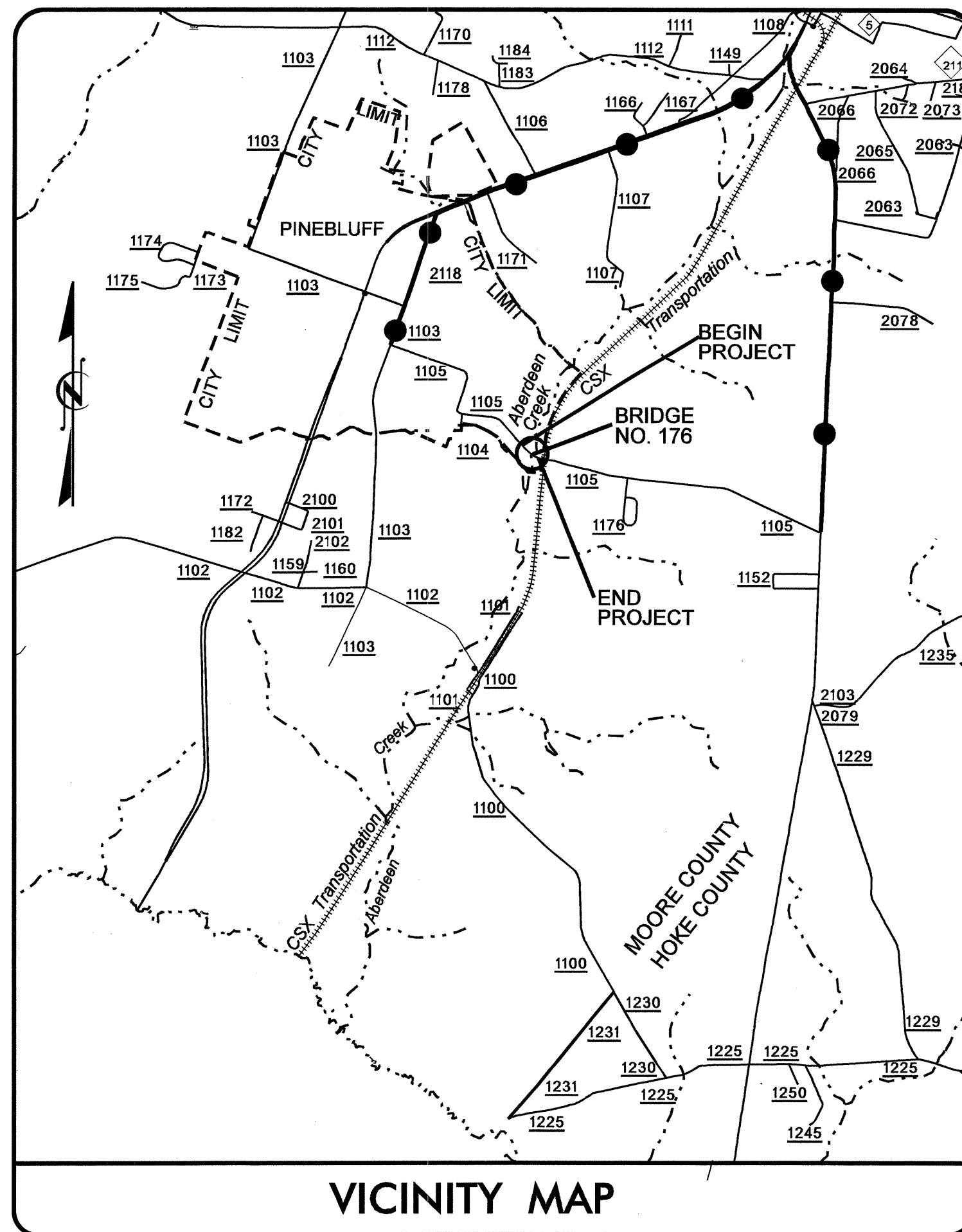


CONTRACT: C202337 TIP PROJECT: B-4583

STRUCTURE



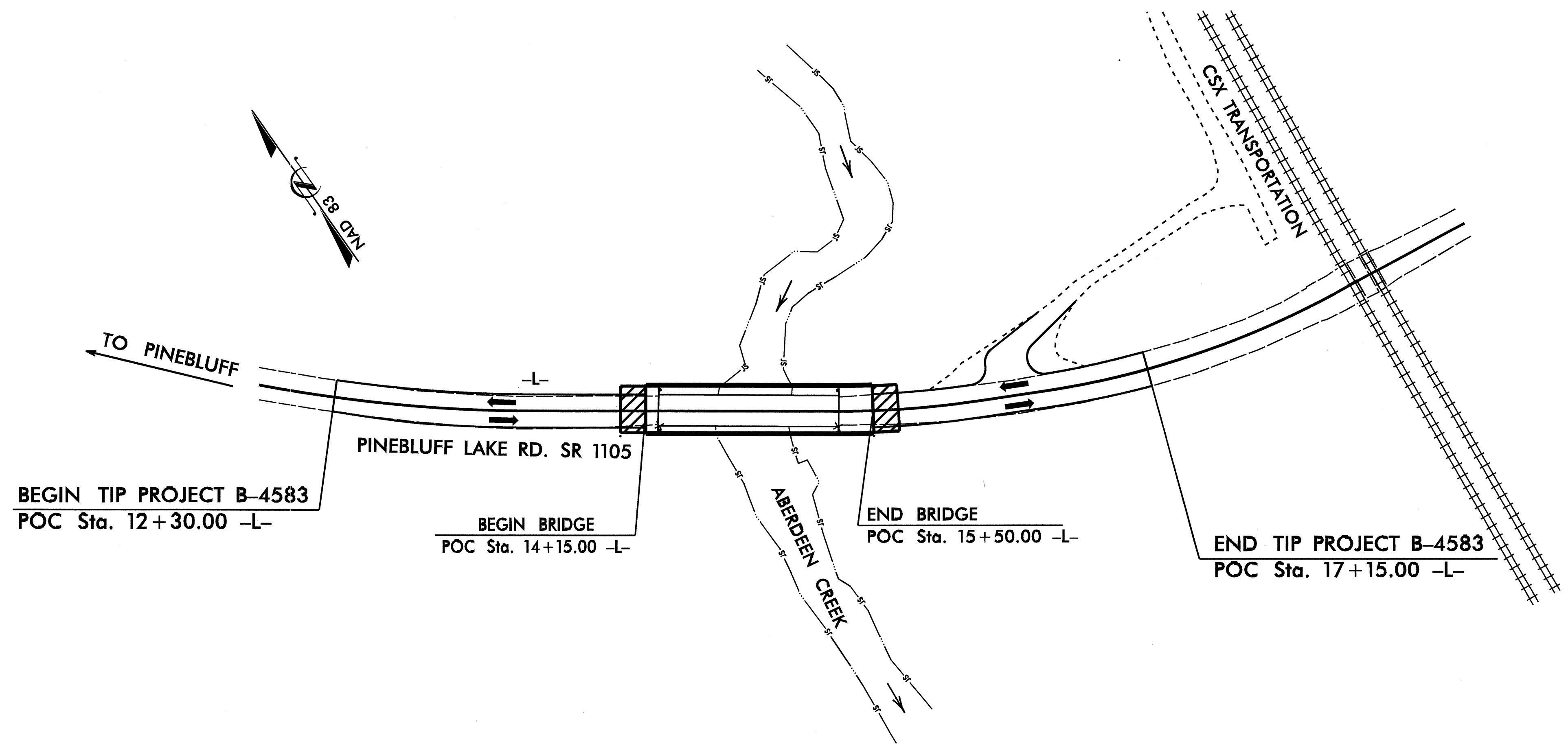
VICINITY MAP

●●●● Offsite Detour Route

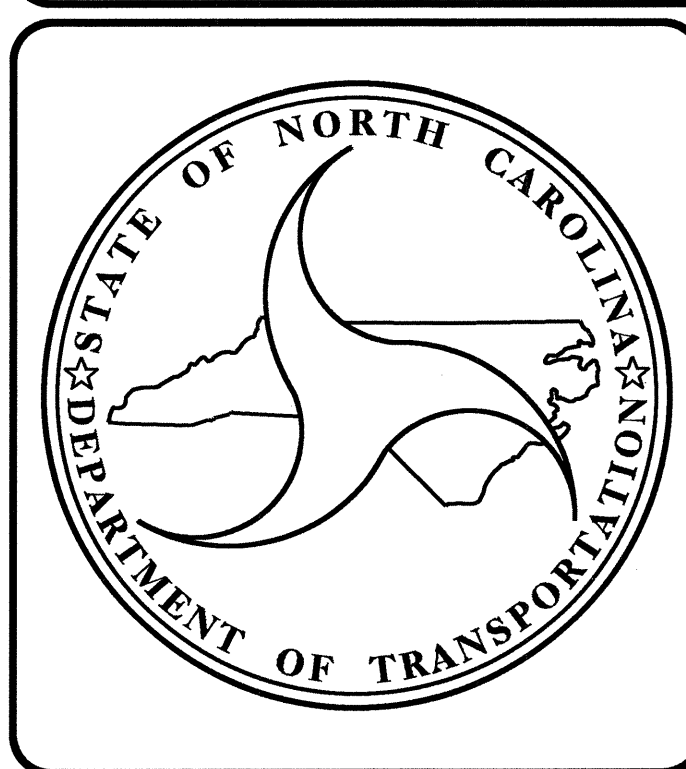
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
MOORE COUNTY

**LOCATION: BRIDGE NO. 176 OVER ABERDEEN CREEK
ON SR 1105 (PINEBLUFF LAKE ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE



| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | B-4583 | | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33784.1.1 | BRZ-1105(11) | P.E. | |
| 33784.2.1 | BRZ-1105(11) | UTIL. & RW | |
| 33784.3.1 | BRZ-1105(11) | CONST. | |
| | | | |
| | | | |



DESIGN DATA

| | |
|-------------------|-------------|
| ADT 2010 = | 1,100 |
| ADT 2030 = | 1,700 |
| DHV = | 12 % |
| D = | 55 % |
| T = | 3 % * |
| V = | 40 MPH |
| * TTST 1% DUAL 2% | |
| FUNC. CLASS = | RURAL LOCAL |

PROJECT LENGTH

| | |
|------------------------------------|----------|
| LENGTH ROADWAY OF F.A. PROJECT = | 0.066 MI |
| LENGTH STRUCTURE OF F.A. PROJECT = | 0.026 MI |
| TOTAL LENGTH OF STATE PROJECT = | 0.092 MI |

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

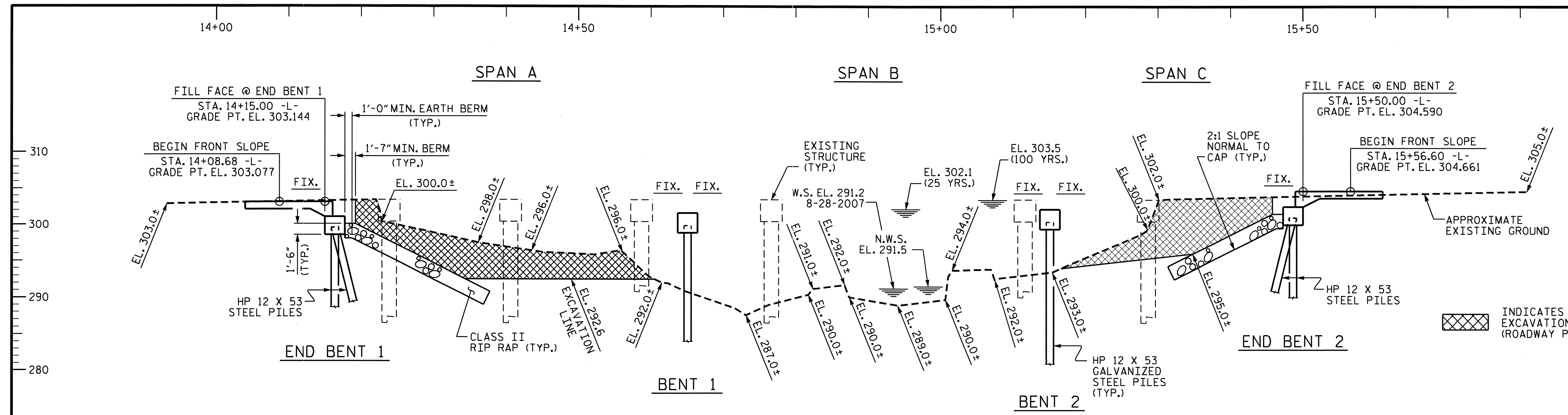
| | |
|---|--|
| <p>LETTING DATE :</p> <p>MARCH 16, 2010</p> | <p>J. C. FRYE, P.E. PROJECT ENGINEER</p> <hr/> <p>T. H. FANG, P.E. PROJECT DESIGN ENGINEER</p> |
|---|--|

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER _____ P.E.
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
DIVISION ADMINISTRATOR DATE _____

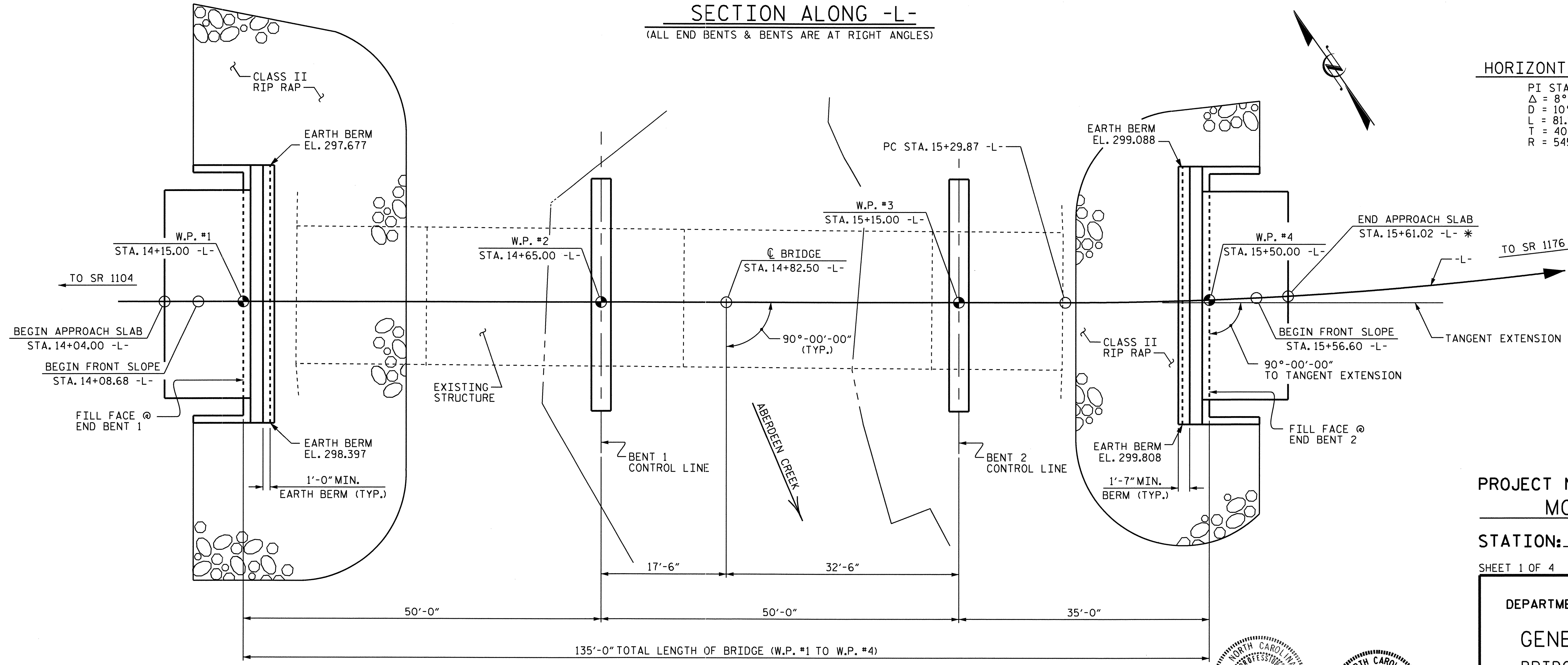


GRADE DATA

| | |
|----------------------|------------|
| +1.0708% | +3.2157% |
| PI STA. 16+35.00 -L- | EL. 305.50 |
| VC = 145' | |

HORIZONTAL CURVE DATA

| |
|---------------------------------------|
| PI STA. = 15+70.55 |
| $\Delta = 8^{\circ} 31' 33.5''$ (LT.) |
| D = $10^{\circ} 30' 00.0''$ |
| L = 81.20' |
| T = 40.67' |
| R = 545.67' |



DRAWN BY: E.C. LOCKLEAR DATE: 2-21-08
CHECKED BY: T.H. FANG DATE: 11-04-09

Professional Engineer seals for John C. Fang (Seal 11915) and T.H. Fang (Seal 16301) with dates 1/26/10 and 1/26/2010.

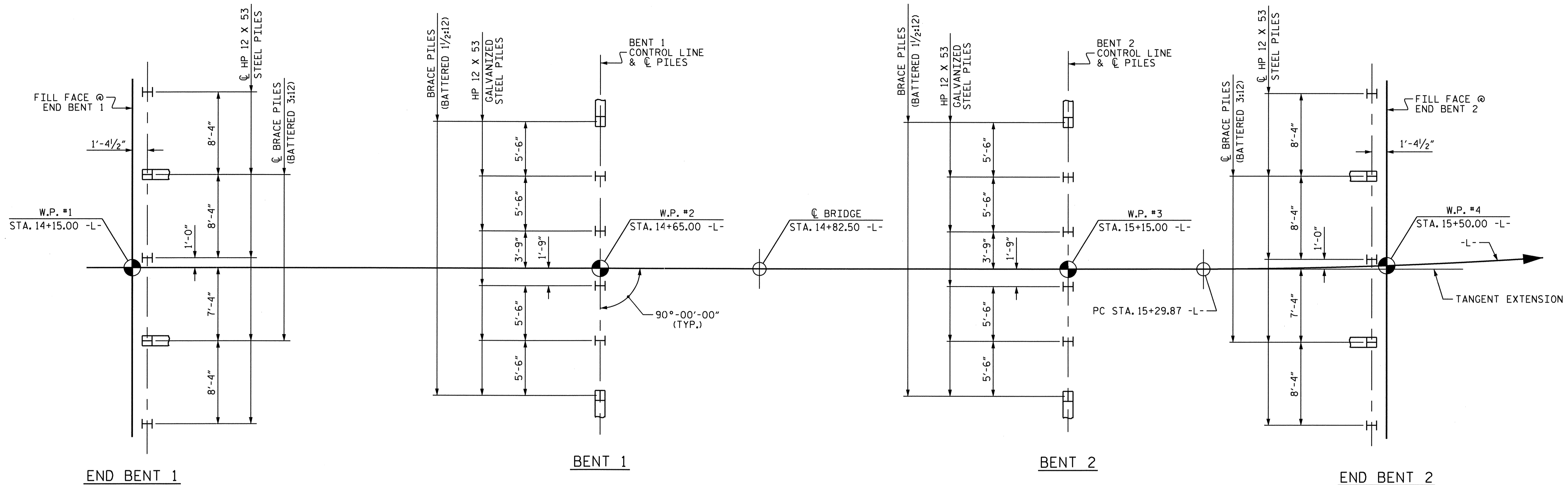
PROJECT NO. B-4583
MOORE COUNTY
STATION: 14+82.50 -L-
SHEET 1 OF 4 REPLACES BRIDGE No.176

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER ABERDEN CREEK ON SR 1105 BETWEEN SR 1104 AND SR 1176

| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|-----------------|--|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-1 | |
| 1 | | | 3 | | | TOTAL SHEETS 21 | |
| 2 | | | 4 | | | | |

26-JAN-2010 12:17
K:\t\p\objects-b\4583\structures\final plans\4583.sd.gd.gdn
tfang



FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO
 PILE CENTERLINE AT THE BOTTOM OF THE CAP.

NOTES

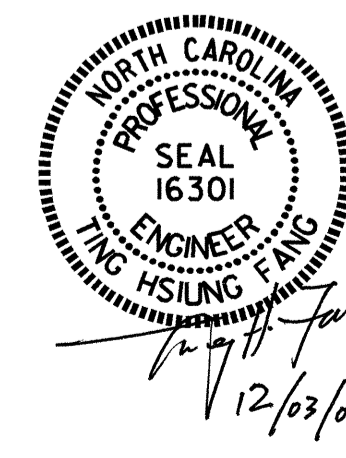
- FOR PILES, SEE SPECIAL PROVISIONS.
- PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 117 TONS PER PILE.
- STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT 1.
- TESTING THE FIRST (PRODUCTION OR TEST) PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT END BENT 1.
- PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 183 TONS PER PILE.
- INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 269.0 FT (LEFT), 260.0 FT (RIGHT).
- THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 276.5 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- TESTING THE FIRST (PRODUCTION OR TEST) PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT 1.
- PILES AT BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 167 TONS PER PILE.
- INSTALL PILES AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 269.0 FT.
- THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 281.5 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT BENT 2.
- TESTING THE FIRST (PRODUCTION OR TEST) PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT 2.
- PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.
- STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT 2.
- TESTING THE FIRST (PRODUCTION OR TEST) PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT END BENT 2.

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER ABERDEEN
 CREEK ON SR 1105 BETWEEN
 SR 1104 AND SR 1176



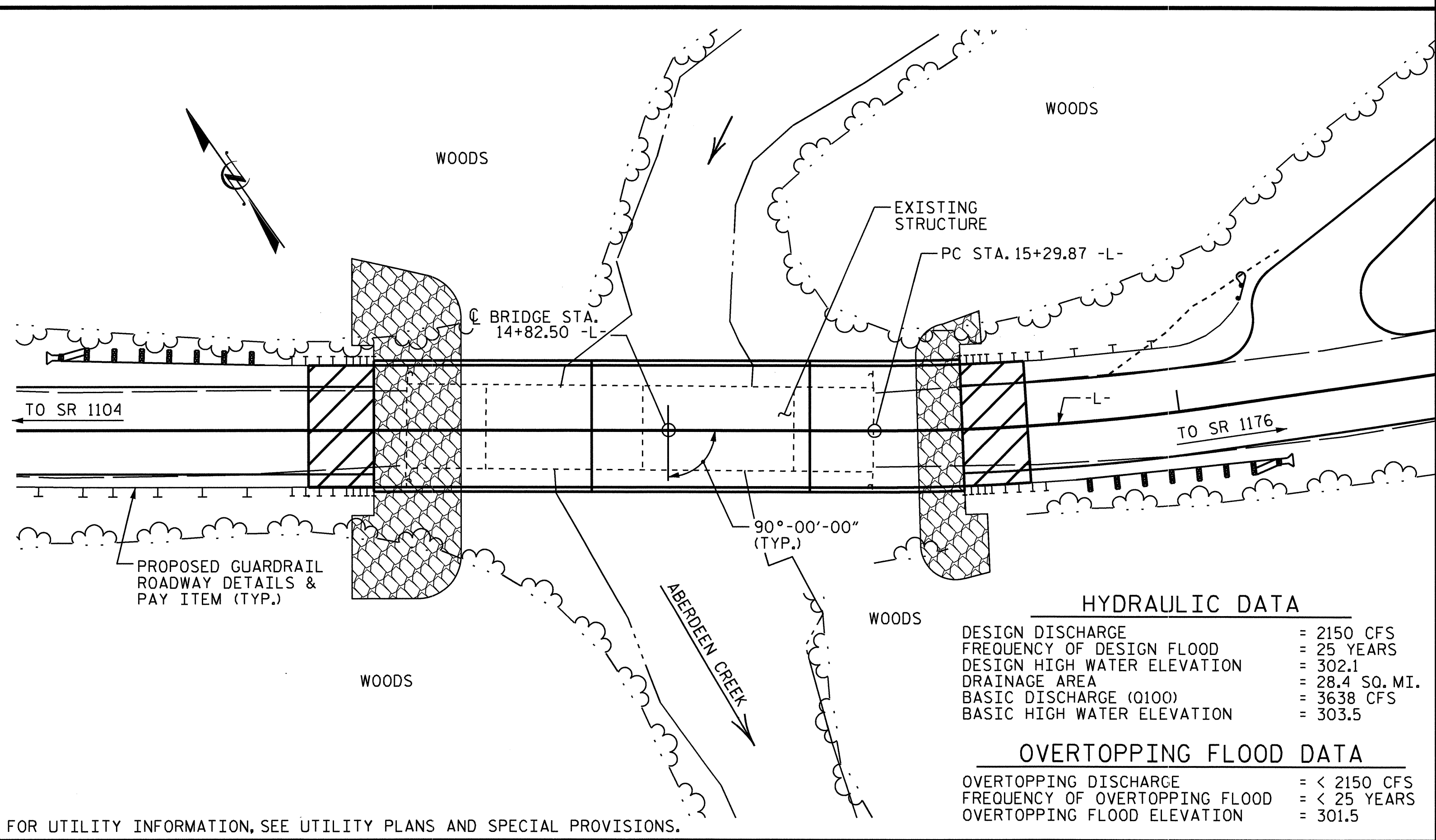
DRAWN BY : E.C. LOCKLEAR DATE : 6-26-09
 CHECKED BY : T. H. FANG DATE : 11-04-09

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-2 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 21 |

TOTAL BILL OF MATERIAL

| | REMOVAL OF EXISTING STRUCTURE | PDA TESTING | PDA ASSISTANCE | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | HP 12 X 53 STEEL PILES | | HP 12 X 53 GALVANIZED STEEL PILES | | STEEL PILE POINTS | PILE REDRIVES | VERTICAL CONCRETE BARRIER RAIL | RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE | ELASTOMERIC BEARINGS | 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS | |
|----------------|-------------------------------|-------------|----------------|------------------|-----------------------|-------------------|------------------------|------------|-----------------------------------|------------|-------------------|---------------|--------------------------------|--------------------------------|----------------------------|----------------------|--|--------------|
| | LUMP SUM | EACH | EACH | CU. YDS. | LUMP SUM | LBS. | NO. | LIN. FT. | NO. | LIN. FT. | EACH | EACH | LIN. FT. | TONS | SO. YDS. | LUMP SUM | NO. | LIN. FT. |
| SUPERSTRUCTURE | | | | | | | | | | | | | | | | LUMP SUM | 30 | 1,325 |
| END BENT 1 | | 1 | 1 | 13.4 | | 1,846 | 5 | 275 | | | 5 | 2 | | 144 | 160 | | | |
| BENT 1 | | 1 | 1 | 9.2 | | 1,678 | | | 6 | 390 | | 3 | | | | | | |
| BENT 2 | | 1 | 1 | 9.2 | | 1,678 | | | 6 | 390 | | 3 | | | | | | |
| END BENT 2 | | 1 | 1 | 13.4 | | 1,846 | 5 | 325 | | | 5 | 2 | | 113 | 125 | | | |
| TOTAL | LUMP SUM | 4 | 4 | 45.2 | LUMP SUM | 7,048 | 10 | 600 | 12 | 780 | 16 | 10 | 265.5 | 257 | 285 | LUMP SUM | 30 | 1,325 |

BM #2: RR SPIKE IN BASE OF 18" MAPLE, 96.91' RIGHT OF STA. 15+33.06 -L-, EL. 295.14'



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

| | |
|-----------------------------|----------------|
| DESIGN DISCHARGE | = 2150 CFS |
| FREQUENCY OF DESIGN FLOOD | = 25 YEARS |
| DESIGN HIGH WATER ELEVATION | = 302.1 |
| DRAINAGE AREA | = 28.4 SQ. MI. |
| BASIC DISCHARGE (Q100) | = 3638 CFS |
| BASIC HIGH WATER ELEVATION | = 303.5 |

OVERTOPPING FLOOD DATA

| | |
|--------------------------------|--------------|
| OVERTOPPING DISCHARGE | = < 2150 CFS |
| FREQUENCY OF OVERTOPPING FLOOD | = < 25 YEARS |
| OVERTOPPING FLOOD ELEVATION | = 301.5 |

NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.
- IN AS MUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 14+82.50 -L-".
- AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 5 SPANS: 1 @ 18'-3", 1 @ 18'-1", 1 @ 17'-11", 1 @ 35'-0", & 1 @ 18'-5" 17'-1" CLEAR ROADWAY WIDTH AND A TIMBER DECK ON STEEL I-BEAMS; SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER PILES BENTS AND LOCATED ON THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF STANDARD SPECIFICATIONS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE AT END BENT 1, 50 FT. EACH SIDE AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK IS INCLUDED IN THE ROADWAY PAY ITEM, LUMP SUM GRADING.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- FOR INTERIOR BENTS 1 AND 2, PARTIAL GALVANIZING OF THE STEEL PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR DETAILS.
- FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

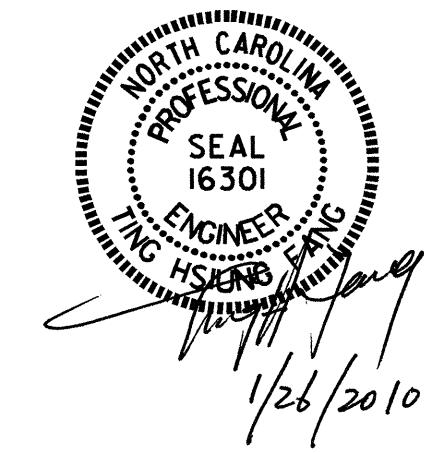
PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER ABERDEEN
 CREEK ON SR 1105 BETWEEN
 SR 1104 AND SR 1176

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-3 |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |



DRAWN BY: E. C. LOCKLEAR DATE: 8/08
 CHECKED BY: T. H. FANG DATE: 11/09

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE CORED SLAB UNITS

| LEVEL | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING # | MINIMUM RATING FACTORS (RF) | TONS = W x RF | STRENGTH I LIMIT STATE | | | | | | | | | | SERVICE III LIMIT STATE | | | | | COMMENT NUMBER | | | |
|--------------------|-----------------------------------|----------------------|---------------------------|-----------------------------|---------------|------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|------------------------|---------------------------|---------------|------|----------------|-----------------|-------------------------------------|--|
| | | | | | | MOMENT | | | | | SHEAR | | | | | MOMENT | | | | | | | | |
| | | | | | | LIVE-LOAD FACTORS (LL) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (FT) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (FT) | LIVE-LOAD FACTORS (LL) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (FT) | |
| DESIGN LOAD RATING | HL-93 (INVENTORY) | N/A | ① | 1.07 | -- | 1.75 | 0.277 | 1.07 | B | EL | 24.438 | 0.564 | 1.09 | C | EL | 1.641 | 0.80 | 0.277 | 1.14 | B | EL | 24.438 | | |
| | HL-93 (OPERATING) | N/A | -- | 1.387 | -- | 1.35 | 0.277 | 1.39 | B | EL | 24.438 | 0.564 | 1.41 | C | EL | 1.641 | N/A | -- | -- | -- | -- | -- | | |
| | HS-20 (INVENTORY) | 36.000 | ② | 1.263 | 45.454 | 1.75 | 0.277 | 1.33 | B | EL | 24.438 | 0.564 | 1.26 | C | EL | 1.641 | 0.80 | 0.277 | 1.42 | B | EL | 24.438 | | |
| | HS-20 (OPERATING) | 36.000 | -- | 1.637 | 58.922 | 1.35 | 0.277 | 1.72 | B | EL | 24.438 | 0.564 | 1.64 | C | EL | 1.641 | N/A | -- | -- | -- | -- | -- | | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SNSH | 13.500 | -- | 2.796 | 37.746 | 1.40 | 0.277 | 3.37 | B | EL | 24.438 | 0.564 | 3.22 | C | EL | 1.641 | 0.80 | 0.282 | 2.80 | C | EL | 16.406 | |
| | | SNGARBS2 | 20.000 | -- | 2.28 | 45.6 | 1.40 | 0.277 | 2.66 | B | EL | 24.438 | 0.564 | 2.44 | C | EL | 1.641 | 0.80 | 0.277 | 2.28 | B | EL | 24.438 | |
| | | SNAGRIS2 | 22.000 | -- | 2.216 | 48.754 | 1.40 | 0.277 | 2.59 | B | EL | 24.438 | 0.564 | 2.33 | C | EL | 1.641 | 0.80 | 0.277 | 2.22 | B | EL | 24.438 | |
| | | SNCOTTS3 | 27.250 | -- | 1.4 | 38.162 | 1.40 | 0.277 | 1.68 | B | EL | 24.438 | 0.564 | 1.62 | C | EL | 1.641 | 0.80 | 0.282 | 1.40 | C | EL | 16.406 | |
| | | SNAGGRS4 | 34.925 | -- | 1.252 | 43.722 | 1.40 | 0.277 | 1.46 | B | EL | 24.438 | 0.564 | 1.46 | C | EL | 1.641 | 0.80 | 0.277 | 1.25 | B | EL | 24.438 | |
| | | SNS5A | 35.550 | -- | 1.221 | 43.399 | 1.40 | 0.277 | 1.43 | B | EL | 24.438 | 0.564 | 1.54 | C | EL | 1.641 | 0.80 | 0.277 | 1.22 | B | EL | 24.438 | |
| | | SNS6A | 39.950 | -- | 1.142 | 45.608 | 1.40 | 0.277 | 1.33 | B | EL | 24.438 | 0.564 | 1.45 | C | EL | 1.641 | 0.80 | 0.277 | 1.14 | B | EL | 24.438 | |
| | SNS7B | 42.000 | -- | 1.088 | 45.696 | 1.40 | 0.277 | 1.27 | B | EL | 24.438 | 0.564 | 1.48 | C | EL | 1.641 | 0.80 | 0.277 | 1.09 | B | EL | 24.438 | | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | TNAGRIT3 | 33.000 | -- | 1.399 | 46.156 | 1.40 | 0.277 | 1.63 | B | EL | 24.438 | 0.564 | 1.7 | C | EL | 1.641 | 0.80 | 0.277 | 1.40 | B | EL | 24.438 | |
| | | TNT4A | 33.075 | -- | 1.411 | 46.667 | 1.40 | 0.277 | 1.65 | B | EL | 24.438 | 0.564 | 1.6 | C | EL | 1.641 | 0.80 | 0.277 | 1.41 | B | EL | 24.438 | |
| | | TNT6A | 41.600 | -- | 1.175 | 48.898 | 1.40 | 0.277 | 1.37 | B | EL | 24.438 | 0.564 | 1.56 | C | EL | 1.641 | 0.80 | 0.277 | 1.18 | B | EL | 24.438 | |
| | | TNT7A | 42.000 | -- | 1.193 | 50.117 | 1.40 | 0.277 | 1.39 | B | EL | 24.438 | 0.564 | 1.45 | C | EL | 1.641 | 0.80 | 0.277 | 1.19 | B | EL | 24.438 | |
| | | TNT7B | 42.000 | -- | 1.244 | 52.249 | 1.40 | 0.277 | 1.45 | B | EL | 24.438 | 0.564 | 1.41 | C | EL | 1.641 | 0.80 | 0.277 | 1.24 | B | EL | 24.438 | |
| | | TNAGRIT4 | 43.000 | -- | 1.181 | 50.767 | 1.40 | 0.277 | 1.38 | B | EL | 24.438 | 0.564 | 1.36 | C | EL | 1.641 | 0.80 | 0.277 | 1.18 | B | EL | 24.438 | |
| TNAGT5A | | 45.000 | -- | 1.103 | 49.625 | 1.40 | 0.277 | 1.29 | B | EL | 24.438 | 0.531 | 1.42 | B | EL | 4.888 | 0.80 | 0.277 | 1.10 | B | EL | 24.438 | | |
| TNAGT5B | 45.000 | ③ | 1.08 | 48.617 | 1.40 | 0.277 | 1.26 | B | EL | 24.438 | 0.564 | 1.28 | C | EL | 1.641 | 0.80 | 0.277 | 1.08 | B | EL | 24.438 | | | |

LOAD FACTORS:

| DESIGN LOAD RATING FACTORS | LIMIT STATE | γ _{DC} | γ _{DW} |
|----------------------------|-------------|-----------------|-----------------|
| | STRENGTH I | 1.25 | 1.50 |
| | SERVICE III | 1.00 | 1.00 |

| | YEAR | ADTT |
|---------|------|------|
| CURRENT | 2010 | 18 |
| FUTURE | 2030 | 28 |

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

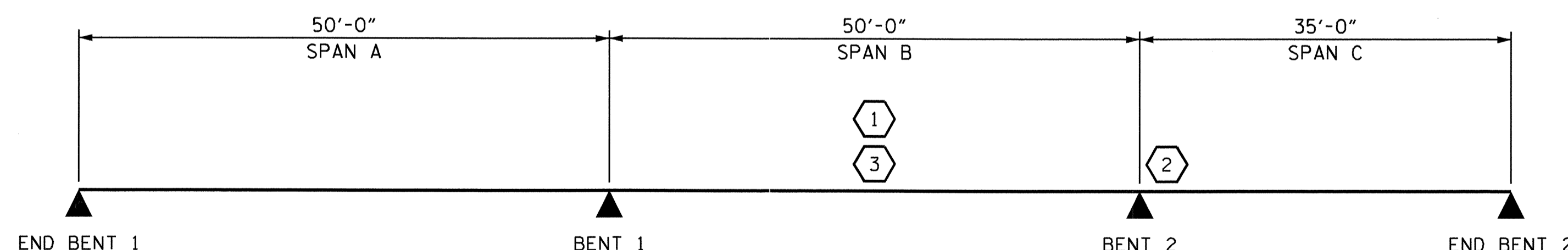
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

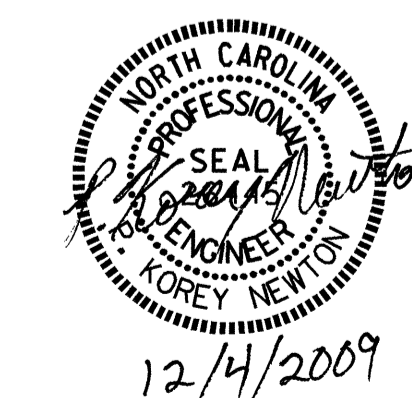
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 4 OF 4



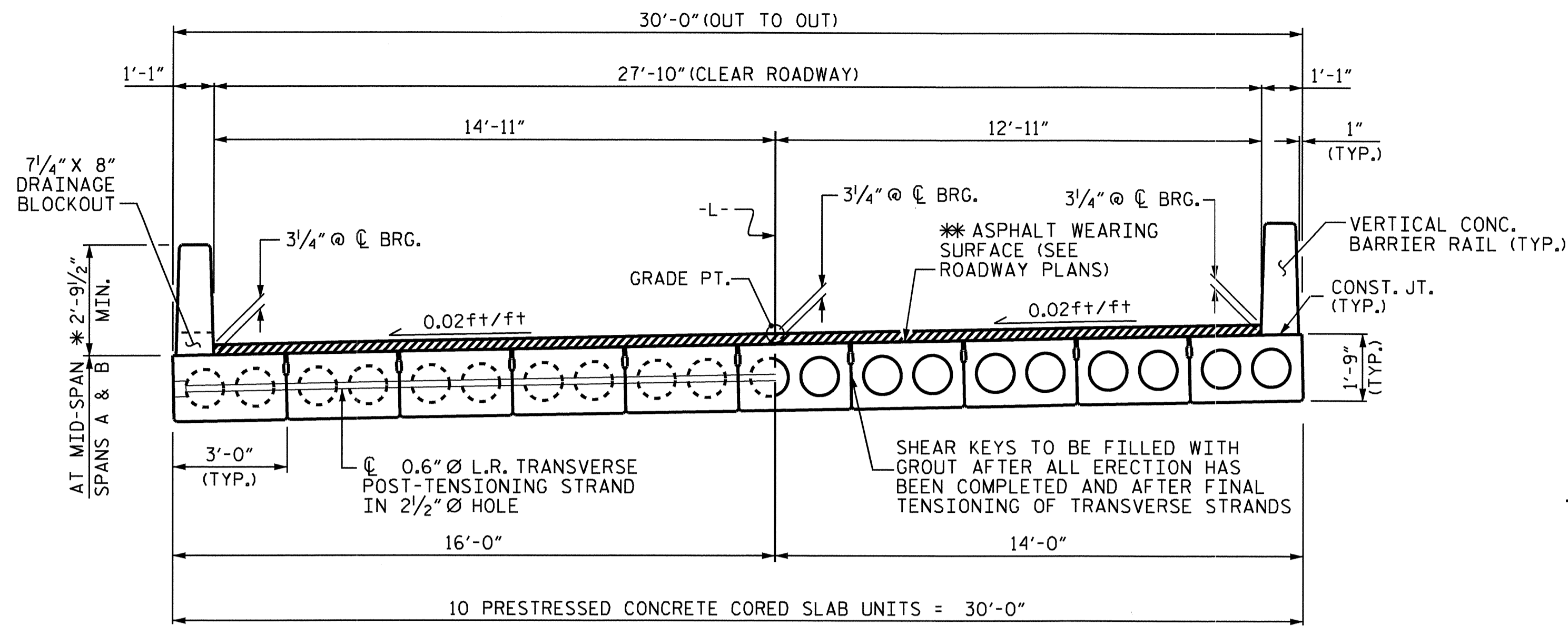
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED CONCRETE
 CORED SLAB UNITS
 (NON-INTERSTATE TRAFFIC)

| | |
|-------------------------------|------------------------|
| ASSEMBLED BY : P. K. NEWTON | DATE : 11/23/09 |
| CHECKED BY : S. F. DOMBROWSKI | DATE : 11/23/09 |
| DRAWN BY : MAA 1/08 | REV. 11/12/08RR MAA/GM |
| CHECKED BY : GM/DI 2/08 | |

03-DEC-2009 14:45
 z:\b4583\structures\final plans\b-4583.sd.lr.fr\111.dgn
 sdombrowski

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-4 |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

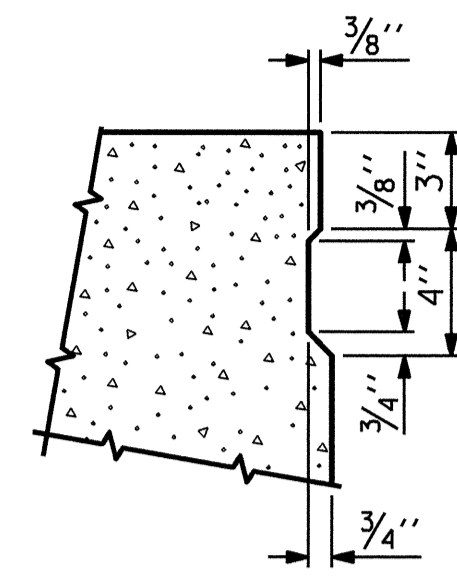
STD. NO. LRFR1



TYPICAL SECTION

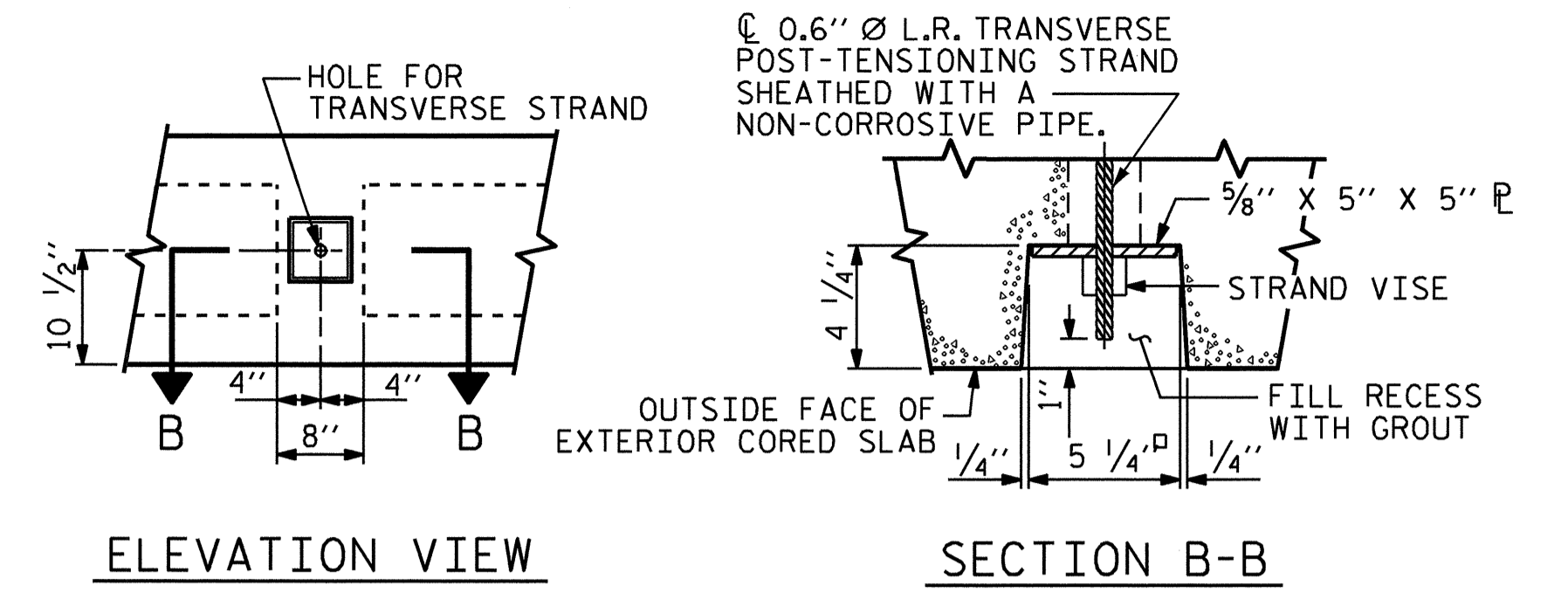
THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.

*SEE RAIL HEIGHT TABLE
**SEE ASPHALT WEARING SURFACE THICKNESS TABLE



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



ELEVATION VIEW

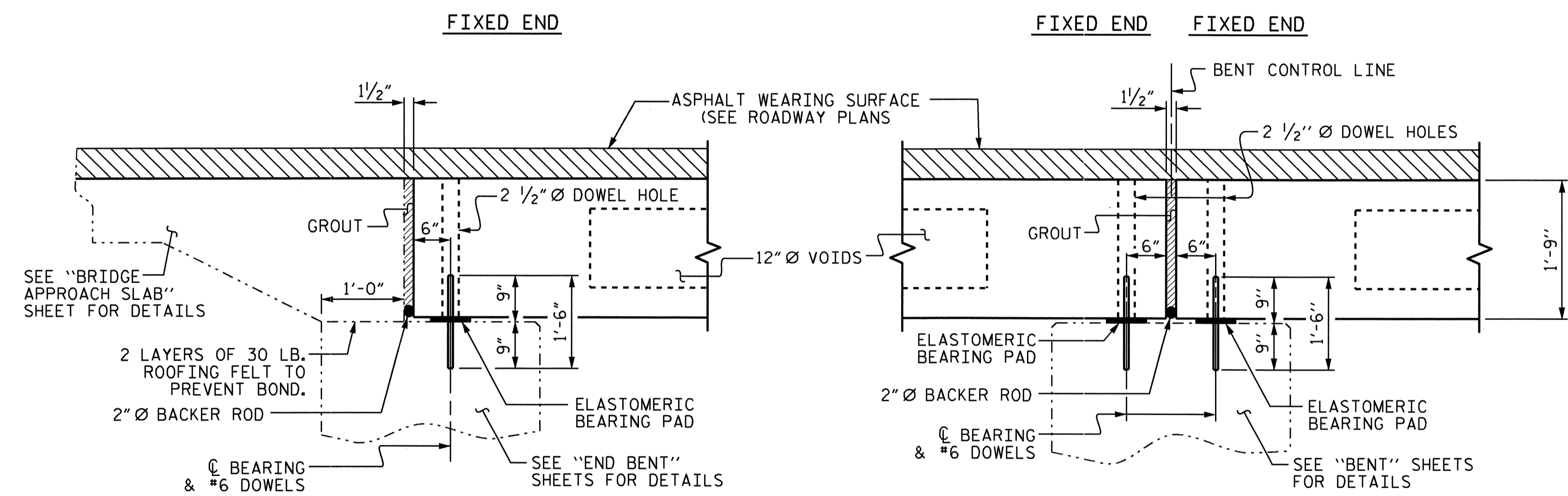
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

| RAIL HEIGHT TABLE | | |
|--|-----------------------|---------------|
| BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS. | | |
| SPAN | * AT \odot BEARINGS | * AT MID-SPAN |
| A | 2'-11 1/4" | 2'-9 1/2" |
| B | 2'-11 1/4" | 2'-9 1/2" |
| C | 2'-11 1/4" | 2'-10 7/8" |

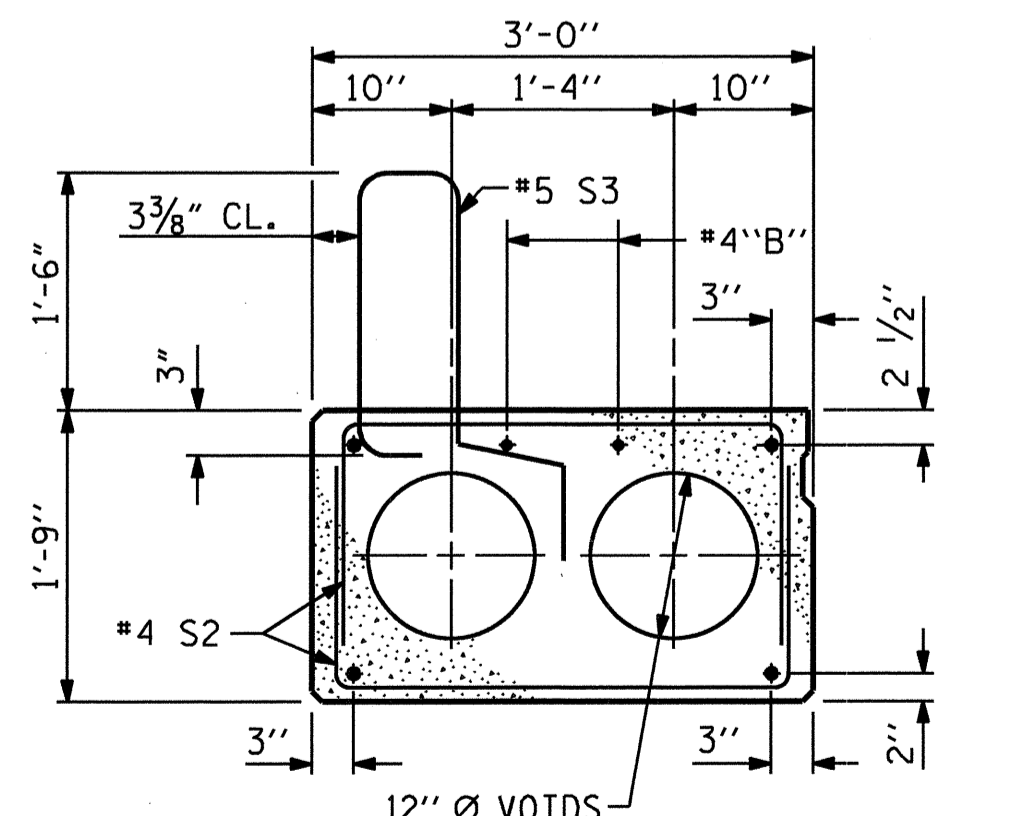
| ASPHALT WEARING SURFACE THICKNESS TABLE | | |
|--|------------------------|----------------|
| BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS. | | |
| SPAN | ** AT \odot BEARINGS | ** AT MID-SPAN |
| A | 3/4" | 1 1/2" |
| B | 3/4" | 1 1/2" |
| C | 3/4" | 2 7/8" |

NOTE: THICKNESS VARIES BETWEEN \odot BEARING AND MID-SPAN FOR ALL SPANS.



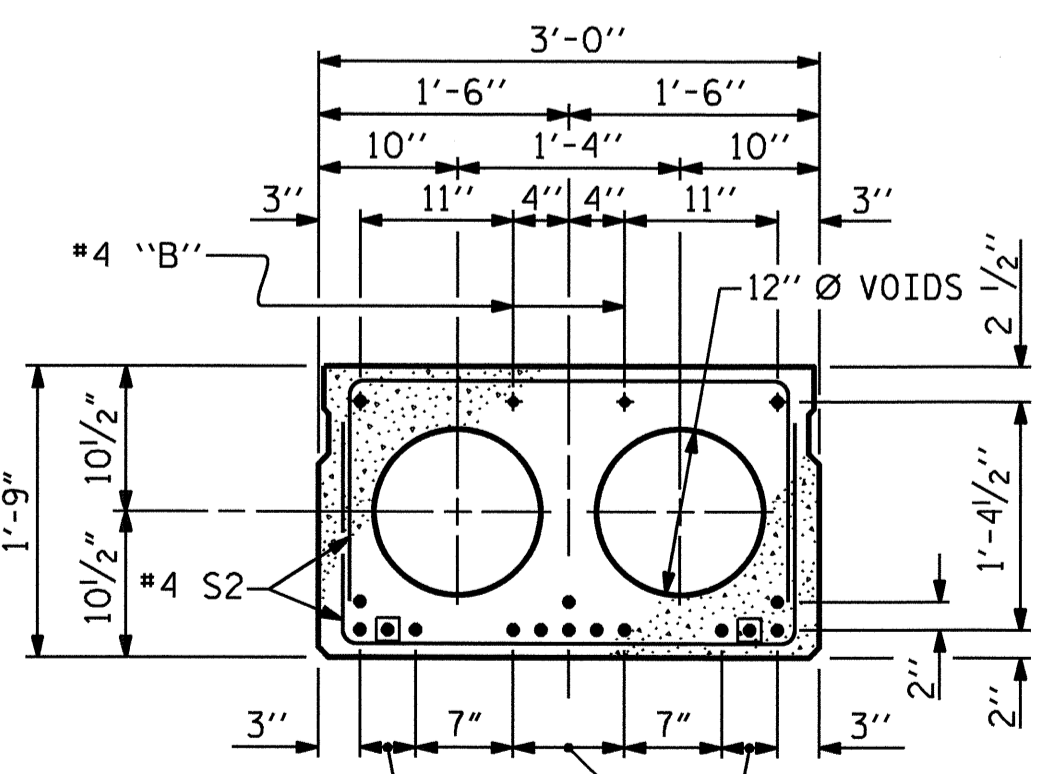
SECTION AT END BENTS

SECTION AT BENTS

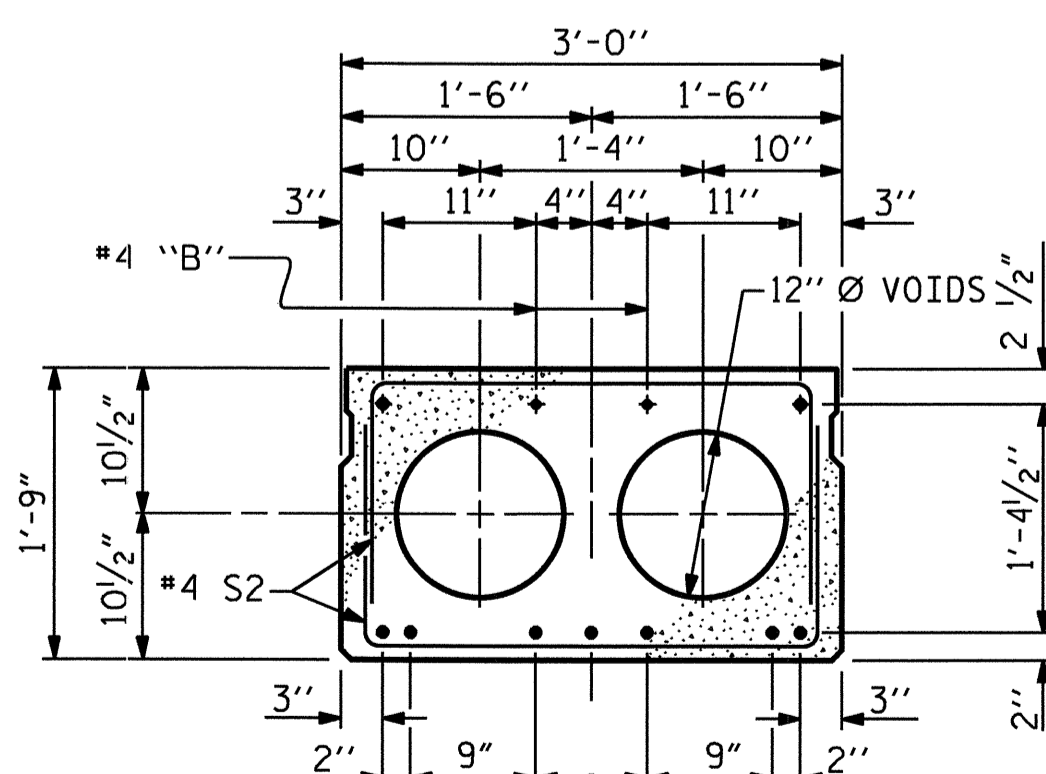


EXTERIOR SLAB SECTION

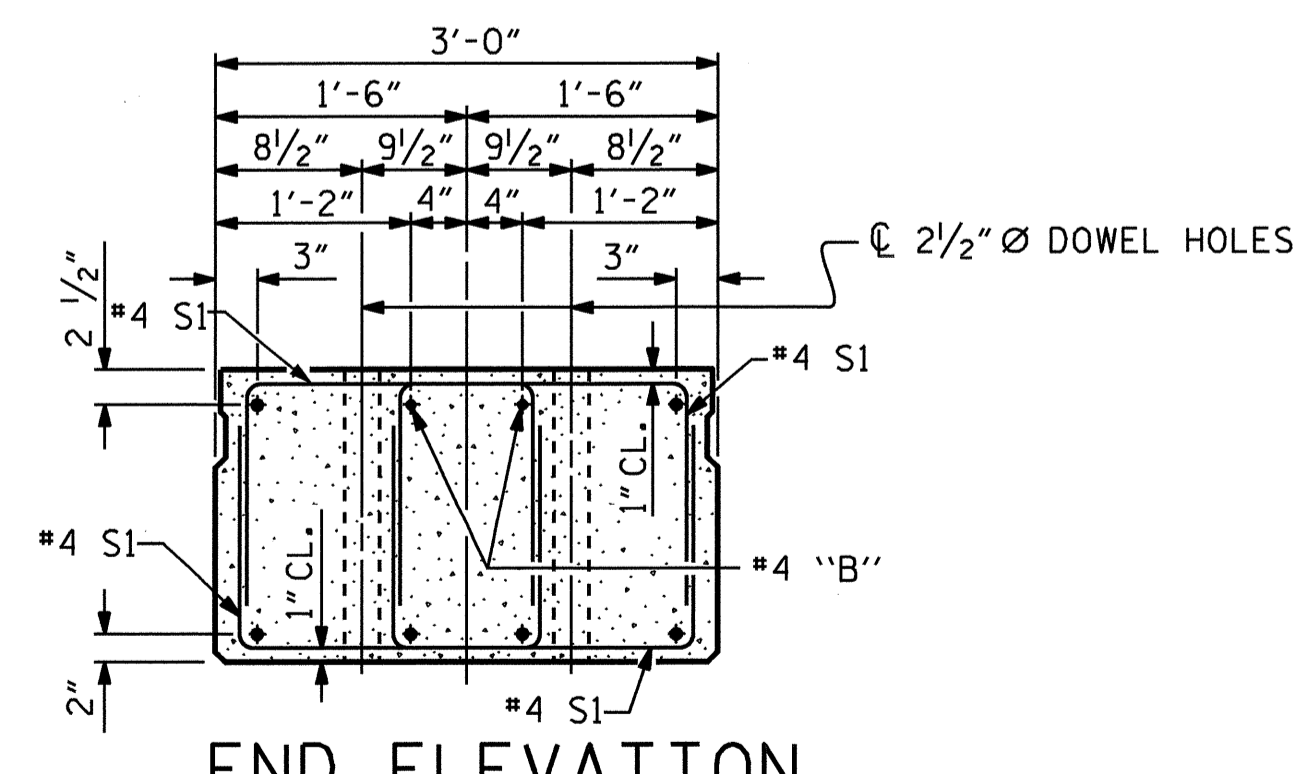
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (16 STRANDS, 2 SHEATHED) (SPANS A & B)

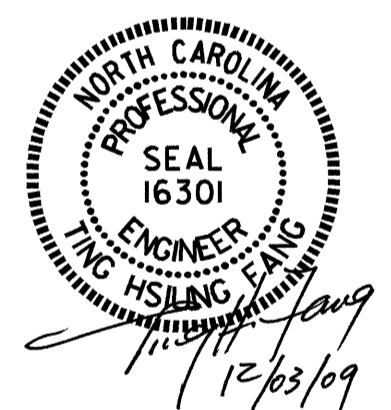


INTERIOR SLAB SECTION (9 STRANDS, ALL STRAIGHT) (SPAN C)



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES (STRAND LAYOUT NOT SHOWN). INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY.



PROJECT NO. B-4583
MOORE COUNTY
STATION: 14+82.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT

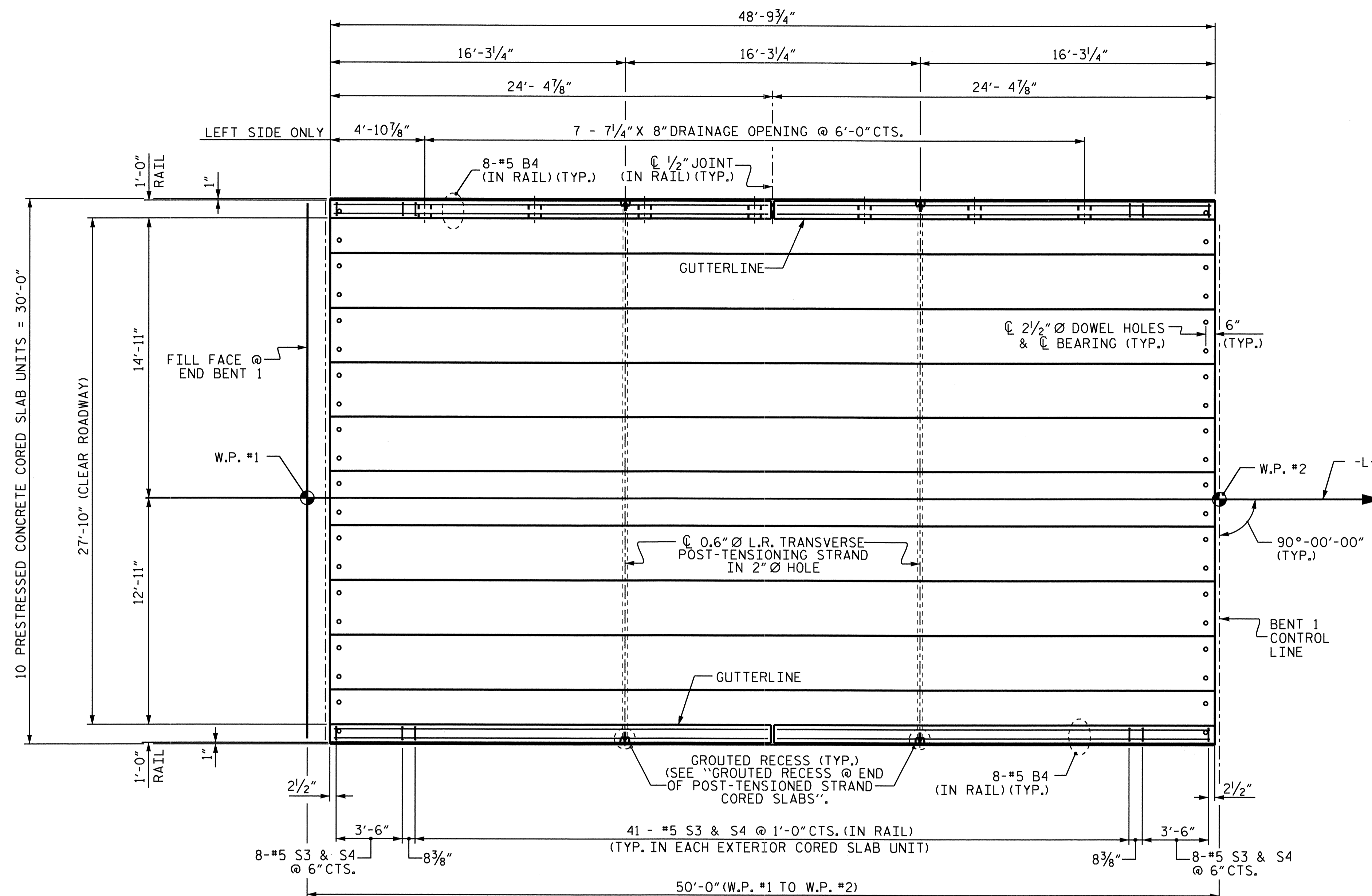
ASSEMBLED BY : S. DOMBROWSKI DATE : 3/3/09
CHECKED BY : E.C. LOCKLEAR DATE : 5/21/09
DRAWN BY : WJH 4/89 REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89 REV. 7/10/01 RWW/LES
REV. 5/1/06 TLA/GM

0.6" \odot LOW RELAXATION STRAND LAYOUT

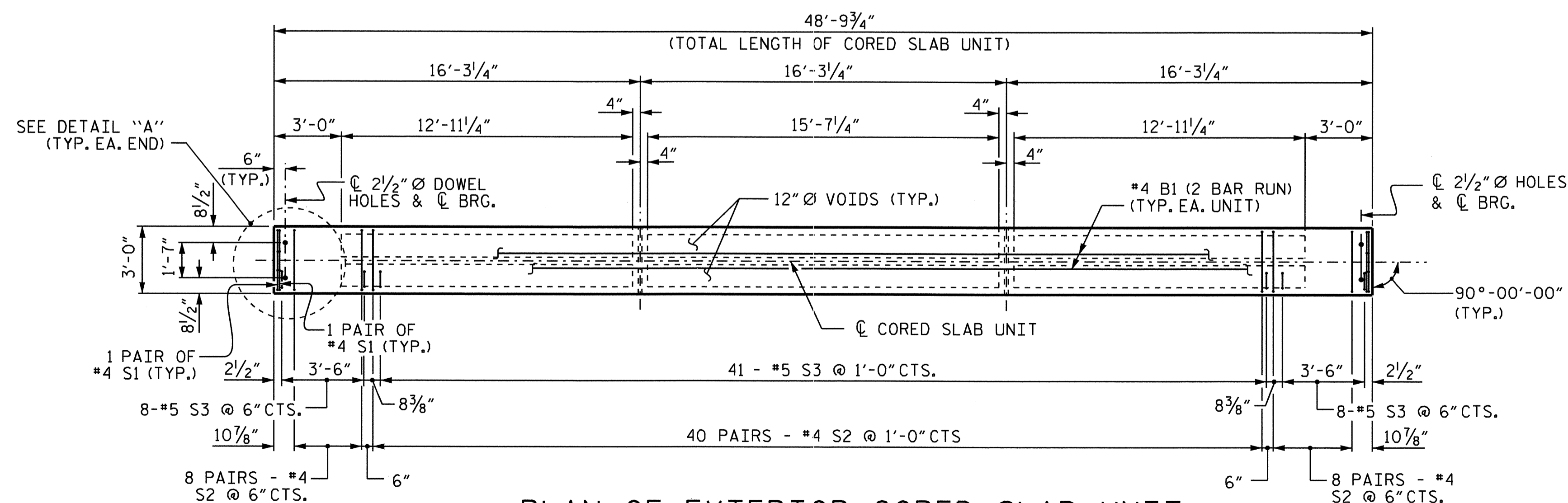
■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

| REVISIONS | | | | SHEET NO. |
|-----------|-----|-------|-----|-----------|
| NO. | BY: | DATE: | NO. | DATE: |
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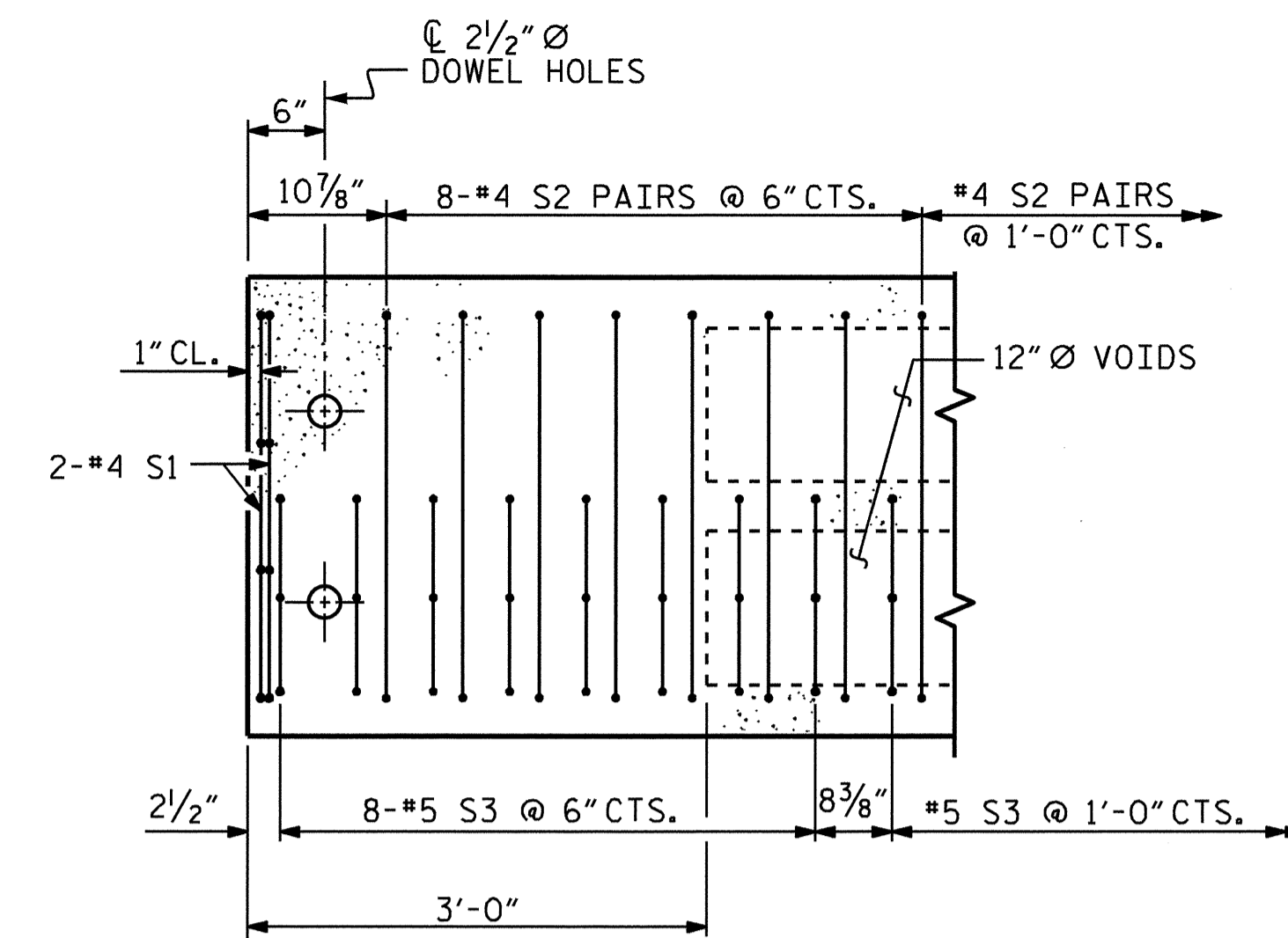
TOTAL SHEETS: 21



PLAN OF SPAN A



PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.



DETAIL "A"

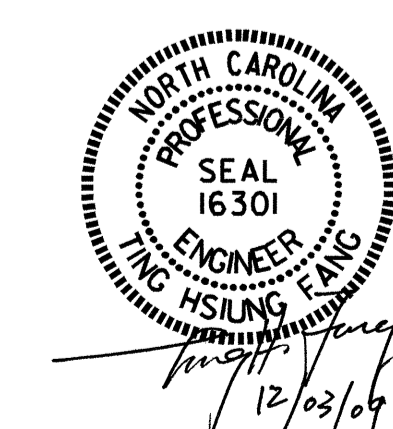
PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 1 OF 3

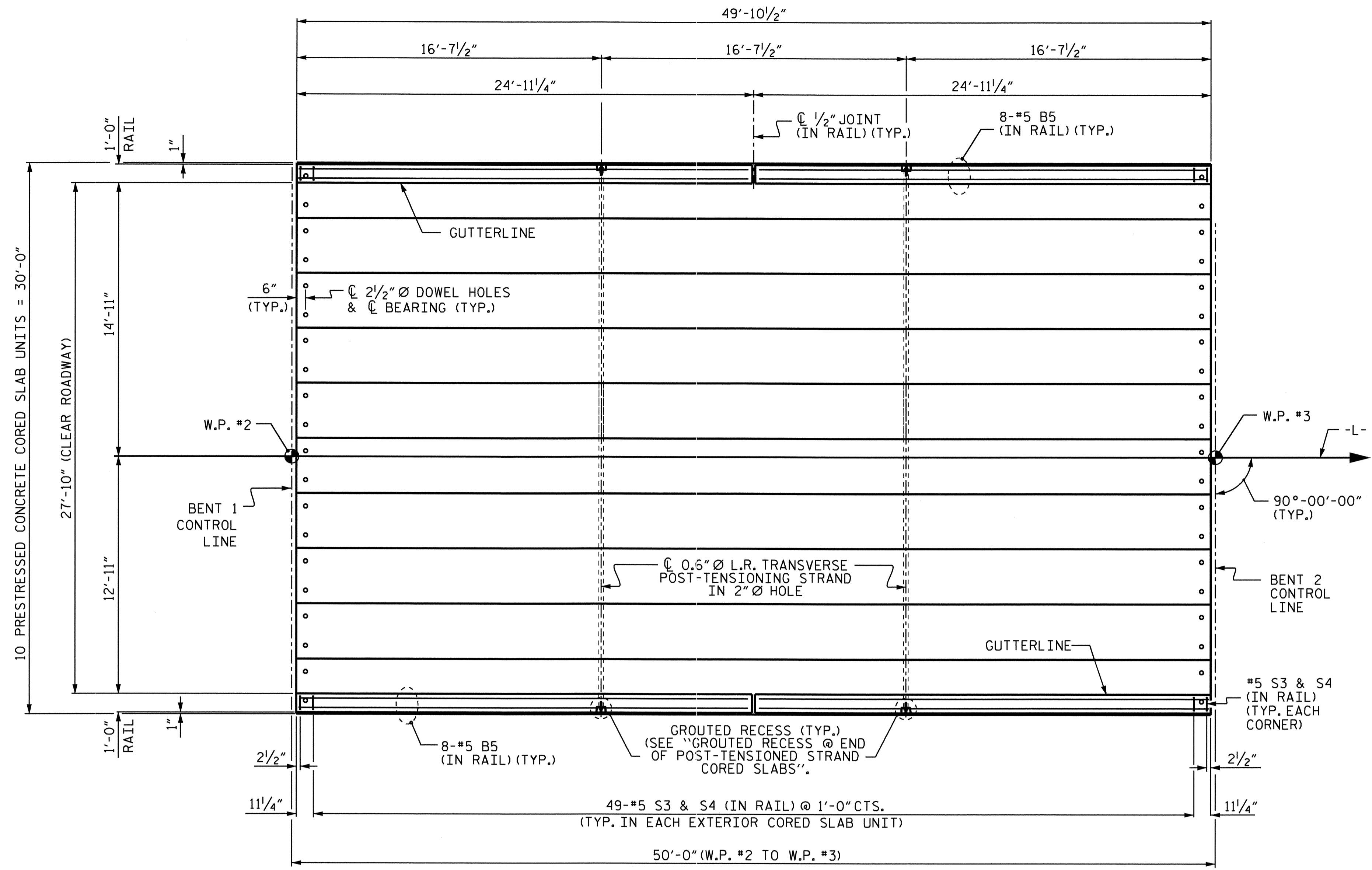
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN A



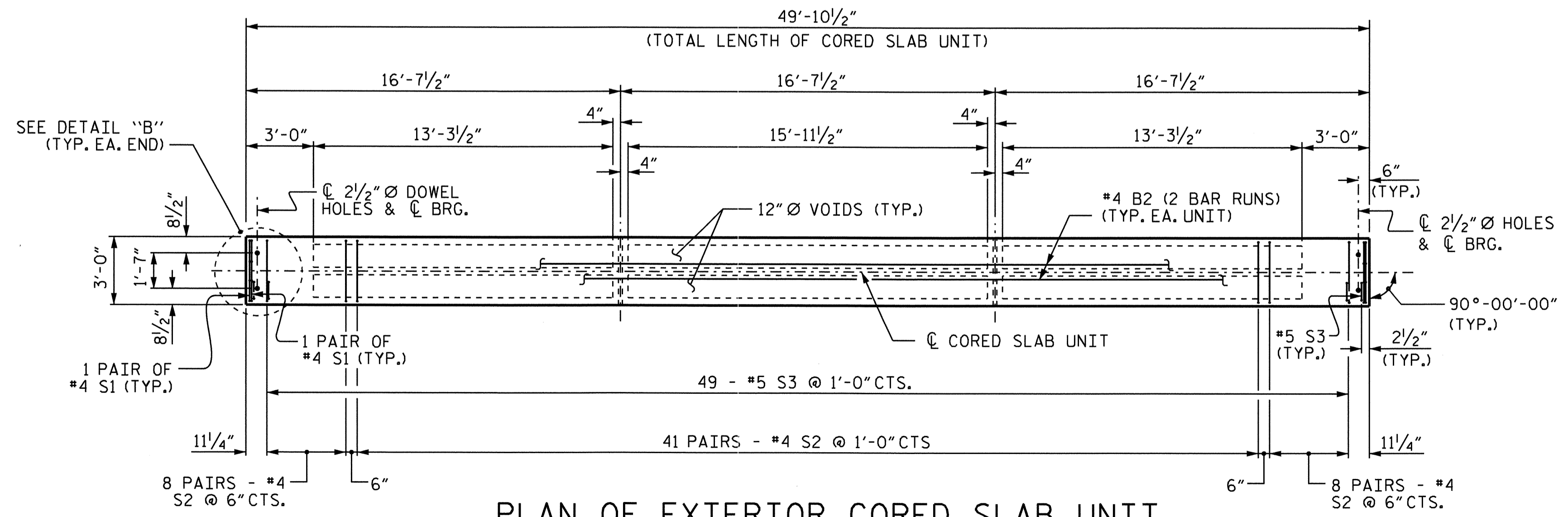
DRAWN BY: S. DOMBROWSKI DATE: 3/03/09
 CHECKED BY: E. C. LOCKLEAR DATE: 5/21/09

03-DEC-2009 14:09
 Z:\B4583\Structures\Final Plans\B4583.sd.cs.dgn
 sdombrowski

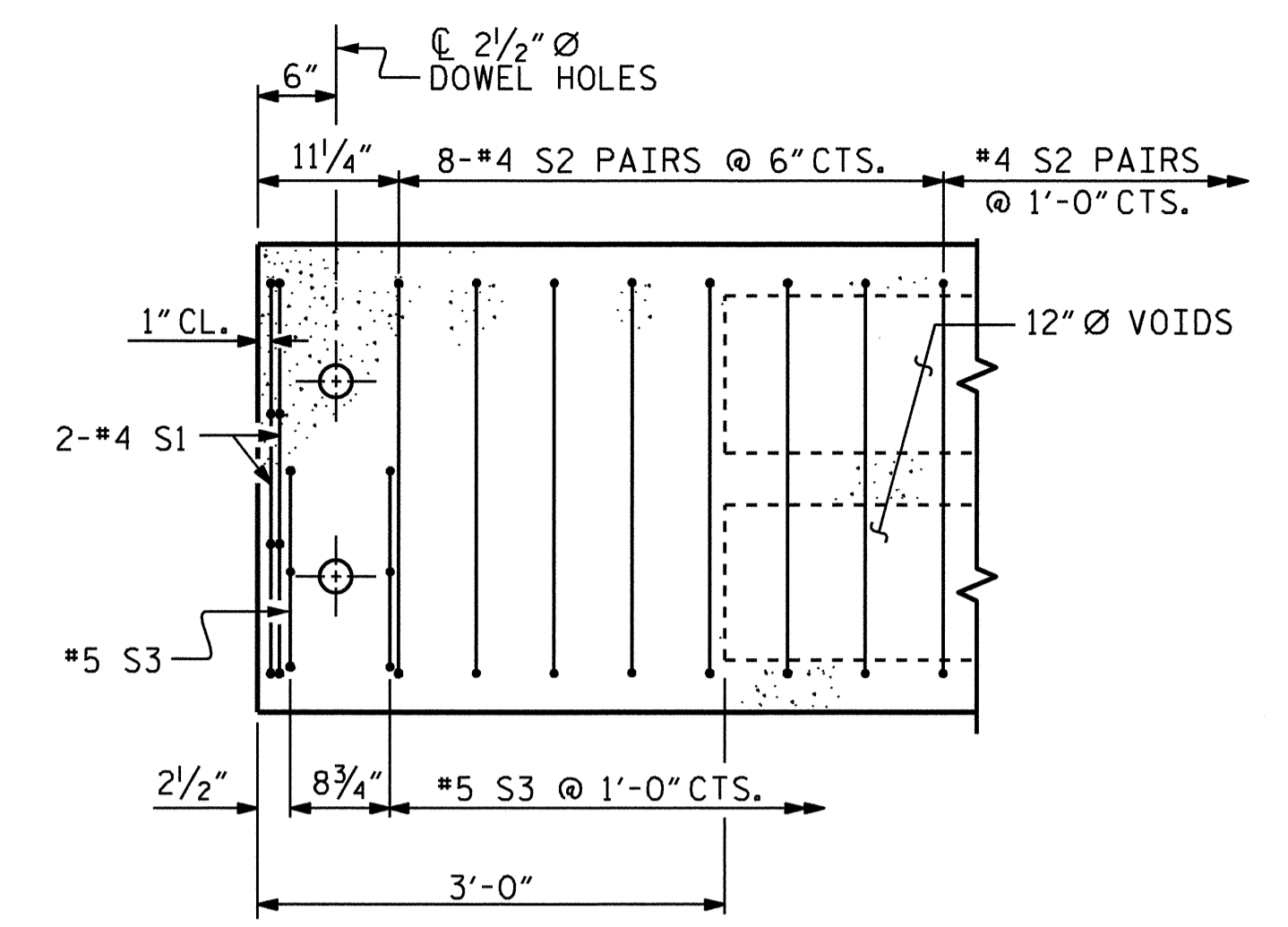
| REVISIONS | | | | | | SHEET NO. S-6 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |



PLAN OF SPAN B



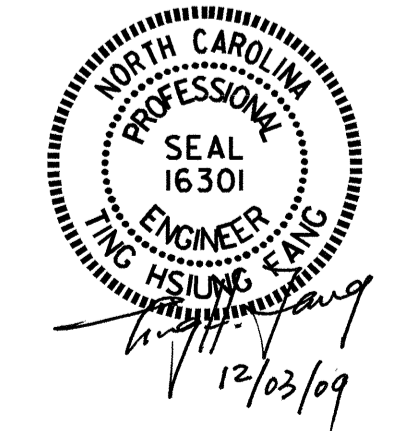
PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS



DETAIL "B"
PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

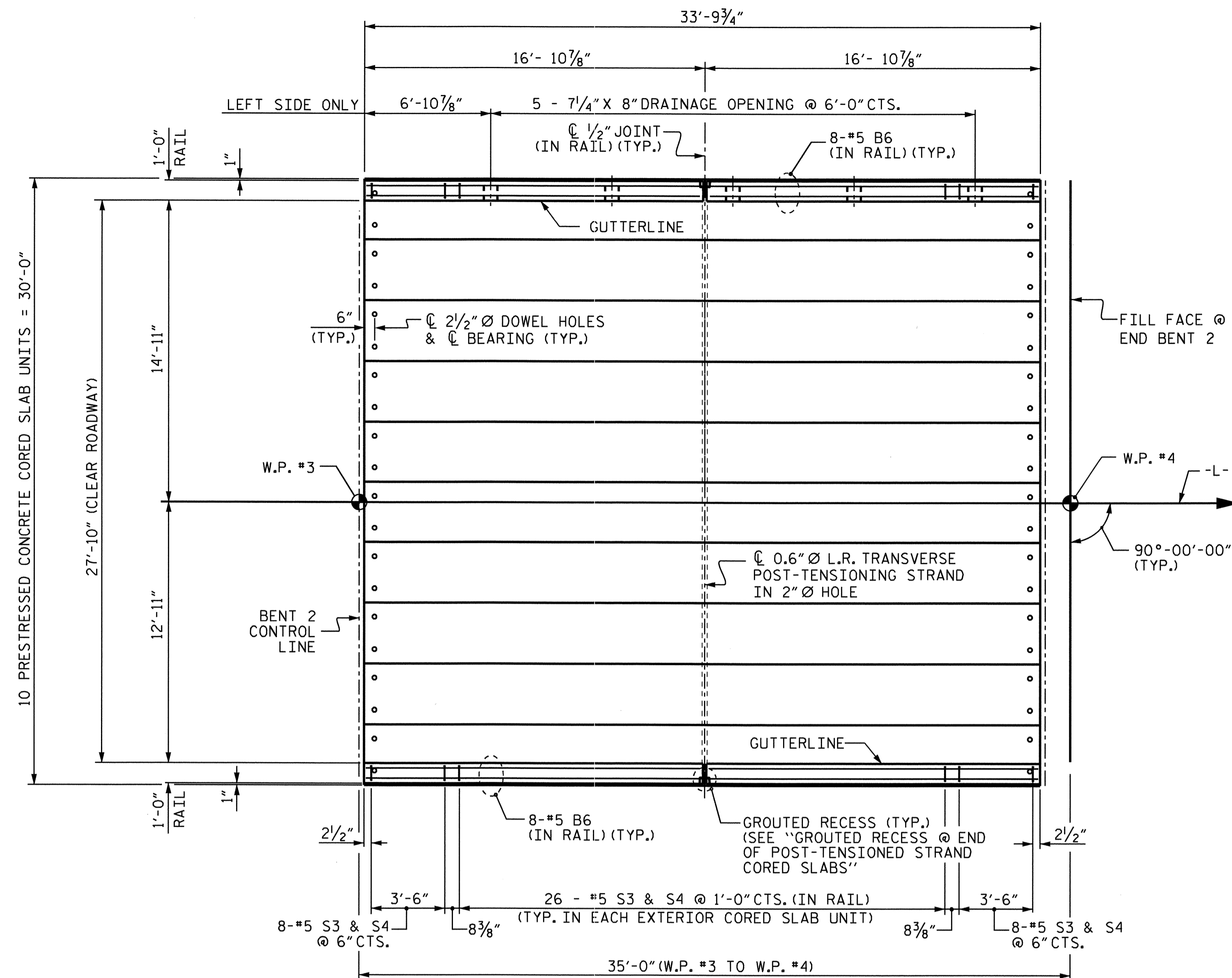
PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN B

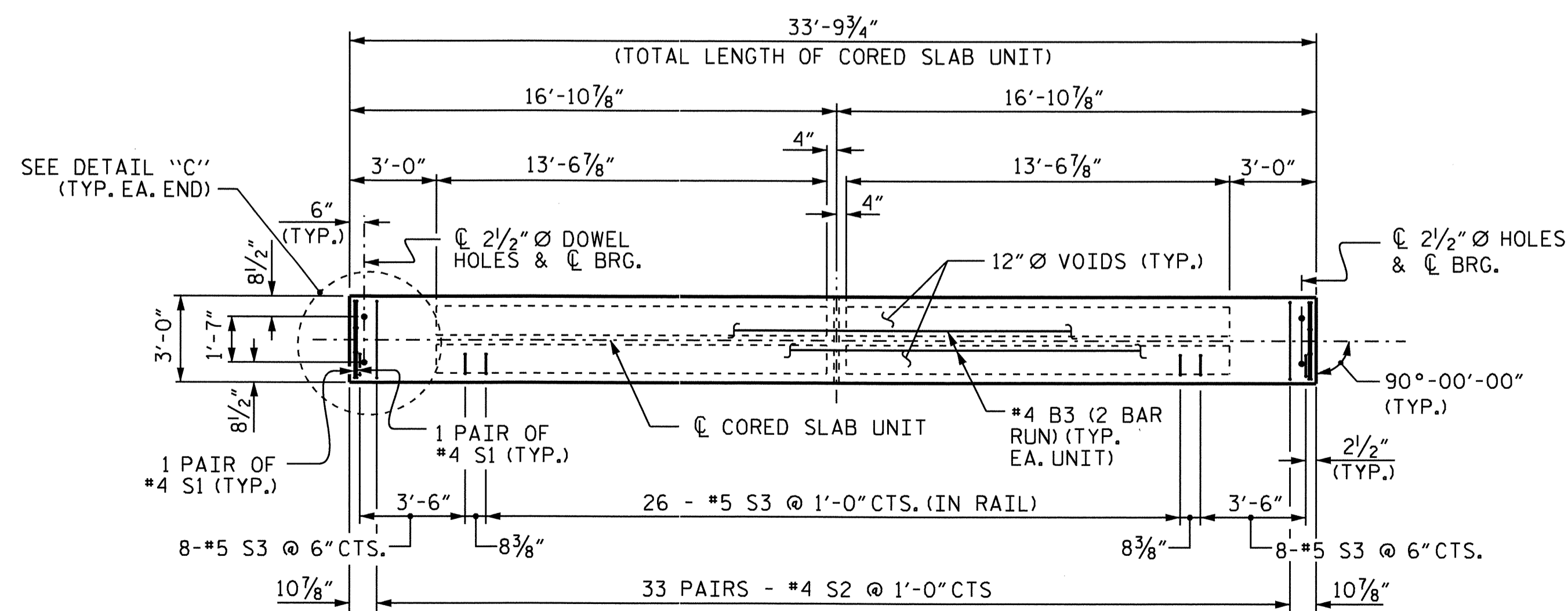


DRAWN BY: S. DOMBROWSKI DATE: 3/03/09
 CHECKED BY: E. C. LOCKLEAR DATE: 5/21/09

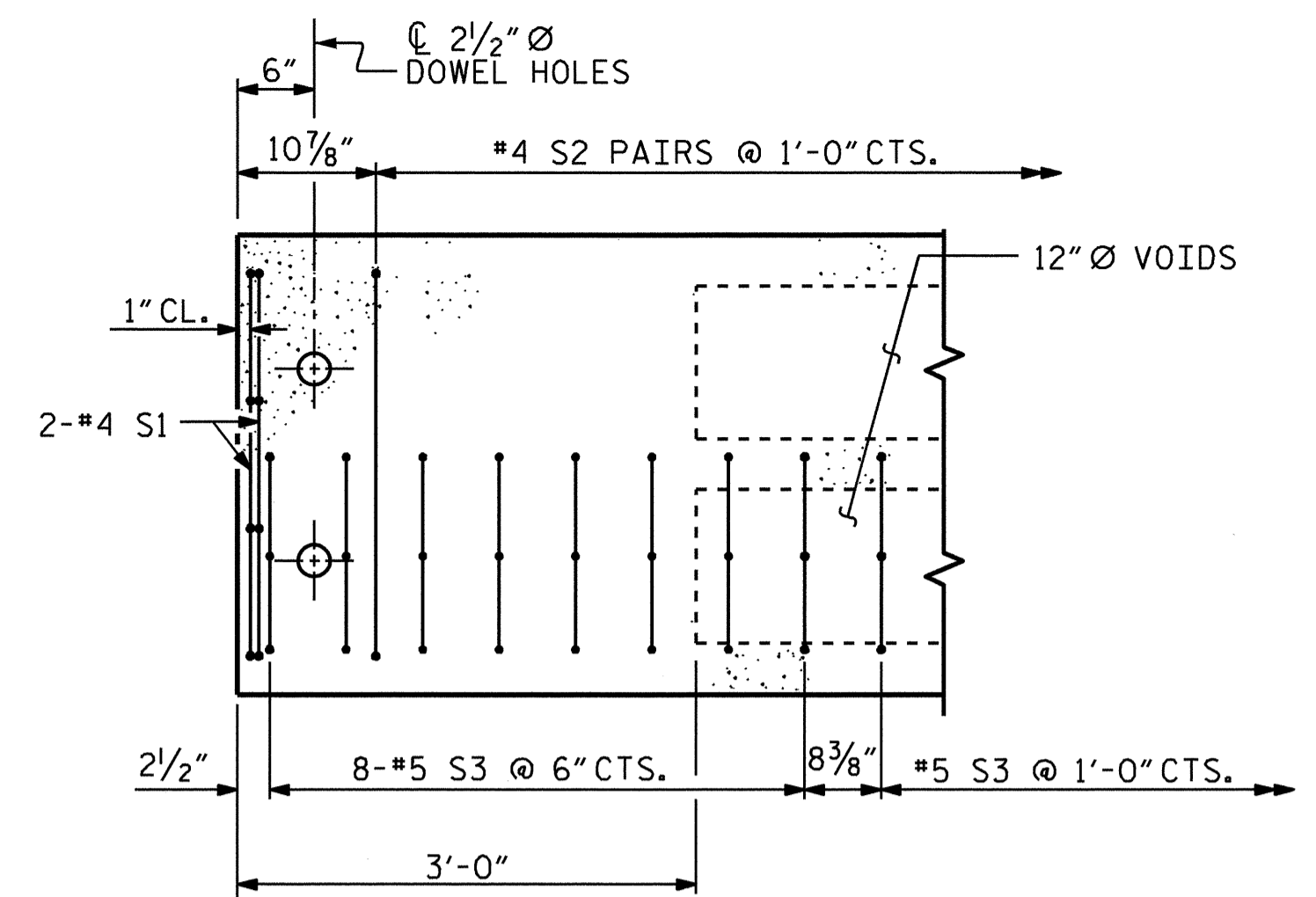
| REVISIONS | | | | | | SHEET NO. S-7 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |



PLAN OF SPAN C



PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.

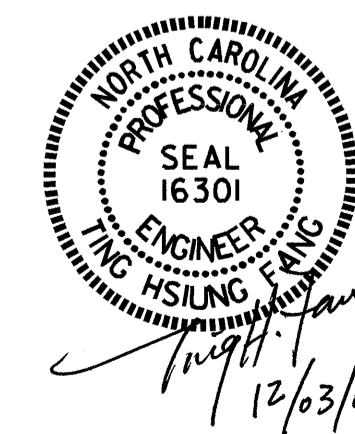


DETAIL "C"
PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN C



DRAWN BY : S. DOMBROWSKI DATE : 3/03/09
 CHECKED BY : E. C. LOCKLEAR DATE : 5/21/09

03-DEC-2009 14:09
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 sdombrowski

| REVISIONS | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----------|-------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

TOTAL SHEETS: 21

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

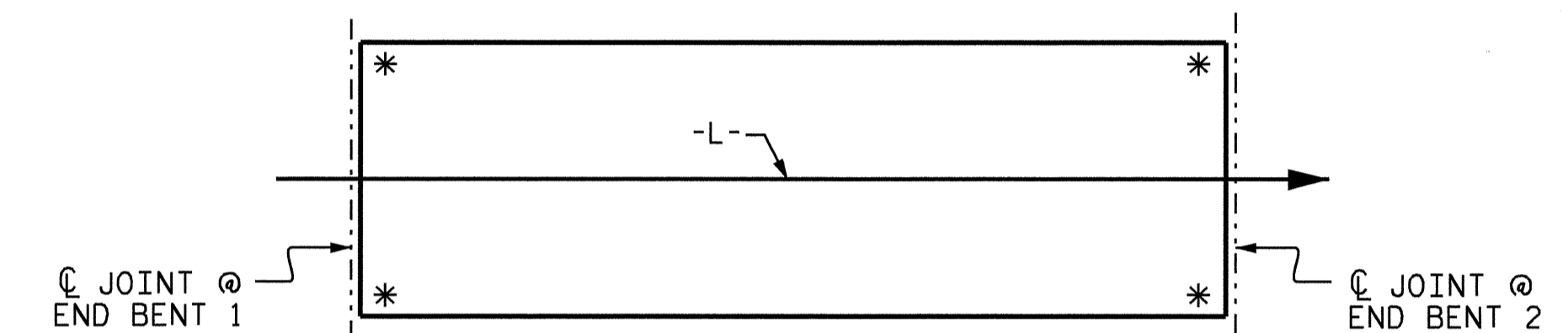
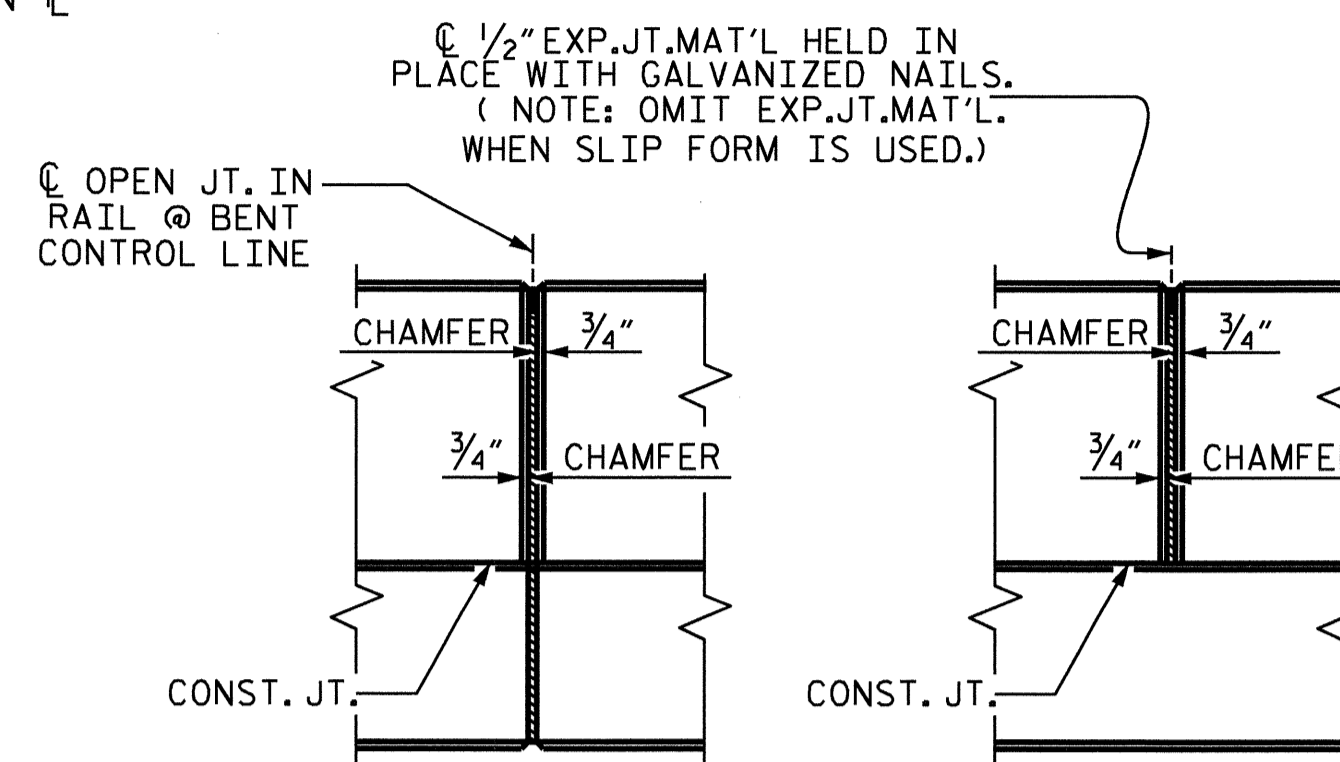
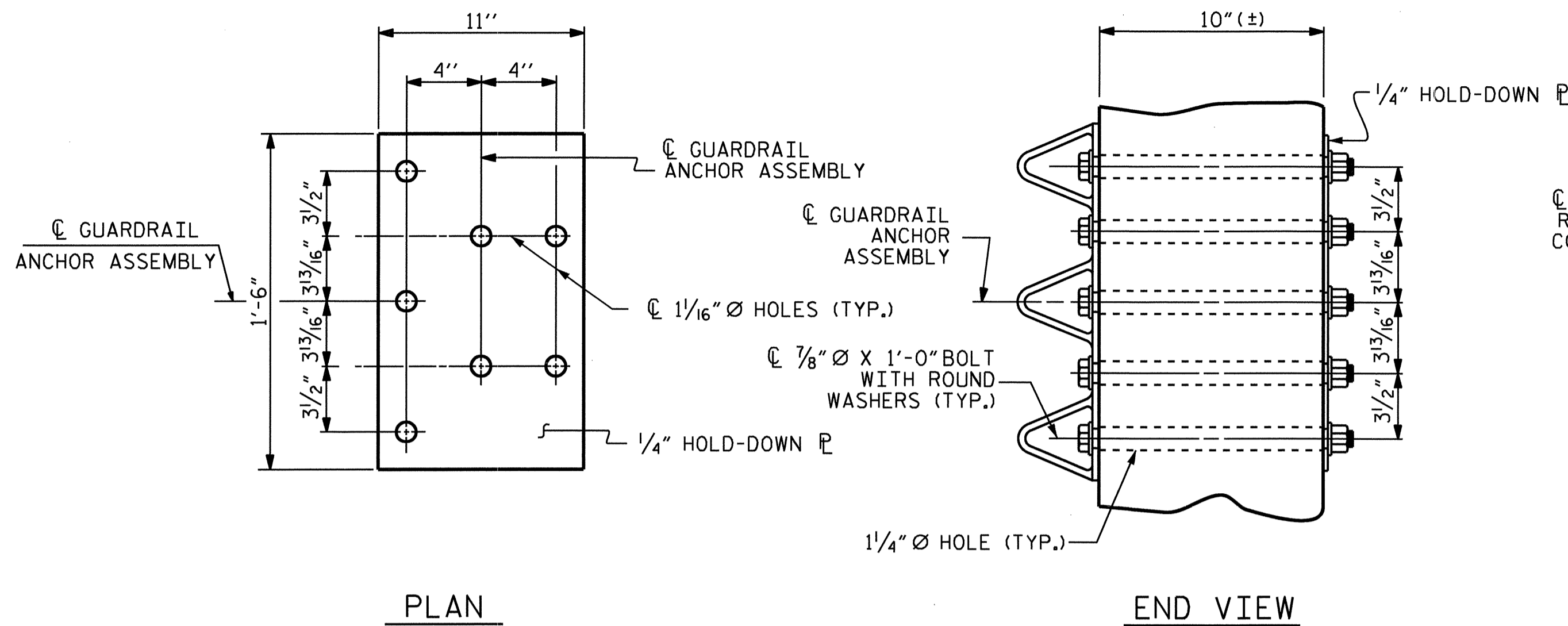
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

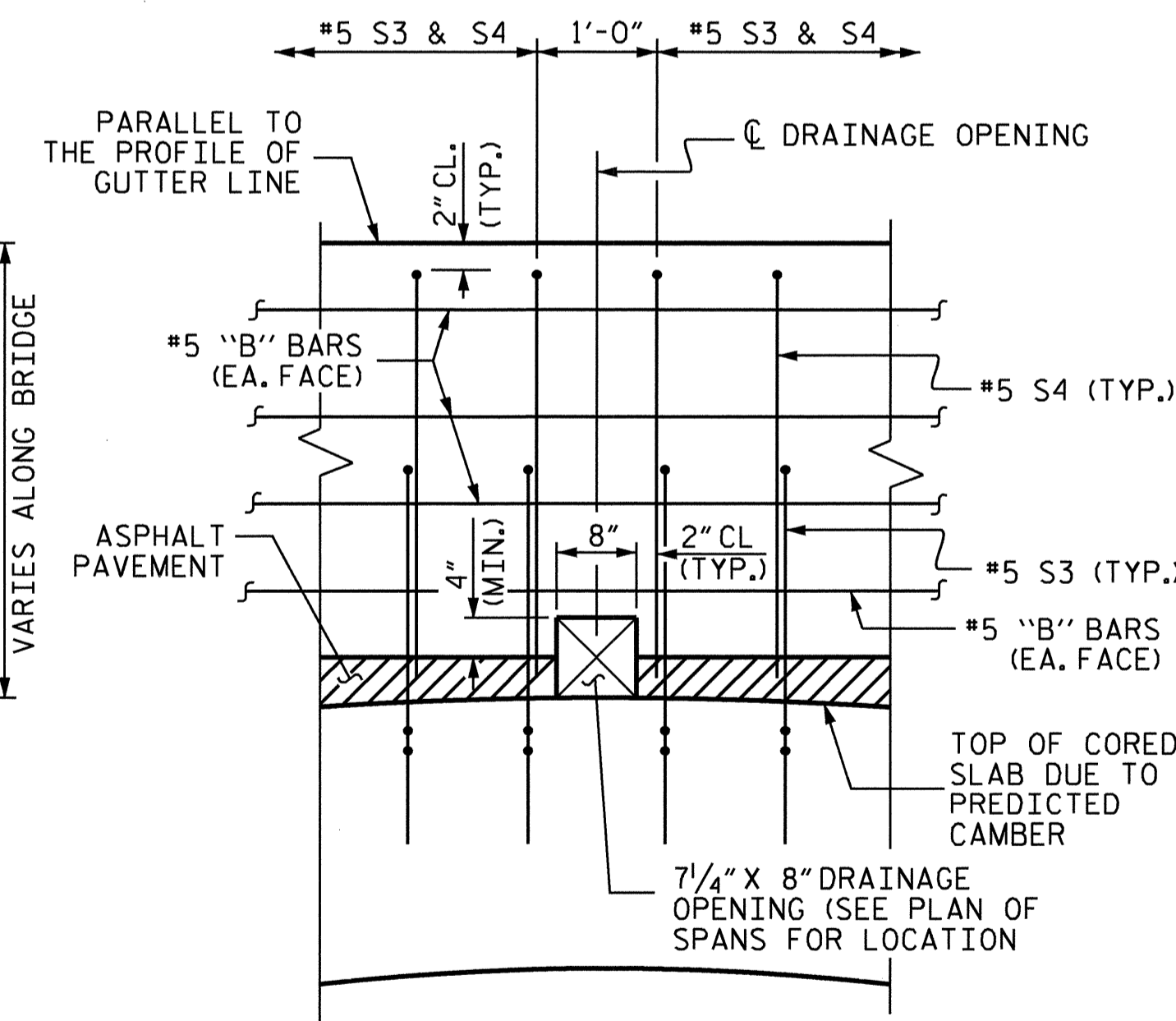
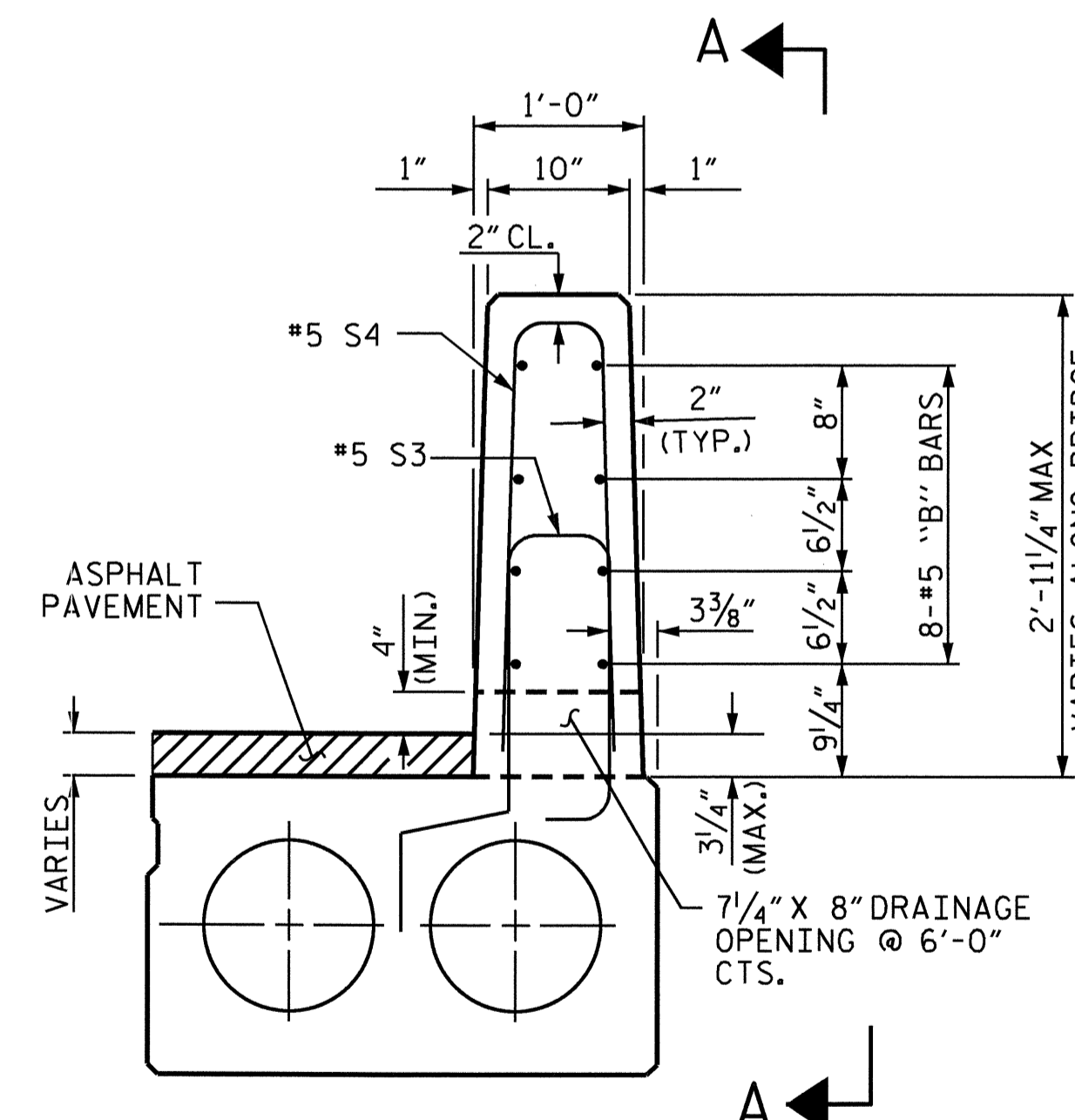
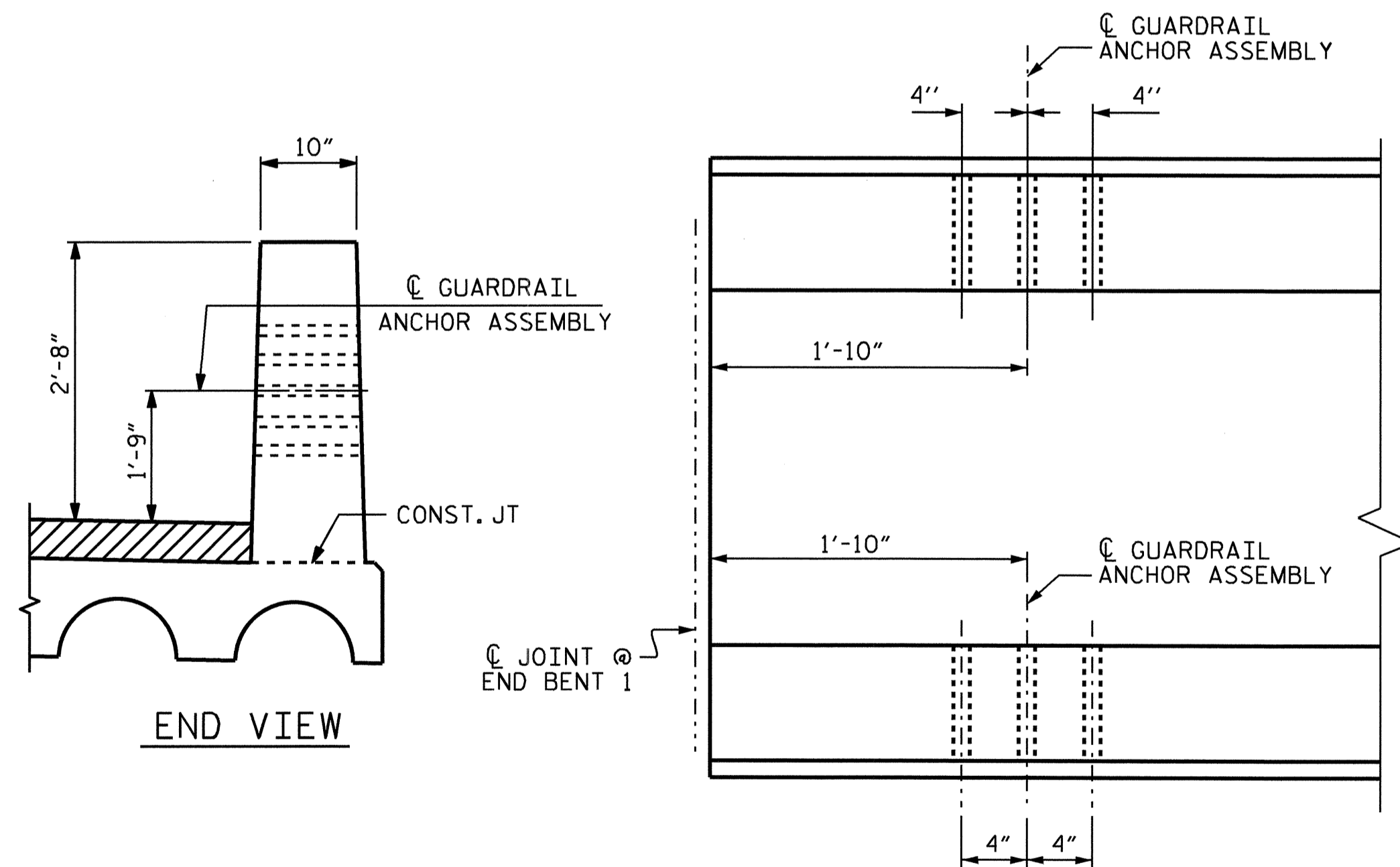
FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.



GUARDRAIL ANCHOR ASSEMBLY DETAILS

SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR

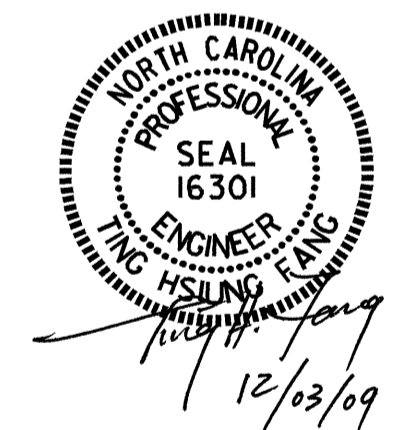
END BENT 1 SHOWN, END BENT 2 SIMILAR.

SECTION THRU RAIL WITH DRAINAGE OPENINGS

VIEW A-A

VERTICAL CONCRETE BARRIER RAIL DETAILS

FOR PLAN VIEW OF VERTICAL CONCRETE BARRIER RAIL, SEE "PLAN OF SPAN" SHEETS.



PROJECT NO. B-4583
MOORE COUNTY
STATION: 14+82.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

VERTICAL CONCRETE BARRIER RAIL AND GUARDRAIL ANCHORAGE DETAILS

| | |
|------------------------------|-----------------------|
| ASSEMBLED BY : S. DOMBROWSKI | DATE: 3/3/09 |
| CHECKED BY : E.C. LOCKLEAR | DATE: 5/21/09 |
| DRAWN BY : EEM 6/94 | REV. 8/16/99 RWW/LES |
| CHECKED BY : RGW 6/94 | REV. 10/17/00 RWW/LES |
| | REV. 5/7/03 RWW/JTE |

| REVISIONS | | | | | | SHEET NO. S-9 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

TRANSVERSE POST TENSIONING OF THE CORED SLAB SECTIONS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS.

VERTICAL GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

APPLYING EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS AND TO EXTERIOR FACES OF EXTERIOR UNITS.

| BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL | | | | | | | |
|---|-----------------|--------|--------|------|------|--------|----------|
| BAR | NUMBER PER SPAN | | | SIZE | TYPE | LENGTH | WEIGHT |
| | SPAN A | SPAN B | SPAN C | | | | |
| *B4 | 32 | | | #5 | STR | 24'-0" | 801 |
| *B5 | | 32 | | #5 | STR | 24'-7" | 820 |
| *B6 | | | 32 | #5 | STR | 16'-6" | 551 |
| *S4 | 114 | 102 | 84 | #5 | 3 | 5'-6" | 1,721 |
| * EPOXY COATED REINFORCING STEEL | | | | | | 3,893 | LBS. |
| CLASS AA CONCRETE | | | | | | 26.10 | CU. YDS. |
| TOTAL LN. FT. OF VERTICAL CONCRETE BARRIER RAIL | | | | | | 265.5 | LIN. FT. |

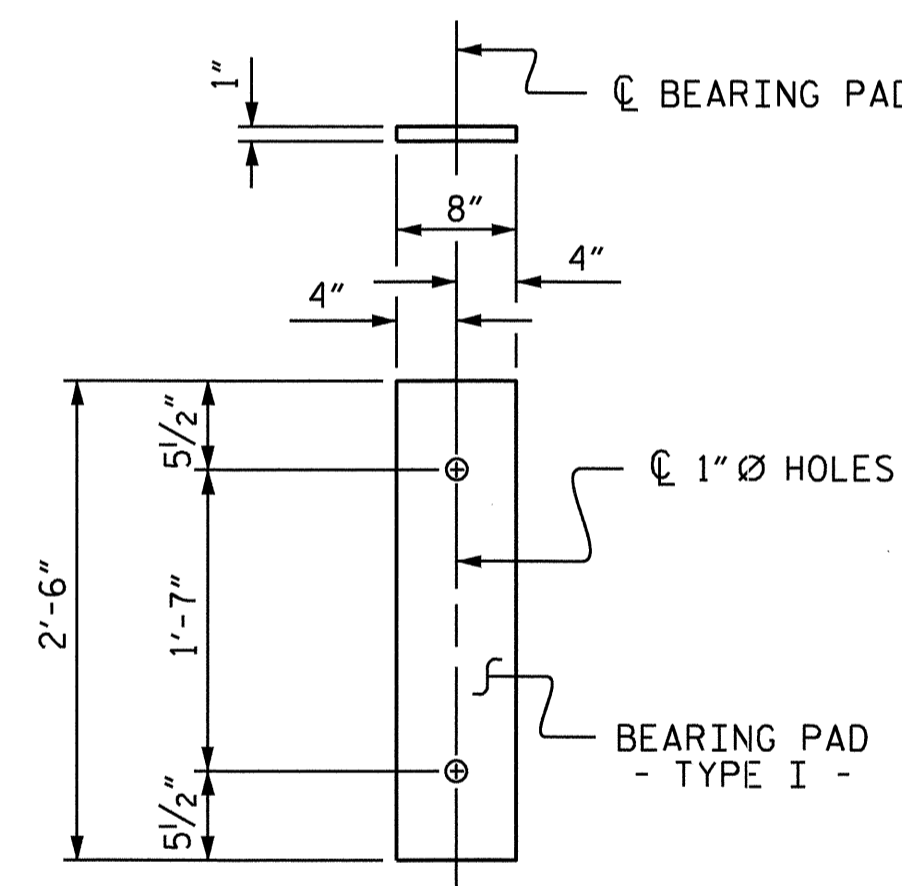
| SPLICE LENGTH CHART | |
|---------------------|---------------|
| BAR SIZE | SPLICE LENGTH |
| #4 | 1'-9" |

| GRADE 270 STRANDS | |
|---------------------------------------|-------------|
| | 0.6" Ø L.R. |
| AREA (SQUARE INCHES) | 0.217 |
| ULTIMATE STRENGTH (LBS. PER STRAND) | 58,600 |
| APPLIED PRESTRESS (LBS. PER STRAND) | 43,950 |

| DEAD LOAD DEFLECTION AND CAMBER | | | |
|---|-----------|-----------|---------|
| | SPAN A | SPAN B | SPAN C |
| CAMBER (SLAB ALONE IN PLACE) | 2 1/16" ↑ | 2 1/16" ↑ | 7/16" ↑ |
| DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ** | 5/16" ↓ | 5/16" ↓ | 1/16" ↓ |
| FINAL CAMBER | 1 3/4" ↑ | 1 3/4" ↑ | 3/8" ↑ |

** INCLUDES FUTURE WEARING SURFACE

| CORED SLABS REQUIRED | | | | |
|---|--------|-------------|--------------|--|
| SPAN A | | | | |
| UNIT TYPE | NUMBER | LENGTH | TOTAL LENGTH | |
| EXTERIOR | 2 | 48'-9 3/4" | 97'-7 1/2" | |
| INTERIOR | 8 | 48'-9 3/4" | 390'-6" | |
| TOTAL | 10 | 48'-9 3/4" | 488'-1 1/2" | |
| SPAN B | | | | |
| UNIT TYPE | NUMBER | LENGTH | TOTAL LENGTH | |
| EXTERIOR | 2 | 49'-10 1/2" | 99'-9" | |
| INTERIOR | 8 | 49'-10 1/2" | 399'-0" | |
| TOTAL | 10 | 49'-10 1/2" | 498'-9" | |
| SPAN C | | | | |
| UNIT TYPE | NUMBER | LENGTH | TOTAL LENGTH | |
| EXTERIOR | 2 | 33'-9 3/4" | 67'-7 1/2" | |
| INTERIOR | 8 | 33'-9 3/4" | 270'-6" | |
| TOTAL | 10 | 33'-9 3/4" | 338'-1 1/2" | |
| TOTAL CORED SLAB UNITS NO. 30 1325'-0" LIN. FT. | | | | |



FIXED END
(TYPE I - 60 REQ'D)

ELASTOMERIC BEARING DETAILS

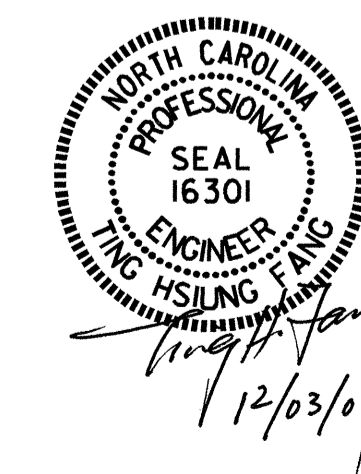
BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB UNIT

| SPAN A | | | | | | | |
|----------------------------------|--------|------|------|---------------|--------|---------------|--------|
| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B1 | 4 | #4 | STR | 25'-2" | 67 | 25'-2" | 67 |
| S1 | 8 | #4 | 1 | 4'-5" | 24 | 4'-5" | 24 |
| S2 | 112 | #4 | 1 | 5'-4" | 400 | 5'-4" | 400 |
| * S3 | 57 | #5 | 2 | 5'-10" | 347 | | |
| REINFORCING STEEL | | | | 491 LBS. | | 491 LBS. | |
| * EPOXY COATED REINFORCING STEEL | | | | 347 LBS. | | | |
| 5000 P.S.I. CONCRETE | | | | 7.0 CU. YDS. | | 7.0 CU. YDS. | |
| 0.6" Ø L.R. STRANDS | | | | No. 16 | | | |
| SPAN B | | | | | | | |
| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B2 | 4 | #4 | STR | 25'-8" | 69 | 25'-8" | 69 |
| S1 | 8 | #4 | 1 | 4'-5" | 24 | 4'-5" | 24 |
| S2 | 114 | #4 | 1 | 5'-4" | 406 | 5'-4" | 406 |
| * S3 | 51 | #5 | 2 | 5'-10" | 310 | | |
| REINFORCING STEEL | | | | 499 LBS. | | 499 LBS. | |
| * EPOXY COATED REINFORCING STEEL | | | | 310 LBS. | | | |
| 5000 P.S.I. CONCRETE | | | | 7.2 CU. YDS. | | 7.2 CU. YDS. | |
| 0.6" Ø L.R. STRANDS | | | | No. 16 | | | |
| SPAN C | | | | | | | |
| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B3 | 4 | #4 | STR | 17'-8" | 47 | 17'-8" | 47 |
| S1 | 8 | #4 | 1 | 4'-5" | 24 | 4'-5" | 24 |
| S2 | 66 | #4 | 1 | 5'-4" | 235 | 5'-4" | 235 |
| * S3 | 42 | #5 | 2 | 5'-10" | 256 | | |
| REINFORCING STEEL | | | | 306 LBS. | | 306 LBS. | |
| * EPOXY COATED REINFORCING STEEL | | | | 256 LBS. | | | |
| 5000 P.S.I. CONCRETE | | | | 5.0 CU. YDS. | | 5.0 CU. YDS. | |
| 0.6" Ø L.R. STRANDS | | | | No. 9 | | | |

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

BILL OF MATERIAL

| REVISIONS | | | | | | SHEET NO. S-10 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

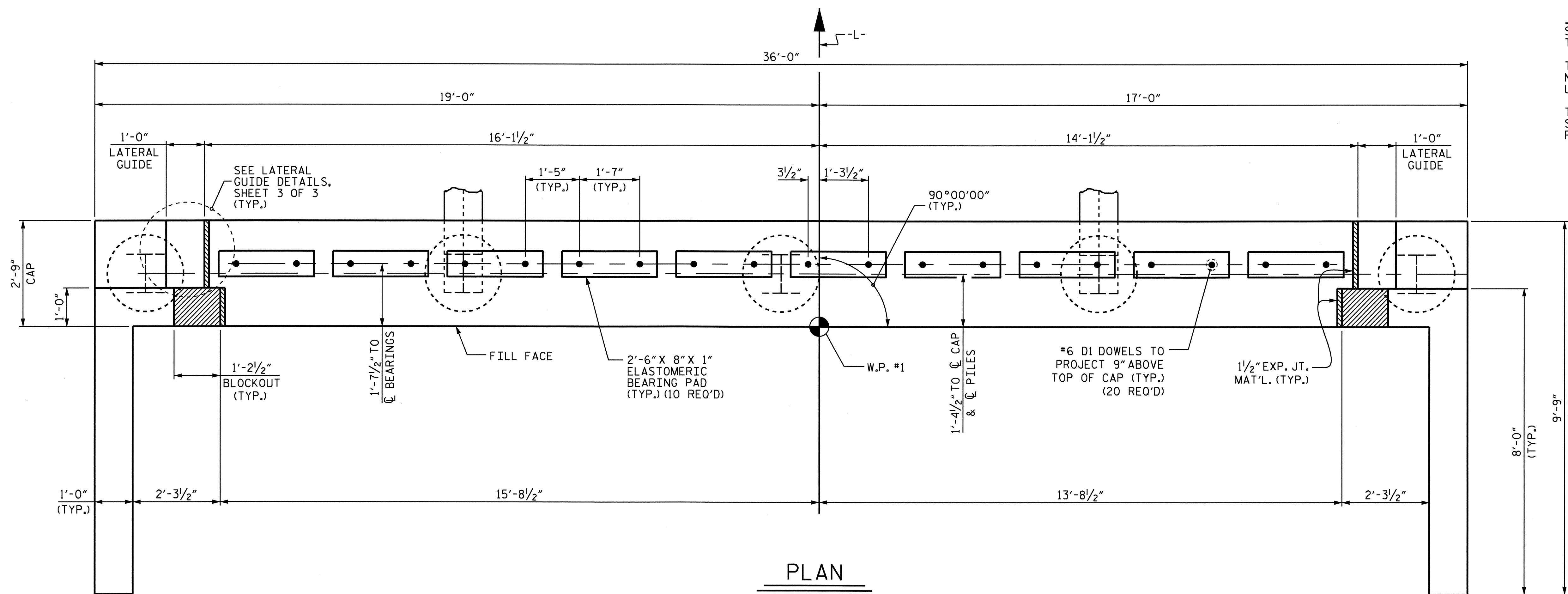
ASSEMBLED BY : S. DOMBROWSKI DATE : 3/03/09
 CHECKED BY : E. C. LOCKLEAR DATE : 5/21/09
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS

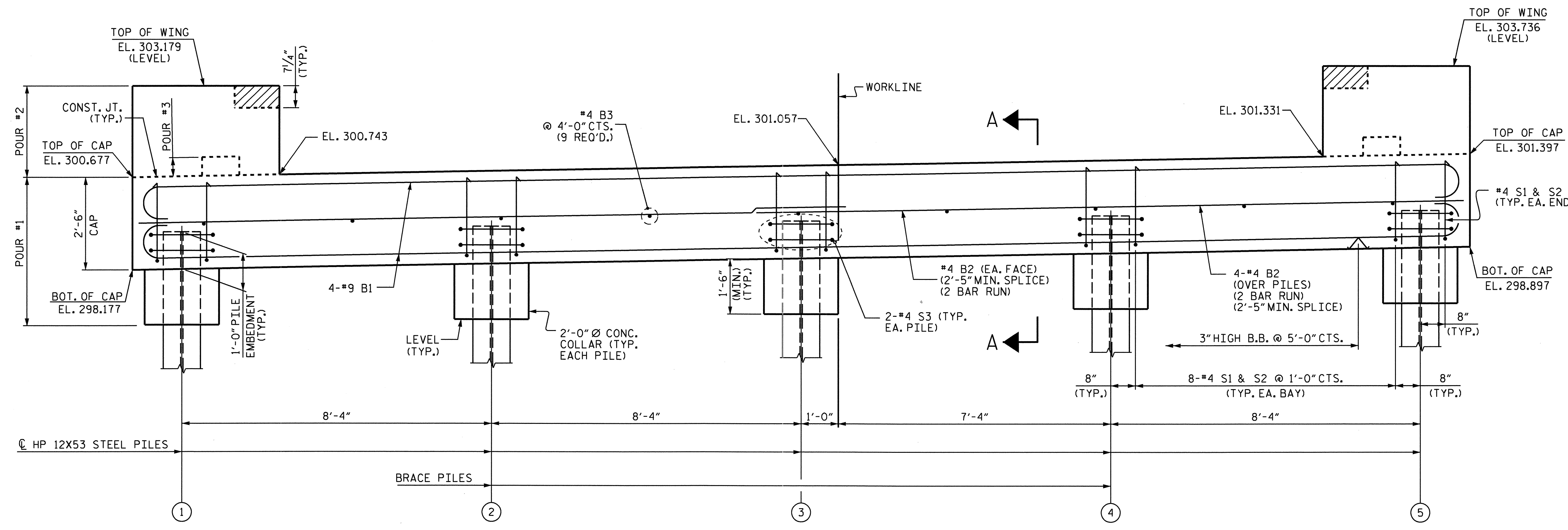
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POSTS ARE CAST IF SLIP FORMING IS USED.



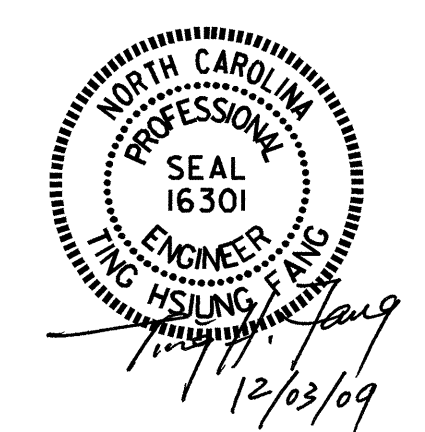
PLAN

| TOP OF PILE ELEVATIONS | |
|------------------------|-----------|
| PILE NO. | ELEVATION |
| ① | 299.214 |
| ② | 299.381 |
| ③ | 299.547 |
| ④ | 299.714 |
| ⑤ | 299.881 |



ELEVATION

WINGS NOT SHOWN FOR CLARITY FOR REINFORCING STEEL & DETAILS OF WINGS, SEE SHEET 2 OF 3.



PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

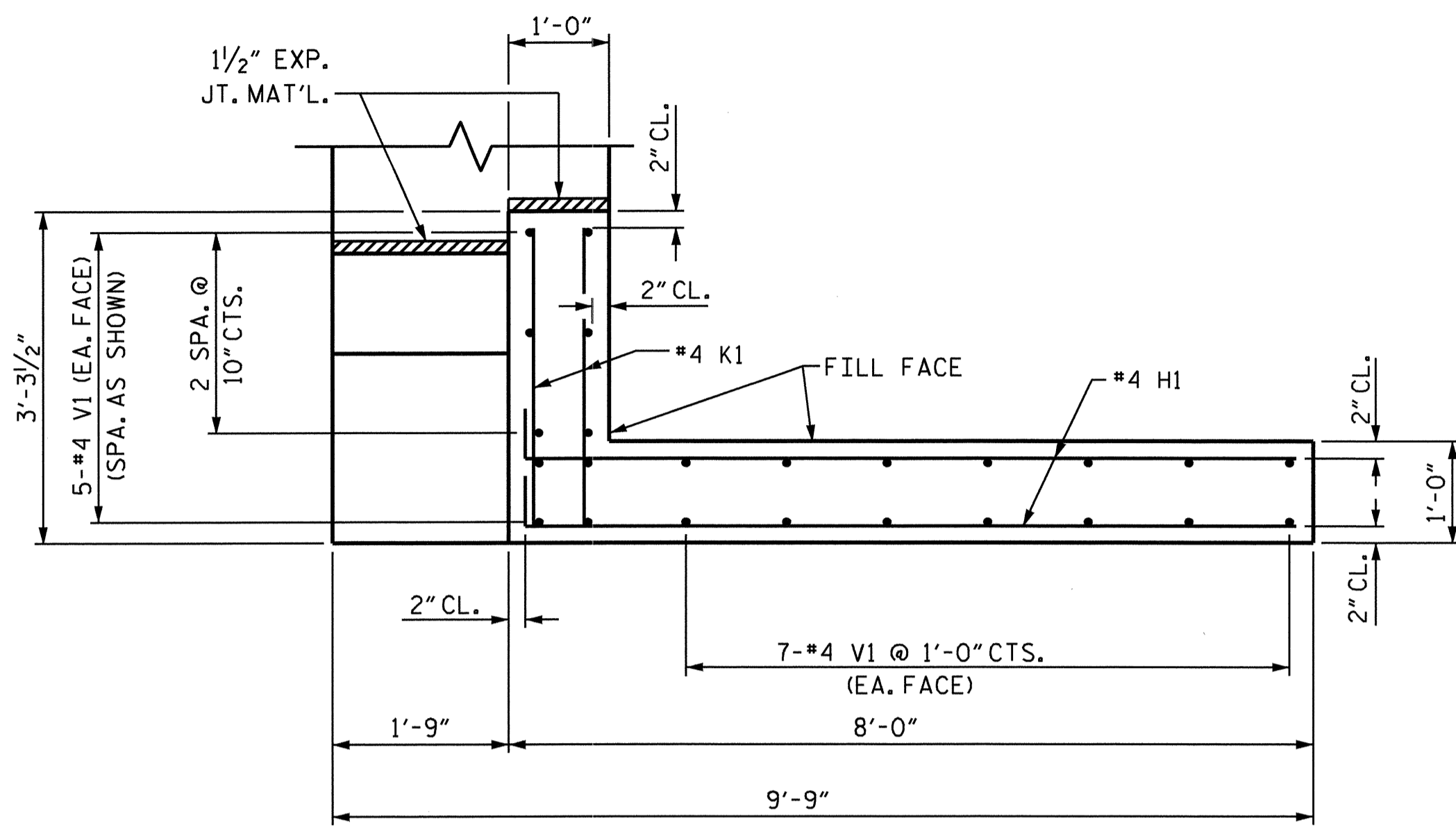
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

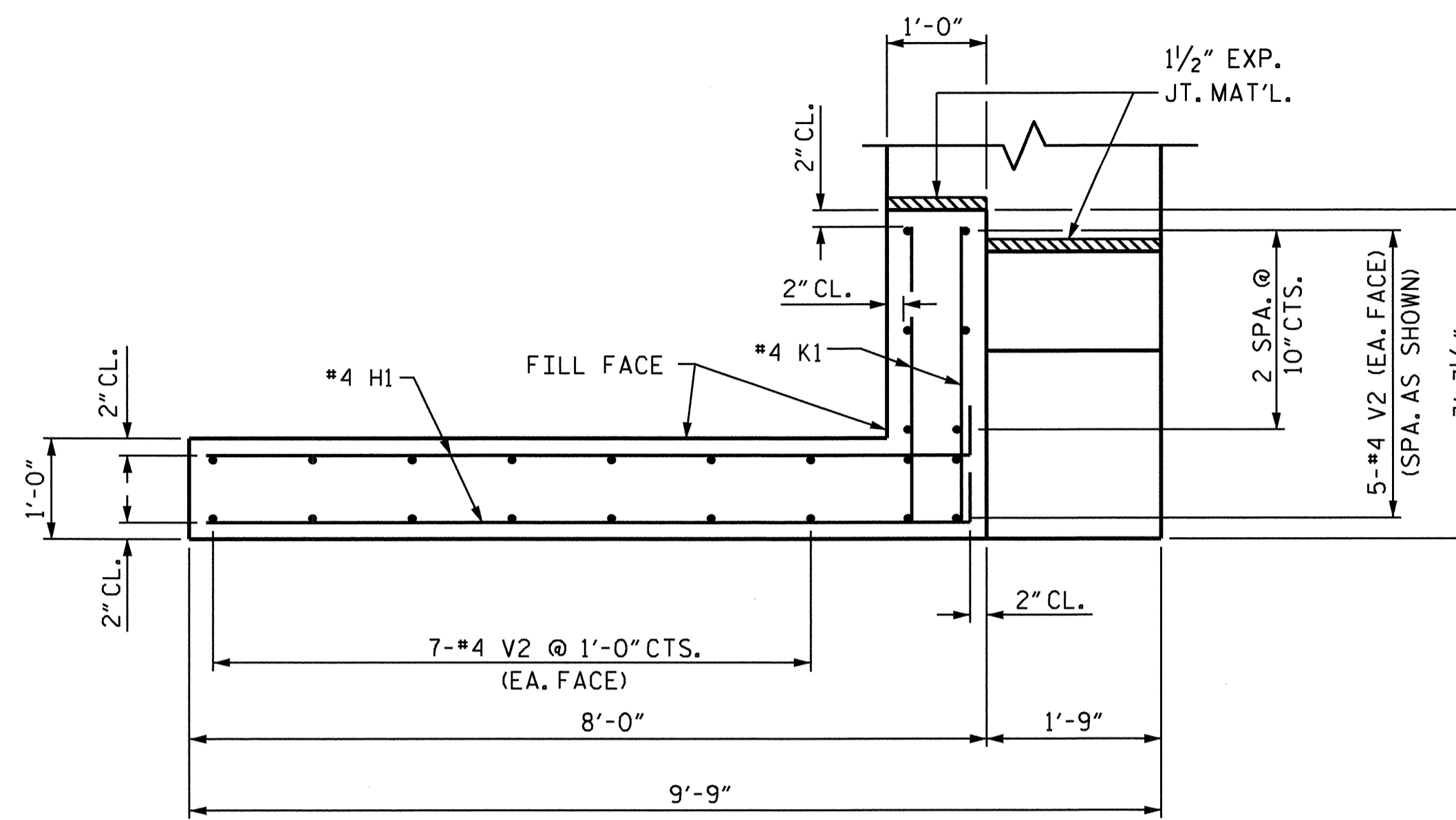
SUBSTRUCTURE
END BENT 1

| REVISIONS | | | | | | SHEET NO. S-11 |
|-----------|-----|-------|-----|-----|-------|-------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 21 |

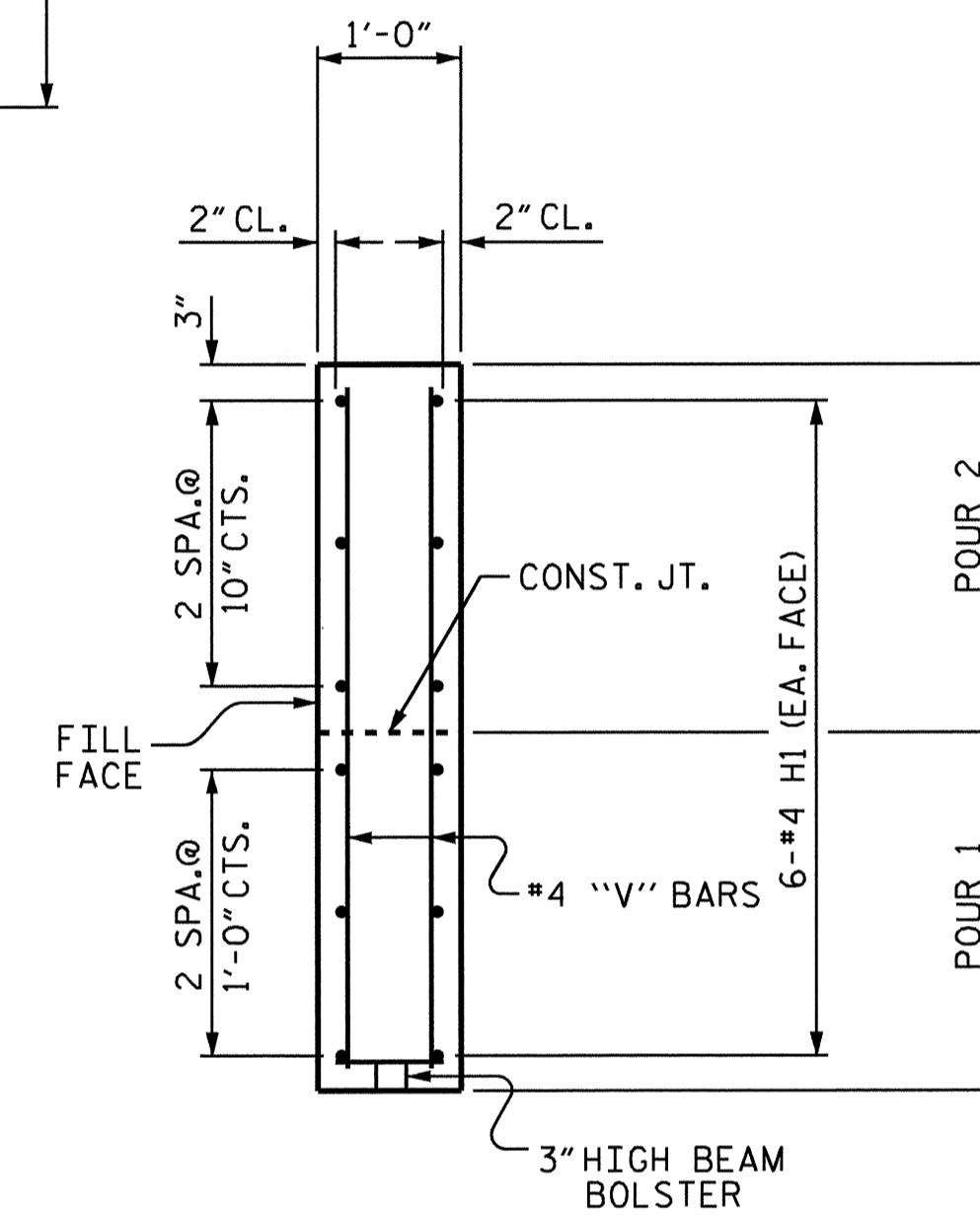
DRAWN BY: S. DOMBROWSKI DATE: 3/4/09
 CHECKED BY: T. H. FANG DATE: 11/4/09



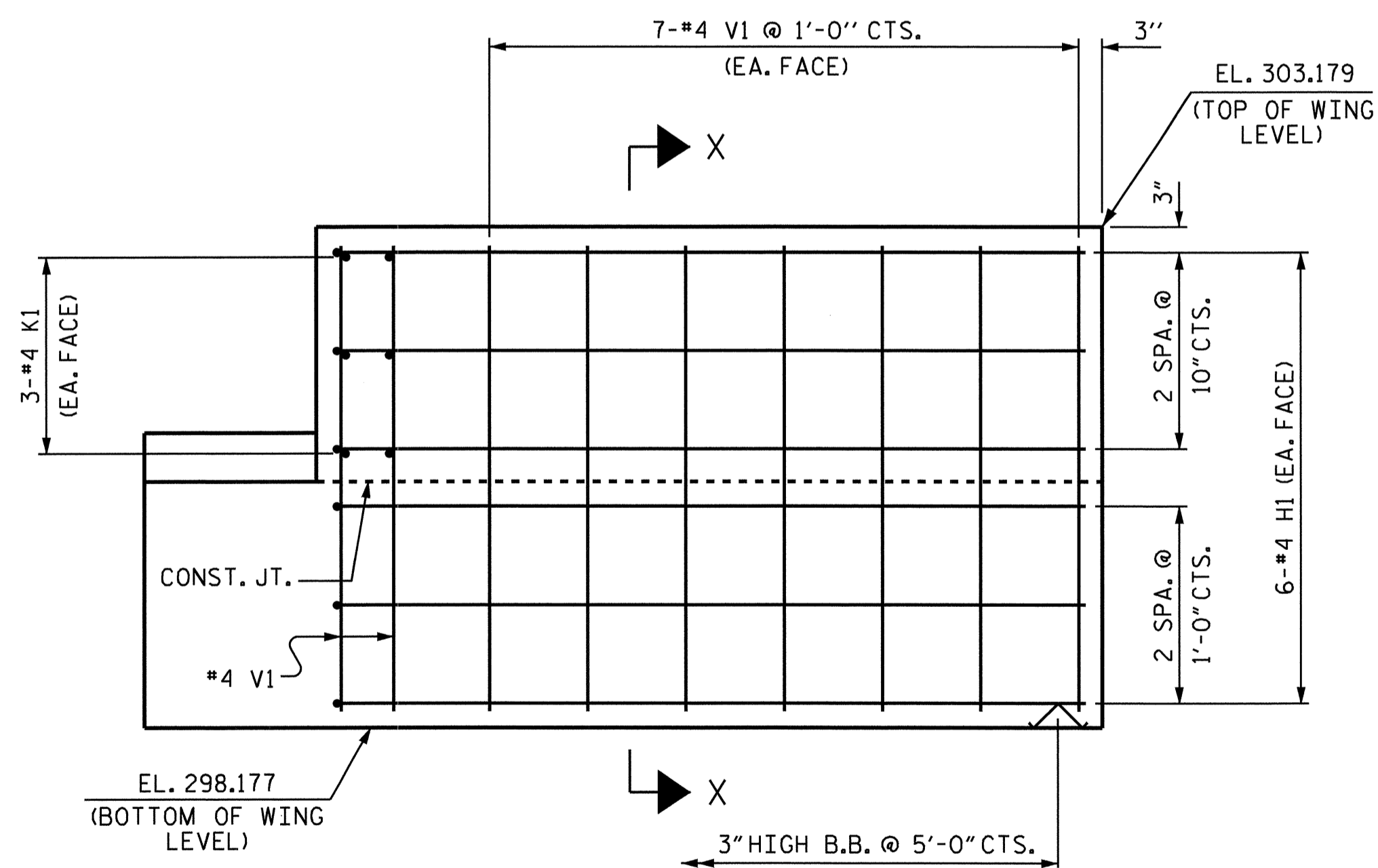
PLAN OF WING W1



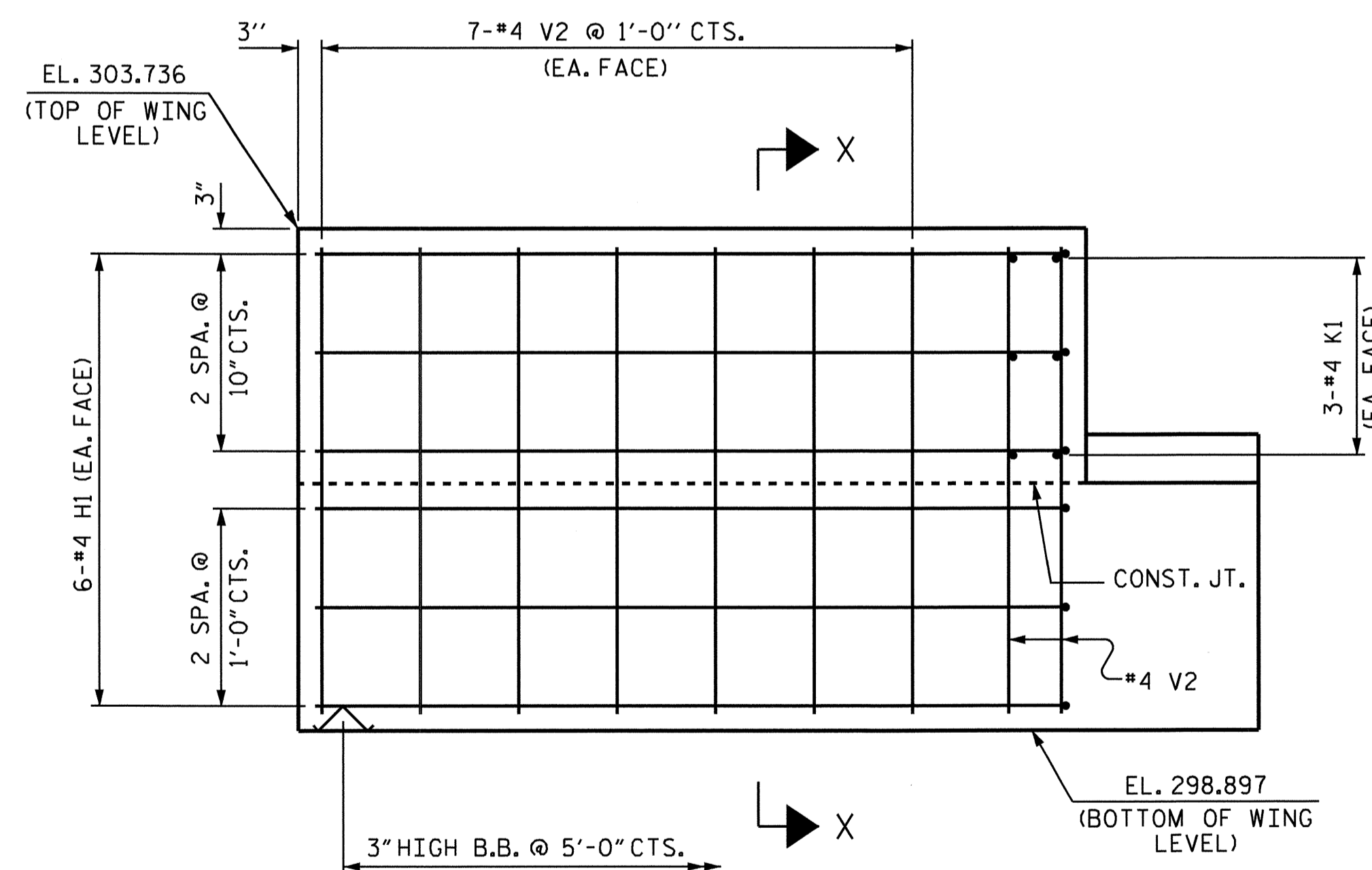
PLAN OF WING W2



SECTION X-X



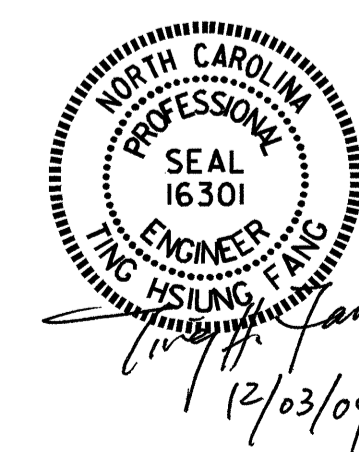
ELEVATION OF WING W1



ELEVATION OF WING W2

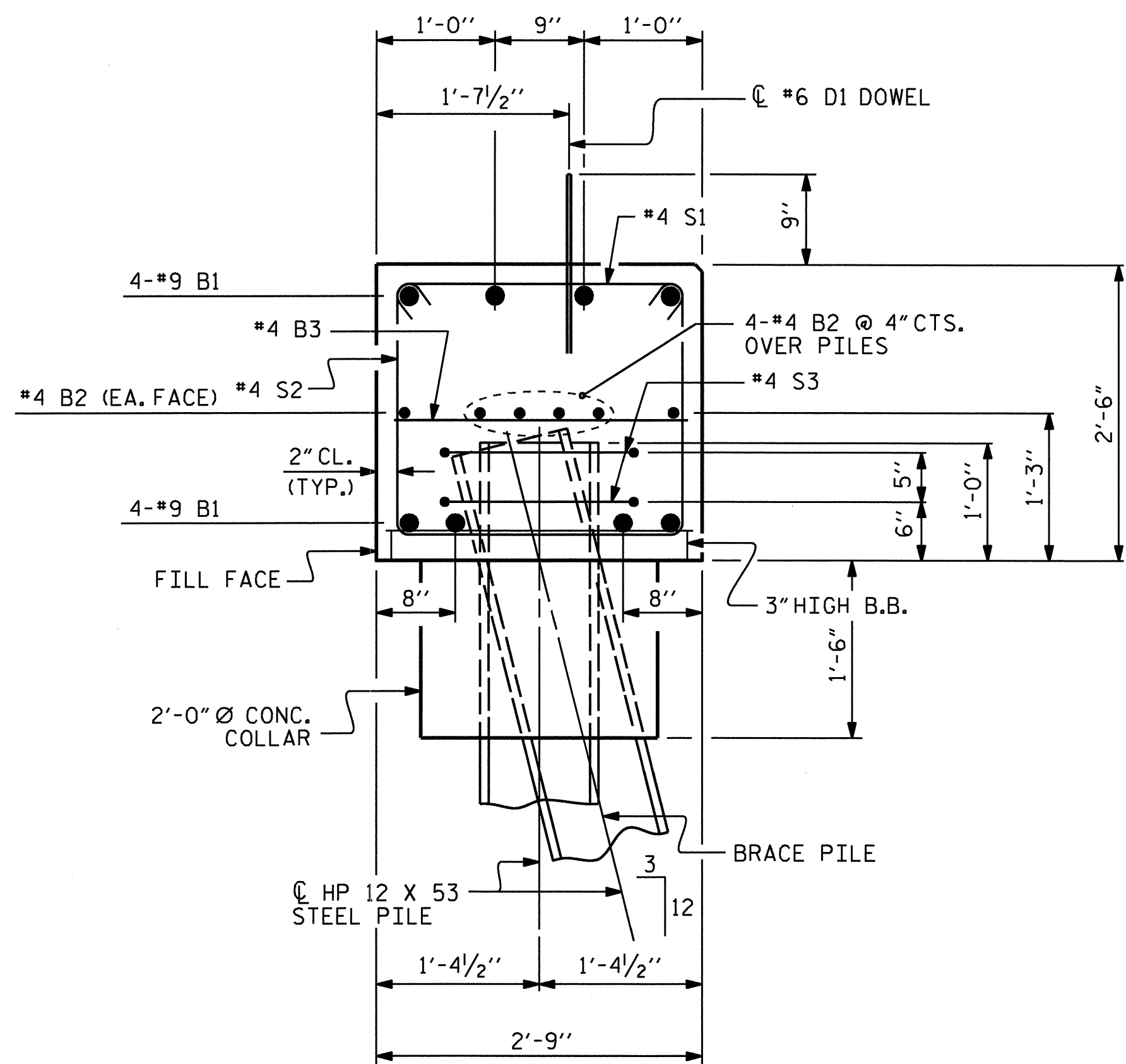
PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 2 OF 3

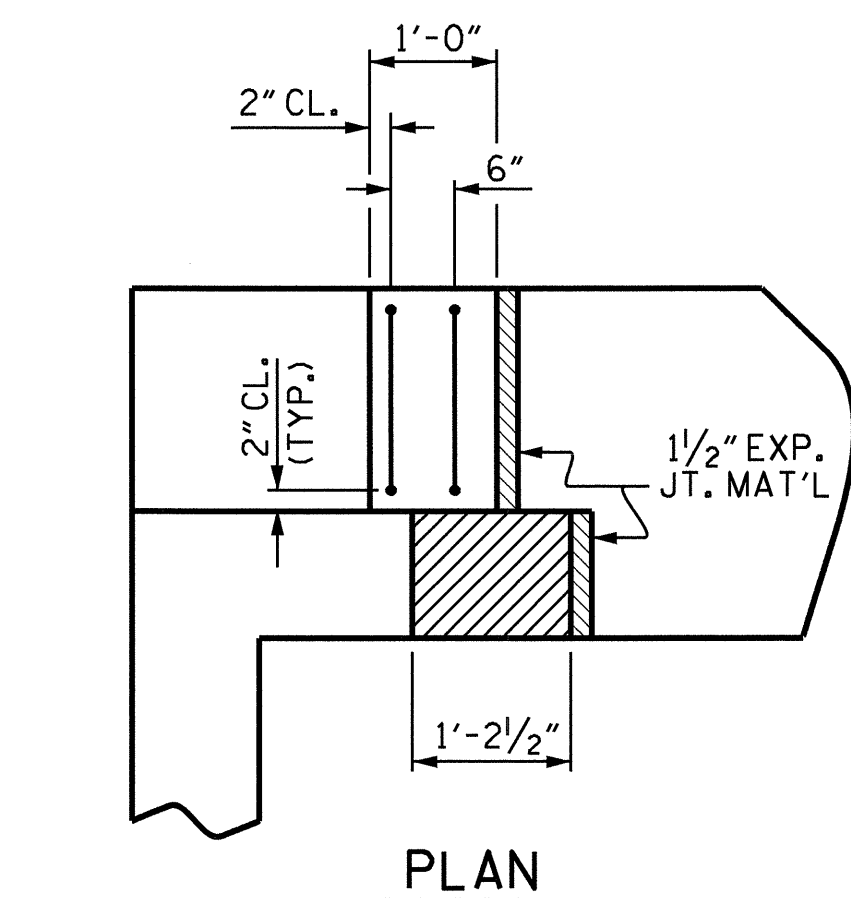


| | | | | | |
|--|-----|-------|-----|-----|-----------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| SUBSTRUCTURE | | | | | |
| END BENT 1 | | | | | |
| REVISIONS | | | | | SHEET NO. |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| TOTAL SHEETS | | | | | 21 |

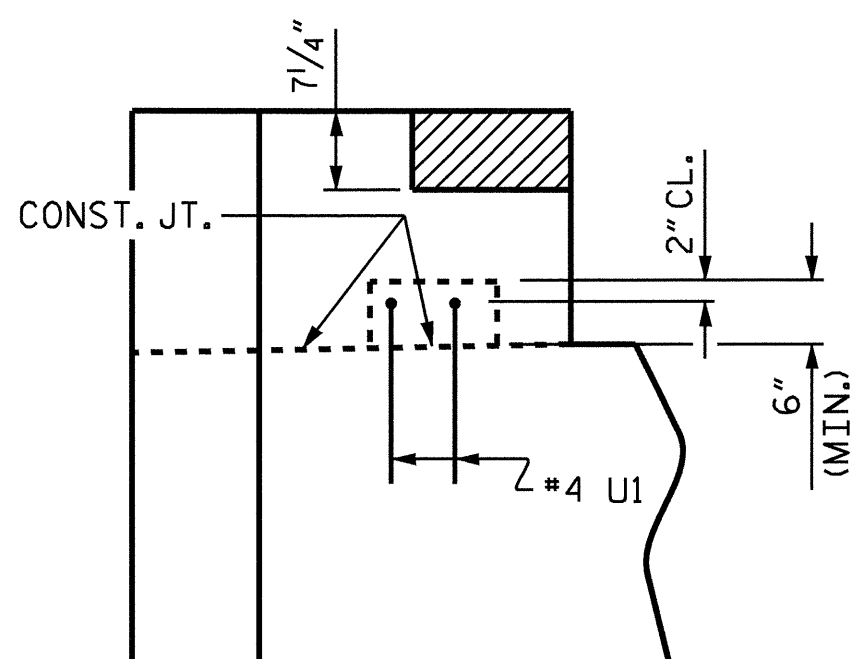
DRAWN BY : S. DOMBROWSKI DATE : 3/4/09
 CHECKED BY : T. H. FANG DATE : 11/4/09



SECTION A-A



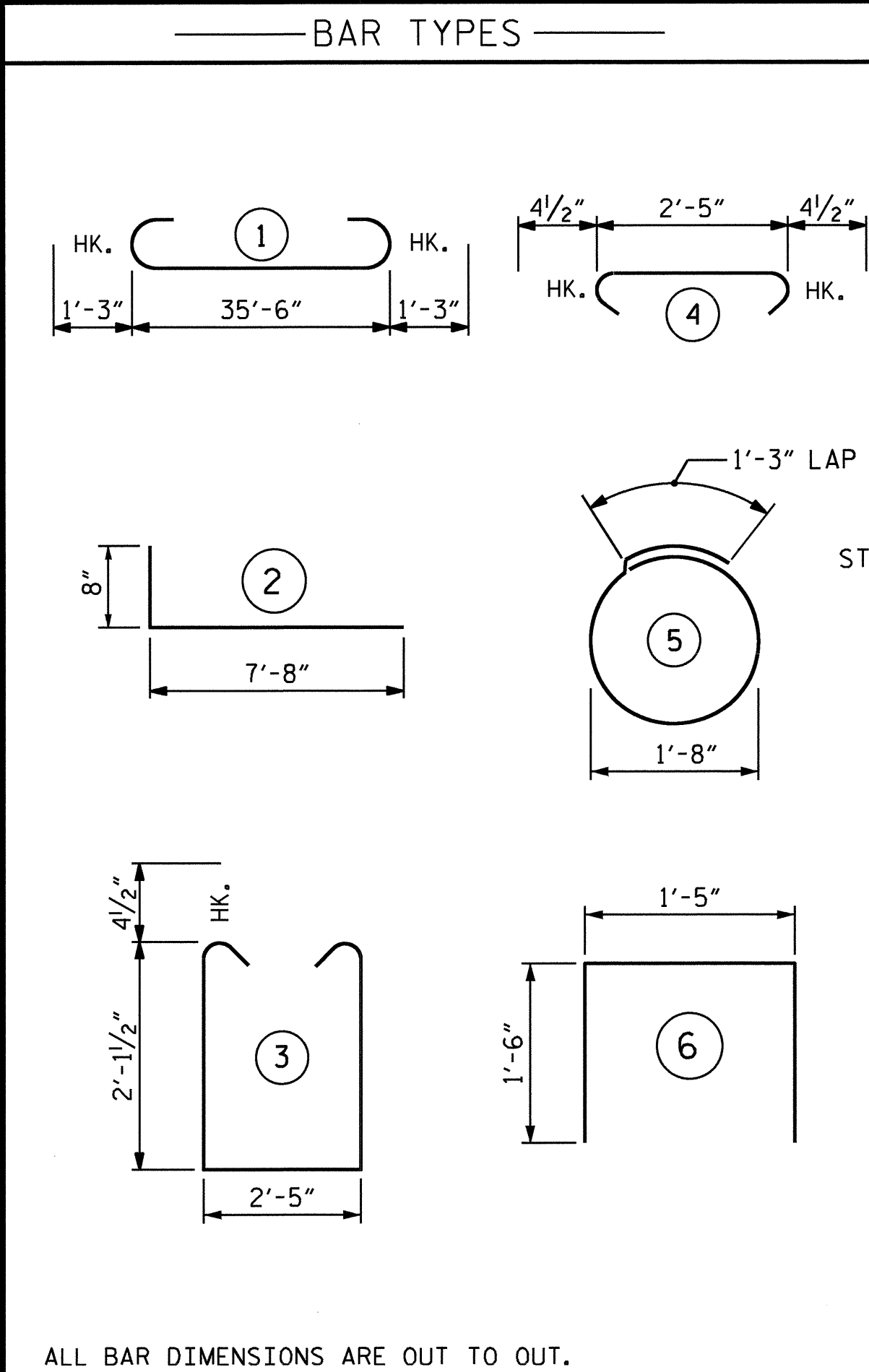
PLAN



ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

| BAR NO. | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------|-----|------|------|--------|--------|
| B1 | 8 | #9 | 1 | 38'-0" | 1034 |
| B2 | 12 | #4 | STR | 19'-1" | 153 |
| B3 | 9 | #4 | STR | 2'-5" | 15 |
| D1 | 20 | #6 | STR | 1'-6" | 45 |
| H1 | 24 | #4 | 2 | 8'-4" | 134 |
| K1 | 12 | #4 | STR | 2'-11" | 23 |
| S1 | 34 | #4 | 4 | 3'-2" | 72 |
| S2 | 34 | #4 | 3 | 7'-5" | 168 |
| S3 | 10 | #4 | 5 | 6'-6" | 43 |
| U1 | 4 | #4 | 6 | 4'-5" | 12 |
| V1 | 24 | #4 | STR | 4'-8" | 75 |
| V2 | 24 | #4 | STR | 4'-6" | 72 |

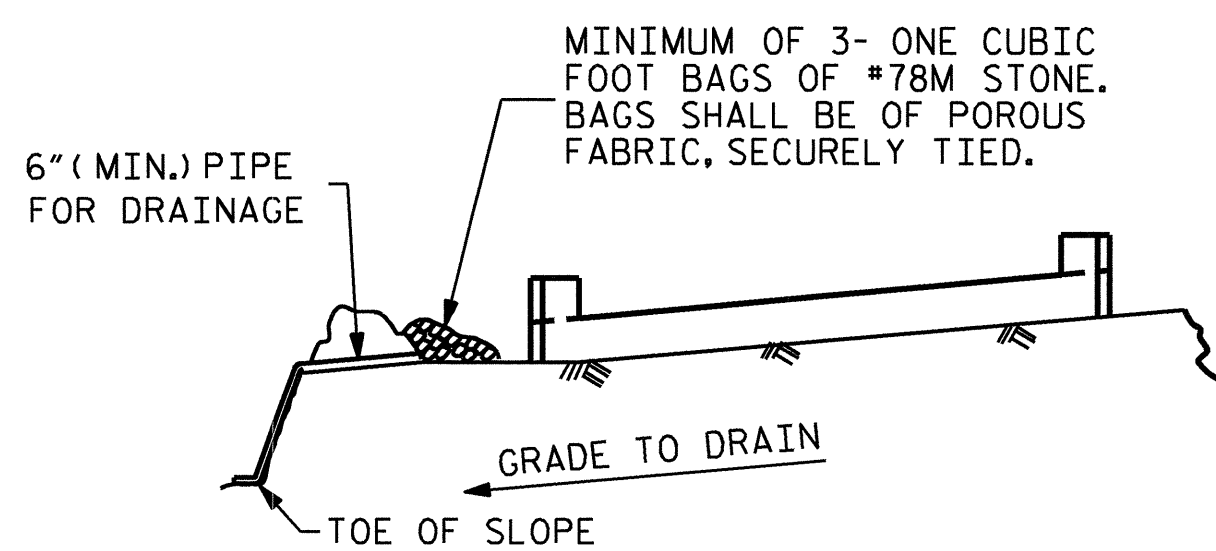
REINFORCING STEEL 1846 LBS.

CLASS A CONCRETE BREAKDOWN:

| | |
|---|-----------|
| POUR #1 (CONCRETE COLLARS, CAP & LOWER WINGS) | 11.4 C.Y. |
| POUR #2 (UPPER WINGS) | 1.9 C.Y. |
| POUR #3 (LATERAL GUIDES) | 0.1 C.Y. |

TOTAL CLASS A CONCRETE: 13.4 C.Y.

| | |
|-----------------------|--------------|
| HP 12X53 STEEL PILES: | |
| NO. 5 | 275 LIN. FT. |
| STEEL PILE POINTS | 5 EA. |
| PILE REDRIVES | 2 EA. |

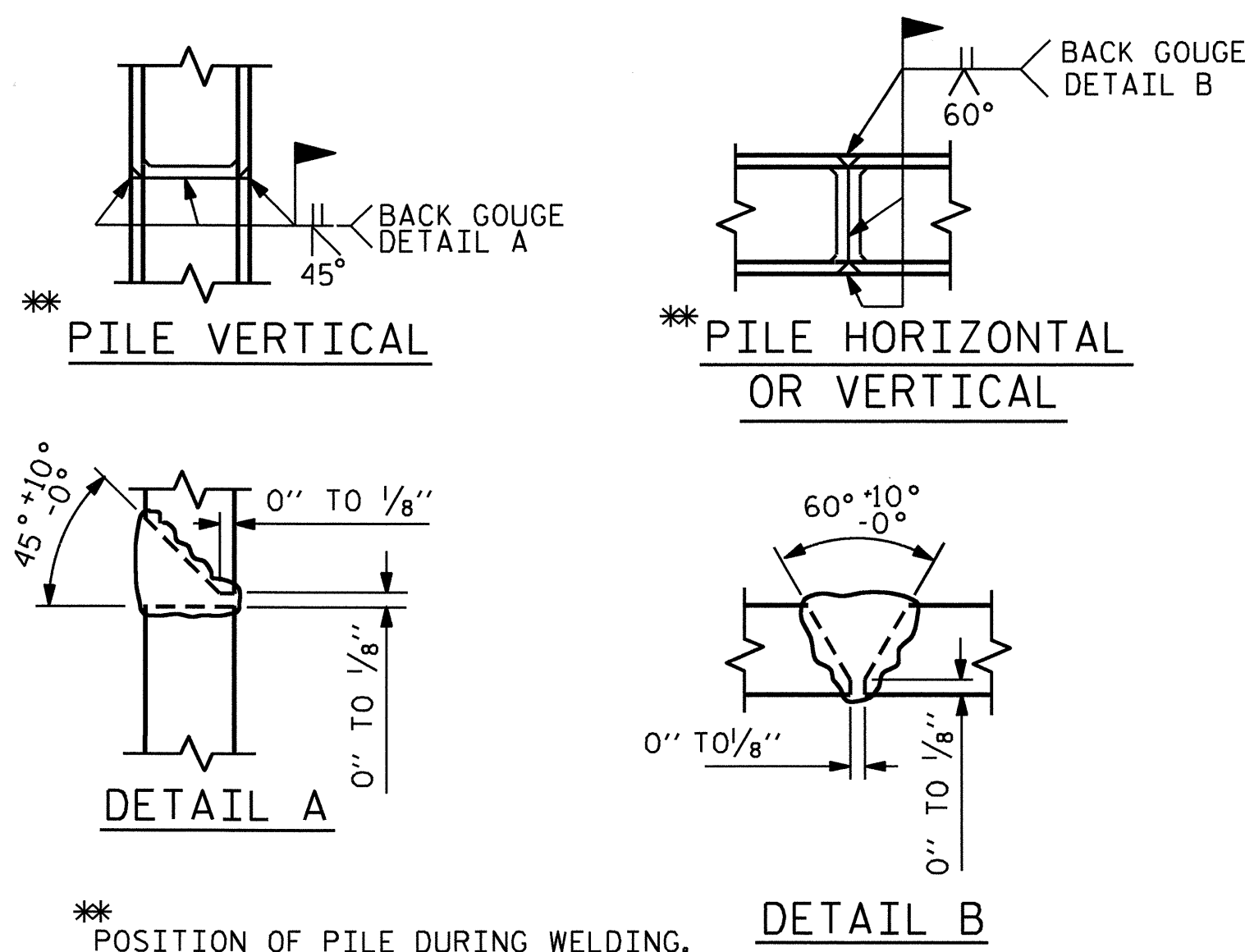


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

PROJECT NO. B-4583
MOORE COUNTY
STATION: 14+82.50 -L-

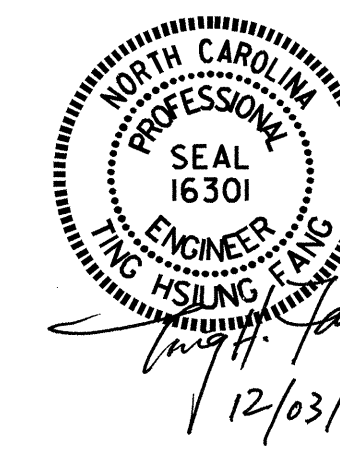
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1

REVISIONS

| NO. | BY: | DATE: | NO. | BY: | DATE: | SHEET NO. |
|-----|-----|-------|-----|-----|-------|-----------------|
| 1 | | | 3 | | | S-13 |
| 2 | | | 4 | | | TOTAL SHEETS 21 |



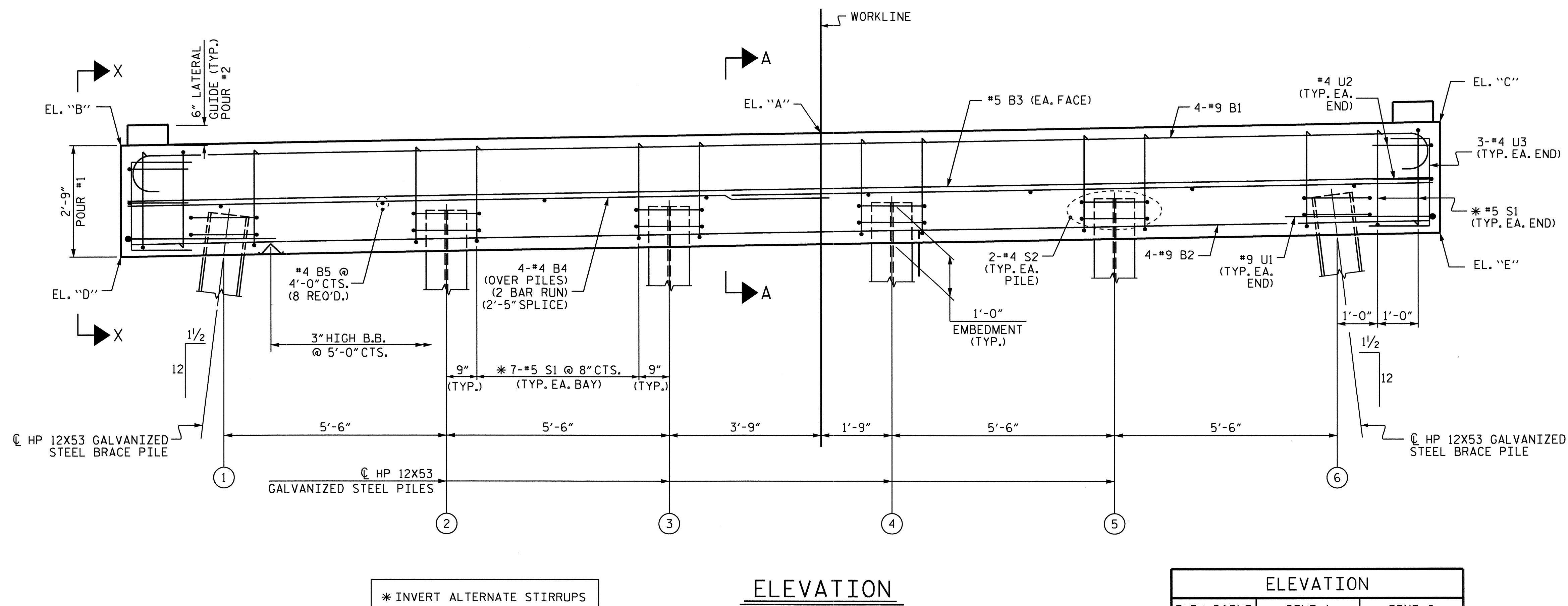
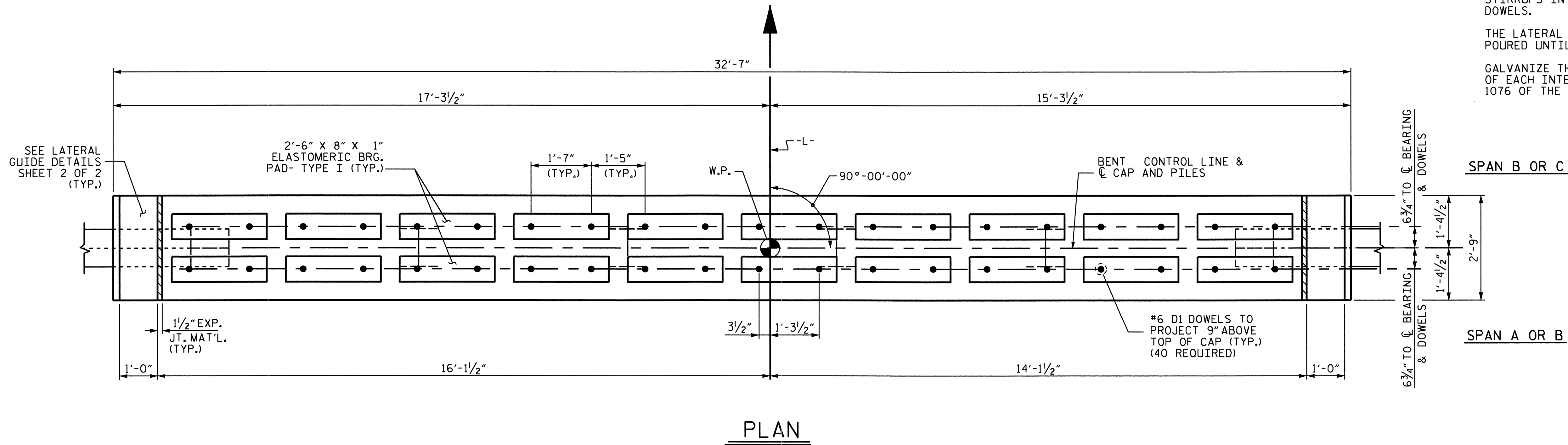
DRAWN BY: S. DOMBROWSKI DATE: 3/4/09
CHECKED BY: T. H. FANG DATE: 11/4/09

NOTES

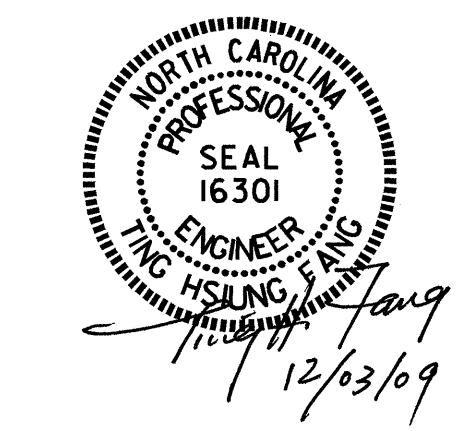
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

GALVANIZE THE TOP 30 FEET AT BENT 1 AND 30 FEET AT BENT 2 OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



| TOP OF PILE ELEVATIONS | | |
|------------------------|---------|---------|
| PILE NO. | BENT 1 | BENT 2 |
| ① | 299.540 | 300.076 |
| ② | 299.650 | 300.186 |
| ③ | 299.760 | 300.296 |
| ④ | 299.870 | 300.406 |
| ⑤ | 299.980 | 300.516 |
| ⑥ | 300.090 | 300.626 |



PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

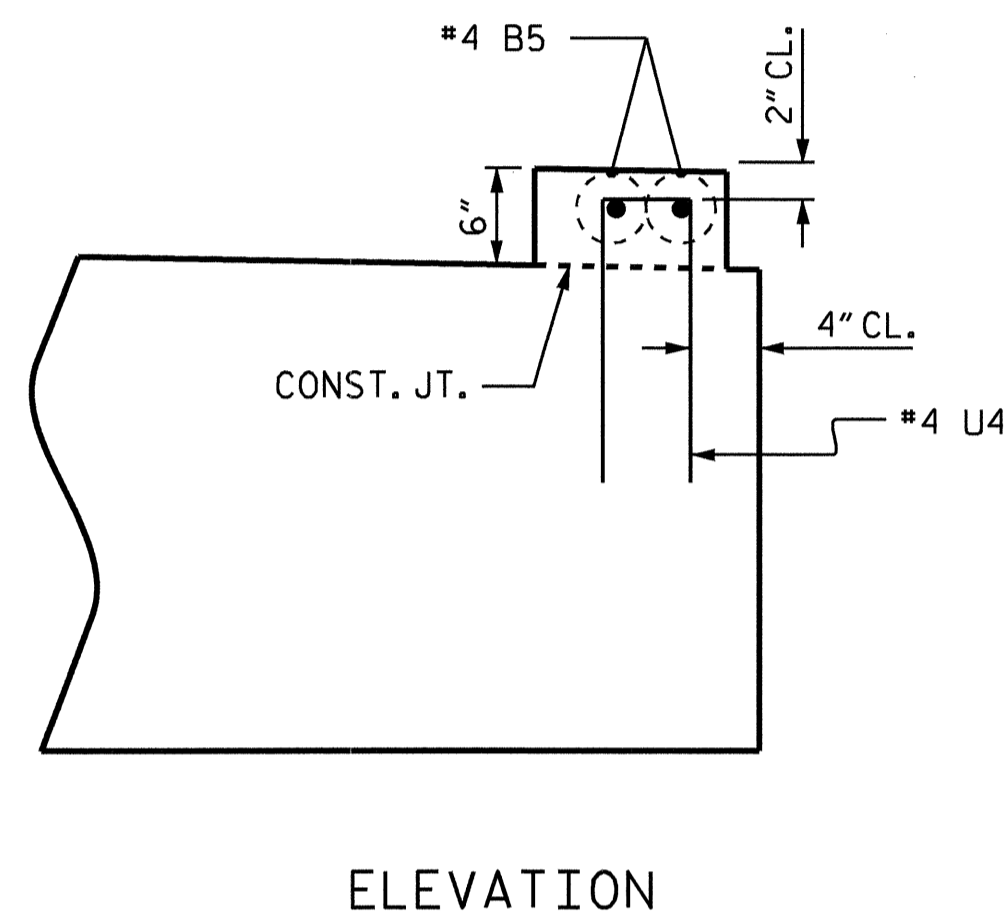
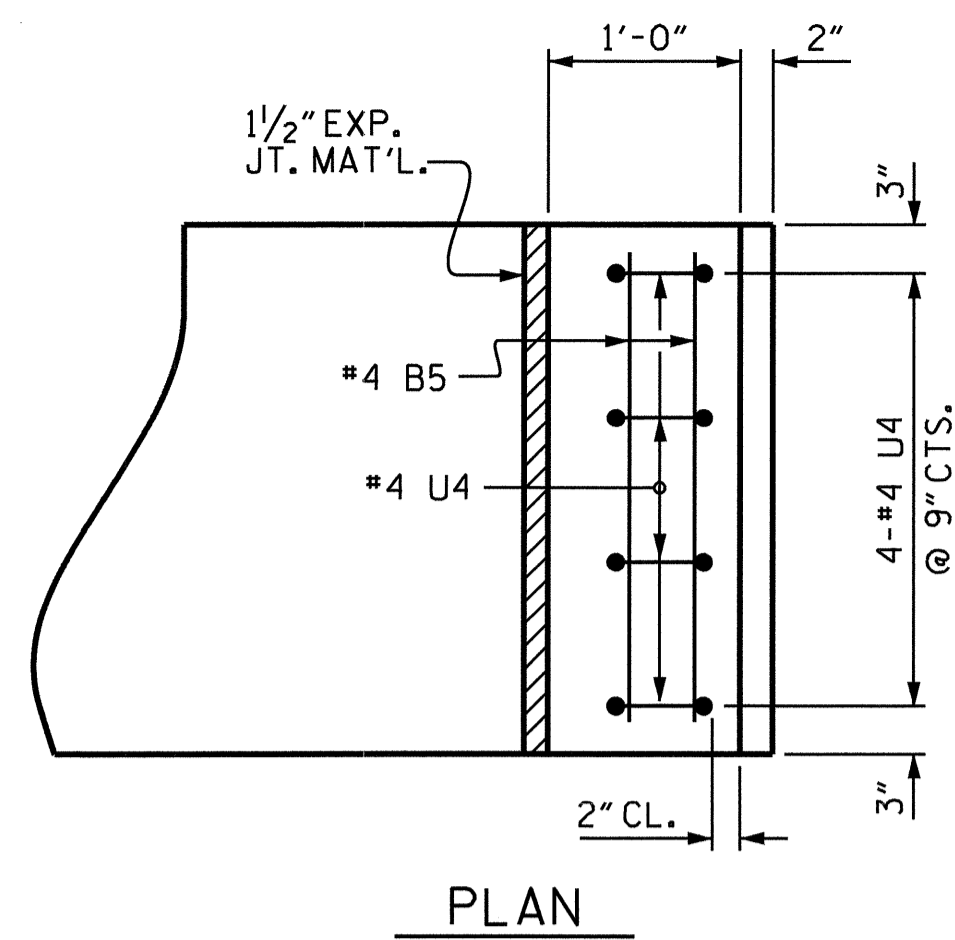
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENTS 1 & 2

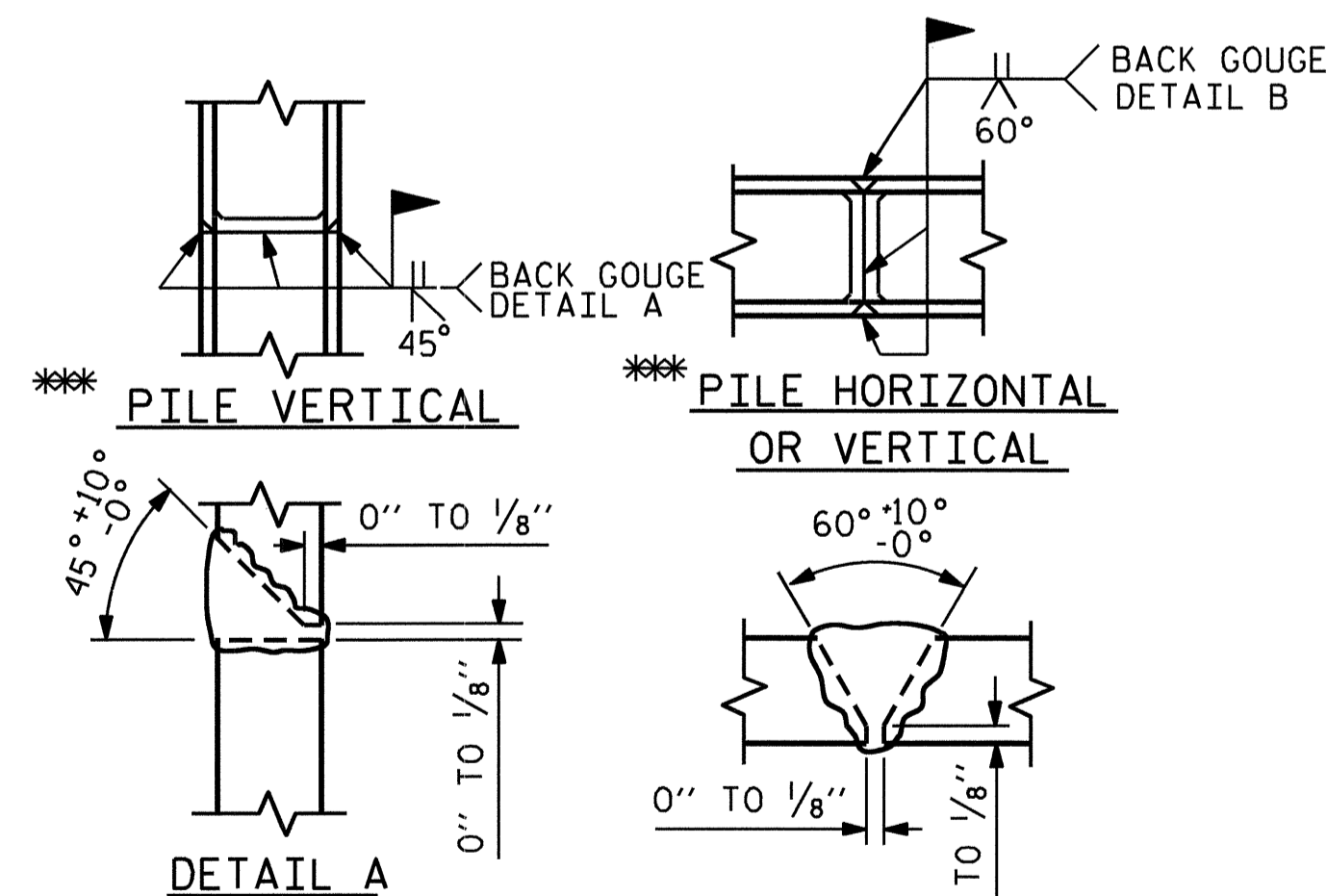
| REVISIONS | | | | | | SHEET NO. S-14 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

| ELEVATION | | |
|-------------|---------|---------|
| ELEV. POINT | BENT 1 | BENT 2 |
| "A" | 301.576 | 302.111 |
| "B" | 301.230 | 301.765 |
| "C" | 301.881 | 302.417 |
| "D" | 298.480 | 299.015 |
| "E" | 299.131 | 299.667 |

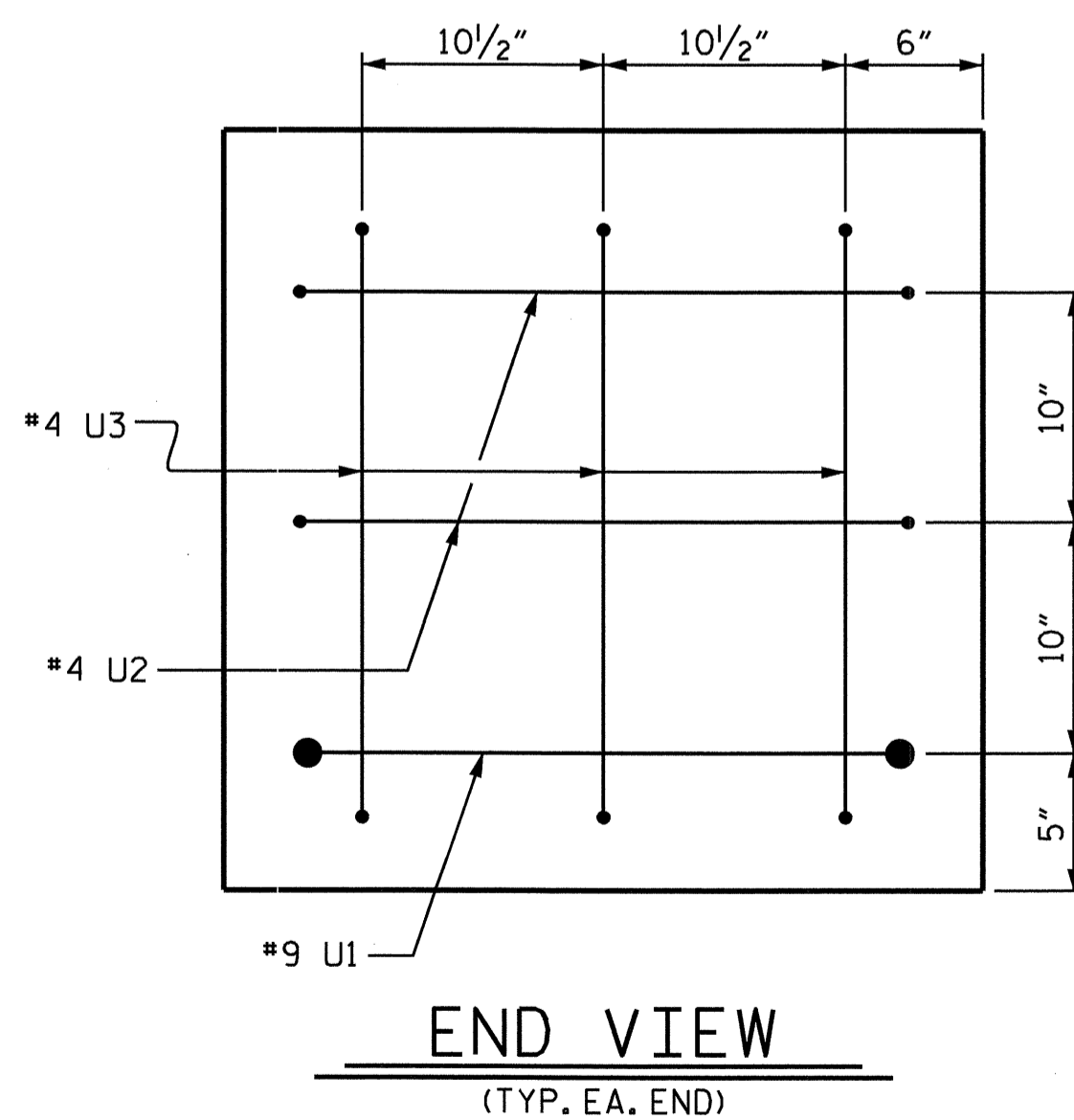
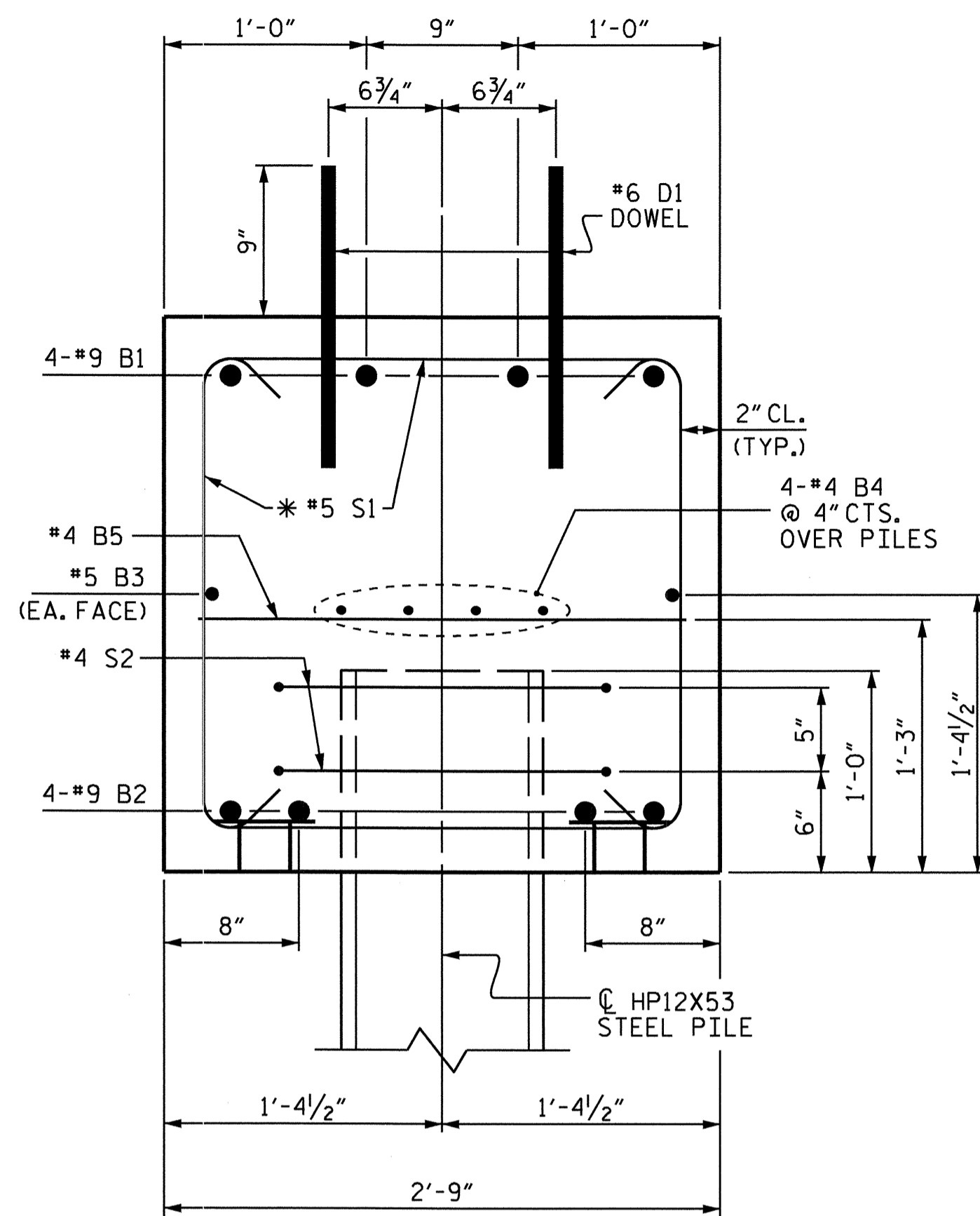
DRAWN BY : S. DOMBROWSKI DATE : 9-30-09
 CHECKED BY : I. H. FANG DATE : 10-16-09



LATERAL GUIDE DETAILS
(EACH END SIMILAR)



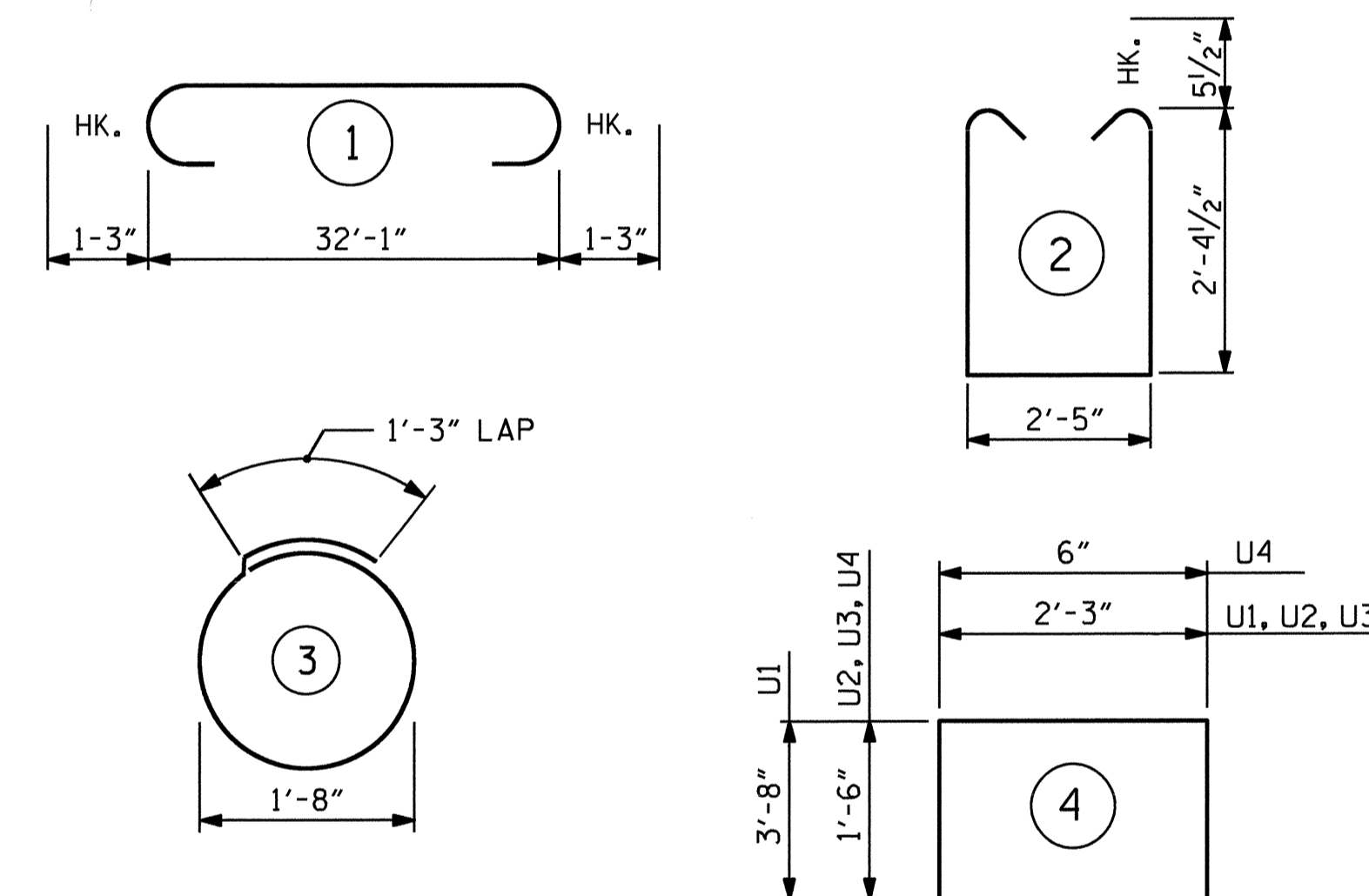
*** POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS



BILL OF MATERIAL

| BENT 1 | | | | | | BENT 2 | | | | | |
|---|-----|------|------|--------|--------|---|-----|------|------|--------|--------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT | BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 4 | #9 | 1 | 34'-7" | 470 | B1 | 4 | #9 | 1 | 34'-7" | 470 |
| B2 | 4 | #9 | STR | 32'-3" | 439 | B2 | 4 | #9 | STR | 32'-3" | 439 |
| B3 | 2 | #5 | STR | 32'-3" | 67 | B3 | 2 | #5 | STR | 32'-3" | 67 |
| B4 | 8 | #4 | STR | 17'-4" | 93 | B4 | 8 | #4 | STR | 17'-4" | 93 |
| B5 | 12 | #4 | STR | 2'-5" | 19 | B5 | 12 | #4 | STR | 2'-5" | 19 |
| D1 | 40 | #6 | STR | 1'-6" | 90 | D1 | 40 | #6 | STR | 1'-6" | 90 |
| S1 | 39 | #5 | 2 | 8'-1" | 329 | S1 | 39 | #5 | 2 | 8'-1" | 329 |
| S2 | 12 | #4 | 3 | 6'-6" | 52 | S2 | 12 | #4 | 3 | 6'-6" | 52 |
| U1 | 2 | #9 | 4 | 9'-7" | 65 | U1 | 2 | #9 | 4 | 9'-7" | 65 |
| U2 | 4 | #4 | 4 | 5'-3" | 14 | U2 | 4 | #4 | 4 | 5'-3" | 14 |
| U3 | 6 | #4 | 4 | 5'-3" | 21 | U3 | 6 | #4 | 4 | 5'-3" | 21 |
| U4 | 8 | #4 | 4 | 3'-6" | 19 | U4 | 8 | #4 | 4 | 3'-6" | 19 |
| TOTAL REINFORCING STEEL LBS. 1678 | | | | | | TOTAL REINFORCING STEEL LBS. 1678 | | | | | |
| CLASS A CONCRETE BREAKDOWN | | | | | | CLASS A CONCRETE BREAKDOWN | | | | | |
| POUR #1 (CAP) 9.1 C.Y. | | | | | | POUR #1 (CAP) 9.1 C.Y. | | | | | |
| POUR #2 (LAT. GUIDES) 0.1 C.Y. | | | | | | POUR #2 (LAT. GUIDES) 0.1 C.Y. | | | | | |
| TOTAL CLASS A CONCRETE 9.2 C.Y. | | | | | | TOTAL CLASS A CONCRETE 9.2 C.Y. | | | | | |
| HP12X53 GALVANIZED STEEL PILES NO. 6 390 LIN. FT. | | | | | | HP12X53 GALVANIZED STEEL PILES NO. 6 390 LIN. FT. | | | | | |
| PILE REDRIVES 3 EA. | | | | | | PILE REDRIVES 3 EA. | | | | | |
| STEEL PILE POINTS 6 EA. | | | | | | STEEL PILE POINTS 6 EA. | | | | | |

BAR TYPES

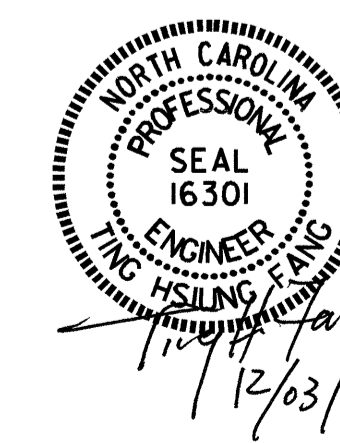


ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4583
MOORE COUNTY
STATION: 14+82.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENTS 1 & 2



DRAWN BY: S. DOMBROWSKI DATE: 3/10/09
CHECKED BY: I. H. FANG DATE: 11-06-09

03-DEC-2009 14:09
Z:\B4583\Structures\Final Plans\B4583.sd_b.t*.dgn
sdombrowski

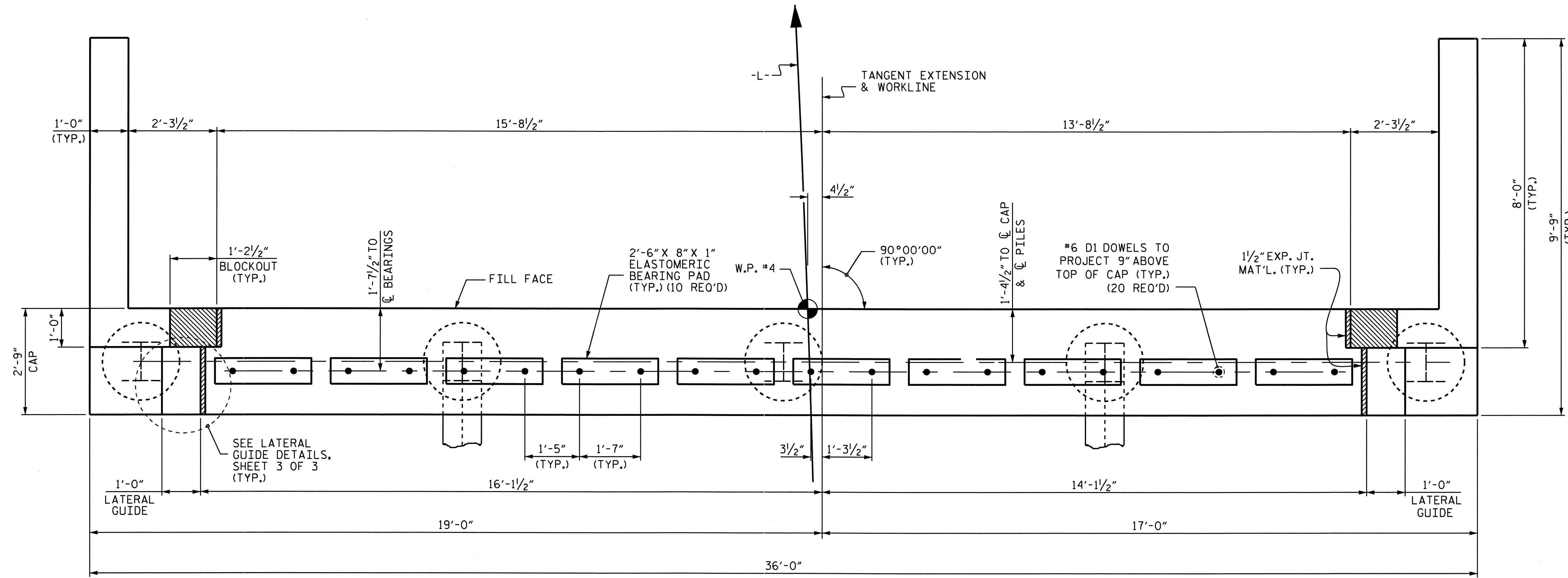
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S-15 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 21 |

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS

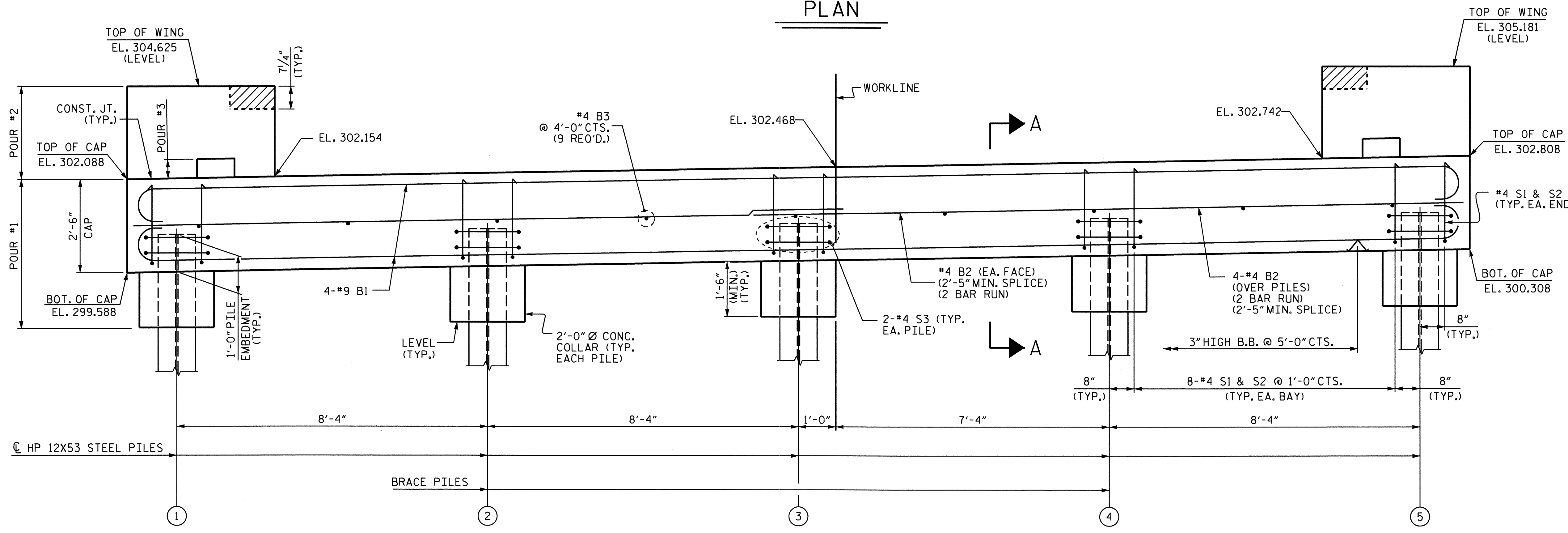
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POSTS ARE CAST IF SLIP FORMING IS USED.



PLAN

| TOP OF PILE ELEVATIONS | |
|------------------------|-----------|
| PILE NO. | ELEVATION |
| ① | 300.625 |
| ② | 300.792 |
| ③ | 300.958 |
| ④ | 301.125 |
| ⑤ | 301.292 |



ELEVATION

WINGS NOT SHOWN FOR CLARITY FOR REINFORCING STEEL & DETAILS OF WINGS, SEE SHEET 2 OF 3.



PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 1 OF 2

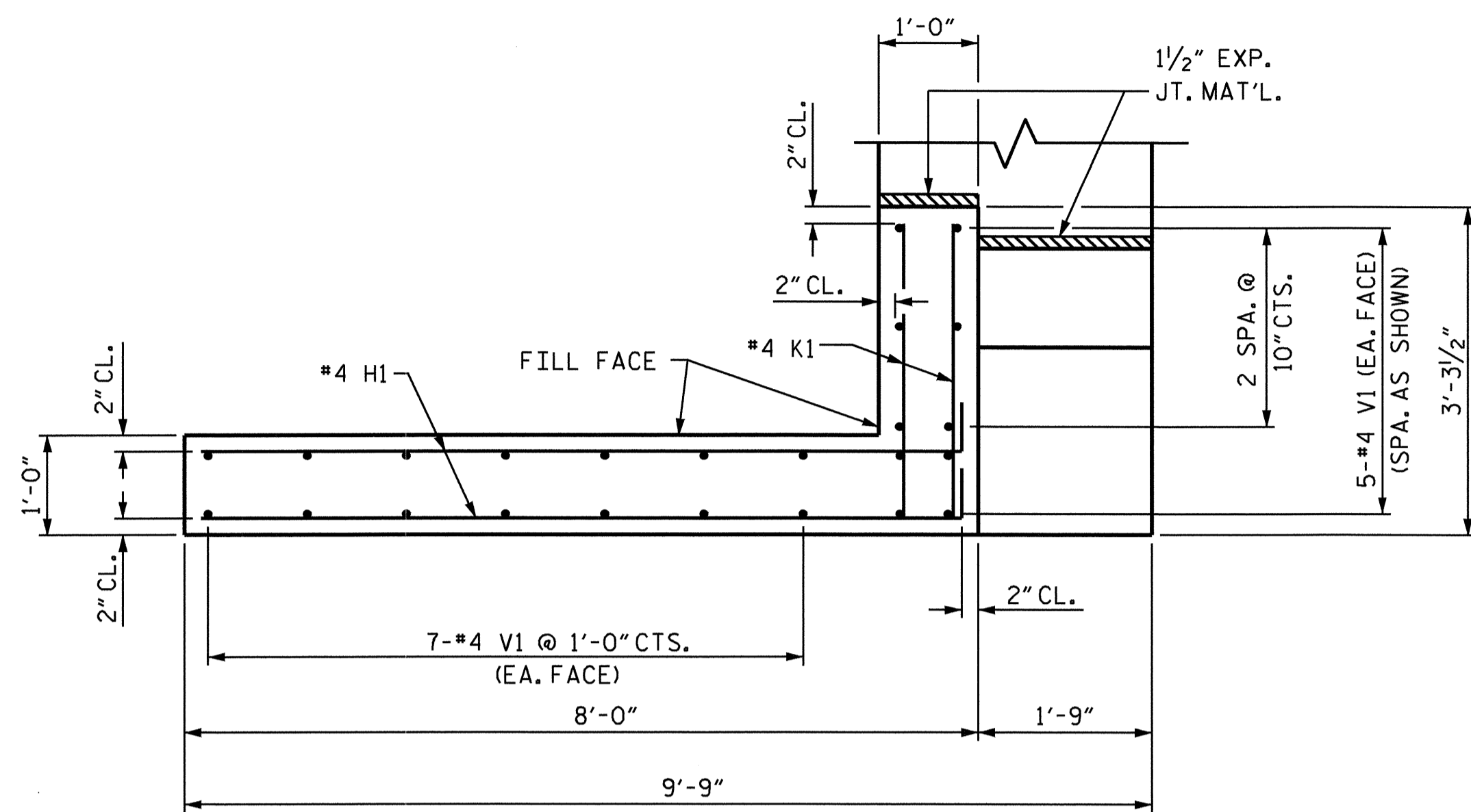
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

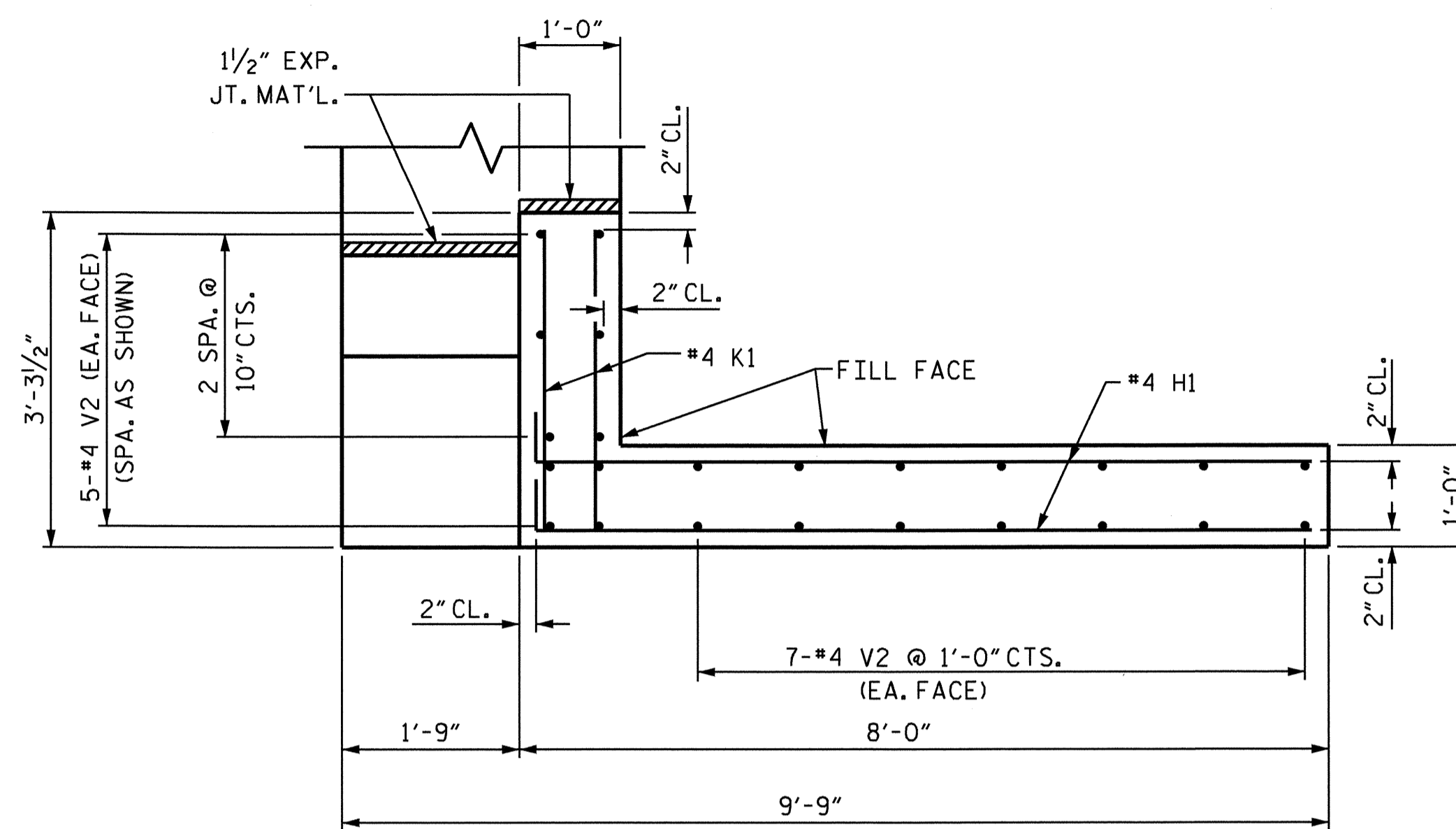
END BENT 2

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-16 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 21 |

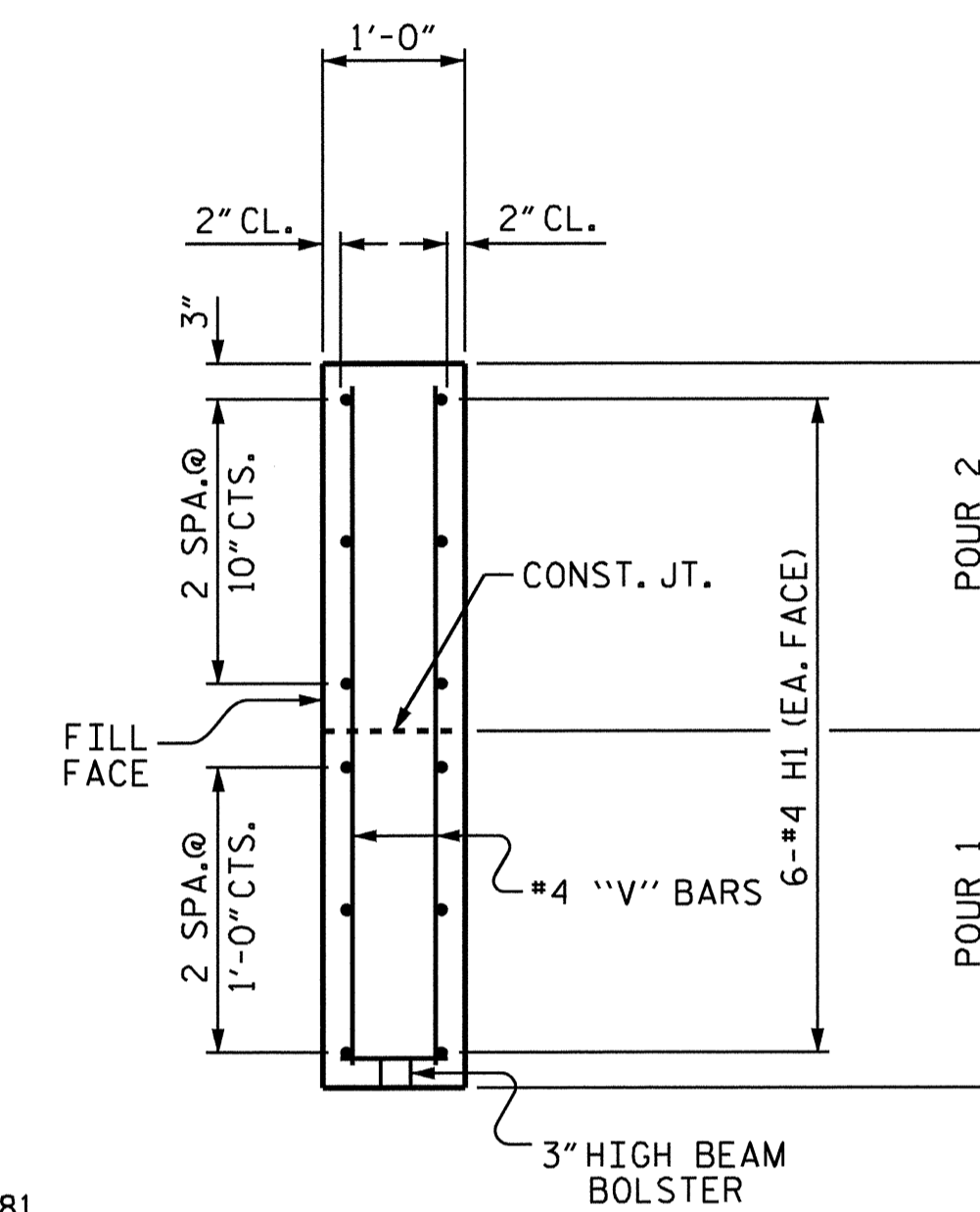
DRAWN BY: S. DOMBROWSKI DATE: 3/4/09
 CHECKED BY: T. H. FANG DATE: 11/4/09



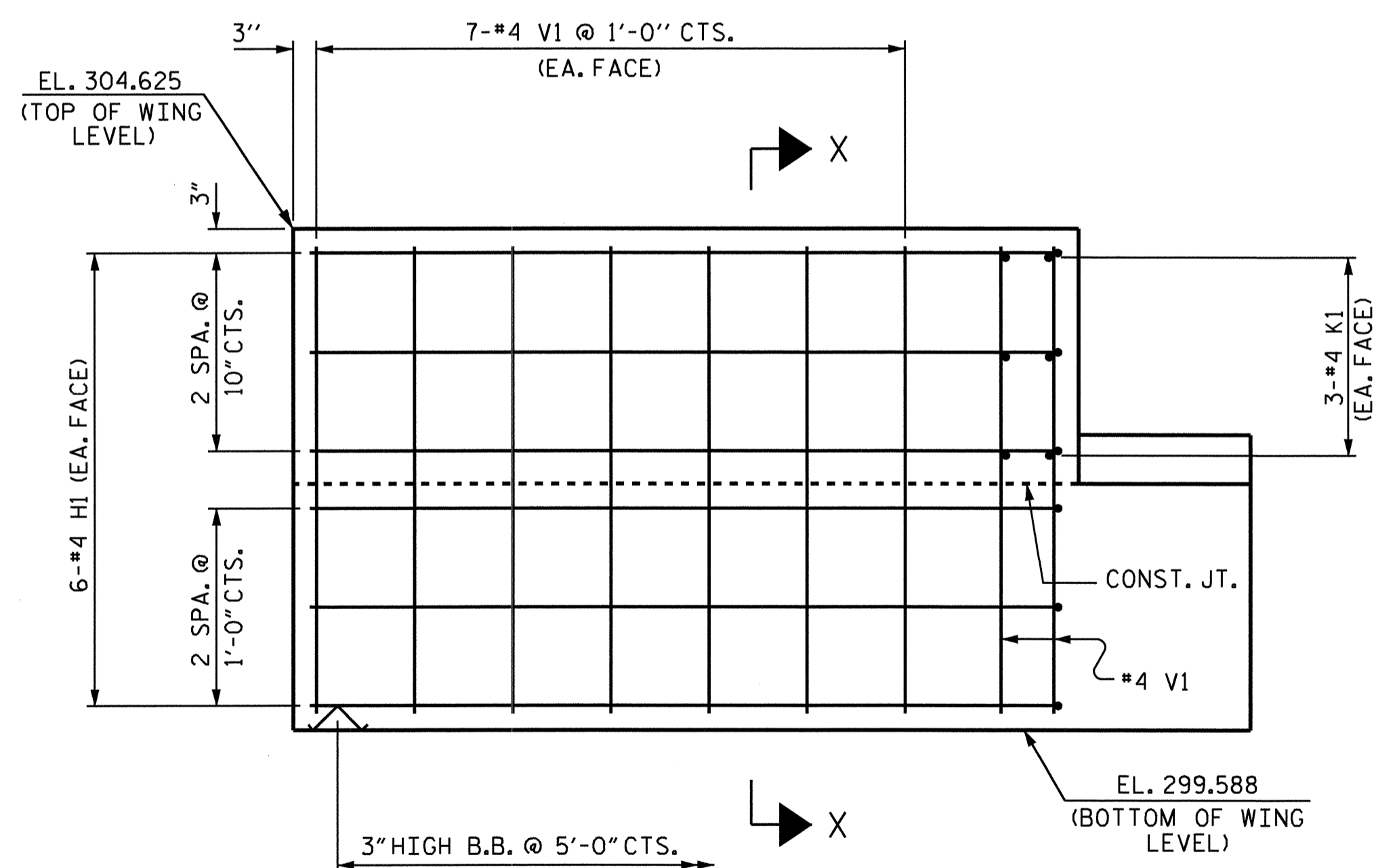
PLAN OF WING W2



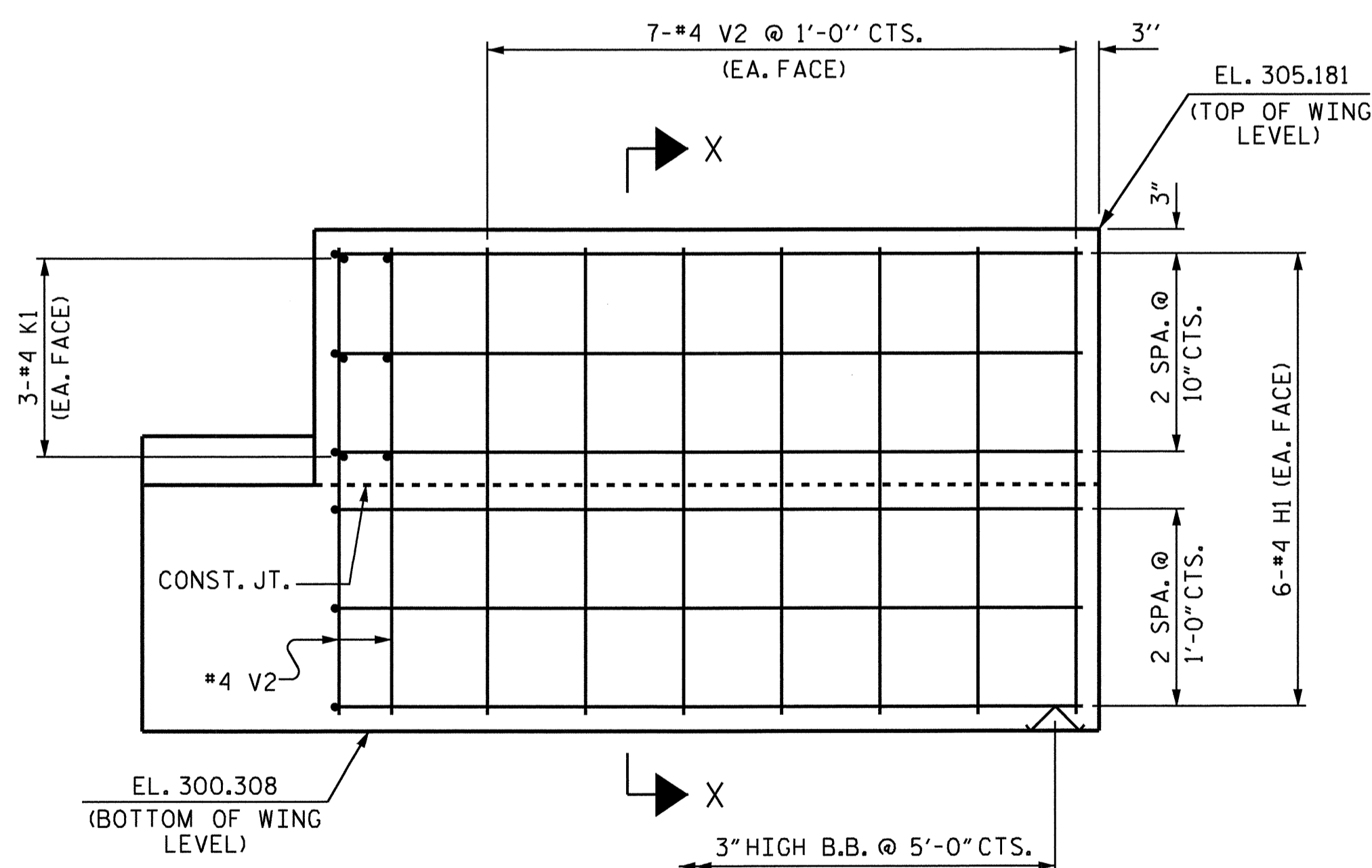
PLAN OF WING W1



SECTION X-X



ELEVATION OF WING W1

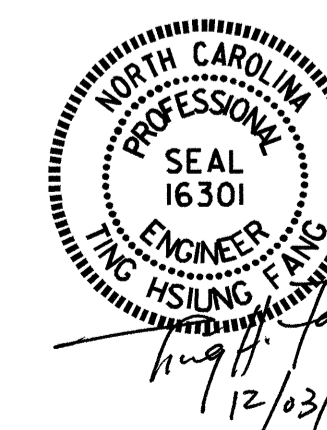


ELEVATION OF WING W2

PROJECT NO. B-4583
 MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

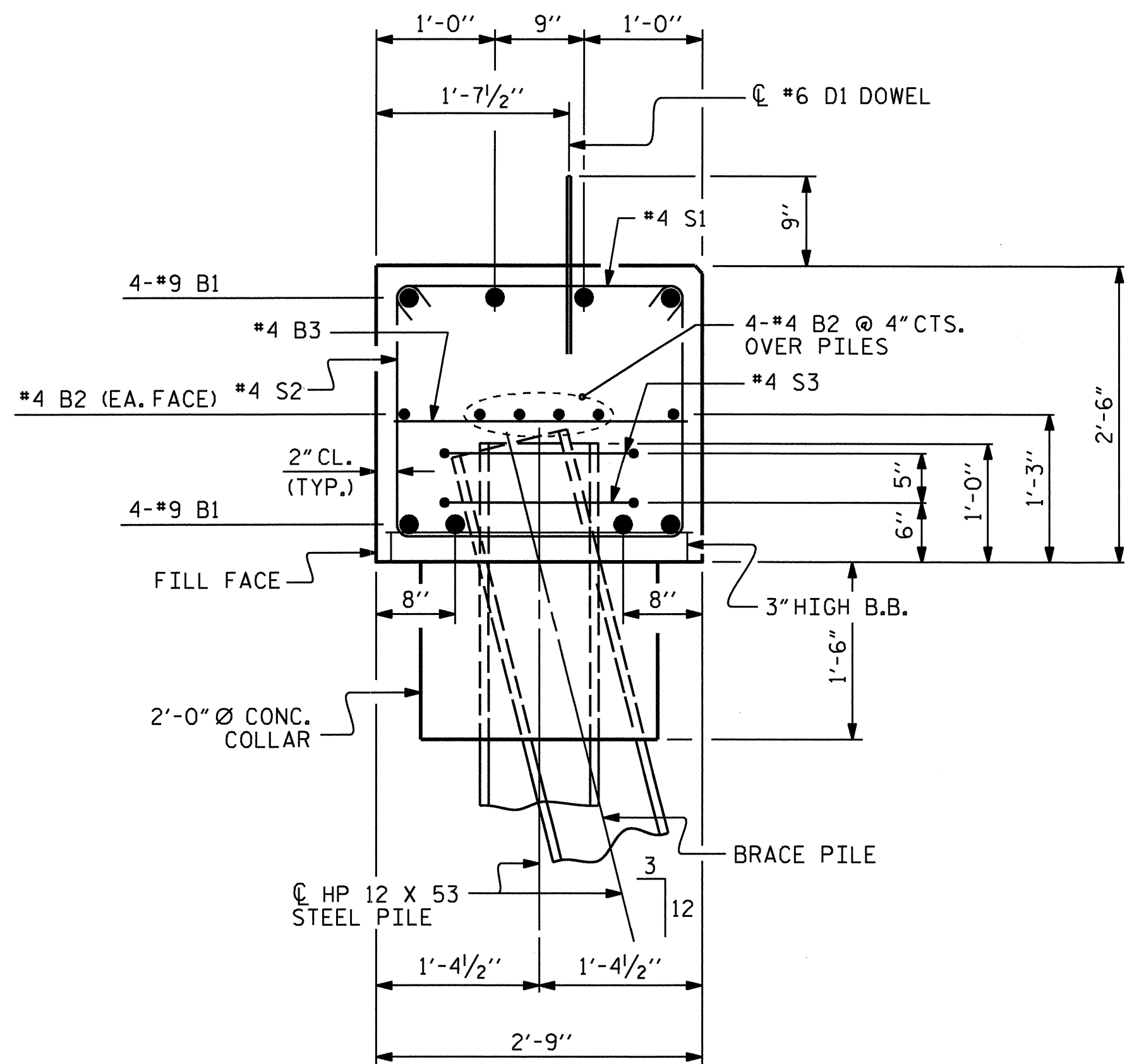


DRAWN BY: S. DOMBROWSKI DATE: 3/4/09
 CHECKED BY: T. H. FANG DATE: 11/4/09

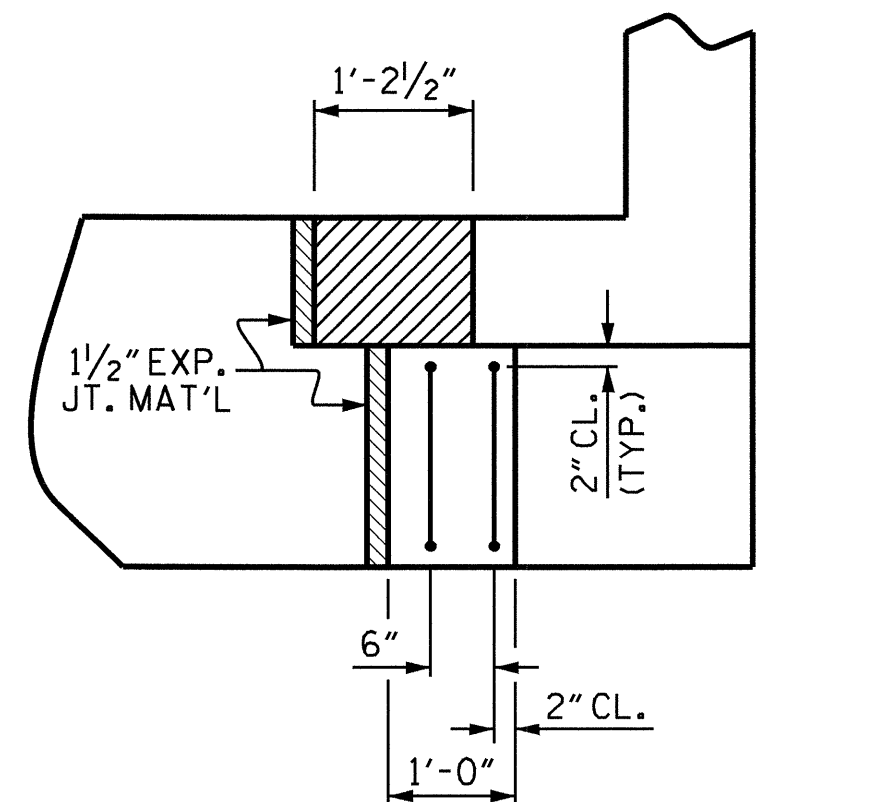
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 sdombrowski

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-17 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 21 |

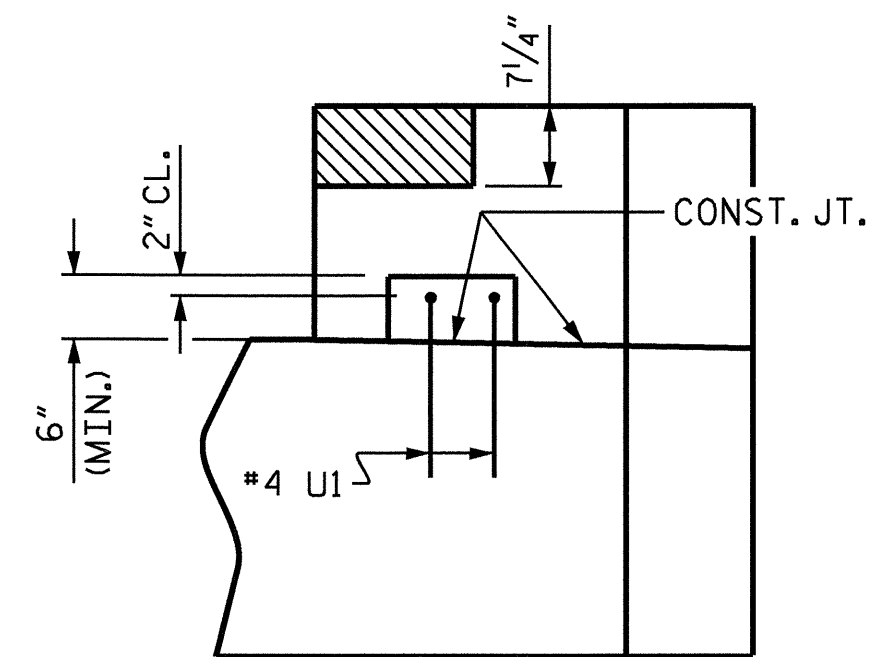
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SECTION A-A



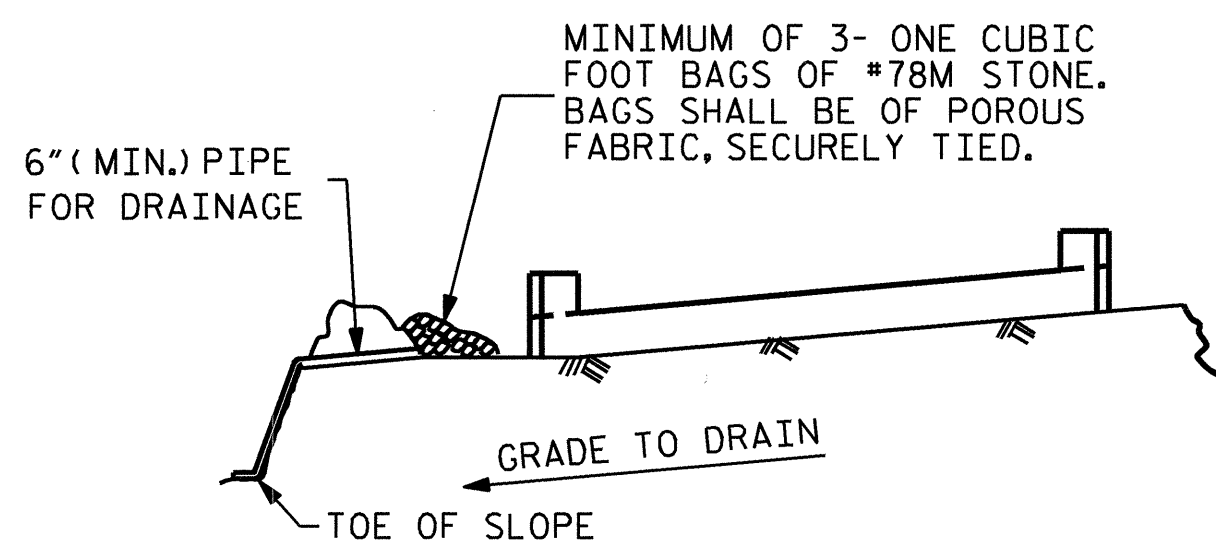
PLAN



ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)

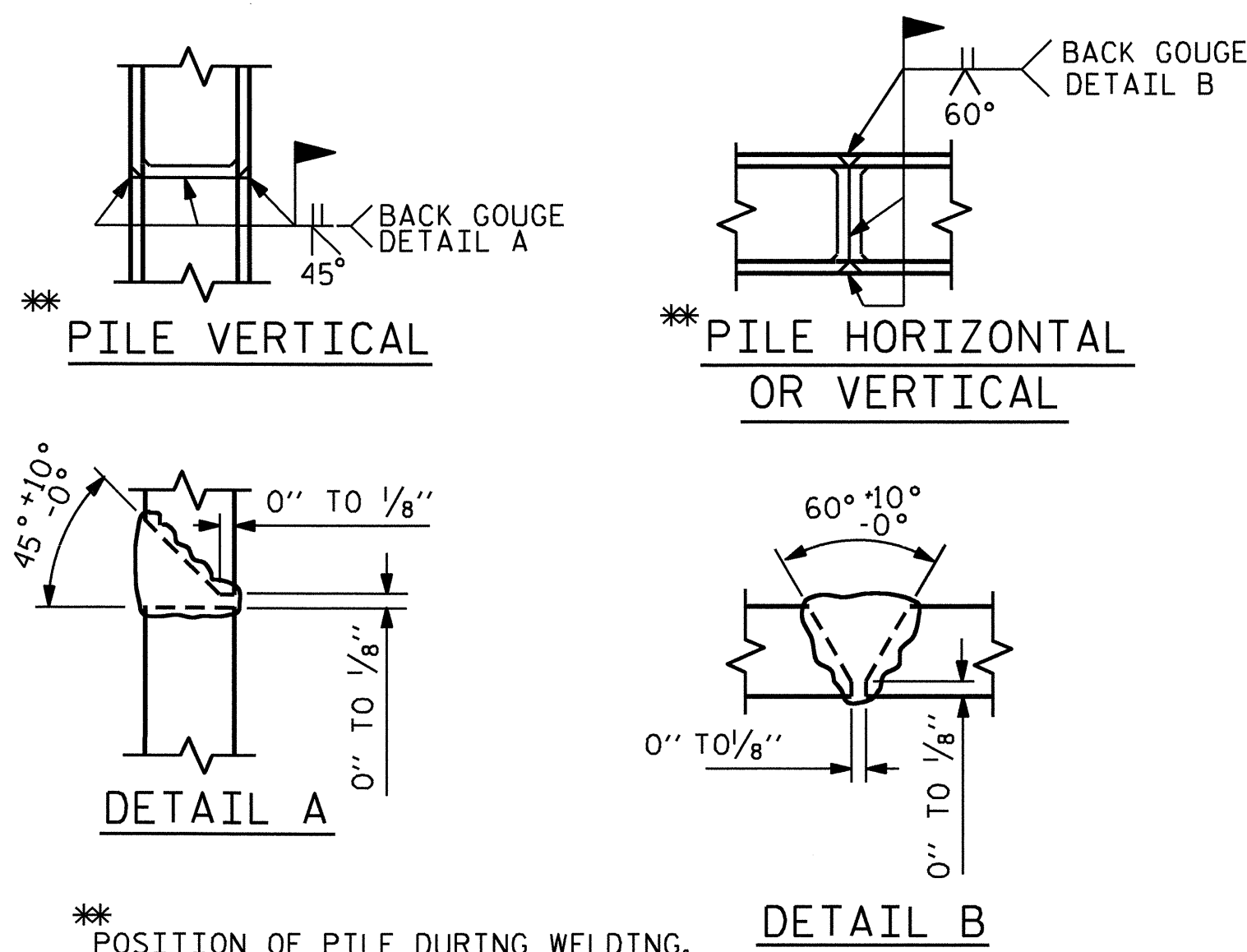


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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TEMPORARY DRAINAGE AT END BENT



** POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

— BAR TYPES —

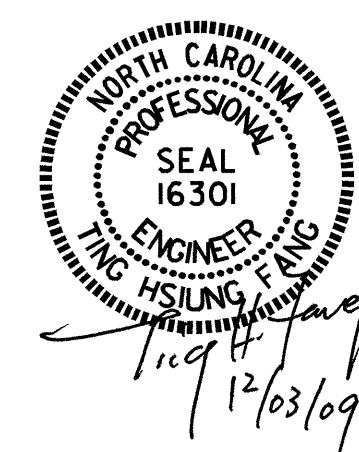
ALL BAR DIMENSIONS ARE OUT TO OUT.

| BILL OF MATERIAL | | | | | |
|---|------|------|--------|--------------|------|
| END BENT 2 | | | | | |
| BAR NO. | SIZE | TYPE | LENGTH | WEIGHT | |
| B1 | 8 | #9 | 1 | 38'-0" | 1034 |
| B2 | 12 | #4 | STR | 19'-1" | 153 |
| B3 | 9 | #4 | STR | 2'-5" | 15 |
| D1 | 20 | #6 | STR | 1'-6" | 45 |
| H1 | 24 | #4 | 2 | 8'-4" | 134 |
| K1 | 12 | #4 | STR | 2'-11" | 23 |
| S1 | 34 | #4 | 4 | 3'-2" | 72 |
| S2 | 34 | #4 | 3 | 7'-5" | 168 |
| S3 | 10 | #4 | 5 | 6'-6" | 43 |
| U1 | 4 | #4 | 6 | 4'-5" | 12 |
| V1 | 24 | #4 | STR | 4'-8" | 75 |
| V2 | 24 | #4 | STR | 4'-6" | 72 |
| REINFORCING STEEL | | | | 1846 LBS. | |
| CLASS A CONCRETE BREAKDOWN: | | | | | |
| POUR #1 (CONCRETE COLLARS, CAP & LOWER WINGS) | | | | 11.4 C.Y. | |
| POUR #2 (UPPER WINGS) | | | | 1.9 C.Y. | |
| POUR #3 (LATERAL GUIDES) | | | | 0.1 C.Y. | |
| TOTAL CLASS A CONCRETE: | | | | 13.4 C.Y. | |
| HP 12X53 STEEL PILES: | | | | | |
| NO. 5 | | | | 325 LIN. FT. | |
| STEEL PILE POINTS | | | | 5 EA. | |
| PILE REDRIVES | | | | 2 EA. | |

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 3 OF 3

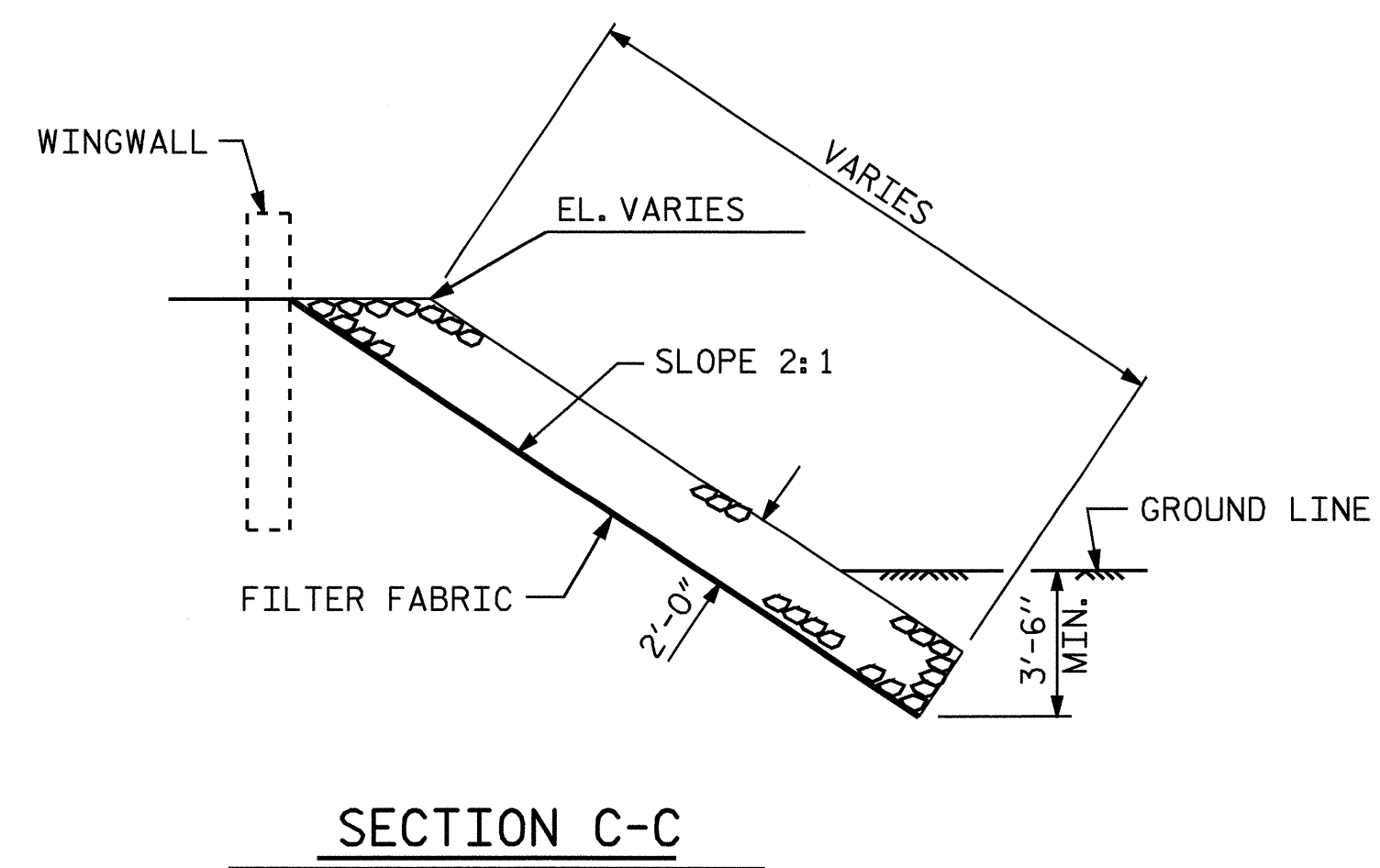
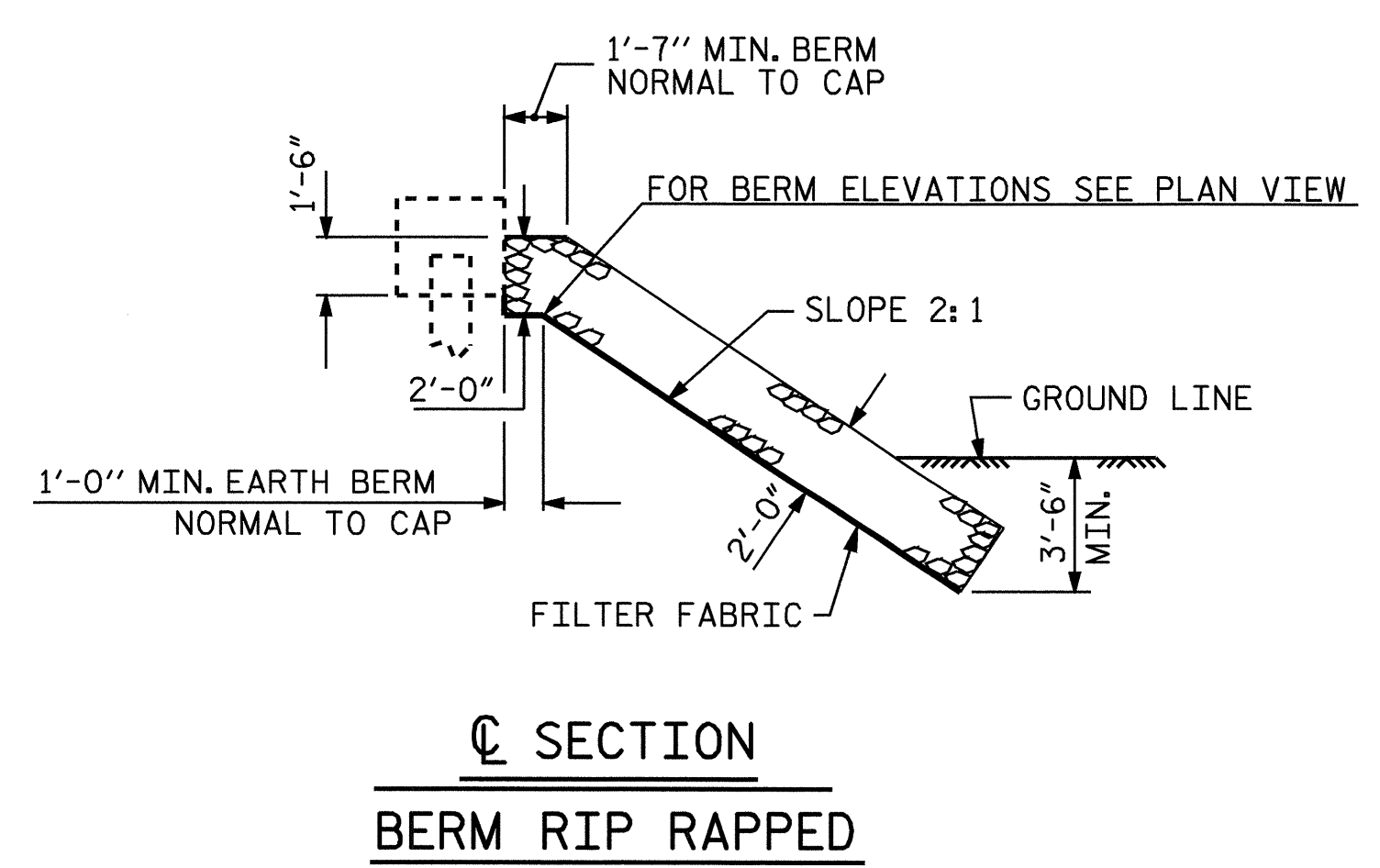
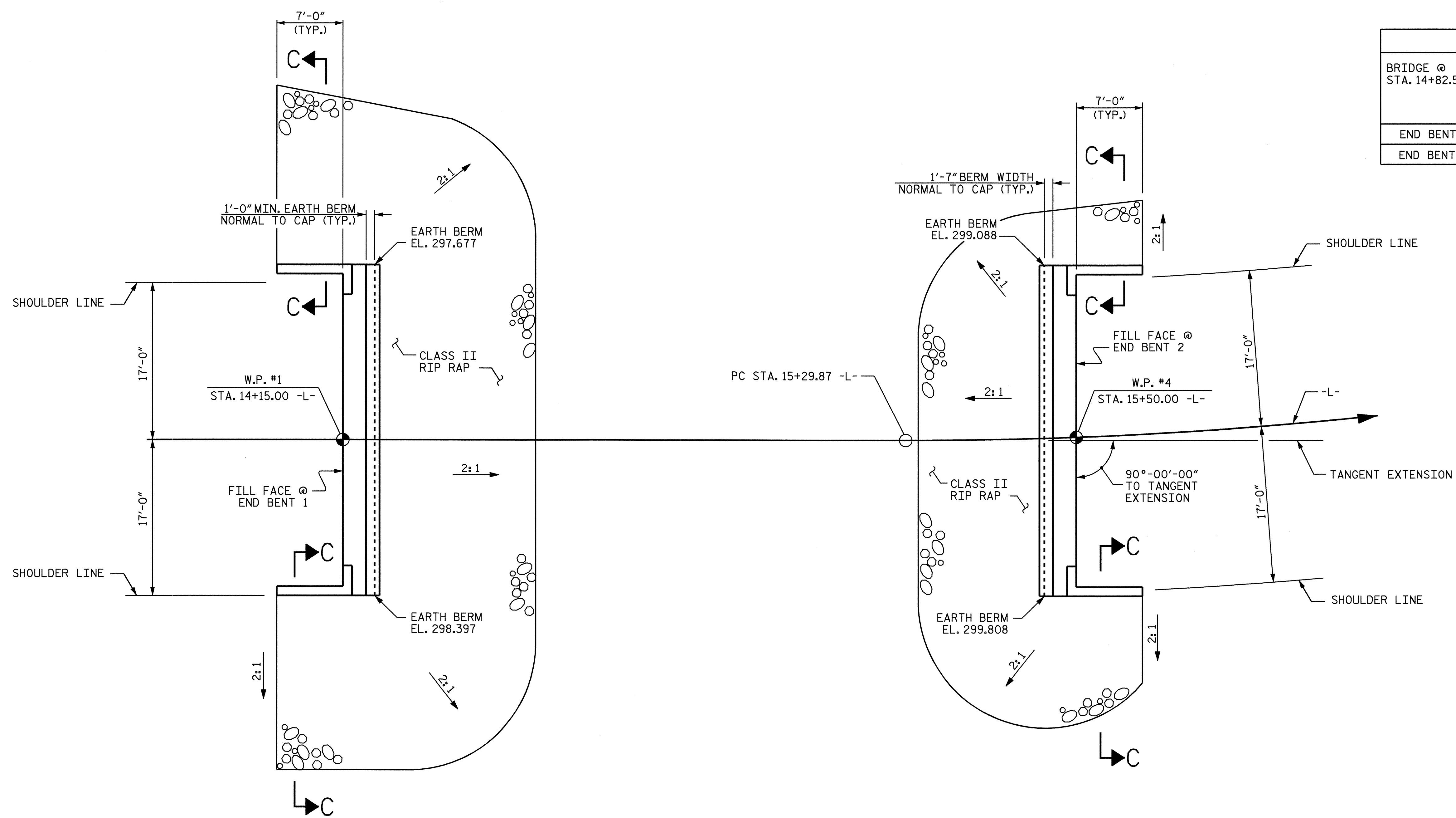
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



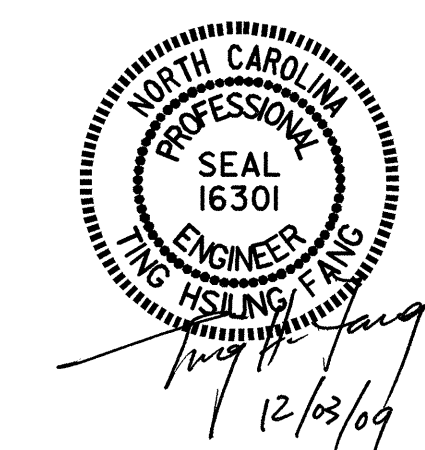
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S-18 |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

DRAWN BY: S. DOMBROWSKI DATE: 3/4/09
 CHECKED BY: T. H. FANG DATE: 11/4/09

| ESTIMATED QUANTITIES | | |
|-------------------------------|---------------------|-------------------------------|
| BRIDGE @ STA. 14+82.50 -L- | RIP RAP CLASS II | FILTER FABRIC FOR DRAINAGE |
| | TONS | SQUARE YARDS |
| END BENT 1 | 144 | 160 |
| END BENT 2 | 113 | 125 |

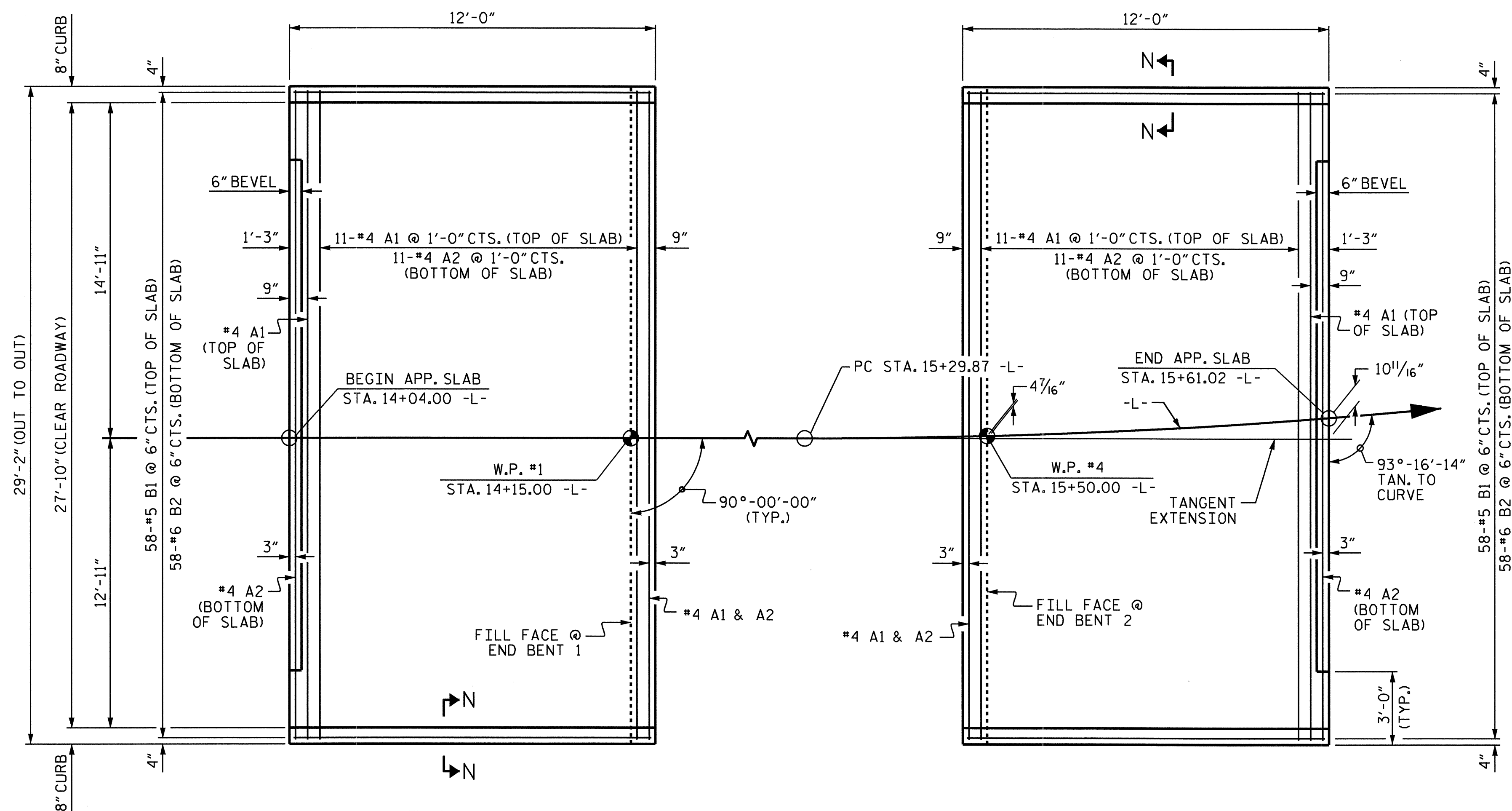


PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-



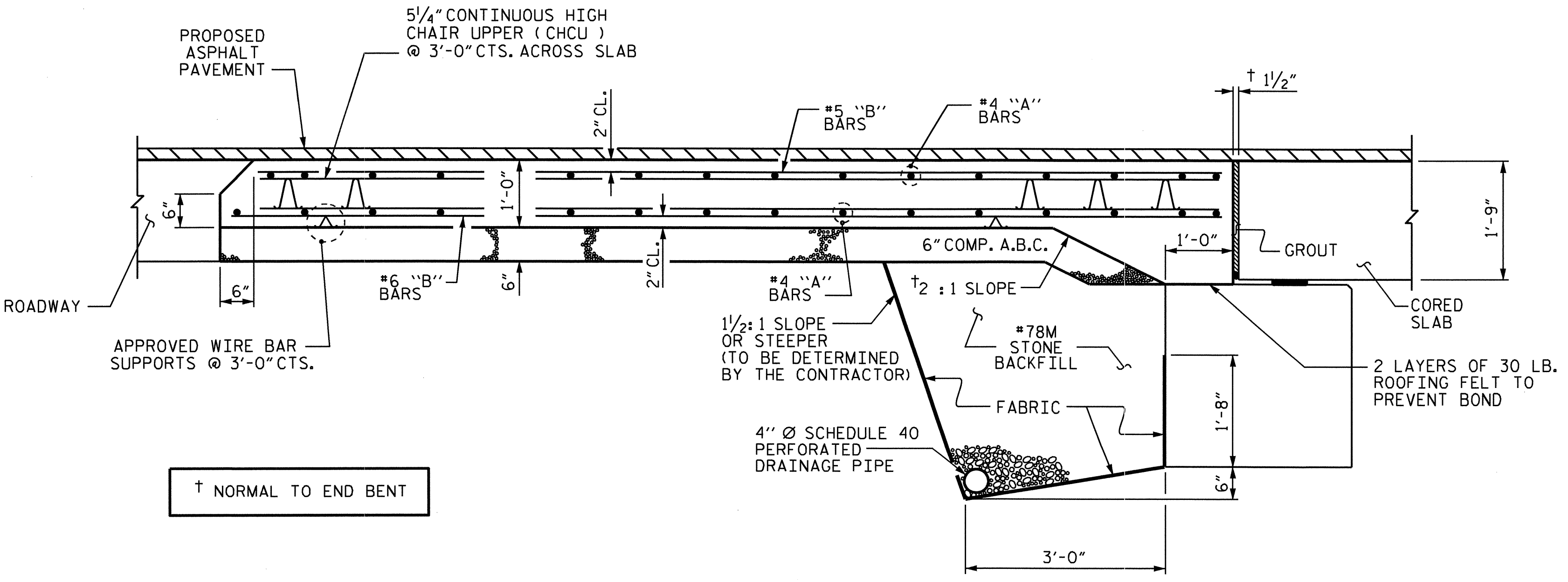
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|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-19 |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

| | | | |
|----------------|-------------|---------------|---------|
| ASSEMBLED BY : | J. E. JONES | DATE : | 03-09 |
| CHECKED BY : | T. H. FANG | DATE : | 11-09 |
| DRAWN BY : | REK 1/84 | REV. 8/16/99 | RWW/LES |
| CHECKED BY : | ROU 1/84 | REV. 10/17/00 | RWW/LES |
| | | REV. 5/1/06 | TLA/GM |

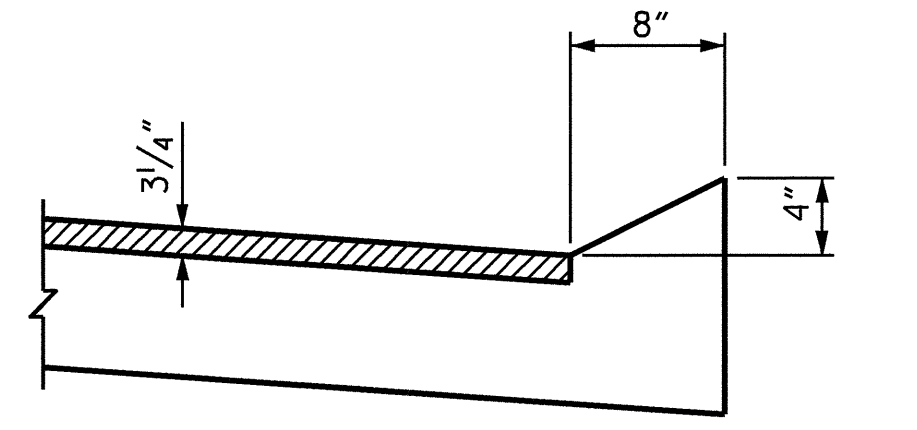


END BENT 1 PLAN END BENT 2

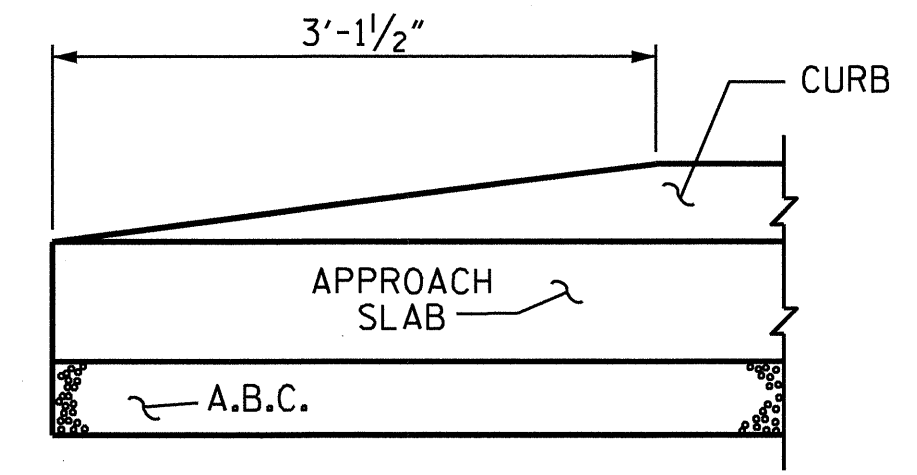
PLAN
DIMENSIONS, SKEW ANGLE & REINFORCING STEEL SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS.



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

APPROACH SLABS SHALL NOT BE CONSTRUCTED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

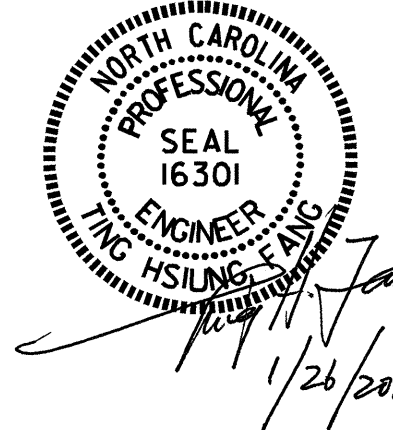
THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQUIRED)

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------------------------------|-----|------|------|---------|--------|
| *A1 | 13 | #4 | STR | 28'-10" | 250 |
| A2 | 13 | #4 | STR | 28'-10" | 250 |
| *B1 | 58 | #5 | STR | 11'-2" | 676 |
| B2 | 58 | #6 | STR | 11'-8" | 1016 |
| REINFORCING STEEL | | | | LBS. | 1266 |
| *EPOXY COATED REINFORCING STEEL | | | | LBS. | 926 |
| CLASS AA CONCRETE | | | | C. Y. | 14.6 |



PROJECT NO. B-4583
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STATION: 14+82.50 -L-

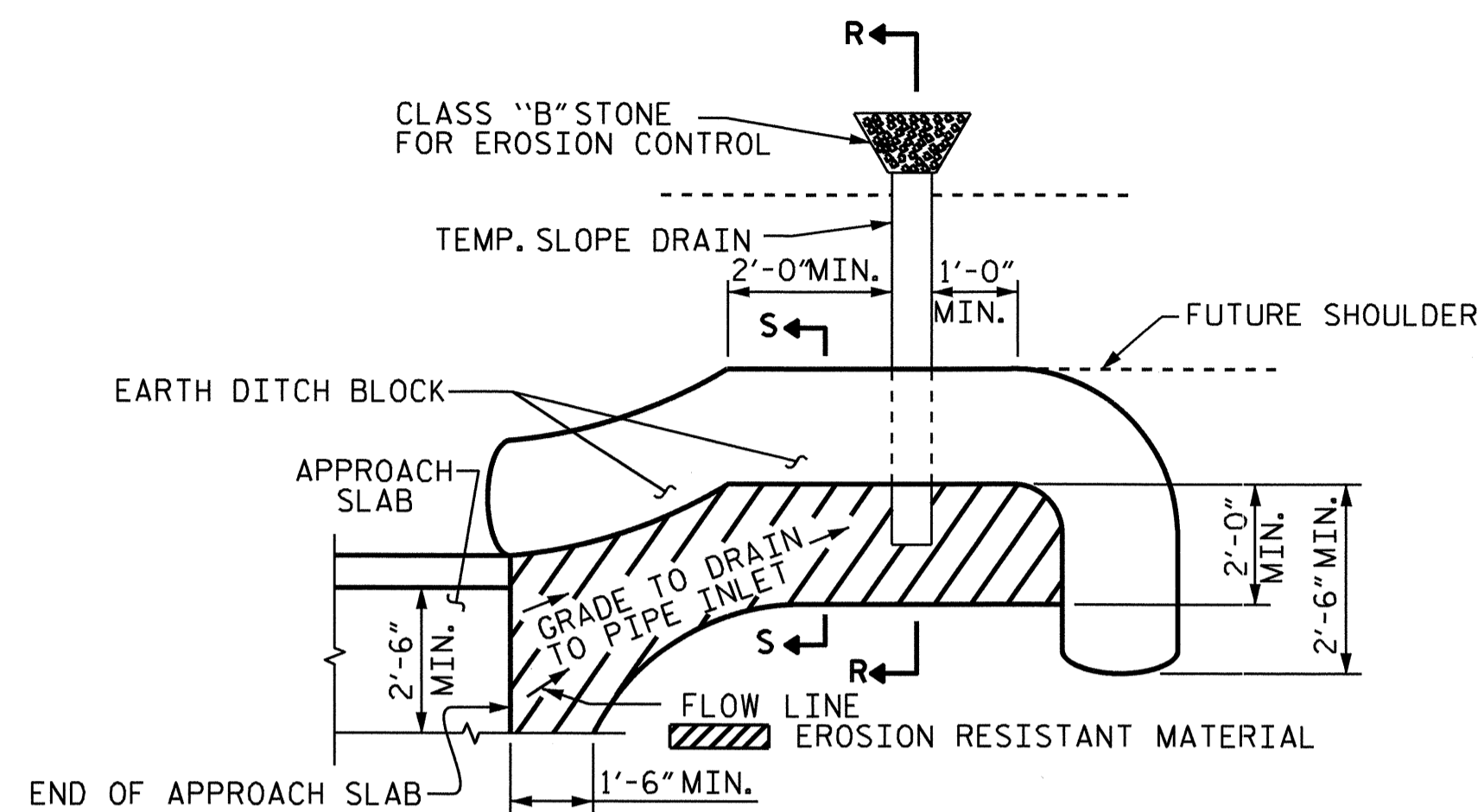
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)

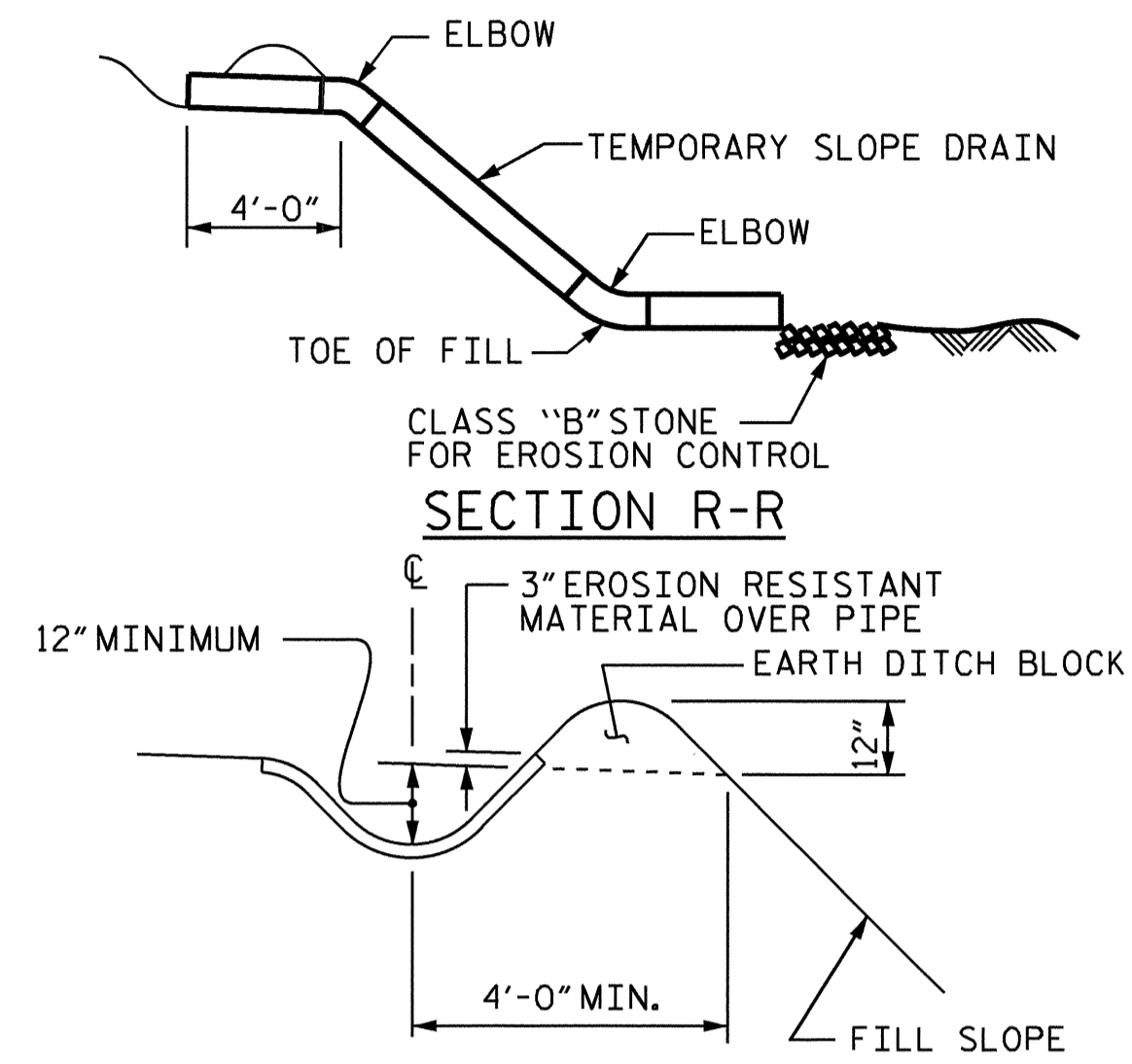
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-20 |
| 1 | | | 3 | | | TOTAL SHEETS 21 |
| 2 | | | 4 | | | |

ASSEMBLED BY: E.C. LOCKLEAR DATE: 3-11-09
CHECKED BY: T. H. FANG DATE: 11-04-09
DRAWN BY: FCJ 6/87 REV. 7/10/01 LES/RDR
CHECKED BY: EGA 6/87 REV. 5/7/03R RWW/JTE
REV. 5/1/06R KMM/GM



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

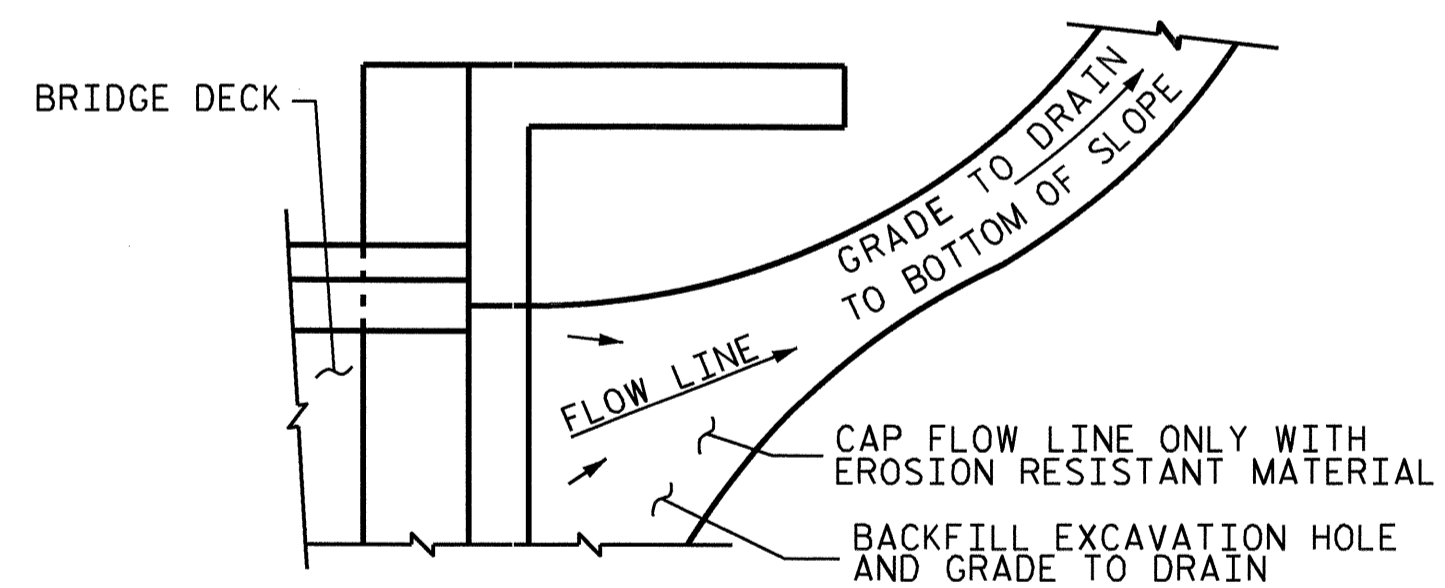
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

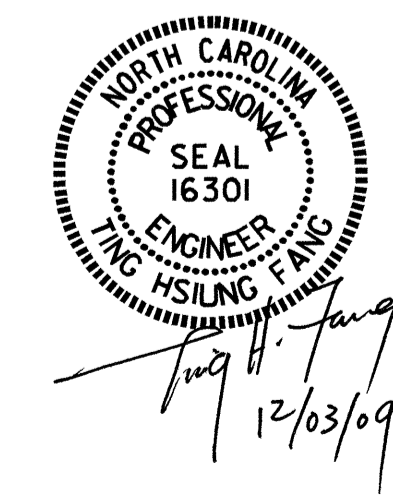


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4583
MOORE COUNTY
 STATION: 14+82.50 -L-

SHEET 2 OF 2



| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | | SHEET NO. S-21 |
|--|-----|-------|-----|-----|-------|--------------------|
| STANDARD BRIDGE APPROACH SLAB DETAILS | | | | | | TOTAL SHEETS 21 |
| REVISIONS | | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | |
| 2 | | | 4 | | | |

| | |
|------------------------------|-----------------------|
| ASSEMBLED BY : E.C. LOCKLEAR | DATE : 3-11-09 |
| CHECKED BY : T. H. FANG | DATE : 11-04-09 |
| DRAWN BY : FCJ 11/88 | REV. 10/17/00 RWW/LES |
| CHECKED BY : ARB 11/88 | REV. 5/7/03 RWW/JTE |
| | REV. 5/1/06R MAA/KMM |

STANDARD NOTES

DESIGN DATA:

| | | |
|--|-------|-------------------------------|
| SPECIFICATIONS | ----- | A.A.S.H.T.O. (CURRENT) |
| LIVE LOAD | ----- | SEE PLANS |
| IMPACT ALLOWANCE | ----- | SEE A.A.S.H.T.O. |
| STRESS IN EXTREME FIBER OF | | |
| STRUCTURAL STEEL - AASHTO M270 GRADE 36 | - | 20,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50W | - | 27,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50 | - | 27,000 LBS. PER SQ. IN. |
| REINFORCING STEEL IN TENSION | | |
| GRADE 60 | -- | 24,000 LBS. PER SQ. IN. |
| CONCRETE IN COMPRESSION | ----- | 1,200 LBS. PER SQ. IN. |
| CONCRETE IN SHEAR | ----- | SEE A.A.S.H.T.O. |
| STRUCTURAL TIMBER - TREATED OR | | |
| UNTREATED - EXTREME FIBER STRESS | ----- | 1,800 LBS. PER SQ. IN. |
| COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER | ----- | 375 LBS. PER SQ. IN. |
| EQUIVALENT FLUID PRESSURE OF EARTH | ----- | 30 LBS. PER CU. FT. (MINIMUM) |

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN