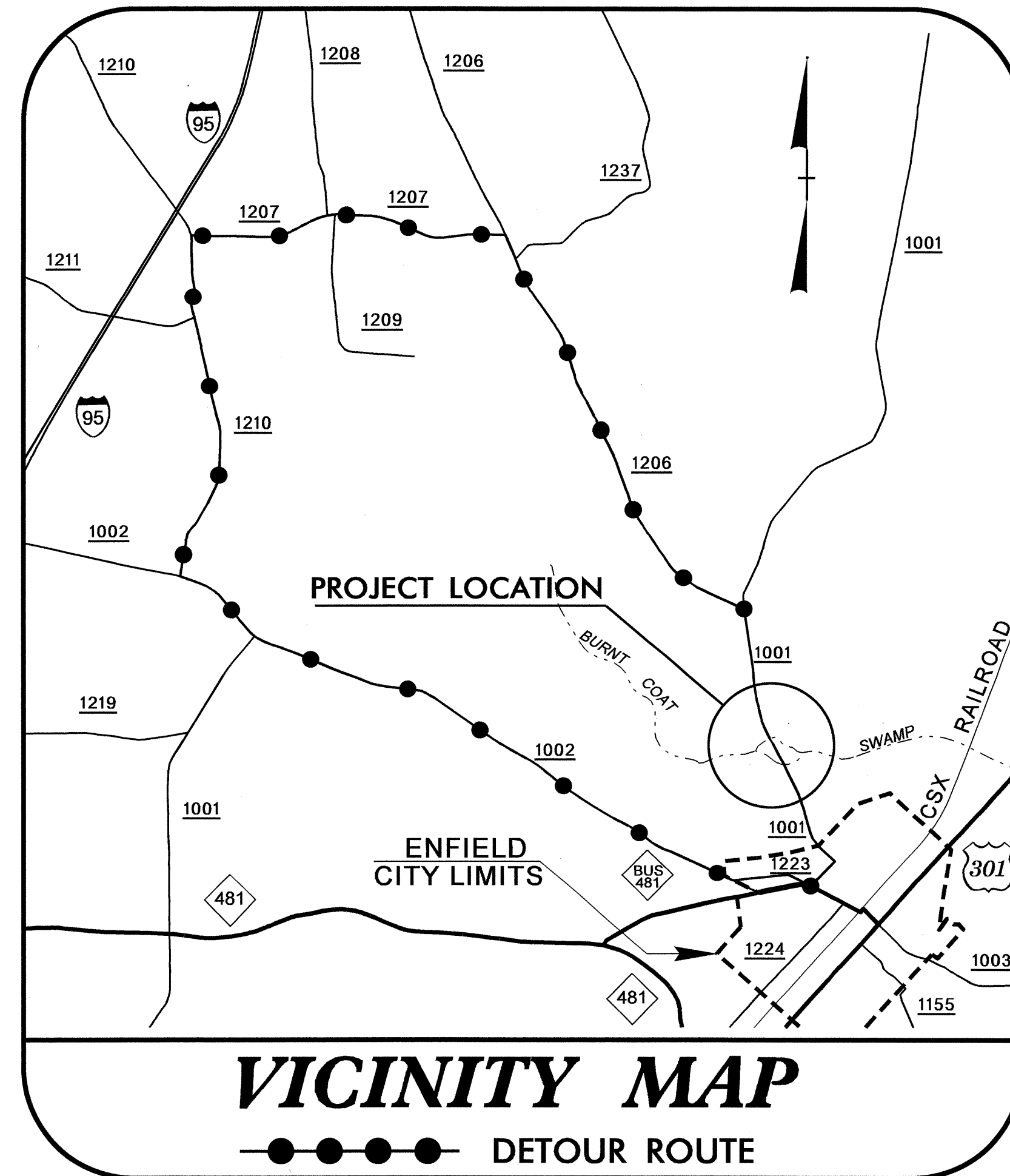


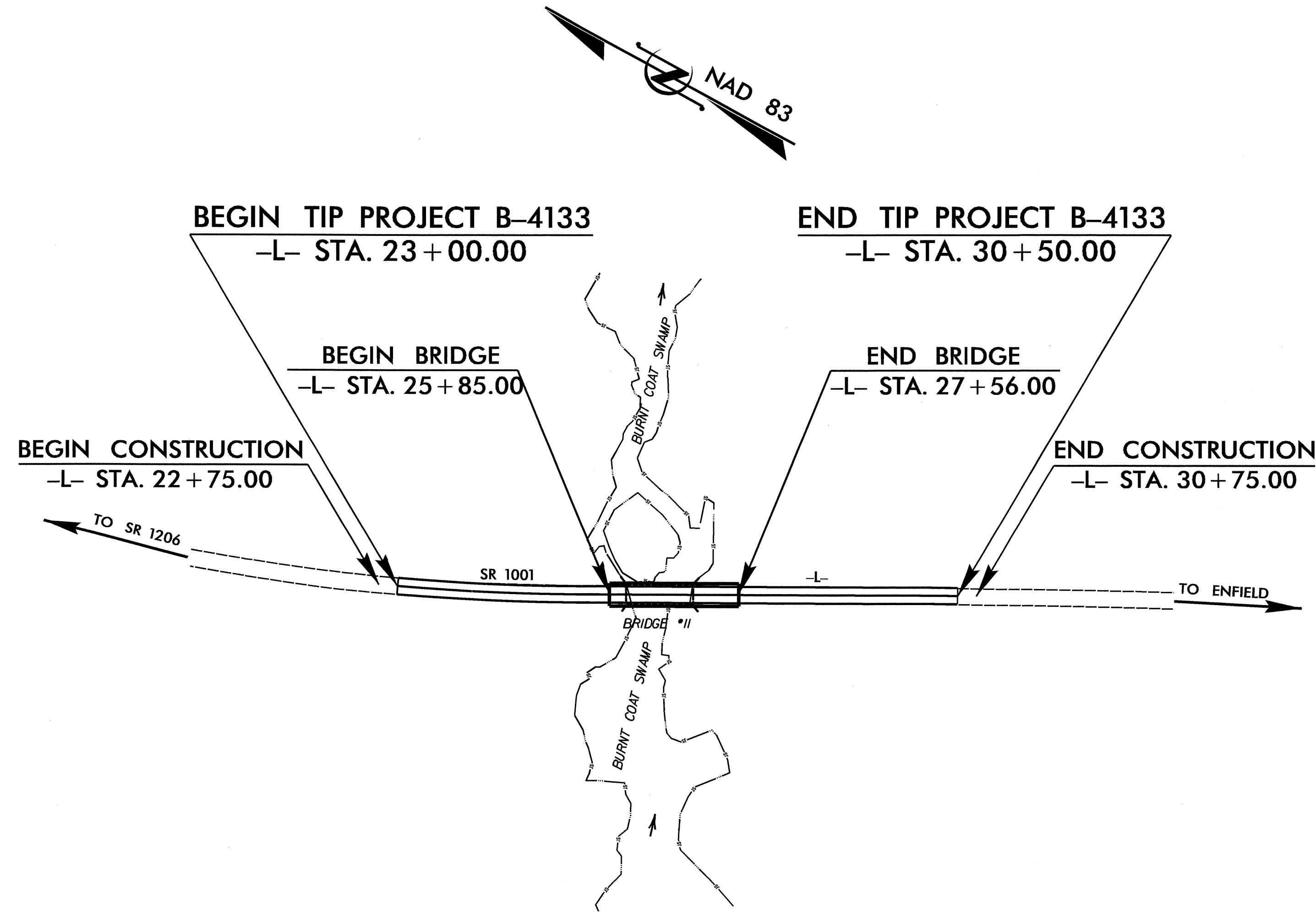
CONTRACT: C202437 TIP PROJECT: B-4133



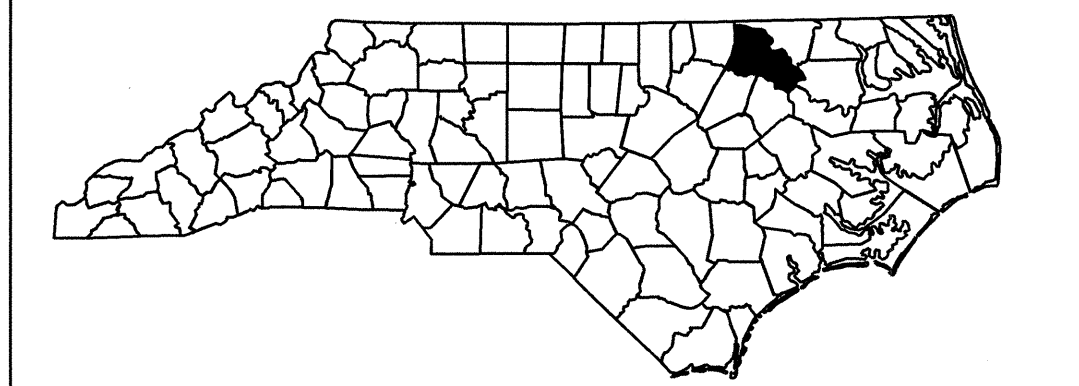
VICINITY MAP
●●●●● DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
HALIFAX COUNTY

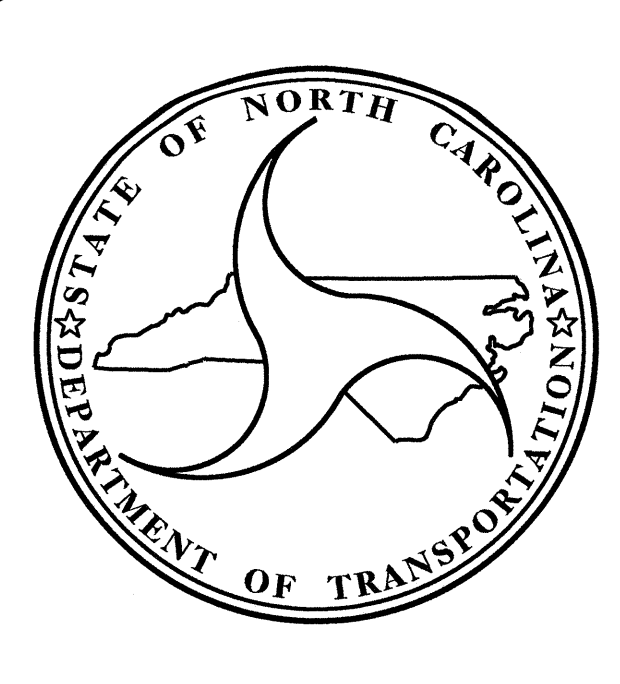
LOCATION : BRIDGE NO. 11 OVER BURNT COAT SWAMP ON SR 1001
TYPE OF WORK : GRADING, DRAINAGE, PAVING, AND STRUCTURE



| | | | |
|-----------------|-----------------------------|-------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | B-4133 | | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33486.1.1 | BRSTP-1001 (26) | PE | |
| 33486.2.1 | BRSTP-1001 (26) | R/W & UTIL. | |
| 33486.3.1 | BRSTP-1001 (26) | CONST. | |



STRUCTURE



DESIGN DATA

| | |
|------------------------|----------|
| ADT 2009 = | 775 |
| ADT 2030 = | 1,300 |
| DHV = | 11 % |
| D = | 60 % |
| T = | 7 % * |
| V = | 60 MPH |
| * TTST 3 % | DUAL 4 % |
| FUNC CLASS = COLLECTOR | |

PROJECT LENGTH

| | |
|--|-----------|
| LENGTH OF ROADWAY TIP PROJECT B-4133 = | 0.110 MI. |
| LENGTH OF STRUCTURE TIP PROJECT B-4133 = | 0.032 MI. |
| TOTAL LENGTH OF TIP PROJECT B-4133 = | 0.142 MI. |

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

| | |
|---|---|
| LETTING DATE: AUGUST 16, 2011 | N. N. BULLOCK, PE PROJECT ENGINEER |
| | A. K. PASCHAL, PE PROJECT DESIGN ENGINEER |

STRUCTURE DESIGN UNIT

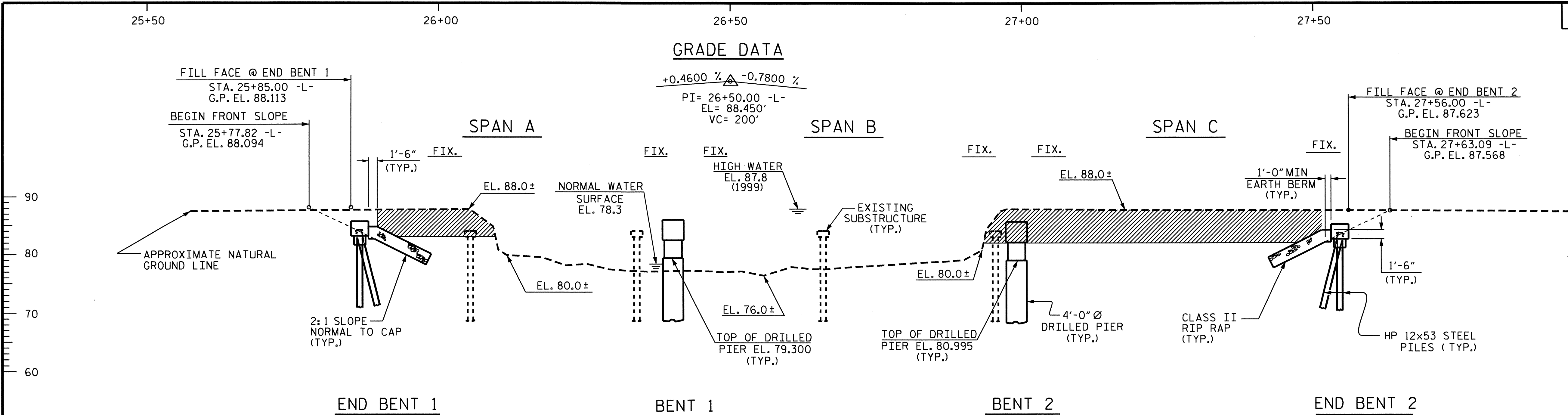
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

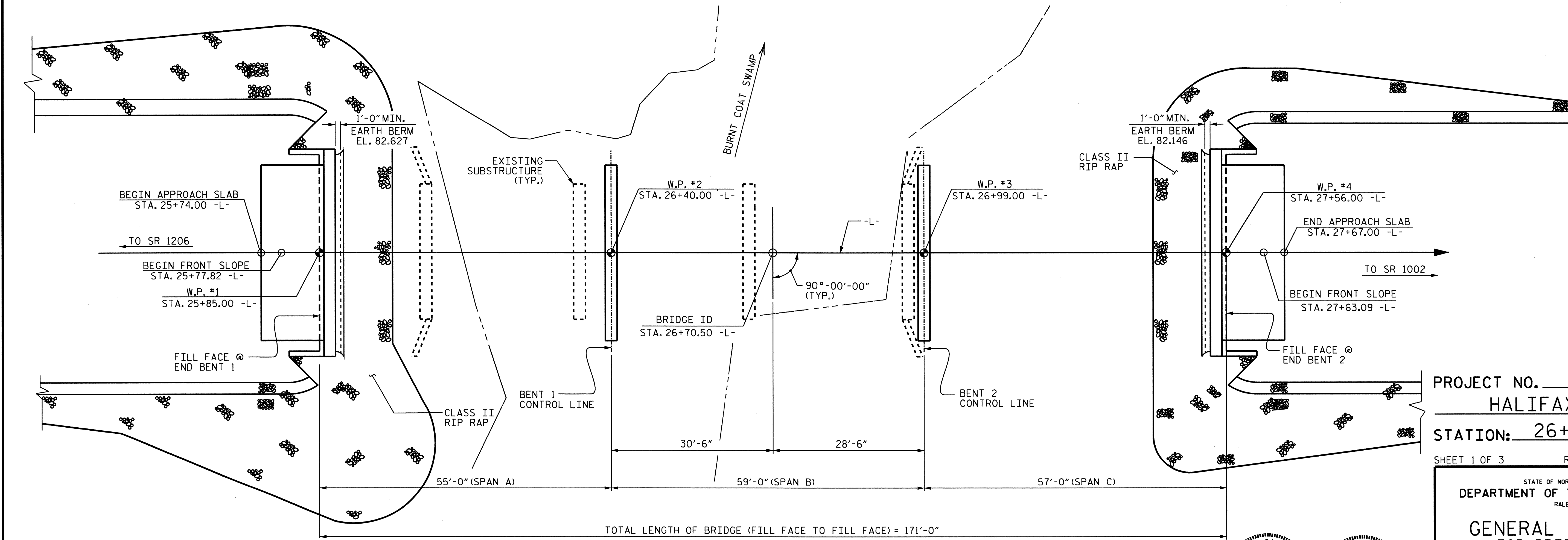
DATE

29-APR-2011 14:51 R:\Structures\Final Plans\B4133_scd_TSH.dgn Kposchel



SECTION ALONG -L-
 (SECTIONS AT BENTS AND END BENTS TAKEN AT RIGHT ANGLES)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)



PROJECT NO. B-4133
 HALIFAX COUNTY
 STATION: 26+70.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 11

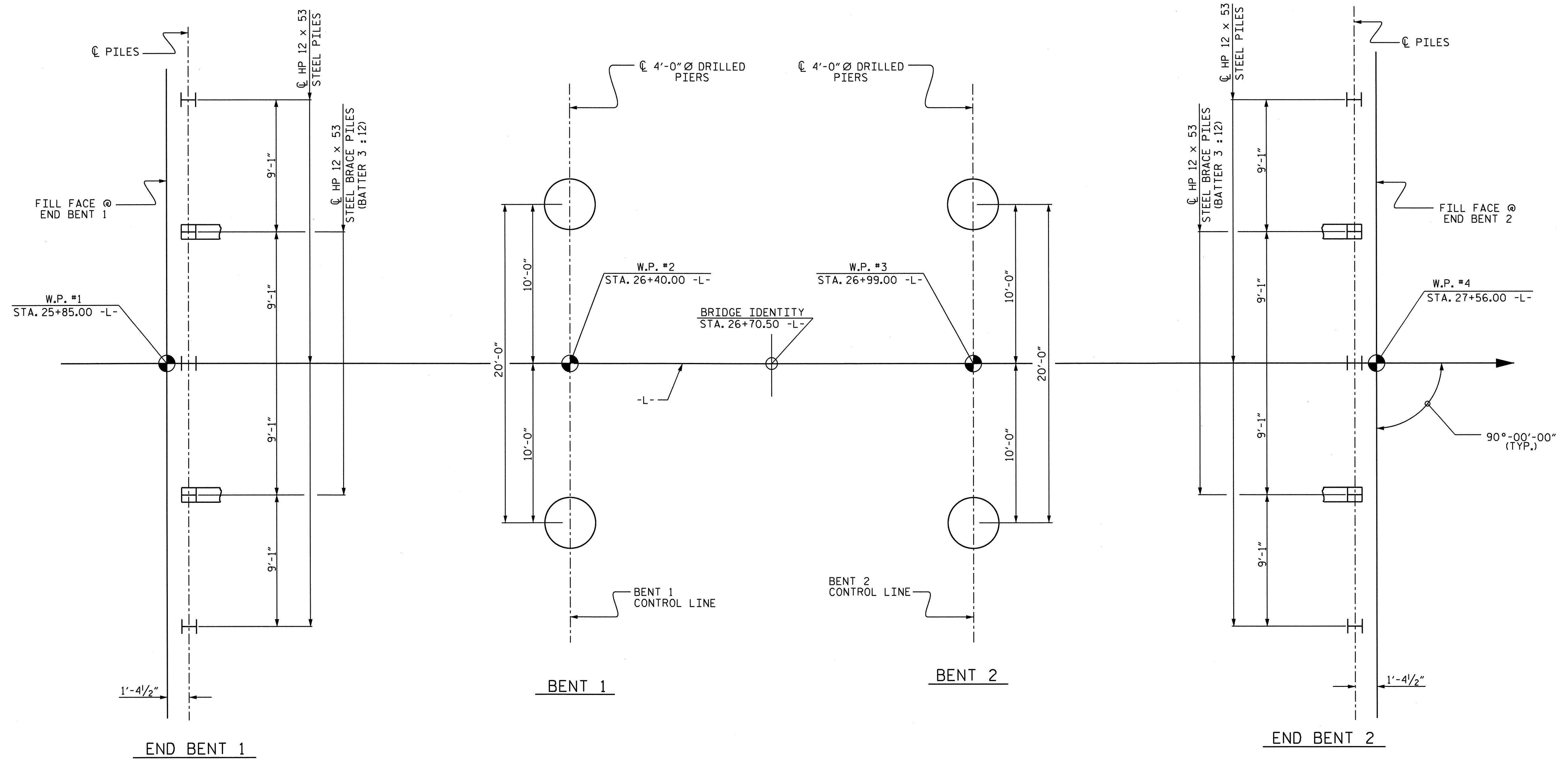
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 BURNT COAT SWAMP
 ON SR 1001 BETWEEN
 SR 1206 AND SR 1002

PROFESSIONAL SEAL
 NORTH CAROLINA
 ENGINEER
 12929
 6/17/11

PROFESSIONAL SEAL
 NORTH CAROLINA
 ENGINEER
 22005
 6/17/11

DRAWN BY: J.G. KHARVA DATE: 6/16/09
 CHECKED BY: J. MYA DATE: 2/10/11

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



FOUNDATION LAYOUT

(DIMENSIONS LOCATING END BENT PILES AND BENT DRILLED PIERS ARE SHOWN TO CENTERLINE PILES AND DRILLED PIERS)

NOTES :

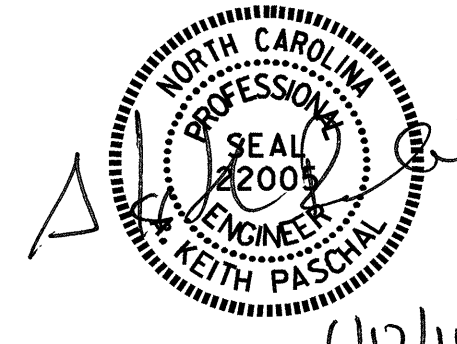
- FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
- DRILLED PIERS AT BENT 1 AND BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 400 TONS PER PIER, CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 80 TSF.
- PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT 1, DO NOT EXTEND CASING BELOW ELEVATION 57.5 WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2, IF REQUIRED DO NOT EXTEND CASING BELOW ELEVATION 64.0 WITHOUT PRIOR APPROVAL FROM THE ENGINEER, THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.
- INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 50.0 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.
- INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 54.0 FT., SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A MINIMUM PENETRATION OF 5.0 FT. INTO ROCK AS DEFINED BY THE DRILLED PIERS PROVISION.

- THE SCOUR CRITICAL ELEVATIONS FOR BENT 1 AND 2 IS ELEVATION 56 FT. (BENT 1) AND ELEVATION 63 FT. (BENT 2). SCOUR CRITICAL ELEVATION ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS, THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS, THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING, FOR CROSSHOLE SONIC LOGGING, SEE SPECIAL PROVISIONS.
- FOR PILES SEE SPECIAL PROVISIONS.
- PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE, DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

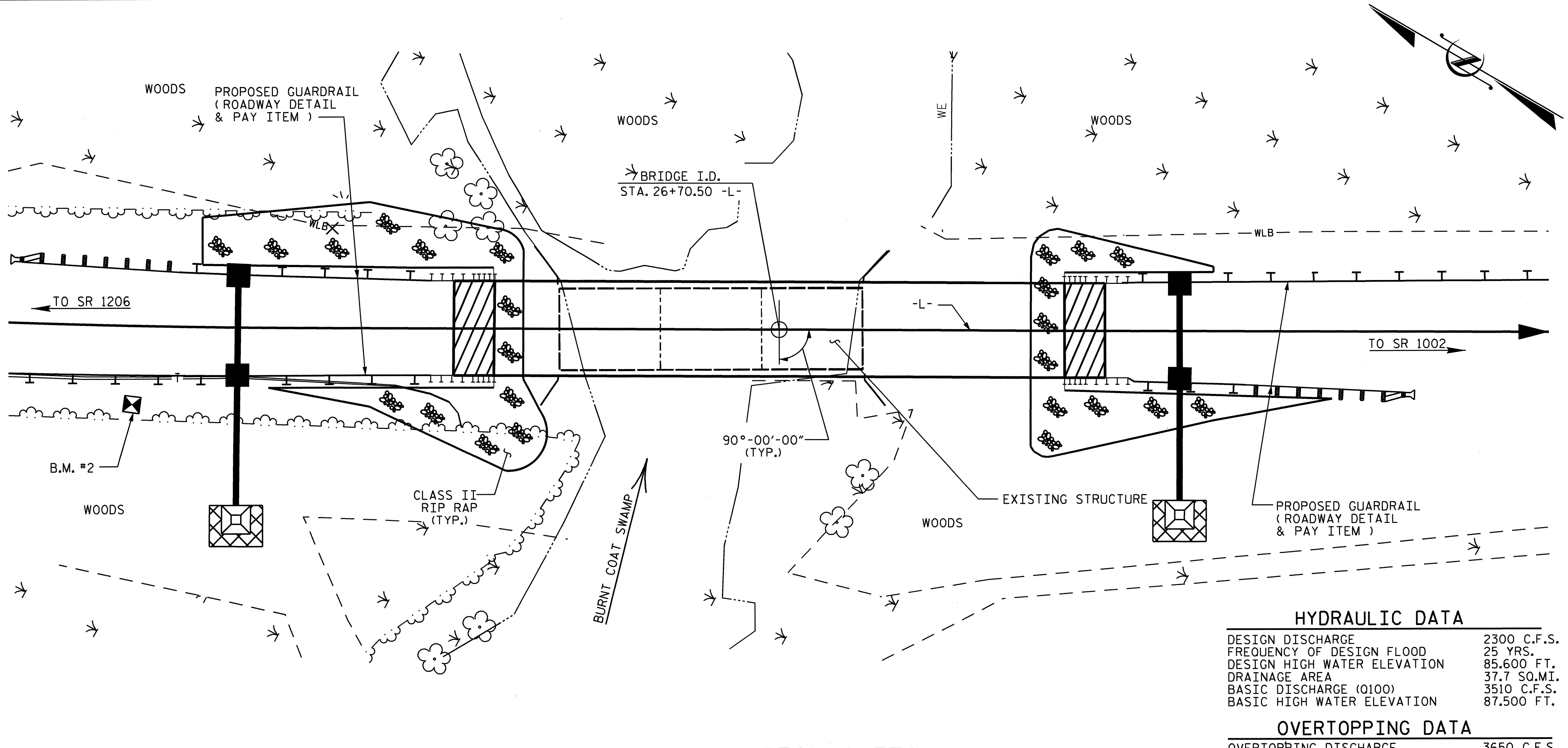
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 BURNT COAT SWAMP
 ON SR 1001 BETWEEN
 SR 1206 AND SR 1002



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

DRAWN BY : J. G. KHARVA DATE : 6/18/09
 CHECKED BY : J. MYA DATE : 3/18/11



LOCATION SKETCH

NOTE : FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

| HYDRAULIC DATA | |
|--------------------------------|-------------|
| DESIGN DISCHARGE | 2300 C.F.S. |
| FREQUENCY OF DESIGN FLOOD | 25 YRS. |
| DESIGN HIGH WATER ELEVATION | 85.600 FT. |
| DRAINAGE AREA | 37.7 SQ.MI. |
| BASIC DISCHARGE (Q100) | 3510 C.F.S. |
| BASIC HIGH WATER ELEVATION | 87.500 FT. |
| OVERTOPPING DATA | |
| OVERTOPPING DISCHARGE | 3650 C.F.S. |
| FREQUENCY OF OVERTOPPING FLOOD | 100+ YRS. |
| OVERTOPPING FLOOD ELEVATION | 85.800 FT. |

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.
- THE EXISTING STRUCTURE CONSISTING OF 3 (1 @ 30'-6", 1 @ 30'-0", 1 @ 30'-6") PRESTRESSED CONCRETE CHANNEL SPANS WITH A CLEAR ROADWAY WIDTH OF 24'-2" ON PRESTRESSED PRECAST, END BENTS AND BENTS WITH TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.
- 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 THE STANDARD SPECIFICATIONS.
- 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.
- 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS, THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

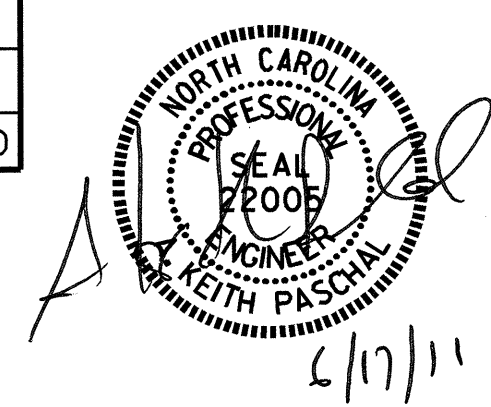
TOTAL BILL OF MATERIAL

| | REMOVAL OF EXISTING STRUCTURE | 4'-0" Ø DRILLED PIERS IN SOIL | 4'-0" Ø DRILLED PIERS NOT IN SOIL | PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER | SID INSPECTION | CROSSHOLE SONIC LOGGING | UNCLASSIFIED STRUCTURE EXCAVATION | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | SPIRAL COLUMN REINFORCING STEEL | HP 12 X 53 STEEL PILES | 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 | LIN. FT. | LIN. FT. | LIN. FT. | EACH | EACH | LUMP SUM | CU. YDS. | LUMP SUM | LBS. | LBS. | NO. | LIN. FT. | LIN. FT. | TONS | SQ. YARDS | LUMP SUM | NO. | LIN. FT. |
| SUPERSTRUCTURE | | | | | | | | | LUMP SUM | | | | 337.50 | | | | LUMP SUM | 33 | 1853.50 |
| END BENT 1 | | | | | | | LUMP SUM | 14.3 | | 1996 | | 5 | 125 | | 299 | 332 | | | |
| BENT 1 | | 41.67 | 17.00 | 43.60 | | | | 21.4 | | 7927 | 1639 | | | | | | | | |
| BENT 2 | | 40.00 | 14.00 | 33.90 | | | | 20.1 | | 7396 | 1427 | | | | | | | | |
| END BENT 2 | | | | | | | LUMP SUM | 14.3 | | 1996 | | 5 | 175 | | 183 | 204 | | | |
| TOTAL | LUMP SUM | 81.67 | 31.00 | 77.50 | 1 | 1 | LUMP SUM | 70.1 | LUMP SUM | 19315 | 3066 | 10 | 300 | 337.50 | 482 | 536 | LUMP SUM | 33 | 1853.50 |

PROJECT NO. B-4133
 HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 BURNT COAT SWAMP
 ON SR 1001 BETWEEN
 SR 1206 AND SR 1002



DRAWN BY : J.G. KHARVA DATE : 6/18/09
 CHECKED BY : J. MYA DATE : 3/18/11

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

| 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 (γ _{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 (γ _{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 | 1.02 | ---- | 1.75 | 0.272 | 1.25 | B | EL | 28.938 | 0.518 | 1.15 | B | EL | 2.894 | 0.80 | 0.272 | 1.02 | B | EL | 28.938 | | |
| | HL-93 (OPERATING) | N/A | | 1.48 | ---- | 1.35 | 0.272 | 1.62 | B | EL | 28.938 | 0.518 | 1.48 | B | EL | 2.894 | N/A | ---- | ---- | --- | --- | ---- | | |
| | HS-20 (INVENTORY) | 36.000 | ② | 1.29 | 46,440 | 1.75 | 0.272 | 1.58 | B | EL | 28.938 | 0.518 | 1.40 | B | EL | 2.894 | 1.00 | 0.272 | 1.29 | B | EL | 28.938 | | |
| | HS-20 (OPERATING) | 36.000 | | 1.81 | 65,160 | 1.35 | 0.272 | 2.05 | B | EL | 28.938 | 0.518 | 1.81 | B | EL | 2.894 | N/A | ---- | ---- | --- | --- | ---- | | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SNSH | 13.500 | | 2.77 | 37,395 | 1.40 | 0.272 | 4.23 | B | EL | 28.938 | 0.518 | 4.06 | B | EL | 2.894 | 0.80 | 0.272 | 2.77 | B | EL | 28.938 | |
| | | SNGARBS2 | 20.000 | | 2.13 | 42,600 | 1.40 | 0.272 | 3.25 | B | EL | 28.938 | 0.518 | 2.92 | B | EL | 2.894 | 0.80 | 0.272 | 2.13 | B | EL | 28.938 | |
| | | SNAGRIS2 | 22.000 | | 2.04 | 44,880 | 1.40 | 0.272 | 3.12 | B | EL | 28.938 | 0.518 | 2.72 | B | EL | 2.894 | 0.80 | 0.272 | 2.04 | B | EL | 28.938 | |
| | | SNCOTTS3 | 27.250 | | 1.38 | 37,605 | 1.40 | 0.272 | 2.11 | B | EL | 28.938 | 0.518 | 2.03 | B | EL | 2.894 | 0.80 | 0.272 | 1.38 | B | EL | 28.938 | |
| | | SNAGGRS4 | 34.925 | | 1.18 | 41,212 | 1.40 | 0.272 | 1.80 | B | EL | 28.938 | 0.518 | 1.71 | B | EL | 2.894 | 0.80 | 0.272 | 1.18 | B | EL | 28.938 | |
| | | SNS5A | 35.550 | | 1.15 | 40,883 | 1.40 | 0.272 | 1.76 | B | EL | 28.938 | 0.518 | 1.74 | B | EL | 2.894 | 0.80 | 0.272 | 1.15 | B | EL | 28.938 | |
| | | SNS6A | 39.950 | | 1.06 | 42,347 | 1.40 | 0.272 | 1.63 | B | EL | 28.938 | 0.518 | 1.60 | B | EL | 2.894 | 0.80 | 0.272 | 1.06 | B | EL | 28.938 | |
| | SNS7B | 42.000 | | 1.01 | 42,420 | 1.40 | 0.272 | 1.55 | B | EL | 28.938 | 0.518 | 1.58 | B | EL | 2.894 | 0.80 | 0.272 | 1.01 | B | EL | 28.938 | | |
| | TRUCK TRACTOR SEMI-TRAILER (TST) | TNAGRIT3 | 33.000 | | 1.30 | 42,900 | 1.40 | 0.272 | 1.99 | B | EL | 28.938 | 0.518 | 1.89 | B | EL | 2.894 | 0.80 | 0.272 | 1.30 | B | EL | 28.938 | |
| | | TNT4A | 33.075 | | 1.31 | 43,328 | 1.40 | 0.272 | 2.00 | B | EL | 28.938 | 0.518 | 1.83 | B | EL | 2.894 | 0.80 | 0.272 | 1.31 | B | EL | 28.938 | |
| | | TNT6A | 41.600 | | 1.08 | 44,928 | 1.40 | 0.272 | 1.65 | B | EL | 28.938 | 0.518 | 1.70 | B | EL | 2.894 | 0.80 | 0.272 | 1.08 | B | EL | 28.938 | |
| | | TNT7A | 42.000 | | 1.09 | 45,780 | 1.40 | 0.272 | 1.67 | B | EL | 28.938 | 0.518 | 1.64 | B | EL | 2.894 | 0.80 | 0.272 | 1.09 | B | EL | 28.938 | |
| | | TNT7B | 42.000 | | 1.14 | 47,880 | 1.40 | 0.272 | 1.74 | B | EL | 28.938 | 0.518 | 1.53 | B | EL | 2.894 | 0.80 | 0.272 | 1.14 | B | EL | 28.938 | |
| | | TNAGRIT4 | 43.000 | | 1.08 | 46,440 | 1.40 | 0.272 | 1.65 | B | EL | 28.938 | 0.518 | 1.48 | B | EL | 2.894 | 0.80 | 0.272 | 1.08 | B | EL | 28.938 | |
| TNAGT5A | | 45.000 | | 1.01 | 45,450 | 1.40 | 0.272 | 1.55 | B | EL | 28.938 | 0.518 | 1.49 | B | EL | 2.894 | 0.80 | 0.272 | 1.01 | B | EL | 28.938 | | |
| TNAGT5B | 45.000 | | ③ | 1.00 | 45,000 | 1.40 | 0.272 | 1.52 | B | EL | 28.938 | 0.518 | 1.41 | B | EL | 2.894 | 0.80 | 0.272 | 1.00 | B | EL | 28.938 | | |

LOAD FACTORS:

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

NOTES:

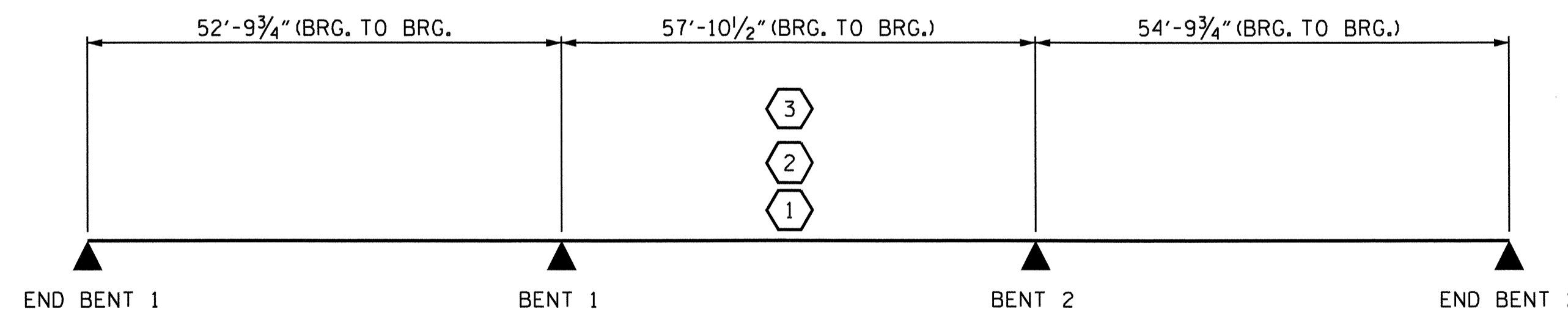
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

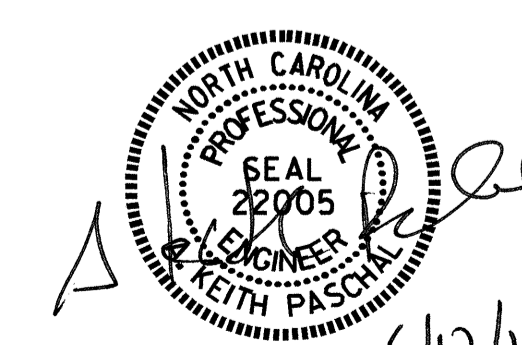
- 1.
- 2.
- 3.
- 4.

| |
|--|
| # 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 |



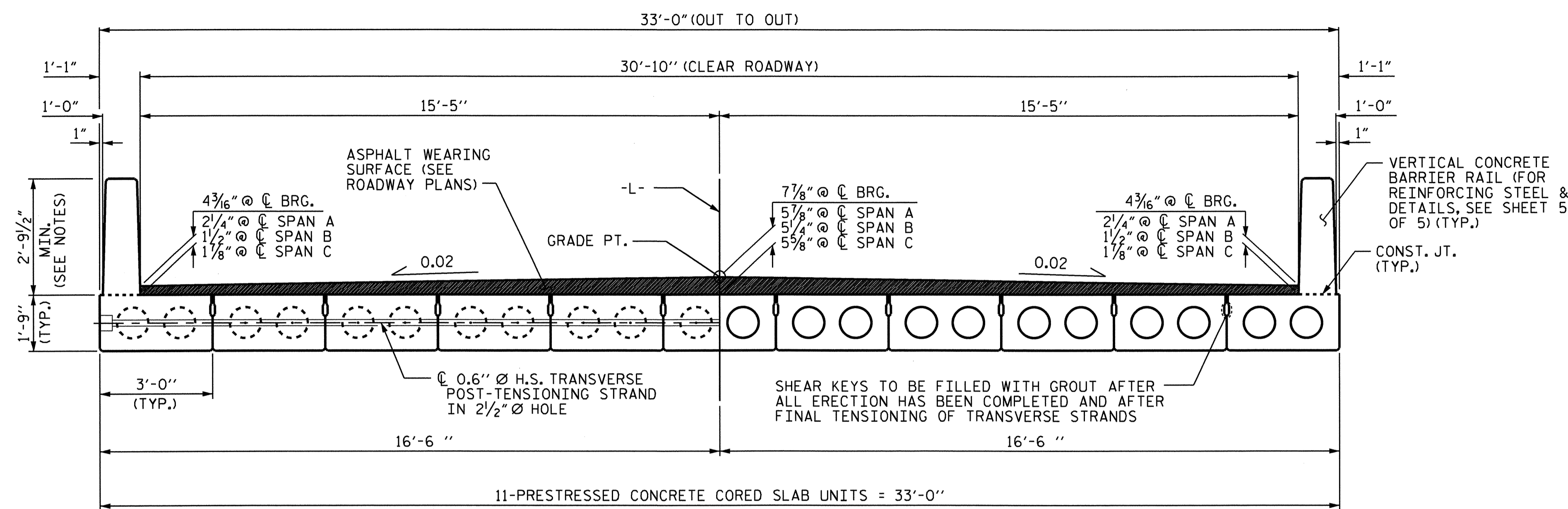
LRFR SUMMARY

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-



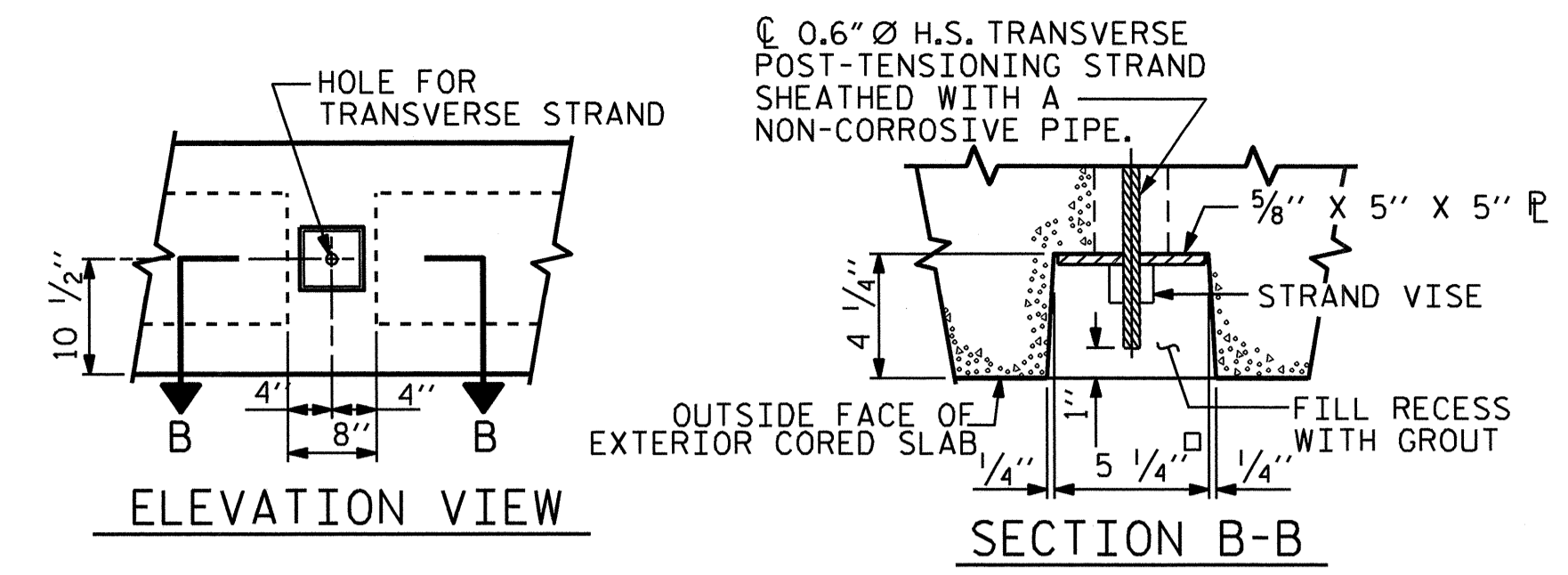
| | | | | | |
|---|-----|-------|-----|-----|--|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| STANDARD LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC) | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | SHEET NO. S-4 TOTAL SHEETS 19 |

| | |
|----------------------------|----------------|
| ASSEMBLED BY : J.D. HAWK | DATE : 3/15/11 |
| CHECKED BY : J. LAZAROVICH | DATE : 3/15/11 |
| DRAWN BY : MAA | 1/08 |
| CHECKED BY : GM/DI | 2/08 |
| REV. 11/12/08RR | MAA/GM |

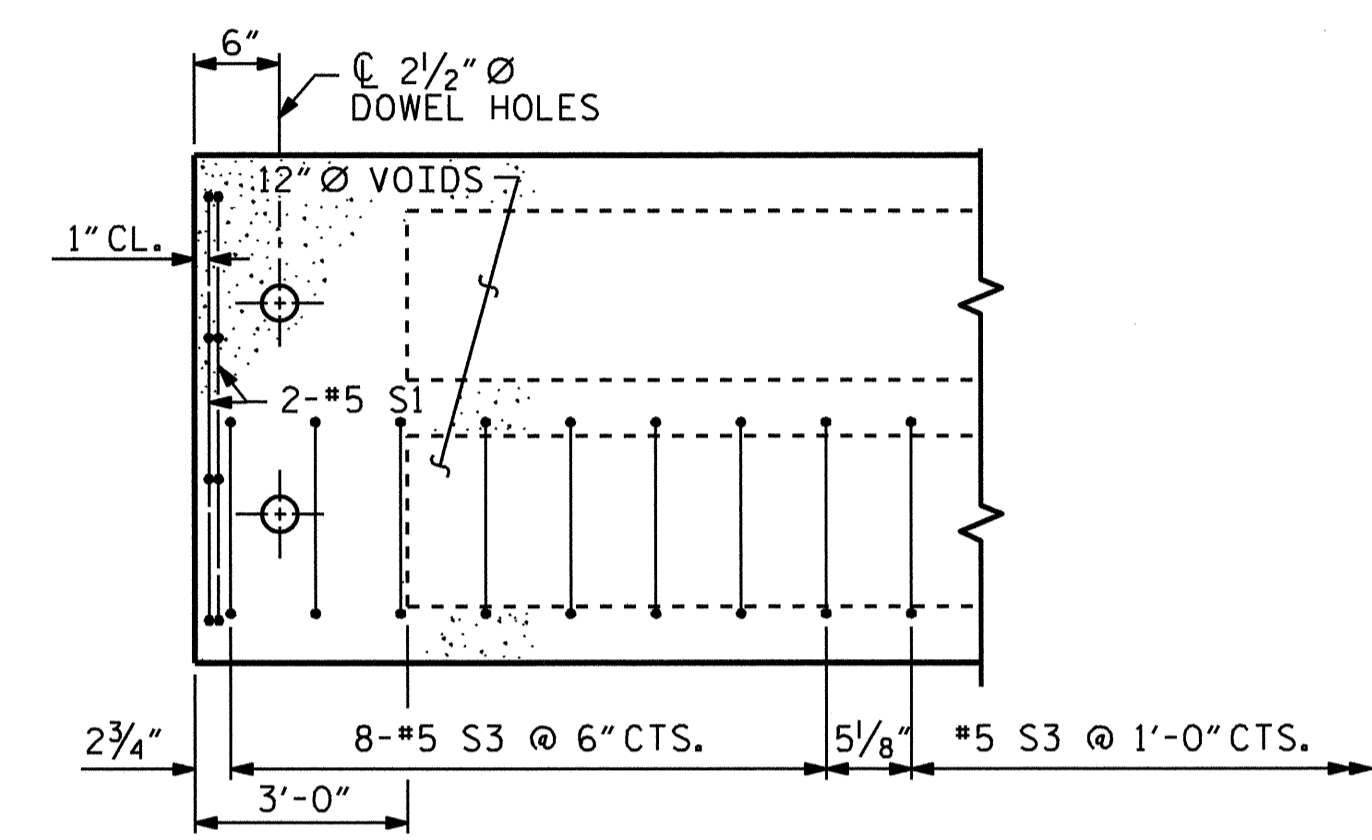


HALF SECTION @ DIAPHRAGMS

HALF SECTION @ VOIDS

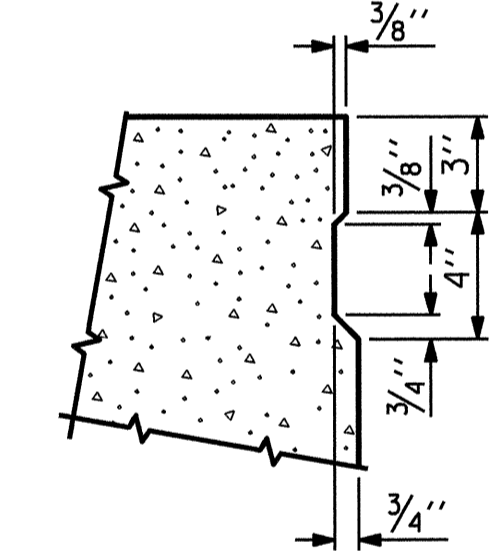


GRouted RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



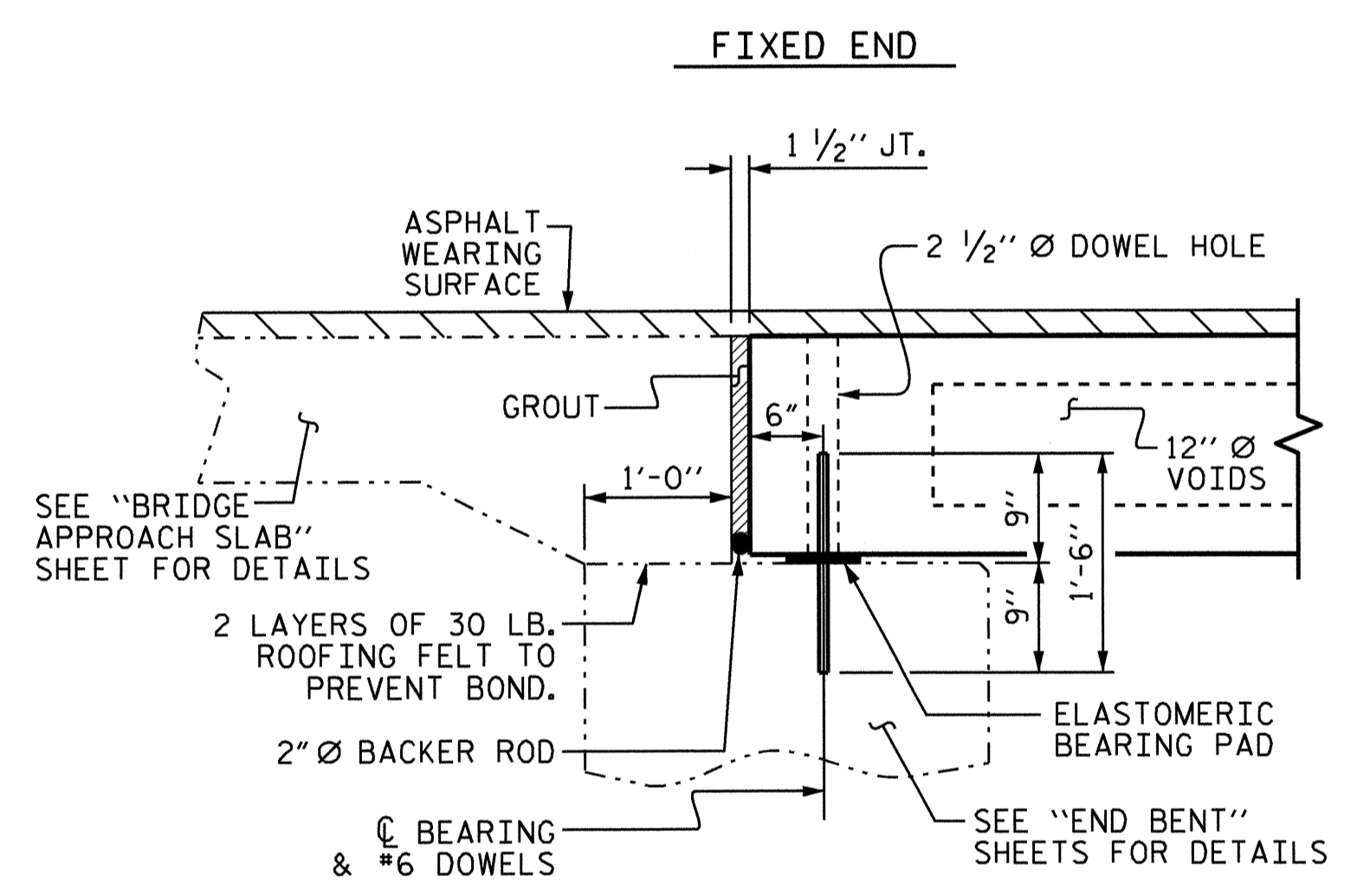
PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS. (AT SPAN A & C ONLY)

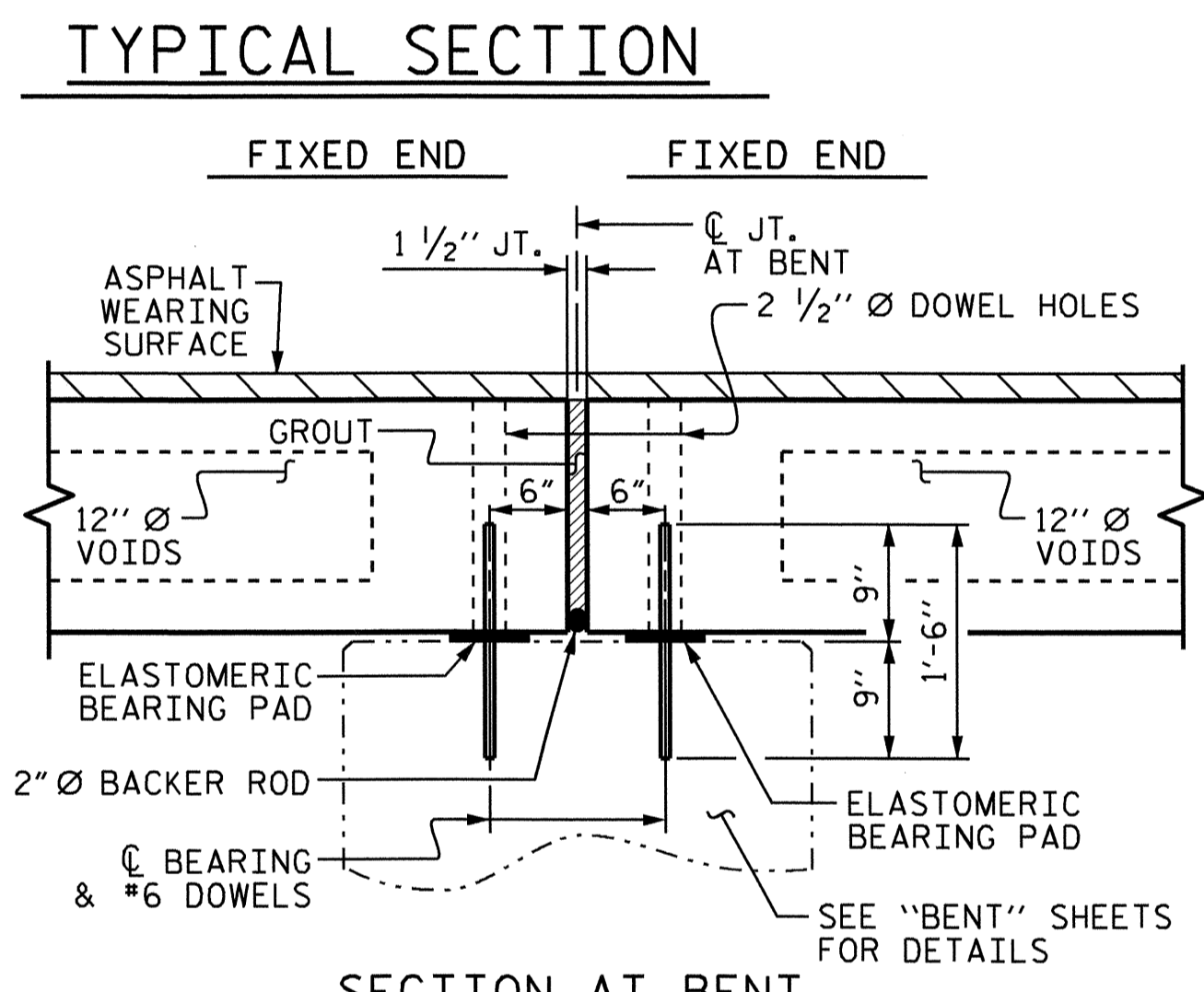


SHEAR KEY DETAIL

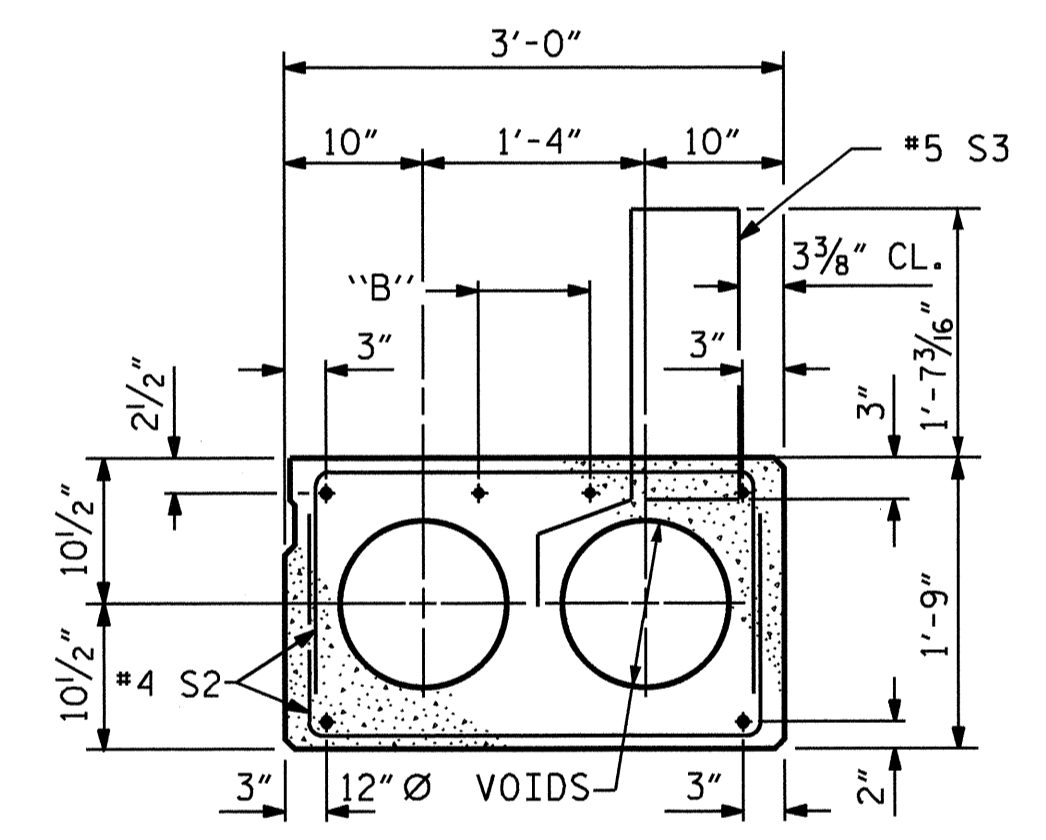
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



SECTION AT END BENT

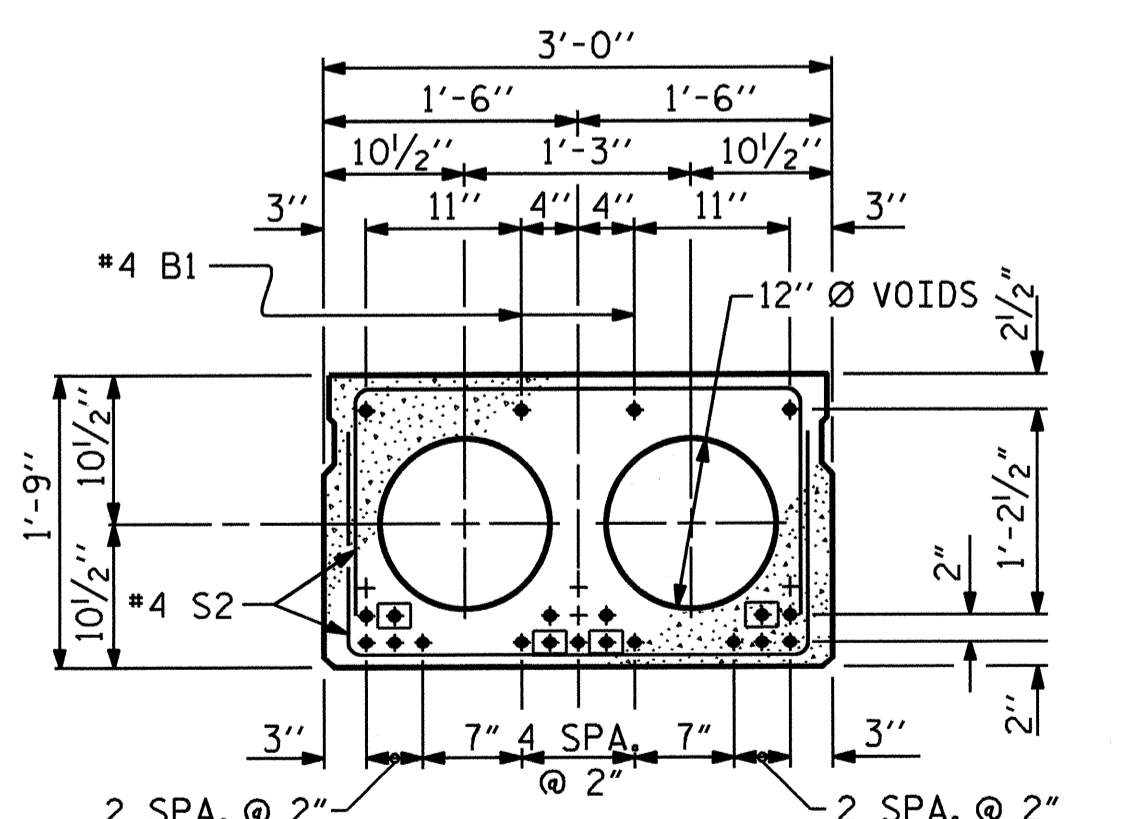


SECTION AT BENT

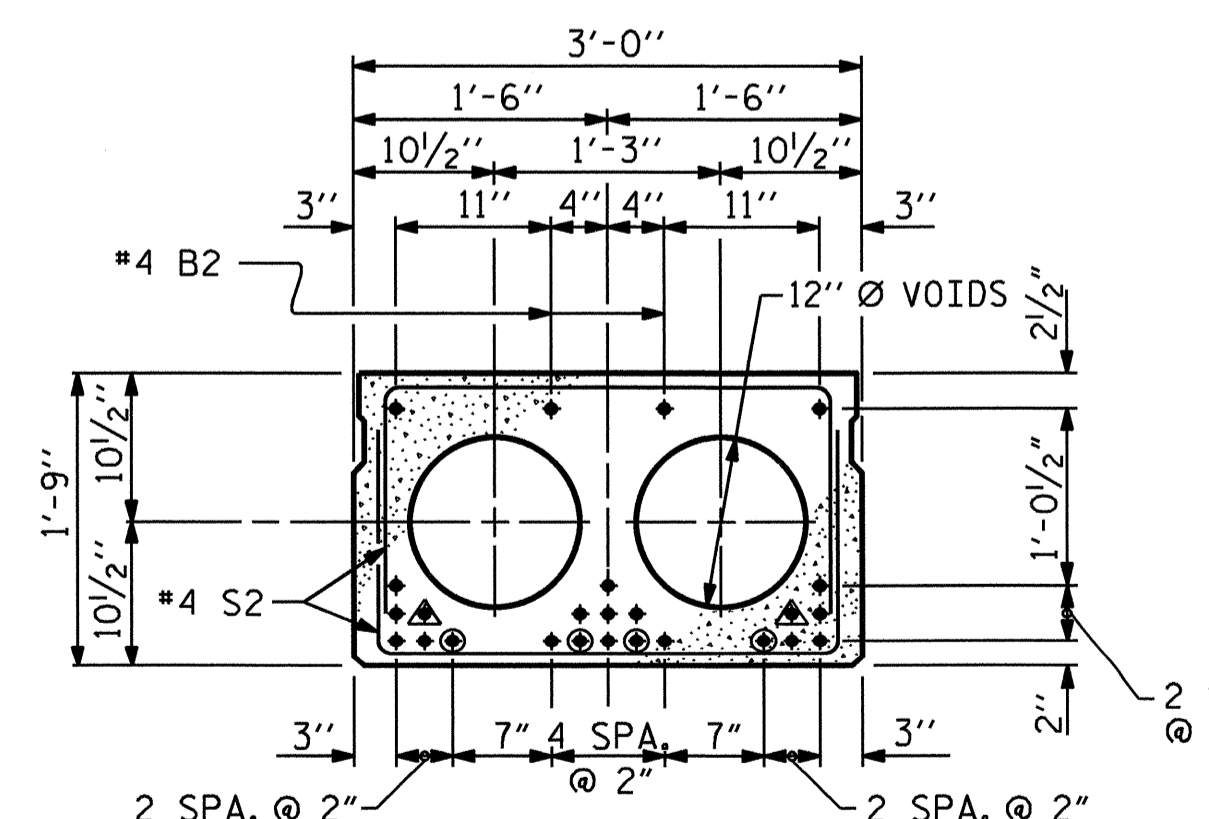


EXTERIOR SLAB SECTION

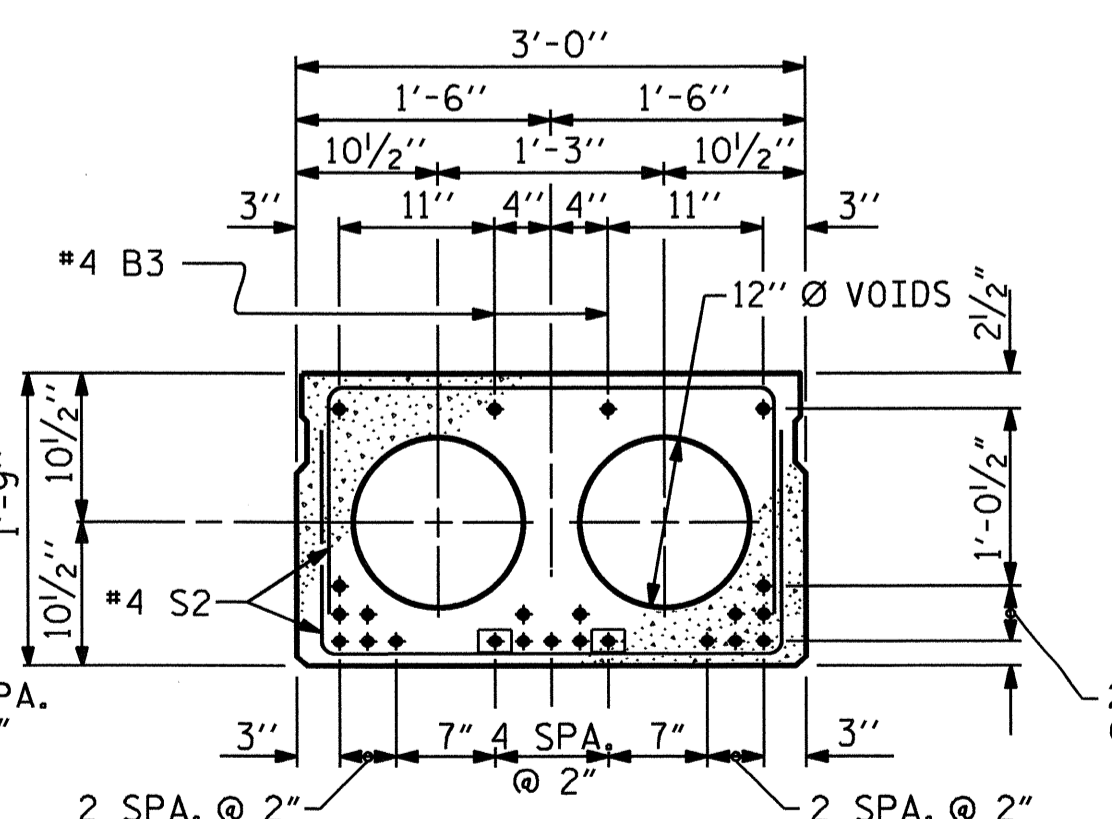
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (SPAN A)
(19 STRANDS REQUIRED)



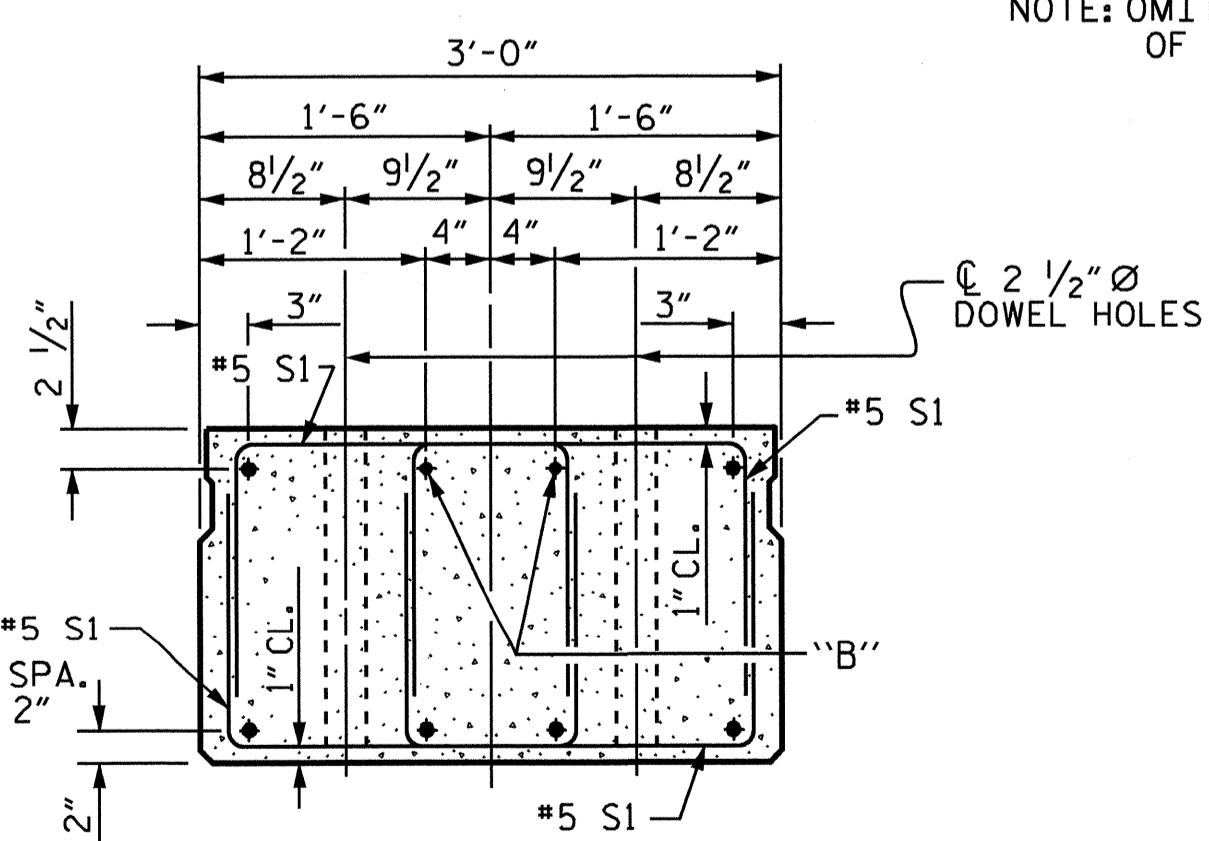
INTERIOR SLAB SECTION (SPAN B)
(23 STRANDS REQUIRED)



INTERIOR SLAB SECTION (SPAN C)
(21 STRANDS REQUIRED)

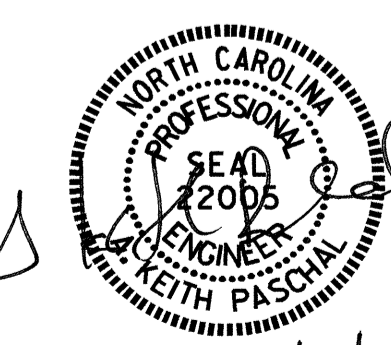
0.6" Ø LOW RELAXATION STRAND LAYOUT

Ⓞ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM THE END OF THE CORED SLAB UNIT. Ⓞ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM THE END OF THE CORED SLAB UNIT. Ⓞ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 8'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATION ARTICLE 1078-7.



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 LOCATION.



PROJECT NO. B-4133
HALIFAX COUNTY
STATION: 26+70.50 -L-

SHEET 1 OF 5

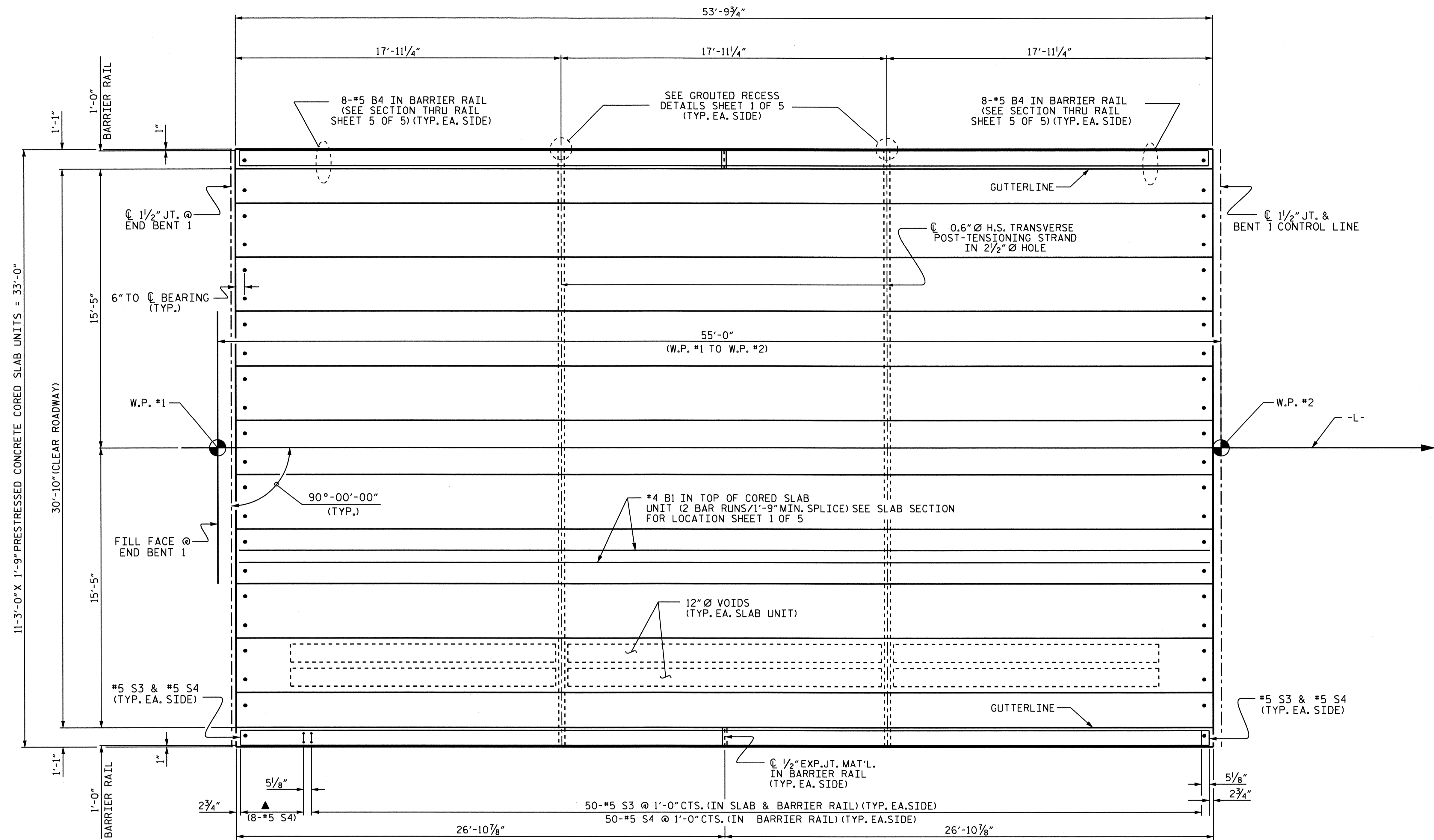
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
|--|-----|-------|-----|-----|-------|
| STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO.
S-5
TOTAL SHEETS
19

(SHT 4) STD. NO. PCS2

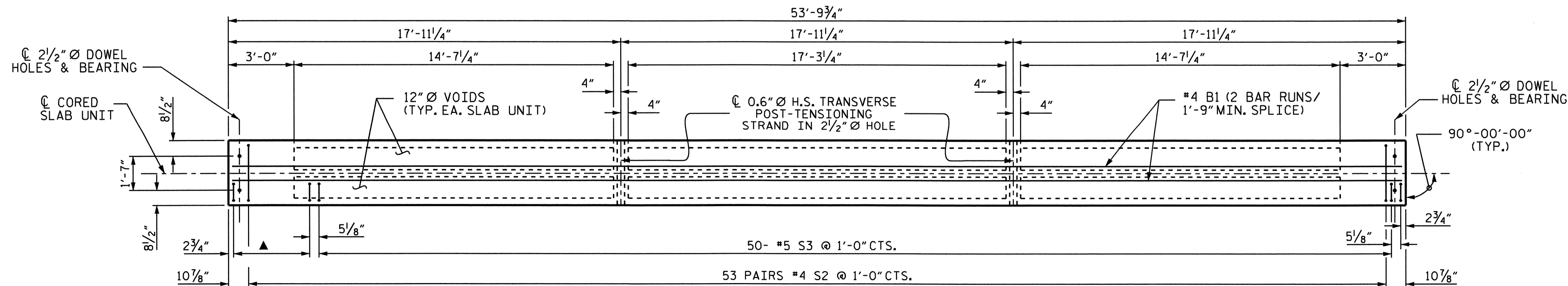
DRAWN BY: M. FOWLER DATE: 3/12/08
CHECKED BY: J.G. KHARVA DATE: 9/1/09

14-JUN-2011 09:41
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mfowler



PLAN OF SPAN A

▲ SEE PART PLAN-EXTERIOR SECTION ON SHEET 1 OF 5 FOR ADDITIONAL #5 S3 BARS



PLAN OF CORED SLAB UNIT

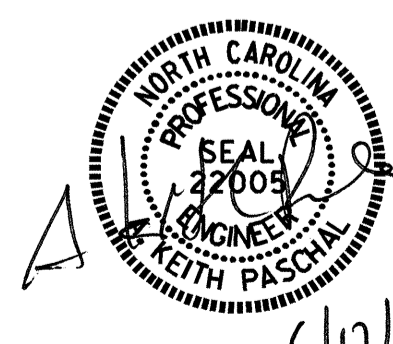
EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS. FOR LOCATION OF ADDITIONAL REINFORCING STEEL AT END OF SLAB UNIT, SEE "PART-PLAN EXTERIOR SECTION" SHEET 1 OF 5.

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 2 OF 5

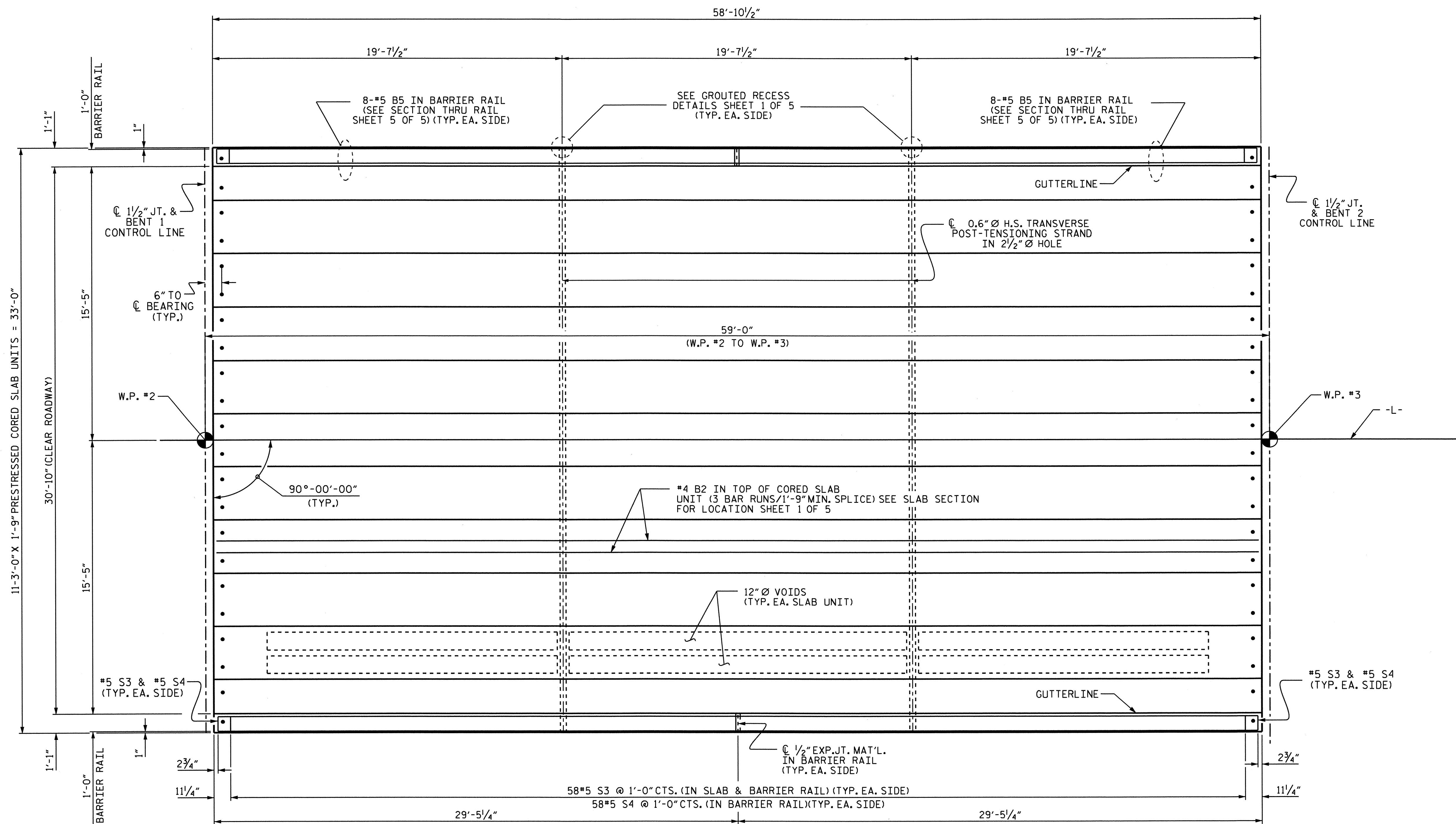
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A

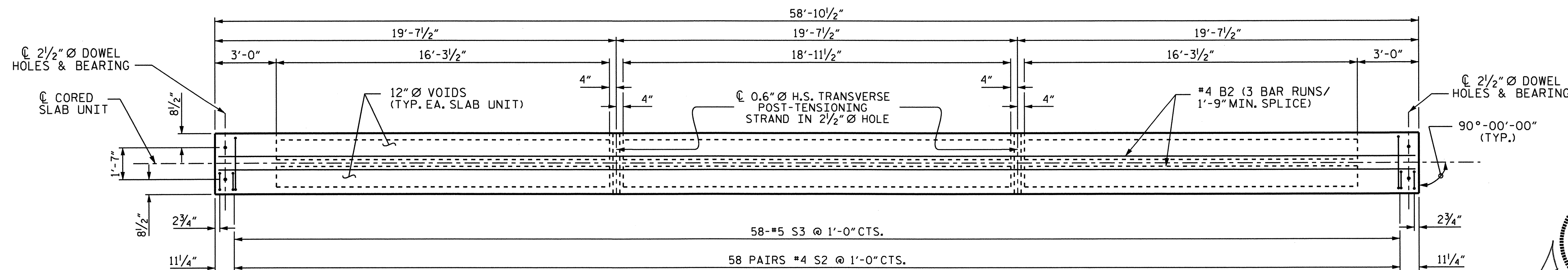


| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-6 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 19 |

DRAWN BY: M.FOWLER DATE: 6/25/09
 CHECKED BY: J.G. KHARVA DATE: 9/1/09



PLAN OF SPAN B



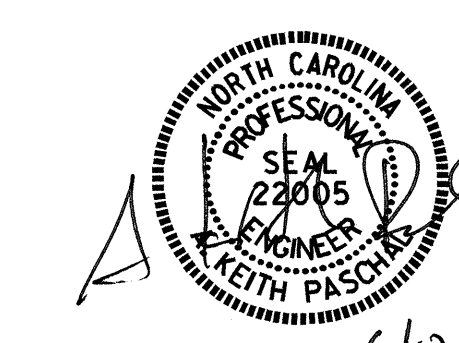
PLAN OF CORED SLAB UNIT

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.
SEE "PART-PLAN EXTERIOR SECTION" SHEET 1 OF 5.

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 3 OF 5

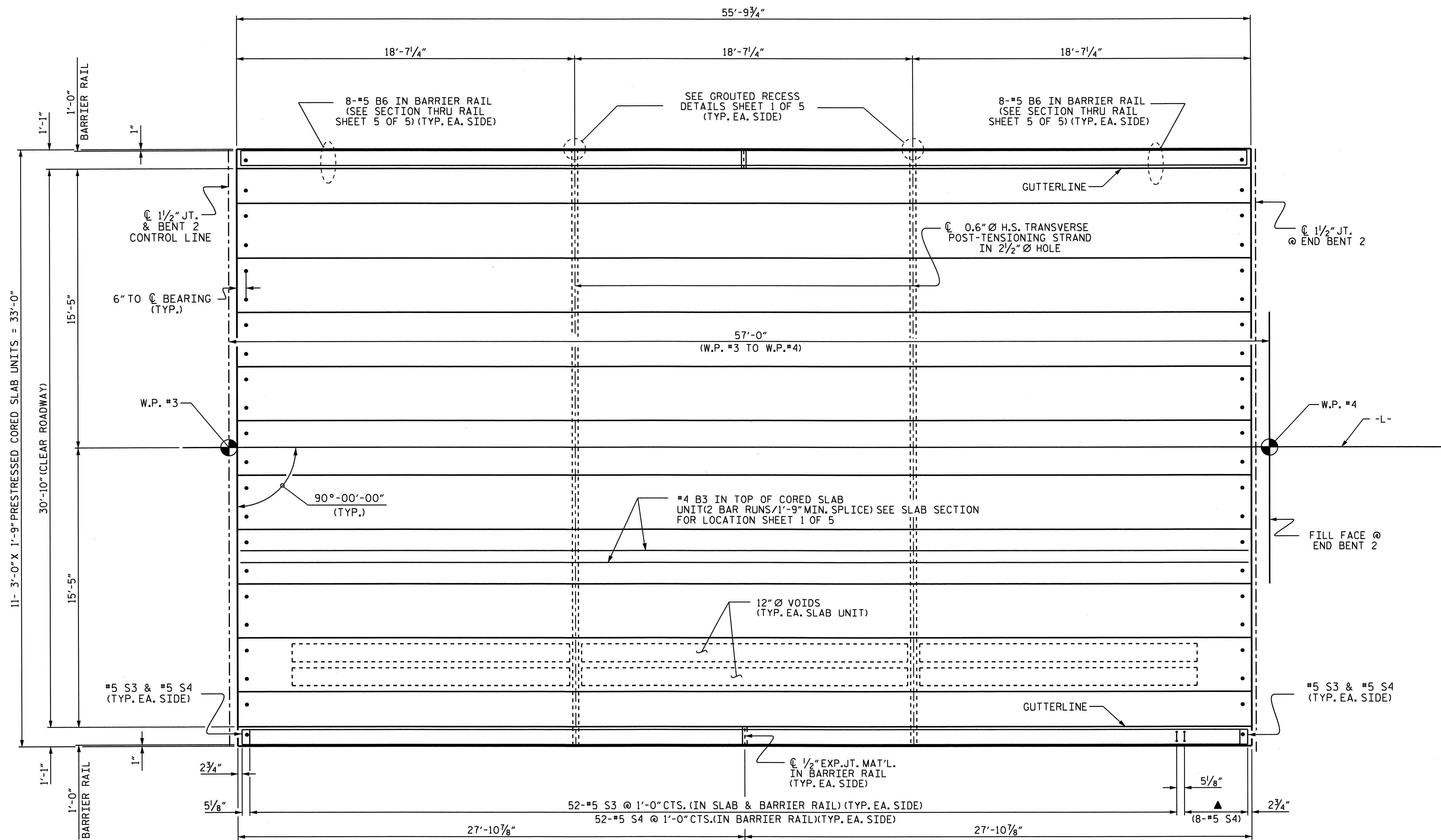
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-7 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 19 |

DRAWN BY : M.FOWLER DATE : 6/26/09
 CHECKED BY : J.G. KHARVA DATE : 9/1/09

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 jdhwk

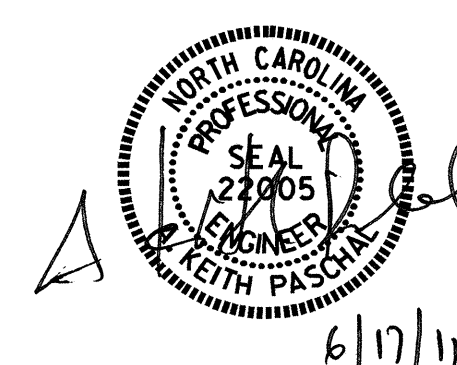


PLAN OF SPAN C

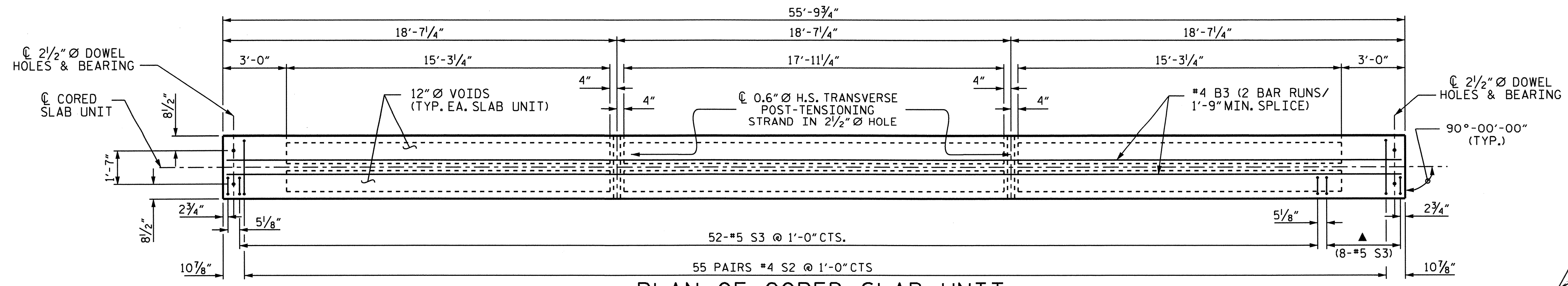
▲ SEE PART PLAN-EXTERIOR SECTION ON SHEET 1 OF 5 FOR ADDITIONAL #5 S3 BARS

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 4 OF 5
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN C



| REVISIONS | | | | | | SHEET NO. S-8 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 19 |
| 2 | | | 4 | | | |

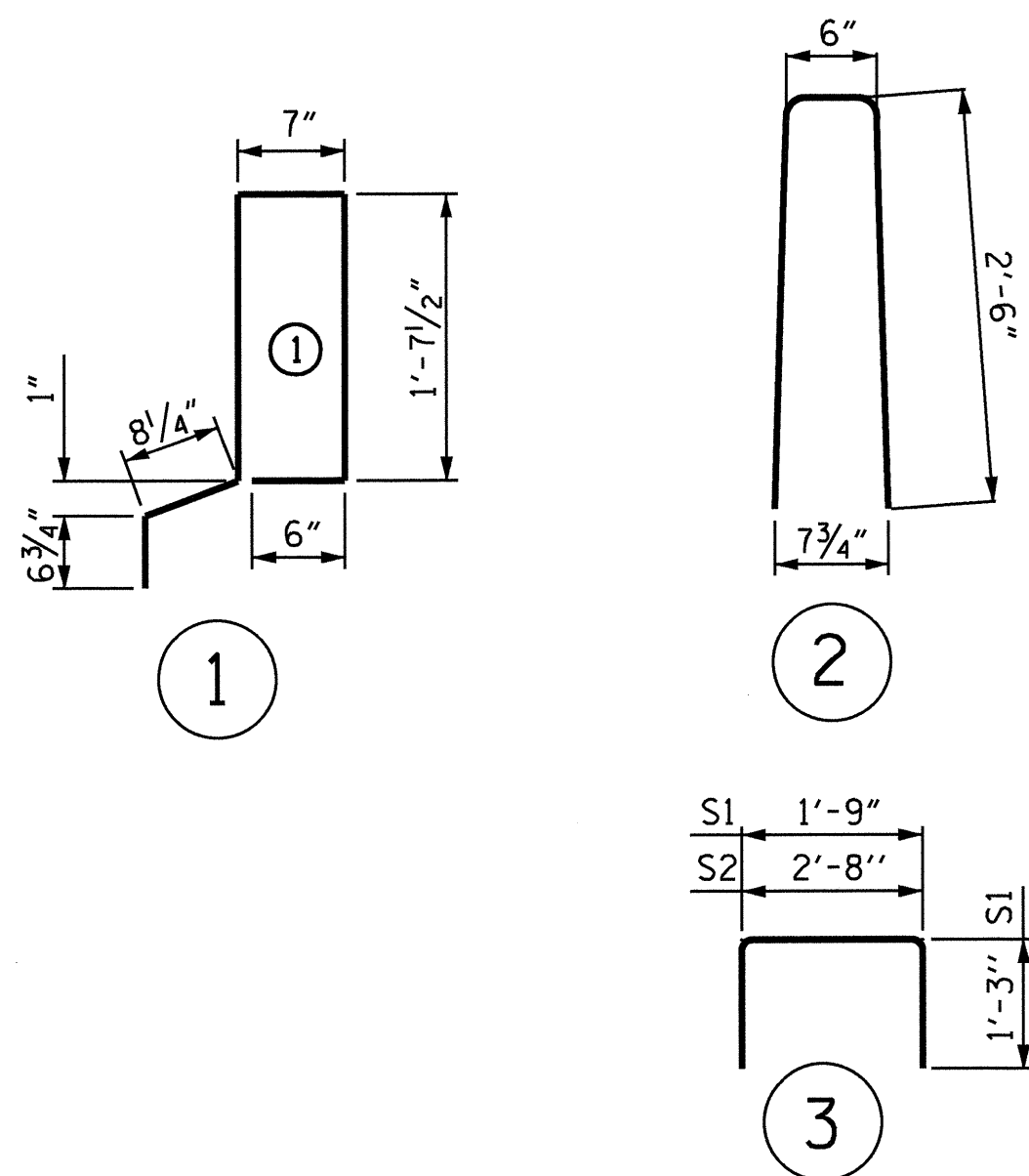


PLAN OF CORED SLAB UNIT

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS. FOR LOCATION OF ADDITIONAL REINFORCING STEEL AT END OF SLAB UNIT, SEE "PART-PLAN EXTERIOR SECTION" SHEET 1 OF 5.

DRAWN BY: M.FOWLER DATE: 6/26/09
 CHECKED BY: J.G. KHARVA DATE: 9/1/09

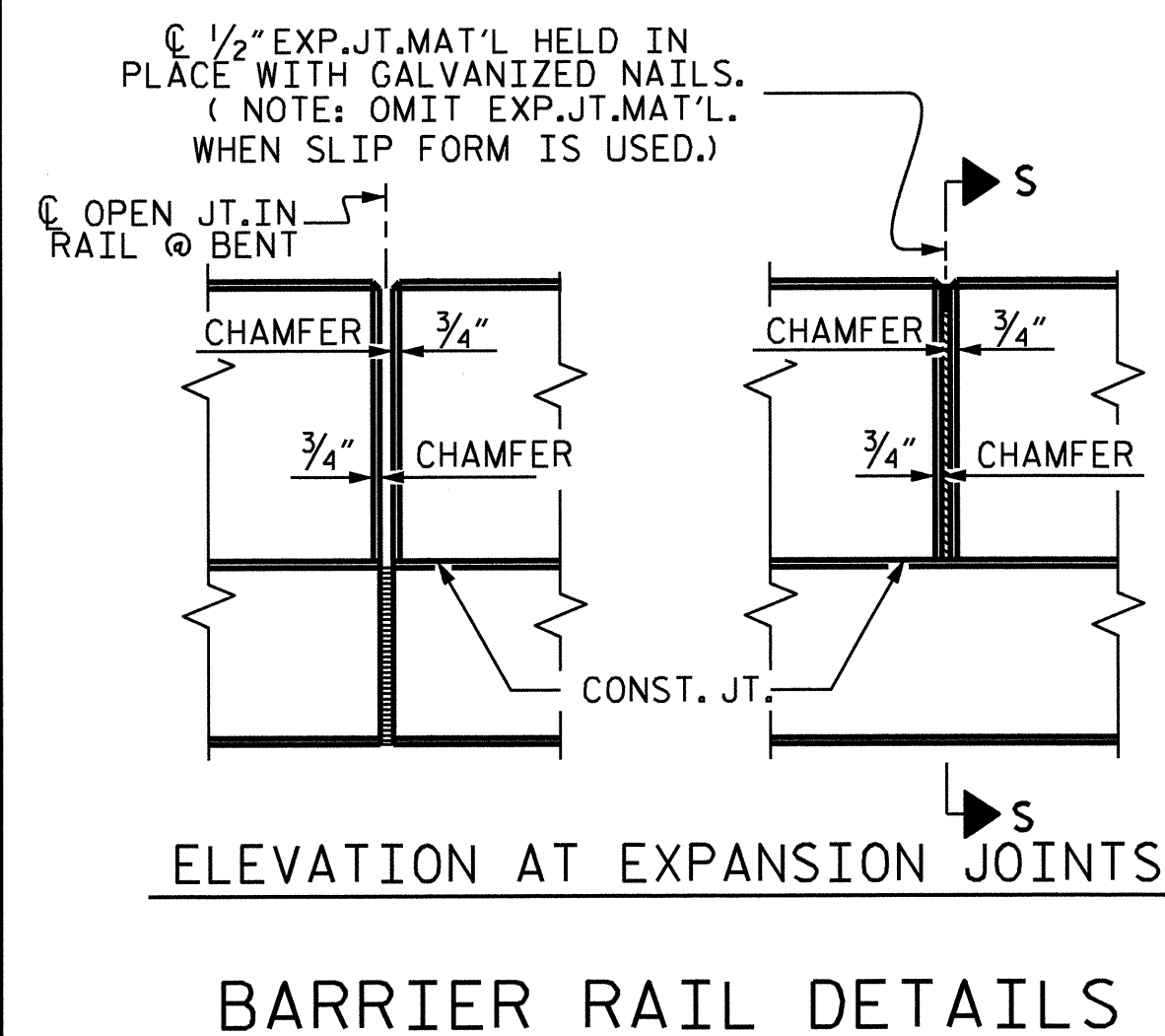
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

CORED SLABS REQUIRED

| | NUMBER PER SPAN | LENGTH | TOTAL LENGTH |
|------------------------|-----------------|-------------|--------------|
| EXTERIOR C.S. - SPAN A | 2 | 53'-9 3/4" | 107'-7 1/2" |
| INTERIOR C.S. - SPAN A | 9 | 53'-9 3/4" | 484'-3 3/4" |
| EXTERIOR C.S. - SPAN B | 2 | 58'-10 1/2" | 117'-9" |
| INTERIOR C.S. - SPAN B | 9 | 58'-10 1/2" | 529'-10 1/2" |
| EXTERIOR C.S. - SPAN C | 2 | 55'-9 3/4" | 111'-7 1/2" |
| INTERIOR C.S. - SPAN C | 9 | 55'-9 3/4" | 502'-3 3/4" |
| TOTAL | 33 | | 1853'-6" |



SPAN A
BILL OF MATERIAL FOR ONE CORED SLAB SECTION

| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
|----------------------------------|--------|------|------|---------------|--------|---------------|--------|
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B1 | 4 | #4 | STR | 27'-8" | 74 | 27'-8" | 74 |
| S1 | 8 | #5 | 3 | 4'-3" | 36 | 4'-3" | 36 |
| S2 | 106 | #4 | 3 | 5'-4" | 378 | 5'-4" | 378 |
| * S3 | 59 | #5 | 1 | 5'-7" | 344 | | |
| REINFORCING STEEL | | | | LBS. | 488 | | 488 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 344 | | |
| 8,000 P.S.I. CONCRETE | | | | CU. YDS. | 7.7 | | 7.6 |
| 0.6" Ø L.R. STRANDS | | | | No. | 19 | | |

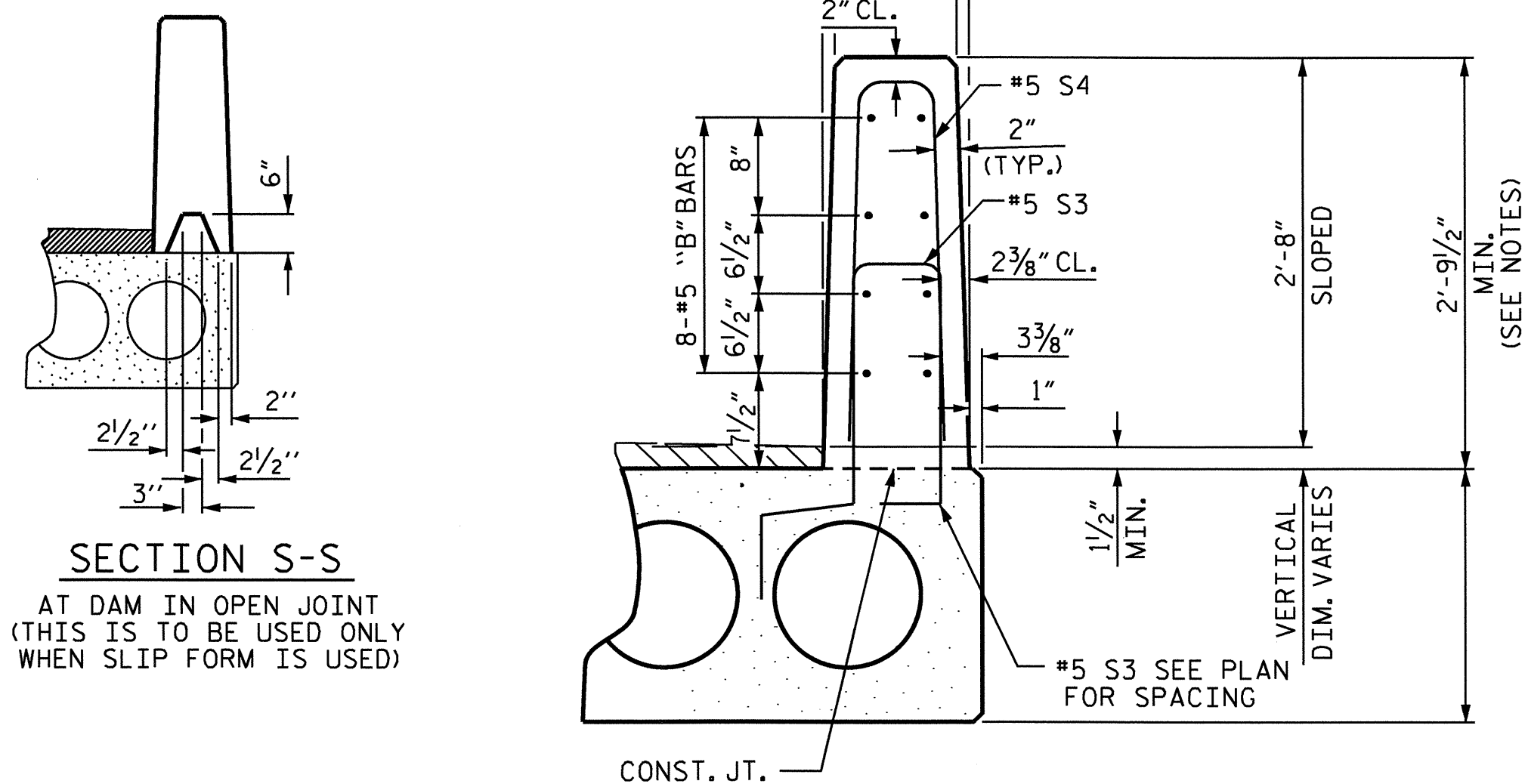
SPAN C
BILL OF MATERIAL FOR ONE CORED SLAB SECTION

| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
|----------------------------------|--------|------|------|---------------|--------|---------------|--------|
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B3 | 4 | #4 | STR | 28'-8" | 77 | 28'-8" | 77 |
| S1 | 8 | #5 | 3 | 4'-3" | 36 | 4'-3" | 36 |
| S2 | 110 | #4 | 3 | 5'-4" | 392 | 5'-4" | 392 |
| * S3 | 61 | #5 | 1 | 5'-7" | 355 | | |
| REINFORCING STEEL | | | | LBS. | 505 | | 505 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 355 | | |
| 8,000 P.S.I. CONCRETE | | | | CU. YDS. | 8.0 | | 7.9 |
| 0.6" Ø L.R. STRANDS | | | | No. | 21 | | |

DEAD LOAD DEFLECTION AND CAMBER

| | SPAN A | SPAN B | SPAN C |
|--|--------------------|--------------------|--------------------|
| CAMBER (SLAB ALONE IN PLACE) ↑ | 0.6" Ø L.R. STRAND | 0.6" Ø L.R. STRAND | 0.6" Ø L.R. STRAND |
| | 2 3/8" | 3 3/16" | 2 1/16" |
| DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD** ↓ | | | |
| | 1/2" | 1/16" | 9/16" |
| FINAL CAMBER ↑ | | | |
| | 1 7/8" | 2 1/2" | 2 7/8" |

** INCLUDES FUTURE WEARING SURFACE



VERTICAL CONCRETE BARRIER RAIL SECTION

SPAN B
BILL OF MATERIAL FOR ONE CORED SLAB SECTION

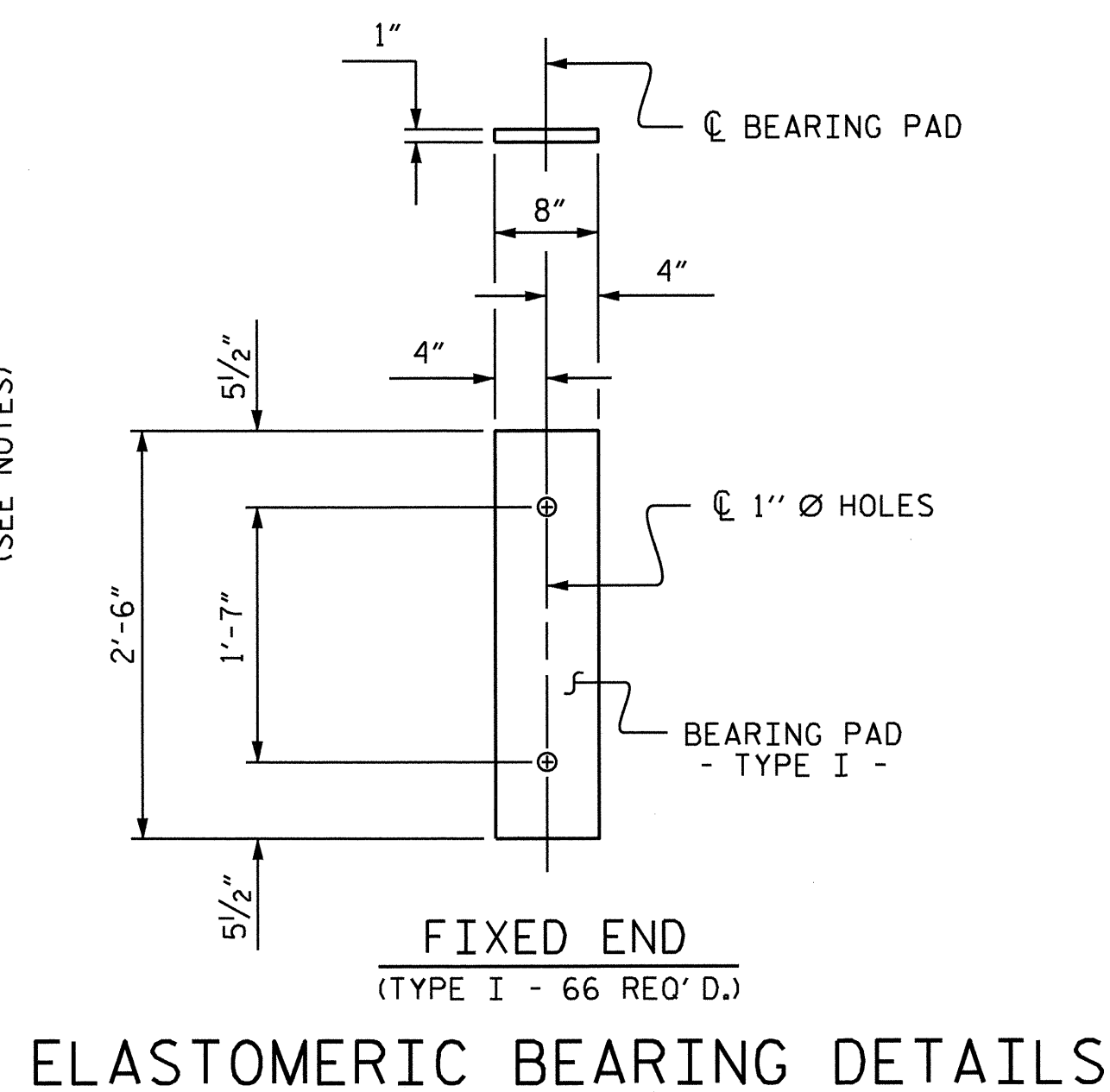
| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
|----------------------------------|--------|------|------|---------------|--------|---------------|--------|
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B2 | 6 | #4 | STR | 20'-9" | 83 | 20'-9" | 83 |
| S1 | 8 | #5 | 3 | 4'-3" | 36 | 4'-3" | 36 |
| S2 | 116 | #4 | 3 | 5'-4" | 413 | 5'-4" | 413 |
| * S3 | 60 | #5 | 1 | 5'-7" | 349 | | |
| REINFORCING STEEL | | | | LBS. | 532 | | 532 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 349 | | |
| 8,000 P.S.I. CONCRETE | | | | CU. YDS. | 8.4 | | 8.3 |
| 0.6" Ø L.R. STRANDS | | | | No. | 23 | | |

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

| BAR | TOTAL NO. | SIZE | TYPE | LENGTH | WEIGHT |
|--|-----------|------|------|----------|--------|
| * B4 | 32 | #5 | STR | 26'-6" | 884 |
| * B5 | 32 | #5 | STR | 29'-1" | 971 |
| * B6 | 32 | #5 | STR | 27'-6" | 918 |
| * S4 | 360 | #5 | 2 | 5'-6" | 2065 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 4838 |
| CLASS AA CONCRETE | | | | C. Y. | 33.4 |
| TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL | | | | LIN. FT. | 337.50 |

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 |



ELASTOMERIC BEARING DETAILS

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 5000 PSI FOR SPAN A AND 5500 PSI FOR SPAN B AND C.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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.

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

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

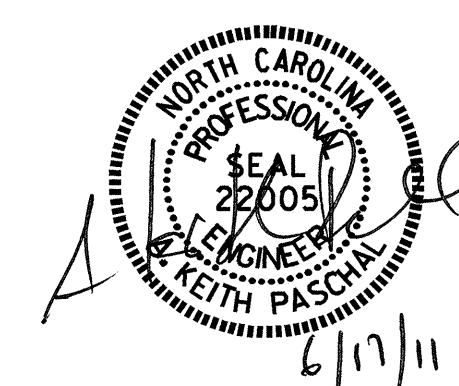
FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

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

PROJECT NO. B-4133
HALIFAX COUNTY
STATION: 26+70.50 -L-

SHEET 5 OF 5

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



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

TOTAL SHEETS 19

STD. NO. PCS3

| | |
|--------------------------|-----------------------|
| ASSEMBLED BY : M. FOWLER | DATE : 06/30/09 |
| CHECKED BY : J.G. KHARVA | DATE : 09/01/09 |
| DRAWN BY : WJH 4/89 | REV. 2/6/97 EEM/RGW |
| CHECKED BY : FCJ 5/89 | REV. 8/16/99 RWW/LES |
| | REV. 10/17/00 RWW/LES |

NOTES

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

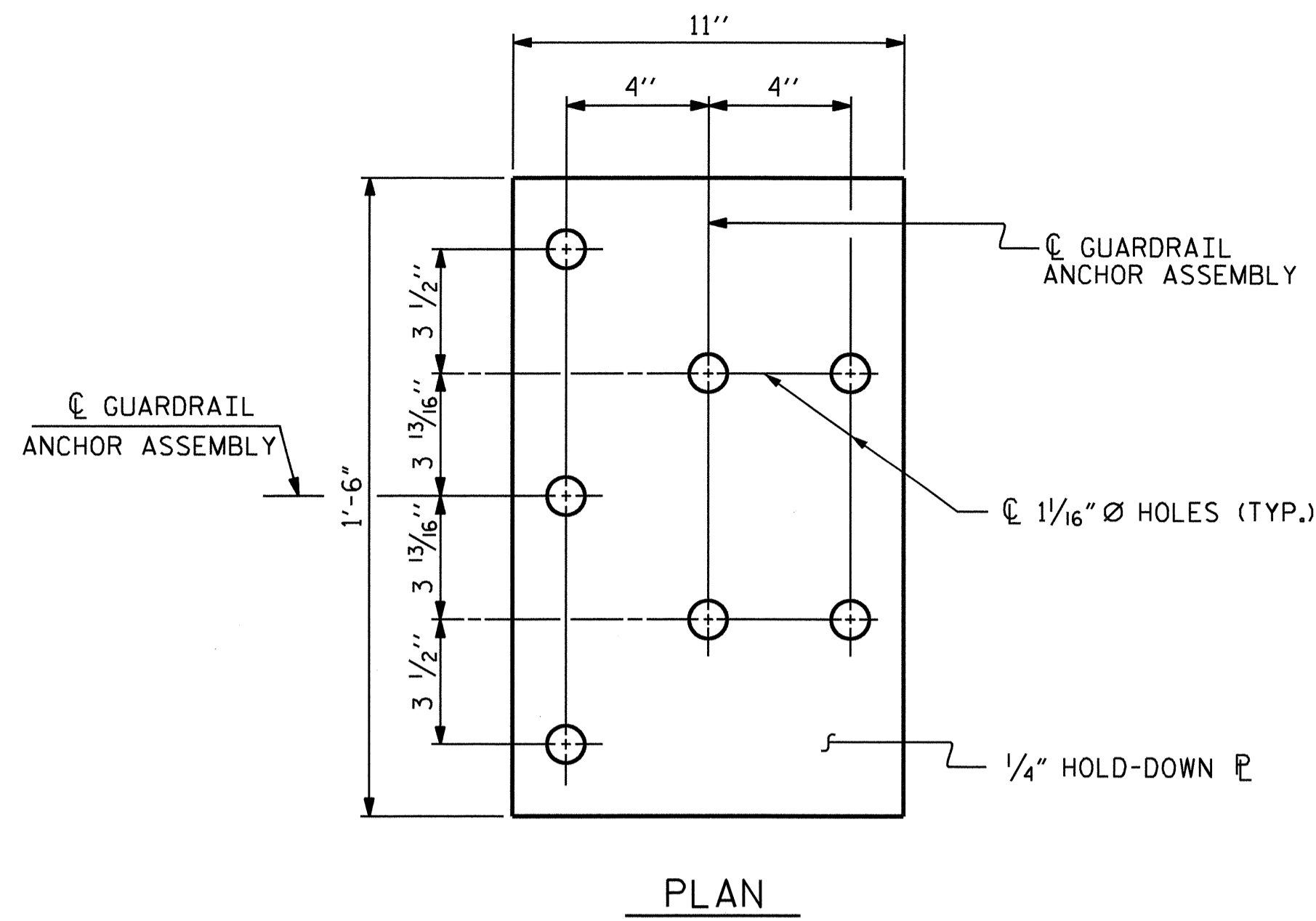
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

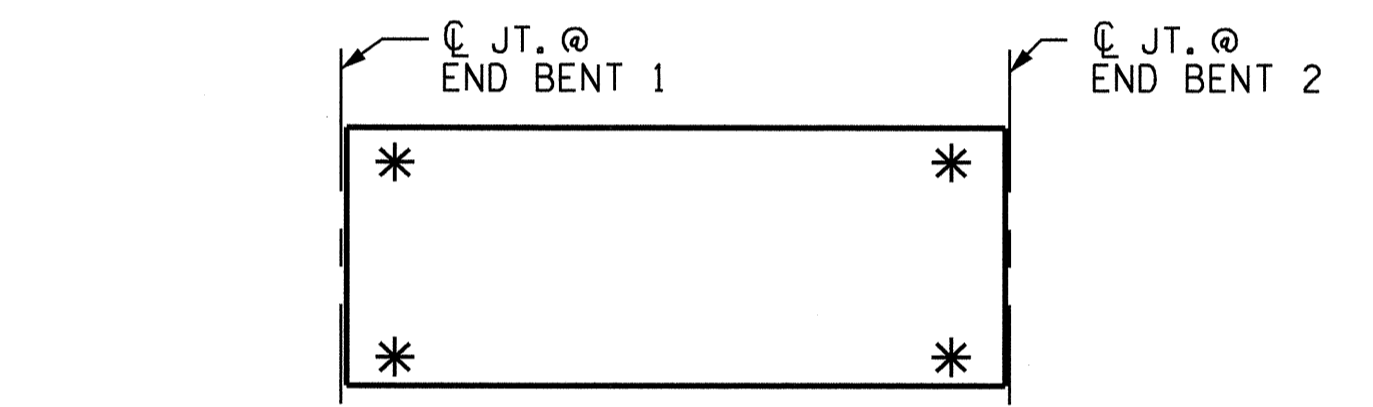
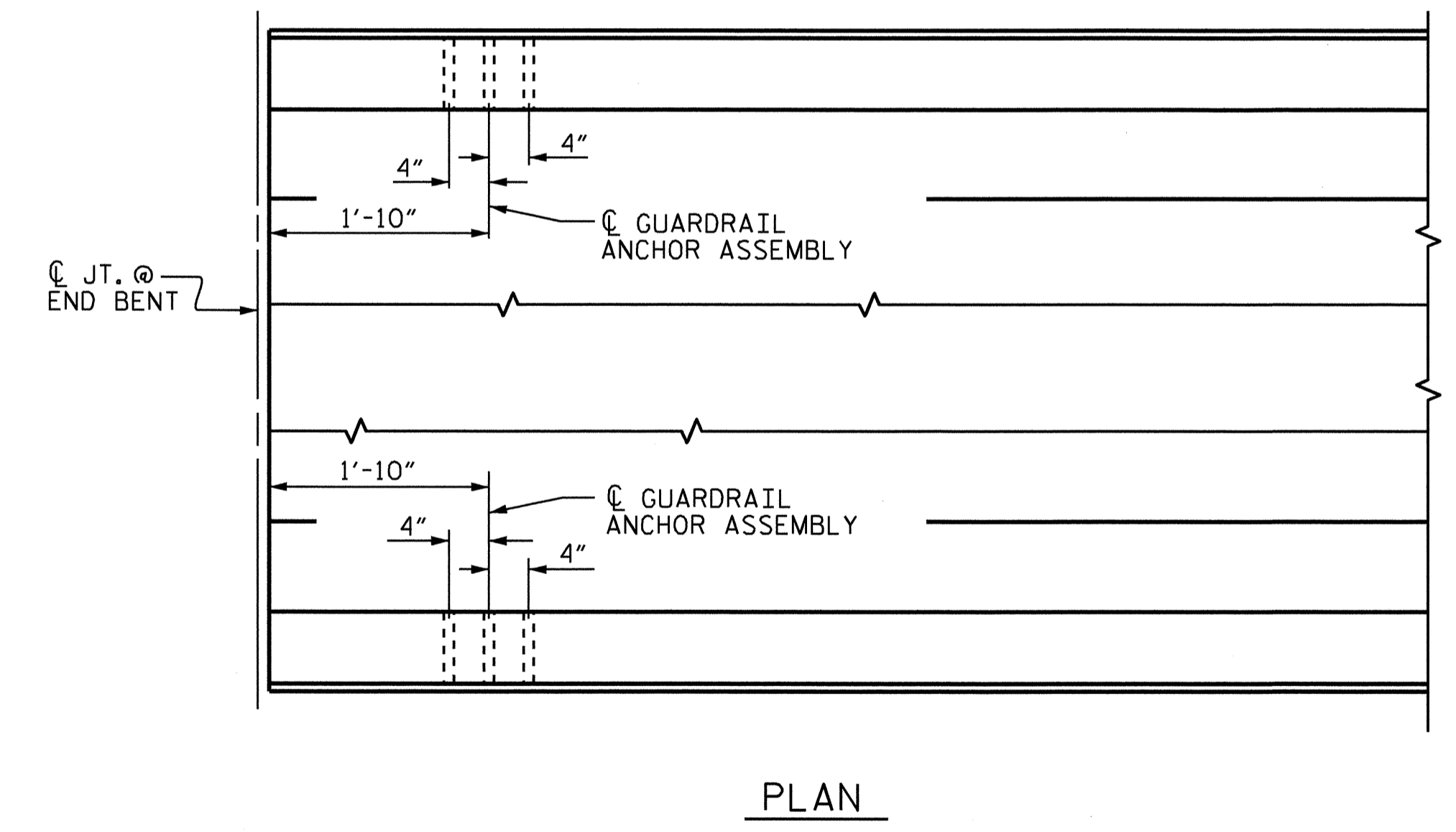
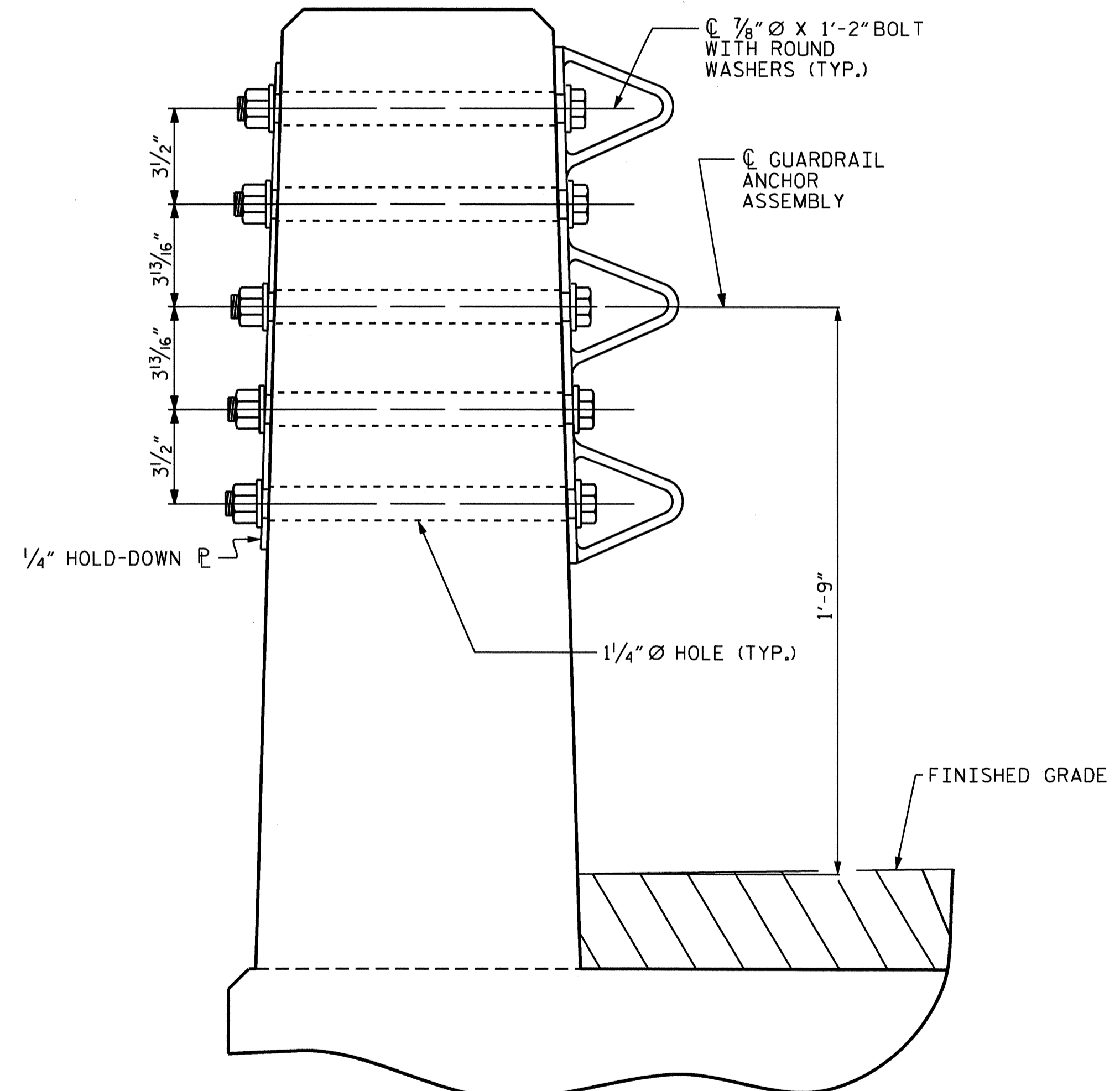
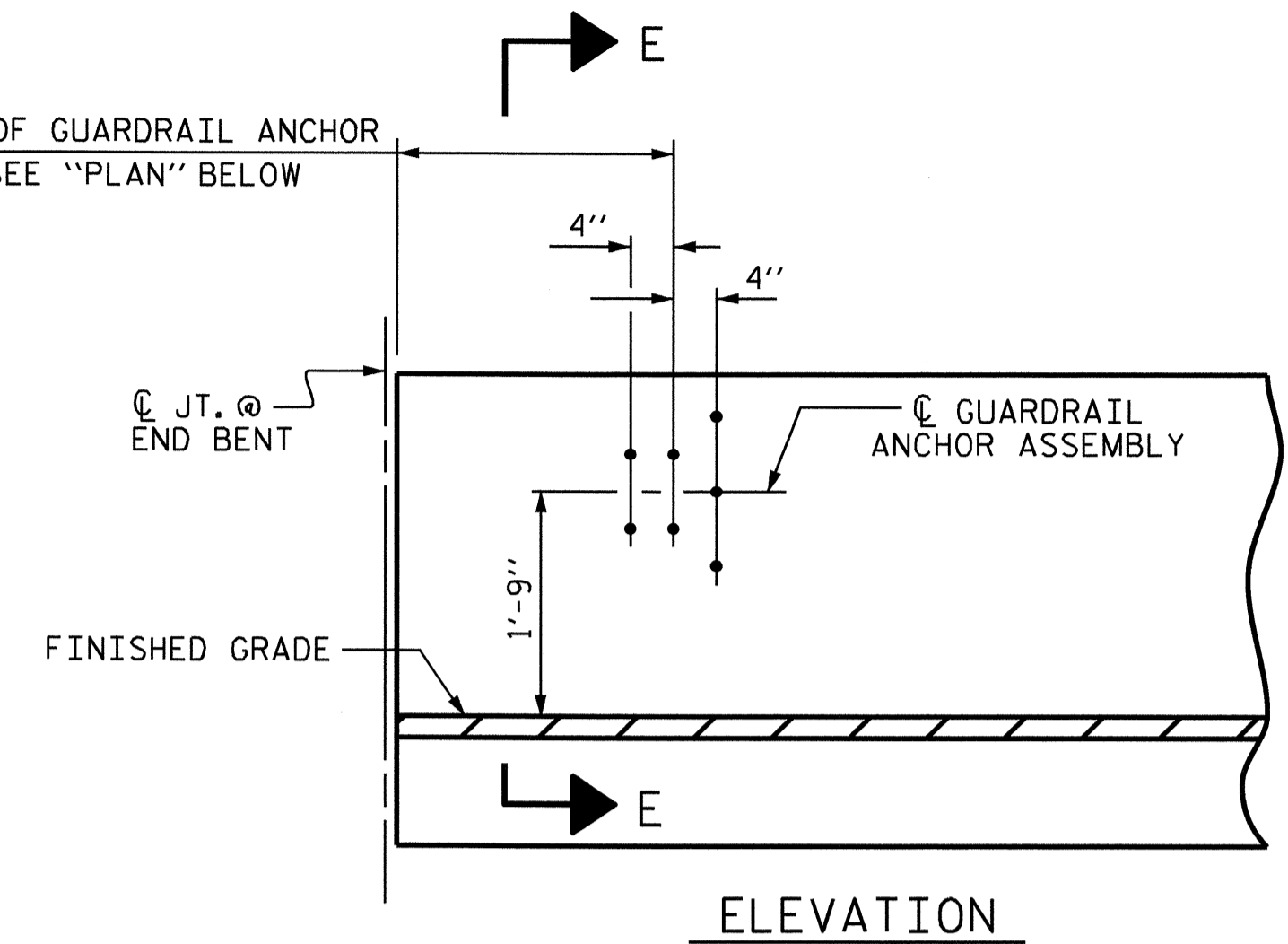
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



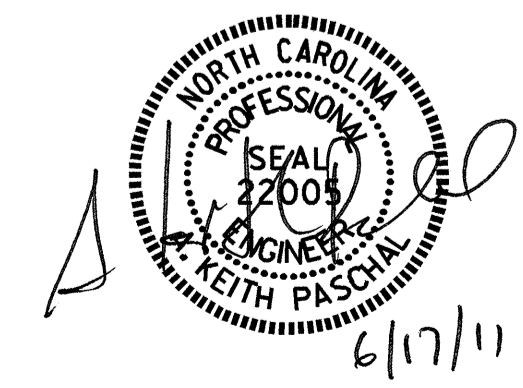
SKETCH SHOWING POINTS OF ATTACHMENTS

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL
 CONCRETE BARRIER RAIL

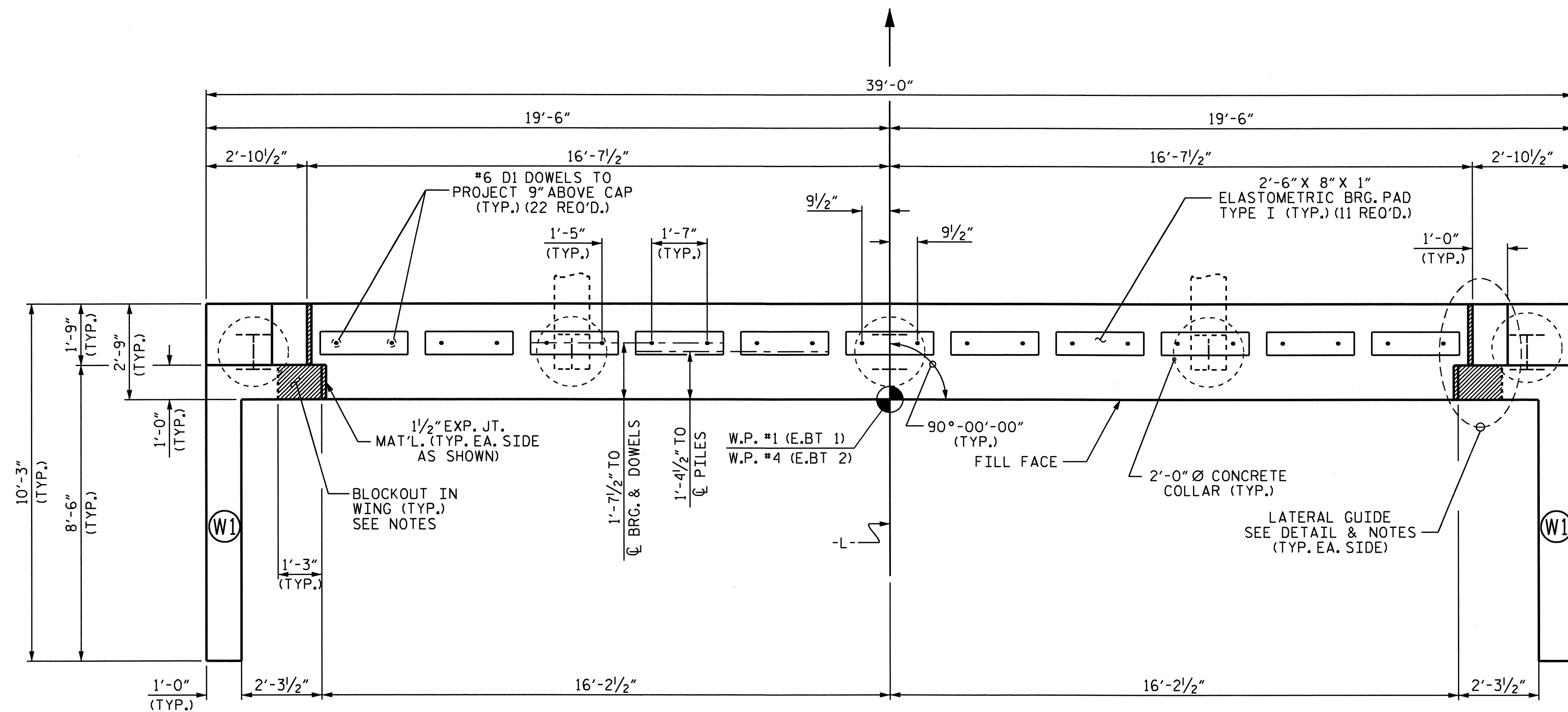


| | |
|--------------------------|-----------------------|
| ASSEMBLED BY : M.FOWLER | DATE : 6/30/09 |
| CHECKED BY : J.G. KHARVA | DATE : 9/01/09 |
| DRAWN BY : EEM 6/94 | REV. 10/17/00 RWW/LES |
| CHECKED BY : RGW 6/94 | REV. 5/7/03 RWW/JTE |
| | REV. 5/1/06 TLA/GM |

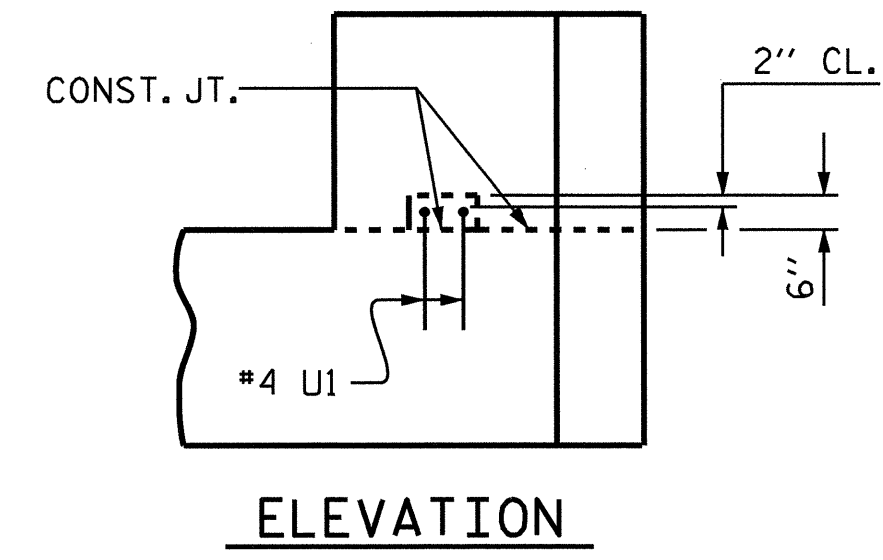
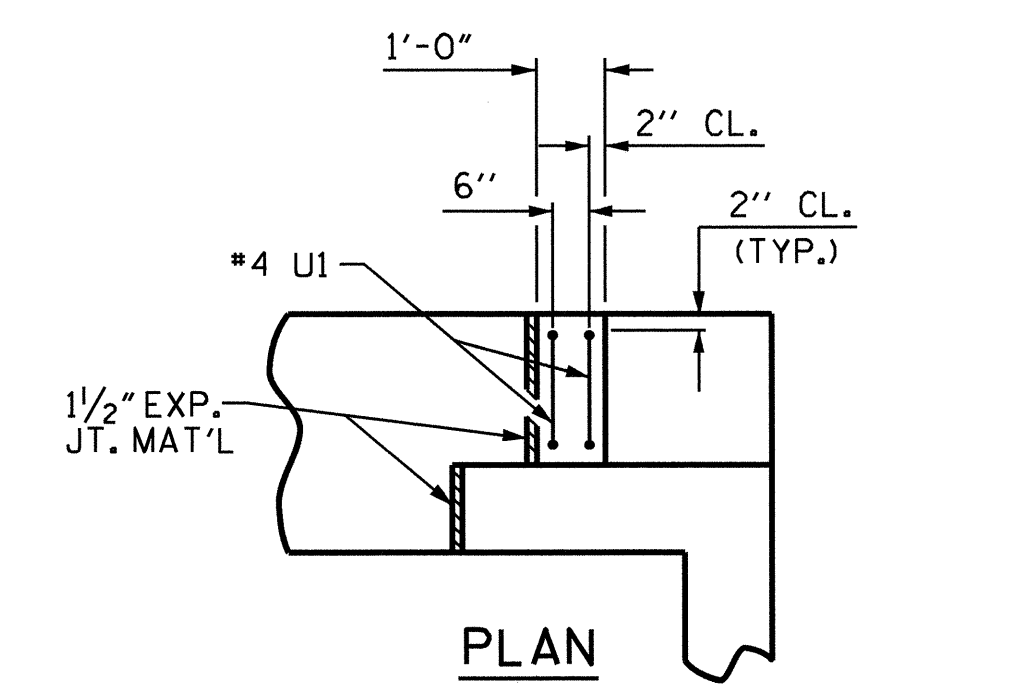
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | TOTAL SHEETS |
| 1 | | | 3 | | | 19 |
| 2 | | | 4 | | | |

NOTES

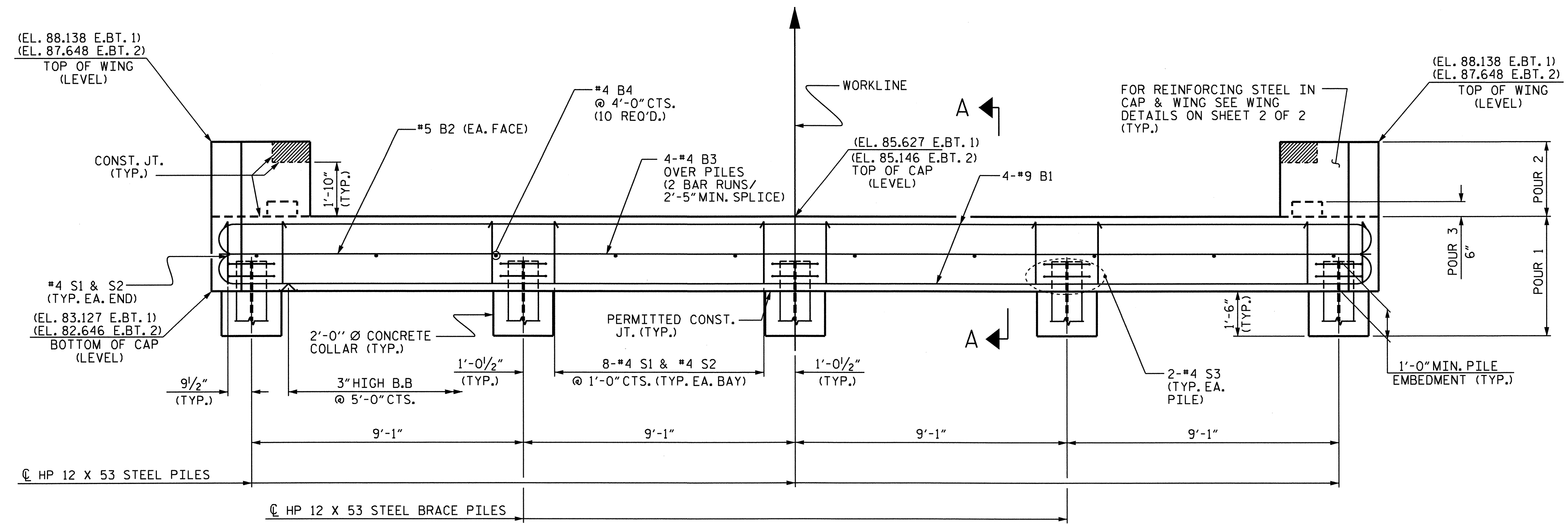
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE
 POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED
 AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"
 DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR
 REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS.
 REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS
 NECESSARY TO CLEAR THE DRAIN PIPE.
 THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES
 IF APPROVED BY THE ENGINEER



PLAN
 (END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



LATERAL GUIDE DETAIL
 (RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

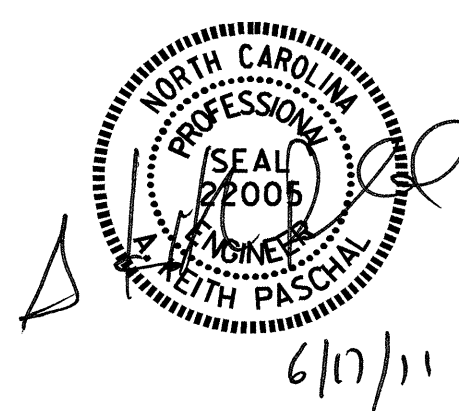


ELEVATION

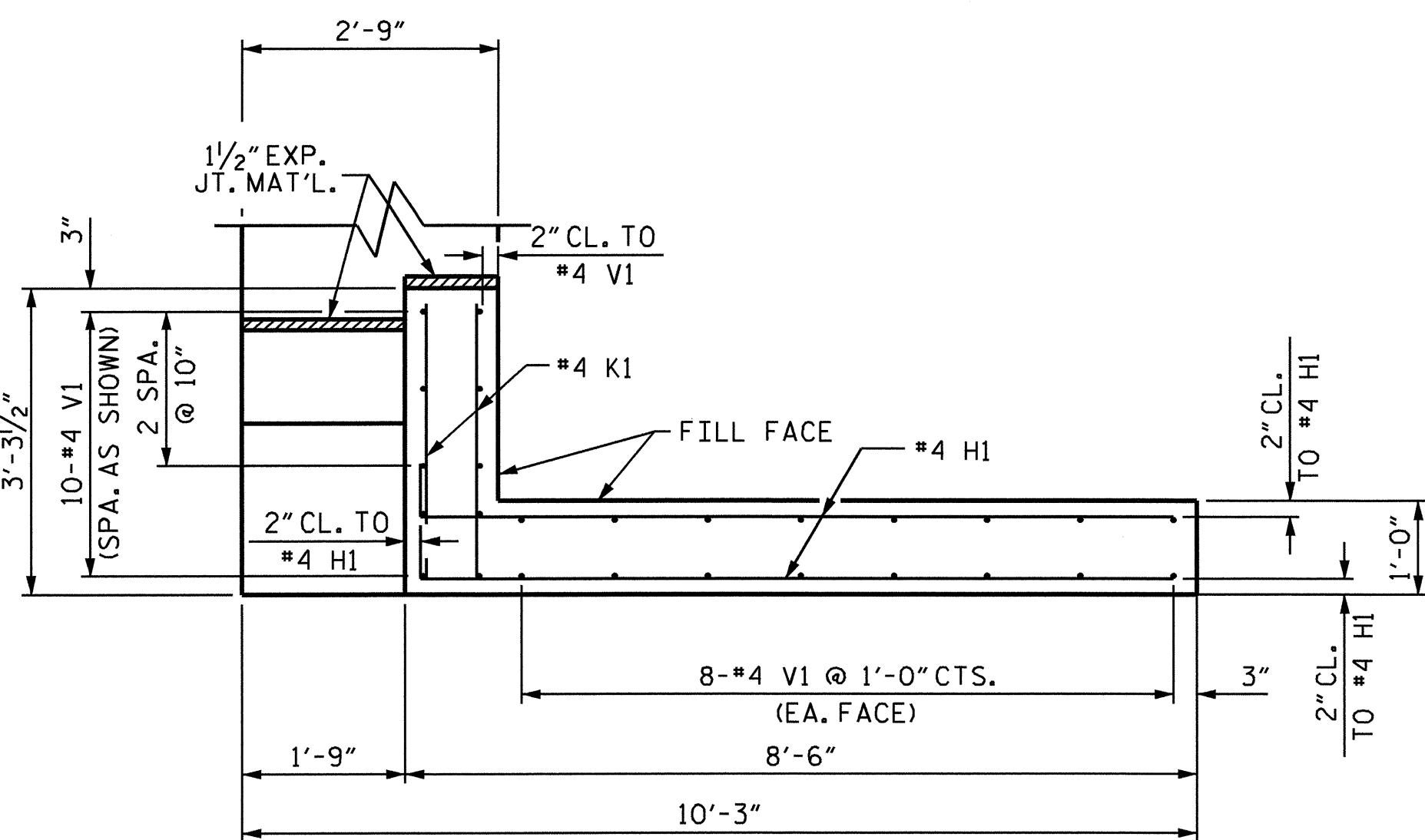
PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 1 OF 2

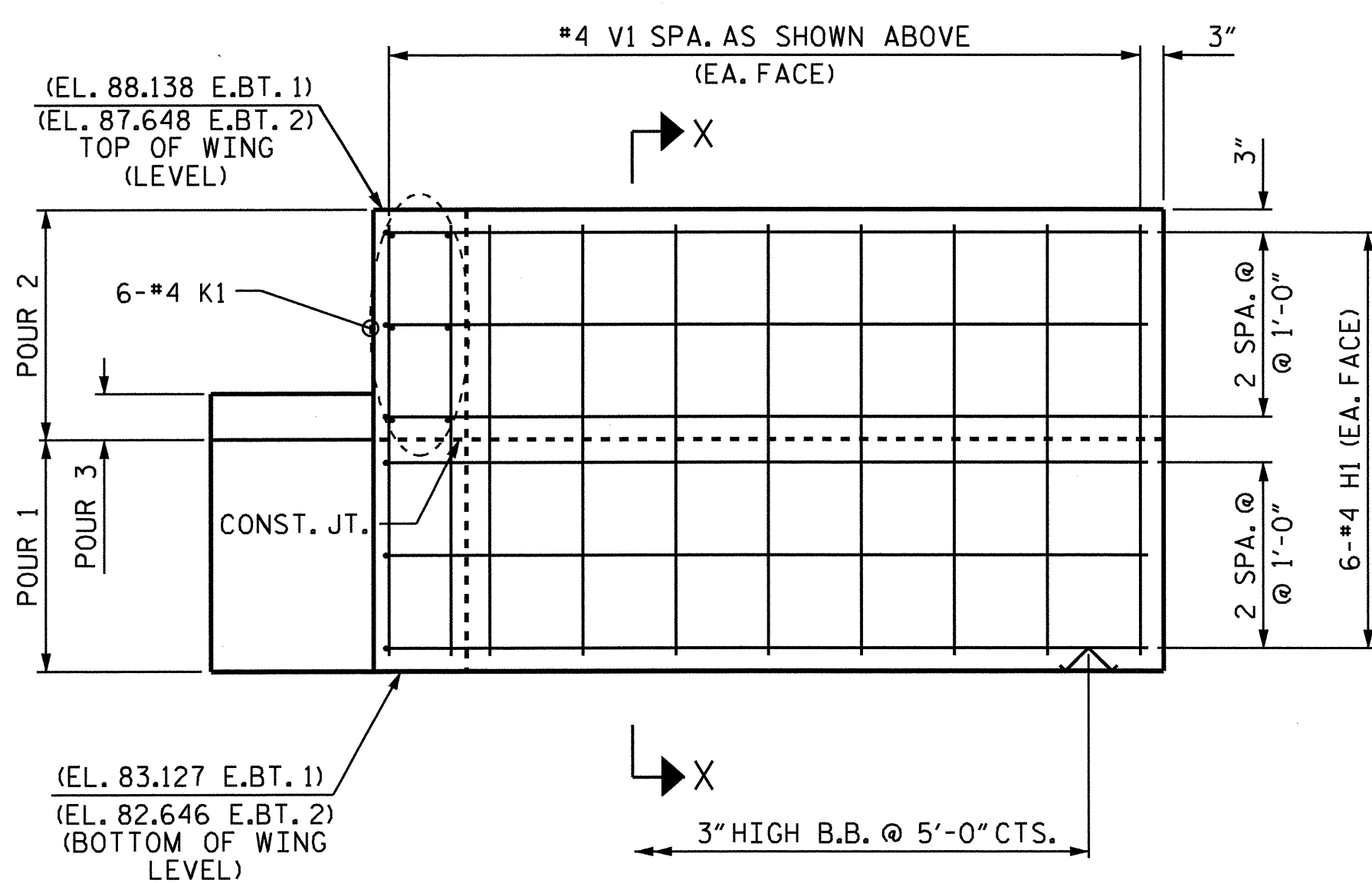
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | | SHEET NO. S-11 |
|--|-----|-------|-----|-----|-------|---------------------------|
| SUBSTRUCTURE END BENT 1 & 2 | | | | | | |
| REVISIONS | | | | | | TOTAL SHEETS 19 |
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | |
| 2 | | | 4 | | | |



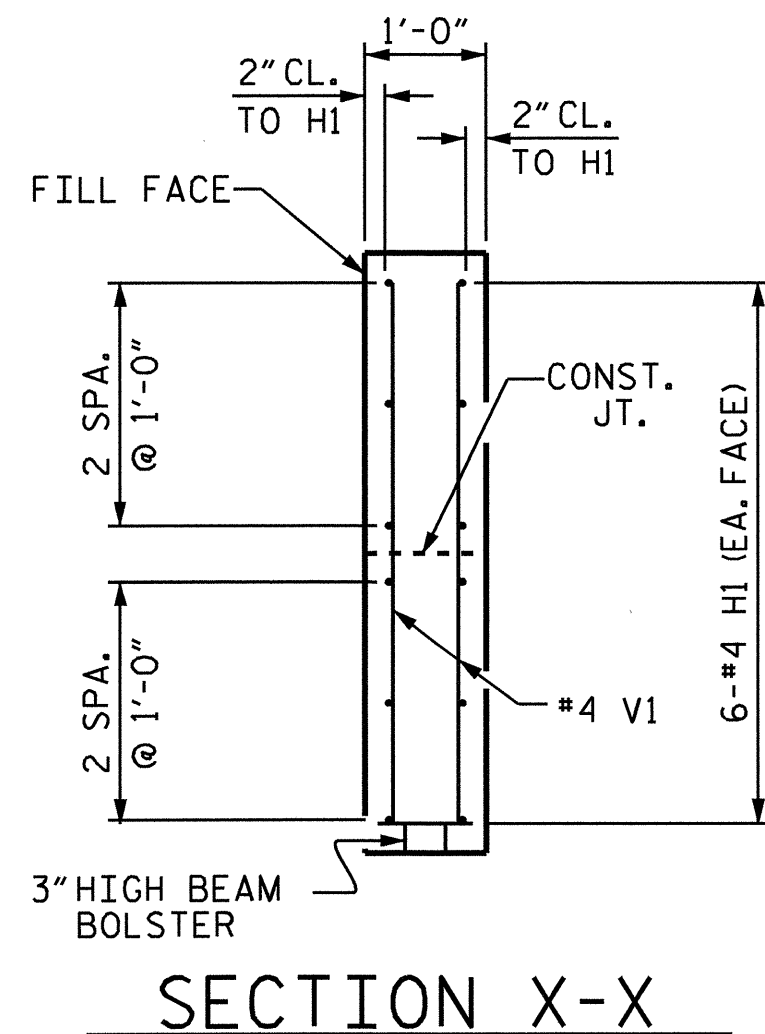
DRAWN BY: M.FOWLER DATE: 7/15/09
 CHECKED BY: J.D.HAWK DATE: 9/10/09



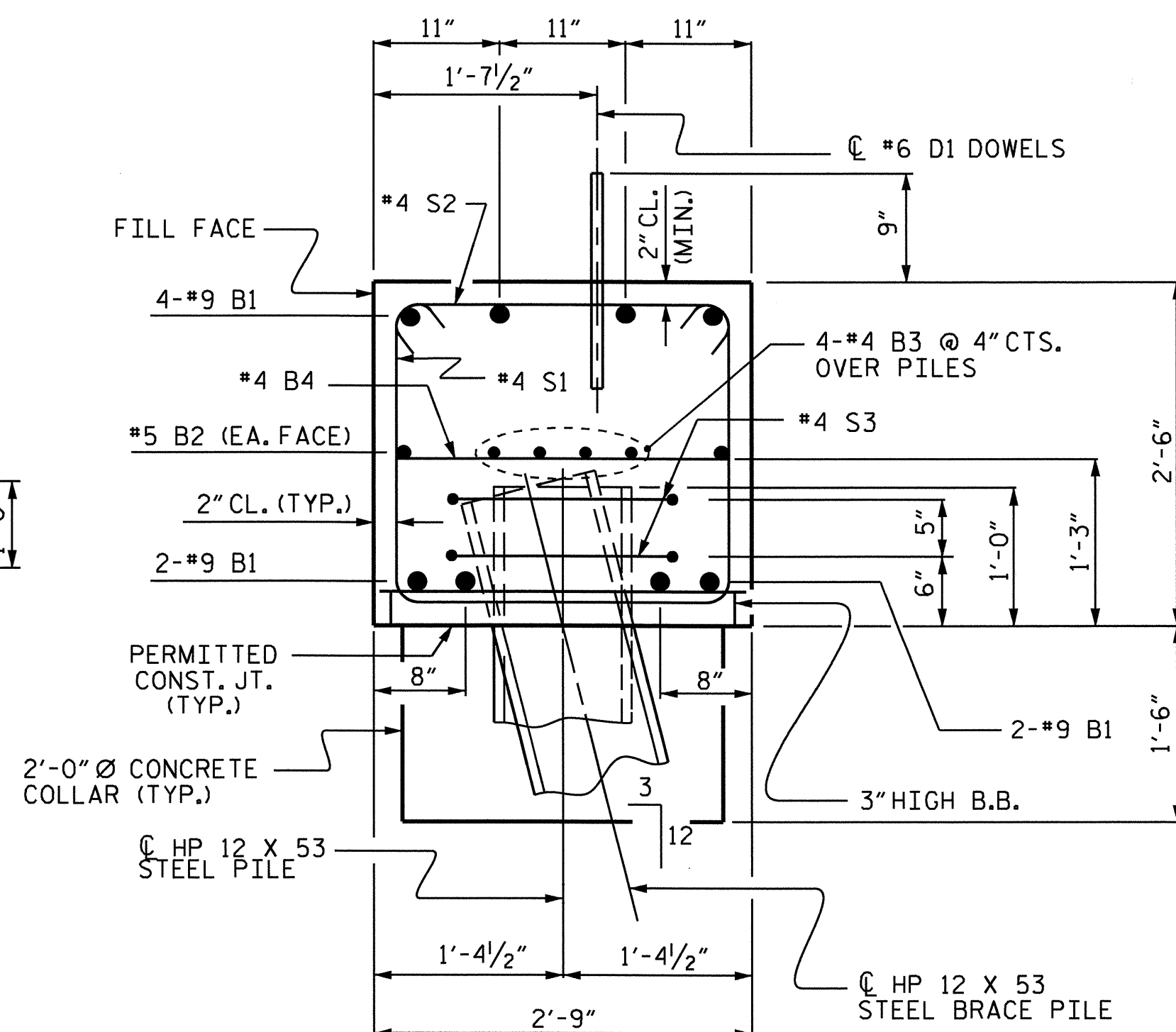
PLAN OF WING (W1)
LEFT WING SHOWN RIGHT WING SIMILAR



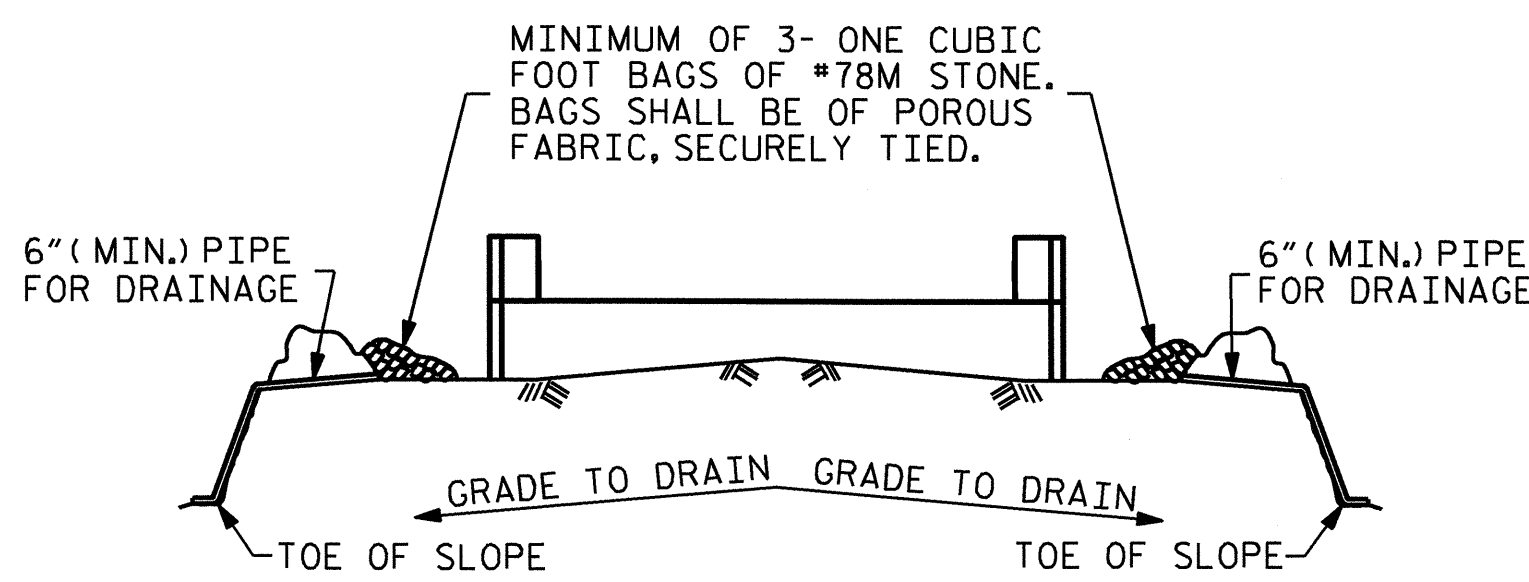
ELEVATION OF WING (W1)
LEFT WING SHOWN RIGHT WING SIMILAR



SECTION X-X



SECTION A-A



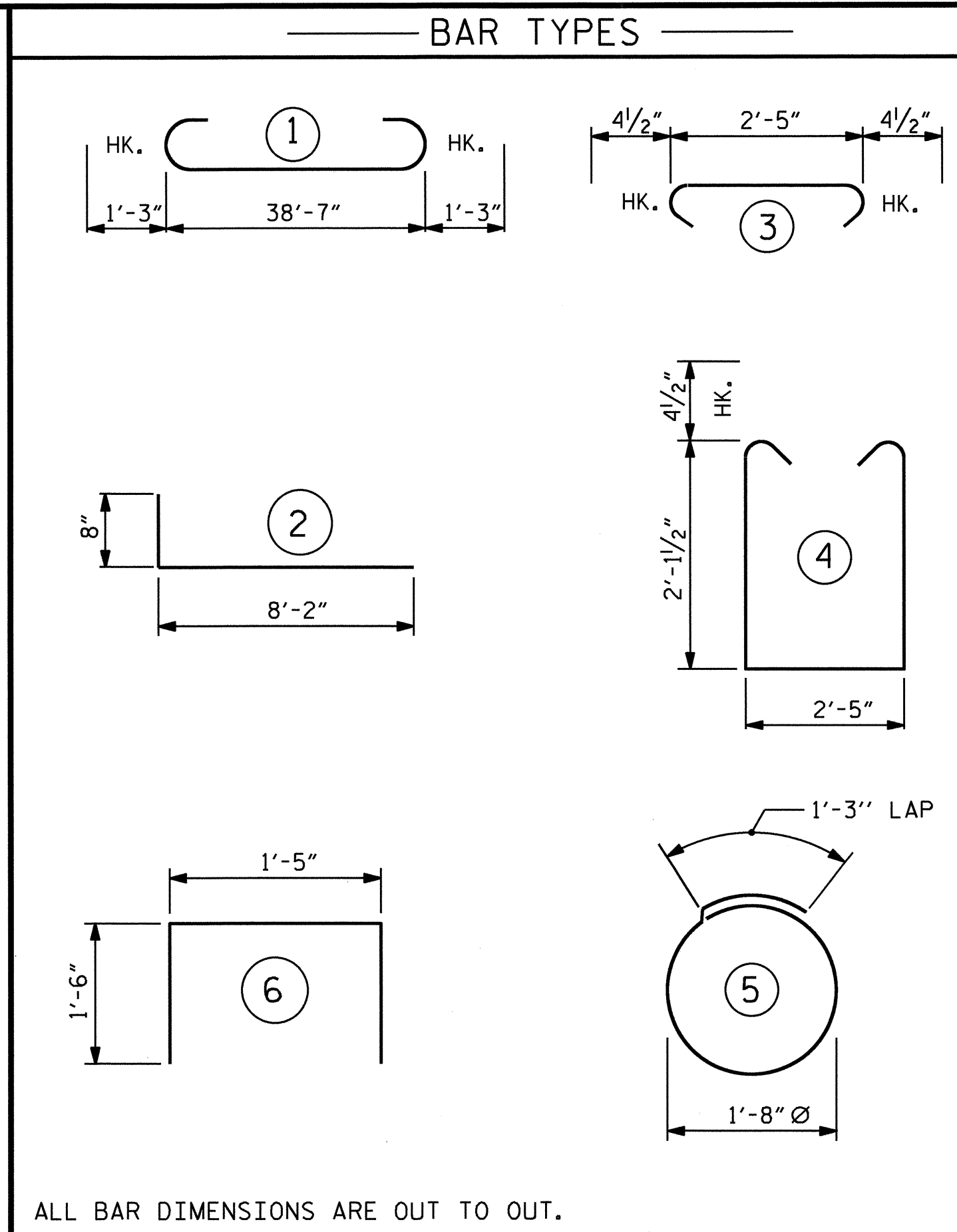
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

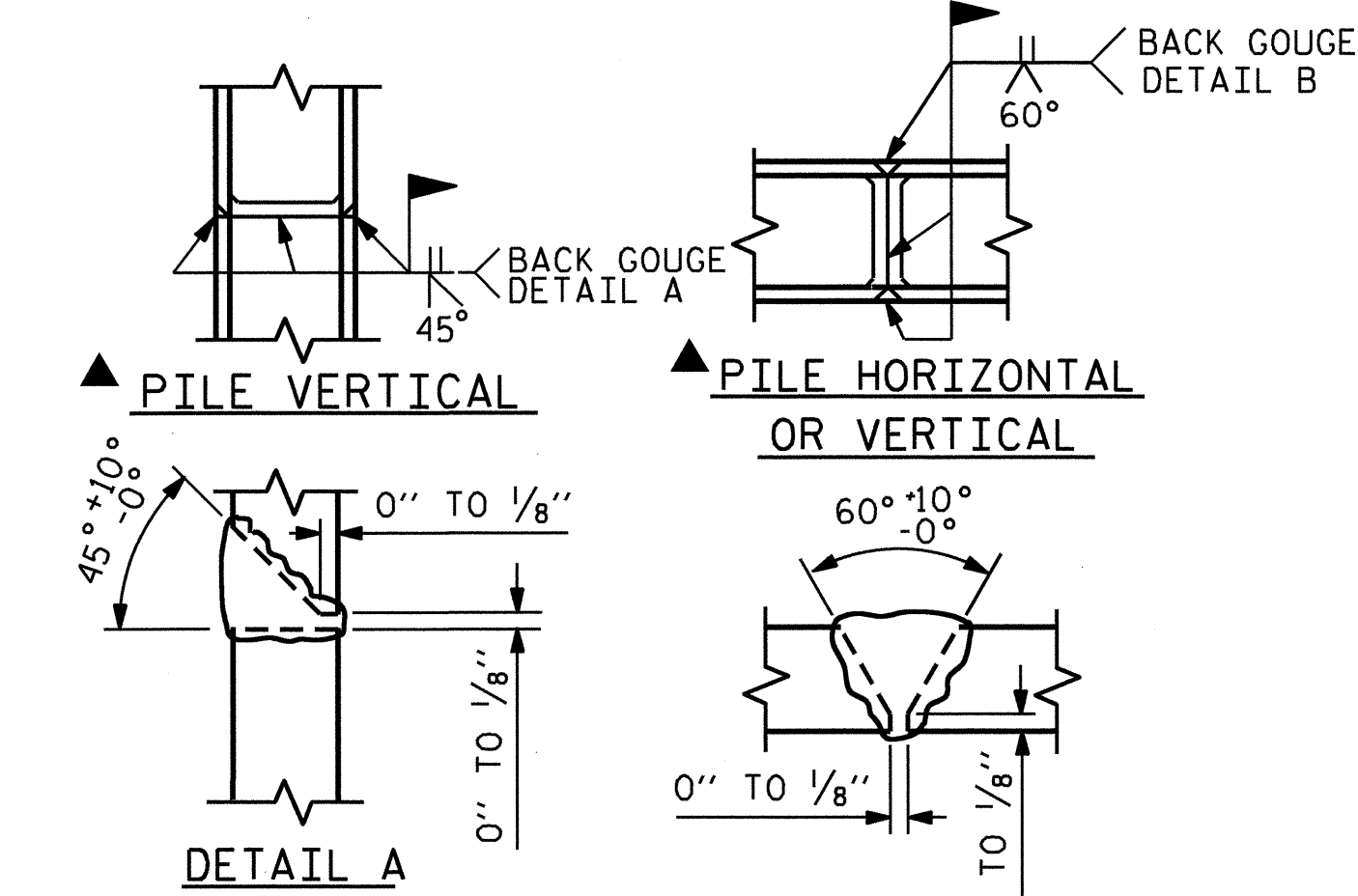
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



ALL BAR DIMENSIONS ARE OUT TO OUT.

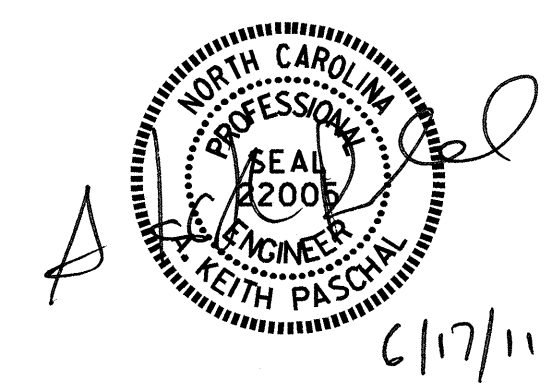


PILE SPLICE DETAILS

| BILL OF MATERIAL | | | | | |
|-----------------------------|---|------|------|----------------|------------|
| FOR ONE END BENT (2 REQ'D.) | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #9 | 1 | 41'-1" | 1117 |
| B2 | 2 | #5 | STR | 38'-8" | 81 |
| B3 | 8 | #4 | STR | 20'-7" | 110 |
| B4 | 10 | #4 | STR | 2'-5" | 16 |
| D1 | 22 | #6 | STR | 1'-6" | 50 |
| H1 | 24 | #4 | 2 | 8'-10" | 142 |
| K1 | 12 | #4 | STR | 2'-11" | 23 |
| S1 | 34 | #4 | 4 | 7'-5" | 168 |
| S2 | 34 | #4 | 3 | 3'-2" | 72 |
| S3 | 10 | #4 | 5 | 6'-6" | 43 |
| U1 | 4 | #4 | 6 | 4'-5" | 12 |
| V1 | 52 | #4 | STR | 4'-8" | 162 |
| TOTAL REINFORCING STEEL | | | | | = 1996 LBS |
| CLASS A CONCRETE BREAKDOWN | | | | | |
| POUR 1 | (CAP, CONCRETE COLLARS & LOWER PART OF WINGS) | | | | 12.2 C.Y. |
| POUR 2 | (UPPER PART OF WINGS) | | | | 2.0 C.Y. |
| POUR 3 | (LATERAL GUIDE) | | | | 0.1 C.Y. |
| TOTAL CLASS A CONCRETE | | | | | 14.3 C.Y. |
| HP 12 X 53 STEEL PILES | | | | | |
| END BENT 1 | NO. : 5 | | | LIN. FT. : 125 | |
| END BENT 2 | NO. : 5 | | | LIN. FT. : 175 | |

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-
 SHEET 2 OF 2

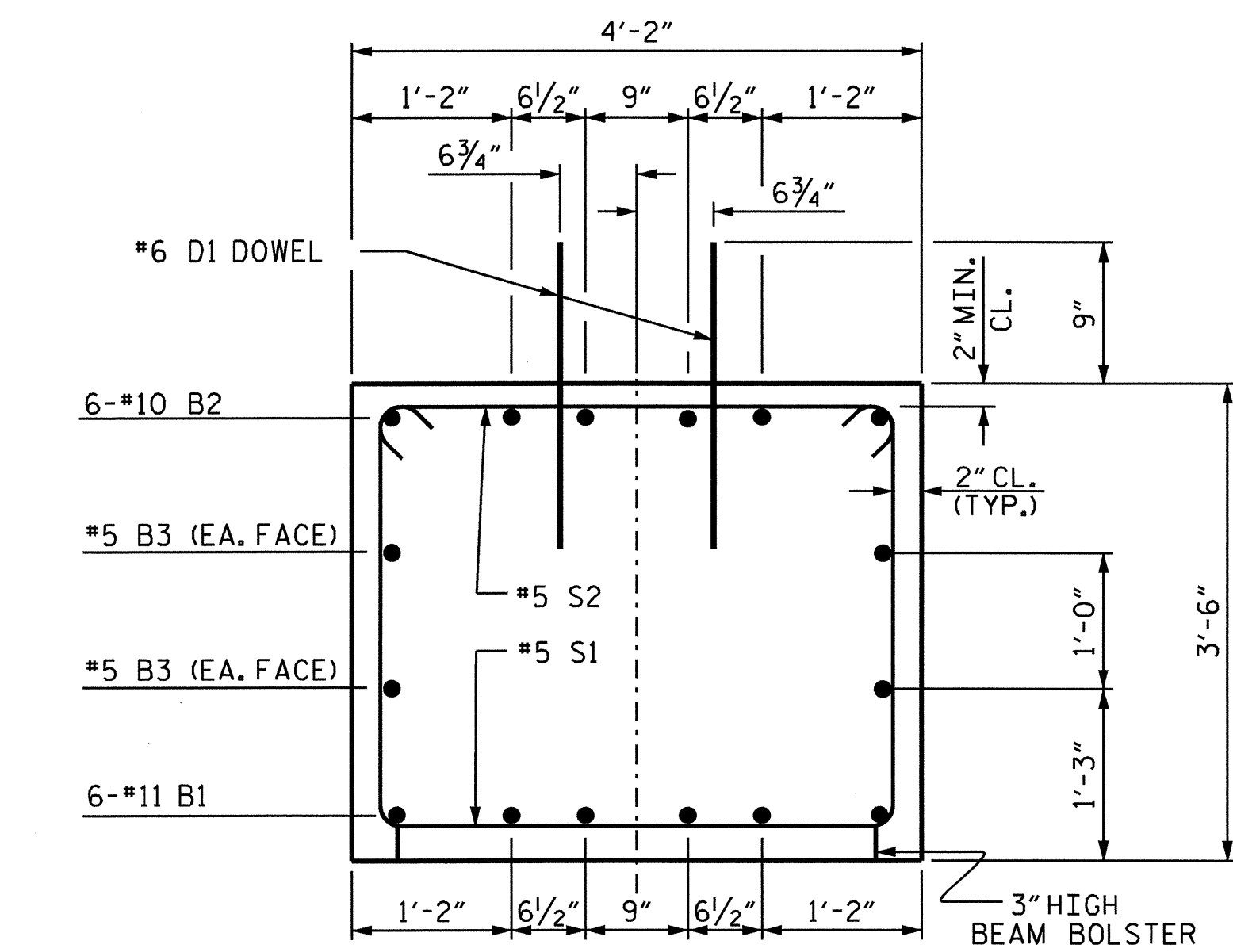
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1 & 2



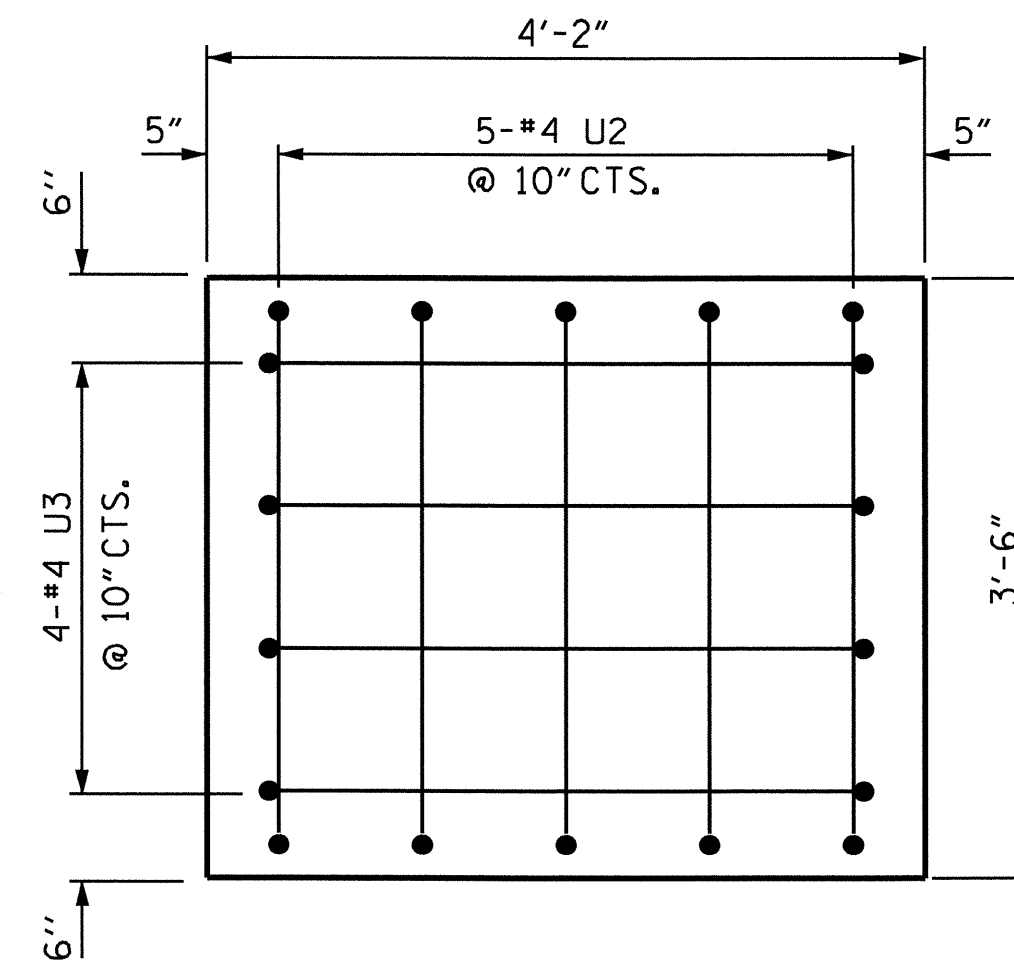
DRAWN BY : M.FOWLER DATE : 7/20/09
 CHECKED BY : J.D. HAWK DATE : 9/10/09

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

TOTAL SHEETS: **19**

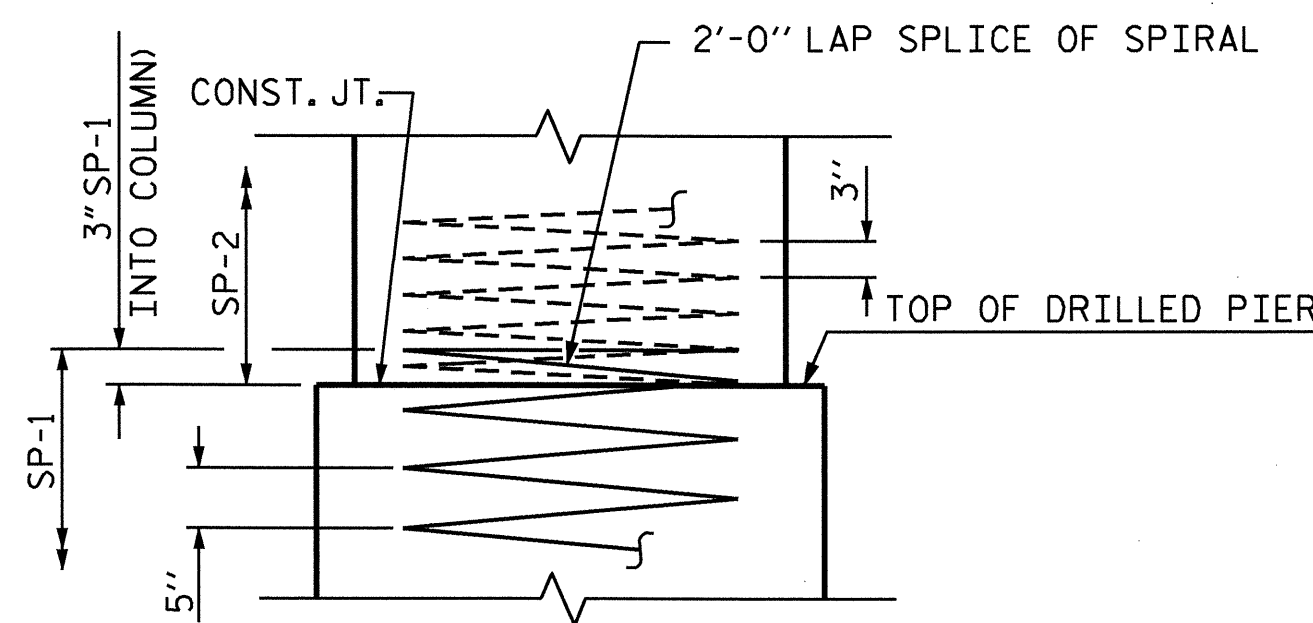


SECTION A-A

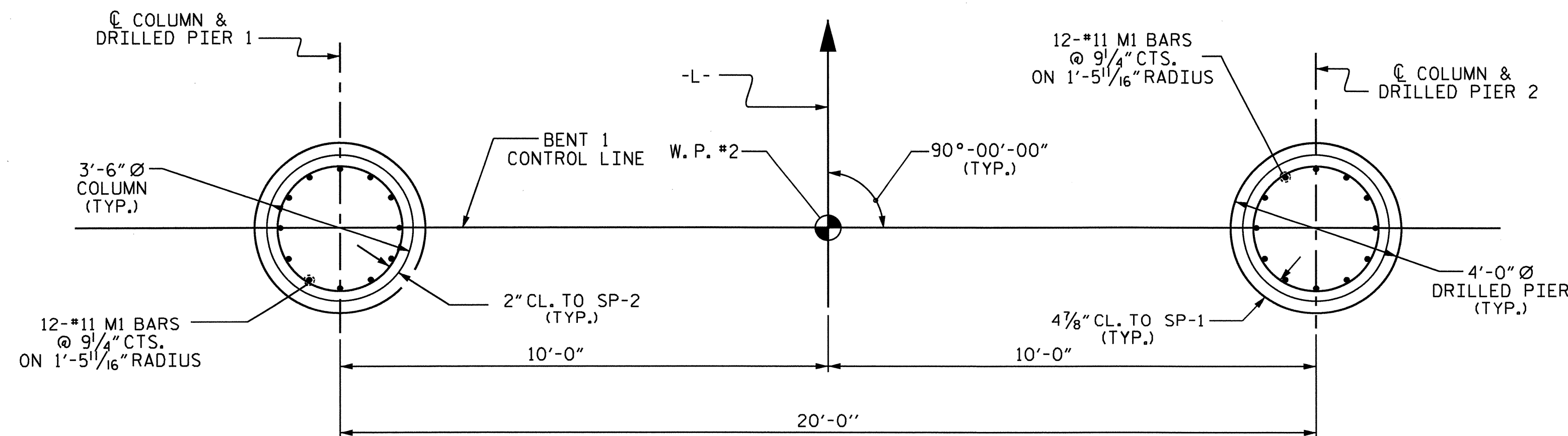


END VIEW

(BOTH ENDS TYPICAL)



CONSTRUCTION JOINT DETAIL

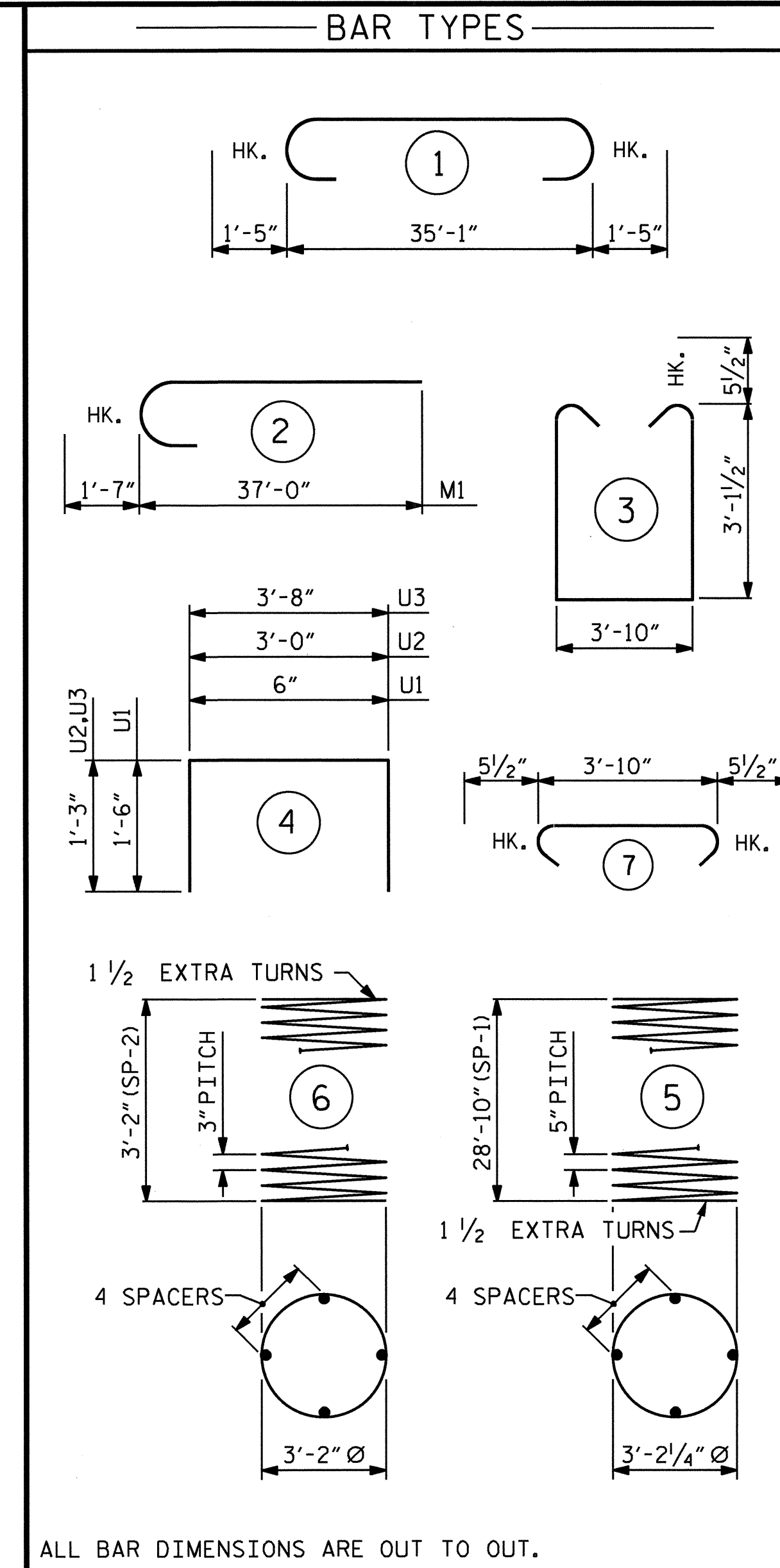


PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)

DRAWN BY : M.FOWLER DATE : 8/11/08
 CHECKED BY : J.G. KHARVA DATE : 9/9/09

21-JUN-2011 11:07
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 jdhawk



ALL BAR DIMENSIONS ARE OUT TO OUT.

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL

| BENT 1 | | | | | |
|--------|-----|------|------|---------|--------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 6 | #11 | STR | 35'-2" | 1121 |
| B2 | 6 | #10 | 1 | 37'-11" | 979 |
| B3 | 4 | #5 | STR | 35'-2" | 147 |
| B4 | 4 | #4 | STR | 3'-10" | 10 |
| D1 | 44 | #6 | STR | 1'-6" | 99 |
| M1 | 24 | #11 | 2 | 38'-7" | 4920 |
| S1 | 34 | #5 | 3 | 11'-0" | 390 |
| S2 | 34 | #5 | 7 | 4'-9" | 168 |
| U1 | 10 | #4 | 4 | 3'-6" | 23 |
| U2 | 10 | #4 | 4 | 5'-6" | 37 |
| U3 | 8 | #4 | 4 | 6'-2" | 33 |

REINFORCING STEEL = 7927 LBS.

| | | | | | |
|------|---|----|---|---------|------|
| SP-1 | 2 | ** | 5 | 697'-7" | 1455 |
| SP-2 | 2 | * | 6 | 137'-6" | 184 |

SPIRAL COLUMN REINFORCING STEEL = 1639 LBS.

| CLASS A CONCRETE BREAKDOWN | |
|----------------------------|------------------|
| POUR 2 COLUMNS | 2.0 C.Y. |
| POUR 3 CAP | 19.2 C.Y. |
| POUR 4 LATERAL GUIDES | 0.2 C.Y. |
| TOTAL | 21.4 C.Y. |

DRILLED PIERS

| | |
|-----------------------------------|----------------|
| DRILLED PIER CONCRETE | |
| POUR 1 (DRILLED PIERS) | 27.3 C.Y. |
| 4'-0" Ø DRILLED PIERS IN SOIL | 41.67 LIN. FT. |
| 4'-0" Ø DRILLED PIERS NOT IN SOIL | 17.00 LIN. FT. |

PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS LIN. FT. = 43.6

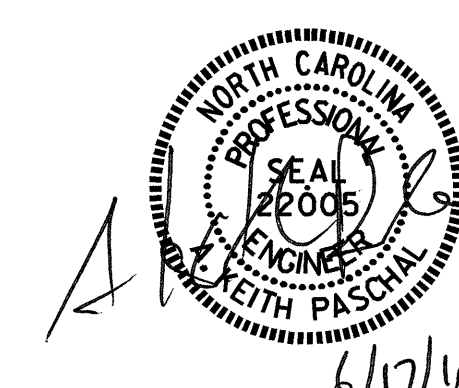
▲ CSL TUBES LIN. FT. = 254.7

PROJECT NO. B-4133
 HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 2 OF 2

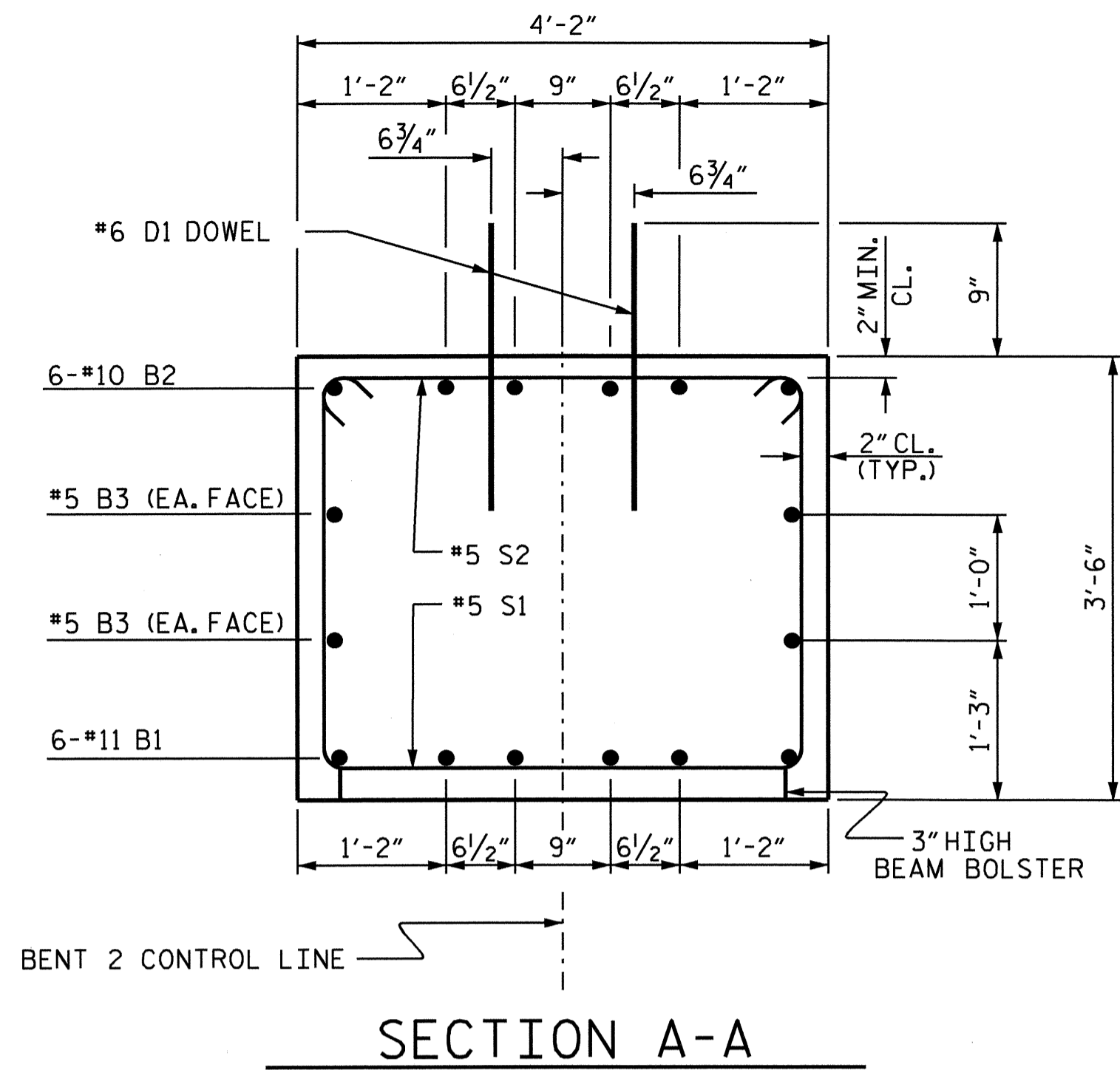
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

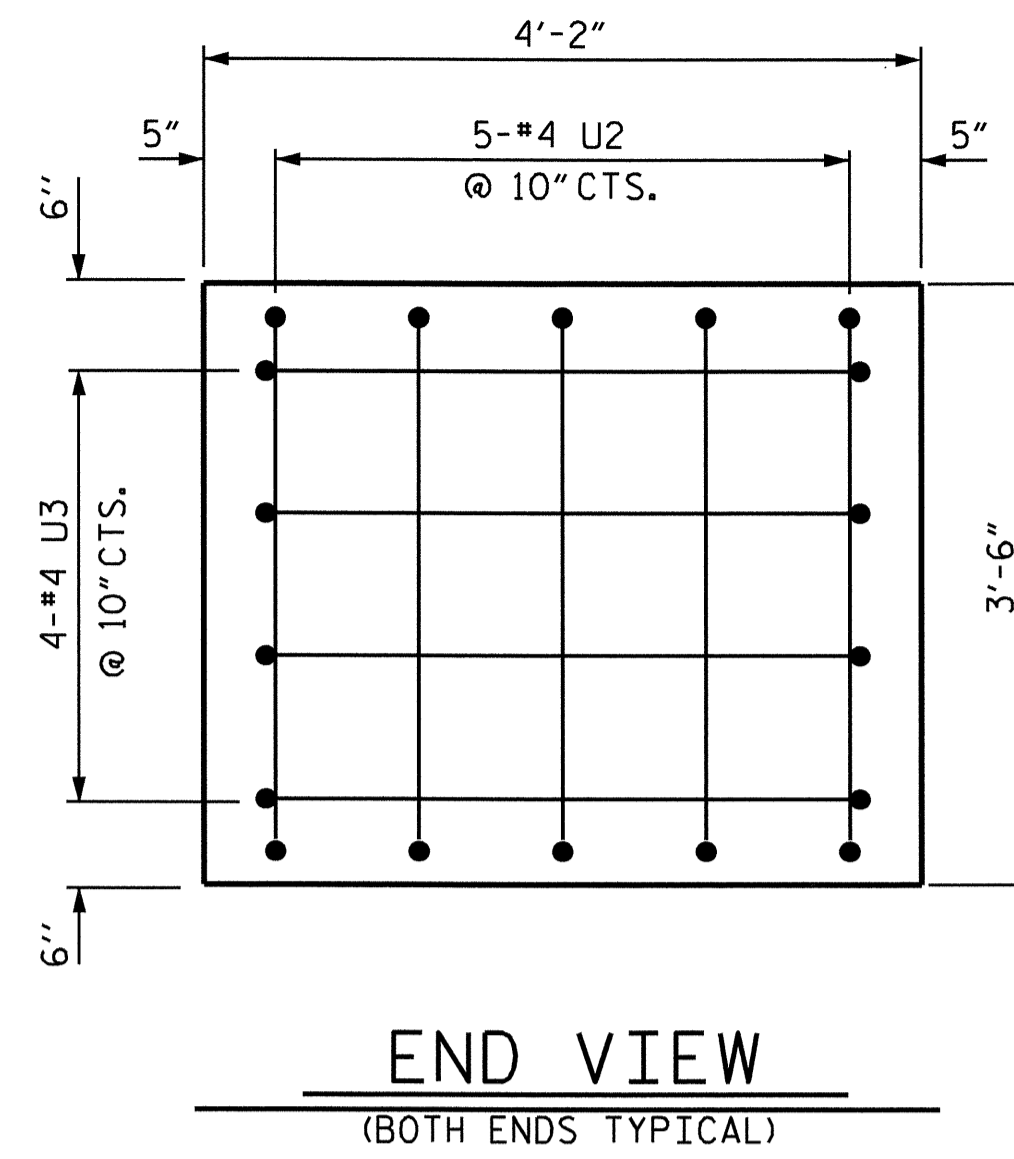


| REVISIONS | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----------|-------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

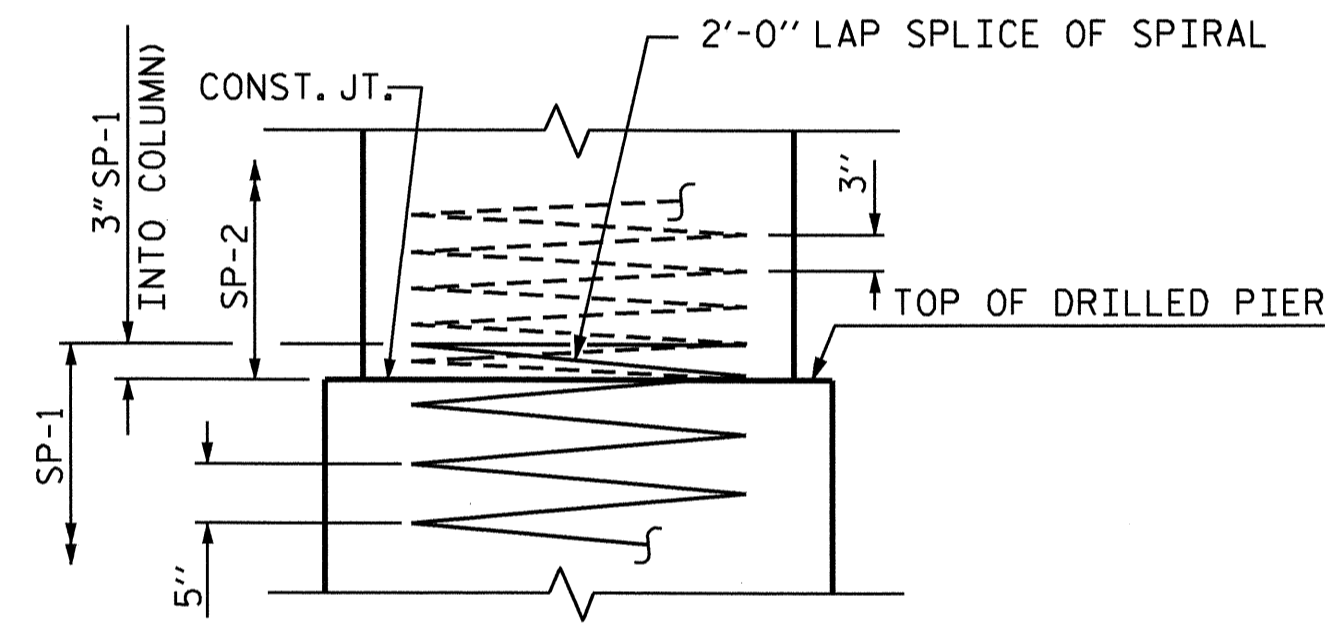
S-14
 TOTAL SHEETS
 19



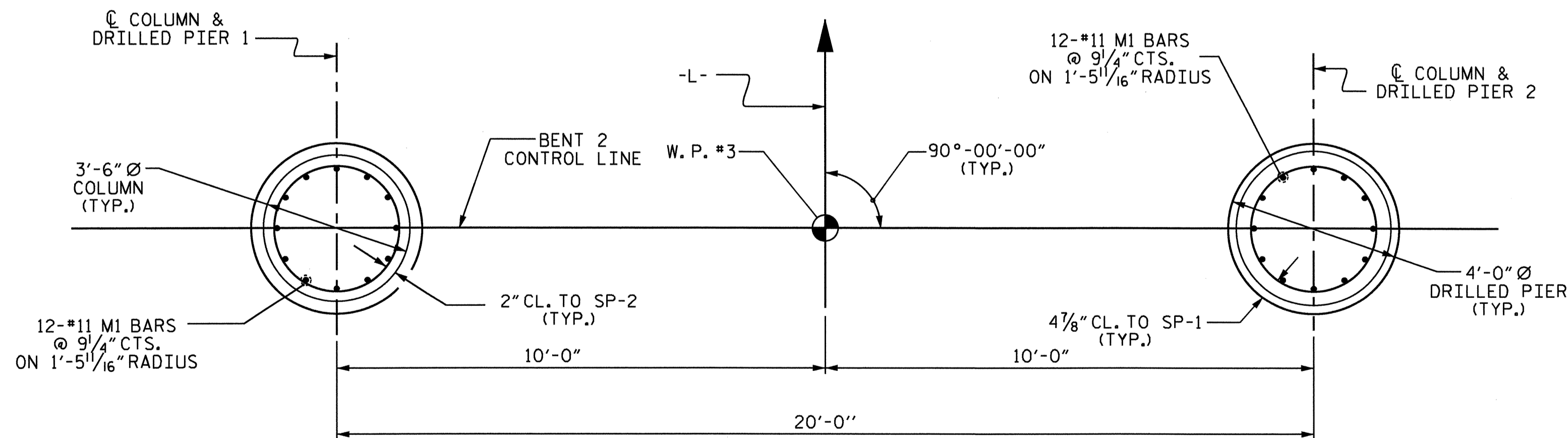
SECTION A-A



END VIEW
(BOTH ENDS TYPICAL)



CONSTRUCTION JOINT DETAIL

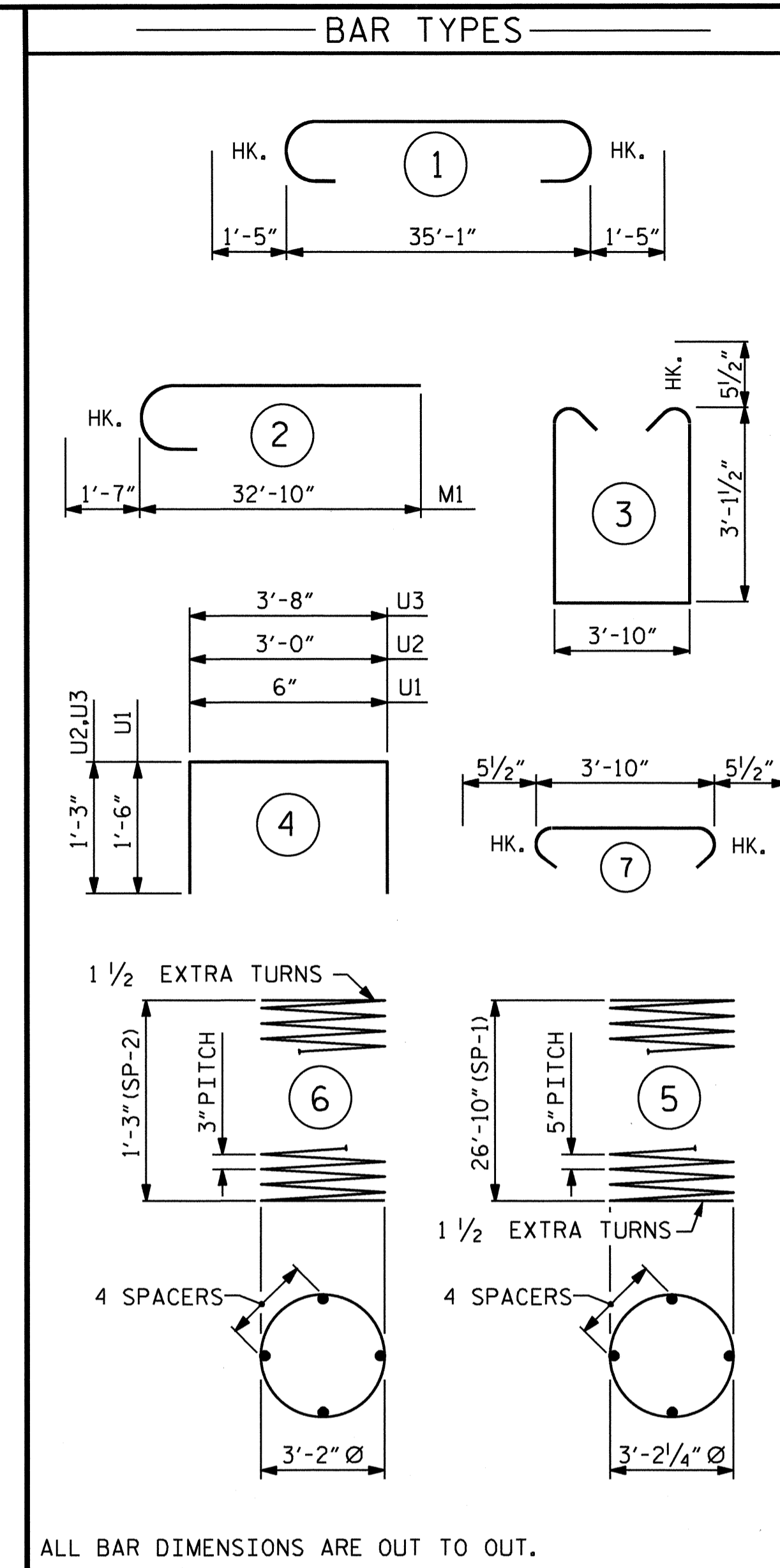


PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)

DRAWN BY : M.FOWLER DATE : 8/11/08
CHECKED BY : J.G. KHARVA DATE : 9/9/09

15-JUN-2011 09:27
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jghawk



ALL BAR DIMENSIONS ARE OUT TO OUT.

- * * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

| BILL OF MATERIAL | | | | | |
|------------------|-----|------|------|---------|--------|
| BENT 2 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 6 | #11 | STR | 35'-2" | 1121 |
| B2 | 6 | #10 | 1 | 37'-11" | 979 |
| B3 | 4 | #5 | STR | 35'-2" | 147 |
| B4 | 4 | #4 | STR | 3'-10" | 10 |
| D1 | 44 | #6 | STR | 1'-6" | 99 |
| M1 | 24 | #11 | 2 | 34'-5" | 4389 |
| S1 | 34 | #5 | 3 | 11'-0" | 390 |
| S2 | 34 | #5 | 7 | 4'-9" | 168 |
| U1 | 10 | #4 | 4 | 3'-6" | 23 |
| U2 | 10 | #4 | 4 | 5'-6" | 37 |
| U3 | 8 | #4 | 4 | 6'-2" | 33 |

| | | |
|-------------------|---|---------------------|
| REINFORCING STEEL | = | 7396 LBS. |
| SP-1 | 2 | ** * 5 643'-4" 1342 |
| SP-2 | 2 | * 6 63'-11" 85 |

| | | |
|---------------------------------|---|-----------|
| SPIRAL COLUMN REINFORCING STEEL | = | 1427 LBS. |
|---------------------------------|---|-----------|

| CLASS A CONCRETE BREAKDOWN | |
|----------------------------|------------------|
| POUR 2 COLUMNS | 0.7 C.Y. |
| POUR 3 CAP | 19.2 C.Y. |
| POUR 4 LATERAL GUIDES | 0.2 C.Y. |
| TOTAL | 20.1 C.Y. |

| DRILLED PIERS | |
|--|------------------|
| DRILLED PIER CONCRETE | |
| POUR 1 (DRILLED PIERS) | 25.1 C.Y. |
| 4'-0" Ø DRILLED PIERS IN SOIL | 40.00 LIN. FT. |
| 4'-0" Ø DRILLED PIERS NOT IN SOIL | 14.00 LIN. FT. |
| PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS | LIN. FT. = 33.9 |
| ▲ CSL TUBES | LIN. FT. = 236.0 |

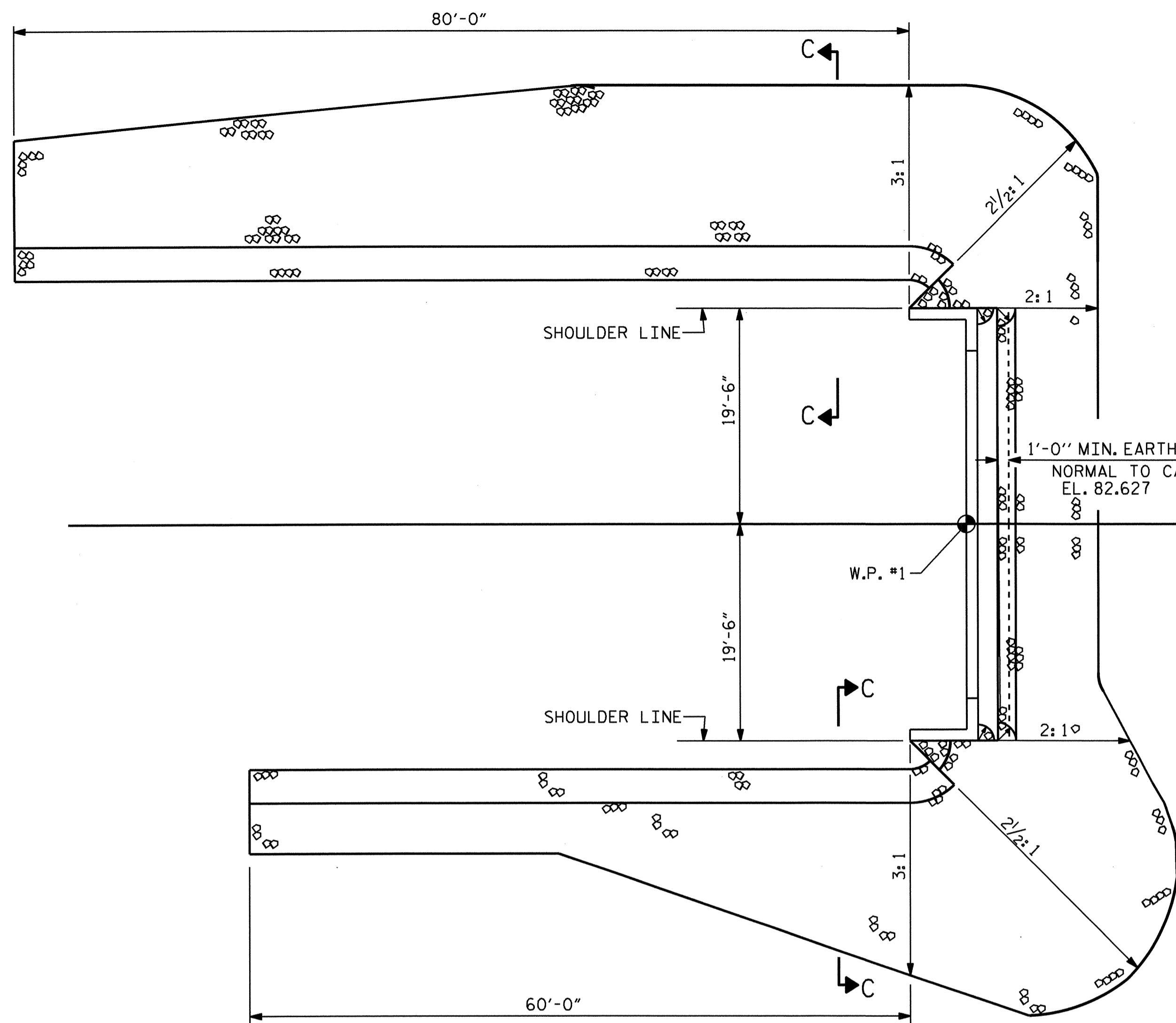
PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 2 OF 2

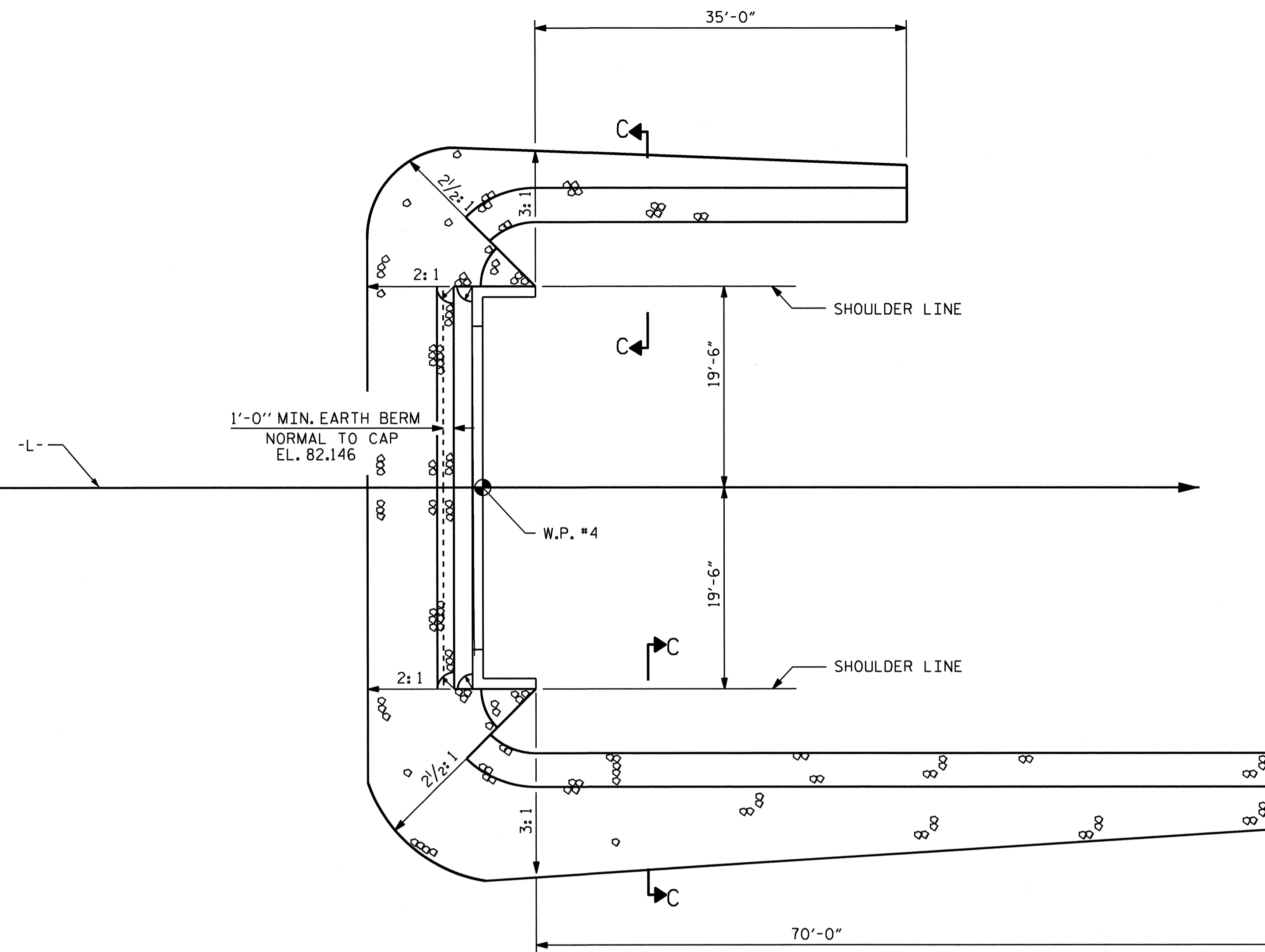
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 2



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S-16 |
| 2 | | | 4 | | | TOTAL SHEETS 19 |

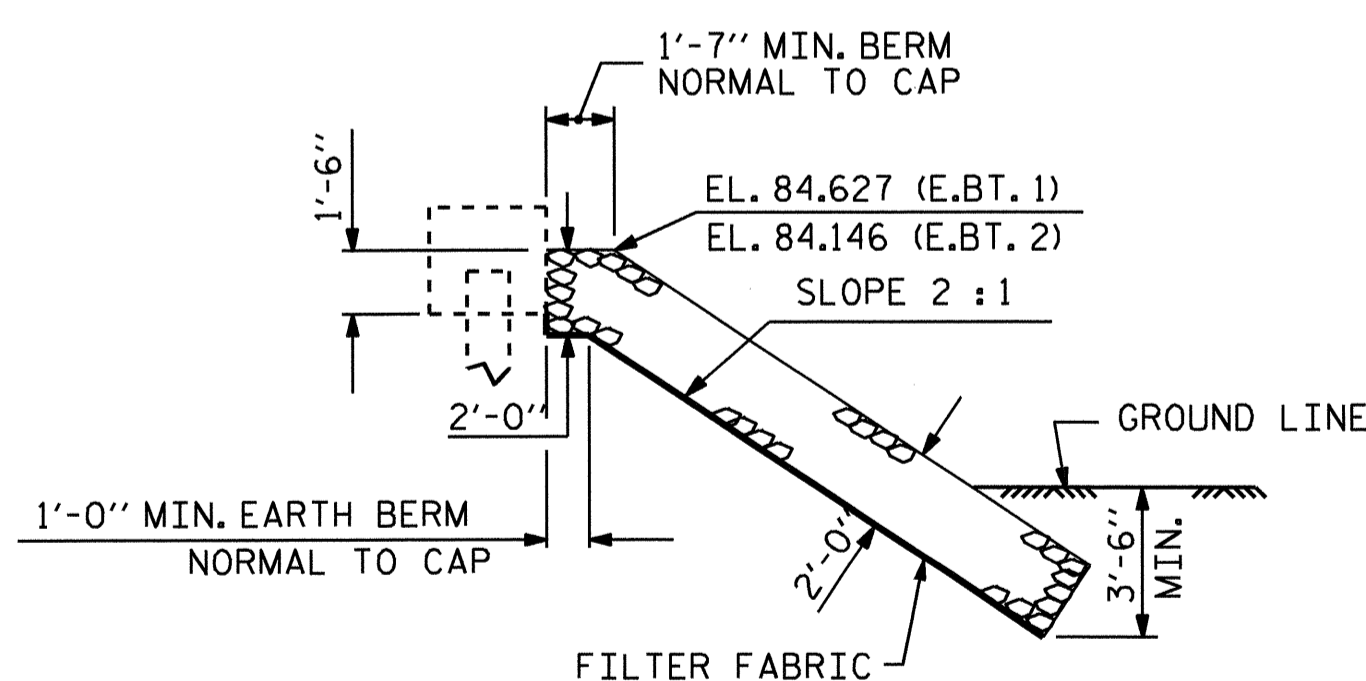


END BENT 1



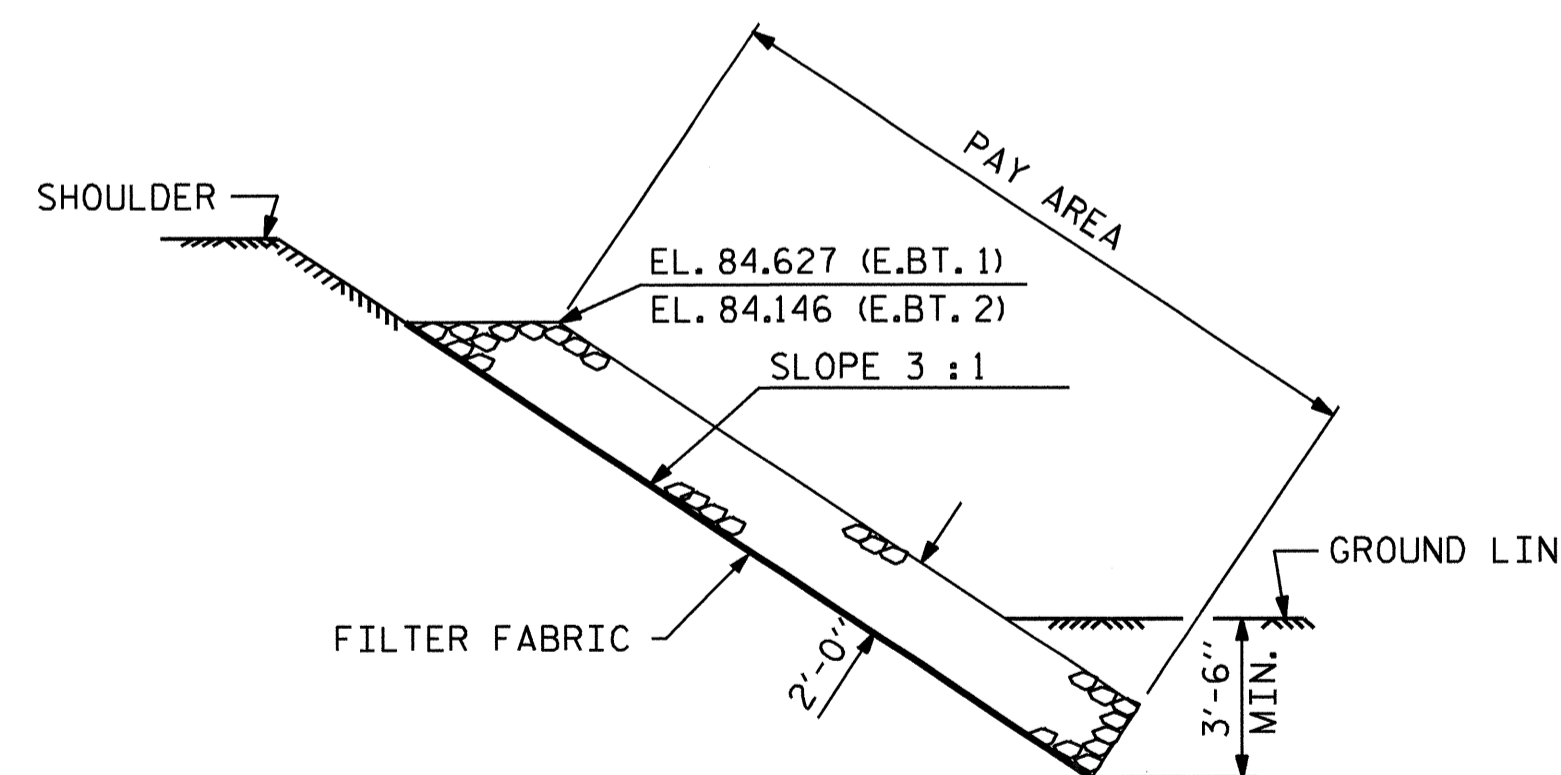
END BENT 2

PLAN



SECTION C-C
BERM RIP RAPPED

| ESTIMATED QUANTITIES | | |
|-------------------------------|--------------------------------------|-------------------------------|
| BRIDGE @ STA. 26+70.50 -L- | RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE |
| | TONS | SQUARE YARDS |
| END BENT 1 | 299 | 332 |
| END BENT 2 | 183 | 204 |
| TOTAL | 482 | 536 |



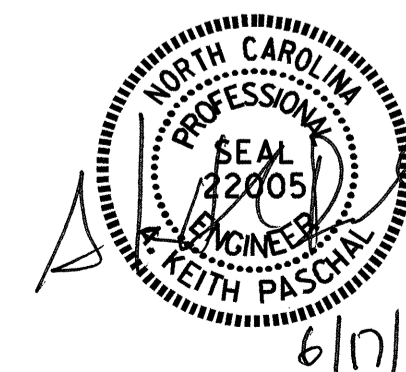
SECTION C-C

PROJECT NO. B-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

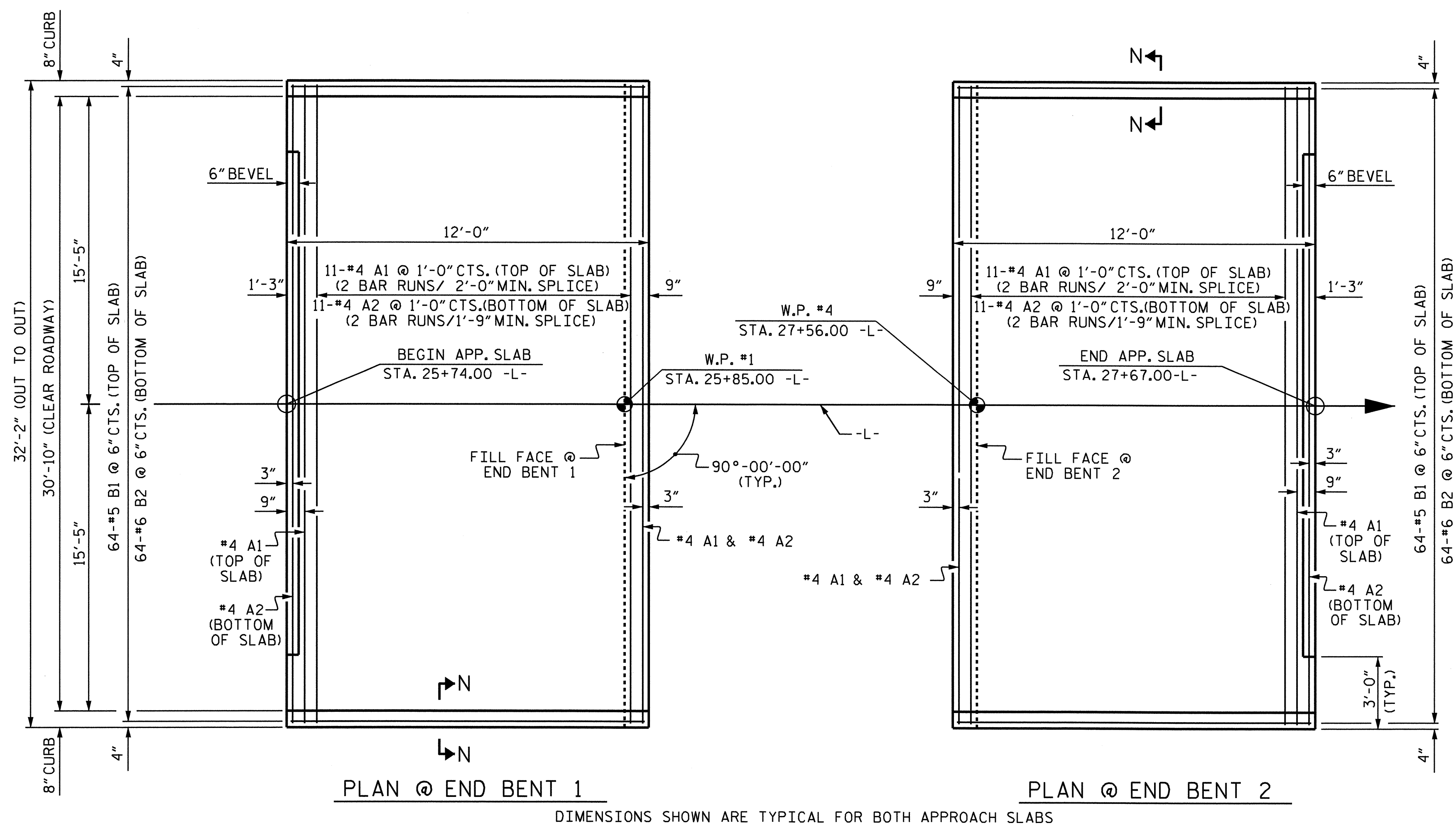
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

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

SHEET NO. **S-17**
 TOTAL SHEETS **19**



ASSEMBLED BY : M.FOWLER DATE : 8/12/09
 CHECKED BY : J.G. KHARVA DATE : 9/10/09
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM



PLAN @ END BENT 1
 PLAN @ END BENT 2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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.

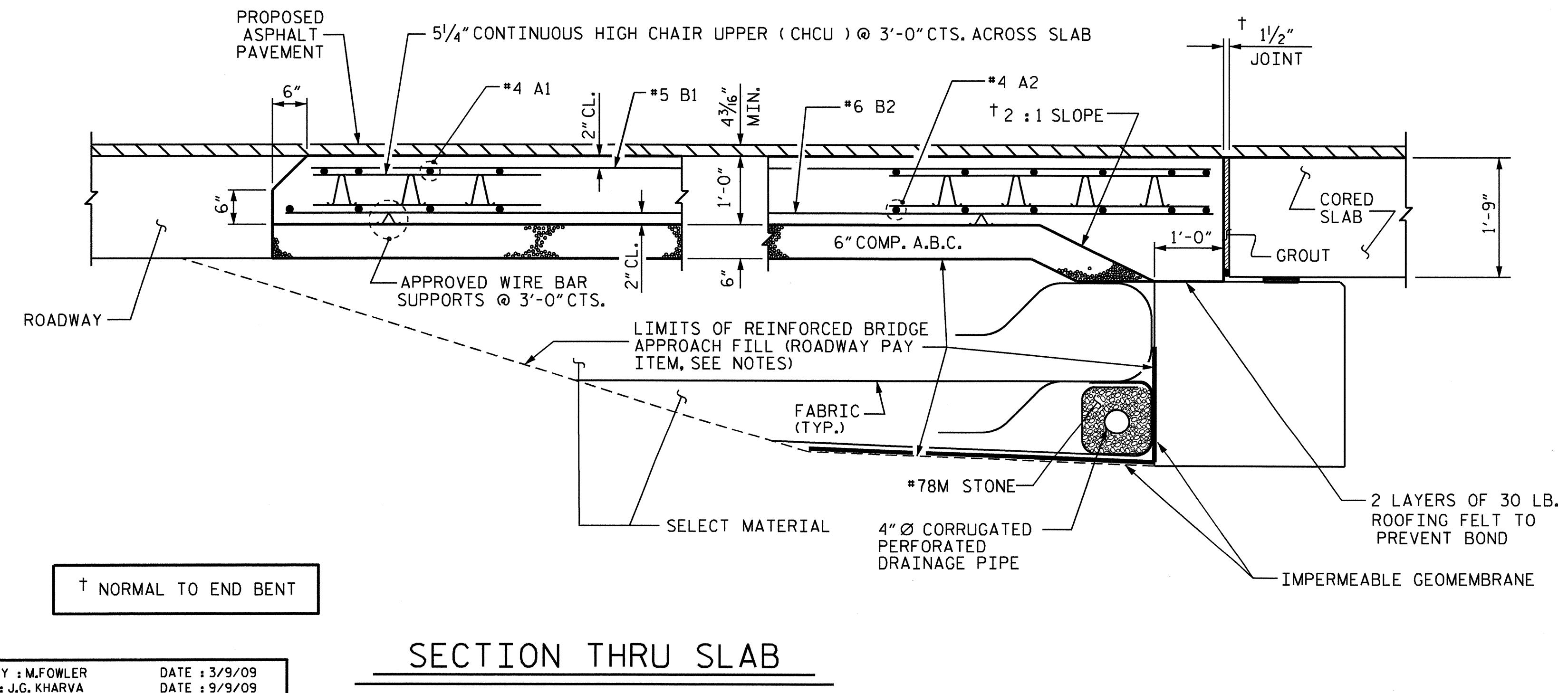
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER 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.

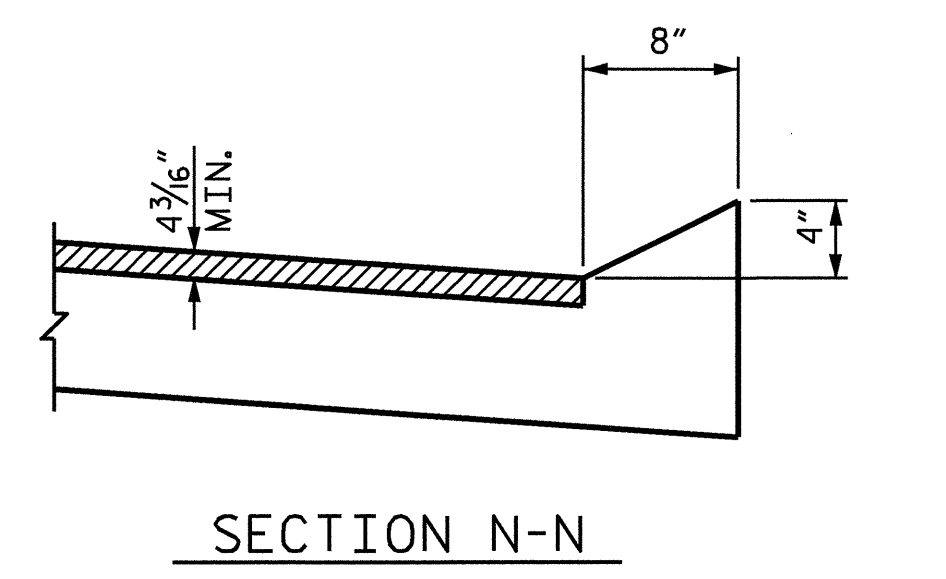
THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

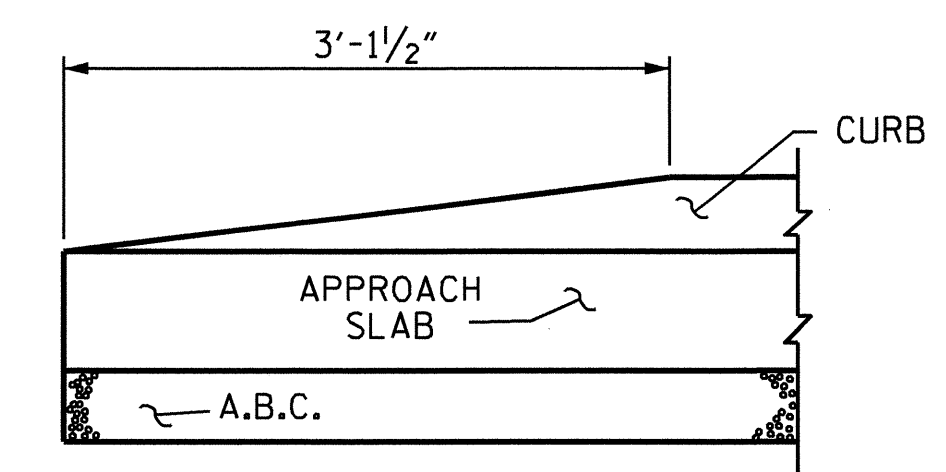
| BILL OF MATERIAL ONE APPROACH SLAB (2 REQ'D.) | | | | | |
|---|-----|------|------|---------|--------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A1 | 26 | #4 | STR | 16'-11" | 294 |
| A2 | 26 | #4 | STR | 16'-10" | 292 |
| *B1 | 64 | #5 | STR | 11'-4" | 757 |
| B2 | 64 | #6 | STR | 11'-8" | 1121 |
| REINFORCING STEEL | | | | LBS. | 1413 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 1051 |
| CLASS AA CONCRETE | | | | C. Y. | 16.2 |



SECTION THRU SLAB



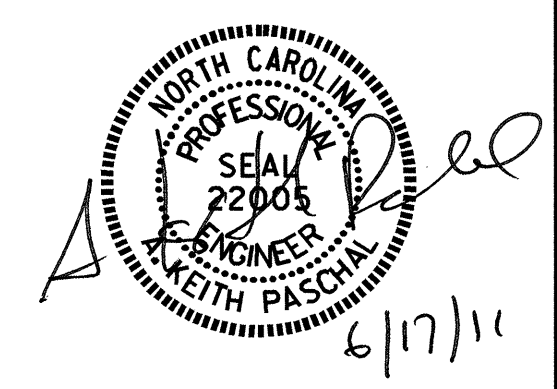
SECTION N-N



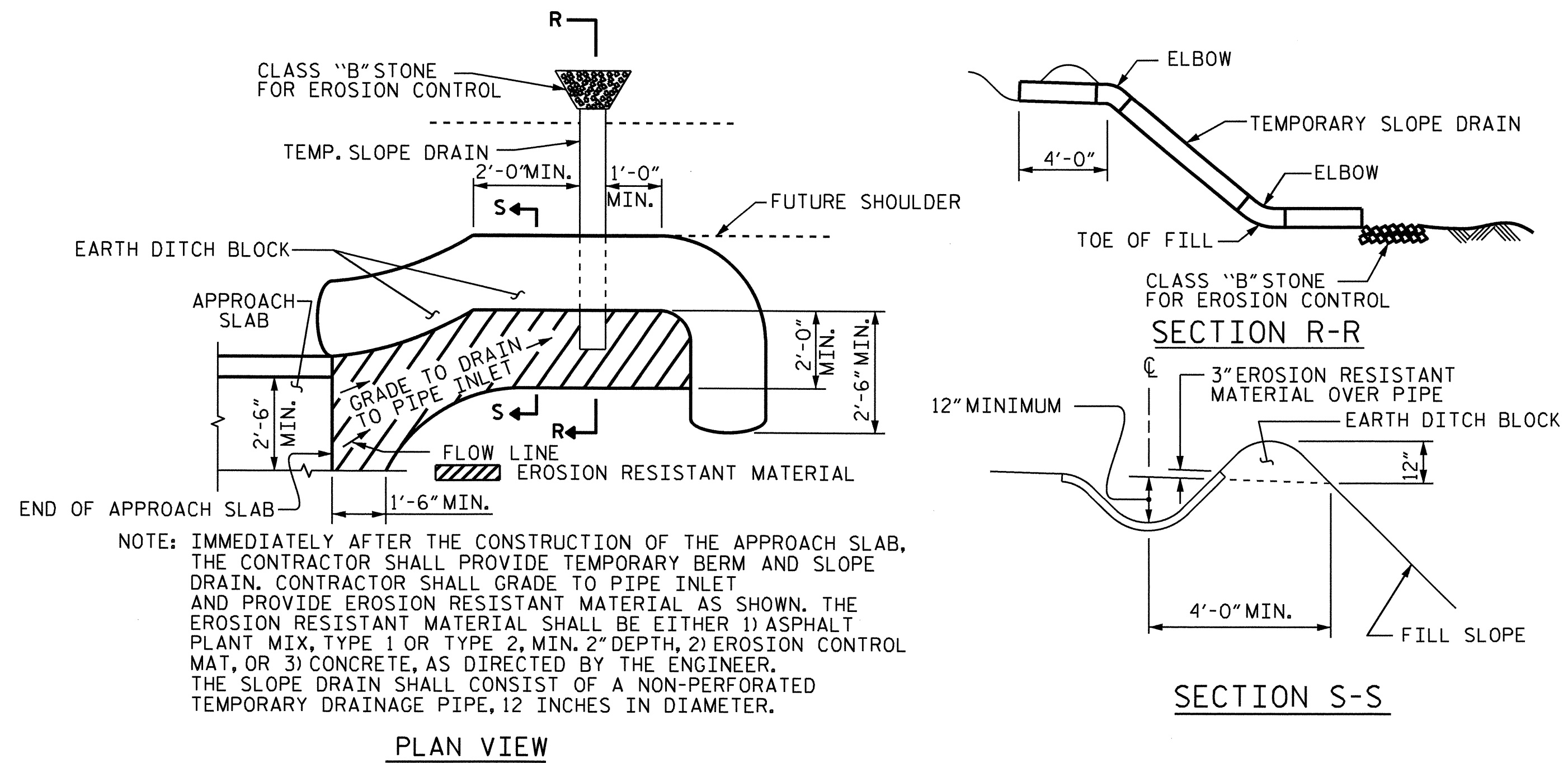
END OF CURB WITHOUT
 SHOULDER BERM GUTTER
 (OMIT TAPER WHEN SHOULDER
 BERM GUTTER IS REQUIRED)
 CURB DETAILS

PROJECT NO. B-4133
 HALIFAX COUNTY
 STATION: 26+70.50 -L-
 SHEET 1 OF 2

| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
|--|-----|-------|-----|-----|--------------------|
| STANDARD | | | | | |
| BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB | | | | | |
| REVISIONS | | | | | SHEET NO. |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | TOTAL SHEETS 19 |

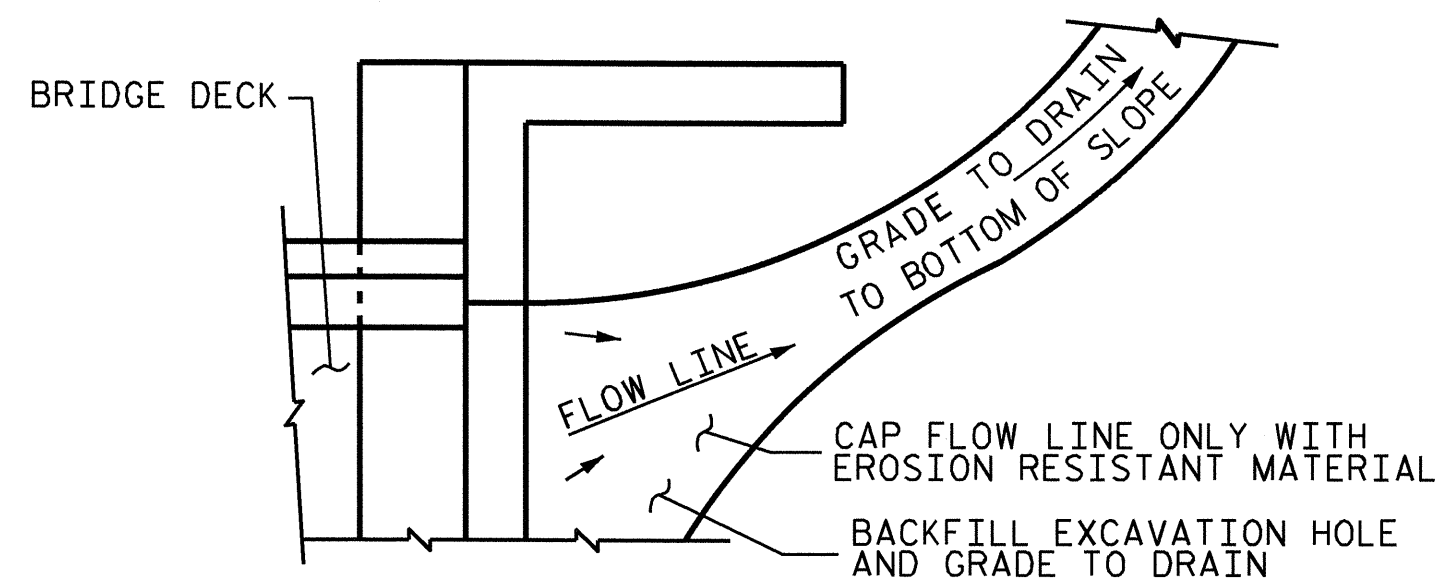


| | |
|--------------------------|----------------------|
| ASSEMBLED BY : M.FOWLER | DATE : 3/9/09 |
| CHECKED BY : J.G. KHARVA | DATE : 9/9/09 |
| DRAWN BY : FCJ 6/87 | REV. 7/10/01 LES/RDR |
| CHECKED BY : EGA 6/87 | REV. 5/7/03R RWW/JTE |
| | REV. 5/1/06R KMM/JM |



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



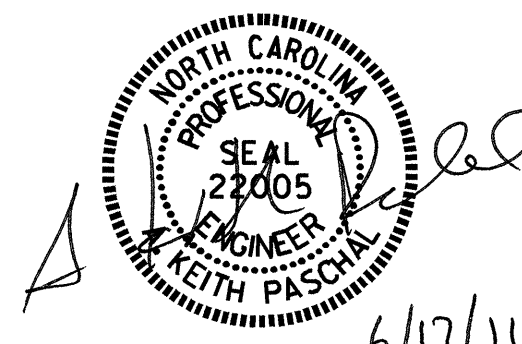
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4133
HALIFAX COUNTY
 STATION: 26+70.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



| | |
|---------------------------|-----------------------|
| ASSEMBLED BY : M.FOWLER | DATE : 3/9/09 |
| CHECKED BY : J. G. KHARVA | DATE : 9/9/09 |
| 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 |

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 kpaschal

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 19 |

STD. NO. BAS10

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 | ----- | 375 LBS. PER SQ. IN. |
| OF TIMBER | ----- | |
| 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