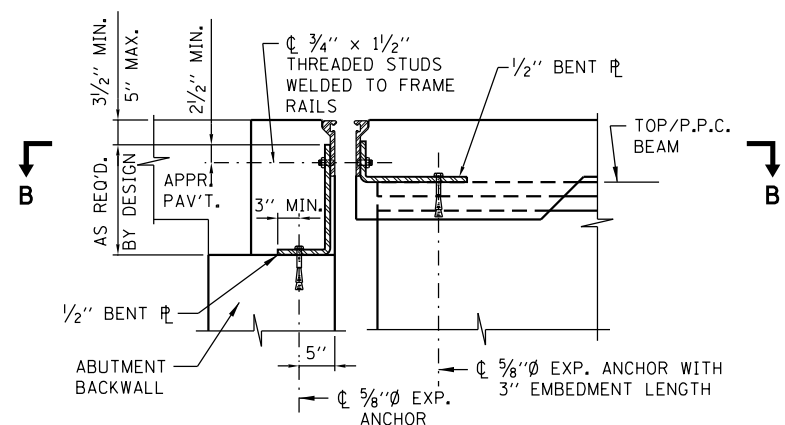
UPTURN AT PARAPET



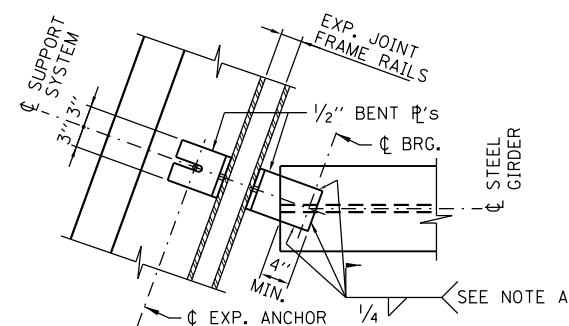
DETAIL A



TYPICAL SECTION THRU EXP. JOINT AND
SUPPORT SYSTEM AT STEEL GIRDERS



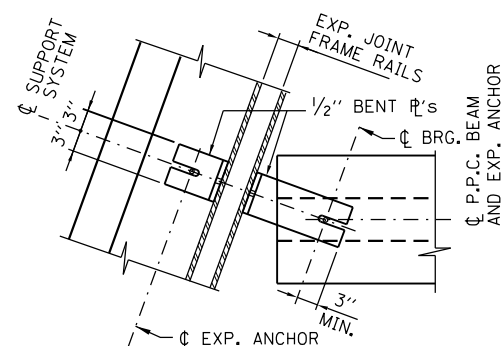
TYPICAL SECTION THRU EXP. JOINT AND
SUPPORT SYSTEM AT P.P.C. BEAMS



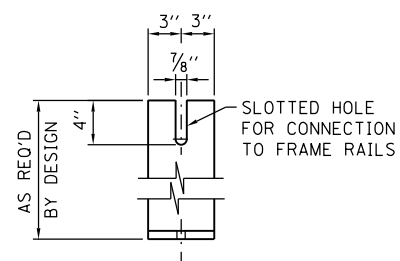
SECTION A-A

NOTE A:

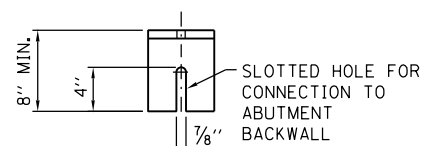
FIELD WELD AFTER SUPPORT SYSTEM IS ADJUSTED FOR THE OPENING AND HEIGHT REQUIREMENTS AND THE BENT PLATE ON THE OPPOSITE SIDE IS SECURED IN PLACE WITH EXPANSION ANCHOR INTO THE CONCRETE.



SECTION B-B

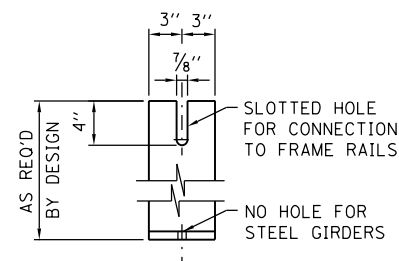


ELEVATION

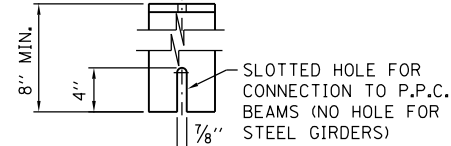


PLAN

BENT SUPPORT PLATE
AT ABUTMENT



ELEVATION



PLAN

BENT SUPPORT PLATE
AT BRIDGE DECK

NOTE TO DESIGNER

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NOTE:

WORK THIS DRAWING WITH THE BASE SHEETS M-BRG-500 AND M-BRG-501 FOR EITHER EXPANSION JOINT FRAME RAIL AND SEAL ALTERNATIVE A OR ALTERNATIVE B.

M-BRG-502



EXPANSION JOINT
FRAME RAIL
SUPPORT SYSTEM

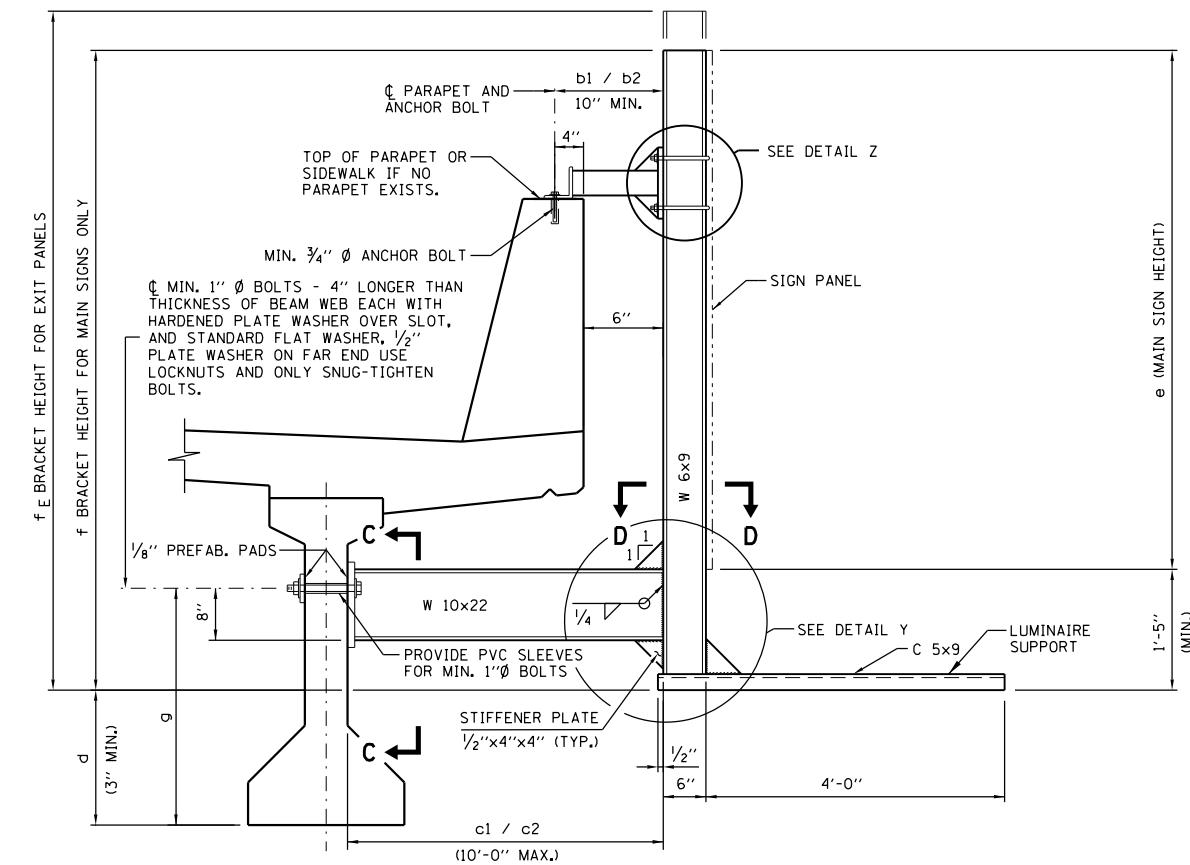
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NOTES:

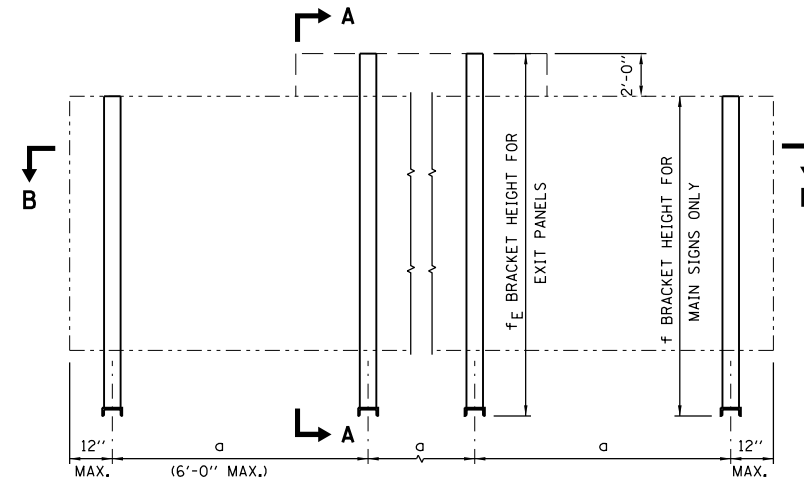
1. ALL STRUCTURE STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 (AASHTO M-270).
2. ALL STRUCTURAL STEEL PIPE SHALL BE ASTM A53 TYPE E OR S GRADE B WITH A MINIMUM YIELD OF 35,000 PSI. IF ASTM A500 GRADE B PIPE IS SUBSTITUTED FOR A53 THEN THE OUTSIDE DIAMETER SHALL BE AS DETAILED AND THE WALL THICKNESS GREATER THAN OR EQUAL TO ASTM A53.
3. ALL CAP SCREWS, BOLTS, U-BOLTS, WASHERS AND LOCKNUTS SHALL BE IN ACCORDANCE WITH ARTICLE 733.02 OF THE IDOT STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 AASHTO M-232.
4. ALL-THREADED RODS SHALL CONFIRM TO ASTM F1554 GRADE 105, EACH WITH ONE PLATE WASHER AND LOCKNUT AND BE HOT DIP GALVANIZED PER ASTM A153 (AASHTO M232). THEY SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 1211 OF ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION TO THE IDOT STANDARD SPECIFICATION.
5. ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING TO BE DONE IN ACCORDANCE WITH THE CURRENT AWS D1.1 STRUCTURAL WELDING CODE (STEEL) AND THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
6. ALL FABRICATION SHALL BE COMPLETE AND READY FOR ASSEMBLY BEFORE GALVANIZING. NO PUNCHING, DRILLING, CUTTING, NOR WELDING SHALL BE PERMITTED AFTER GALVANIZING.
7. ALL STRUCTURAL STEEL PLATES, SHAPES AND PIPE SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM ASTM A123 AND ASTM A325 AASHTO M111. PAINTING IS NOT PERMITTED.
8. CONTRACTOR SHALL FIELD CHECK ALL BRIDGE DIMENSIONS SHOWN ON PLANS BEFORE SUBMITTING SHOP DRAWINGS. DRAWINGS SHALL BE PREPARED IN ACCORDANCE TO ARTICLE 505.03 OF STANDARD SPECIFICATIONS.
9. THE COST OF FURNISHING AND INSTALLING THE BEARING PADS AS HEREIN SPECIFIED SHALL BE INCLUDED WITH THE COST OF BRIDGE (CONCRETE) MOUNTED SIGN SUPPORT.
10. PRE-FAB BEARING PADS: NEOPRENE BEARING PADS SHALL HAVE A SHORE DUROMETER SURFACE HARDNESS OF 65.
11. METHOD OF MEASUREMENT SHALL BE IN ACCORDANCE WITH ARTICLE 733.10 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS. THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT IN ACCORDANCE WITH ARTICLE 733.11 FOR BRIDGE (CONCRETE) MOUNTED SIGN SUPPORT.
12. SIGN STRUCTURE WIRING SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS, SECTION 823.
13. CENTER LINE OF EXPANSION ANCHOR INTO PARAPET SHALL BE AT LEAST 12" TO CENTERLINE OF OPEN JOINT IN PARAPET. ENGINEER SHALL VERIFY THE MINIMUM DISTANCES BETWEEN EXPANSION ANCHORS AND PARAPET PRIOR TO ERECTION OF SIGN SUPPORT.

NOTE TO DESIGNER

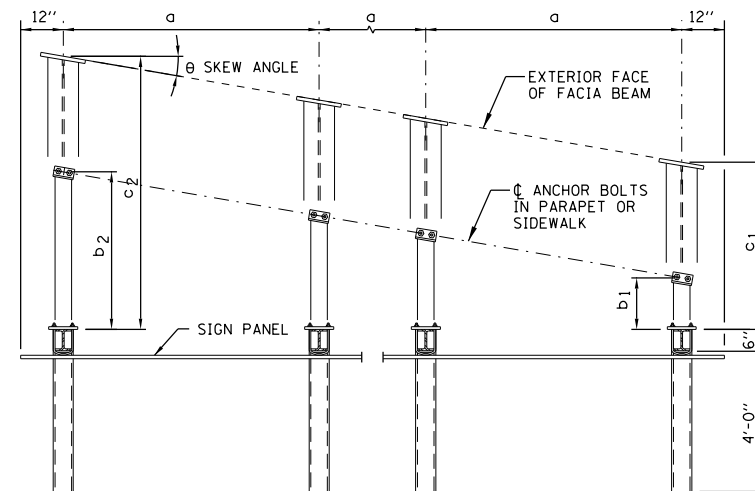
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.



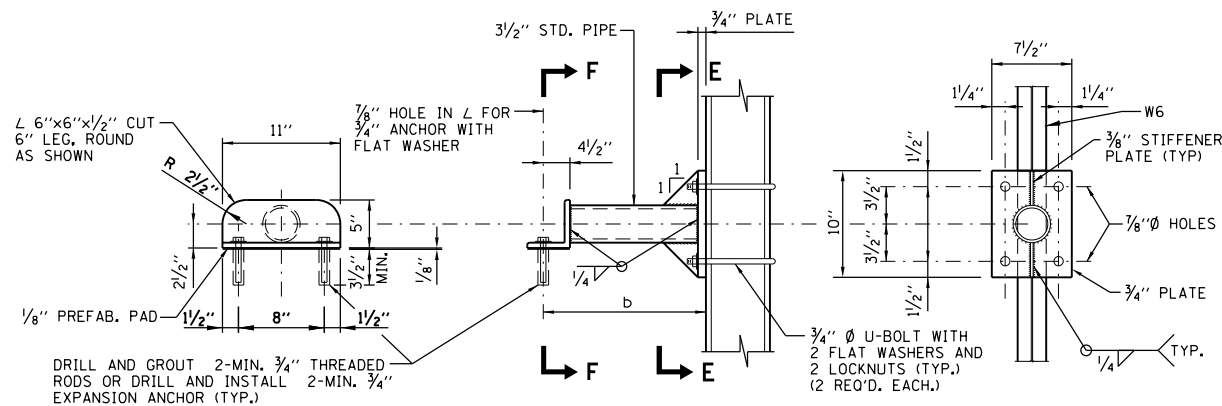
SECTION A-A



TYPICAL FRONT ELEVATION



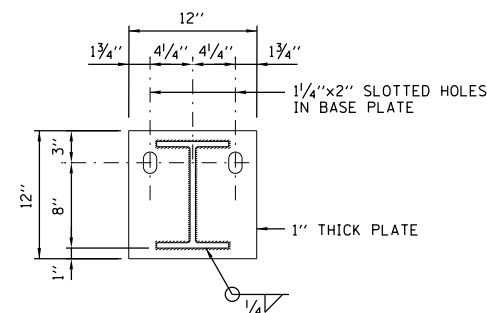
SECTION B-B



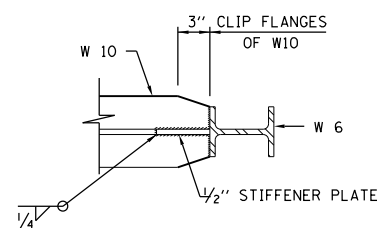
SECTION F-F

DETAIL Z

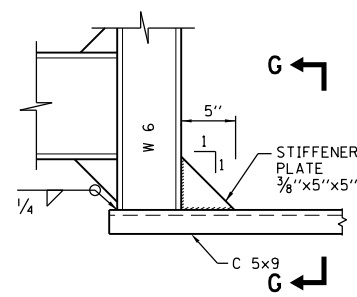
SECTION E-E



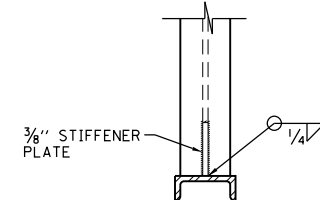
SECTION C-C



SECTION D-D



DETAIL Y



SECTION G-G

| TOTAL BILL OF MATERIAL | | | |
|------------------------|-------------|------|-------|
| PAY ITEM | DESCRIPTION | UNIT | TOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

M-BRG-503



BRIDGE (CONCRETE) MOUNTED
SIGN SUPPORT

DATE
03-01-2019



NOTE TO DESIGNER

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- ## NOTES:
1. ALL STRUCTURE STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 (AASHTO M-270).
 2. ALL STRUCTURAL STEEL PIPE SHALL BE ASTM A53 TYPE E OR S GRADE B WITH A MINIMUM YIELD OF 35,000 PSI. IF ASTM A500 GRADE B PIPE IS SUBSTITUTED FOR A53 THEN THE OUTSIDE DIAMETER SHALL BE AS DETAILED AND THE WALL THICKNESS GREATER THAN OR EQUAL TO ASTM A53.
 3. ALL CAP SCREWS, BOLTS, U-BOLTS, WASHERS AND LOCKNUTS SHALL BE IN ACCORDANCE WITH ARTICLE 733.02 OF THE IDOT STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 AASHTO M-232.

ALL-THREADED RODS SHALL CONFIRM TO ASTM F1554 GRADE 105, EACH WITH ONE PLATE WASHER AND LOCKNUT AND BE HOT DIP GALVANIZED PER ASTM A153 (AASHTO M232). THEY SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 1211 OF ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION TO THE IDOT STANDARD SPECIFICATION.
 5. ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING TO BE DONE IN ACCORDANCE WITH THE CURRENT AWS D1.1 STRUCTURAL WELDING CODE (STEEL) AND THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
 6. ALL FABRICATION SHALL BE COMPLETE AND READY FOR ASSEMBLY BEFORE GALVANIZING. NO PUNCHING, DRILLING, CUTTING, NOR WELDING SHALL BE PERMITTED AFTER GALVANIZING.
 7. ALL STRUCTURAL STEEL PLATES, SHAPES AND PIPE SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A123 AND ASTM A325 AASHTO M111. PAINTING IS NOT PERMITTED.
 8. CONTRACTOR SHALL FIELD CHECK ALL BRIDGE DIMENSIONS SHOWN ON PLANS BEFORE SUBMITTING SHOP DRAWINGS. DRAWINGS SHALL BE PREPARED IN ACCORDANCE TO ARTICLE 505.03 OF STANDARD SPECIFICATIONS.
 9. ALL HOLES DRILLED IN BRIDGE BEAM OR PLATE GIRDER SHALL BE LOCATED IN THE MIDDLE HALF OF THE WEB. THERE SHALL NOT BE ANY HOLES DRILLED IN THE WEB OF BEAM OR PLATE GIRDER CLOSER TO THE FLANGE THAN THE DEPTH OF BEAM DIVIDED BY FOUR (4) OR ONE-FOURTH (1/4) THE DEPTH OF THE BEAM. THE ENGINEER MAY ADJUST DIMENSION "g" TO MEET THE ABOVE CONDITION AND TO KEEP THE SIGN LEVEL.
 10. THE COST OF FURNISHING AND INSTALLING THE BEARING PADS AS HEREIN SPECIFIED SHALL BE INCLUDED WITH THE COST OF BRIDGE (STEEL) MOUNTED SIGN SUPPORT.
 11. PRE-FAB BEARING PADS: NEOPRENE BEARING PADS SHALL HAVE A SHORE DUROMETER SURFACE HARDNESS OF 65.
 12. METHOD OF MEASUREMENT SHALL BE IN ACCORDANCE WITH ARTICLE 733.10 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS. THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT IN ACCORDANCE WITH ARTICLE 733.11 FOR BRIDGE (CONCRETE) MOUNTED SIGN SUPPORT.
 13. SIGN STRUCTURE WIRING SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS, SECTION 823.
 14. CENTER LINE OF EXPANSION ANCHOR INTO PARAPET SHALL BE AT LEAST 12" TO CENTER LINE OF OPEN JOINT IN PARAPET. ENGINEER SHALL VERIFY THE MINIMUM DISTANCES BETWEEN EXPANSION ANCHORS & PARAPET PRIOR TO ERECTION OF SIGN SUPPORT.

M-BRG-504



BRIDGE (STEEL) MOUNTED
SIGN SUPPORT

DATE
03-01-2019

RESERVED

M-BRG-505



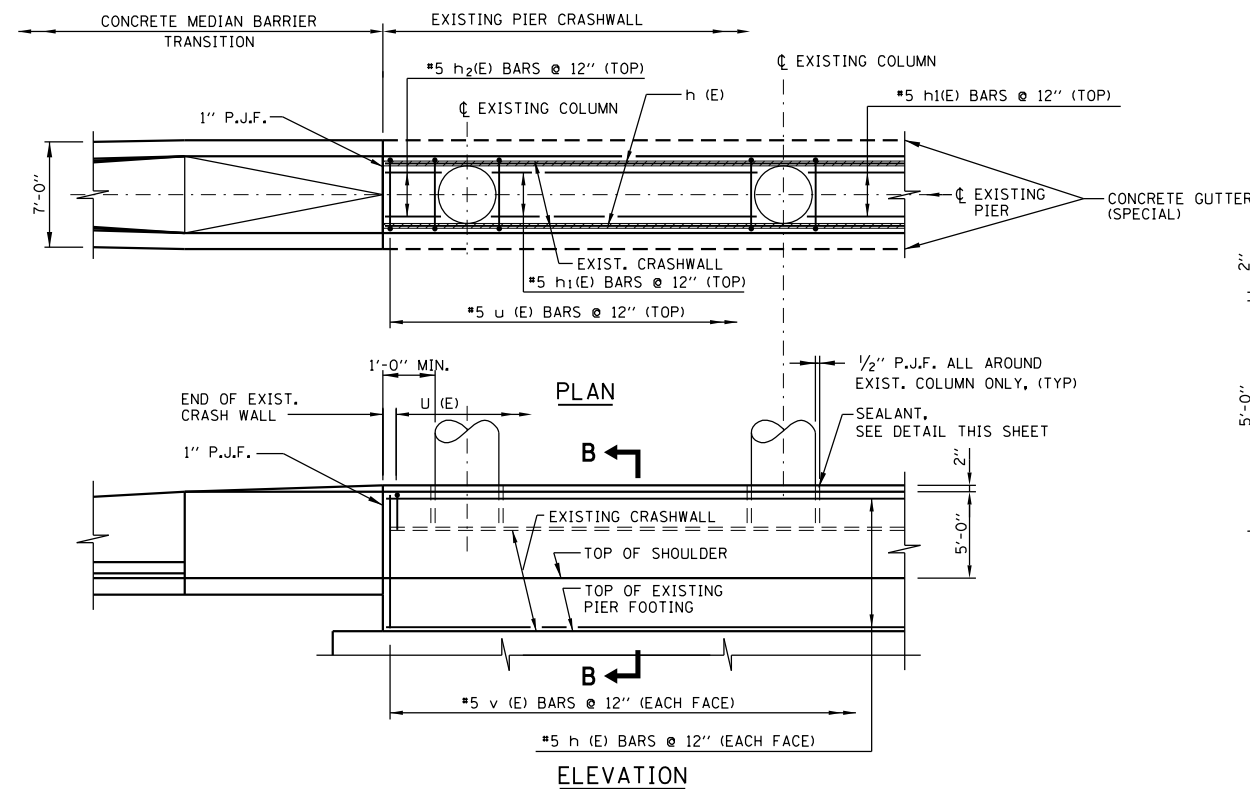
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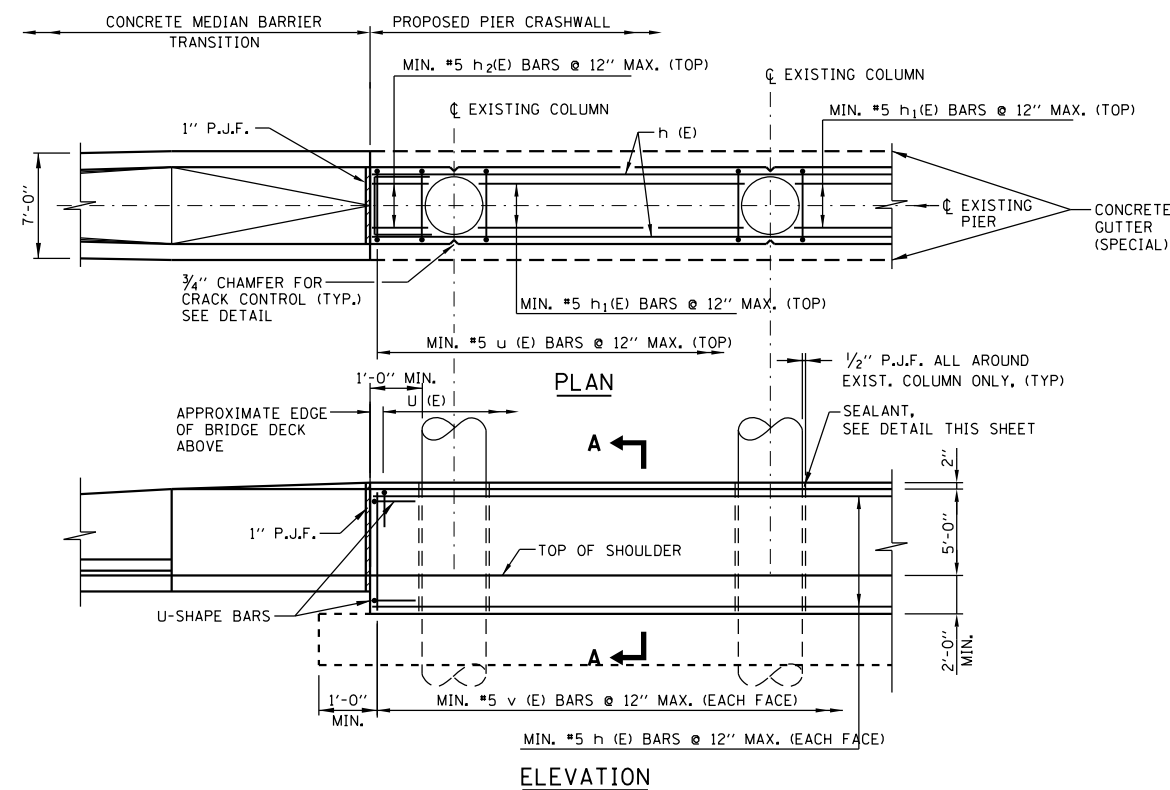
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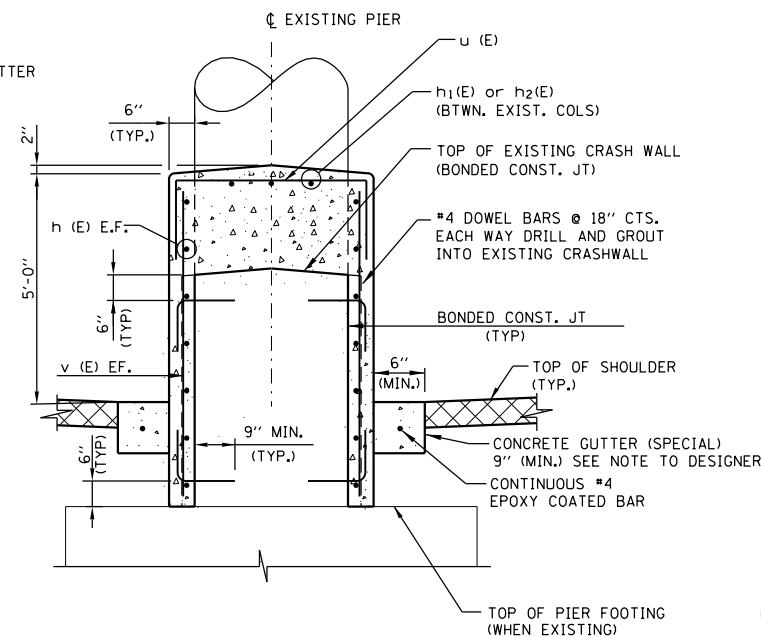
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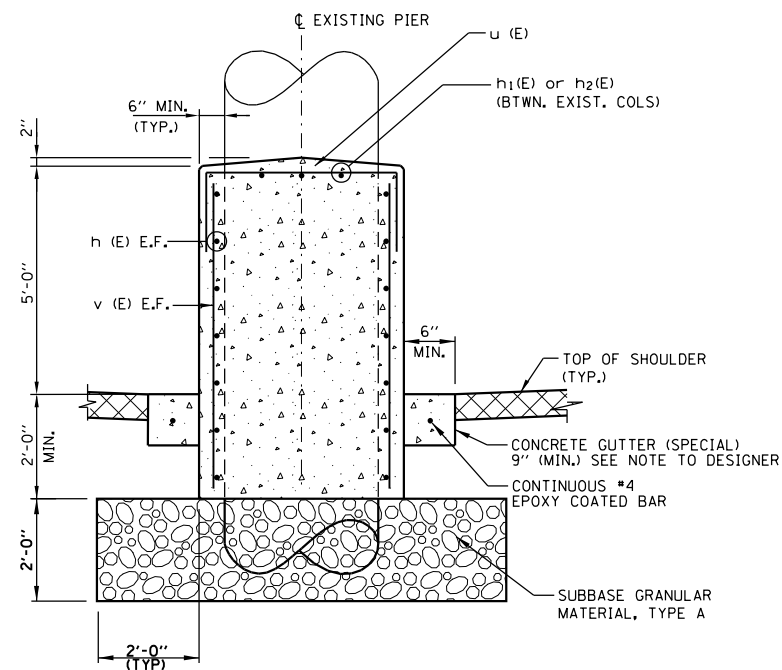
PROTECTION FOR EXISTING MEDIAN PIER
WITH CRASH WALL



PROTECTION FOR EXISTING MEDIAN PIER
WITHOUT CRASH WALL



SECTION B-B

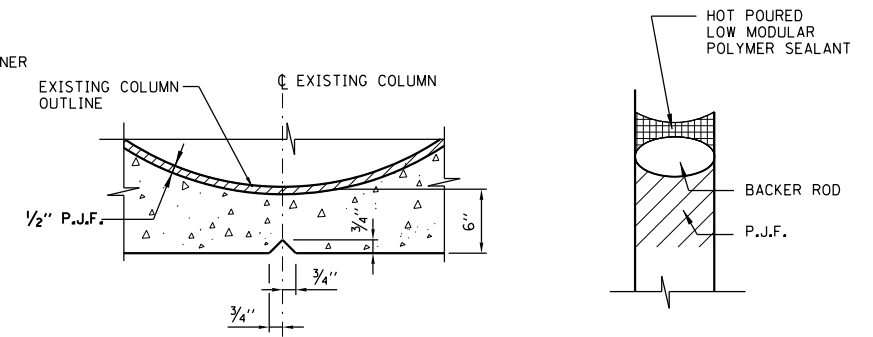


SECTION A-A

NOTE TO DESIGNER

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WHEN THERE IS A MINIMUM DISTANCE OF 6" FROM THE FACE OF THE PIER CRASHWALL TO THE OUTER EDGE OF GUTTER OF THE CONCRETE MEDIAN BARRIER TRANSITION BASE, A CONCRETE GUTTER (SPECIAL) SHALL BE INSTALLED ALONG THE LENGTH OF PIER CRASHWALL. WHEN THERE IS LESS THAN 6" DISTANCE AN ASPHALT SHOULDER SHALL BE PLACED TO THE FACE OF THE CRASHWALL. THE WIDTH OF THE PIER CRASHWALL AND GUTTER SHALL BE EQUAL TO THE ADJACENT MEDIAN BARRIER BASE.



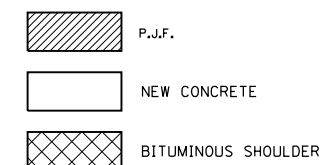
CRACK CONTROL DETAIL
REINFORCEMENT BARS OMITTED FOR CLARITY

SEALANT DETAIL

NOTES:

1. REMOVE EXISTING CONCRETE CRASHWALL BACK TO FACE OF COLUMNS PRIOR TO PLACING CONCRETE AROUND EXISTING CRASHWALL AND COLUMNS. SURFACES TO RECEIVE NEW CONCRETE SHALL BE BLAST CLEANED. COST OF CLEANING SHALL BE INCLUDED IN THE COST OF CONCRETE REMOVAL.
2. CONCRETE MEDIAN BARRIER TRANSITION TAPER LENGTHS, PAY LIMITS AND MEASUREMENT, AND BASIS OF PAYMENT ALL IN ACCORDANCE WITH THE ILLINOIS TOLLWAY STANDARD DRAWING C13, C14 AND THE SPECIAL PROVISIONS.
3. THE CLEAR COVER FOR REINFORCEMENT BARS TO THE SURFACE OF CONCRETE SHALL BE 2" UNLESS OTHERWISE SHOWN.
4. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
5. EXPOSED CONCRETE EDGES SHALL HAVE 3/4"x45° CHAMFERS. CHAMFERS ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL.
6. CONCRETE SEALANT SHALL BE APPLIED TO THE EXPOSED SURFACES OF ALL NEW AND/OR MODIFIED PIER CRASH WALLS.
7. E.F. DENOTES EACH FACE

LEGEND:

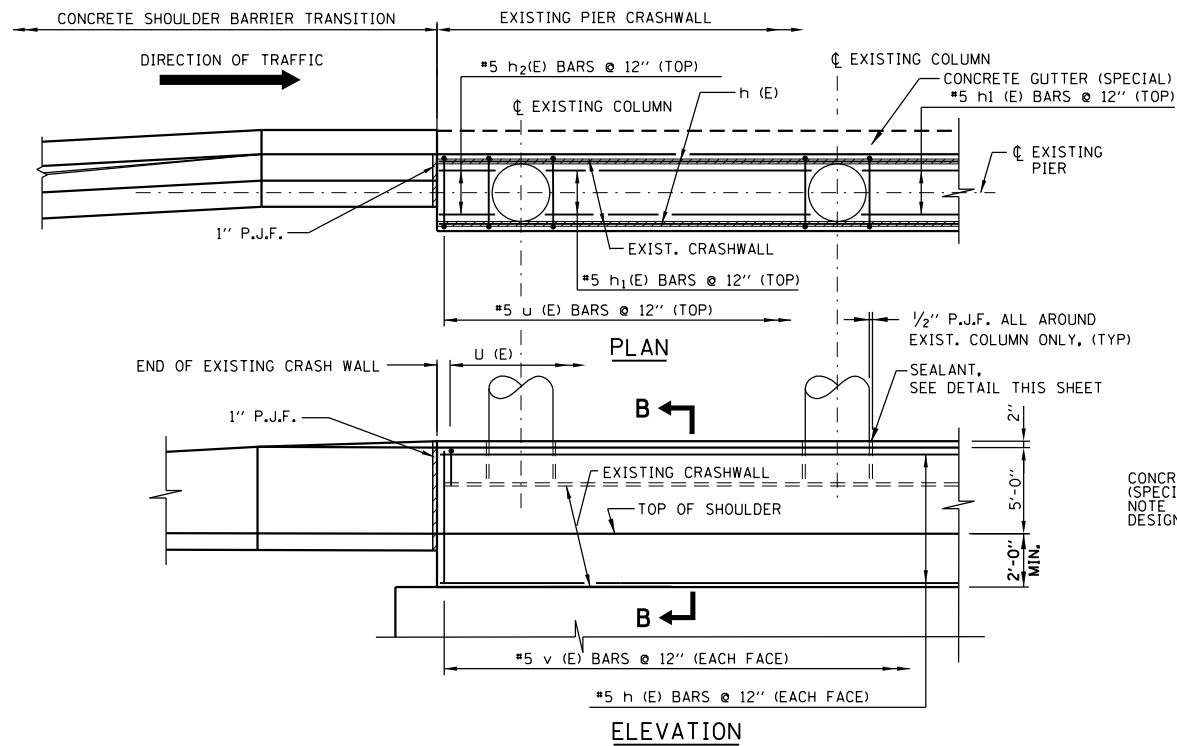


M-BRG-507

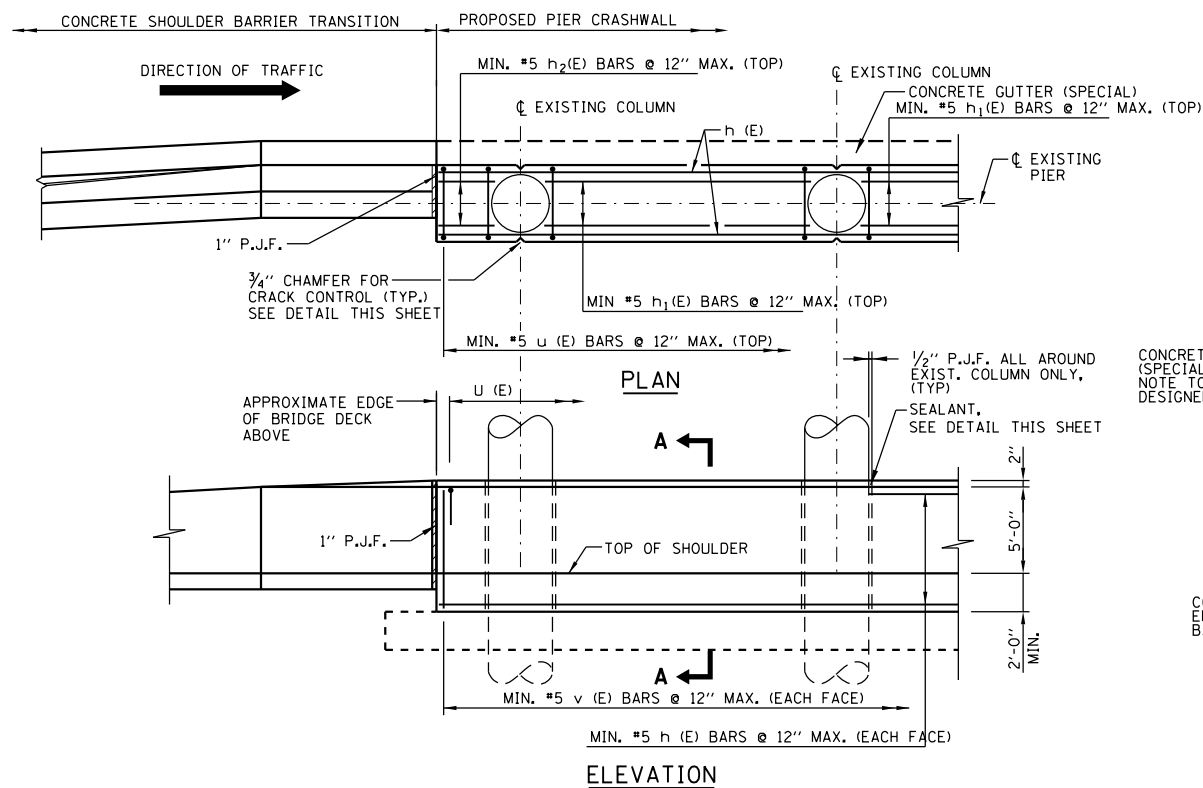


CRASH WALL MODIFICATIONS
MEDIAN PIERS

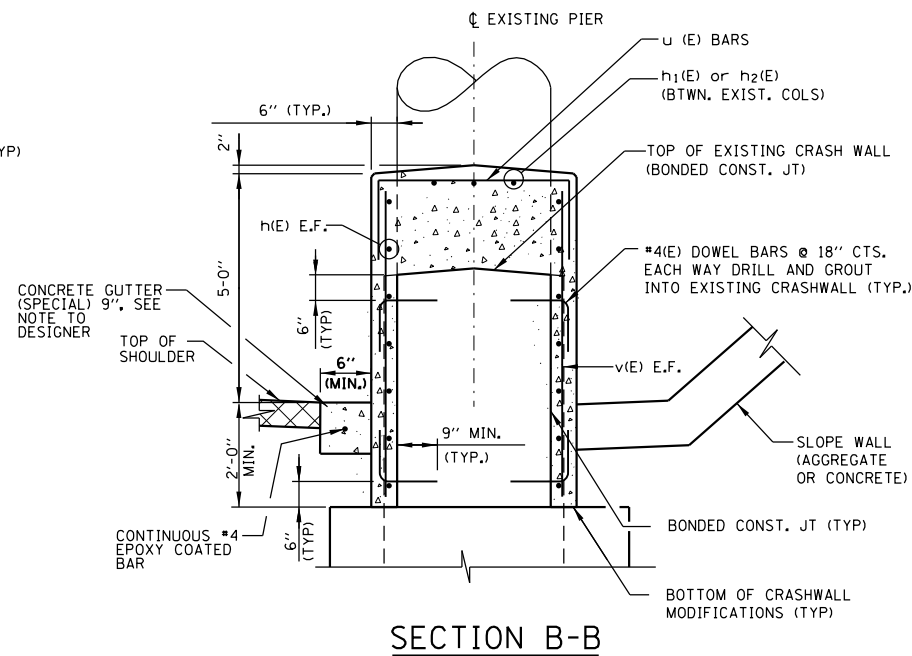
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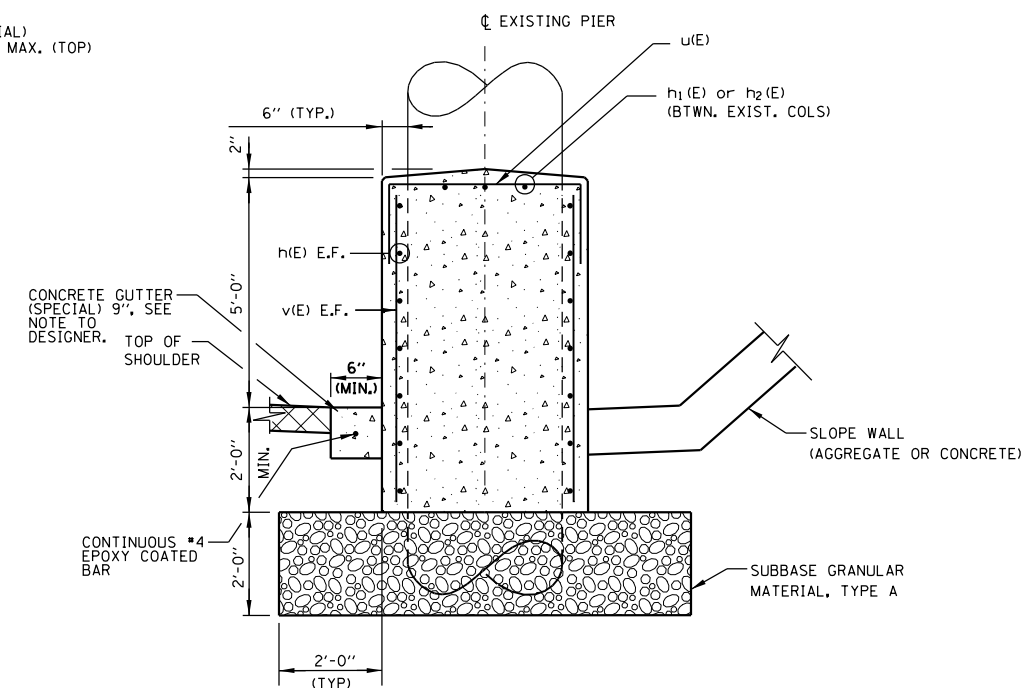
PROTECTION FOR EXISTING SHOULDER PIER
WITH CRASH WALL



PROTECTION FOR EXISTING SHOULDER PIER
WITHOUT CRASH WALL



SECTION B-B

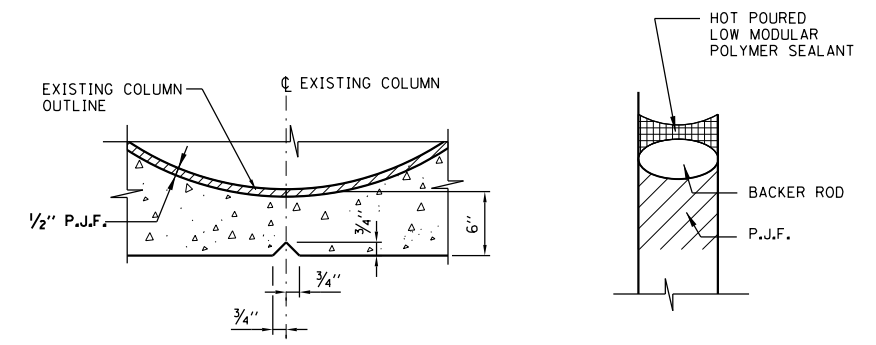


SECTION A-A

NOTE TO DESIGNER

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WHEN THERE IS A MINIMUM DISTANCE OF 6" FROM THE FACE OF THE PIER CRASHWALL TO THE OUTER EDGE OF GUTTER OF THE CONCRETE MEDIAN BARRIER TRANSITION BASE, A CONCRETE GUTTER (SPECIAL) SHALL BE INSTALLED ALONG THE LENGTH OF PIER CRASHWALL. WHEN THERE IS LESS THAN 6" DISTANCE AN ASPHALT SHOULDER SHALL BE PLACED TO THE FACE OF THE CRASHWALL. THE WIDTH OF PIER CRASHWALL AND GUTTER SHALL BE EQUAL TO THE ADJACENT MEDIAN BARRIER BASE.



CRACK CONTROL DETAIL




REINFORCEMENT BARS OMITTED FOR CLARITY

SEALANT DETAIL

NOTES:

1. REMOVE EXISTING CONCRETE CRASHWALL BACK TO FACE OF COLUMNS PRIOR TO PLACING CONCRETE AROUND EXISTING CRASHWALL AND COLUMNS. SURFACES TO RECEIVE NEW CONCRETE SHALL BE BLAST CLEANED. COST OF CLEANING SHALL BE INCLUDED IN THE COST OF CONCRETE REMOVAL.
2. CONCRETE SHOULDER BARRIER TRANSITION TAPER LENGTHS, PAY LIMITS AND MEASUREMENT, AND BASIS OF PAYMENT ALL IN ACCORDANCE WITH THE ILLINOIS TOLLWAY STANDARD DRAWING C7, C13, C14 AND THE SPECIAL PROVISIONS.
3. THE CLEAR COVER FOR REINFORCEMENT BARS TO THE SURFACE OF CONCRETE SHALL BE 2" UNLESS OTHERWISE SHOWN.
4. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
5. EXPOSED CONCRETE EDGES SHALL HAVE 3/4"x45° CHAMFERS. CHAMFERS ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL.
6. CONCRETE SEALANT SHALL BE APPLIED TO THE EXPOSED SURFACES OF ALL NEW AND/OR MODIFIED PIER CRASH WALLS.
7. E.F. DENOTES EACH FACE

LEGEND:

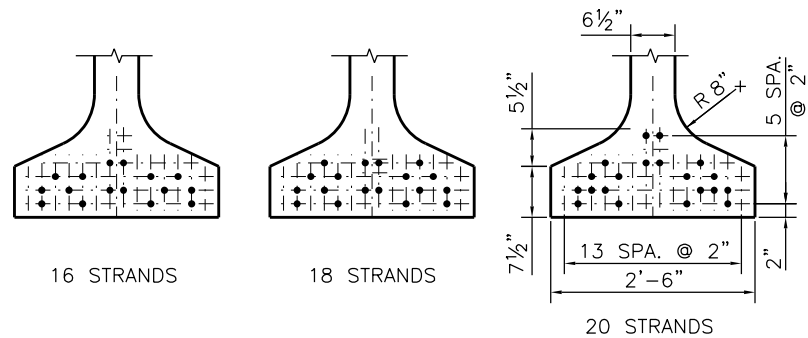
-  P.J.F.
-  NEW CONCRETE
-  BITUMINOUS SHOULDER

M-BRG-508

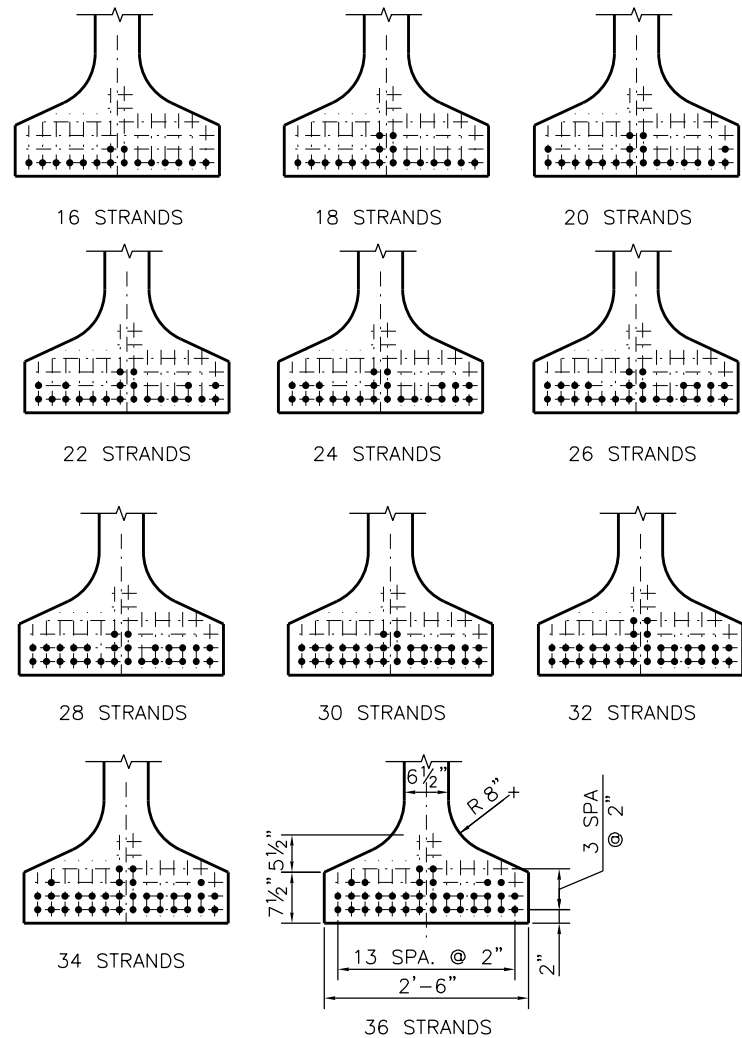


CRASH WALL MODIFICATIONS
SHOULDER PIERS

DATE
03-01-2019



STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF 0.6"Ø STRANDS



ARRANGEMENT AT ϕ SPAN - FOR BEAMS WITH DRAPED 0.6"Ø STRANDS

36-BT BEAM

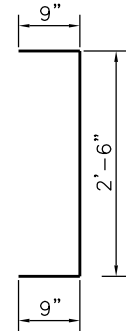
A = 632 SQ. IN.
 $r^2 = 158.20 \text{ IN.}^2$
 $Y_T = 19.37 \text{ IN.}$
 $Y_B = -16.63 \text{ IN.}$
 $I = 99,980 \text{ IN.}^4$
 $S_T = 5,162 \text{ IN.}^3$
 $S_B = -6,012 \text{ IN.}^3$
 WT. = 658#/FT.

PRE-TENSION

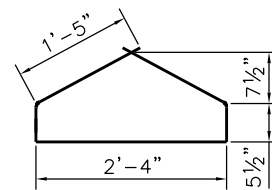
$f'_S = 270,000 \text{ P.S.I.}$
 $f_S = 0.75 \times 270,000 = 202,500 \text{ P.S.I.}$
 for low relaxation strands
 $P_i \text{ PER } 0.6" \text{Ø STRAND} = 0.217 \times 202,500 = 43.94 \text{ KIPS}$
 $\frac{y_B}{r^2} = \frac{-16.63}{158.20} = -0.10512 \text{ in/in}^2$
 $f_B \text{ (init.)} = \frac{A_s f_S}{A} (1 + \frac{e_s y_B}{r^2})$

BAR LIST

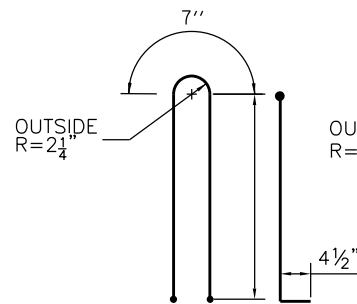
| BAR | NO. | SIZE | LENGTH | SHAPE |
|-----------------|-----|------|--------|-------|
| G ₂ | 20 | #6 | 4'-0" | U |
| G ₄ | 46 | #3 | 6'-3" | U |
| G ₆ | 2 | #8 | 6'-6" | U |
| G ₇ | | #4 | | U |
| G ₈ | | #4 | 5'-9" | U |
| G ₉ | | #5 | 2'-7" | U |
| G ₁₀ | | #4 | 2'-3" | U |
| G ₁₁ | | | | U |



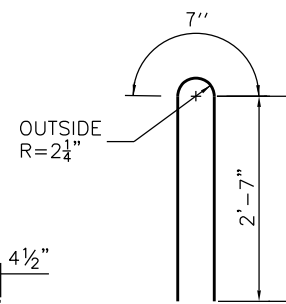
BAR G₂



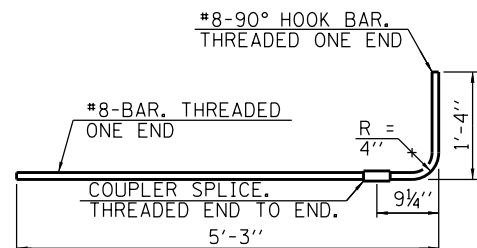
BAR G₄



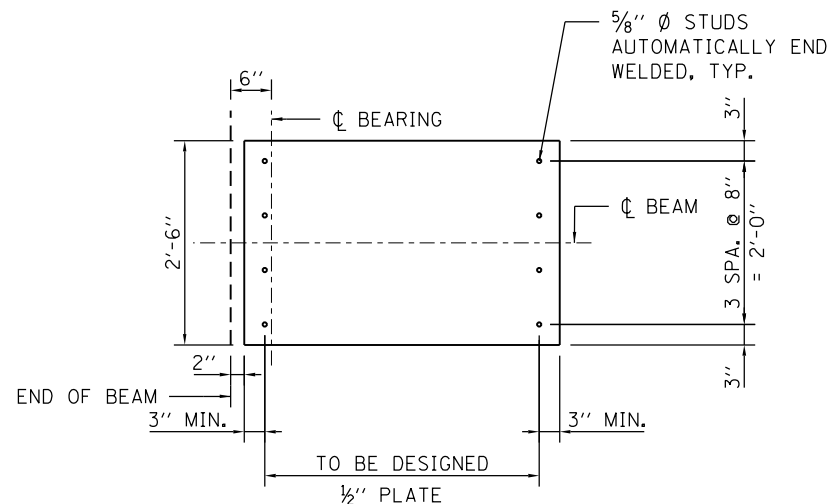
BAR G₇



BAR G₈



G₆ BAR ASSEMBLY



ANCHOR PLATE

GALVANIZE ANCHOR PLATE
AFTER FABRICATION

NOTES:

TOP OF BEAM TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF BEAM, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

THE BEAM SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE BEAMS. SEE SECTION 504.06 OF IDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF BEAM. FOR BEAM ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR BEAM ENDS THAT ARE FINALLY EXPOSED, COAT THE BEAM ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE BEAM ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

PRESTRESSING STRANDS SHALL BE 0.6" DIA., 7-WIRE LOW, RELAXATION FOR ALL PATTERNS WITH AN ULTIMATE STRENGTH OF 270,000 psi. THE MAX NUMBER OF DRAPED 0.6"Ø STRANDS IS 8.

INSERTS FOR "Ø THREADED DOWEL RODS, WHEN SPECIFIED AT EXPANSION JOINT ENDS, SHALL BE TWO-STRUT, FERRULE-TYPE FOR INTERIOR BEAMS AND SINGLE-FERRULE, FLARED-LOOP TYPE FOR EXTERIOR BEAMS.

NOTE TO DESIGNER

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6,800 PSI.

REINFORCEMENT IN STANDARD END SECTION OF THE BEAM IS BASED ON THE STRAND PATTERNS LISTED ON THIS SHEET. THE MAXIMUM SPAN LENGTHS SHOWN IN FIGURE 13.2.2.1 OF TOLLWAY STRUCTURE DESIGN MANUAL. USING DIFFERENT STRAND PATTERNS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE ILLINOIS TOLLWAY IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

THE DESIGN ENGINEER DETERMINES THE PROJECTION OF BAR G₇ BASED ON 1/2" MIN. HAUNCH AT EDGE OF BEAM, AT CENTERLINE OF BEARINGS X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL BEAM CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.8. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/2 OF THE BEAM LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

CALCULATED PRESTRESS LOSSES

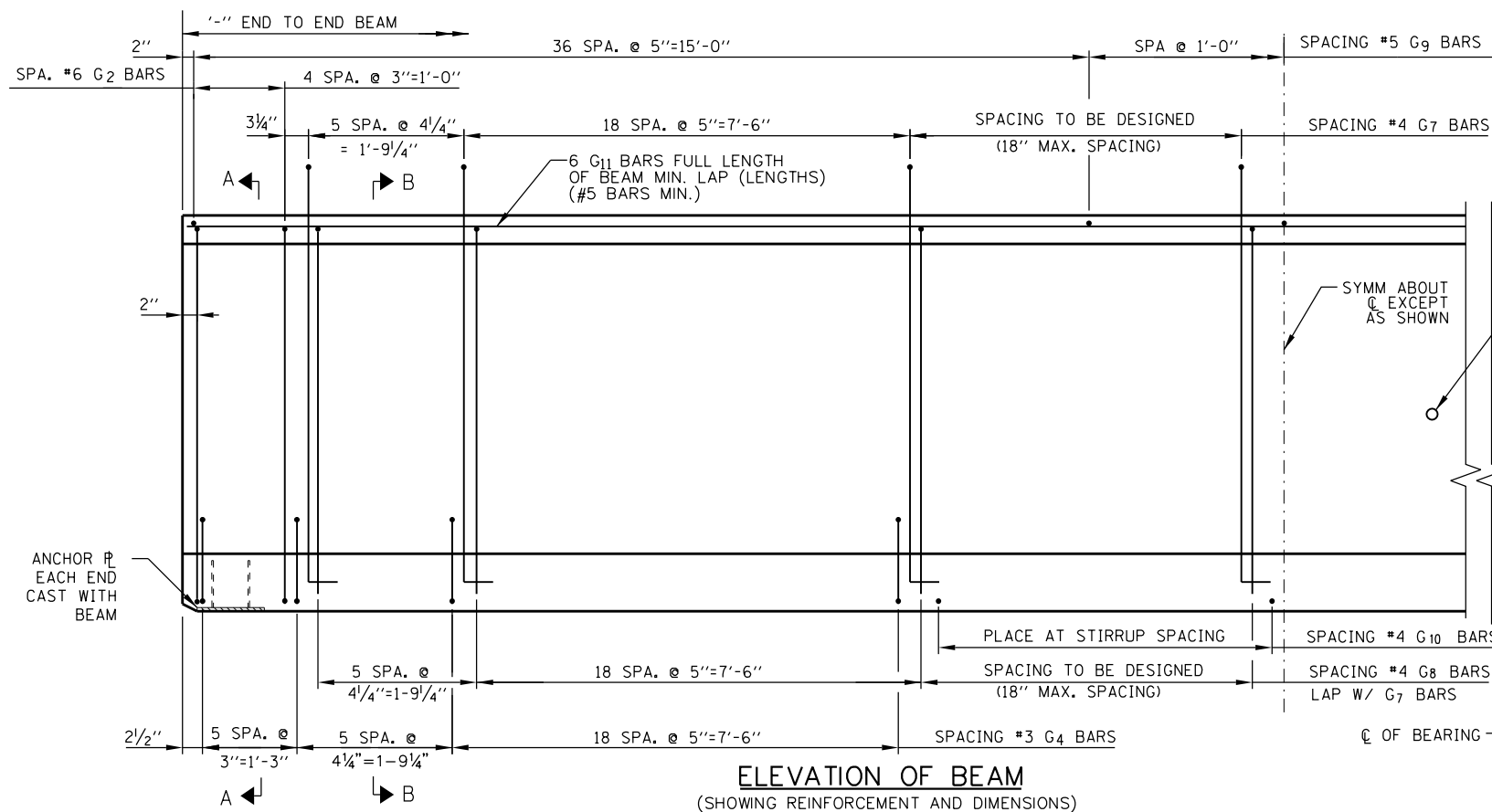
| | |
|-------------------------|-----------|
| ELASTIC SHORTENING LOSS | ----- KSI |
| LONG TERM LOSSES | ----- KSI |
| TOTAL LOSSES | ----- KSI |

M-BRG-510

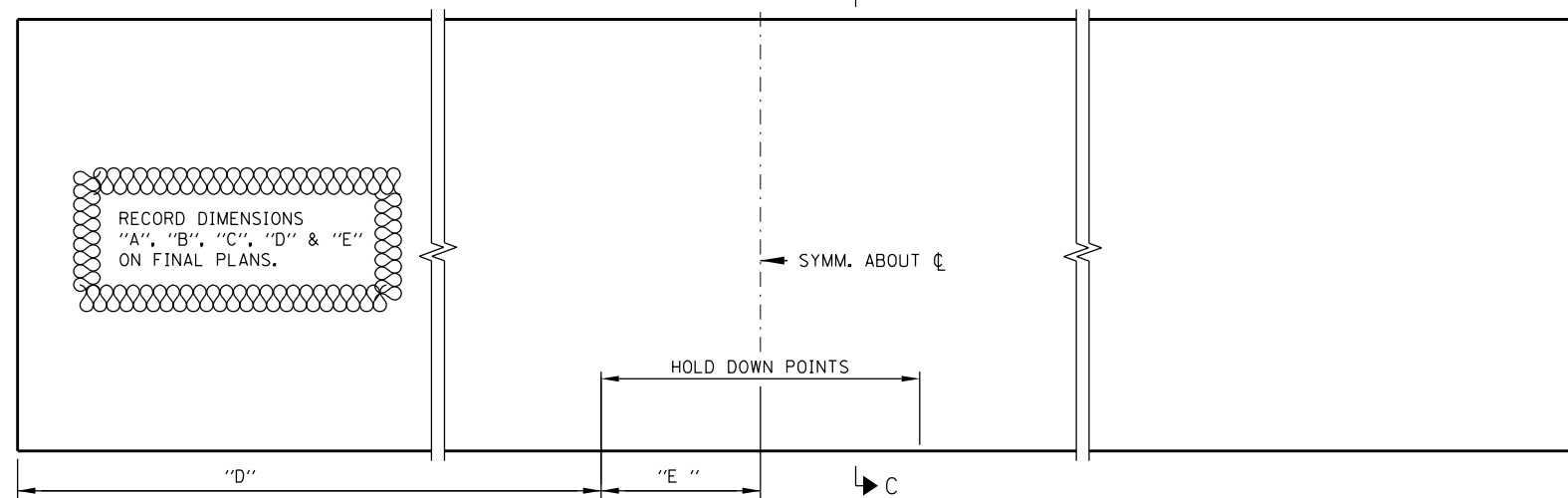


36" PPC BULB-T
BEAM DETAILS

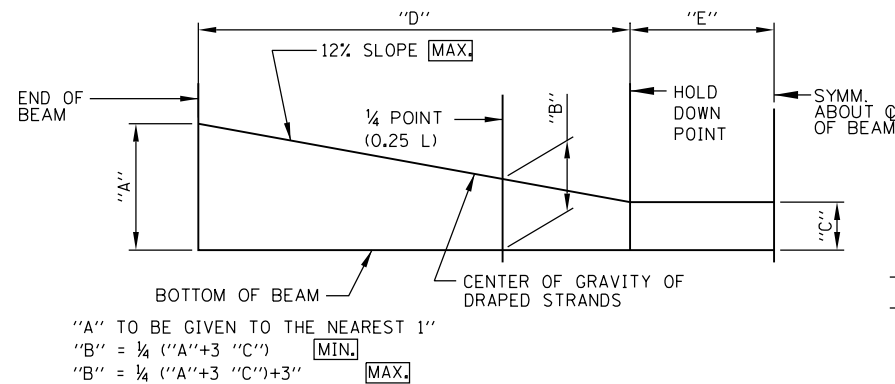
DATE
03-01-2019



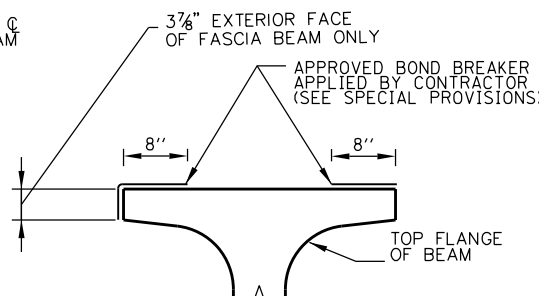
ELEVATION OF BEAM
(SHOWING REINFORCEMENT AND DIMENSIONS)



ELEVATION OF BEAM
(SHOWING PRESTRESSING STEEL)



LOCATION OF DRAPED STRANDS

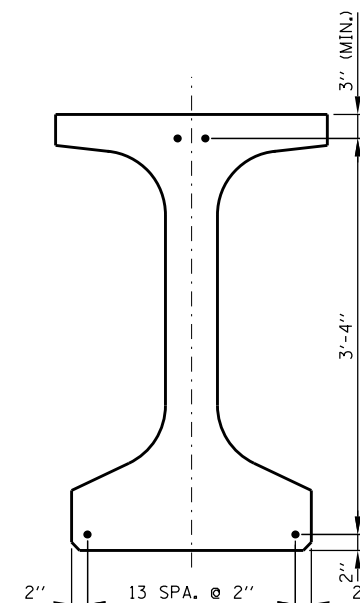


LOCATIONS OF BOND BREAKER

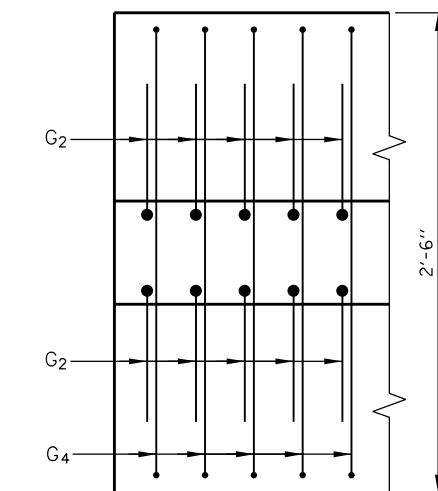
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

SECTION C-C PRESTRESSING STRAND PATTERN AT MIDSPAN



PLAN-BOTTOM FLANGE DETAIL AT END OF BEAM



NOTE:

WORK THIS SHEET WITH BASE SHEET M-BRG-512.

M-BRG-511

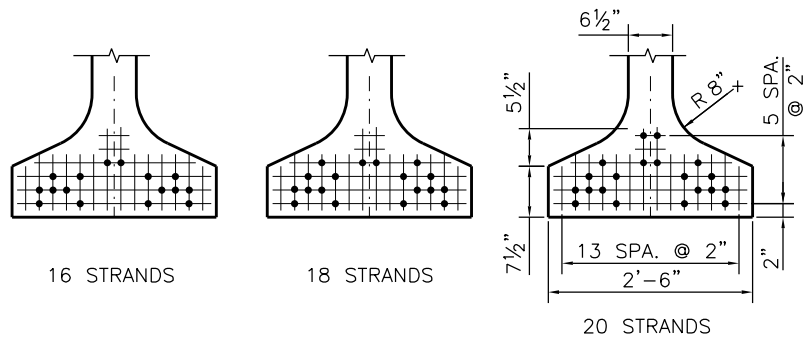
BILL OF MATERIAL

| ITEM | UNIT | TOTAL |
|---|------|-------|
| FURNISHING AND ERECTING SHALLOW-DEPTH PRECAST PRESTRESSED CONCRETE BULB-T BEAM, 45" | FOOT | |

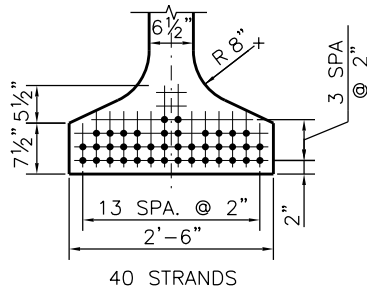
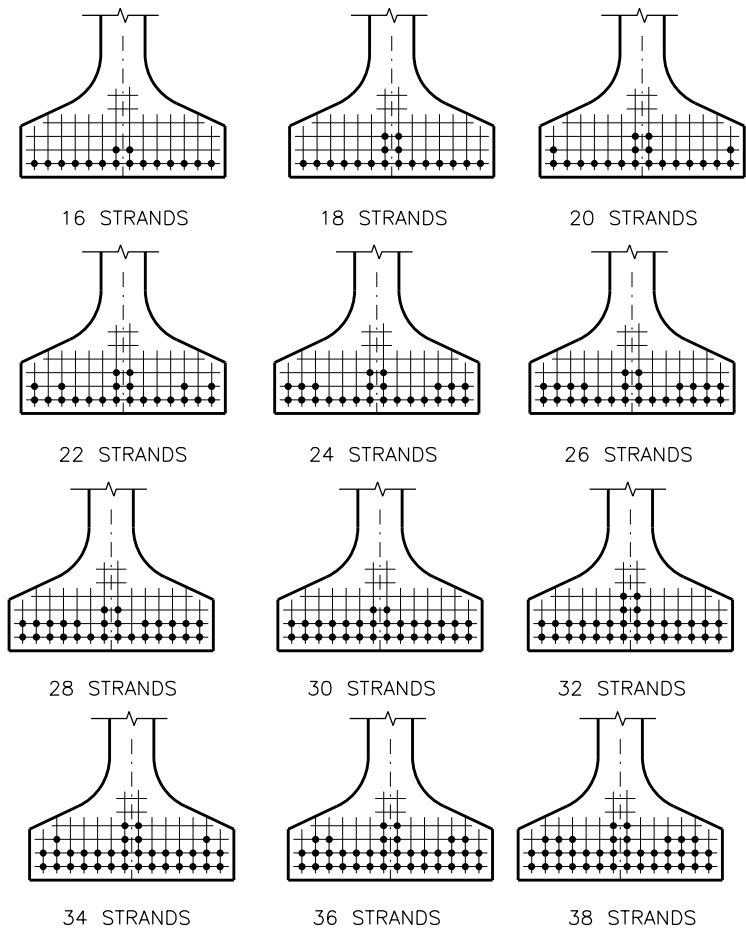


45" PPC BULB-T
BEAM

DATE
03-01-2019



STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF 0.6"Ø STRANDS



ARRANGEMENT AT ϕ
SPAN - FOR BEAMS
WITH DRAPED 0.6"Ø
STRANDS

45-BT BEAM

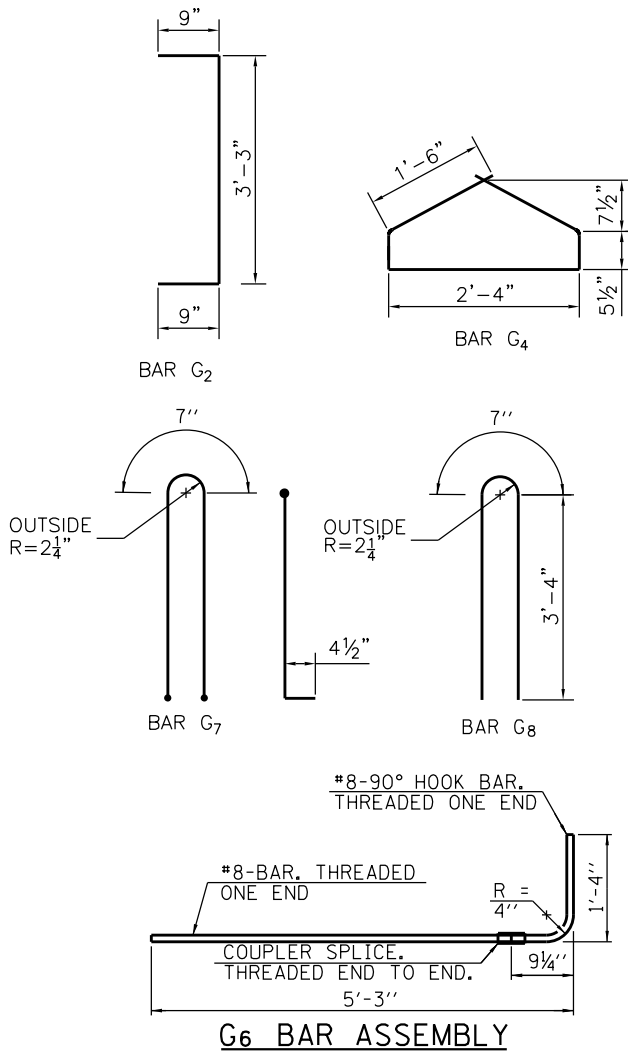
A = 692 SQ. IN.
r² = 258.70 IN.²
Y_T = 24.26 IN.
Y_B = -20.74 IN.
I = 178,971 IN.⁴
S_T = 7,377 IN.³
S_B = -8,629 IN.³
WT. = 721#/FT.

PRE-TENSION

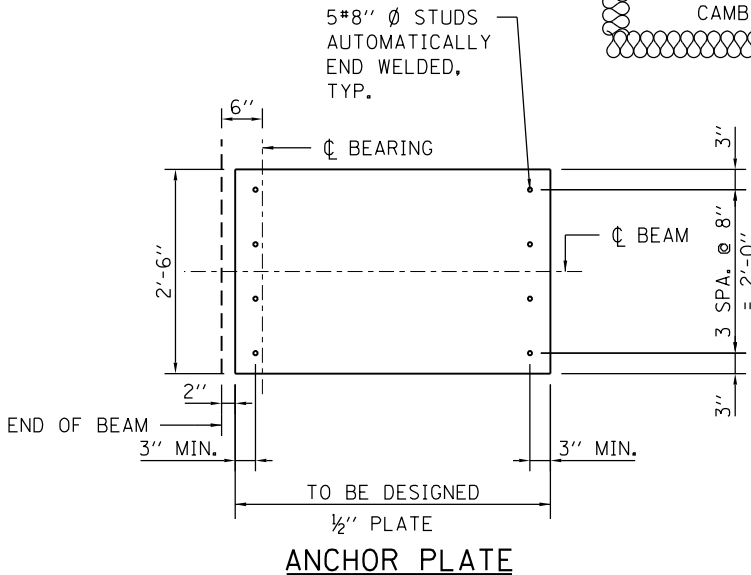
f'_S = 270,000 P.S.I.
f_S = 0.75 x 270,000 = 202,500 P.S.I.
for low relaxation strands
P_i PER 0.6"Ø STRAND = 0.217 x 202,500 = 43.94 KIPS
 $\frac{Y_B}{r^2} = \frac{-20.74}{258.70} = -0.08017 \text{ in/in}^2$
 $f_B \text{ (init.)} = \frac{A_s f_s}{A} \left(1 + \frac{e_s Y_B}{r^2}\right)$

BAR LIST

| BAR | NO. | SIZE | LENGTH | SHAPE |
|-----------------|-----|------|--------|-------|
| G ₂ | 20 | #6 | 4'-9" | |
| G ₄ | 58 | #3 | 6'-3" | |
| G ₆ | 2 | #8 | 6'-6" | |
| G ₇ | | #4 | | |
| G ₈ | | #4 | 7'-3" | |
| G ₉ | | #5 | 2'-7" | |
| G ₁₀ | | #4 | 2'-3" | |
| G ₁₁ | | | | |



G₆ BAR ASSEMBLY



NOTES:

TOP OF BEAM TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF BEAM, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

THE BEAM SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE BEAMS. SEE SECTION 504.06 OF IDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF BEAM. FOR BEAM ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR BEAM ENDS THAT ARE FINALLY EXPOSED, COAT THE BEAM ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE BEAM ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

PRESTRESSING STRANDS SHALL BE 0.6" DIA., 7-WIRE LOW, RELAXATION FOR ALL PATTERNS WITH AN ULTIMATE STRENGTH OF 270,000 psi. THE MAX NUMBER OF DRAPED 0.6"Ø STRANDS IS 8.

INSERTS FOR "Ø THREADED DOWEL RODS, WHEN SPECIFIED AT EXPANSION JOINT ENDS, SHALL BE TWO-STRUT, FERRULE-TYPE FOR INTERIOR BEAMS AND SINGLE-FERRULE, FLARED-LOOP TYPE FOR EXTERIOR BEAMS.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTES:

- SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6,800 PSI.
- REINFORCEMENT IN STANDARD END SECTION OF THE BEAM IS BASED ON THE STRAND PATTERNS LISTED ON THIS SHEET. THE MAXIMUM SPAN LENGTHS SHOWN IN FIGURE 13.2.2.1 OF TOLLWAY STRUCTURE DESIGN MANUAL. USING DIFFERENT STRAND PATTERNS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE ILLINOIS TOLLWAY IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.
- THE DESIGN ENGINEER DETERMINES THE PROJECTION OF BAR G₇ BASED ON 1/2" MIN. HAUNCH AT EDGE OF BEAM, AT CENTERLINE OF BEARINGS, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL BEAM CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.8. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH OF THE BEAM LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ± 3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

CALCULATED PRESTRESS LOSSES

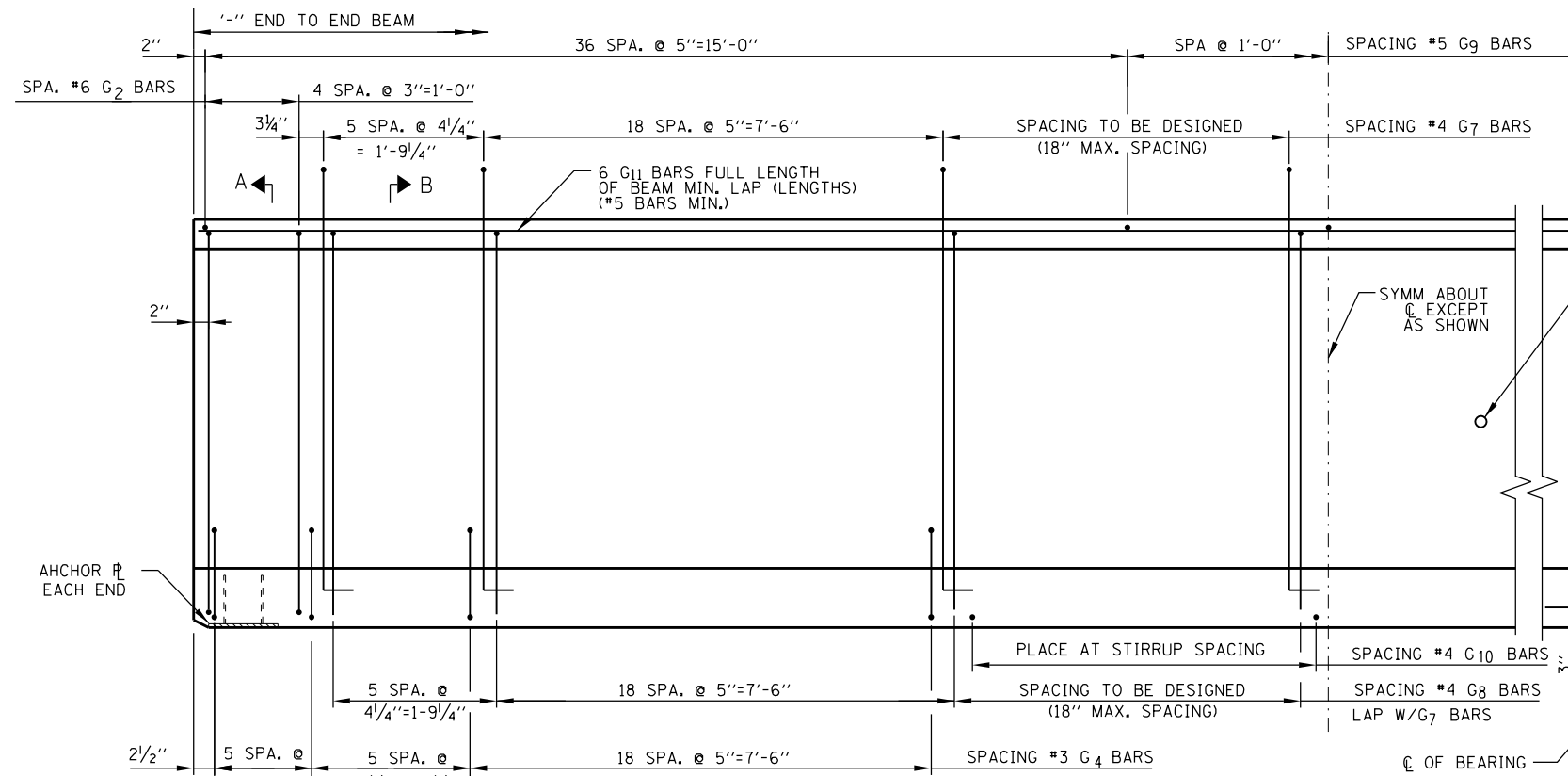
| | |
|-------------------------|-----------|
| ELASTIC SHORTENING LOSS | ----- KSI |
| LONG TERM LOSSES | ----- KSI |
| TOTAL LOSSES | ----- KSI |

M-BRG-512

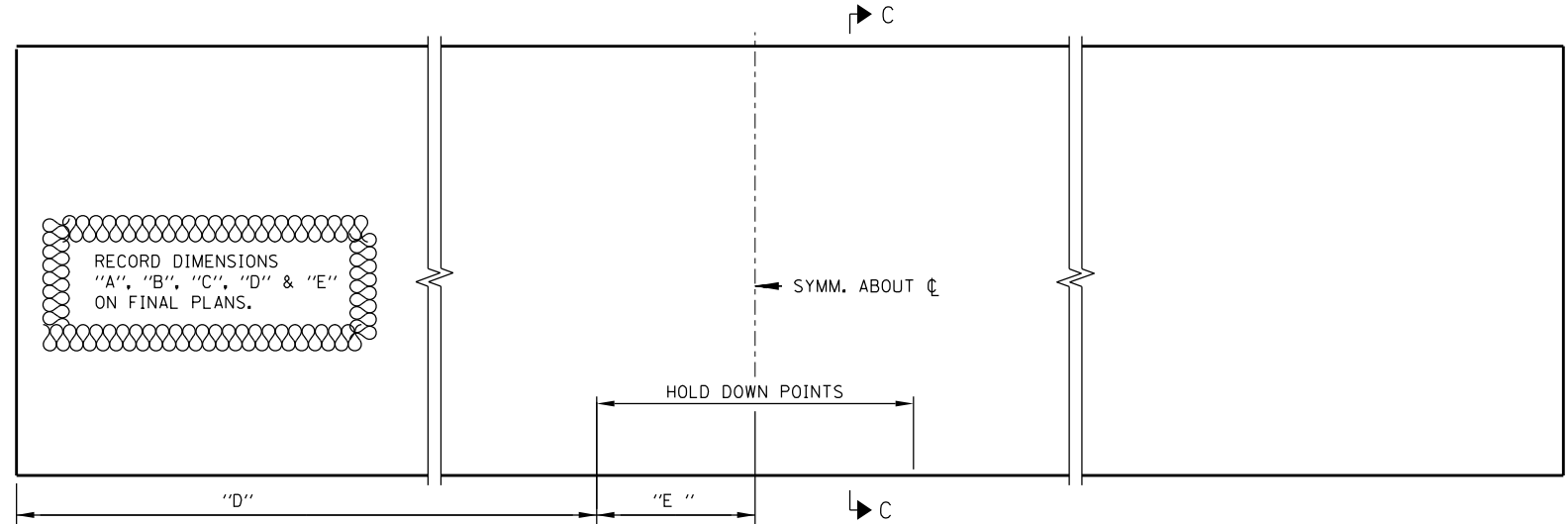


45" PPC BULB-T
BEAM DETAILS

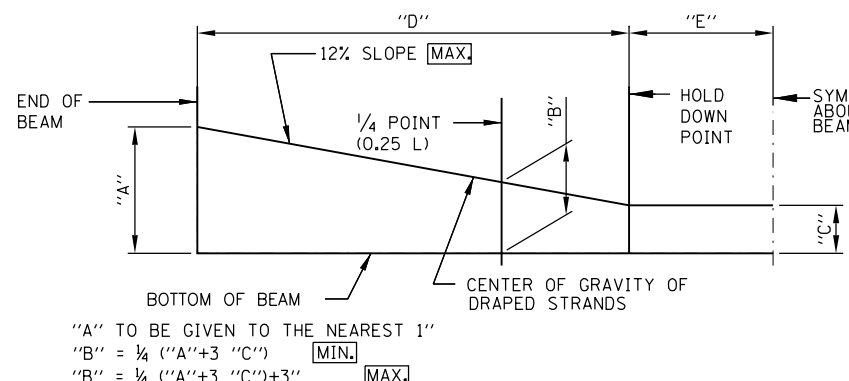
DATE
03-01-2019



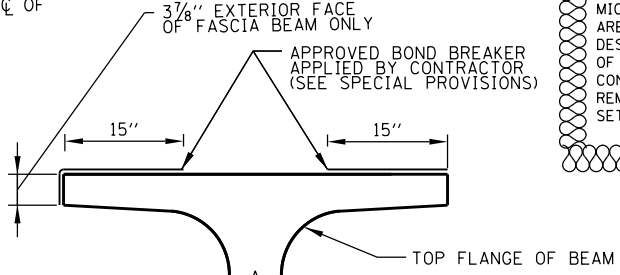
ELEVATION OF GIRDER
(SHOWING REINFORCEMENT AND DIMENSIONS)



ELEVATION OF BEAM
(SHOWING PRESTRESSING STEEL)



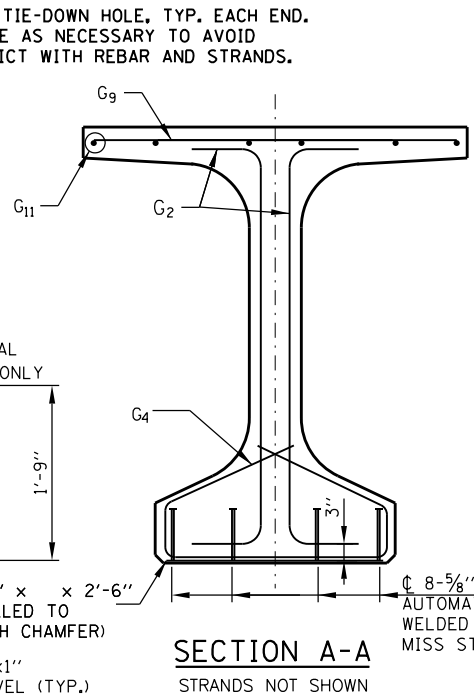
LOCATION OF DRAPED STRANDS



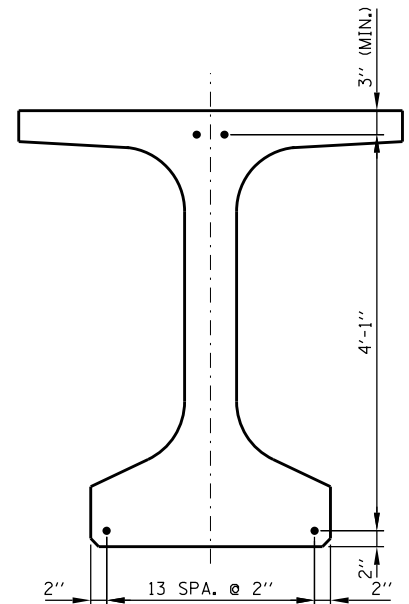
LOCATIONS OF BOND BREAKER

NOTE TO DESIGNER

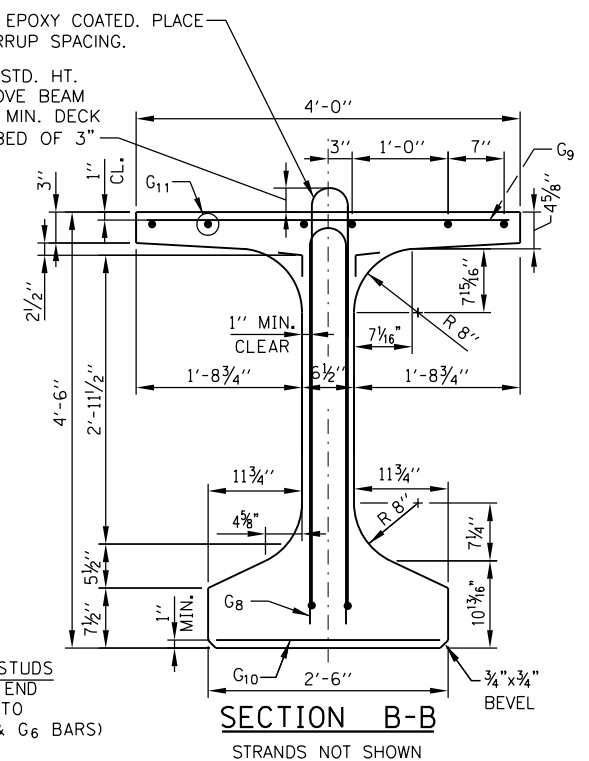
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.



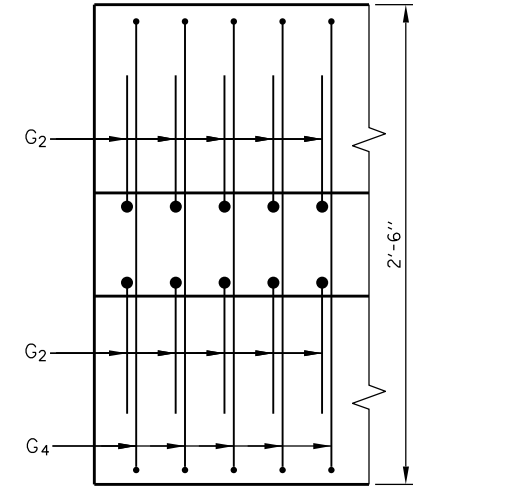
SECTION A-A
STRANDS NOT SHOWN



SECTION C-C
PRESTRESSING STRAND PATTERN AT MIDSPAN



SECTION B-B
STRANDS NOT SHOWN



PLAN-BOTTOM FLANGE DETAIL
AT END OF BEAM

NOTE:
WORK THIS SHEET WITH BASE SHEET M-BRG-514.

BILL OF MATERIAL

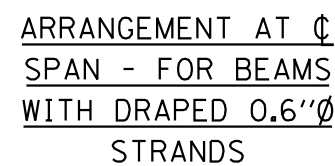
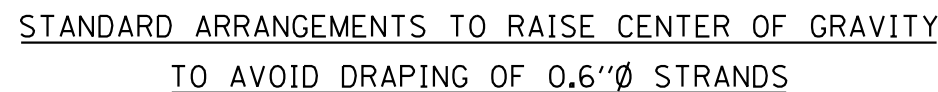
| ITEM | UNIT | TOTAL |
|---|------|-------|
| FURNISHING AND ERECTING SHALLOW-DEPTH PRECAST PRESTRESSED CONCRETE BULB-T BEAM, 54" | FOOT | |



54" PPC BULB-T BEAM

DATE
03-01-2019

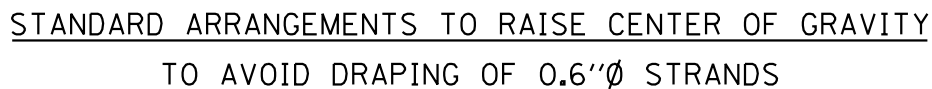
M-BRG-513


$$f_B \text{ (init.)} = \frac{A_s f_s}{A} \left(1 + \frac{e_s y_B}{r^2}\right)$$
[illegible]

3. THE DESIGN ENGINEER DETERMINES THE PROJECTION OF BAR G₇ BASED ON 1/2" MIN. HAUNCH AT EDGE OF BEAM, AT CENTERLINE OF BEARINGS, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL BEAM CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.8. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH OF THE BEAM LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ± 3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

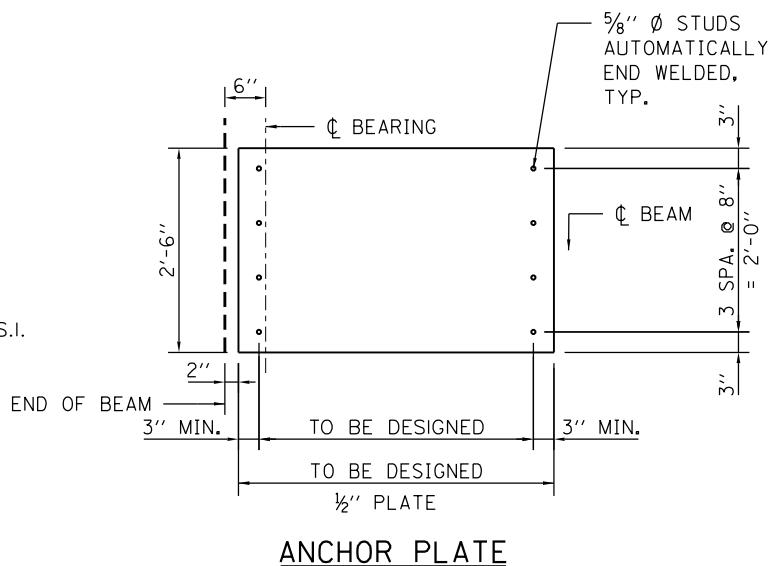
54" PPC BULB-T
BEAM DETAILS

| | |
|--|-------------|
| | DATE |
| | 03-01-2019 |



Technical drawings of reinforcement bars:

- Bar G₃:** A U-shaped bar with a width of 9" and a height of 5'-6".
- Bar G₄:** A trapezoidal bar with a top width of 1'-6", a bottom width of 2'-4", a total height of 7 1/2", and a bottom flange width of 5 1/2".



$A = 915 \text{ SQ. IN.}$
 $r^2 = 717.5 \text{ IN.}^2$
 $y_T = 37.13 \text{ IN.}$
 $y_B = -34.87 \text{ IN.}$
 $I = 656,426 \text{ IN.}^4$
 $S_T = 17,680 \text{ IN.}^3$
 $S_B = -18,825 \text{ IN.}^3$
 $WT. = 953 \text{ \#/FT.}$

$$f'_S = 270,000 \text{ P.S.I.}$$

$$f_S = 0.75 \times 270,000 = 202,500 \text{ P.S.I.}$$

for low relaxation strands

$$\text{Pi PER } 0.6" \varnothing \text{ STRAND} =$$

$$0.217 \times 202,500 = 43.94 \text{ KIPS} \quad \text{EN}$$

$$\frac{y_B}{r^2} = \frac{-34.87}{717.50} = -0.0486 \text{ in/in}^2$$

$$f_B \text{ (init.)} = \frac{A_s f_s}{A} \left(1 + \frac{e_s y_B}{r^2}\right)$$

TOP OF BEAM TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF BEAM, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

THE BEAM SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE BEAMS. SEE SECTION 504.06 OF IDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION FOR GUIDANCE.

STRANDS SHALL BE FINISHED WITH END OF BEAM. FOR BEAM ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR BEAM ENDS THAT ARE FINALLY EXPOSED, COAT THE BEAM ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE BEAM ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

PRESTRESSING STRANDS SHALL BE 0.6" DIA., 7-WIRE LOW RELAXATION FOR ALL PATTERNS WITH AN ULTIMATE STRENGTH OF 270,000 psi. THE MAX NUMBER OF DRAPED 0.6"Ø STRANDS IS 8.

INSERTS FOR "Ø THREADED DOWEL RODS, WHEN SPECIFIED AT EXPANSION JOINT ENDS, SHALL BE TWO-STRUT, FERRULE-TYPE FOR INTERIOR BEAMS AND SINGLE-FERRULE, FLARED-LOOP TYPE FOR EXTERIOR BEAMS.

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGNER OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTES:

1. SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6,800 PSI.
2. REINFORCEMENT IN STANDARD END SECTION OF THE BEAM IS BASED ON THE STRAND PATTERNS LISTED ON THIS SHEET. THE MAXIMUM SPAN LENGTHS SHOWN IN FIGURE 13.2.2.1 OF TOLLWAY STRUCTURE DESIGN MANUAL. USING DIFFERENT STRAND PATTERNS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE ILLINOIS TOLLWAY IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.
3. THE DESIGN ENGINEER DETERMINES THE PROJECTION OF BAR G_7 BASED ON $\frac{1}{2}$ " MIN. HAUNCH AT EDGE OF GIRDER, AT CENTERLINE OF BEARINGS, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL BEAM CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.8. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH OF THE BEAM LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND $2\frac{1}{2}$ " CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR $\pm\frac{3}{4}$ " VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.
4. FOR LATERAL STABILITY DURING LIFTING THESE GIRDER LENGTHS MAY REQUIRE PICK-UP POINT LOCATIONS GREATER THAN DISTANCE d (GIRDER DEPTH) FROM THE ENDS OF THE GIRDER. THE DESIGNER SHALL ASSUME THE PICK-UP POINTS WILL BE AT THE POINTS FROM THE END OF THE GIRDER AND PROVIDE EXTRA NON-PRESTRESSED STEEL IN THE TOP FLANGE, IF REQUIRED, AND CHECK THE CONCRETE STRENGTH NEAR THE LIFT LOCATION BASED ON f'_c . A NOTE SHALL BE PLACED ON THE GIRDER DETAILS SHEET TO REFLECT THE GIRDER WAS ANALYZED FOR POTENTIAL LIFT AT THE $\frac{1}{4}$ POINT.

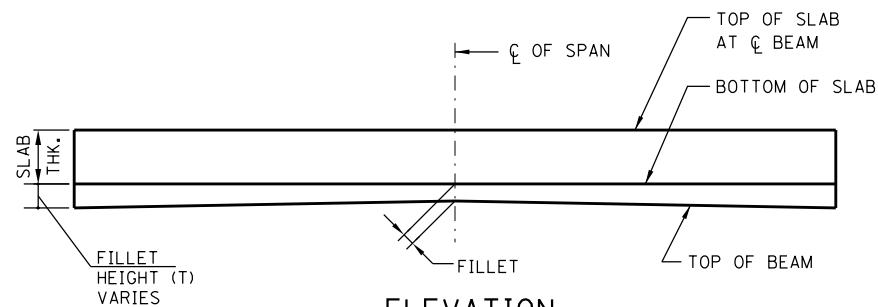
M-BRG-516



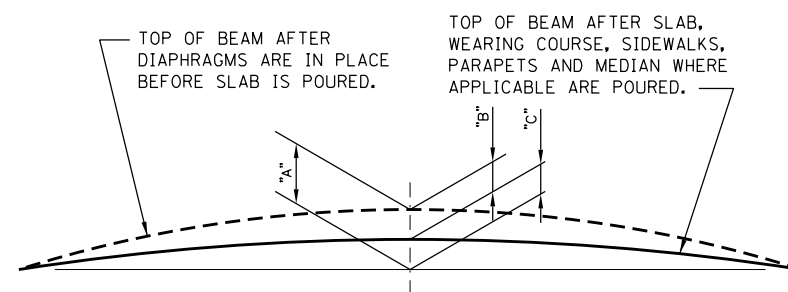
72" PPC BULB-T
BEAM DETAILS

DATE
03-01-2019

| CALCULATED PRESTRESS LOSSES | |
|-------------------------------|-----|
| ELASTIC SHORTENING LOSS ----- | KSI |
| LONG TERM LOSSES ----- | KSI |
| TOTAL LOSSES ----- | KSI |



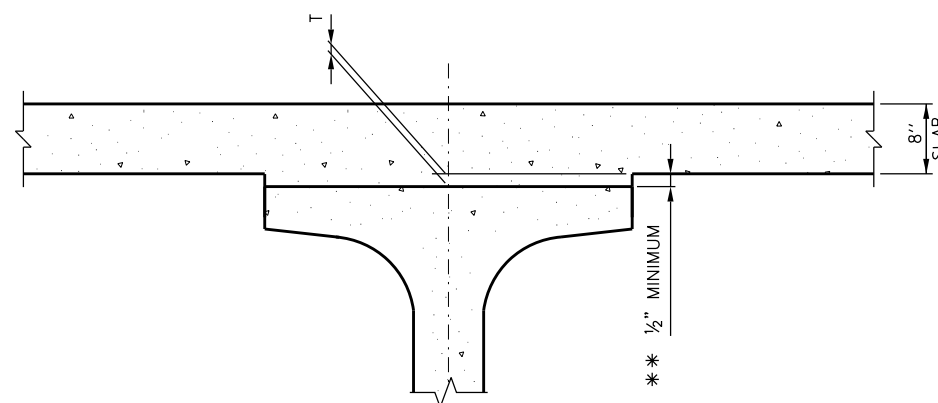
ELEVATION



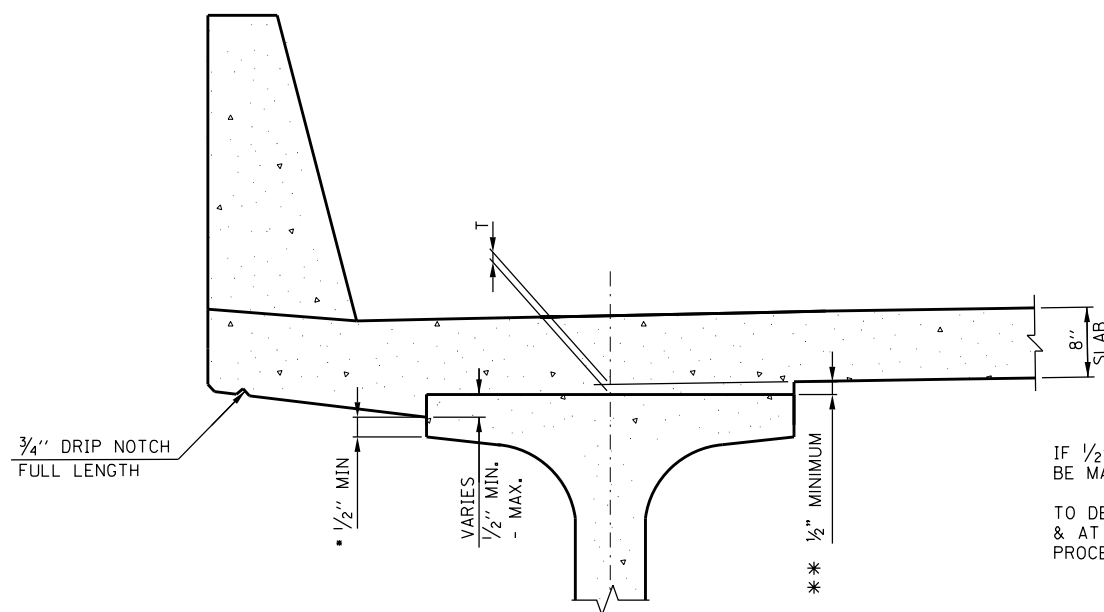
CAMBER & DEFLECTION DIAGRAM

- * "A" = PRESTRESS CAMBER
- * "B" = DEAD LOAD DEFLECTION
- * "C" = RESIDUAL CAMBER
- * ROUND OFF TO NEAREST 1/8"

CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.



ALL GIRDER SIZES
INTERIOR GIRDER DETAIL



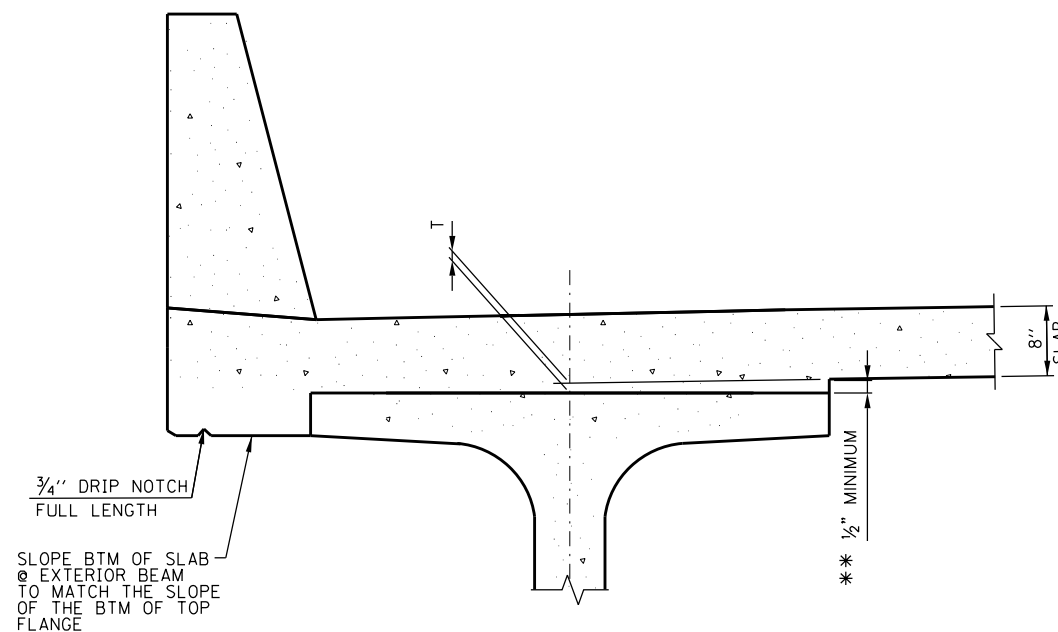
36" & 45" PPC BULB-T EXTERIOR BEAMS
DECK HAUNCH DETAIL

* VARIABLE. NOT LESS THAN 1/2".

IF 1/2" MINIMUM FILLET HEIGHT AT THE EDGE OF BEAM CANNOT BE MAINTAINED, NOTIFY THE ENGINEER OF RECORD.

TO DETERMINE 'T', ELEV. OF TOP OF BEAMS AT C OF STRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF BEAM ELEVATION
- + DEAD LOAD DEFLECTION
- SLAB THICKNESS
- = FILLET HEIGHT 'T'



54" & 72" PPC BULB-T BEAMS
SLAB HAUNCH DETAIL

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE FROM THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTES:

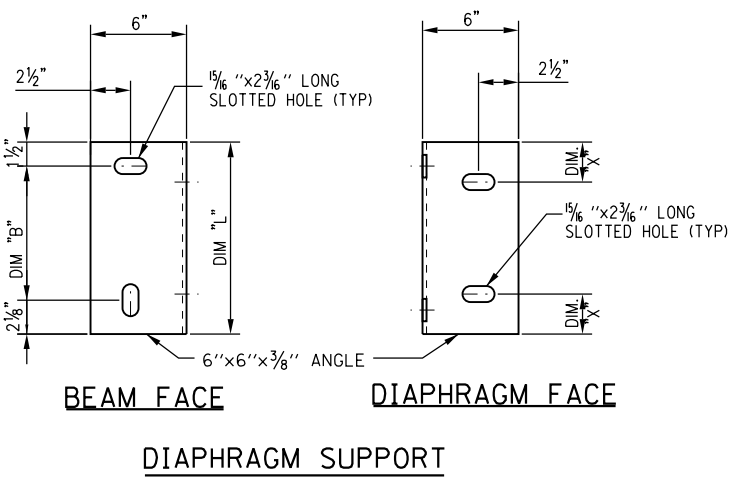
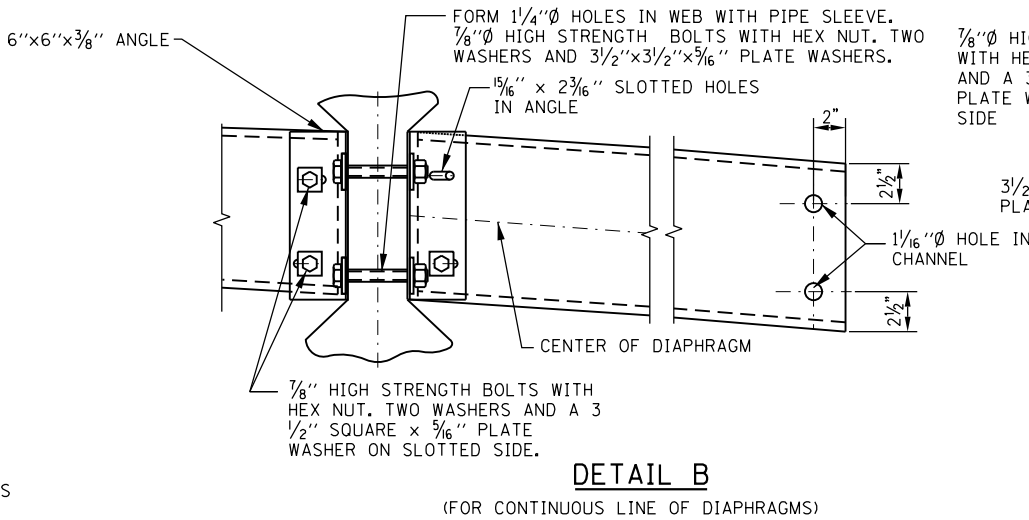
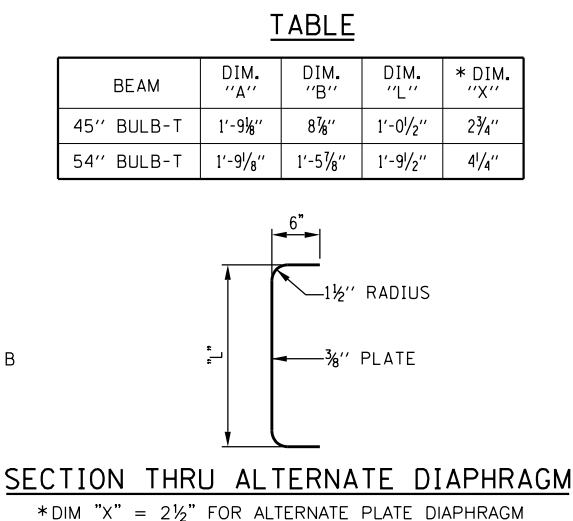
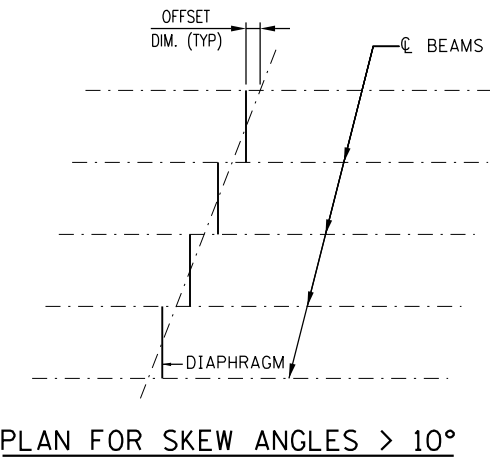
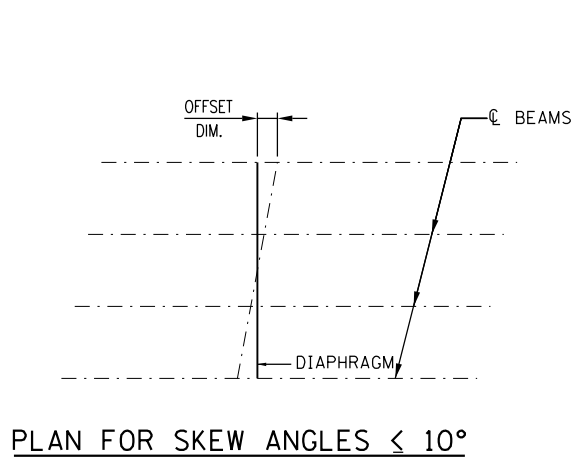
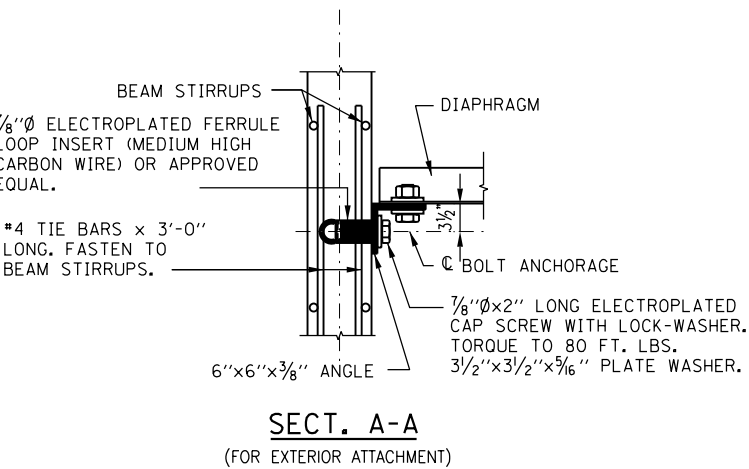
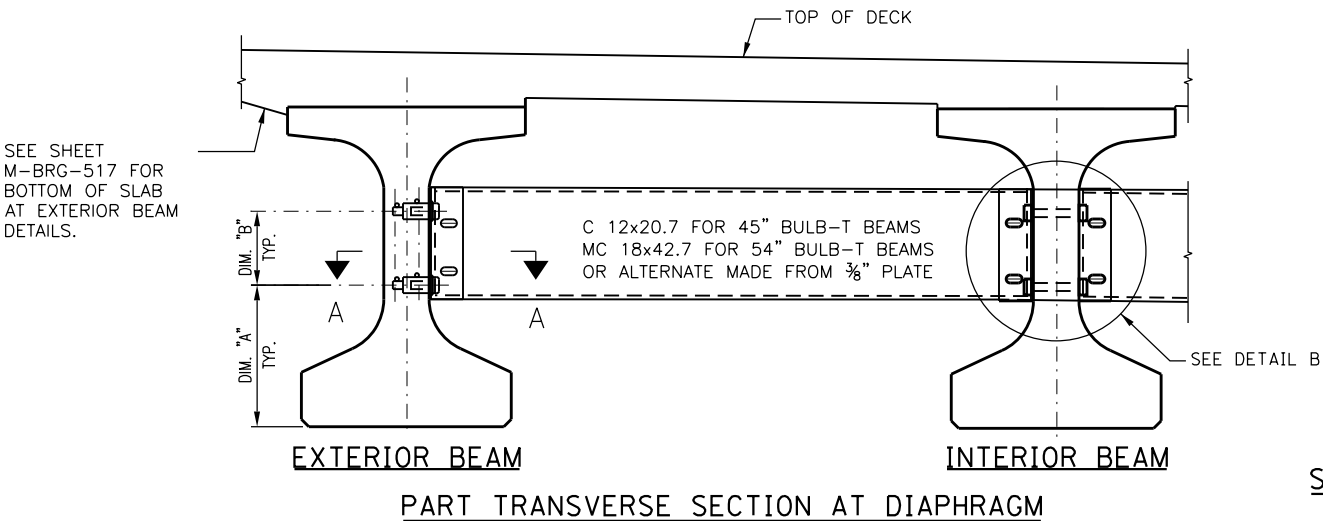
1. PRESENT PRACTICE IS TO USE A MINIMUM "FILLET" (AT EDGE OF BEAM FLANGE) OF 1/2" FOR DESIGN CALCULATIONS. THE MINIMUM FILLET (AT EDGE OF BEAM FLANGE) ALLOWED IN CONSTRUCTION IS 1/2" AT MID-SPAN AND 2" AT CENTERLINE OF BEARING.
- ** 2. IF 1/2" MINIMUM FILLET HEIGHT AT EDGE OF BEAM AT MID-SPAN CANNOT BE MAINTAINED DURING CONSTRUCTION, THE GRADE LINE MAY BE RAISED BY UP TO 1/2" FROM THE PLAN PROFILE AT THE DISCRETION OF THE DESIGNER. 3" MINIMUM DECK EMBEDMENT OF THE TIE BAR SHALL BE MAINTAINED. THE PLAN SLAB THICKNESS SHALL BE HELD.
3. USE THE CALCULATED THEORETICAL AVERAGE "FILLET" AT CENTERLINE OF FLANGE FOR COMPUTING THE FILLET CONCRETE QUANTITY.
4. USE TOP OF DECK ELEVATIONS AND CALCULATED "FILLET" AT CENTERLINE OF BEAM FOR COMPUTING BEAM SEAT ELEVATIONS AT SUBSTRUCTURES.
5. FOR SKEWS < 10°, PLACE INTERMEDIATE DIAPHRAGMS IN A STRAIGHT LINE. REFER TO SHEETS M-BRG-518 PROVIDE OFFSET FOR SKEWS > 10°.
6. DIAPHRAGM SPACING: FOR SPANS < 80'-0", PLACE ONE DIAPHRAGM AT MID-LENGTH OF BEAM. FOR SPANS OVER 80'-0", PLACE AT 1/3 AND 2/3 POINTS.

M-BRG-517



36", 45", 54" AND 72"
PPC BULB-T BEAMS DETAILS

DATE
03-01-2019



NOTES:

ALL DIAPHRAGM ASSEMBLY MATERIAL SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID FOR FURNISHING AND ERECTING STRUCTURAL STEEL.

EACH DIAPHRAGM BETWEEN BEAMS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36 OR 50. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

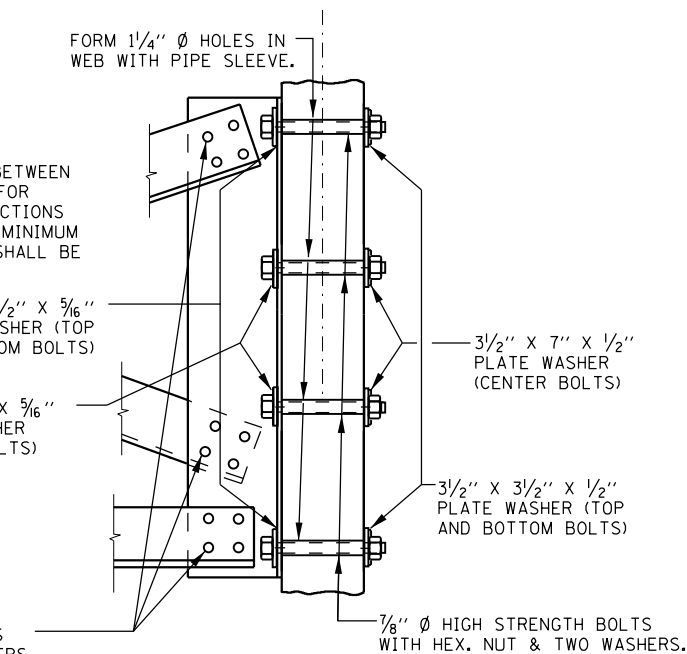
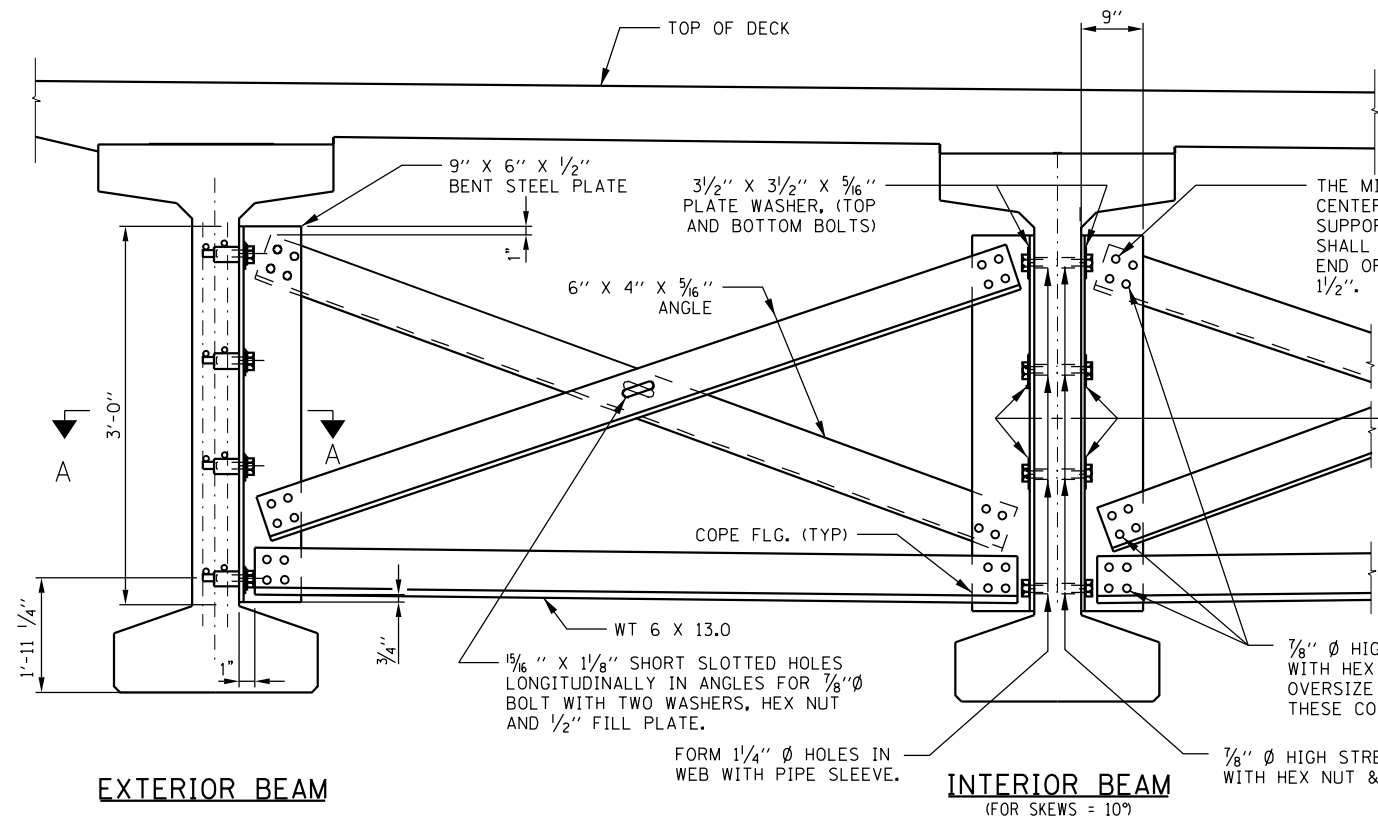
FOR SPANS EQUAL TO OR LESS THAN 80'-0", PLACE ONE DIAPHRAGM AT MID-LENGTH OF BEAM. FOR SPANS OVER 80'-0", PLACE AT $\frac{1}{3}$ AND $\frac{2}{3}$ POINTS.

IN THE BEAM PLAN SHOW LOCATION OF INSERTS/HOLES FOR DIAPHRAGM TO WEB CONNECTION FROM THE BOTTOM OF THE BEAM (DIM "A" AND "B") AND ALSO FROM THE ENDS OF EACH BEAM.

SECTION AT INTERIOR BEAMS THRU DIAPHRAGM FOR SKEW ANGLES $> 10^\circ$

NOTE TO DESIGNER

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FOR SPANS EQUAL TO OR LESS THAN 80'-0", PLACE ONE DIAPHRAGM AT MID-LENGTH OF BEAM. FOR SPANS OVER 80'-0", PLACE AT 1/3 AND 2/3 POINTS.

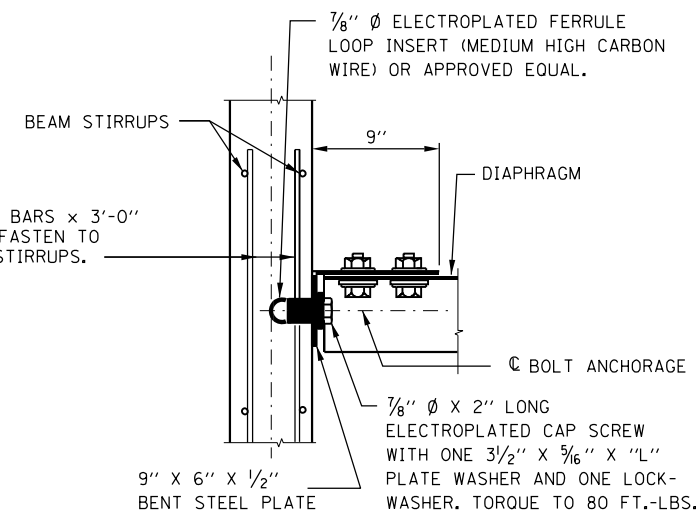
IN THE BEAM PLAN SHOW LOCATION OF INSERTS / HOLES FOR DIAPHRAGM TO WEB CONNECTION FROM THE BOTTOM OF THE BEAM (DIM "A" AND "B") AND ALSO FROM THE ENDS OF EACH BEAM.

PART TRANSVERSE SECTION AT DIAPHRAGM

SECTION AT INTERIOR BEAMS THRU DIAPHRAGM FOR SKEW ANGLES > 10°

NOTE TO DESIGNER

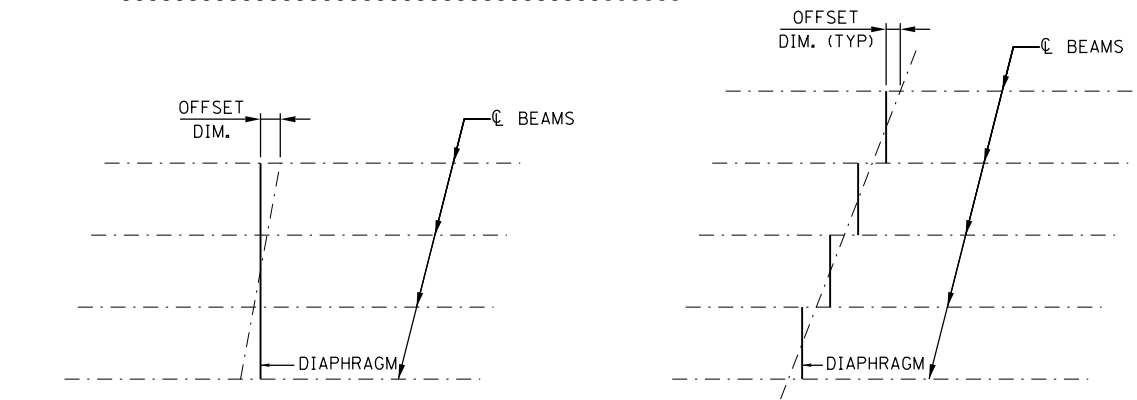
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SECT. A-A (FOR EXTERIOR ATTACHMENT)

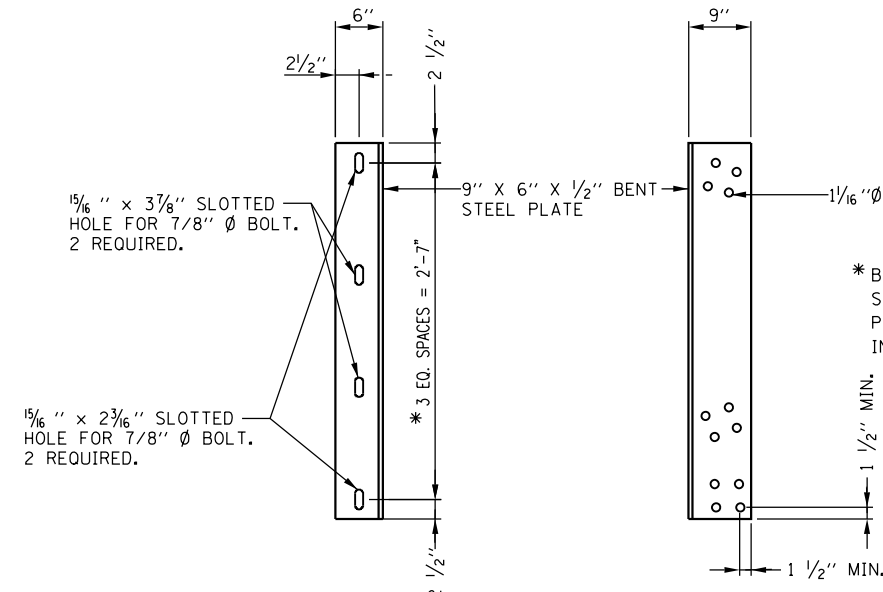
"L" = 3 1/2": TOP & BOTTOM BOLTS
"L" = 7": CENTER BOLTS

* BOLT HOLES SHALL BE SPACED SO AS TO MISS PRESTRESSED STRANDS IN CONCRETE BEAMS.



PLAN FOR SKEW ANGLES < 10°

PLAN FOR SKEW ANGLES > 10°



BASE FACE

DIAPHRAGM FACE

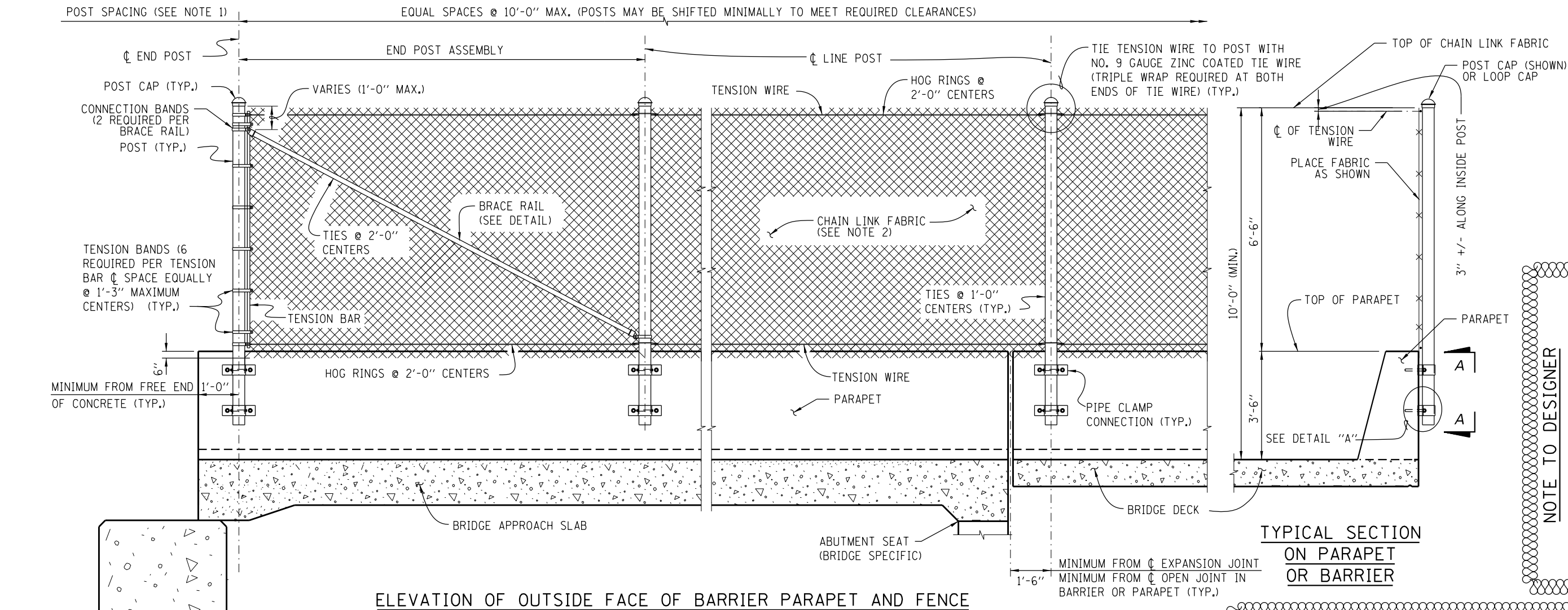
DIAPHRAGM SUPPORT

M-BRG-520



72" PPC BULB-T BEAM
INTERIOR STEEL DIAPHRAGMS

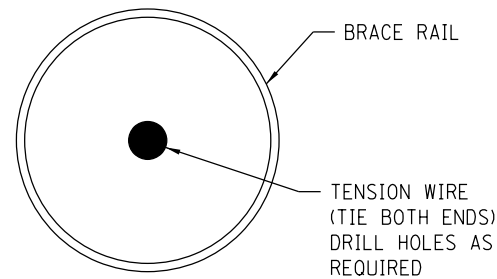
DATE
03-01-2019



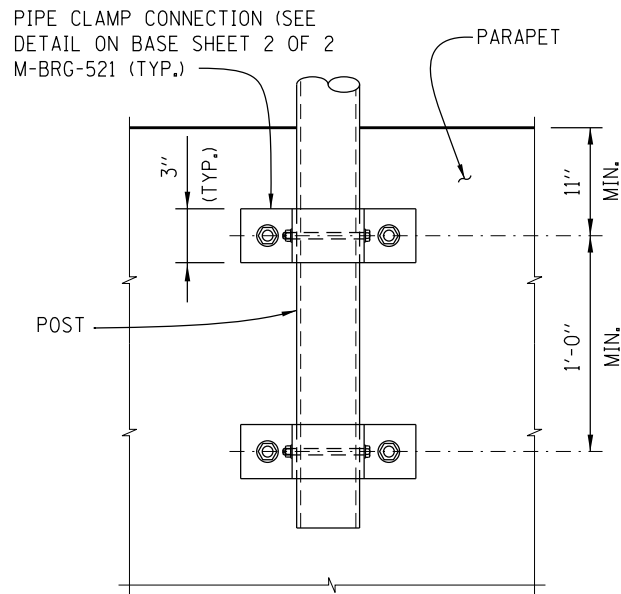
ELEVATION OF OUTSIDE FACE OF BARRIER PARAPET AND FENCE

* FENCING SHALL NOT ANCHOR TO THE TOP OF PARAPETS.

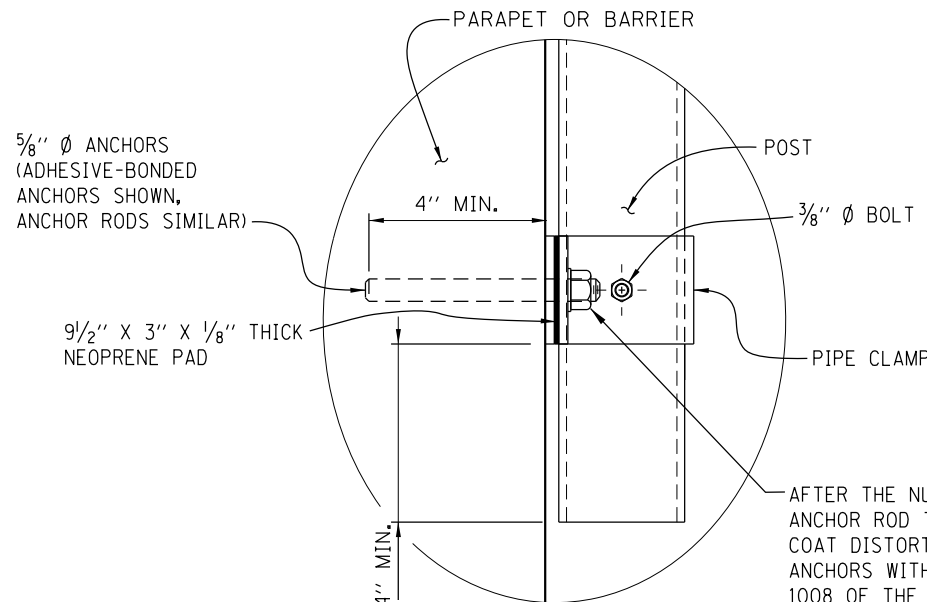
PILE BENT SUPPORT



BRACE RAIL DETAIL



VIEW A-A



DETAIL A

AFTER THE NUTS HAVE BEEN TIGHTENED, DISTORT THE ANCHOR ROD THREADS TO PREVENT REMOVAL OF THE NUTS. COAT DISTORTED THREADS AND EXPOSED TRIMMED ENDS OF ANCHORS WITH A COATING IN ACCORDANCE WITH SECTION 1008 OF THE STANDARD SPECIFICATIONS.

NOTE TO DESIGNER

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DESIGNER NOTES:

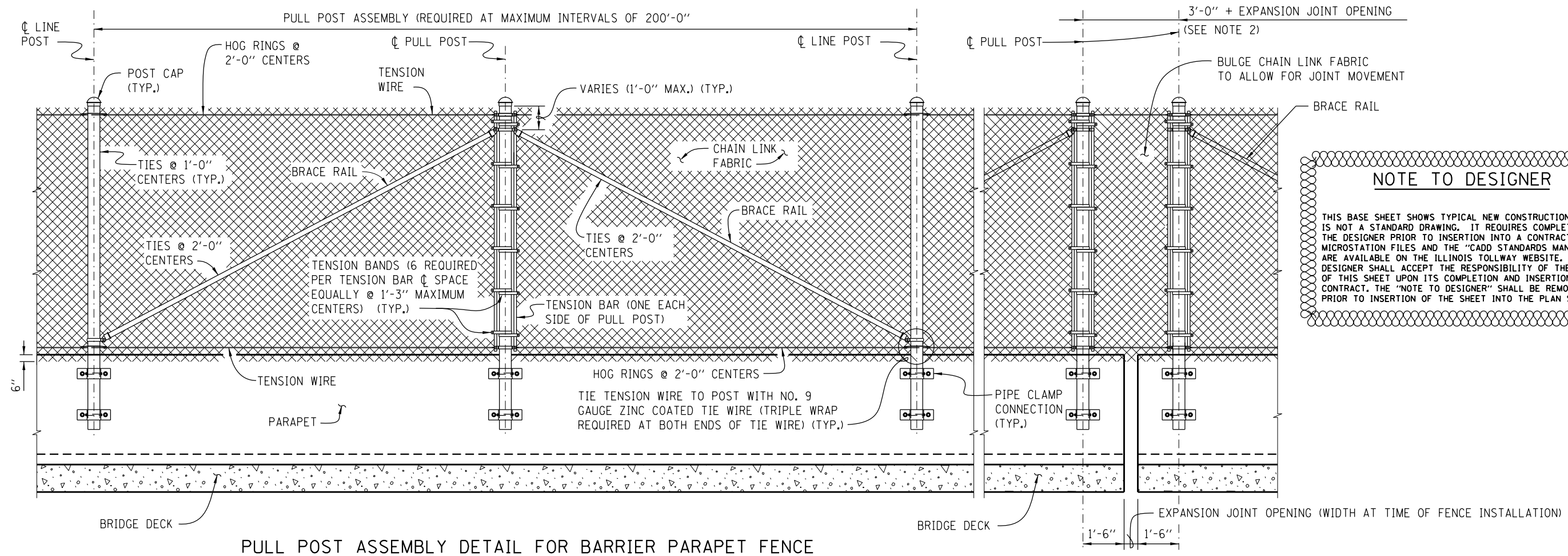
1. PULL POST ASSEMBLY IS REQUIRED AT MAXIMUM INTERVALS OF 200'. SEE SHEET 2 OF THIS SERIES.
2. INSTALL POSTS PLUMB (WITHIN A TOLERANCE OF +/- 1/2"). USE SHIM PLATES AS REQUIRED TO ACHIEVE PLUMB. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH ASTM F5678 AS APPLICABLE.
3. FABRIC SHALL NOT BE SPLICED BY PICKETS. FABRIC SPLICES IF REQUIRED SHALL ONLY OCCUR AT POSTS AT A MINIMUM OF 100 FT. BETWEEN SPLICES. (ADD THIS NOTE TO PLANS.)
4. RAILROAD BRIDGE FENCE SHALL BE DETAILED ON SUPERSTRUCTURE DRAWING.
5. COORDINATE LIMITS OF RAILROAD BRIDGE FENCE WITH SPECIFIC RAILROAD REQUIREMENTS.
6. VERIFY LIMITS OF THE FENCING REQUIREMENTS ON THE BRIDGE APPROACH PER THE ILLINOIS TOLLWAY STRUCTURAL DESIGN MANUAL ARTICLE 23.5.2.

SHEET 1 OF 2
M-BRG-521



RAILROAD
BRIDGE FENCE

DATE
03-01-2019



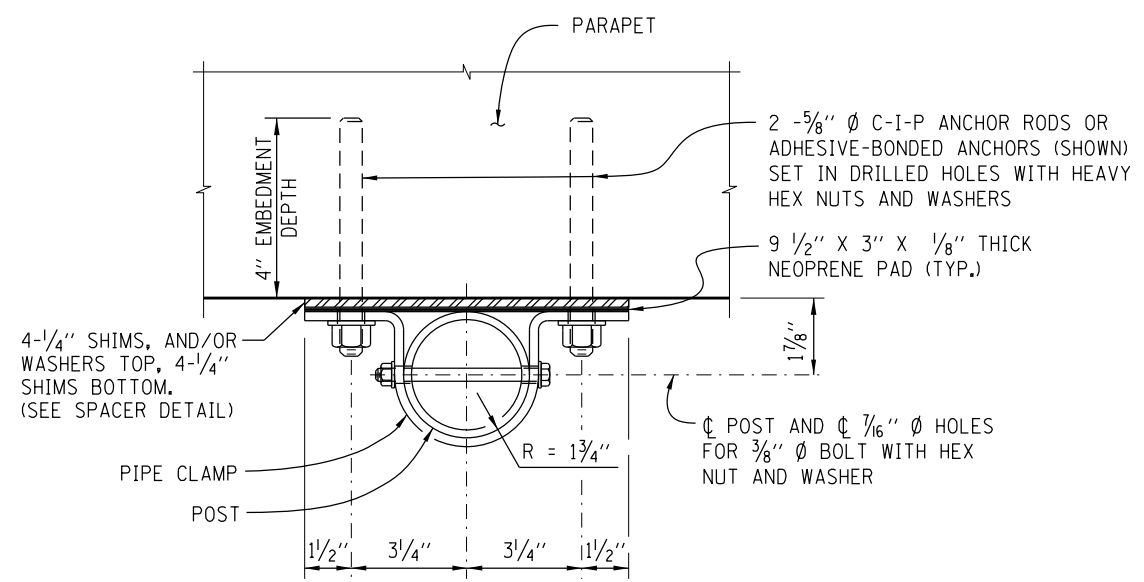
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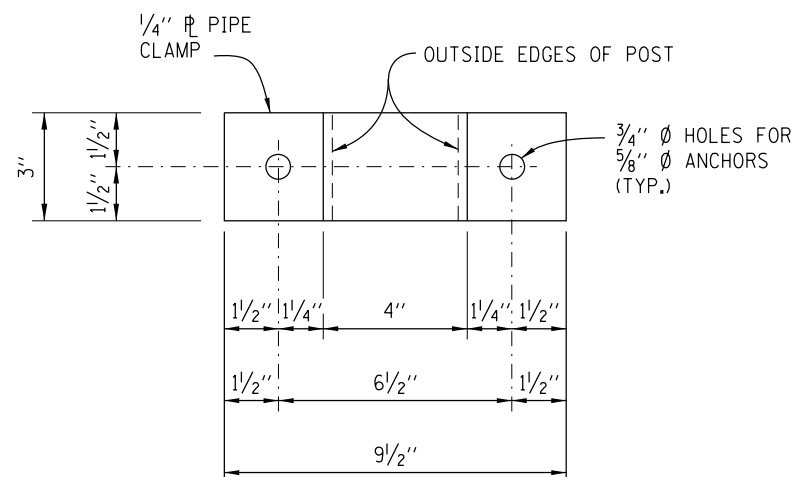
PULL POST ASSEMBLY DETAIL FOR BARRIER PARAPET FENCE

EXPANSION ASSEMBLY DETAIL

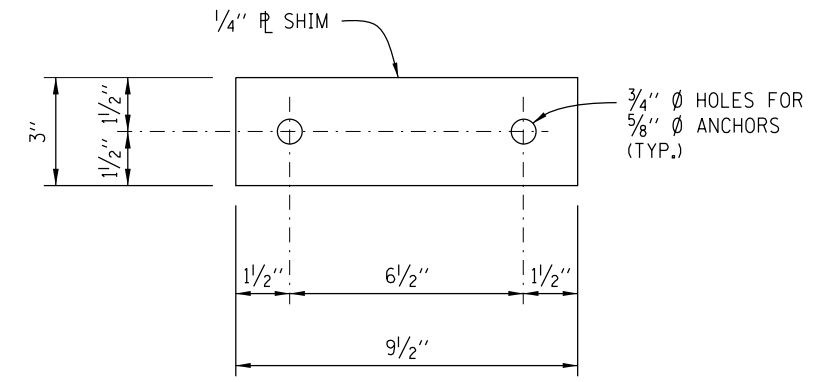
(REQUIRED ONLY AT EXPANSION JOINT LOCATIONS WHERE TOTAL MOVEMENT EXCEEDS 6")



PIPE CLAMP CONNECTION DETAIL



PIPE CLAMP DETAIL

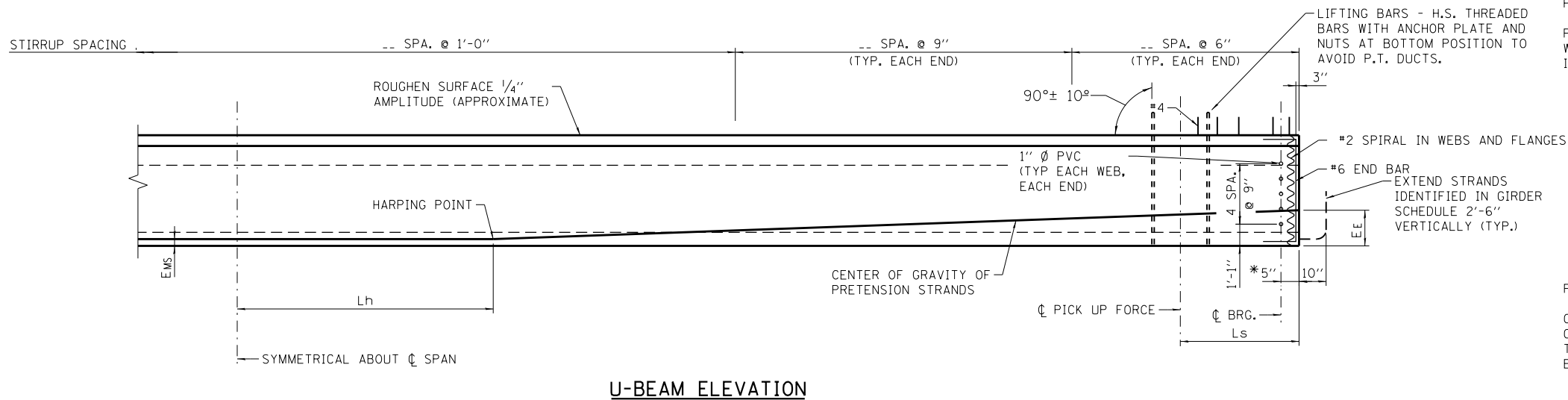
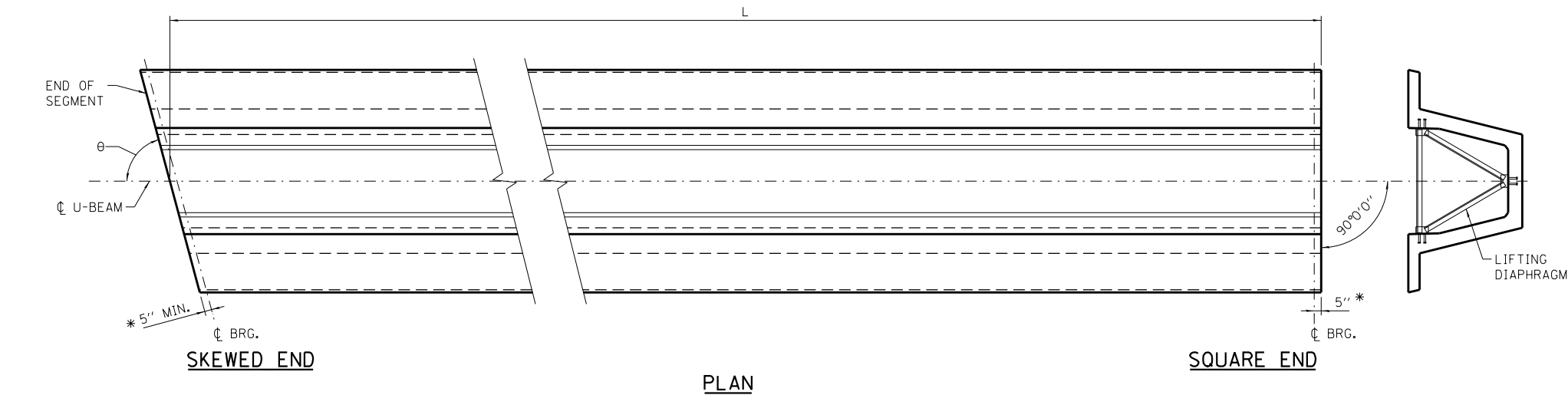


SPACER DETAIL

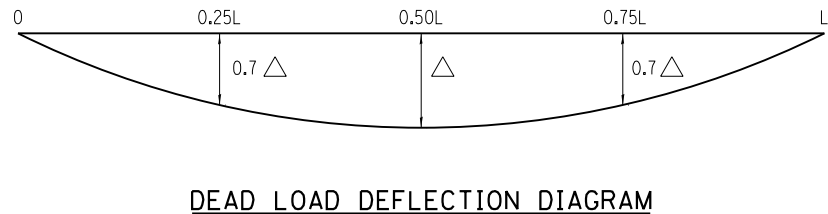
(MUST BE MANUFACTURED FROM AN INCOMPRESSIBLE MATERIAL (I.E., STEEL OR ALUMINUM))

- NOTES:**
1. FOR TREATMENT AT BRIDGE ENDS, SEE BASE SHEET 1 OF 2 M-BRG-521.
 2. THE 3'-0" DIMENSION SHOWN IS FOR EXPANSION JOINT OPENINGS 9" OR LESS. IF THE EXPANSION JOINT OPENING EXCEEDS 9", INCREASE THIS DIMENSION BY THE DIFFERENCE BETWEEN THE EXPANSION JOINT OPENING AND 9".





| SHIPPING & HANDLING DETAILS | | |
|-----------------------------|---|---|
| L_s | k_{θ} MIN. SHIPPING SUPPORT ROTATIONAL SPRING CONSTANT | w_{cc} MIN. SHIPPING SUPPORT ϕ TO ϕ WHEEL SPACING |



| U-BEAM SCHEDULE | | | | | | | | | | | | | | | | | | | | |
|-----------------|------------|--------|----------|---------|----------|----------|----------|---------|--------------------------------------|--------------------------|----------------------|-----------------------|-----------------------|-----------------------|---------------------------------|---------------------------------|--------------------------------|------------------------|-------------------|-------|
| SPAN NO. | GIRDER NO. | L (Ft) | Fw (In.) | D (In.) | Θ (Deg.) | Tw (In.) | Tb (In.) | Lh (Ft) | A _S * (In. ²) | DEBOND STRANDS (PERCENT) | E _E (In.) | E _{MS} (In.) | F _J (Kips) | F _f (Kips) | CONCRETE STRENGTH | | Δ (In.) @ 40 DAYS & @ 120 DAYS | PREDICTED CAMBER (In.) | STRANDS TO EXTEND | |
| | | | | | | | | | | | | | | | f' _C (psi) @ RELEASE | f' _C (psi) @ 28 DAYS | | | END 1 | END 2 |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
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NOTES:

TOP OF BEAM TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF BEAM, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE BEAM SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE BEAMS.

LIFTING EMBEDMENTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 504 OF STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION. CONTRACTOR TO DESIGN OTHER LIFTING MECHANISM IF THE GIRDER SECTION WEIGHT EXCEEDS 200 KIPS.

STRANDS SHALL BE FLUSH WITH END OF BEAM. FOR BEAM ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR BEAM ENDS THAT ARE FINALLY EXPOSED, COAT THE BEAM ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE BEAM ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL U-BEAMS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT. IF THE FABRICATOR CHOOSES TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

PRESTRESSING STRANDS SHALL BE 0.6" DIA., 7-WIRE LOW, RELAXATION FOR ALL PATTERNS WITH AN ULTIMATE STRENGTH OF 270,000 psi. THE MAX NUMBER OF DRAPED 0.6" ϕ STRANDS IS 8.

- A_s^* = MINIMUM AREA OF THE PRESTRESSING STEEL.
- ϕ_b = NOMINAL STRAND DIAMETER.
- f'_s = ULTIMATE STRENGTH OF THE PRESTRESSING STEEL.
- F_J = JACKING FORCE PER U-BEAM.
- F_f = FINAL FORCE PER U-BEAM AFTER ALL LOSSES.
- f_{ci} = REQUIRED CONCRETE STRENGTH AT RELEASE OF PRESTRESS FORCE.
- f_c = REQUIRED CONCRETE STRENGTH AT 28 DAYS OF AGE.
- L = LENGTH OF U-BEAM ALONG THE GRADE OF THE U-BEAM.
- Δ = DEFLECTION AT CENTERLINE OF SPAN DUE TO CAST-IN-PLACE SLAB, SIDEWALK AND PARAPETS.
- P = PROJECTION, 6" IN THE MIDDLE 1/3 OF THE MEMBER VARYING TO THE SPECIFIED HAUNCH AT THE BEARING PLUS 4".
- θ = BRIDGE SKEW ANGLE

PREDICTED CAMBER IS THE CAMBER FOR THE GIRDER ALONE AT --- DAYS.

CAUTION SHALL BE EXERCISED IN HANDLING AND PLACING GIRDERS. ALL GIRDERS SHALL BE CHECKED BY CONTRACTOR TO INSURE THEY ARE BRACED ADEQUATLY TO PREVENT TIPPING AND TO CONTROL LATERAL BENDING DURING SHIPPING ONCE ERECTED. ALL GIRDERS SHALL BE BRACED Laterally TO PREVENT TIPPING UNTIL ALL DIAPHRAGMS ARE CAST AND CURED.

DESIGNER NOTES:

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,500 PSI.

REINFORCEMENT IN STANDARD END SECTION OF THE BEAM IS BASED ON THE STRAND PATTERNS LISTED ON SHEET 2 OF 2 M-BRG-522. USING DIFFERENT STRAND PATTERNS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE ILLINOIS TOLLWAY IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

THE DESIGN ENGINEER DETERMINES THE PROJECTION OF BAR G1 BASED ON 2" MIN. HAUNCH AT EDGE OF BEAM, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL BEAM CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.8 FOR I-BEAMS, 1.4 FOR TUB GIRDERS. THIS VALVE CAN VARY AND SHOULD BE GIVEN FOR EACH OF THE BEAM LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR $\pm 3/4$ " VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

DIMENSIONS NOTED WITH (*) ARE A FUNCTION OF THE DESIGN REQUIREMENTS AND MAY VARY. DIMENSION IN THE GIRDER SCHEDULE SHALL BE SHOWN TO THE NEAREST 1/8".

NOTE TO DESIGNER

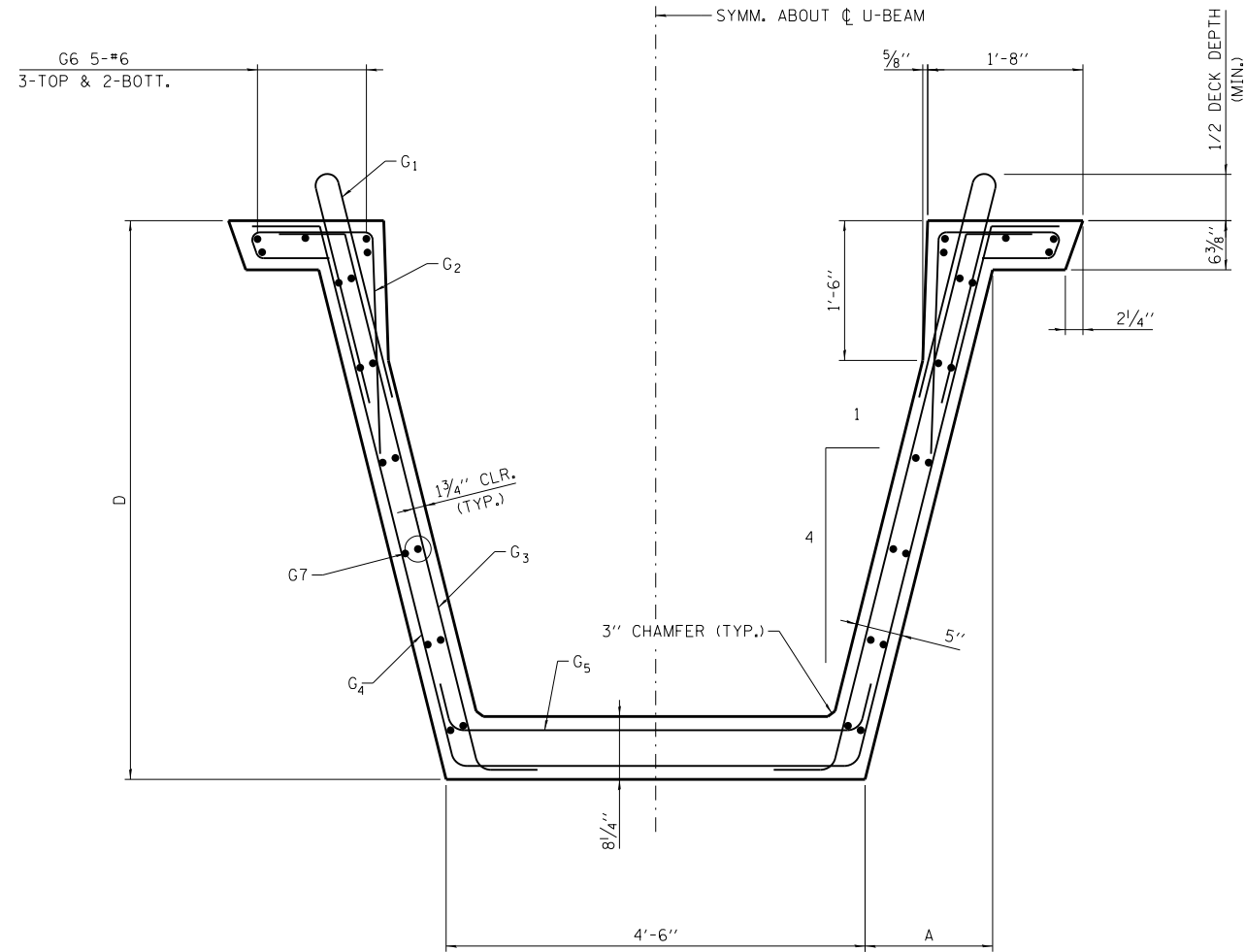
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DSE" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

SHEET 1 OF 2
M-BRG-522

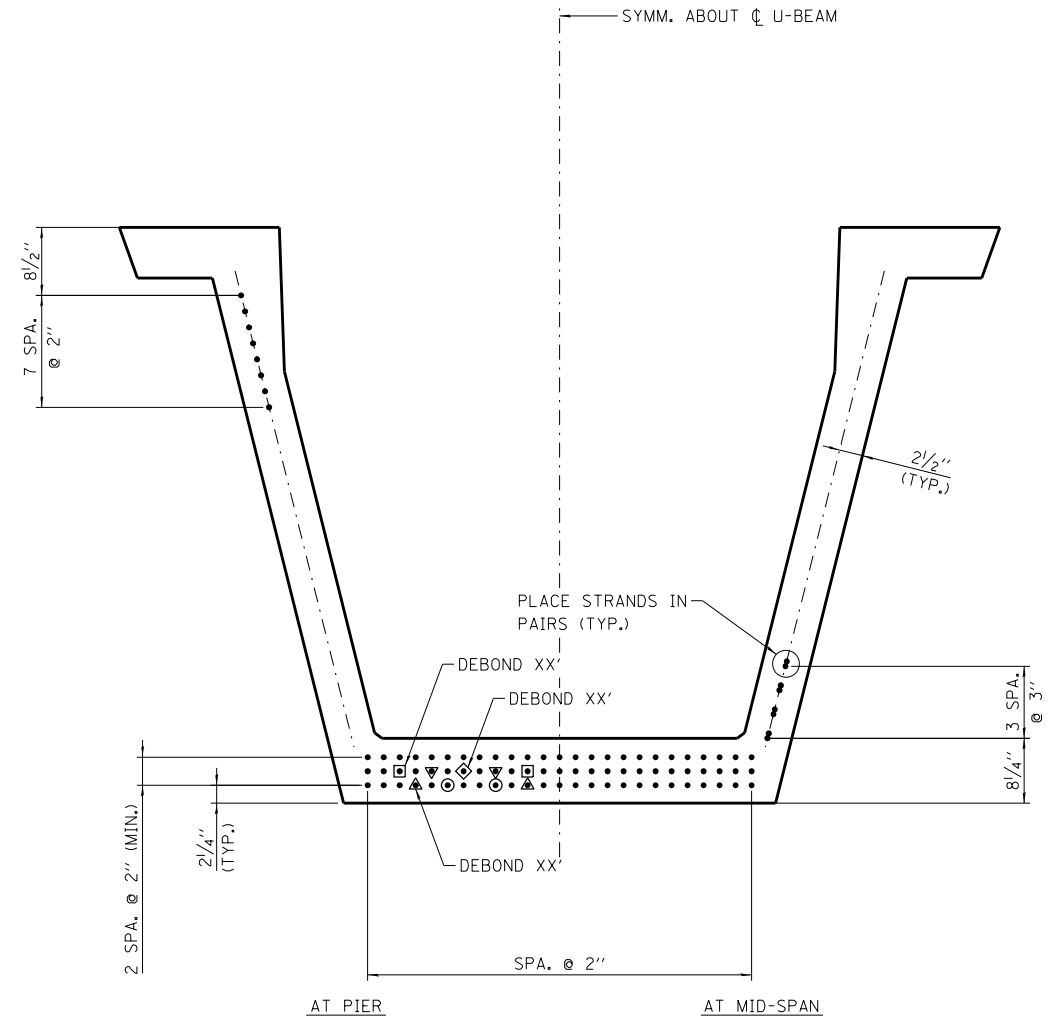


PPC U-BEAM
PRETENSIONED

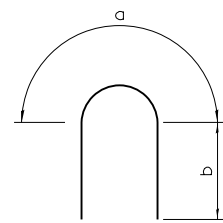
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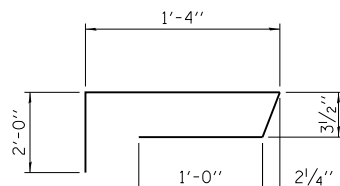
TYPICAL U-BEAM SECTION
(REINFORCEMENT SHOWN AT SPAN)



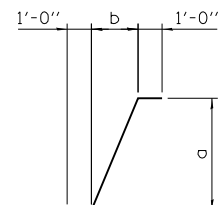
TYPICAL U-BEAM PRESTRESSING
(PRETENSIONING)



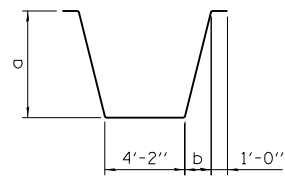
BAR G₁



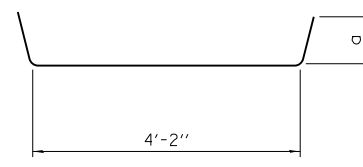
BAR G₂



BAR G₃



BAR G₄



BAR G₅

BAR LIST

| BAR | NO. | SIZE | LENGTH | SHAPE |
|----------------|-----|------|--------|-------|
| G ₁ | 0 | #4 | X'-X'' | U |
| G ₂ | | | | U |
| G ₃ | | | | U |
| G ₄ | | | | U |
| G ₅ | | | | U |
| G ₆ | 10 | #6 | | U |
| G ₇ | | | | U |
| G ₈ | | #6 | | U |

VARIABLE DIMENSIONS

| BAR | a | b |
|----------------|---|---|
| G ₁ | | |
| G ₂ | | |
| G ₃ | | |
| G ₄ | | |
| G ₅ | | |

BEAM TABLE

| D | A |
|-----|-----------|
| 48" | 10 3/8" |
| 60" | 1'-1 3/8" |
| 72" | 1'-4 3/8" |

NOTE TO DESIGNER

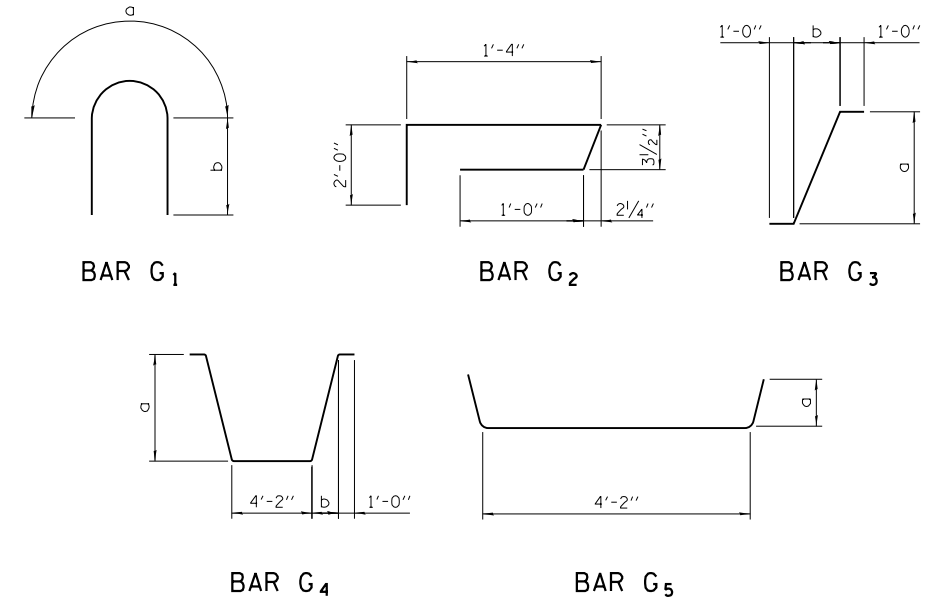
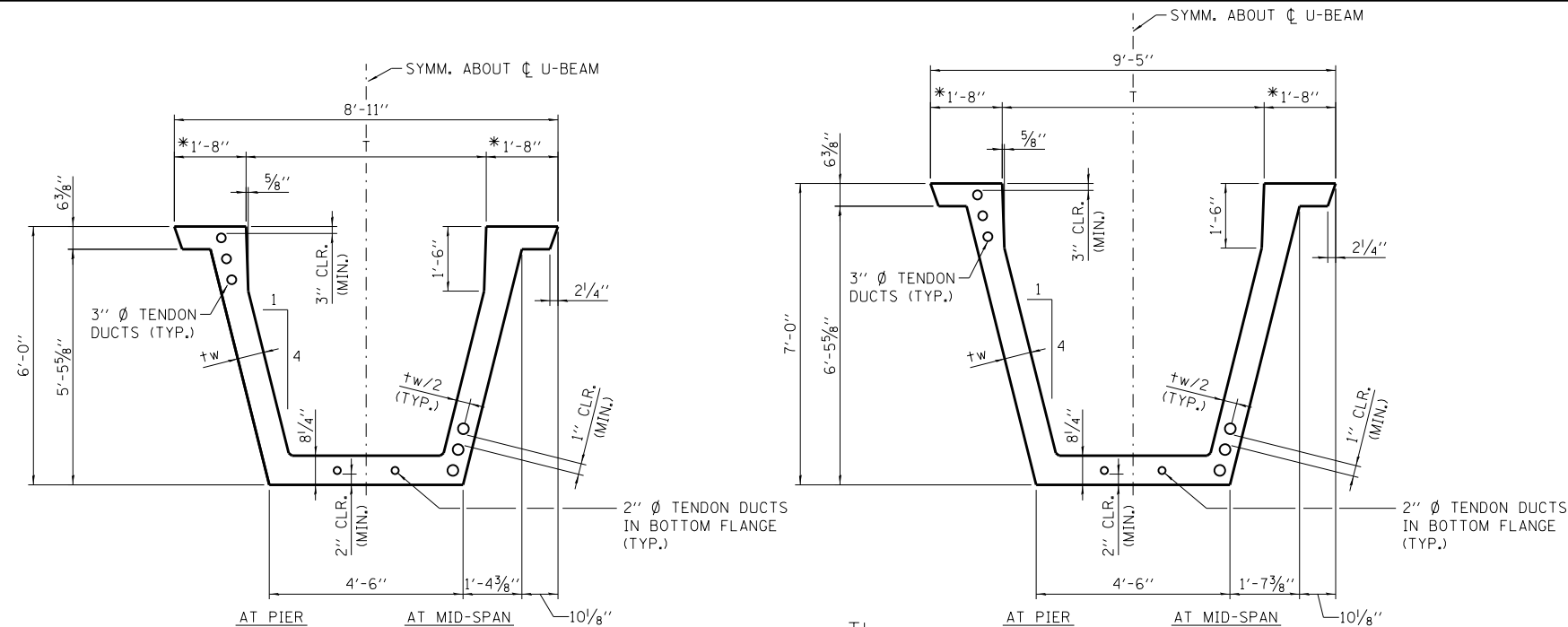
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SHEET 2 of 2
M-BRG-522



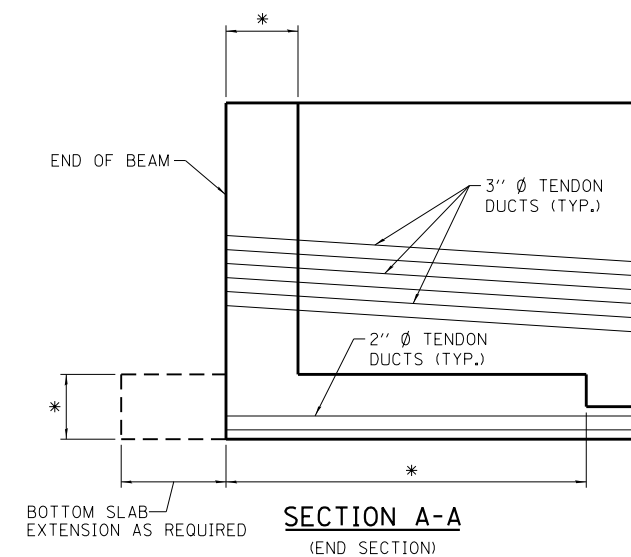
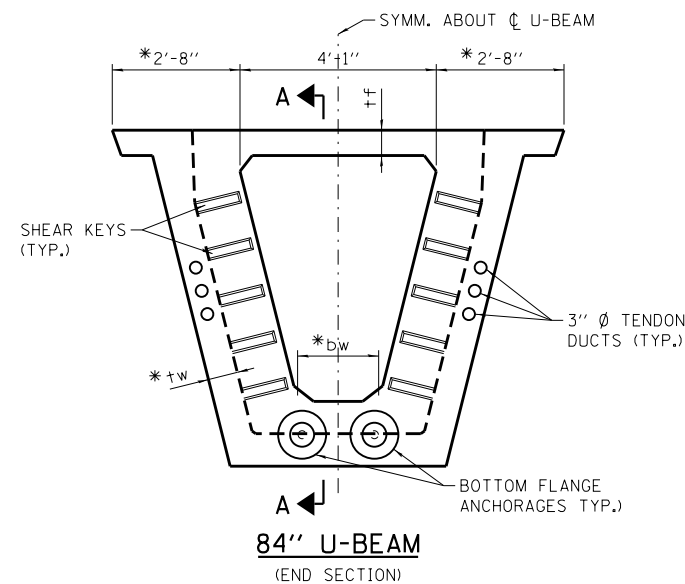
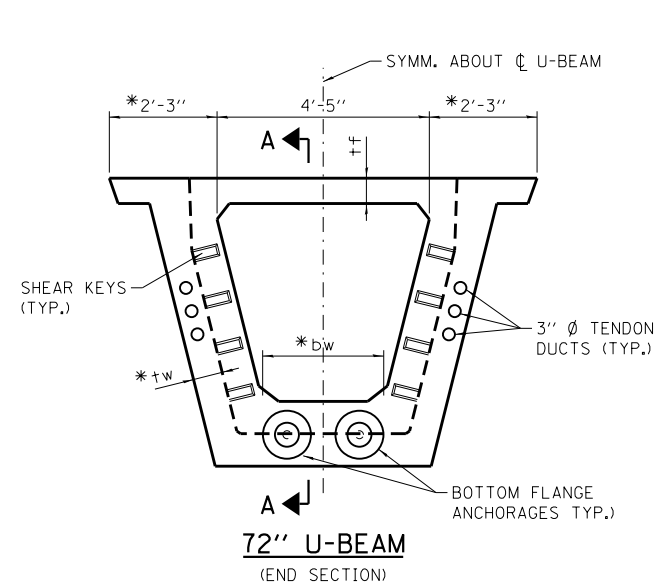
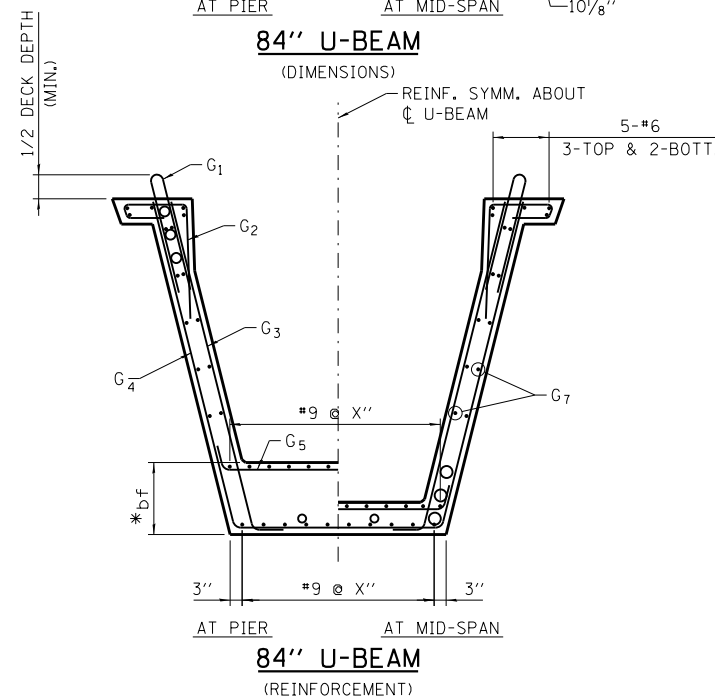
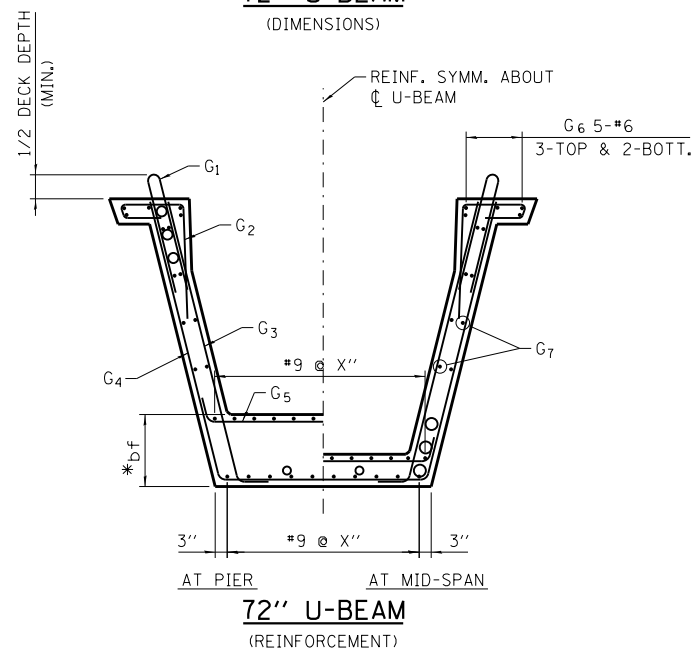
PPC U-BEAM
PRETENSIONED

DATE
03-01-1999



| BAR | NO. | SIZE | LENGTH | SHAPE |
|----------------|-----|------|--------|-------|
| G ₁ | 0 | #4 | X'-X" | |
| G ₂ | | | | |
| G ₃ | | | | |
| G ₄ | | | | |
| G ₅ | | | | |
| G ₆ | | #6 | | |
| G ₇ | | | | |

| BAR | a | b |
|----------------|---|---|
| G ₁ | | |
| G ₂ | | |
| G ₃ | | |
| G ₄ | | |
| G ₅ | | |
| | | |
| | | |



NOTE TO DESIGNER

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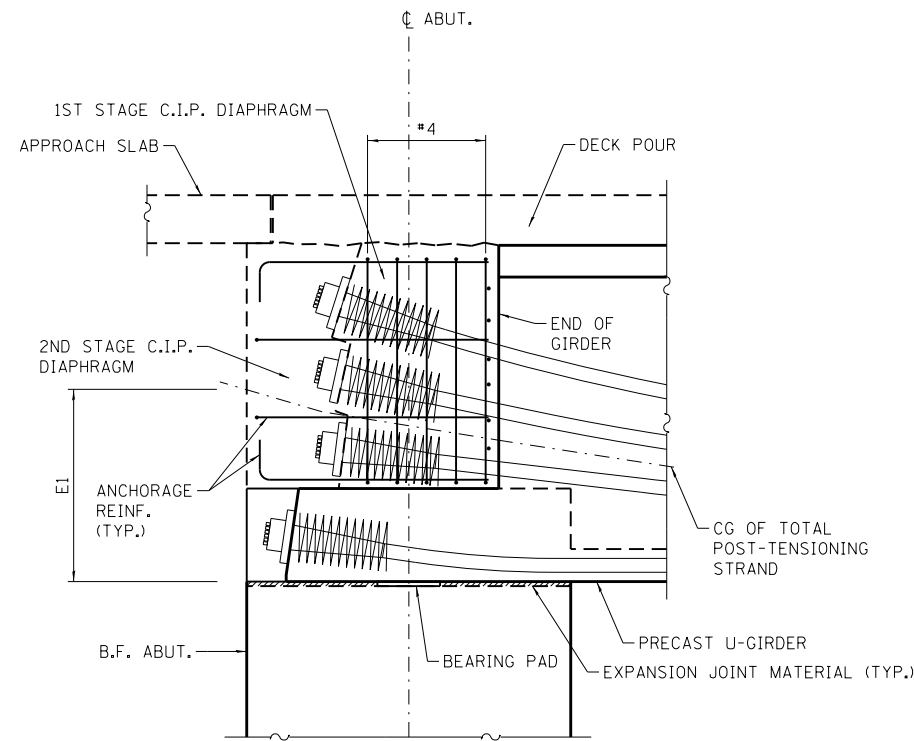
DIMENSIONS NOTED WITH (*) ARE A FUNCTION OF THE DESIGN REQUIREMENTS AND MAY VARY.

SHEET 1 OF 3
M-BRG-523

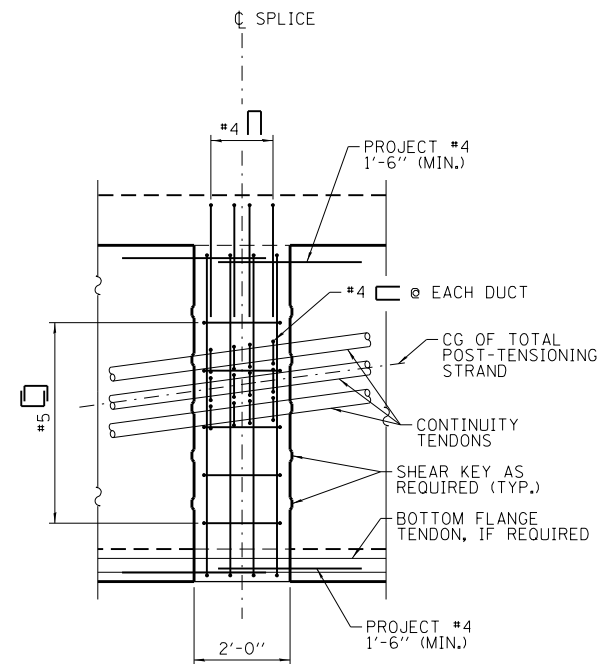


72" & 84"
PPC U-BEAM
POST-TENSIONED

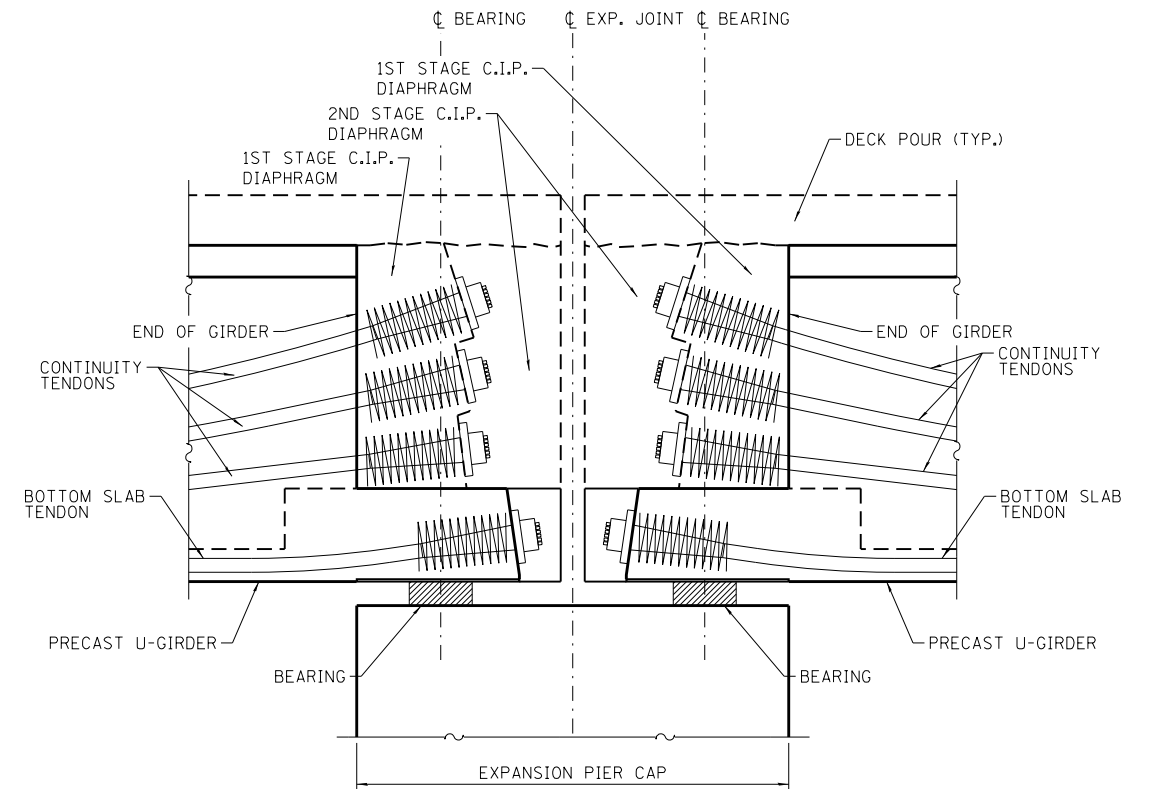
DATE
03-01-2019



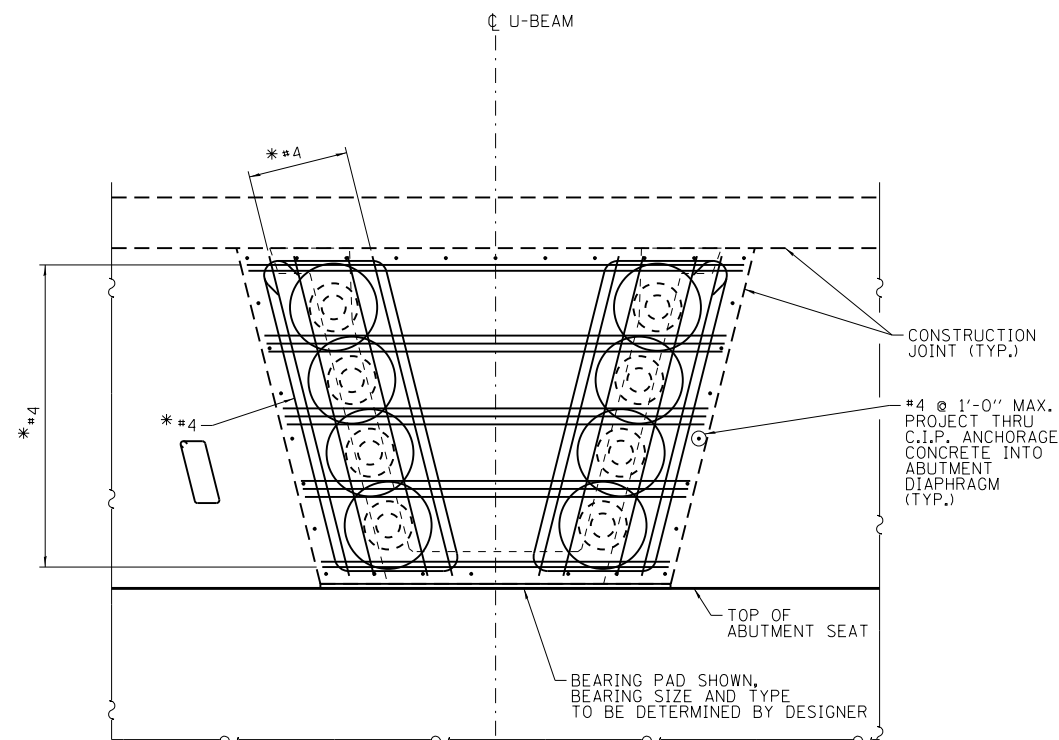
INTEGRAL ABUTMENT



SPLICE DETAIL



EXPANSION PIER



END VIEW
(INTEGRAL ABUTMENT)

DIAPHRAGM DETAILS

NOTE TO DESIGNER

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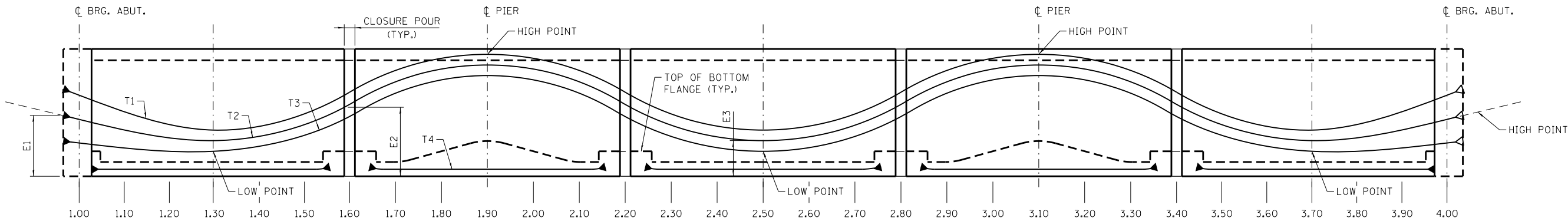
SHEET 2 OF 3
M-BRG-523



72" & 84"
PPC U-BEAM
POST-TENSIONED

DATE
03-01-2019

12/18/2019
 M-BRG-523 72in and 84in PPC U-Beam Post-Tensioned.dgn



WEB ELEVATION

| | LOCATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| TENDON | 1.00 | 1.10 | 1.20 | 1.30 | 1.40 | 1.50 | 1.60 | 1.70 | 1.80 | 1.90 | 2.00 | 2.10 | 2.20 | 2.30 | 2.40 | 2.50 | 2.60 | 2.70 | 2.80 | 2.90 | 3.00 | 3.10 | 3.20 | 3.30 | 3.40 | 3.50 | 3.60 | 3.70 | 3.80 | 3.90 | 4.00 | |
| T1 | X.XX' | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T2 | X.XX' | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T3 | X.XX' | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T4 | X.XX' | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

TENDON PROFILE

| POST-TENSIONING TABLE | | | | | | | | | | |
|-----------------------|------------|---------------------------------|------------|-------------------|-------------------------|---------------|-------------------------------|---------|---------|---------|
| SPAN NO. | GIRDER NO. | MIN. COMPRESSIVE STRENGTH (KSI) | | NUMBER OF STRANDS | PRESTRESSING LOAD (KSI) | | TOTAL PRESTRESSING LOSS (KSI) | E1 (in) | E2 (in) | E3 (in) |
| | | SPAN NO. | GIRDER NO. | | JACKING | AFTER SEATING | | | | |
| | | f'c | f'ci | | | | | | | |
| | | | | | | | | | | |

NOTES:

REINFORCING THAT INTERFERES WITH THE PRESTRESSING TENDON ALIGNMENT SHALL BE ADJUSTED AS APPROVED BY THE ENGINEER.

WHERE DEAD END ANCHORAGE AND TENDONS ARE ACCESSIBLE, THE ANCHORAGE SYSTEM AND LENGTH OF PROJECTING PRESTRESSING STEEL SHALL PERMIT JACKING WITH THE SAME JACKING EQUIPMENT THAT WAS USED ON THE LIVE END.

DEVIATIONS FROM THE DUCT PATTERN, DUCT SIZE, AND STRAND SIZE ASSUMED IN THE DESIGN MUST BE APPROVED BY THE ENGINEER.

THE DEFLECTION SHOWN IS POSITIVE DOWNWARD. IT INCLUDES THE INSTANTANEOUS EFFECTS OF DEAD LOAD AND PRESTRESSING, AND A FACTOR OF THREE (3) MULTIPLIER TO ACCOUNT FOR LONG TERM CREEP. FORMED WEB ELEVATIONS MUST BE ADJUSTED UPWARD FOR AN INDICATED POSITIVE DEFLECTION.

STRESSING SEQUENCE:

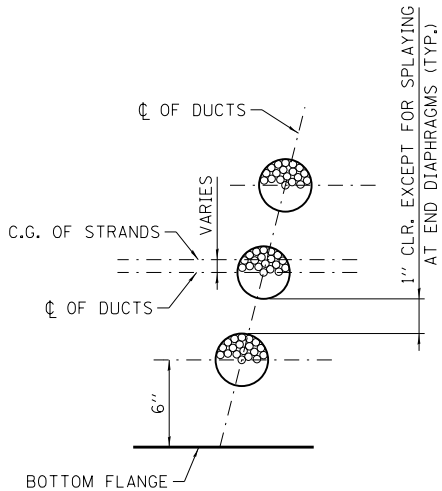
CONTRACTOR SHALL SUBMIT THE STRESSING AND ELONGATION CALCULATIONS TO THE ENGINEER FOR APPROVAL. ALL LOSSES DUE TO TENDON VERTICAL AND HORIZONTAL CURVATURES MUST BE INCLUDED IN ELONGATION CALCULATIONS. THE STRESSING SEQUENCE SHALL MEET THE FOLLOWING CRITERIA.

- TENDONS MAY BE JACKED FROM BOTH ENDS, EITHER SIMULTANEOUSLY OR SEQUENTIALLY, OR 1/2 THE TENDONS MAY BE JACKED FROM EACH END. IF 1/2 THE TENDONS ARE JACKED FROM EACH END THE JACKING FORCE SHALL BE INCREASED ____KIPS. IF JACKING FORCE OR STEEL AREA IS GREATER THAN ASSUMED IN THE DESIGN, PRESTRESSING QUANTITIES SHALL NOT BE ADJUSTED.
- NO MORE THAN 1/2 OF THE PRESTRESSING FORCE IN ANY WEB MAY BE STRESSED BEFORE AN EQUAL FORCE IS STRESSED IN THE ADJACENT WEBS. AT NO TIME DURING THE STRESSING OPERATIONS WILL MORE THAN 10% OF THE TOTAL PRESTRESSING FORCE BE APPLIED ECCENTRICALLY ABOUT THE CENTERLINE OF THE STRUCTURE.
- AT THE CONTRACTORS OPTION, THE PRESTRESSING FORCE MAY VARY ±5% FROM THE THEORETICAL FORCE PER WEB PROVIDED THE TOTAL P(JACK) FORCE IS OBTAINED AND IS DISTRIBUTED SYMMETRICALLY ABOUT THE CENTERLINE OF THE TYPICAL SECTION. P(JACK) IS THE SUM OF THE PEAK FORCES REACHED DURING JACKING IN EACH TENDON.
- BOTTOM FLANGE TENDONS TO BE STRESSED AT CASTING YARD OR ON SITE BEFORE CLOSURE POURS ARE FORMED AND CAST.

PATH DETAILS

LEGEND

- - DENOTES LIVE END
- - DENOTES DEAD END



STRAND LOCATION DETAIL
(TENDON IN SAG CURVE)

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POST-TENSIONING NOTES:

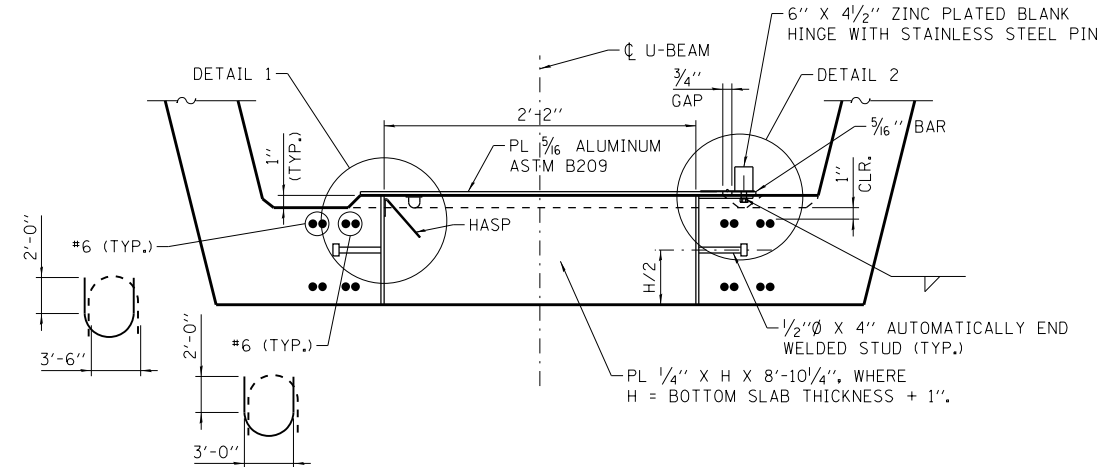
THE MINIMUM COMPRESSIVE STRENGTH OF THE CAST-IN-PLACE CONCRETE AT THE CLOSURE AT THE TIME OF POST-TENSIONING SHALL BE AS SHOWN IN POST-TENSIONING TABLE.

THE MAXIMUM OUTSIDE DIAMETER OF THE DUCT SHALL BE ____ INCHES. THE AREA OF THE DUCT SHALL BE AT LEAST 2.5 TIMES THE NET AREA OF THE PRESTRESSING STEEL IN THE DUCT.

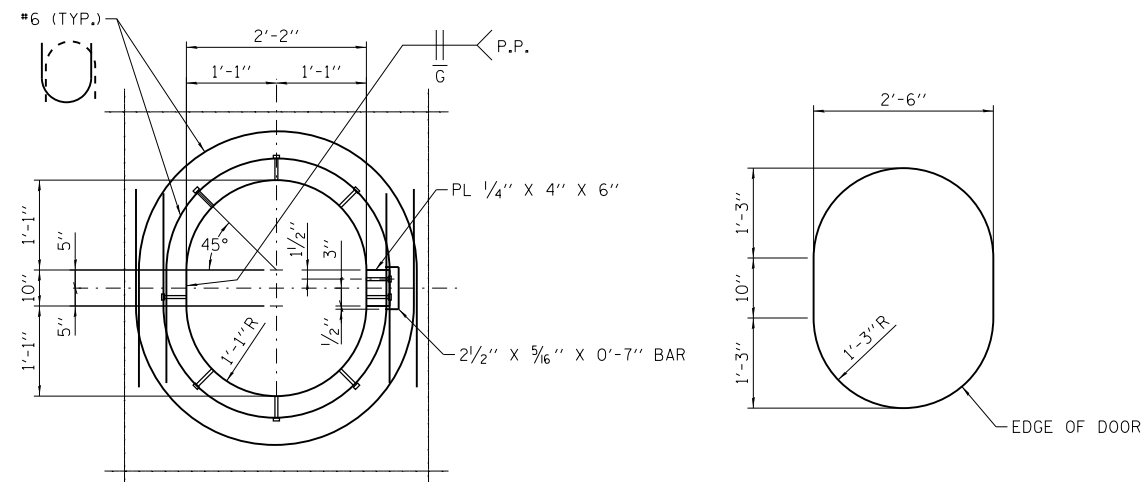
THE DESIGN IS BASED ON 0.6" DIA. LOW RELAXATION STRANDS MEETING THE REQUIREMENT OF ASTM A416 GRADE 270 WITH AN ANCHOR SET OF 3/8", A CURVATURE FRICTION COEFFICIENT, K=0.0002/FT. THE ACTUAL ANCHOR SET AND JACKING FORCE USED BY THE CONTRACTOR SHALL BE SPECIFIED IN THE SHOP PLANS AND INCLUDED IN THE TRANSFER FORCE CALCULATIONS.

THE DESIGN IN BASED ON THE ESTIMATED PRESTRESS LOSS OF POST-TENSIONING STRANDS SHOWN IN THE POST-TENSIONING TABLE DUE TO STEEL RELAXATION, ELASTIC SHORTENING CREEP AND SHRINKAGE OF CONCRETE.

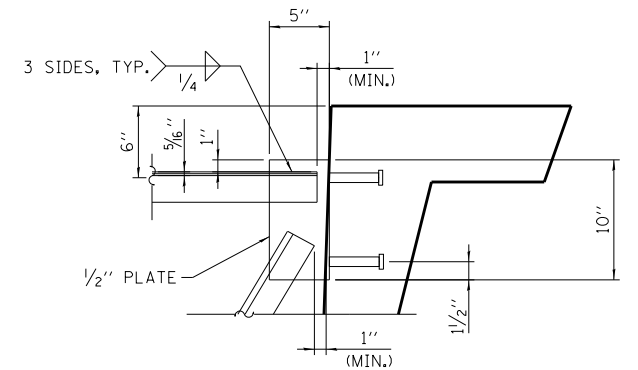
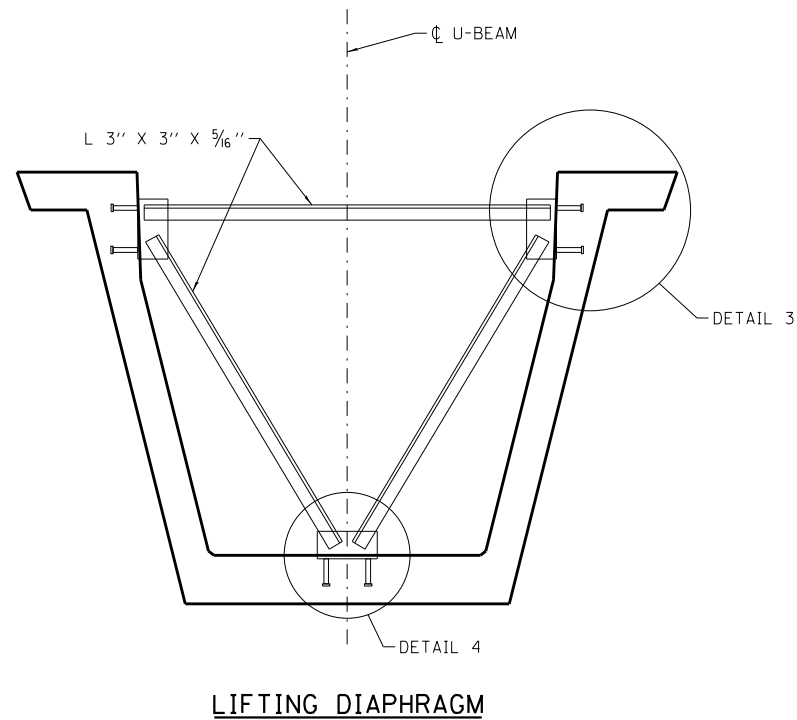
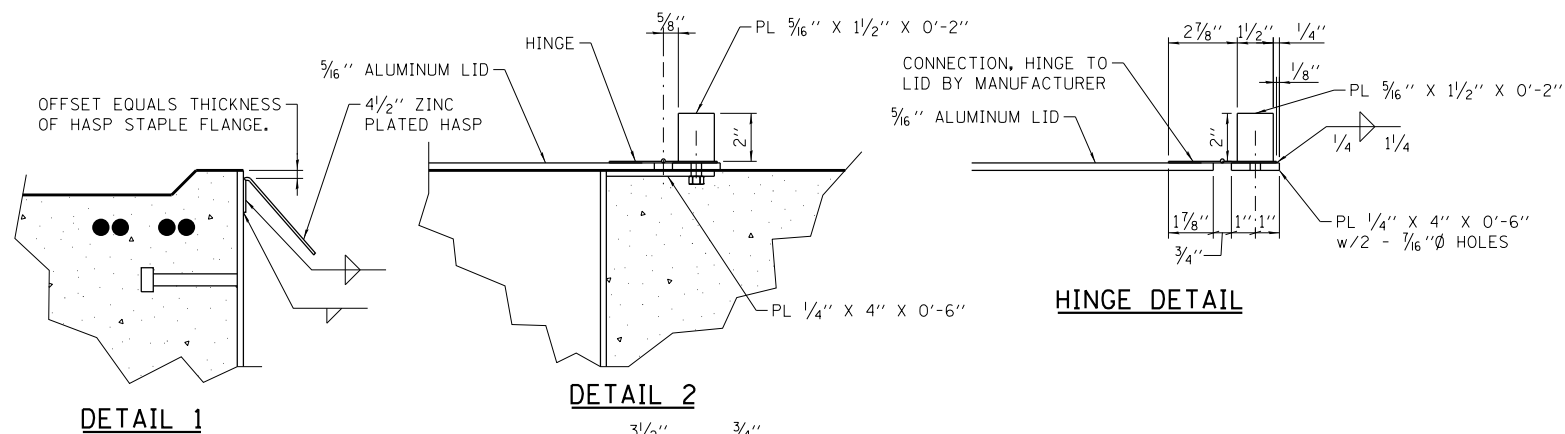




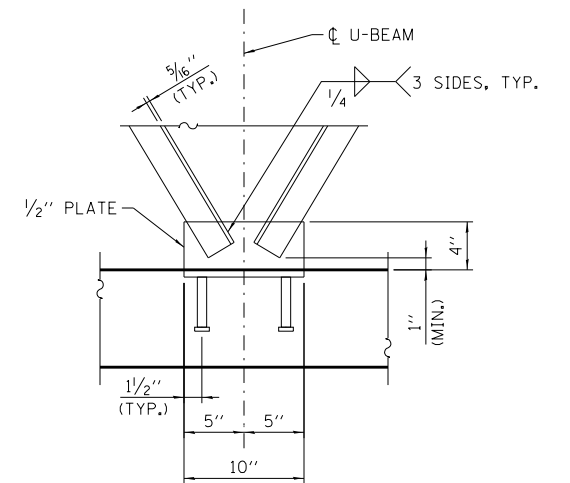
SECTION THROUGH ACCESS DOOR



ACCESS DOOR DETAILS



DETAIL 3



DETAIL 4

NOTE TO DESIGNER

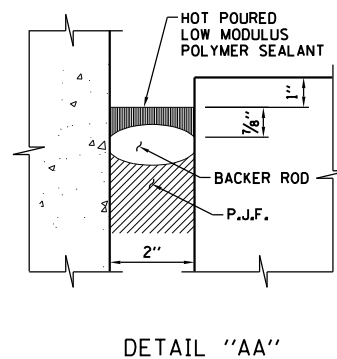
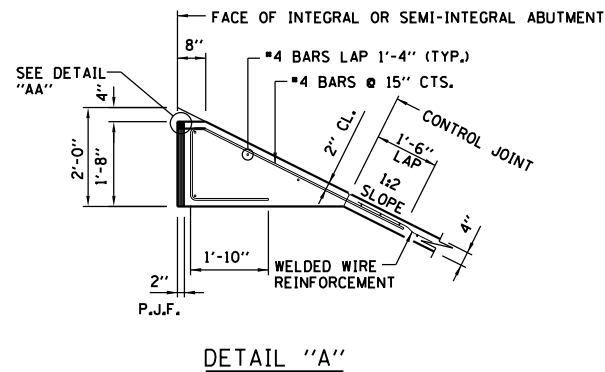
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M-BRG-524



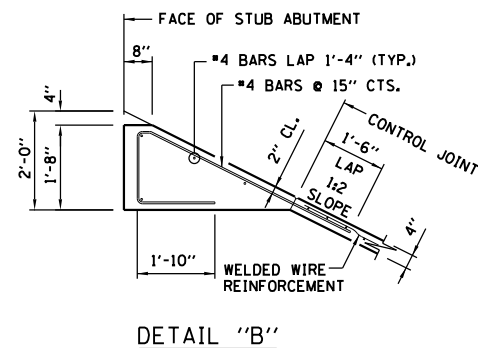
PPC U-BEAM
MISCELLANEOUS DETAILS

DATE
12-19-2014



NOTE:

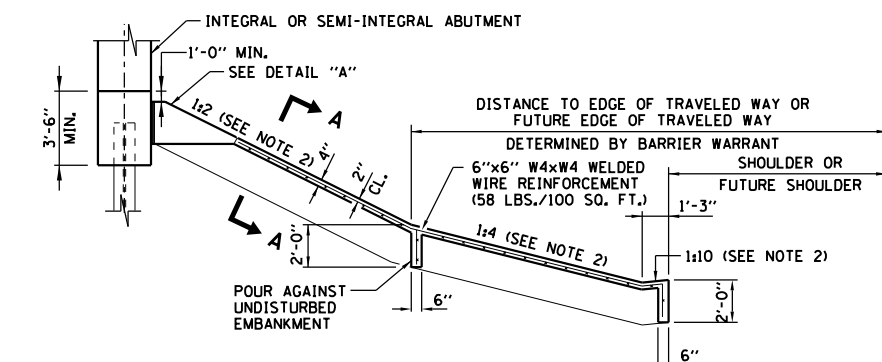
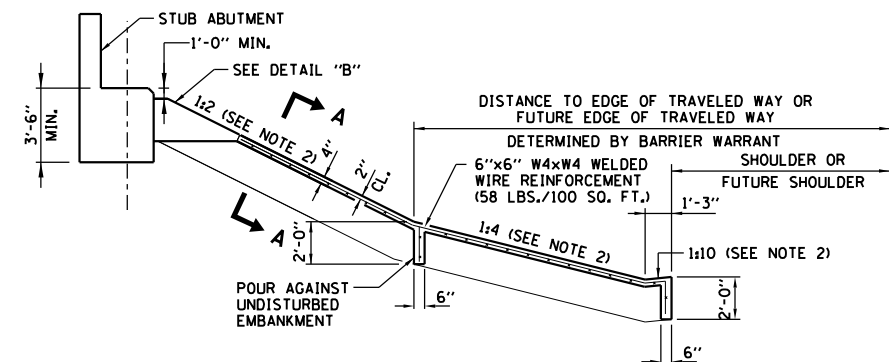
SEALANT, BACKER ROD AND P.J.F. SHALL MEET THE REQUIREMENTS OF SECTIONS 1050 AND 1051 OF THE STANDARD SPECIFICATIONS.



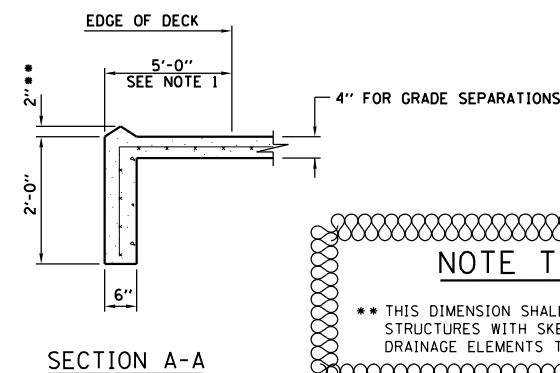
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DESIGNER SHALL REMOVE ALL DETAILS THAT DO NOT APPLY.

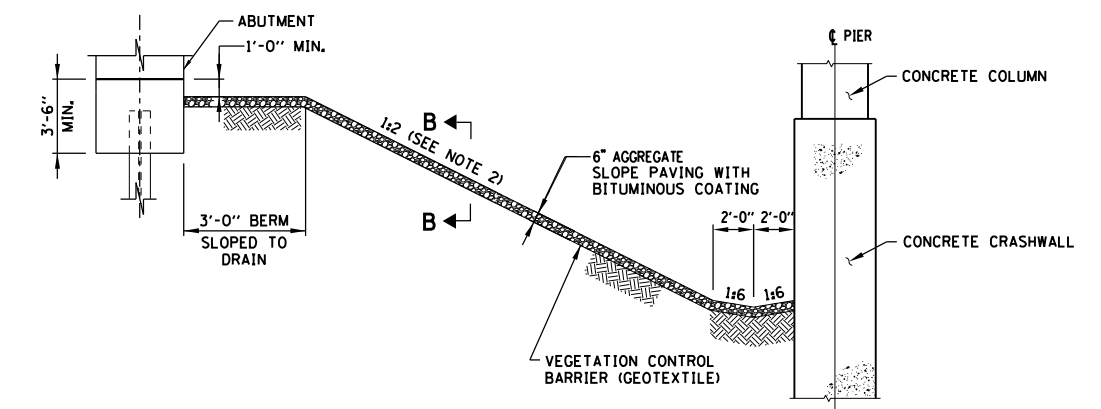
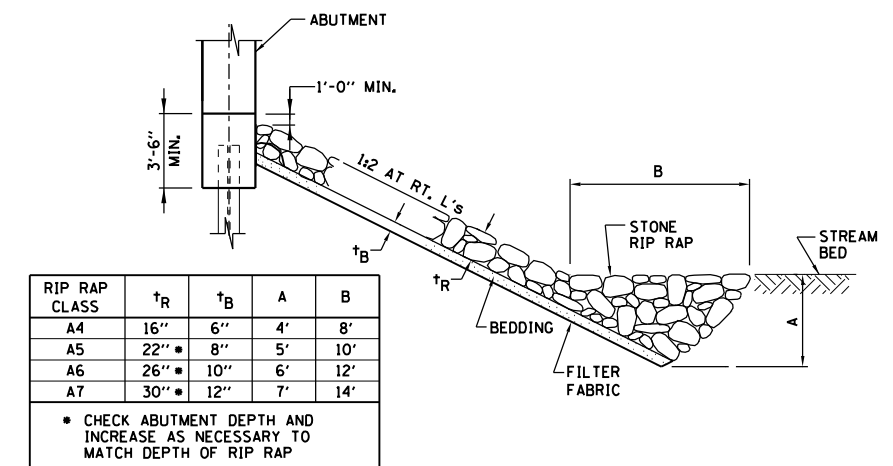
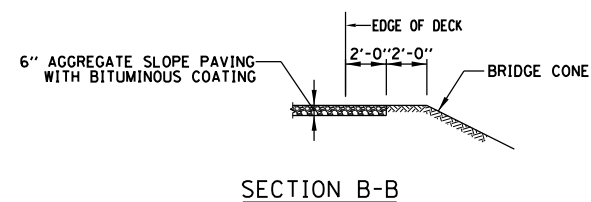


SLOPE WALLS FOR BRIDGES OVER ILLINOIS TOLLWAY

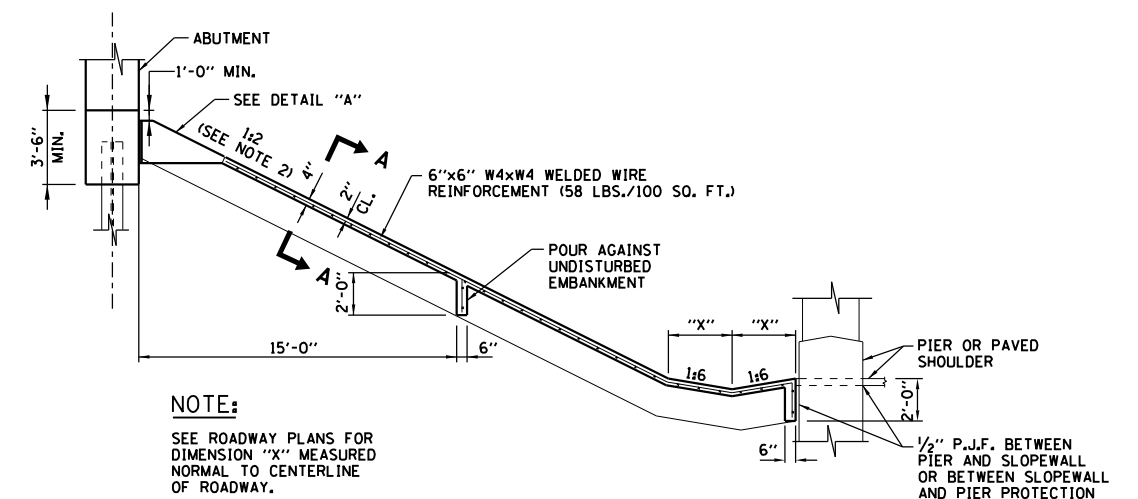


NOTE TO DESIGNER

** THIS DIMENSION SHALL BE INCREASED TO 4" FOR STRUCTURES WITH SKEWS OF 10° OR GREATER AND DRAINAGE ELEMENTS THAT OUTLET ONTO SLOPEWALL.



ILLINOIS TOLLWAY BRIDGES OVER RAILROADS



NOTE:

SEE ROADWAY PLANS FOR DIMENSION "X" MEASURED NORMAL TO CENTERLINE OF ROADWAY.

NOTES:

- DIMENSIONS SHALL BE 2'-0" IF DECK DRAINS ARE NOT PROVIDED.
- DIMENSIONS MARKED THUS ARE MEASURED NORMAL TO CENTERLINE OF ROADWAY OR TRACK.
- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

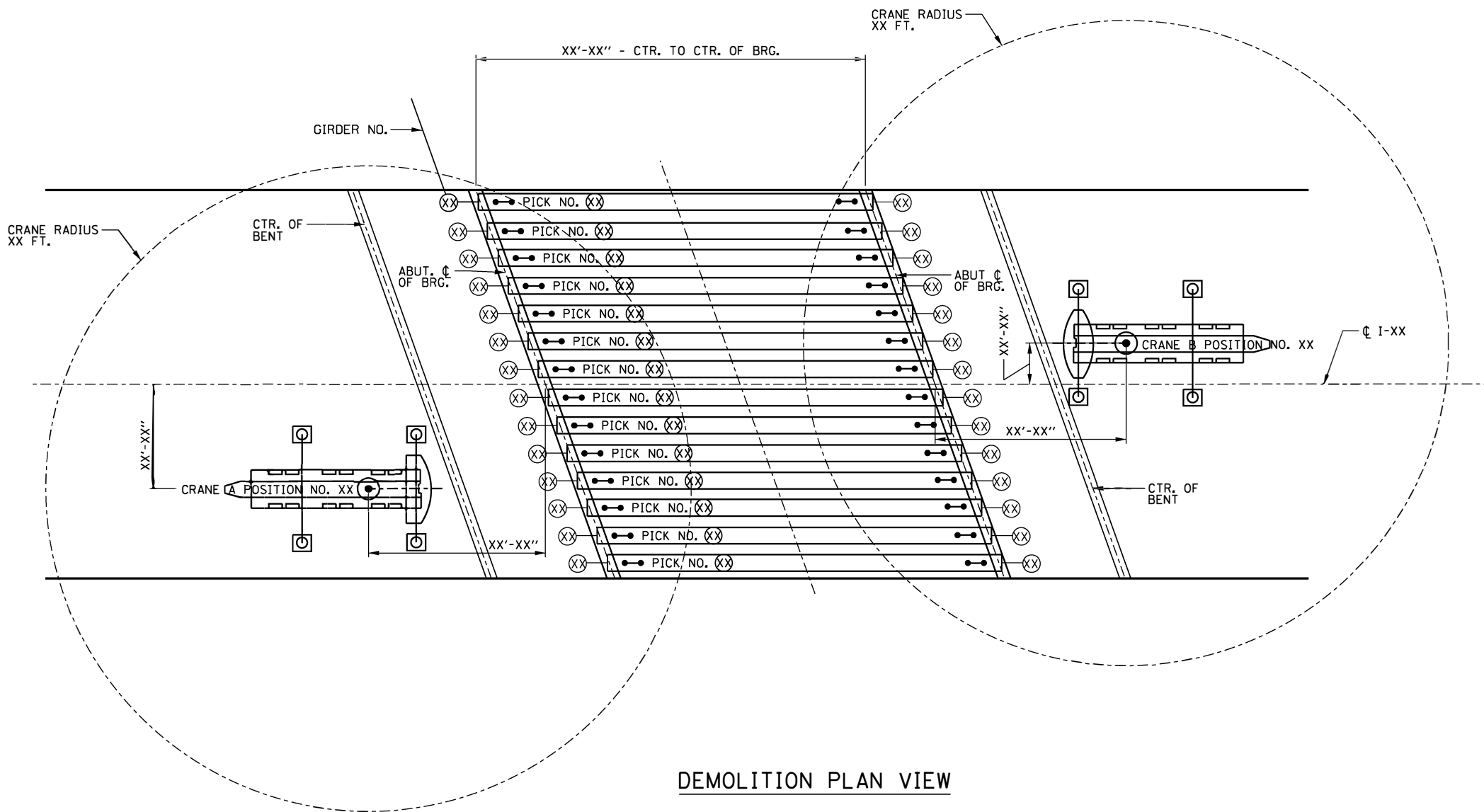
ILLINOIS TOLLWAY BRIDGES OVER CROSSROADS

M-BRG-525



SLOPEWALL DETAILS

DATE
3-31-2016



NOTE TO DESIGNER/CONTRACTOR

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. THIS SHEET IS TO BE USED AS A GUIDE BY THE CONTRACTOR FOR PREPARATION OF A DEMOLITION SUBMITAL PER THE CONTRACT REQUIREMENTS. THIS BASE SHEET DEPICTS DEMOLITION OF CONCRETE GIRDERS, STEEL GIRDERS WOULD BE SIMILAR. MICROSTATION FILES ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE.

- SUGGEST IDENTIFY BEAM WEIGHTS OR PICK WEIGHTS AND IDENTIFY CROSS FRAMES TO BE REMOVED DURING DEMOLITION.
- "XX" DESIGNATES DIMENSION VALUES OR INPUT DATA TO BE PROVIDED ON SUBMITTED DRAWING.
- SEQUENCE SHALL ADDRESS TEMPORARY BLOCKING, BRACING OR OTHER TEMPORARY SUPPORTS.
- SEQUENCE OF LOAD PLACEMENT SHALL CONFIRM STRUCTURE CAN WITHSTAND THE NEW LOADS WITHOUT DAMAGE.

SCOPE OF WORK:

1. LOCATION OF WORK ACTIVITIES.
2. LOAD TO BE LIFTED DESCRIPTION DETAIL (LIFTING POINTS, DIMENSIONS OF LOAD, CENTER OF GRAVITY, ETC.)
3. LOAD CALCULATION: LOAD WEIGHT, 25% ADD ON, LIFTING GEAR WEIGHT, HOOK BLOCK WEIGHT, TOTAL WEIGHT, SAFETY FACTOR, CRANE CAPACITY USAGE (LOAD/SAFE WORKING LOAD (SWL)) (%).
4. MAXIMUM CRANE LOAD TO BE USED FOR CRANE PAD SIZE.
5. LIST GROUND ALLOWABLE BEARING PRESSURE AT CRANE LOADING LOCATIONS.
6. SCHEDULE WITH SPECIFIC WORKING HOUR LIMITATIONS.
7. LIST OF OPERATOR/LIFT SUPERVISOR QUALIFICATION.

CRANE INFORMATION:

CRANE "A"-XXX TON HYDRO
(OR EQUIVALENT)
COUNTERWEIGHT XXX,XXX LBS.
MAIN BOOM = XXX'
ANTICIPATED MAX WEIGHT XX,XXX LBS.
CAPACITY AT RADIUS= XX,XXX LBS.
MAX RADIUS=XX'-X"
SWING SPEED= XX MPH

CRANE "B"-XXX TON HYDRO
(OR EQUIVALENT)
COUNTERWEIGHT XXX,XXX LBS.
MAIN BOOM = XXX'
ANTICIPATED MAX WEIGHT XX,XXX LBS.
CAPACITY AT RADIUS= XX,XXX LBS.
MAX RADIUS=XX'-X"
SWING SPEED=XX MPH.

LIMITATIONS:

1. ACCESS AND EGRESS FOR THE ASSEMBLY AND DISASSEMBLY OF THE CRANE AND THE MATERIALS TO BE LIFTED WILL BE
2. FEDERAL AVIATION ADMINISTRATION (FAA) RESTRICTIONS
3. CRANE REACTIONS..... SITE GROUND IS SUITABLE / NON SUITABLE FOR CRANE OPERATION. PAD SIZE
4. CRANE'S SUPERSTRUCTURE ROTATES 360° WITHOUT COMING INTO CONTACT WITH ANY OBJECT.
5. BOOM DEFLECTION TO BE CONSIDERED ARE
6. ENVIRONMENTAL CONSIDERATIONS (MAXIMUM PERMISSIBLE WIND WEATHER, LIGHTNING) IN WHICH LIFT OPERATIONS ARE TO BE STOPPED.
7. ELECTRICAL HAZARD (OVERHEAD/UNDERGROUND). CLEARANCE DISTANCES SPOTTER IS REQUIRED/NOT REQUIRED. PUBLIC UTILITY CONTACT REQUIRED (LIST CONTACT INFORMATION).
8.
9.

DEMOLITION SEQUENCE:

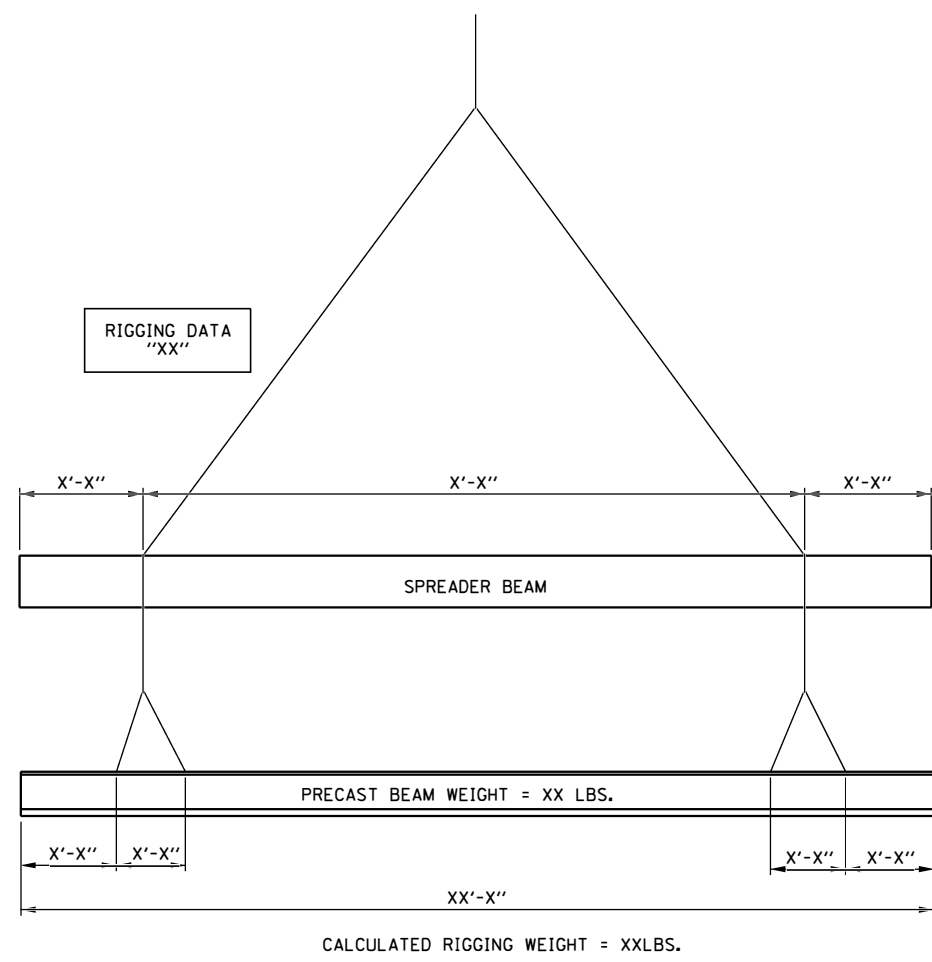
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4. "XX"

M-BRG-526
SHEET 1 OF 3



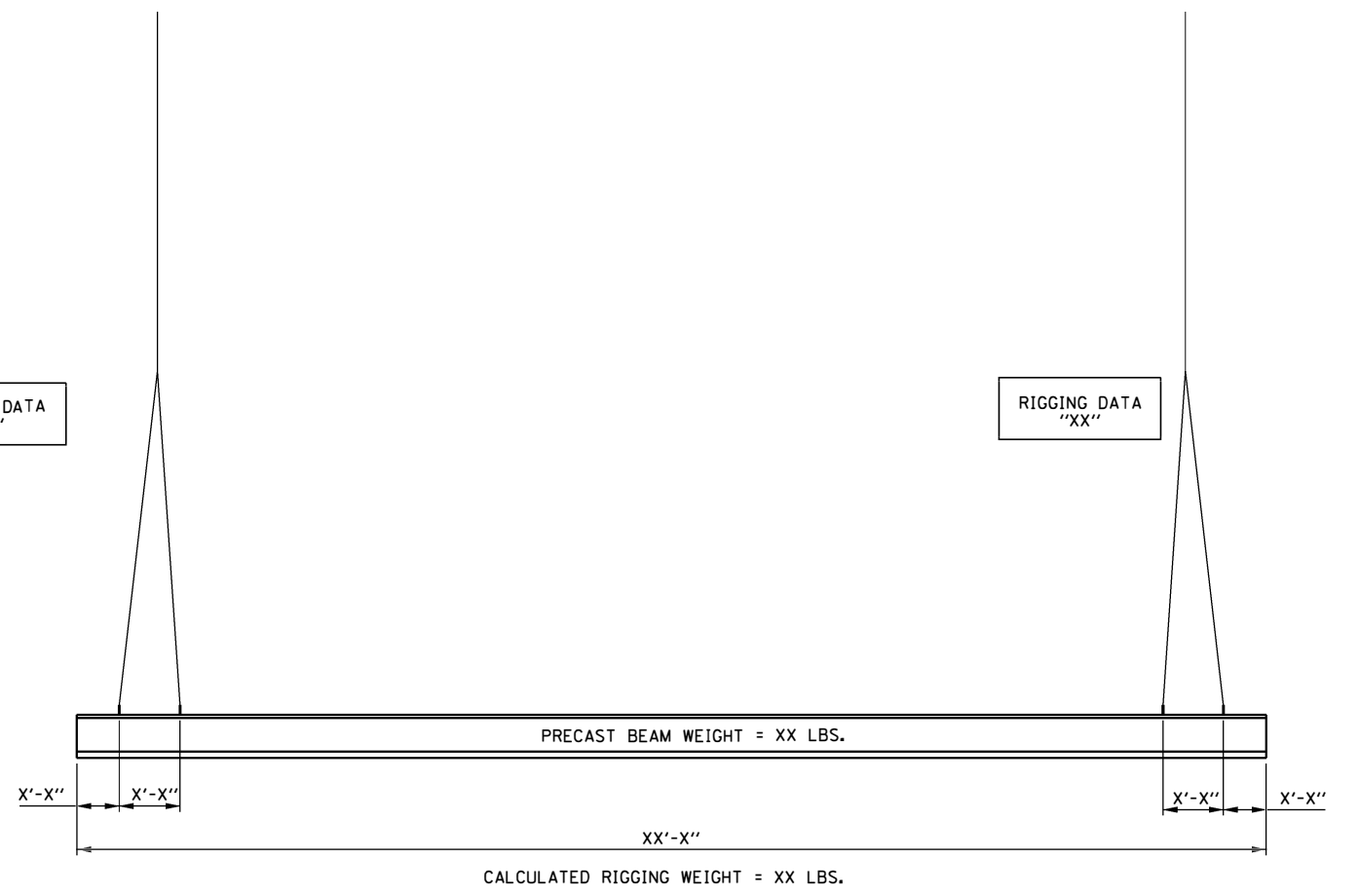
DEMOLITION PLAN

DATE
3-01-2020

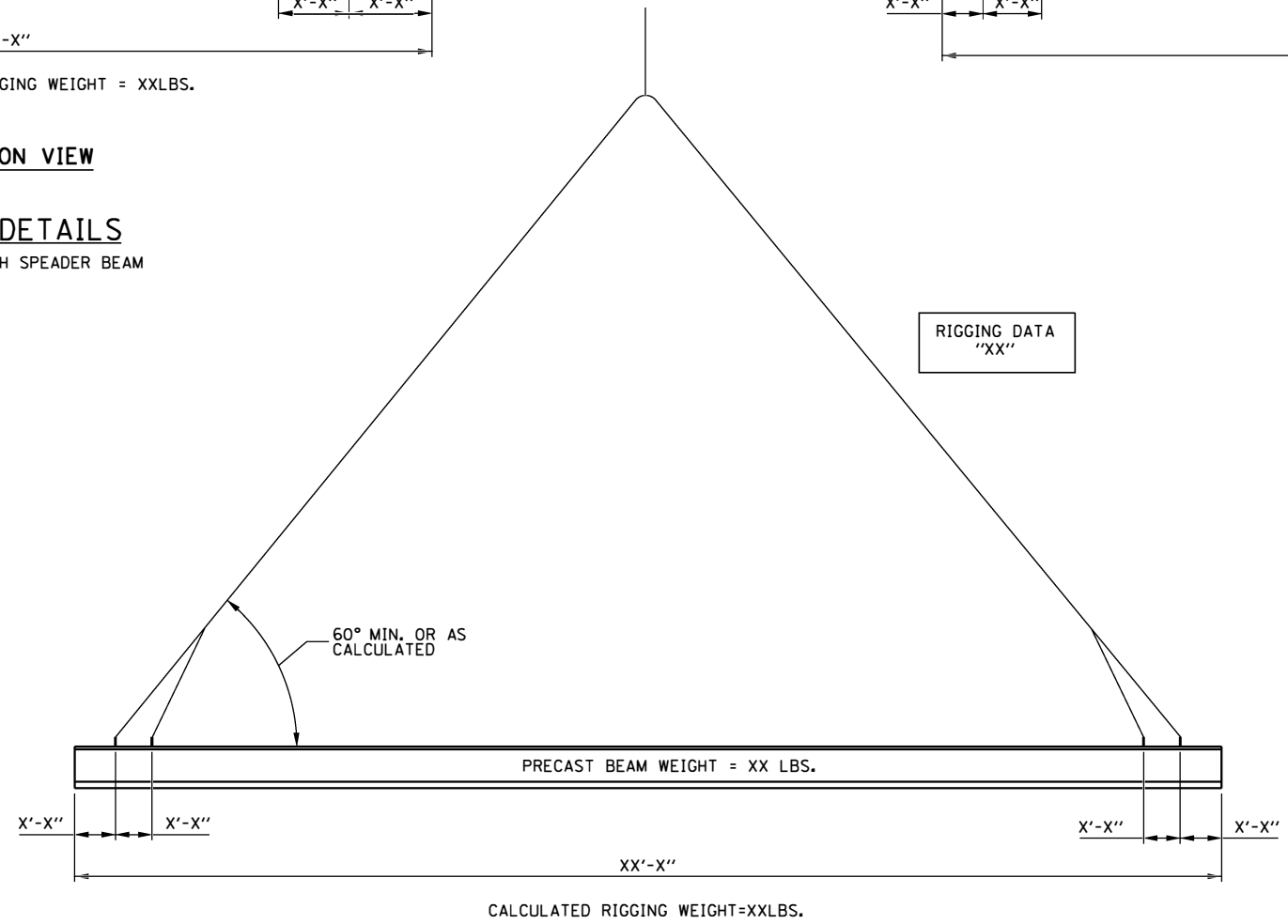


ELEVATION VIEW
RIGGING DETAILS
SINGLE CRANE WITH SPEADER BEAM

RIGGING DATA
"XX"



ELEVATION VIEW
RIGGING DETAILS
TWO CRANE



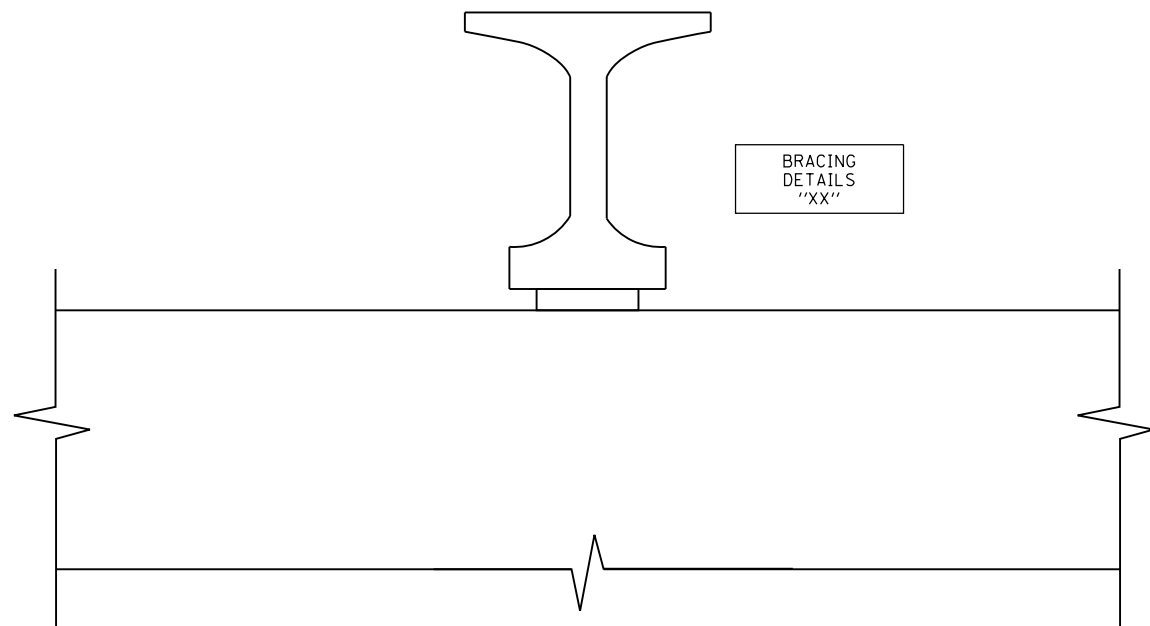
ELEVATION VIEW
RIGGING DETAILS
SINGLE CRANE

NOTES TO DESIGNER/CONTRACTOR

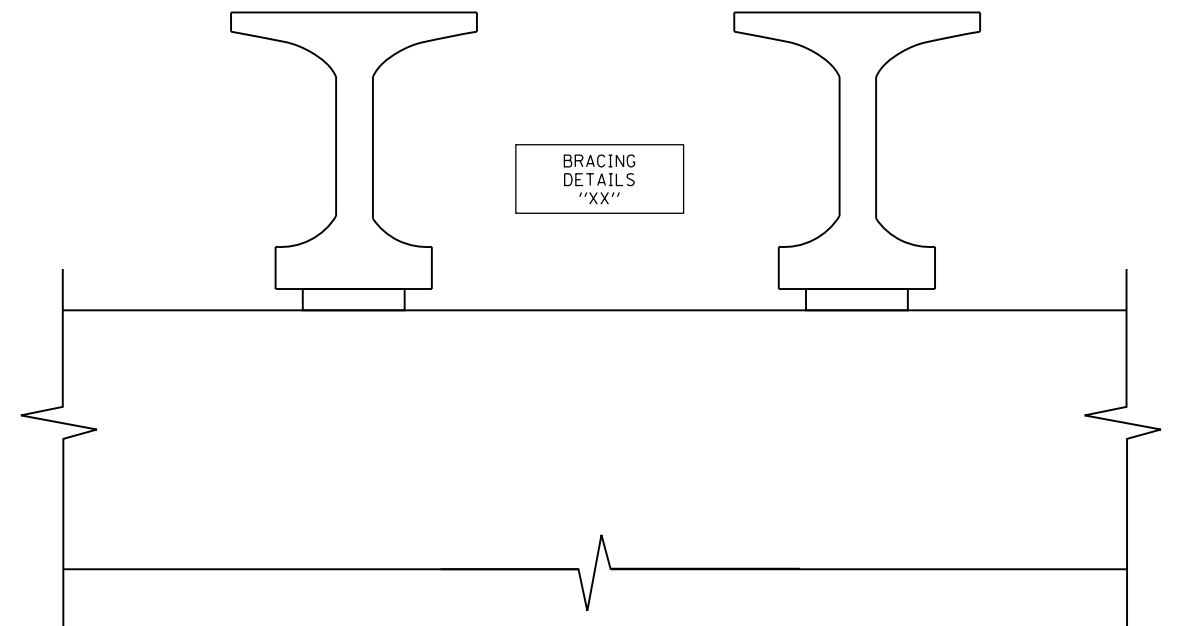
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. THIS SHEET IS TO BE USED AS A GUIDE BY THE CONTRACTOR FOR PREPARATION OF A DEMOLITION SUBMITAL PER THE CONTRACT REQUIREMENTS. THIS BASE SHEET DEPICTS DEMOLITION OF CONCRETE GIRDERS, STEEL GIRDERS WOULD BE SIMILAR. MICROSTATION FILES ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE.

- "XX" DESIGNATES DIMENSION VALUES OR INPUT DATA TO BE PROVIDED ON SUBMITTED DRAWING.
- SPECIFY CENTER OF GRAVITY OF LOAD.





TEMPORARY DEMOLITION
BRACING DETAIL



TEMPORARY DEMOLITION
BRACING DETAIL

NOTES TO DESIGNER/CONTRACTOR

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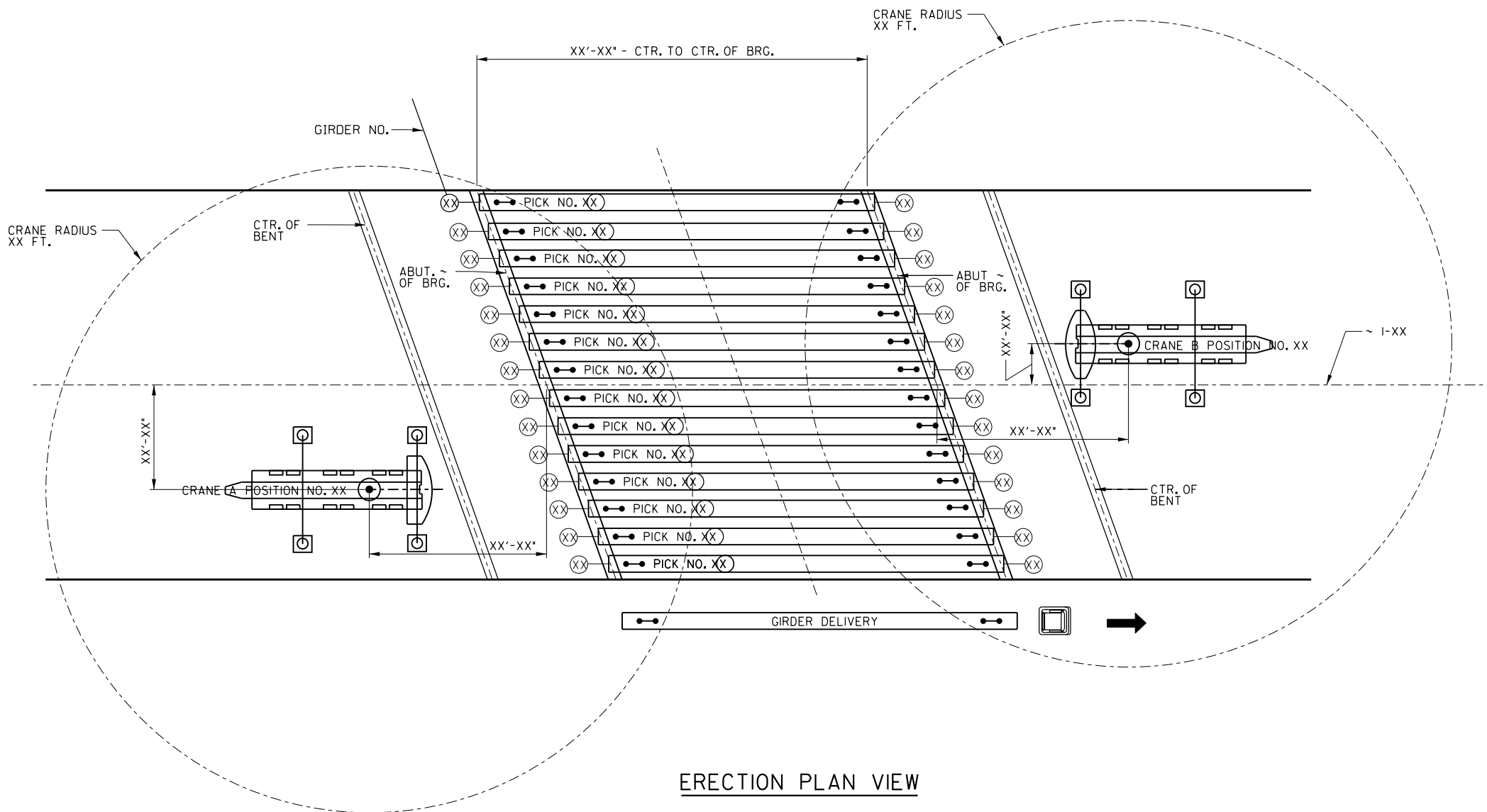
- "XX" DESIGNATES DIMENSION VALUES OR INPUT DATA TO BE PROVIDED ON SUBMITTED DRAWING.

M-BRG-526
SHEET 3 OF 3



DEMOLITION PLAN

DATE
3-31-2017



NOTE TO DESIGNER/CONTRACTOR

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. THIS SHEET IS TO BE USED AS A GUIDE BY THE CONTRACTOR FOR PREPARATION OF A ERECTION SUBMITAL PER THE CONTRACT REQUIREMENTS. MICROSTATION FILES ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE.

- IDENTIFY TEMPORARY SHORING, IDENTIFY TEMPORARY CROSS FRAMES DURING ERECTION.
- "XX" DESIGNATES DIMENSION VALUES OR PROVIDED DATA TO BE PROVIDED ON SUBMITTED DRAWING.
- SEQUENCE SHALL ADDRESS TEMPORARY BLOCKING, BRACING OR OTHER TEMPORARY SUPPORTS.
- SEQUENCE OF LOAD PLACEMENT SHALL CONFIRM STRUCTURE CAN WITHSTAND THE NEW LOADS WITHOUT DAMAGE.

SCOPE OF WORK:

1. LOCATION OF WORK ACTIVITIES.
2. LOAD TO BE LIFTED DESCRIPTION DETAIL (LIFTING POINTS, DIMENSIONS OF LOAD, CENTER OF GRAVITY, ETC.)
3. LOAD CALCULATION: LOAD WEIGHT, 25% ADD ON, LIFTING GEAR WEIGHT, HOOK BLOCK WEIGHT, TOTAL WEIGHT, SAFETY FACTOR, CRANE CAPACITY USAGE (LOAD/SAFE WORKING LOAD (SWL)) (%).
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CAPACITY AT RADIUS= XX,XXX LBS.
MAX RADIUS=XX'-X"
SWING SPEED= XX MPH

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(OR EQUIVALENT)
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MAIN BOOM = XXX'
ANTICIPATED MAX WEIGHT XX,XXX LBS.
CAPACITY AT RADIUS= XX,XXX LBS.
MAX RADIUS=XX'-X"
SWING SPEED=XX MPH.

LIMITATIONS:

1. ACCESS AND EGRESS FOR THE ASSEMBLY AND DISASSEMBLY OF THE CRANE AND THE MATERIALS TO BE LIFTED WILL BE
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7. ELECTRICAL HAZARD (OVERHEAD/UNDERGROUND), CLEARANCE DISTANCES SPOTTER IS REQUIRED/NOT REQUIRED. PUBLIC UTILITY CONTACT REQUIRED (LIST CONTACT INFORMATION).
8.
9.

ERECTION SEQUENCE:

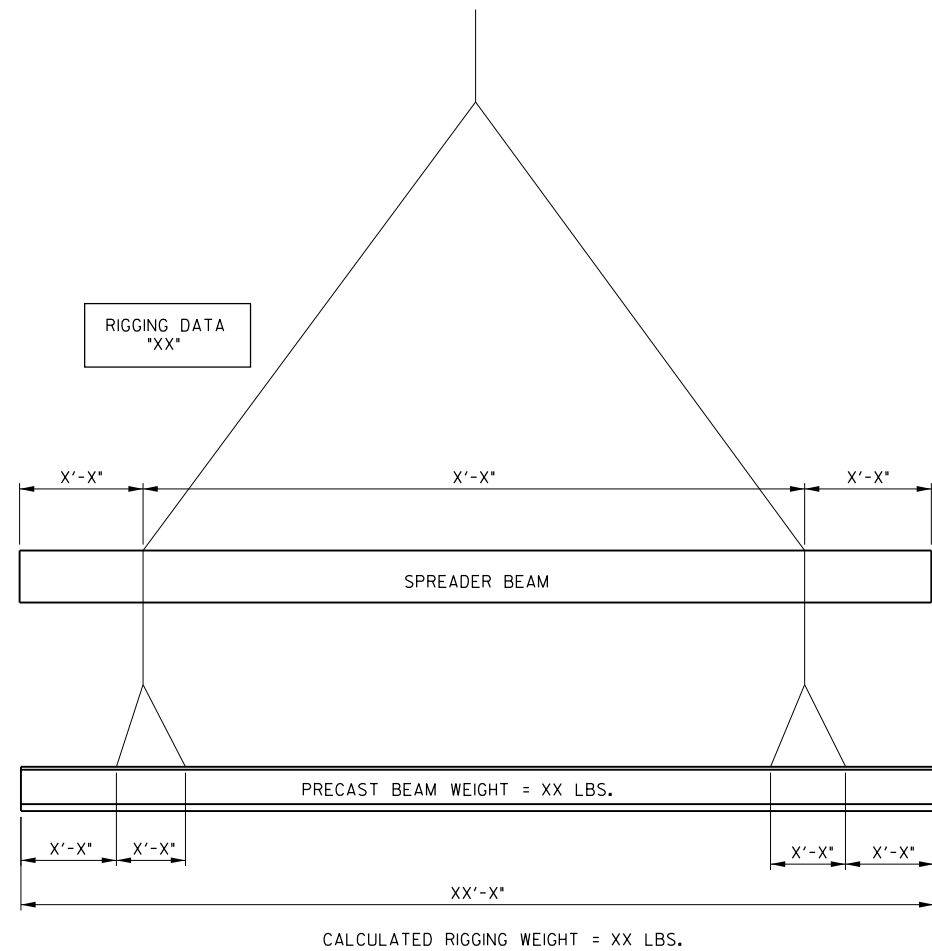
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3. --"XX"--
4. --"XX"--

M-BRG-527
SHEET 1 OF 3



ERECTION PLAN - CONCRETE

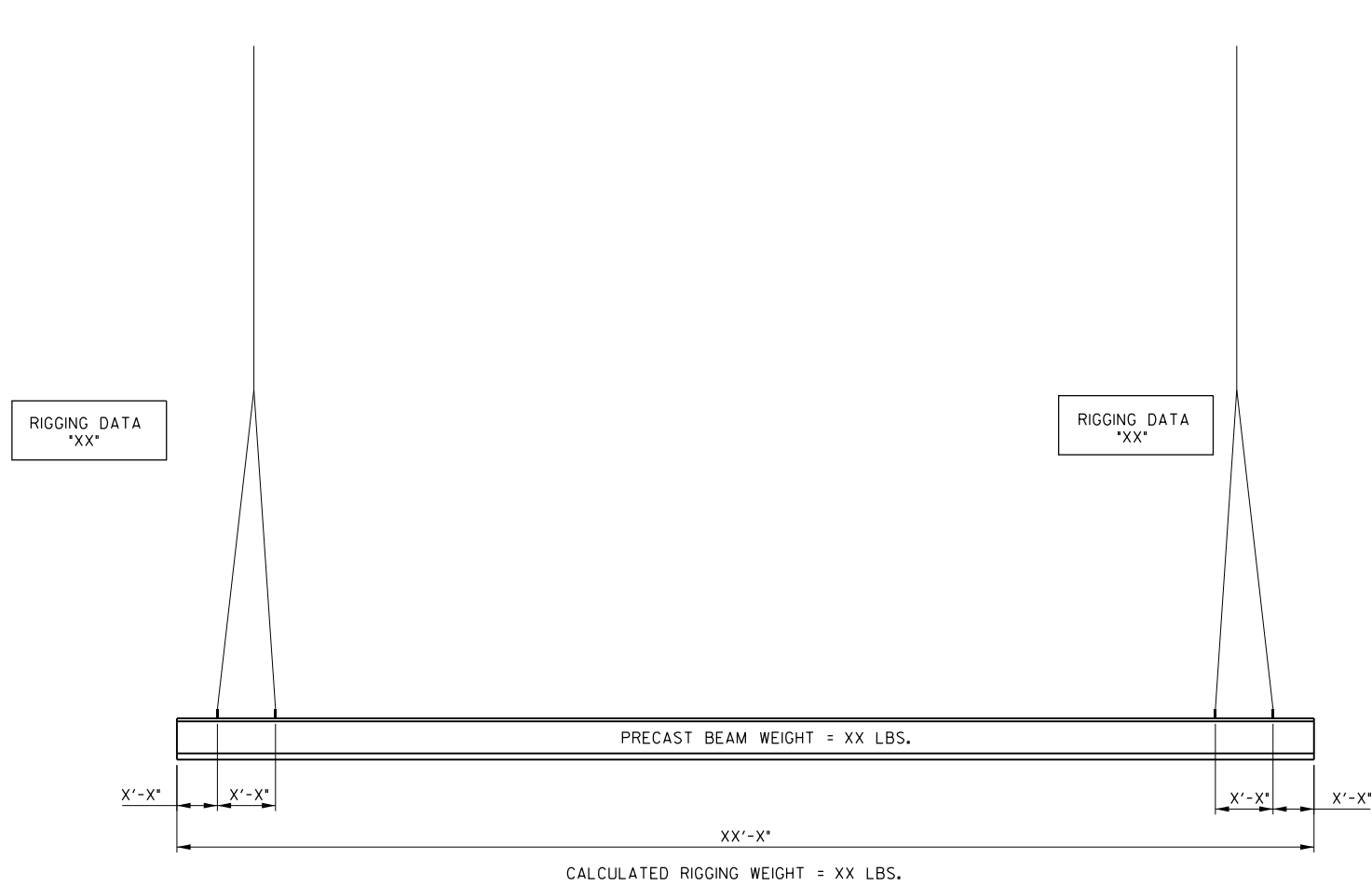
DATE
3-01-2020



ELEVATION VIEW

RIGGING DETAILS

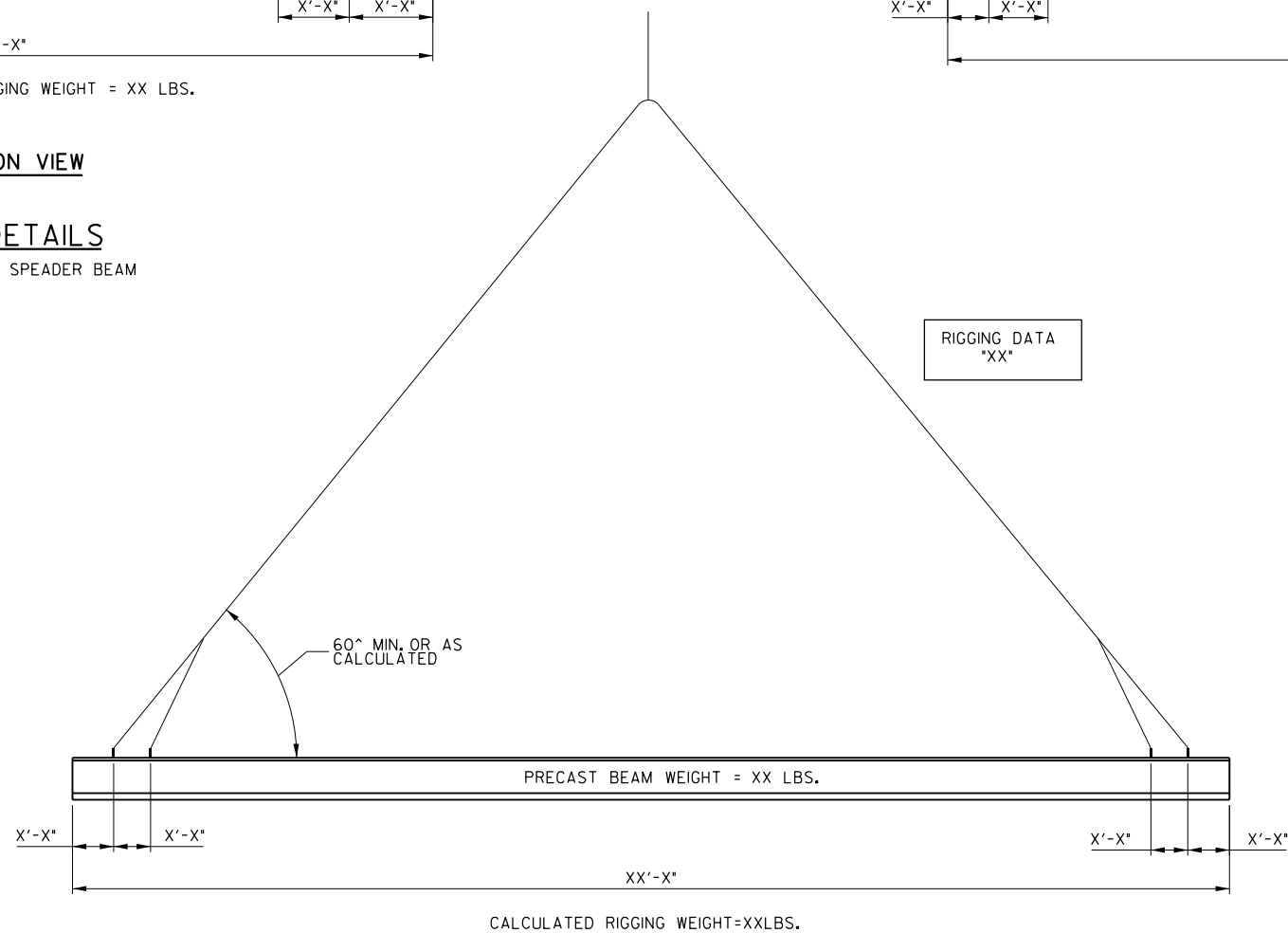
SINGLE CRANE WITH SPEADER BEAM



ELEVATION VIEW

RIGGING DETAILS

TWO CRANE



ELEVATION VIEW

RIGGING DETAILS

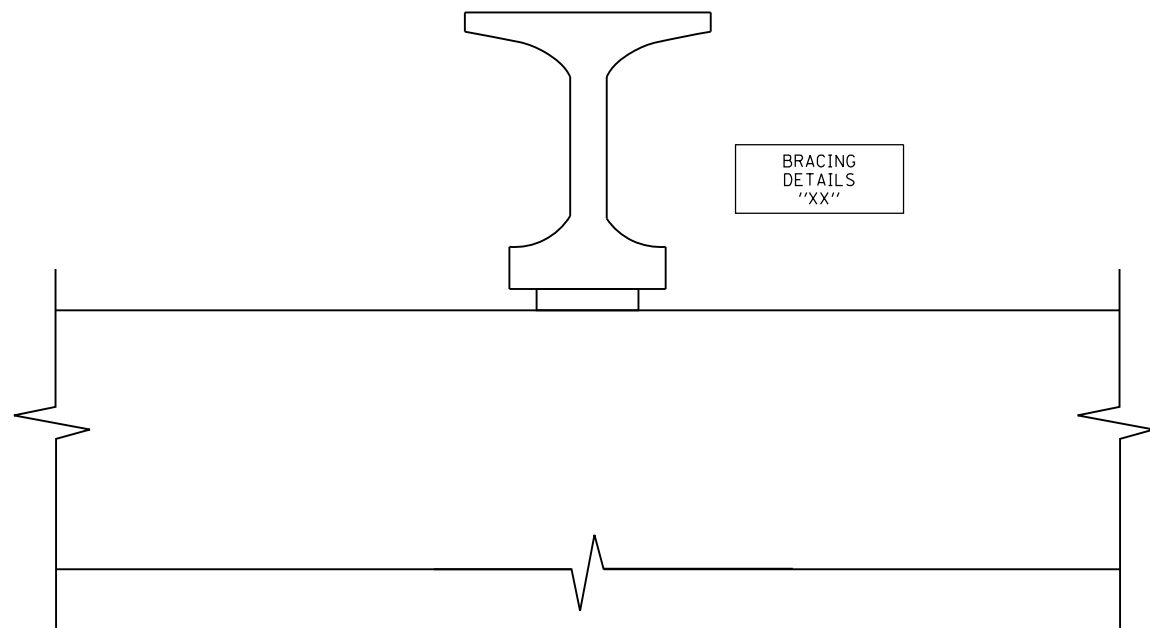
SINGLE CRANE

NOTES TO DESIGNER/CONTRACTOR

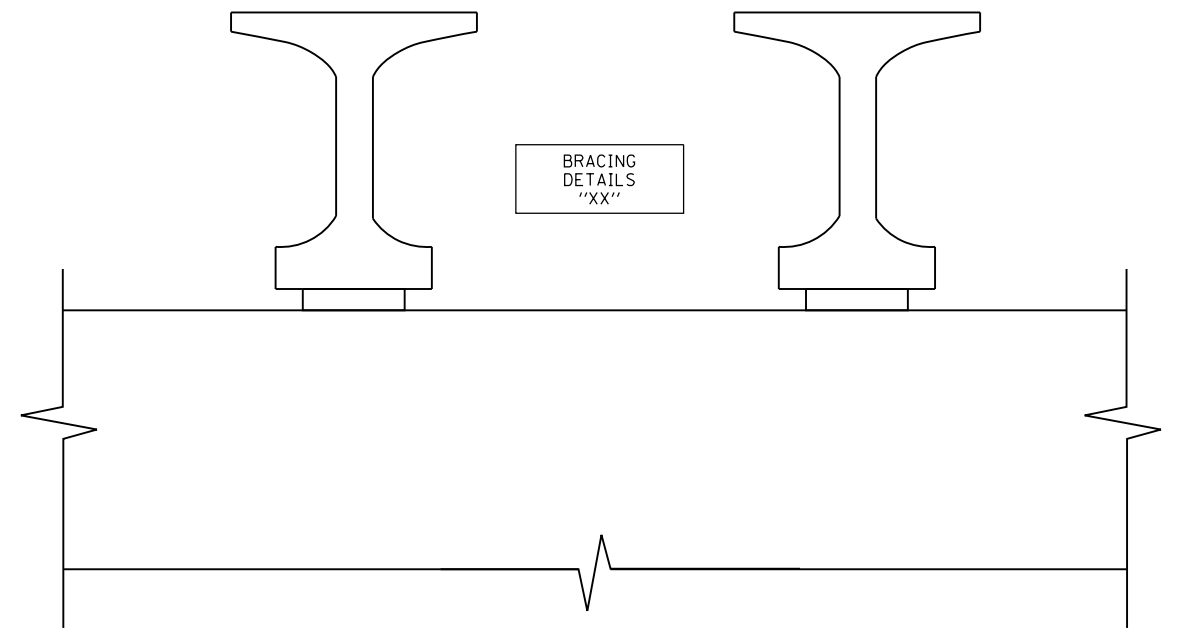
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TEMPORARY ERECTION
BRACING DETAIL



TEMPORARY ERECTION
BRACING DETAIL

NOTES TO DESIGNER/CONTRACTOR

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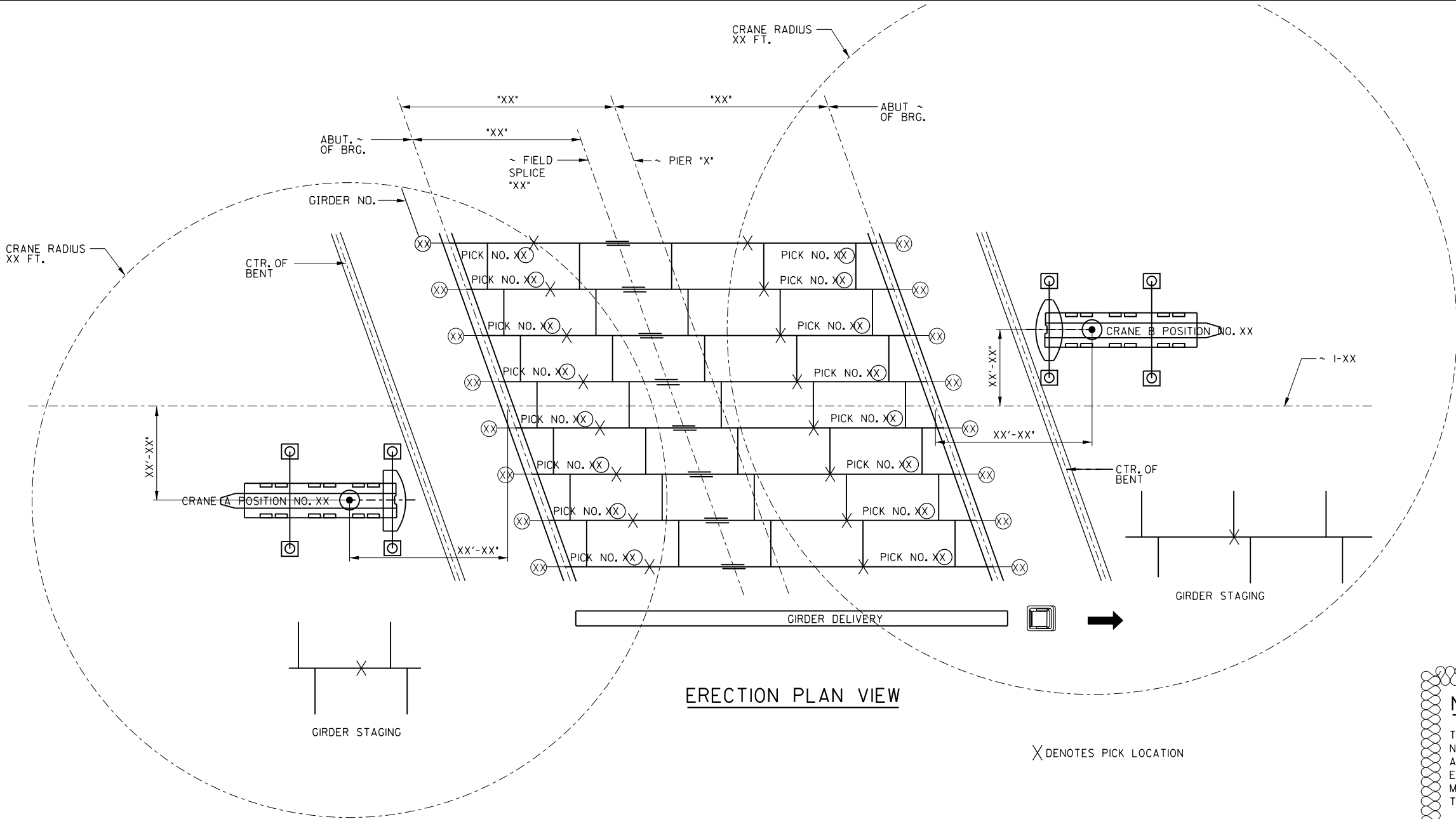
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M-BRG-527
SHEET 3 OF 3



ERECTION PLAN - CONCRETE

DATE
3-31-2017



ERECTION PLAN VIEW

X DENOTES PICK LOCATION

| PICK NO. | CRANE I.D. | GIRDER NO. | PIECE NO. | PIECE LENGTH | PIECE WEIGHT | RIGGING WEIGHT | TOTAL PICK WEIGHT | CRANE CAPACITY |
|----------|------------|------------|-----------|--------------|--------------|----------------|-------------------|----------------|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE TO DESIGNER/CONTRACTOR

TABLE HEADING AND INFORMATION ARE SUGGESTED AND FOR USE AS A GUIDE FOR PREPARATION OF SUBMITTAL.

NOTE TO DESIGNER/CONTRACTOR

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(OR EQUIVALENT)
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ANTICIPATED MAX WEIGHT XX,XXX LBS.
CAPACITY AT RADIUS= XX,XXX LBS.
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SWING SPEED=XX MPH.

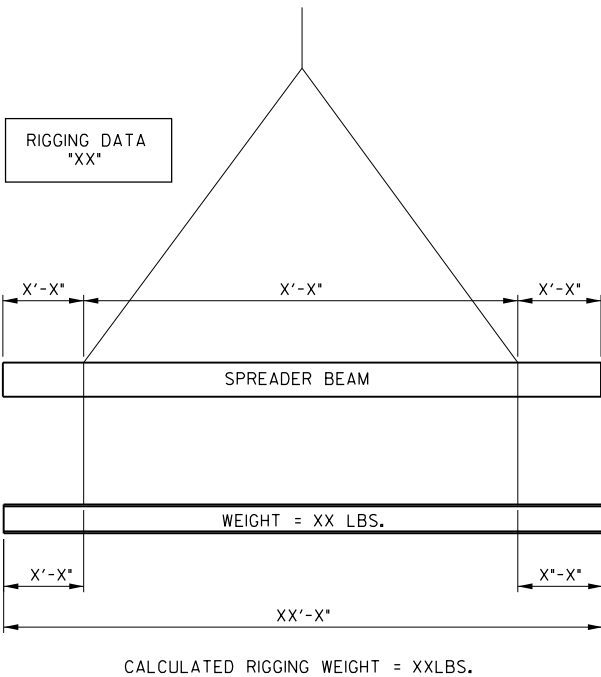
RISK ASSESMENT & LIMITATIONS:

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- ELECTRICAL HAZARD (OVERHEAD/UNDERGROUND). CLEARANCE DISTANCES SPOTTER IS REQUIRED/NOT REQUIRED. PUBLIC UTILITY CONTACT REQUIRED (LIST CONTACT INFORMATION).
-
-

ERECTION SEQUENCE:

- "XX"
- "XX"
- "XX"
- "XX"

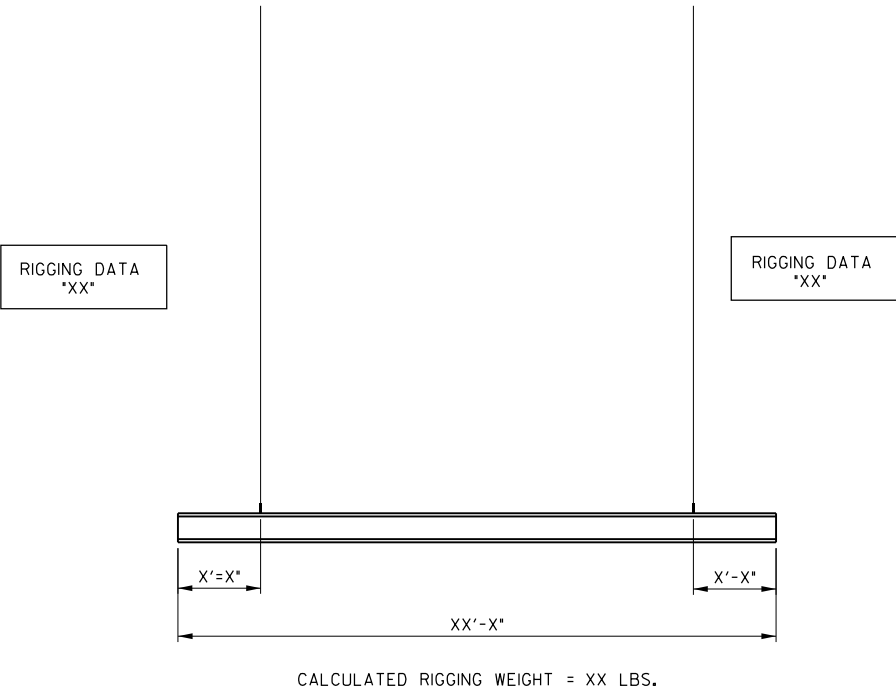




ELEVATION VIEW

RIGGING DETAILS

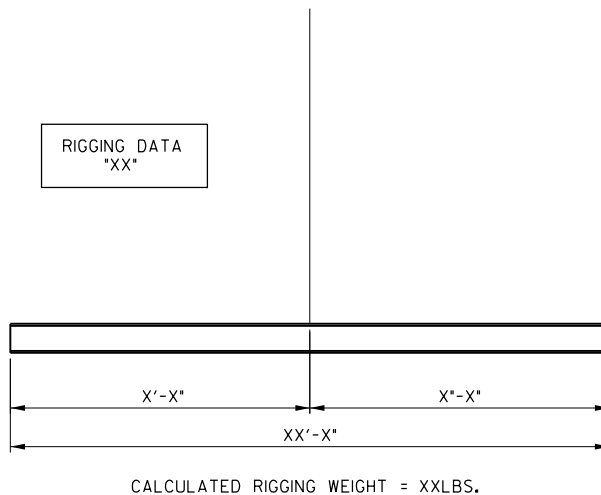
SINGLE CRANE WITH SPEADER BEAM



ELEVATION VIEW

RIGGING DETAILS

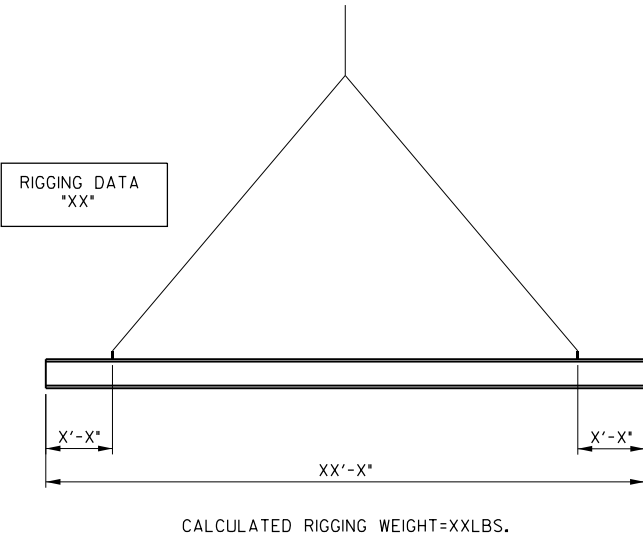
TWO CRANE



ELEVATION VIEW

RIGGING DETAILS

SINGLE CRANE



ELEVATION VIEW

RIGGING DETAILS

SINGLE CRANE

NOTES TO DESIGNER/CONTRACTOR

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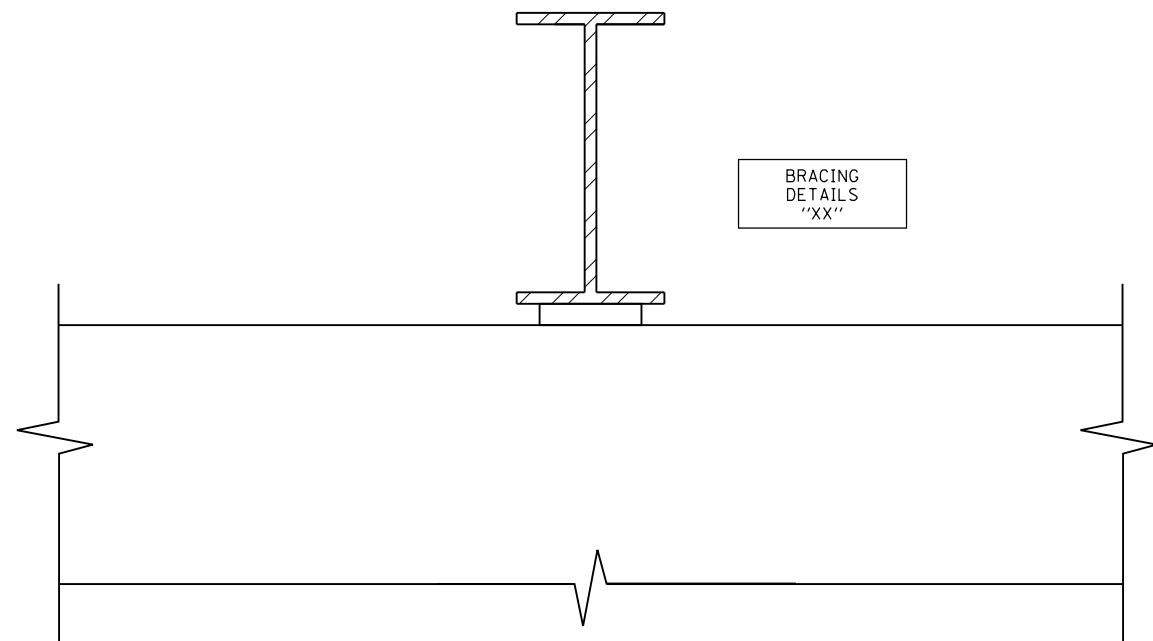
- *XX* DESIGNATES DIMENSION VALUES OR INPUT DATA TO BE PROVIDED ON SUBMITTED DRAWING.
- SPECIFY CENTER OF GRAVITY OF LOAD.

M-BRG-528
SHEET 2 OF 3

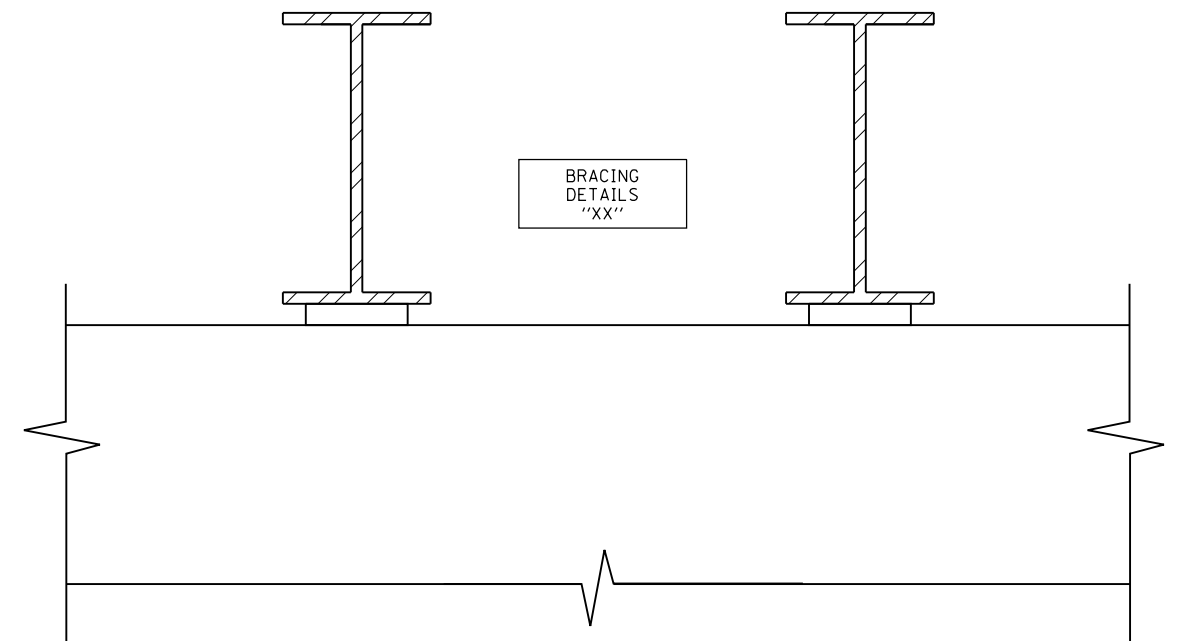


ERECTION PLAN - STEEL

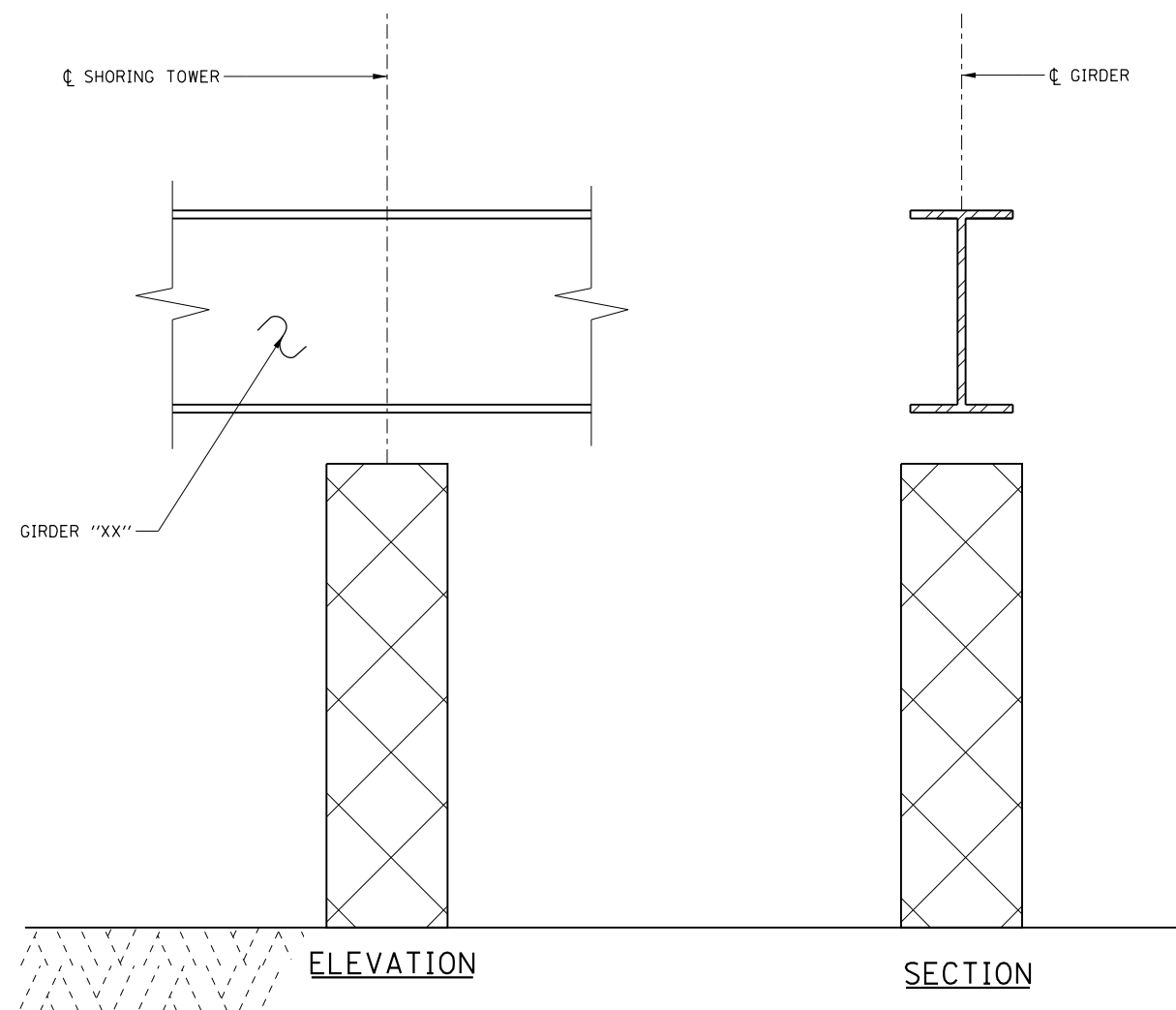
DATE
3-01-2020



TEMPORARY ERECTION
BRACING DETAIL



TEMPORARY ERECTION
BRACING DETAIL



TEMPORARY SHORING DETAILS

NOTES TO DESIGNER/CONTRACTOR

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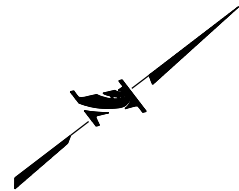
- "XX" DESIGNATES DIMENSION VALUES OR INPUT DATA TO BE PROVIDED ON SUBMITTED DRAWING.
- PROPOSED TEMPORARY SHORING AND DETAILS SHALL BE SHOWN.

M-BRG-528
SHEET 3 OF 3



ERECTION PLAN - STEEL

DATE
3-31-2017



NOTE TO DESIGNER

THIS SHEET IS NOT TO SCALE. DESIGNER TO DETERMINE APPROPRIATE SCALE ON GP&E SHEET TO ACCURATELY REPRESENT REQUIRED INFORMATION.

NOTE TO DESIGNER

ALL SIGNS MOUNTED TO NAW SHALL BE SHOWN ON GP&E IN ACCORDANCE WITH LATEST ILLINOIS TOLLWAY DETAIL FOR NOISE ABATEMENT WALL MOUNTED SIGN SUPPORT.

NOTE TO DESIGNER

THE BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DSE PRIOR TO INSERTION INTO A CONTRACT. THE DSE SHALL ACCEPT RESPONSIBILITY OF THE DESIGN UPON ITS COMPLETION AND INSERTION INTO A CONTRACT.

THIS BASE SHEET REPRESENTS THE TYPICAL DETAILS FOR STRUCTURE MOUNTED, NOISE ABATEMENT WALLS. THE DSE IS RESPONSIBLE FOR COMPLETING THE TABLES AND INCLUDE IN THEIR CONTRACT PLANS. IF ANY OF THE DESIGN PARAMETERS IN THE ILLINOIS TOLLWAY STANDARD ARE EXCEEDED, THE DSE WILL BE RESPONSIBLE FOR DESIGN CALCULATIONS AND DETAILS FOR THOSE COMPONENTS.

THE PLAN AND ELEVATION ON THIS COVER SHEET REPRESENTS ADDITIONAL INFORMATION TO SHOW ON THE GP&E SHEET. THE GP&E SHEET AND REMAINING NAW PLANS SHALL BE IN ACCORDANCE WITH ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ARTICLES 6.2.5 AND 23.3.

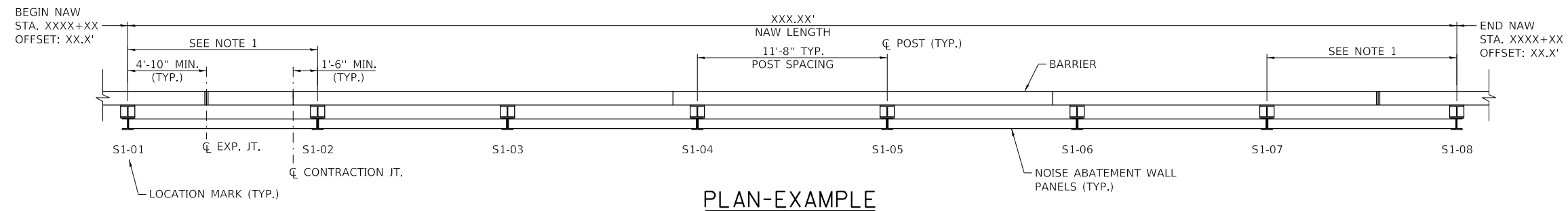
NOTE TO DESIGNER

THE COVER SHEET IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED IN THE DSE'S SET OF PLANS.

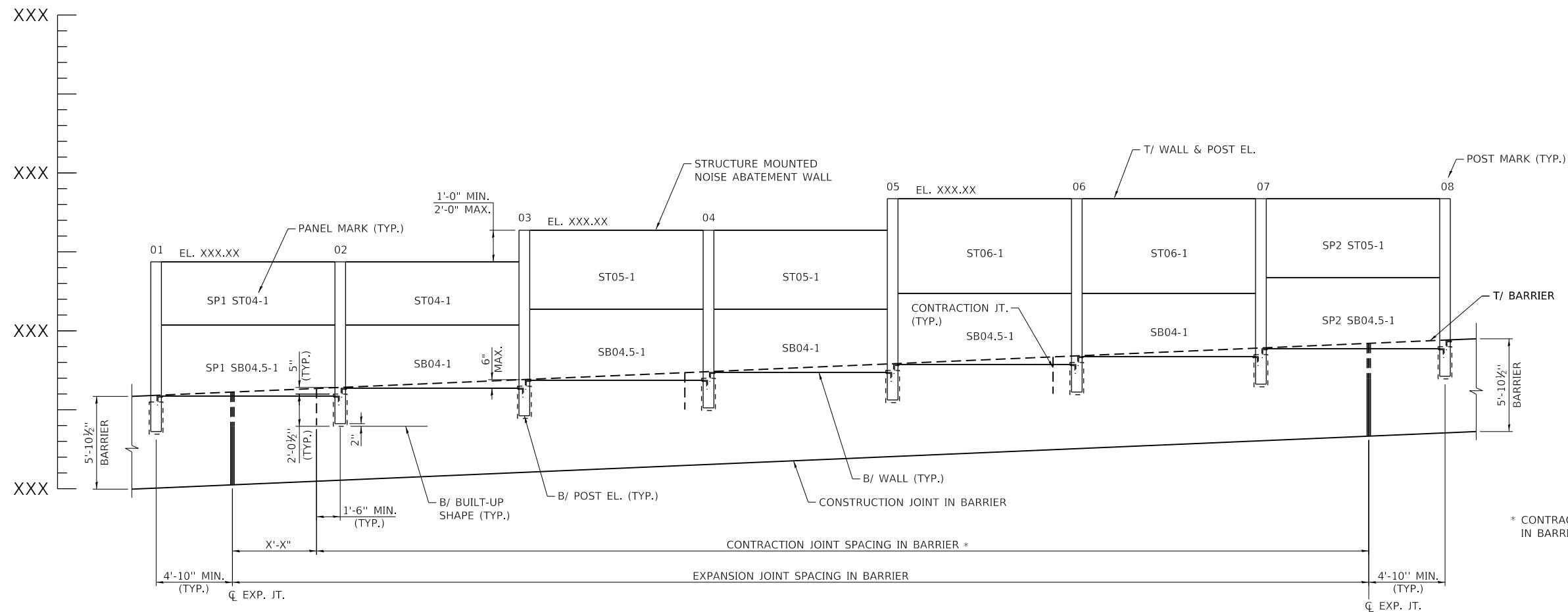
NOTE TO DESIGNER

NOTE:

- USE SPECIALTY PANEL AND POST SPACING AT ENDS OF WALL OR UNIQUE LOCATIONS SUCH AS CONTRACTION OR EXPANSION JOINT CONFLICTS TO ACCOMMODATE TYPICAL 11'-8" POST SPACING ALONG THE MAJORITY OF THE LENGTH OF WALL. POST SPACING SHOULD NOT EXCEED LIMITS WITHIN THE ILLINOIS TOLLWAY STANDARD. IF LIMITS ARE EXCEEDED, DSE TO DESIGN AND DETAIL ALL COMPONENTS.



PLAN-EXAMPLE



ELEVATION-EXAMPLE

* CONTRACTION JOINTS ARE NOT REQUIRED IN BARRIER/BARRIER ON MOMENT SLAB.

SHEET 1 OF 3
BASE SHEET M-BRG-529



STRUCTURE MOUNTED
NOISE ABATEMENT WALL
COVER SHEET

DATE
04-01-2020

STRUCTURE MOUNTED PANEL SCHEDULE

| PANEL MARK | PANEL HEIGHT | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|---------------|--------------|-------------|-----------------------|------------------|
| SB04-1 | 4'-0" | 11'-6" | 5½" | X |
| SB04.5-1 | 4'-6" | 11'-6" | 5½" | X |
| SC04-1 | 4'-0" | 11'-6" | 5½" | X |
| ST04-1 | 4'-0" | 11'-6" | 5½" | X |
| ST05-1 | 5'-0" | 11'-6" | 5½" | X |
| ST06-1 | 6'-0" | 11'-6" | 5½" | X |
| ST07-1 | 7'-0" | 11'-6" | 5½" | X |
| ST08-1 | 8'-0" | 11'-6" | | X |
| | | | | |
| STF04-1 | 4'-0" | 11'-6" | 5½" | X |
| STF04.5-1 | 4'-6" | 11'-6" | 5½" | X |
| STF05-1 | 5'-0" | 11'-6" | 5½" | X |
| STF05.5-1 | 5'-6" | 11'-6" | 5½" | X |
| STF06-1 | 6'-0" | 11'-6" | 5½" | X |
| STF06.5-1 | 6'-6" | 11'-6" | 5½" | X |
| STF07-1 | 7'-0" | 11'-6" | 5½" | X |
| STF07.5-1 | 7'-6" | 11'-6" | 5½" | X |
| STF08-1 | 8'-0" | 11'-6" | 5½" | X |
| | | | | |
| SPX SB04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX SB04.5-1 | 4'-6" | X'-X" | 5½" | X |
| SPX SC04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX ST04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX ST05-1 | 5'-0" | X'-X" | 5½" | X |
| SPX ST06-1 | 6'-0" | X'-X" | 5½" | X |
| SPX ST07-1 | 7'-0" | X'-X" | 5½" | X |
| SPX ST08-1 | 8'-0" | X'-X" | | X |
| | | | | |
| SPX STF04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX STF04.5-1 | 4'-6" | X'-X" | 5½" | X |
| SPX STF05-1 | 5'-0" | X'-X" | 5½" | X |
| SPX STF05.5-1 | 5'-6" | X'-X" | 5½" | X |
| SPX STF06-1 | 6'-0" | X'-X" | 5½" | X |
| SPX STF06.5-1 | 6'-6" | X'-X" | 5½" | X |
| SPX STF07-1 | 7'-0" | X'-X" | 5½" | X |
| SPX STF07.5-1 | 7'-6" | X'-X" | 5½" | X |
| SPX STF08-1 | 8'-0" | X'-X" | 5½" | X |

- NOTE:
- WORK THIS SHEET WITH ILLINOIS TOLLWAY STANDARD.

DESIGN SPECIFICATIONS

ILLINOIS TOLLWAY STRUCTURE DESIGN
MANUAL, MARCH 2019.

ILLINOIS TOLLWAY GEOTECHNICAL
MANUAL, MARCH 2019.

AASHTO LRFD BRIDGE DESIGN
SPECIFICATIONS. 8TH EDITION DATED
SEPTEMBER 2017.

CONSTRUCTION SPECIFICATIONS

ILLINOIS DEPARTMENT OF TRANSPORTATION GUIDE BRIDGE
SPECIAL PROVISIONS (GBSPs)

ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS TO THE
ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
ISSUED MARCH 30, 2019.

ILLINOIS DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL
SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS
ADOPTED JANUARY 1, 2019.

ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
ADOPTED APRIL 1, 2016.

GENERAL NOTES

- CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
- NO CONSTRUCTION JOINTS EXCEPT THOSE SHOWN ON THE PLANS SHALL BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
- THE CONTRACTOR MAY REQUEST COPIES OF EXISTING CONSTRUCTION PLANS THAT ARE CURRENTLY ON FILE WITH THE ILLINOIS TOLLWAY. THE REQUEST SHALL BE IN WRITING WITH THE UNDERSTANDING THAT ANY REPRODUCTION COST WILL BE AT THE CONTRACTOR’S EXPENSE AT NO ADDITIONAL COST TO THE ILLINOIS TOLLWAY.
- NO CONCRETE CUTTING SHALL BE PERMITTED UNTIL THE CUTTING LIMITS HAVE BEEN OUTLINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO STARTING CONSTRUCTION. CONTACT J.U.L.I.E., 800-892-0123.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL FIBER OPTIC UTILITIES PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL INITIATE THE LOCATION PROCESS FOR THE FIBER OPTIC CABLE BY COMPLETING A “REQUEST ILLINOIS TOLLWAY UTILITIES LOCATE” FORM ONLINE AT THE ILLINOIS TOLLWAY WEBSITE UNDER “DOING BUSINESS” AT LEAST FOUR (4) BUSINESS DAYS PRIOR TO STARTING ANY UNDERGROUND OPERATIONS, EXCAVATIONS OR DIGGING OF ANY TYPE IN THE GENERAL AREA OF THE FIBER OPTIC CABLE.”
- WHENEVER ANY MATERIAL IS DEPOSITED INTO A DRAINAGE SYSTEM OR DRAINAGE STRUCTURES, THE DEPOSITED MATERIAL SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE SYSTEMS AND STRUCTURES SHALL BE FREE FROM DIRT AND DEBRIS DEPOSITED DURING THE VARIOUS CONSTRUCTION OPERATIONS.

NOTE TO DESIGNER

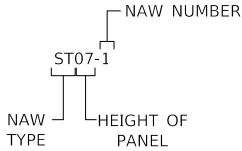
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THESE DETAILS UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DETAILS INTO THE PLAN SET.

NOTE TO DESIGNER

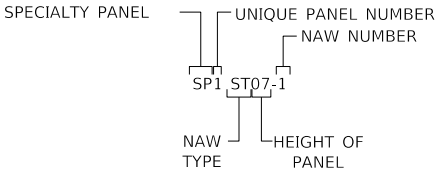
REMOVE BASE SHEET ID, "BASE SHEET"
AND BASE SHEET INFORMATION FROM
THE TITLE BLOCK.

NAW TYPE

STF = STRUCTURE MOUNTED FULL HEIGHT PANEL
ST = STRUCTURE MOUNTED TOP PANEL
SC = STRUCTURE MOUNTED CENTER PANEL
SB = STRUCTURE MOUNTED BOTTOM PANEL
SP = SPECIALTY PANEL



TYPICAL PANEL NAMING CONVENTION



SPECIALTY PANEL NAMING CONVENTION

NOTE TO DESIGNER

DESIGNER TO COMPLETE TABLES.

NOTE TO DESIGNER

PANEL MARK SHOULD BE SHOWN
ON THE ELEVATION VIEW ON THE
GP&E

LIST OF ABBREVIATIONS

| | |
|---------|--|
| AASHTO | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS |
| ABUT. | ABUTMENT |
| BK. | BACK |
| B.F. | BACK FACE |
| ℞ | BASELINE |
| BRG. | BEARING |
| BOTT. | BOTTOM |
| B/ | BOTTOM OF |
| BM | BRIDGE MOUNTED |
| ℄ | CENTERLINE |
| CL. | CLEARANCE |
| COL. | COLUMN |
| CONC. | CONCRETE |
| CGM | CRASHWORTHY GROUND MOUNTED |
| E.E. | EACH END |
| E. | EAST |
| EB | EASTBOUND |
| ELEV. | ELEVATION |
| EQ. | EQUAL |
| EXIST. | EXISTING |
| EXP. | EXPANSION |
| F.F. | FRONT FACE |
| JT. | JOINT |
| LOC. | LOCATION |
| MAX. | MAXIMUM |
| MIN. | MINIMUM |
| NAW | NOISE ABATEMENT WALL |
| N. | NORTH |
| N.A. | NOT APPLICABLE |
| O.C. | ON CENTER |
| ℞ | PLATE |
| PVC | POINT OF VERTICAL CURVE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENCY |
| PROP. | PROPOSED |
| SHLDR. | SHOULDER |
| S. | SOUTH |
| S.P. | SPECIAL PROVISION |
| SQ. FT. | SQUARE FOOT |
| SQ. YD. | SQUARE YARD |
| STA. | STATION |
| STRUCT | STRUCTURAL |
| S.M. | STRUCTURE MOUNTED |
| T/ | TOP OF |
| TYP. | TYPICAL |
| U.N.O. | UNLESS NOTED OTHERWISE |
| WB | WESTBOUND |
| WF | WIDE FLANGE |



[illegible]

(ADVANCE PROCUREMENT)

| PAY ITEM NO. | ITEM | UNIT | TOTAL |
|--------------|--|----------|-------|
| J1504520 | FURNISHING PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL PANELS, STRUCTURE MOUNTED | SQ. FT. | X |
| J1505230 | FURNISHING STRUCTURAL STEEL, NOISE ABATEMENT WALL | LBS. | X |
| J1599905 | INSTALLING PRECAST CONCRETE NOISE ABATEMENT WALL, STRUCTURE MOUNTED | SQ. FT. | X |
| J1505500 | STORAGE OF STRUCTURAL STEEL, NOISE ABATEMENT WALL | CAL. DAY | X |
| J1504550 | STORAGE OF PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL | CAL. DAY | X |

FOR THE FABRICATION CONTRACT

PICK UP OF THE NOISE ABATEMENT WALL STRUCTURAL STEEL FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

PICK UP OF THE PRECAST CONCRETE NOISE ABATEMENT PANELS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

OR COMBINE TO PICK UP OF THE MATERIALS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

THE MATERIAL FOR THE PRECAST CONCRETE NOISE ABATEMENT WALLS ARE STORED FOR PICK UP AT (XXXXXX). THE PICKUP OF THE MATERIAL IS ANTICIPATED FROM (XXXXX TO XXXX).

(NO ADVANCE PROCUREMENT)

| PAY ITEM NO. | ITEM | UNIT | TOTAL |
|--------------|--|---------|-------|
| JT599920 | PRECAST CONCRETE NOISE ABATEMENT WALL, STRUCTURE MOUNTED | SQ. FT. | X |

DESIGNER TO SELECT APPROPRIATE
TOTAL BILL OF MATERIAL AND INCLUDE
ONLY ONE IN PLANS BASED ON IF
ADVANCE PROCUREMENT CONTRACT IS
USED OR NOT.

01
└── POST NUMBER

S = STRUCTURE MOUNTED

```

      NAW NUMBER
      |
      |
    S1-01
      |  |
      |  |
NAW TYPE | POST LOCATION

```

MISC. STEEL WT. INCLUDES BUILT-UP
SHAPE, BEARING ANGLES, BENT PLATES,
ANCHOR BOLT ASSEMBLY, AND NOISE
BLOCKING ASSEMBLY. QUANTITIES
SHOWN ON STANDARD G12 ARE FOR
MAXIMUM NUMBER OF BENT PLATES.
ACTUAL QUANTITY SHALL BE USED IN
THE SCHEDULE.

LOCATION AND POST MARKS SHOULD
BE SHOWN ON THE GENERAL LAYOUT
OF POSTS ON THE GP&E

DESIGNER TO COMPLETE TABLES.

REMOVE BASE SHEET ID, "BASE SHEET"
AND BASE SHEET INFORMATION FROM
THE TITLE BLOCK.

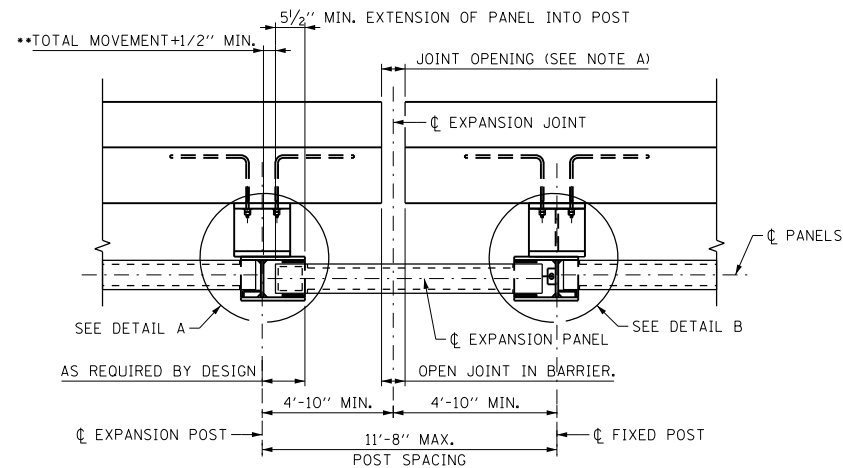
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THESE DETAILS UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DETAILS INTO THE PLAN SET.

SHEET 3 OF 3
BASE SHEET M-BRG-529



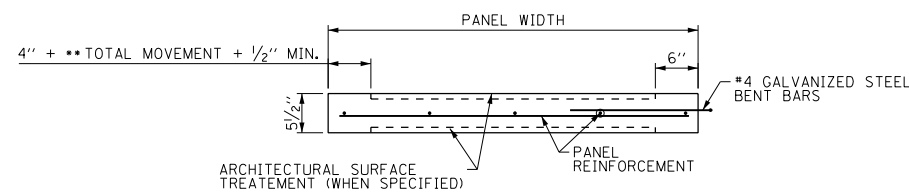
STRUCTURE MOUNTED
NOISE ABATEMENT WALL
SCHEDULE

DATE
04-01-2020



PLAN

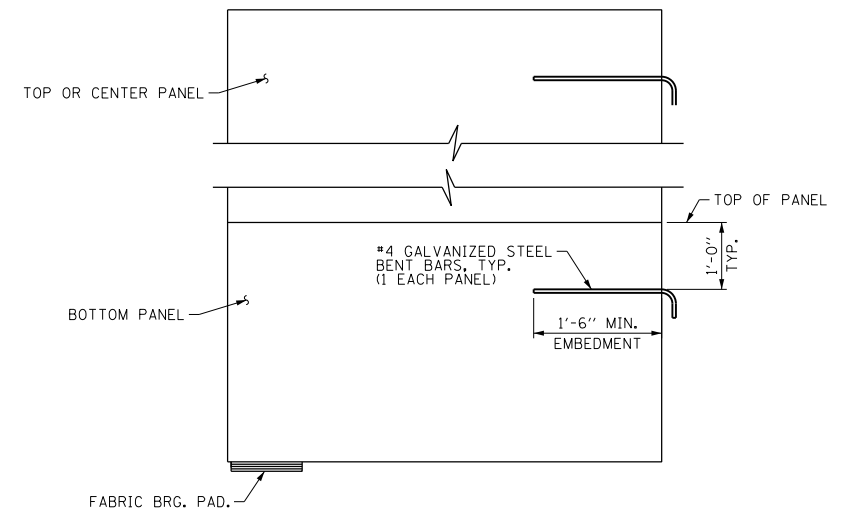
NOTE A. JOINT OPENING AS REQUIRED FOR BRIDGE EXPANSION AND CONTRACTION AT 50° F.



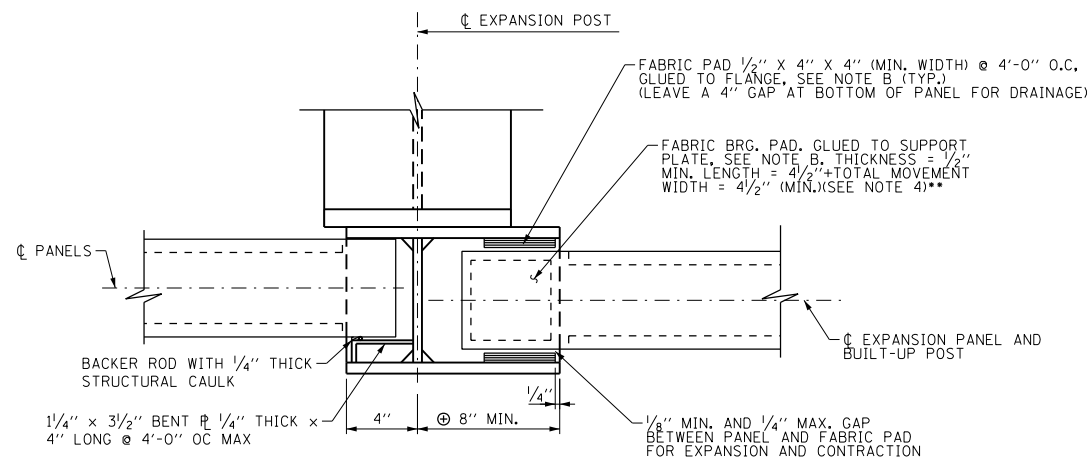
PRECAST CONCRETE EXPANSION PANEL

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THESE DETAILS UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DETAILS INTO THE PLAN SET.

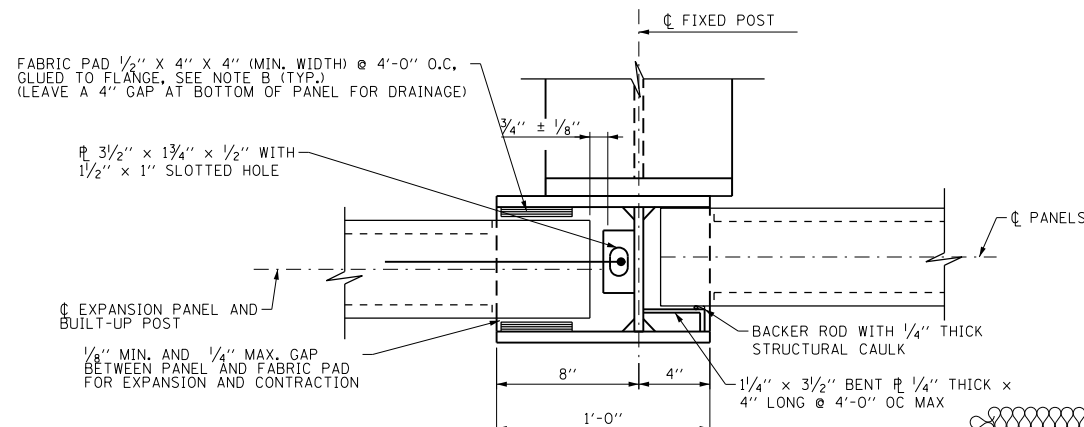


EXPANSION PANEL ELEVATION



DETAIL A (EXPANSION POST)

NOTE B. ADHESION OF THE PAD TO THE STEEL SHALL BE PER SECTION 1083.02 OF THE STANDARD SPECIFICATION.



DETAIL B (FIXED POST)

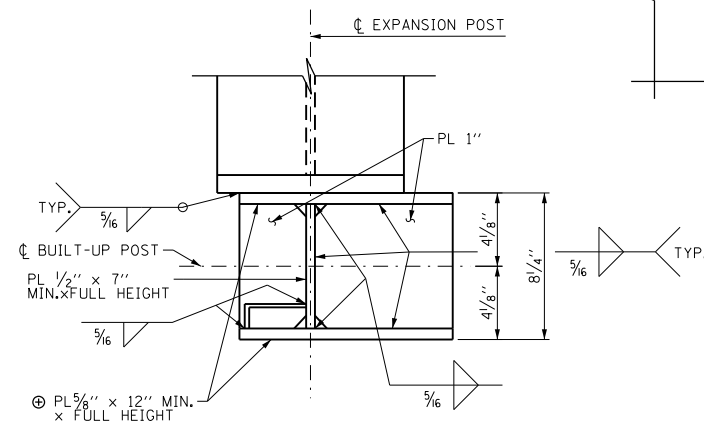
STEEL BENT BARS DETAIL

NOTE TO DESIGNER

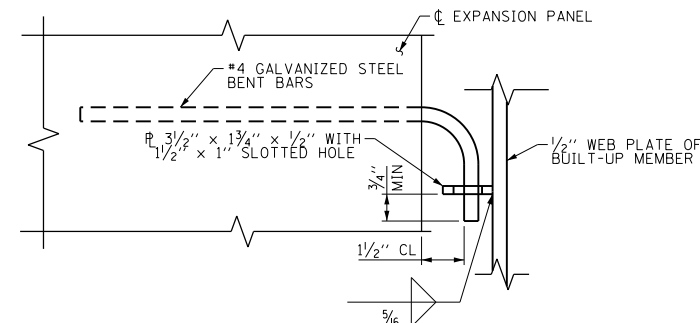
- THIS BASE SHEET SHALL BE USED WHEN THERE IS AN EXPANSION JOINT IN THE BRIDGE DECK AND PARAPET.
- DESIGNER MUST INCLUDE ALL DETAILS REQUIRED ON THE CONTRACT DRAWINGS.
- DESIGNER TO DETERMINE TOTAL MOVEMENT REQUIRED.
- DESIGNER TO PROVIDE NEOPRENE BEARING SIZE AND PLATE WIDTH FOR THE BUILT-UP SECTION AT EXPANSION POST BASED ON THE JOINT OPENING AND MOVEMENT.
- IF STRUCTURE MOUNTED SOUND BARRIER ENDS AT THE EXPANSION POST AND CONNECTS TO A GROUND MOUNTED BARRIER PROVIDE ADDITIONAL DETAILS AS REQUIRED IN ACCORDANCE WITH THESE STANDARDS.

⊕ MIN. SIZE SHOWN, PROVIDE SIZE REQUIRED PER DESIGN.

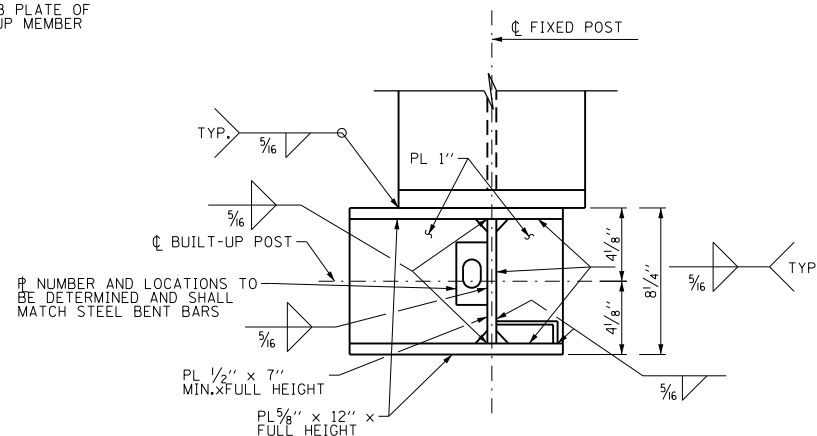
•• TOTAL EXPANSION MOVEMENT FROM NORMAL TEMPERATURE OF 50° F AT THE EXPANSION JOINT IN THE BRIDGE DECK AND PARAPET.



BUILT UP SHAPE (AT EXPANSION POST)



BARS LOCKING DETAIL (SECTION THRU HOLE)



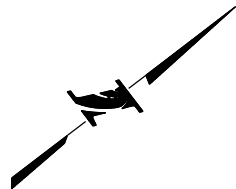
BUILT UP SHAPE (AT FIXED POST)

BASE SHEET M-BRG-530



STRUCTURE MOUNTED NOISE ABATEMENT WALL EXPANSION DETAILS

DATE
04-01-2020



NOTE TO DESIGNER

THIS SHEET IS NOT TO SCALE. DESIGNER TO DETERMINE APPROPRIATE SCALE ON GP&E SHEET TO ACCURATELY REPRESENT REQUIRED INFORMATION.

NOTE TO DESIGNER

ALL SIGNS MOUNTED TO NAW SHALL BE SHOWN ON GP&E IN ACCORDANCE WITH LATEST ILLINOIS TOLLWAY DETAIL FOR NOISE ABATEMENT WALL MOUNTED SIGN SUPPORT.

NOTE TO DESIGNER

THE BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DSE PRIOR TO INSERTION INTO A CONTRACT. THE DSE SHALL ACCEPT RESPONSIBILITY OF THE DESIGN UPON ITS COMPLETION AND INSERTION INTO A CONTRACT.

THIS BASE SHEET REPRESENTS THE TYPICAL DETAILS FOR STRUCTURE MOUNTED, NOISE ABATEMENT WALLS. THE DSE IS RESPONSIBLE FOR COMPLETING THE TABLES AND INCLUDE IN THEIR CONTRACT PLANS. IF ANY OF THE DESIGN PARAMETERS IN THE ILLINOIS TOLLWAY STANDARD ARE EXCEEDED, THE DSE WILL BE RESPONSIBLE FOR DESIGN CALCULATIONS AND DETAILS FOR THOSE COMPONENTS.

THE PLAN AND ELEVATION ON THIS COVER SHEET REPRESENTS ADDITIONAL INFORMATION TO SHOW ON THE GP&E SHEET. THE GP&E SHEET AND REMAINING NAW PLANS SHALL BE IN ACCORDANCE WITH ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ARTICLES 6.2.5 AND 23.3.

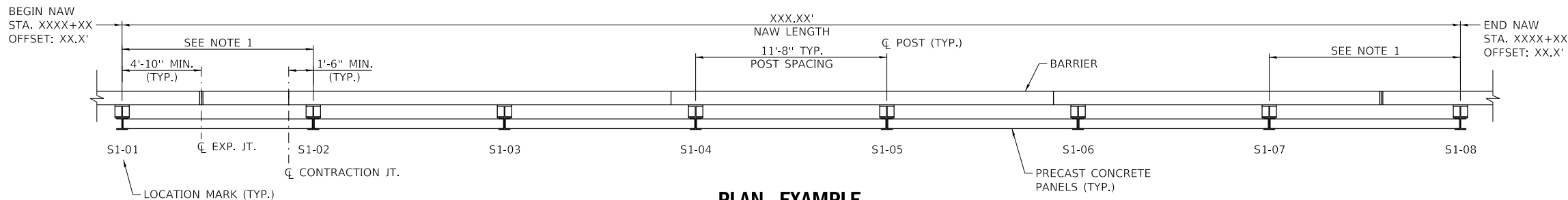
NOTE TO DESIGNER

THE COVER SHEET IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED IN THE DSE'S SET OF PLANS.

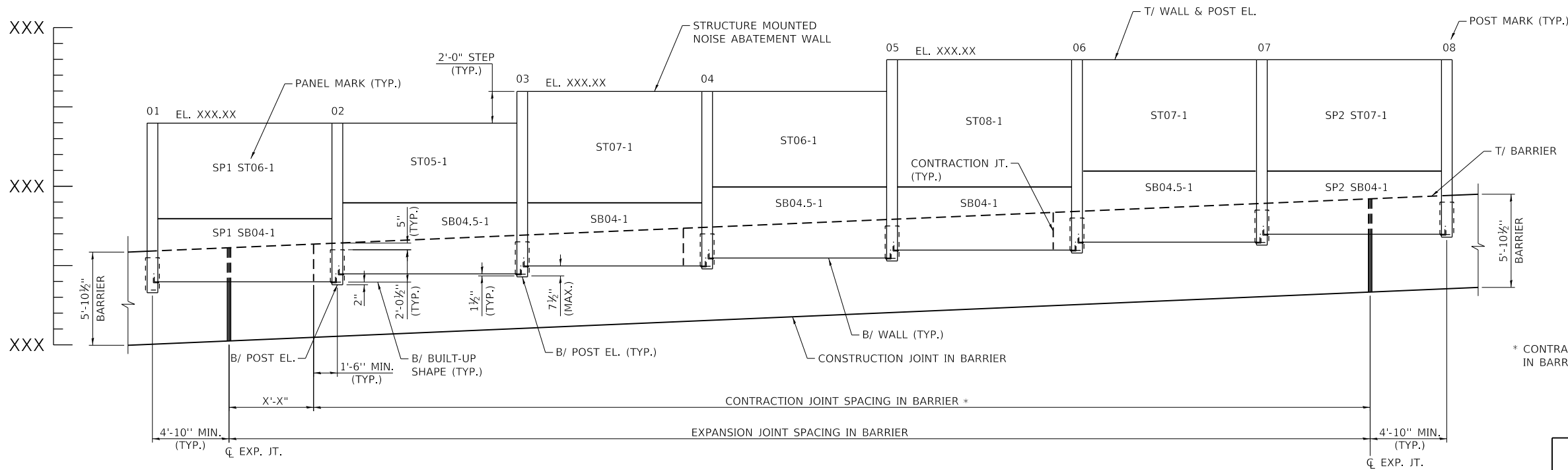
NOTE TO DESIGNER

NOTE:

- USE SPECIALTY PANEL AND POST SPACING AT ENDS OF WALL OR UNIQUE LOCATIONS SUCH AS CONTRACTION OR EXPANSION JOINT CONFLICTS TO ACCOMMODATE TYPICAL 11'-8" POST SPACING ALONG THE MAJORITY OF THE LENGTH OF WALL. POST SPACING SHOULD NOT EXCEED LIMITS WITHIN THE ILLINOIS TOLLWAY STANDARD. IF LIMITS ARE EXCEEDED, DSE TO DESIGN AND DETAIL ALL COMPONENTS. THE "SPX" DESIGNATION FOR SPECIALTY PANELS SHOULD BE USED FOR ALL PANELS WITHIN THAT BAY WITH THE SAME WIDTH.



PLAN - EXAMPLE



ELEVATION - EXAMPLE

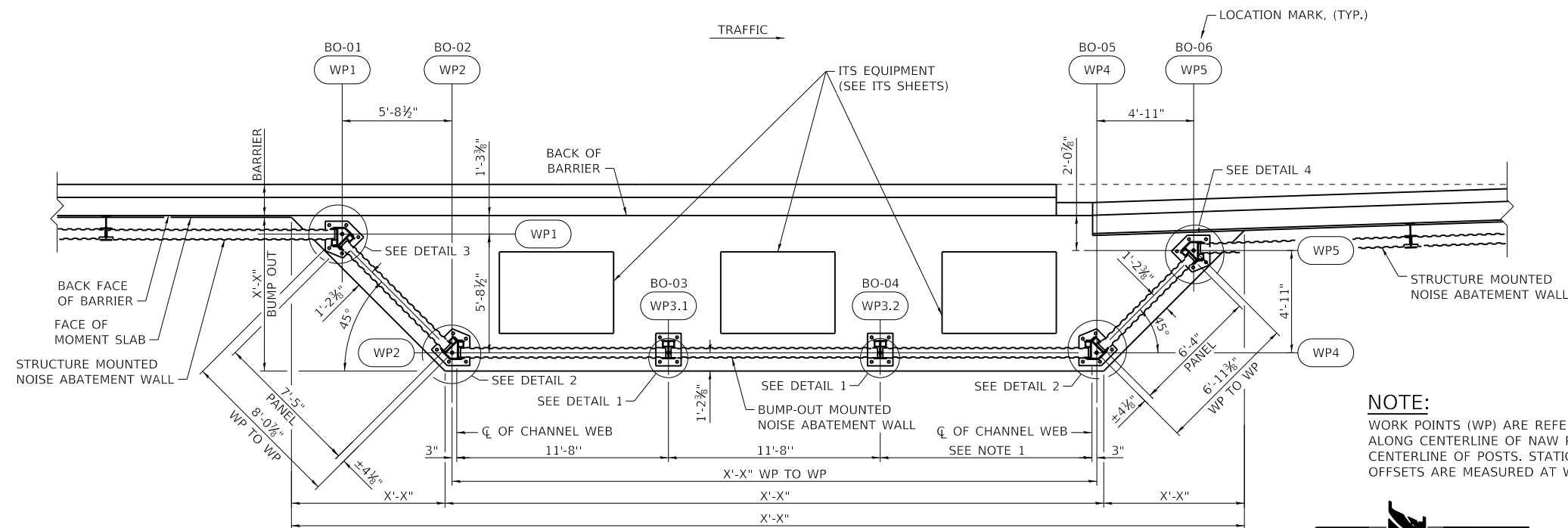
* CONTRACTION JOINTS ARE NOT REQUIRED IN BARRIER ON MOMENT SLAB.

SHEET 1 OF 4
BASE SHEET M-BRG-531

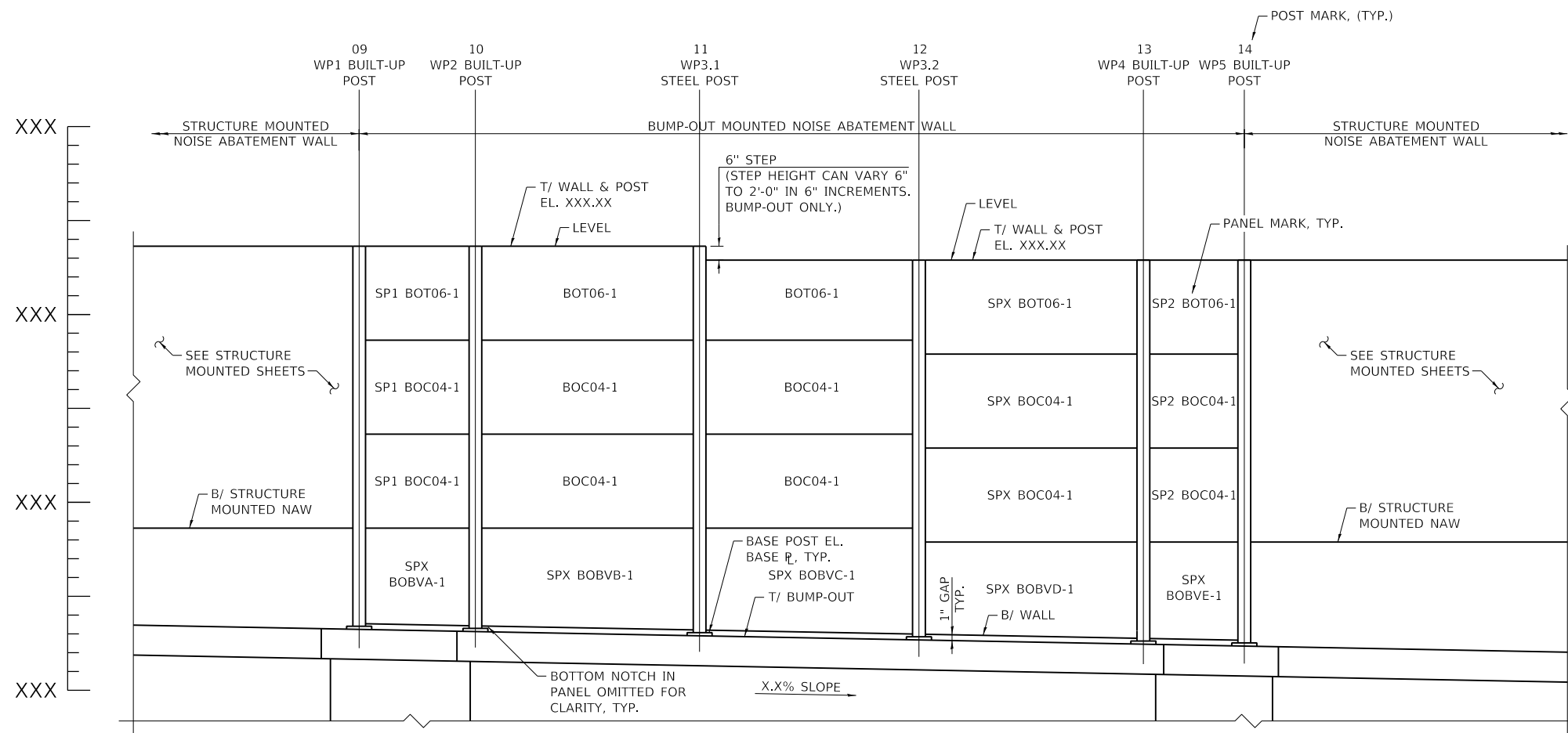


CENTRAL TRI-STATE
STRUCTURE MOUNTED
NOISE ABATEMENT WALL
COVER SHEET

DATE
04-01-2020



PLAN - EXAMPLE



ELEVATION - EXAMPLE

NOTE TO DESIGNER

THE COVER SHEET IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED IN THE DSE'S SET OF PLANS.

NOTE TO DESIGNER

THIS SHEET IS NOT TO SCALE. DESIGNER TO DETERMINE APPROPRIATE SCALE ON GP&E SHEET TO ACCURATELY REPRESENT REQUIRED INFORMATION.

NOTE TO DESIGNER

NOTE:

1. USE SPECIALTY PANEL AND POST SPACING AT END OF WALL TO ACCOMMODATE TYPICAL 11'-8" POST SPACING ALONG THE STRAIGHT LENGTH OF WALL. POST SPACING SHOULD NOT EXCEED LIMITS WITHIN THE ILLINOIS TOLLWAY STANDARD. IF LIMITS ARE EXCEEDED, DSE TO DESIGN AND DETAIL ALL COMPONENTS. THE "SPX" DESIGNATION FOR SPECIALTY PANELS SHOULD BE USED FOR ALL PANELS WITHIN BAY WITH THE SAME WIDTH.

NOTE TO DESIGNER

THE BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DSE PRIOR TO INSERTION INTO A CONTRACT. THE DSE SHALL ACCEPT RESPONSIBILITY OF THE DESIGN UPON ITS COMPLETION AND INSERTION INTO A CONTRACT.

THIS BASE SHEET REPRESENTS THE TYPICAL DETAILS FOR BUMP-OUT MOUNTED, NOISE ABATEMENT WALLS. THE DSE IS RESPONSIBLE FOR COMPLETING THE TABLES AND INCLUDING THEM IN THEIR CONTRACT PLANS. IF ANY OF THE DESIGN PARAMETERS IN THE ILLINOIS TOLLWAY STANDARD ARE EXCEEDED, THE DSE WILL BE RESPONSIBLE FOR DESIGN CALCULATIONS AND DETAILS FOR THOSE COMPONENTS.

THE PLAN AND ELEVATION ON THIS COVER SHEET REPRESENTS ADDITIONAL INFORMATION TO SHOW ON THE GP&E SHEET. THE GP&E SHEET AND REMAINING NAW PLANS SHALL BE IN ACCORDANCE WITH ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ARTICLES 6.2.5 AND 23.3.

SHEET 2 OF 4
BASE SHEET M-BRG-531



CENTRAL TRI-STATE
BUMP-OUT MOUNTED
NOISE ABATEMENT WALL
COVER SHEET

DATE
04-01-2020

STRUCTURE MOUNTED PANEL SCHEDULE

| PANEL MARK | PANEL HEIGHT | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|---------------|--------------|-------------|-----------------------|------------------|
| SB04-1 | 4'-0" | 11'-6" | 5½" | X |
| SB04.5-1 | 4'-6" | 11'-6" | 5½" | X |
| SC04-1 | 4'-0" | 11'-6" | 5½" | X |
| ST04-1 | 4'-0" | 11'-6" | 5½" | X |
| ST05-1 | 5'-0" | 11'-6" | 5½" | X |
| ST06-1 | 6'-0" | 11'-6" | 5½" | X |
| ST07-1 | 7'-0" | 11'-6" | 5½" | X |
| ST08-1 | 8'-0" | 11'-6" | | X |
| | | | | |
| STF04-1 | 4'-0" | 11'-6" | 5½" | X |
| STF04.5-1 | 4'-6" | 11'-6" | 5½" | X |
| STF05-1 | 5'-0" | 11'-6" | 5½" | X |
| STF05.5-1 | 5'-6" | 11'-6" | 5½" | X |
| STF06-1 | 6'-0" | 11'-6" | 5½" | X |
| STF06.5-1 | 6'-6" | 11'-6" | 5½" | X |
| STF07-1 | 7'-0" | 11'-6" | 5½" | X |
| STF07.5-1 | 7'-6" | 11'-6" | 5½" | X |
| STF08-1 | 8'-0" | 11'-6" | 5½" | X |
| | | | | |
| SPX SB04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX SB04.5-1 | 4'-6" | X'-X" | 5½" | X |
| SPX SC04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX ST04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX ST05-1 | 5'-0" | X'-X" | 5½" | X |
| SPX ST06-1 | 6'-0" | X'-X" | 5½" | X |
| SPX ST07-1 | 7'-0" | X'-X" | 5½" | X |
| SPX ST08-1 | 8'-0" | X'-X" | | X |
| | | | | |
| SPX STF04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX STF04.5-1 | 4'-6" | X'-X" | 5½" | X |
| SPX STF05-1 | 5'-0" | X'-X" | 5½" | X |
| SPX STF05.5-1 | 5'-6" | X'-X" | 5½" | X |
| SPX STF06-1 | 6'-0" | X'-X" | 5½" | X |
| SPX STF06.5-1 | 6'-6" | X'-X" | 5½" | X |
| SPX STF07-1 | 7'-0" | X'-X" | 5½" | X |
| SPX STF07.5-1 | 7'-6" | X'-X" | 5½" | X |
| SPX STF08-1 | 8'-0" | X'-X" | 5½" | X |

NOTE:
1. WORK THIS SHEET WITH ILLINOIS TOLLWAY STANDARD.

DESIGN SPECIFICATIONS

ILLINOIS TOLLWAY STRUCTURE DESIGN
MANUAL, MARCH 2019.

ILLINOIS TOLLWAY GEOTECHNICAL
MANUAL, MARCH 2019.

AASHTO LRFD BRIDGE DESIGN
SPECIFICATIONS. 8TH EDITION DATED
SEPTEMBER 2017.

CONSTRUCTION SPECIFICATIONS

ILLINOIS DEPARTMENT OF TRANSPORTATION GUIDE BRIDGE
SPECIAL PROVISIONS (GBSPs)

ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS TO THE
ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
ISSUED MARCH 30, 2019.

ILLINOIS DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL
SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS
ADOPTED JANUARY 1, 2019.

ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
ADOPTED APRIL 1, 2016.

BUMP-OUT STRUCTURE MOUNTED PANEL SCHEDULE

| PANEL MARK | PANEL HEIGHT | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|---------------|--------------|-------------|-----------------------|------------------|
| BOC04-1 | 4'-0" | 11'-6" | 5½" | X |
| BOC04.5-1 | 4'-6" | 11'-6" | 5½" | X |
| BOT04-1 | 4'-0" | 11'-6" | 5½" | X |
| BOT05-1 | 5'-0" | 11'-6" | 5½" | X |
| BOT06-1 | 6'-0" | 11'-6" | 5½" | X |
| BOT07-1 | 7'-0" | 11'-6" | 5½" | X |
| BOT08-1 | 8'-0" | 11'-6" | 5½" | X |
| | | | | |
| SP1 BOC04-1 | 4'-0" | 7'-5" | 5½" | X |
| SP1 BOC04.5-1 | 4'-6" | 7'-5" | 5½" | X |
| SP1 BOT04-1 | 4'-0" | 7'-5" | 5½" | X |
| SP1 BOT05-1 | 5'-0" | 7'-5" | 5½" | X |
| SP1 BOT06-1 | 6'-0" | 7'-5" | 5½" | X |
| SP1 BOT07-1 | 7'-0" | 7'-5" | 5½" | X |
| SP1 BOT08-1 | 8'-0" | 7'-5" | 5½" | X |
| | | | | |
| SP2 BOC04-1 | 4'-0" | 6'-4" | 5½" | X |
| SP2 BOC04.5-1 | 4'-6" | 6'-4" | 5½" | X |
| SP2 BOT04-1 | 4'-0" | 6'-4" | 5½" | X |
| SP2 BOT05-1 | 5'-0" | 6'-4" | 5½" | X |
| SP2 BOT06-1 | 6'-0" | 6'-4" | 5½" | X |
| SP2 BOT07-1 | 7'-0" | 6'-4" | 5½" | X |
| SP2 BOT08-1 | 8'-0" | 6'-4" | 5½" | X |
| | | | | |
| SPX BOC04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX BOC04.5-1 | 4'-6" | X'-X" | 5½" | X |
| SPX BOT04-1 | 4'-0" | X'-X" | 5½" | X |
| SPX BOT05-1 | 5'-0" | X'-X" | 5½" | X |
| SPX BOT06-1 | 6'-0" | X'-X" | 5½" | X |
| SPX BOT07-1 | 7'-0" | X'-X" | 5½" | X |
| SPX BOT08-1 | 8'-0" | X'-X" | 5½" | X |

NOTE:
1. WORK THIS SHEET WITH ILLINOIS TOLLWAY STANDARD.

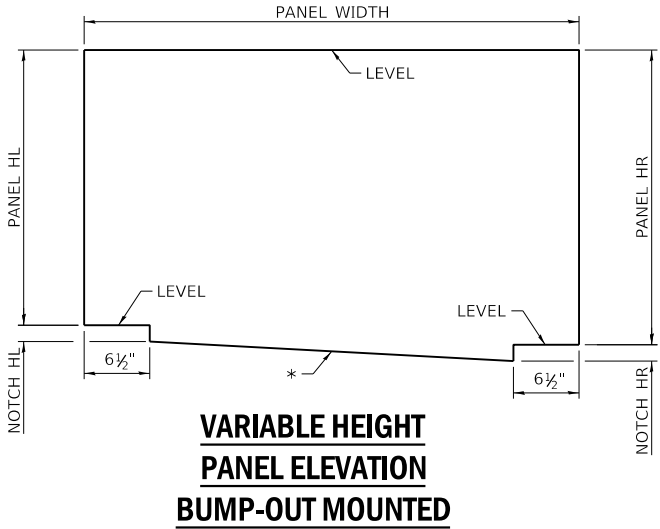
* TO ACCOMMODATE VARYING SLAB GRADES, PANEL HEIGHTS
WILL VARY TO FOLLOW SLOPE ON BUMP-OUT SLAB AND
MAINTAIN A 1" GAP BETWEEN BOTTOM OF PANEL AND TOP
OF SLAB.

GENERAL NOTES

- CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
- NO CONSTRUCTION JOINTS EXCEPT THOSE SHOWN ON THE PLANS SHALL BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
- THE CONTRACTOR MAY REQUEST COPIES OF EXISTING CONSTRUCTION PLANS THAT ARE CURRENTLY ON FILE WITH THE ILLINOIS TOLLWAY. THE REQUEST SHALL BE IN WRITING WITH THE UNDERSTANDING THAT ANY REPRODUCTION COST WILL BE AT THE CONTRACTOR'S EXPENSE AT NO ADDITIONAL COST TO THE ILLINOIS TOLLWAY.
- NO CONCRETE CUTTING SHALL BE PERMITTED UNTIL THE CUTTING LIMITS HAVE BEEN OUTLINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO STARTING CONSTRUCTION. CONTACT J.U.L.I.E., 800-892-0123.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL FIBER OPTIC UTILITIES PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL INITIATE THE LOCATION PROCESS FOR THE FIBER OPTIC CABLE BY COMPLETING A "REQUEST ILLINOIS TOLLWAY UTILITIES LOCATE" FORM ONLINE AT THE ILLINOIS TOLLWAY WEBSITE UNDER "DOING BUSINESS" AT LEAST FOUR (4) BUSINESS DAYS PRIOR TO STARTING ANY UNDERGROUND OPERATIONS, EXCAVATIONS OR DIGGING OF ANY TYPE IN THE GENERAL AREA OF THE FIBER OPTIC CABLE."
- WHENEVER ANY MATERIAL IS DEPOSITED INTO A DRAINAGE SYSTEM OR DRAINAGE STRUCTURES, THE DEPOSITED MATERIAL SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE SYSTEMS AND STRUCTURES SHALL BE FREE FROM DIRT AND DEBRIS DEPOSITED DURING THE VARIOUS CONSTRUCTION OPERATIONS.

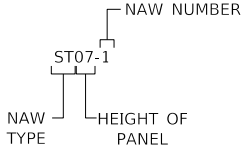
BUMP-OUT STRUCTURE MOUNTED VARIABLE HEIGHT PANEL SCHEDULE

| PANEL MARK | PANEL HL | NOTCH HL | PANEL HR | NOTCH HR | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|--------------|----------|----------|----------|----------|-------------|-----------------------|------------------|
| SPX BOBVA-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOBVB-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOBVC-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOBVD-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOBVE-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| | | | | | | | |
| SPX BOTFVA-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOTFVB-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOTFVC-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOTFVD-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |
| SPX BOTFVE-1 | X'-X" | X" | X'-X" | X" | X'-X" | 5½" | X |

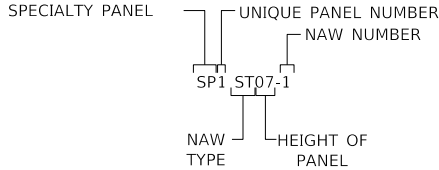


NAW TYPE

STF = STRUCTURE MOUNTED FULL HEIGHT PANEL
ST = STRUCTURE MOUNTED TOP PANEL
SC = STRUCTURE MOUNTED CENTER PANEL
SB = STRUCTURE MOUNTED BOTTOM PANEL
BOTFV = BUMP-OUT STRUCTURE MOUNTED FULL HEIGHT PANEL (VARIABLE HEIGHT)
BOT = BUMP-OUT STRUCTURE MOUNTED TOP PANEL
BOC = BUMP-OUT STRUCTURE MOUNTED CENTER PANEL
BOBV = BUMP-OUT STRUCTURE MOUNTED BOTTOM PANEL (VARIABLE HEIGHT)
SP = SPECIALTY PANEL



TYPICAL PANEL NAMING CONVENTION



SPECIALTY PANEL NAMING CONVENTION

NOTE TO DESIGNER
DESIGNER TO COMPLETE TABLES.

NOTE TO DESIGNER
PANEL MARK SHOULD BE SHOWN
ON THE ELEVATION VIEW ON THE
GP&E

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION
BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES
COMPLETION BY THE DESIGNER PRIOR TO INSERTION
INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE
RESPONSIBILITY OF THE DESIGN OF THESE DETAILS
UPON ITS COMPLETION AND INSERTION INTO A
CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE
REMOVED PRIOR TO INSERTION OF THE DETAILS INTO
THE PLAN SET.

NOTE TO DESIGNER

REMOVE BASE SHEET ID, "BASE SHEET"
AND BASE SHEET INFORMATION FROM
THE TITLE BLOCK.

LIST OF ABBREVIATIONS

| | |
|---------|--|
| AASHTO | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS |
| ABUT. | ABUTMENT |
| BK. | BACK |
| B.F. | BACK FACE |
| ℄ | BASELINE |
| BRG. | BEARING |
| BOTT. | BOTTOM |
| B/ | BOTTOM OF |
| BM | BRIDGE MOUNTED |
| ℄ | CENTERLINE |
| CL. | CLEARANCE |
| COL. | COLUMN |
| CONC. | CONCRETE |
| CGM | CRASHWORTHY GROUND MOUNTED |
| E.E. | EACH END |
| E. | EAST |
| EB | EASTBOUND |
| ELEV. | ELEVATION |
| EQ. | EQUAL |
| EXIST. | EXISTING |
| EXP. | EXPANSION |
| F.F. | FRONT FACE |
| JT. | JOINT |
| LOC. | LOCATION |
| MAX. | MAXIMUM |
| MIN. | MINIMUM |
| NAW | NOISE ABATEMENT WALL |
| N. | NORTH |
| N.A. | NOT APPLICABLE |
| O.C. | ON CENTER |
| ℄ | PLATE |
| PVC | POINT OF VERTICAL CURVE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENCY |
| PROP. | PROPOSED |
| SHLDR. | SHOULDER |
| S. | SOUTH |
| S.P. | SPECIAL PROVISION |
| SQ. FT. | SQUARE FOOT |
| SQ. YD. | SQUARE YARD |
| STA. | STATION |
| STRUCT | STRUCTURAL |
| S.M. | STRUCTURE MOUNTED |
| T/ | TOP OF |
| TYP. | TYPICAL |
| U.N.O. | UNLESS NOTED OTHERWISE |
| WB | WESTBOUND |
| WF | WIDE FLANGE |



CENTRAL TRI-STATE
STRUCTURE MOUNTED
NOISE ABATEMENT WALL
SCHEDULE

DATE
04-01-2020

[illegible]

(ADVANCE PROCUREMENT)

| PAY ITEM NO. | ITEM | UNIT | TOTAL |
|--------------|--|----------|-------|
| J1504520 | FURNISHING PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL PANELS, STRUCTURE MOUNTED | SQ. FT. | X |
| J1505230 | FURNISHING STRUCTURAL STEEL, NOISE ABATEMENT WALL | LBS. | X |
| JT599905 | INSTALLING PRECAST CONCRETE NOISE ABATEMENT WALL, STRUCTURE MOUNTED | SQ. FT. | X |
| J1505500 | STORAGE OF STRUCTURAL STEEL, NOISE ABATEMENT WALL | CAL. DAY | X |
| J1504550 | STORAGE OF PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL | CAL. DAY | X |

FOR THE FABRICATION CONTRACT

PICK UP OF THE NOISE ABATEMENT WALL STRUCTURAL STEEL FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

PICK UP OF THE PRECAST CONCRETE NOISE ABATEMENT PANELS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

OR COMBINE TO PICK UP OF THE MATERIALS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

THE MATERIAL FOR THE PRECAST CONCRETE NOISE ABATEMENT WALLS ARE STORED FOR PICK UP AT (XXXXXX). THE PICKUP OF THE MATERIAL IS ANTICIPATED FROM (XXXXX TO XXXX).

(NO ADVANCE PROCUREMENT)

| PAY ITEM NO. | ITEM | UNIT | TOTAL |
|--------------|--|---------|-------|
| JT599920 | PRECAST CONCRETE NOISE ABATEMENT WALL, STRUCTURE MOUNTED | SQ. FT. | X |

DESIGNER TO SELECT APPROPRIATE
TOTAL BILL OF MATERIAL AND INCLUDE
ONLY ONE IN PLANS BASED ON IF
ADVANCE PROCUREMENT CONTRACT IS
USED OR NOT.

01
└─ POST NUMBER

S = STRUCTURE MOUNTED
BO = BUMP-OUT MOUNTED

```

graph TD
    A[NAW NUMBER] --> B[S1-01]
    B --> C[NAW TYPE]
    B --> D[POST LOCATION]
  
```

MISC. STEEL WT. INCLUDES BUILT-UP
SHAPE, BEARING ANGLES, BENT PLATES
ANCHOR BOLT ASSEMBLY, NOISE
BLOCKING ASSEMBLY, CAP PLATES ETC.
QUANTITIES SHOWN ON STANDARDS
G13 AND G14 ARE FOR MAXIMUM
NUMBER OF BENT PLATES. ACTUAL
QUANTITY SHALL BE USED IN THE
SCHEDULE.

LOCATION AND POST MARKS SHOULD
BE SHOWN ON THE GENERAL LAYOUT
OF POSTS ON THE GP&E

DESIGNER TO COMPLETE TABLES.

REMOVE BASE SHEET ID, "BASE SHEET"
AND BASE SHEET INFORMATION FROM
THE TITLE BLOCK.

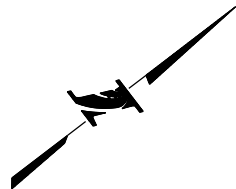
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THESE DETAILS UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DETAILS INTO THE PLAN SET.

SHEET 4 OF 4
BASE SHEET M-BRG-531



CENTRAL TRI-STATE
STRUCTURE MOUNTED
NOISE ABATEMENT WALL
SCHEDULE

DATE
04-01-2020

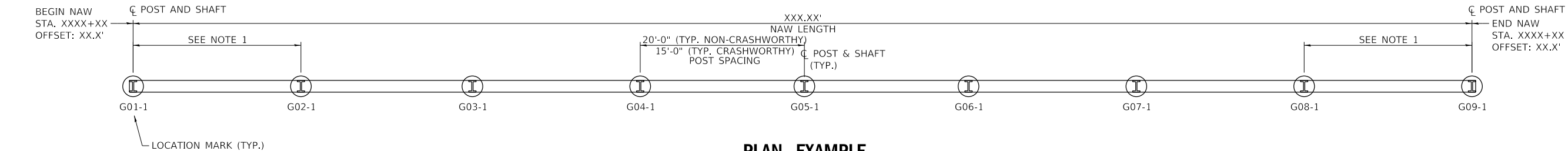


NOTE TO DESIGNER

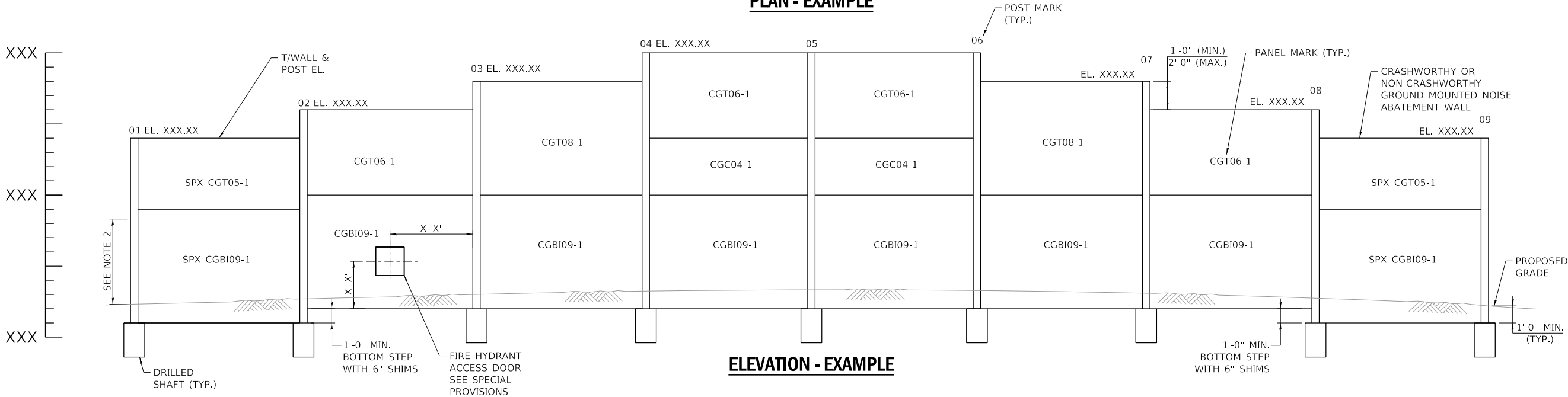
THE BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DSE PRIOR TO INSERTION INTO A CONTRACT. THE DSE SHALL ACCEPT RESPONSIBILITY OF THE DESIGN UPON ITS COMPLETION AND INSERTION INTO A CONTRACT.

THIS BASE SHEET REPRESENTS THE TYPICAL DETAILS FOR GROUND MOUNTED, NOISE ABATEMENT WALLS. THE DSE IS RESPONSIBLE FOR COMPLETING THE TABLES AND INCLUDE IN THEIR CONTRACT PLANS. IF ANY OF THE DESIGN PARAMETERS IN THE ILLINOIS TOLLWAY STANDARD ARE EXCEEDED, THE DSE WILL BE REPONSIBLE FOR DESIGN CALCULATIONS AND DETAILS FOR THOSE COMPONENTS.

THE PLAN AND ELEVATION ON THIS COVER SHEET REPRESENTS ADDITIONAL INFORMATION TO SHOW ON THE GP&E SHEET. THE GP&E SHEET AND REMAINING NAW PLANS SHALL BE IN ACCORDANCE WITH ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ARTICLES 6.2.5 AND 23.3.



PLAN - EXAMPLE



ELEVATION - EXAMPLE

NOTE TO DESIGNER

NOTE:

1. USE SPECIALTY PANEL AND POST SPACING AT ENDS OF WALL OR UNIQUE LOCATIONS SUCH AS UTILITY CROSSINGS TO ACCOMMODATE TYPICAL 20'-0" OR 15'-0" POST SPACING FOR NON-CRASHWORTHY OR CRASHWORTHY, RESPECTIVELY ALONG THE MAJORITY OF THE LENGTH OF WALL. POST SPACING SHOULD NOT EXCEED LIMITS WITHIN THE ILLINOIS TOLLWAY STANDARD. IF LIMITS ARE EXCEEDED, DSE TO DESIGN AND DETAIL ALL COMPONENTS. THE "SPX" DESIGNATION FOR SPECIALTY PANELS SHOULD BE USED FOR ALL PANELS WITHIN THAT BAY WITH THE SAME WIDTH.
2. FOR CRASHWORTHY NAW, PANELS WITHIN 6FT ABOVE FACE OF ROADWAY PAVEMENT SHALL BE THE TL-4 IMPACT PANELS.

NOTE TO DESIGNER

THIS DRAWING IS NOT TO SCALE. DESIGNER TO DETERMINE APPROPRIATE SCALE ON GP&E SHEET TO ACCURATELY REPRESENT REQUIRED INFORMATION.

NOTE TO DESIGNER

SEE BASE SHEET M-BRG-531 SHEET 2 OF 3 FOR PANEL DESIGNATIONS AND M-BRG-531 SHEET 3 OF 3 FOR POST DESIGNATIONS TO BE SHOWN ON THIS SHEET

NOTE TO DESIGNER

ALL SIGNS MOUNTED TO NAW SHALL BE SHOWN ON GP&E IN ACCORDANCE WITH LATEST ILLINOIS TOLLWAY DETAIL FOR NOISE ABATEMENT WALL MOUNTED SIGN SUPPORT.



NON-CRASHWORTHY NAW
GROUND MOUNTED PANEL SCHEDULE

| PANEL MARK | PANEL HEIGHT | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|--------------|--------------|-------------|-----------------------|------------------|
| GB04-1 | 4'-0" | 19'-10" | 7" | X |
| GBU04-1 | 4'-0" | 19'-10" | 9" | X |
| GC04-1 | 4'-0" | 19'-10" | 7" | X |
| GT04-1 | 4'-0" | 19'-10" | 7" | X |
| GT05-1 | 5'-0" | 19'-10" | 7" | X |
| GT06-1 | 6'-0" | 19'-10" | 7" | X |
| GT07-1 | 7'-0" | 19'-10" | 7" | X |
| GT08-1 | 8'-0" | 19'-10" | 7" | X |
| GTF04-1 | 4'-0" | 19'-10" | 7" | X |
| GTF05-1 | 5'-0" | 19'-10" | 7" | X |
| GTF06-1 | 6'-0" | 19'-10" | 7" | X |
| GTF07-1 | 7'-0" | 19'-10" | 7" | X |
| GTF08-1 | 8'-0" | 19'-10" | 7" | X |
| GTFU04-1 | 4'-0" | 19'-10" | 9" | X |
| GTFU05-1 | 5'-0" | 19'-10" | 9" | X |
| GTFU06-1 | 6'-0" | 19'-10" | 9" | X |
| GTFU07-1 | 7'-0" | 19'-10" | 9" | X |
| GTFU08-1 | 8'-0" | 19'-10" | 9" | X |
| | | | | |
| SPX GB04-1 | 4'-0" | 19'-10" | 7" | X |
| SPX GBU04-1 | 4'-0" | 19'-10" | 9" | X |
| SPX GC04-1 | 4'-0" | 19'-10" | 7" | X |
| SPX GT04-1 | 4'-0" | 19'-10" | 7" | X |
| SPX GT05-1 | 5'-0" | 19'-10" | 7" | X |
| SPX GT06-1 | 6'-0" | 19'-10" | 7" | X |
| SPX GT07-1 | 7'-0" | 19'-10" | 7" | X |
| SPX GT08-1 | 8'-0" | 19'-10" | 7" | X |
| SPX GTF04-1 | 4'-0" | 19'-10" | 7" | X |
| SPX GTF05-1 | 5'-0" | 19'-10" | 7" | X |
| SPX GTF06-1 | 6'-0" | 19'-10" | 7" | X |
| SPX GTF07-1 | 7'-0" | 19'-10" | 7" | X |
| SPX GTF08-1 | 8'-0" | 19'-10" | 7" | X |
| SPX GTFU04-1 | 4'-0" | 19'-10" | 9" | X |
| SPX GTFU05-1 | 5'-0" | 19'-10" | 9" | X |
| SPX GTFU06-1 | 6'-0" | 19'-10" | 9" | X |
| SPX GTFU07-1 | 7'-0" | 19'-10" | 9" | X |
| SPX GTFU08-1 | 8'-0" | 19'-10" | 9" | X |

NOTE:
1. WORK THIS SHEET WITH ILLINOIS TOLLWAY STANDARDS G14 AND G15.

GENERAL NOTES

- CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
- NO CONSTRUCTION JOINTS EXCEPT THOSE SHOWN ON THE PLANS SHALL BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
- THE CONTRACTOR MAY REQUEST COPIES OF EXISTING CONSTRUCTION PLANS THAT ARE CURRENTLY ON FILE WITH THE ILLINOIS TOLLWAY. THE REQUEST SHALL BE IN WRITING WITH THE UNDERSTANDING THAT ANY REPRODUCTION COST WILL BE AT THE CONTRACTOR'S EXPENSE AT NO ADDITIONAL COST TO THE ILLINOIS TOLLWAY.
- NO CONCRETE CUTTING SHALL BE PERMITTED UNTIL THE CUTTING LIMITS HAVE BEEN OUTLINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO STARTING CONSTRUCTION. CONTACT J.U.L.I.E., 800-892-0123.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL FIBER OPTIC UTILITIES PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL INITIATE THE LOCATION PROCESS FOR THE FIBER OPTIC CABLE BY COMPLETING A "REQUEST ILLINOIS TOLLWAY UTILITIES LOCATE" FORM ONLINE AT THE ILLINOIS TOLLWAY WEBSITE UNDER "DOING BUSINESS" AT LEAST FOUR (4) BUSINESS DAYS PRIOR TO STARTING ANY UNDERGROUND OPERATIONS, EXCAVATIONS OR DIGGING OF ANY TYPE IN THE GENERAL AREA OF THE FIBER OPTIC CABLE."
- THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.
- WHENEVER ANY MATERIAL IS DEPOSITED INTO A DRAINAGE SYSTEM OR DRAINAGE STRUCTURES, THE DEPOSITED MATERIAL SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE SYSTEMS AND STRUCTURES SHALL BE FREE FROM DIRT AND DEBRIS DEPOSITED DURING THE VARIOUS CONSTRUCTION OPERATIONS.

CRASHWORTHY NAW
GROUND MOUNTED PANEL SCHEDULE
(NO TL-4 IMPACT)

| PANEL MARK | PANEL HEIGHT | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|-------------|--------------|-------------|-----------------------|------------------|
| CGC04-1 | 4'-0" | 14'-10" | 9" | X |
| CGT05-1 | 5'-0" | 14'-10" | 9" | X |
| CGT06-1 | 6'-0" | 14'-10" | 9" | X |
| CGT07-1 | 7'-0" | 14'-10" | 9" | X |
| CGT08-1 | 8'-0" | 14'-10" | 9" | X |
| CGT09-1 | 9'-0" | 14'-10" | 9" | X |
| | | | | |
| SPX CGC04-1 | 4'-0" | X'-X" | 9" | X |
| SPX CGT05-1 | 5'-0" | X'-X" | 9" | X |
| SPX CGT06-1 | 6'-0" | X'-X" | 9" | X |
| SPX CGT07-1 | 7'-0" | X'-X" | 9" | X |
| SPX CGT08-1 | 8'-0" | X'-X" | 9" | X |
| SPX CGT09-1 | 9'-0" | X'-X" | 9" | X |
| | | | | |

NOTE TO DESIGNER

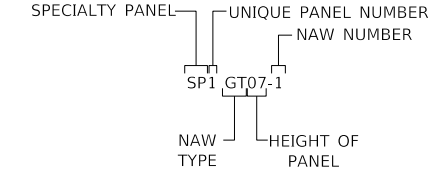
DESIGNER TO COMPLETE TABLES.

LIST OF ABBREVIATIONS

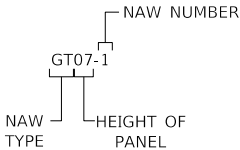
| | |
|-----------|--|
| AASHTO | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS |
| ABUT. BK. | ABUTMENT BACK |
| B.F. | BACK FACE |
| ℓ | BASELINE |
| BRG. | BEARING |
| BOTT. | BOTTOM |
| B/ | BOTTOM OF |
| BM | BRIDGE MOUNTED |
| ℄ | CENTERLINE |
| CL. | CLEARANCE |
| COL. | COLUMN |
| CONC. | CONCRETE |
| CGM | CRASHWORTHY GROUND MOUNTED |
| E.E. | EACH END |
| E. | EAST |
| EB | EASTBOUND |
| ELEV. | ELEVATION |
| EQ. | EQUAL |
| EXIST. | EXISTING |
| EXP. | EXPANSION |
| F.F. | FRONT FACE |
| JT. | JOINT |
| LOC. | LOCATION |
| MAX. | MAXIMUM |
| MIN. | MINIMUM |
| NAW | NOISE ABATEMENT WALL |
| N. | NORTH |
| N.A. | NOT APPLICABLE |
| O.C. | ON CENTER |
| ℄ | PLATE |
| PVC | POINT OF VERTICAL CURVE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENCY |
| PROP. | PROPOSED |
| SHLDR. | SHOULDER |
| S. | SOUTH |
| S.P. | SPECIAL PROVISION |
| SQ. FT. | SQUARE FOOT |
| SQ. YD. | SQUARE YARD |
| STA. | STATION |
| STRUCT | STRUCTURAL |
| S.M. | STRUCTURE MOUNTED |
| T/ | TOP OF |
| TYP. | TYPICAL |
| U.N.O. | UNLESS NOTED OTHERWISE |
| WB | WESTBOUND |
| WF | WIDE FLANGE |

CRASHWORTHY NAW
GROUND MOUNTED PANEL SCHEDULE
(TL-4 IMPACT)

| PANEL MARK | PANEL HEIGHT | PANEL WIDTH | TOTAL PANEL THICKNESS | NUMBER OF PANELS |
|---------------|--------------|-------------|-----------------------|------------------|
| CGBI06-1 | 6'-0" | 14'-10" | 11" | X |
| CGBI07-1 | 7'-0" | 14'-10" | 11" | X |
| CGBI08-1 | 8'-0" | 14'-10" | 11" | X |
| CGBI09-1 | 9'-0" | 14'-10" | 11" | X |
| CGCI06-1 | 6'-0" | 14'-10" | 11" | X |
| CGCI07-1 | 7'-0" | 14'-10" | 11" | X |
| CGCI08-1 | 8'-0" | 14'-10" | 11" | X |
| CGCI09-1 | 9'-0" | 14'-10" | 11" | X |
| CGTI06-1 | 6'-0" | 14'-10" | 11" | X |
| CGTI07-1 | 7'-0" | 14'-10" | 11" | X |
| CGTI08-1 | 8'-0" | 14'-10" | 11" | X |
| CGTI09-1 | 9'-0" | 14'-10" | 11" | X |
| CGTFI06-1 | 6'-0" | 14'-10" | 11" | X |
| CGTFI07-1 | 7'-0" | 14'-10" | 11" | X |
| CGTFI08-1 | 8'-0" | 14'-10" | 11" | X |
| CGTFI09-1 | 9'-0" | 14'-10" | 11" | X |
| | | | | |
| SPX CGBI06-1 | 6'-0" | X'-X" | 11" | X |
| SPX CGBI07-1 | 7'-0" | X'-X" | 11" | X |
| SPX CGBI08-1 | 8'-0" | X'-X" | 11" | X |
| SPX CGBI09-1 | 9'-0" | X'-X" | 11" | X |
| SPX CGCI06-1 | 6'-0" | X'-X" | 11" | X |
| SPX CGCI07-1 | 7'-0" | X'-X" | 11" | X |
| SPX CGCI08-1 | 8'-0" | X'-X" | 11" | X |
| SPX CGCI09-1 | 9'-0" | X'-X" | 11" | X |
| SPX CGTI06-1 | 6'-0" | X'-X" | 11" | X |
| SPX CGTI07-1 | 7'-0" | X'-X" | 11" | X |
| SPX CGTI08-1 | 8'-0" | X'-X" | 11" | X |
| SPX CGTI09-1 | 9'-0" | X'-X" | 11" | X |
| SPX CGTFI06-1 | 6'-0" | X'-X" | 11" | X |
| SPX CGTFI07-1 | 7'-0" | X'-X" | 11" | X |
| SPX CGTFI08-1 | 8'-0" | X'-X" | 11" | X |
| SPX CGTFI09-1 | 9'-0" | X'-X" | 11" | X |



SPECIALTY PANEL NAMING CONVENTION



TYPICAL PANEL NAMING CONVENTION

NOTE TO DESIGNER

PANEL MARK SHOULD BE SHOWN ON THE ELEVATION VIEW ON THE GP&E

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THESE DETAILS UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DETAILS INTO THE PLAN SET.

NOTE TO DESIGNER

REMOVE BASE SHEET ID, "BASE SHEET" AND BASE SHEET INFORMATION FROM THE TITLE BLOCK.

NAW TYPE

GTF= NON-CRASHWORTHY GROUND MOUNTED FULL HEIGHT PANEL
* GTFU= NON-CRASHWORTHY GROUND MOUNTED FULL HEIGHT PANEL (UNBALANCED SOIL LOAD)
GT = NON-CRASHWORTHY GROUND MOUNTED TOP PANEL
GC = NON-CRASHWORTHY GROUND MOUNTED CENTER PANEL
GB = NON-CRASHWORTHY GROUND MOUNTED BOTTOM PANEL
* GBU = NON-CRASHWORTHY GROUND MOUNTED BOTTOM PANEL (UNBALANCED SOIL LOAD)
** CGT = CRASHWORTHY GROUND MOUNTED TOP PANEL (NO TL-4 IMPACT)
** CGC = CRASHWORTHY GROUND MOUNTED CENTER PANEL (NO TL-4 IMPACT)
*** CGTFI = CRASHWORTHY GROUND MOUNTED FULL HEIGHT PANEL (TL-4 IMPACT)
*** CGTI = CRASHWORTHY GROUND MOUNTED TOP PANEL (TL-4 IMPACT)
*** CGCI = CRASHWORTHY GROUND MOUNTED CENTER PANEL (TL-4 IMPACT)
*** CGBI = CRASHWORTHY GROUND MOUNTED BOTTOM PANEL (TL-4 IMPACT)
SP = SPECIALTY PANEL

* THESE PANELS HAVE BEEN DESIGNED FOR THE MAXIMUM UNBALANCED SOIL LOAD.

** THESE PANELS HAVE BEEN DESIGNED FOR THE 4KIP VEHICLE COLLISION LOADING.

*** THESE PANELS HAVE BEEN DESIGNED FOR THE 54KIP TL-4 VEHICLE COLLISION LOADING.

DESIGN SPECIFICATIONS

ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL, MARCH 2020.

ILLINOIS TOLLWAY GEOTECHNICAL MANUAL, MARCH 2020.

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. 8TH EDITION DATED SEPTEMBER 2017.

CONSTRUCTION SPECIFICATIONS

ILLINOIS DEPARTMENT OF TRANSPORTATION GUIDE BRIDGE SPECIAL PROVISIONS (GBSPs)

ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ISSUED MARCH 30, 2020.

ILLINOIS DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS ADOPTED JANUARY 1, 2020.

ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED APRIL 1, 2016.

SHEET 2 OF 3
BASE SHEET M-BRG-532



GROUND MOUNTED
NOISE ABATEMENT WALL
SCHEDULE

DATE

04-01-2020

[illegible][illegible]

(NO ADVANCE PROCUREMENT)

| PAY ITEM NO. | ITEM | UNIT | TOTAL |
|--------------|--|---------|-------|
| JT599910 | PRECAST CONCRETE NOISE ABATEMENT WALL, GROUND MOUNTED, NON-CRASHWORTHY | SQ. FT. | X |
| JT599915 | PRECAST CONCRETE NOISE ABATEMENT WALL, GROUND MOUNTED, CRASHWORTHY | SQ. FT. | X |

* POST IS LOCATED AT 90° TURN AND REQUIRES
ADDITIONAL ANGLES WELDED TO FLANGE.

(ADVANCE PROCUREMENT)

| PAY ITEM NO. | ITEM | UNIT | TOTAL |
|--------------|--|---------|-------|
| J1504510 | FURNISHING PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL, GROUND MOUNTED, NON-CRASHWORTHY | SQ. FT. | X |
| J1504515 | FURNISHING PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL, GROUND MOUNTED, CRASHWORTHY, 13" | SQ. FT. | X |
| J1504516 | FURNISHING PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL, GROUND MOUNTED, CRASHWORTHY, 9" | SQ. FT. | X |
| J1504550 | STORAGE OF PRECAST CONCRETE PANELS, NOISE ABATEMENT WALL | CAL DAY | X |
| J1505230 | FURNISHING STRUCTURAL STEEL, NOISE ABATEMENT WALL | LBS. | X |
| J1505500 | STORAGE OF STRUCTURAL STEEL, NOISE ABATEMENT WALL | CAL DAY | X |
| J1599900 | INSTALLING PRECAST CONCRETE NOISE ABATEMENT WALL, GROUND MOUNTED | SQ. FT. | X |

FOR THE FABRICATION CONTRACT

PICK UP OF THE NOISE ABATEMENT WALL POSTS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

PICK UP OF THE PRECAST CONCRETE NOISE ABATEMENT PANELS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

COMBINE TO PICK UP OF THE MATERIALS FROM THE CONTRACTORS STORAGE IS ANTICIPATED FROM (XXXX- TO XXX).

FOR THE INSTALLATION CONTRACT

THE MATERIAL FOR THE PRECAST CONCRETE NOISE ABATEMENT WALLS ARE STORED FOR PICK UP AT (XXXXXX)
THE PICKUP OF THE MATERIAL IS ANTICIPATED FROM (XXXXX TO XXXX).

REMOVE BASE SHEET ID, "BASE SHEET"
AND BASE SHEET INFORMATION FROM
THE TITLE BLOCK.

NAW TYPE — G01-1 — NAW NUMBER — SHAFT AND/OR POST LOCATION —

LOCATION MARK CONVENTION

NOTE

1. WORK THIS SHEET WITH ILLINOIS TOLLWAY STANDARDS G14 AND G15.

LOCATION AND POST MARKS SHOULD
BE SHOWN ON THE GENERAL LAYOUT
OF DRILLED SHAFT AND POSTS ON THE
GP&E

DESIGNER TO SELECT APPROPRIATE TOTAL
BILL OF MATERIAL AND INCLUDE ONLY ONE
IN PLANS BASED ON IF ADVANCE
PROCUREMENT CONTRACT IS USED OR NOT.

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THESE DETAILS UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DETAILS INTO THE PLAN SET.

DESIGNER TO COMPLETE TABLES.

SHEET 3 OF 3
BASE SHEET M-BRG-532



GROUND MOUNTED NOISE ABATEMENT WALL SCHEDULE

DATE _____

04-01-2020