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25-MAY-2022 14:54
 N:\DGN\60\08\39-05 BR-0109 NCDOT YADKIN 80 OVER UT FARMERS CREEK\Structures\03_100 Percent\CADD DGNs\Structures\400_001_BR0109_SMU_TSH_000.dgn
 09/08/99
 \$\$\$USERNAME\$\$\$

TIP PROJECT: BR-0109
CONTRACT: C204538

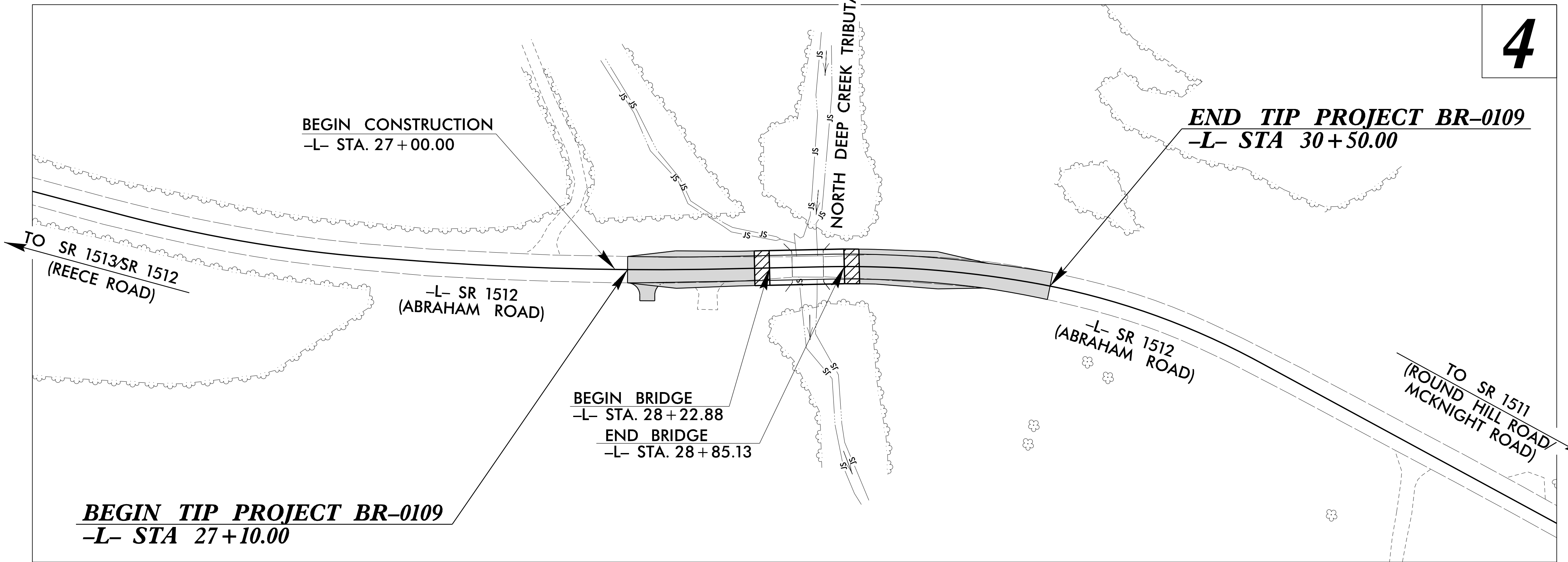
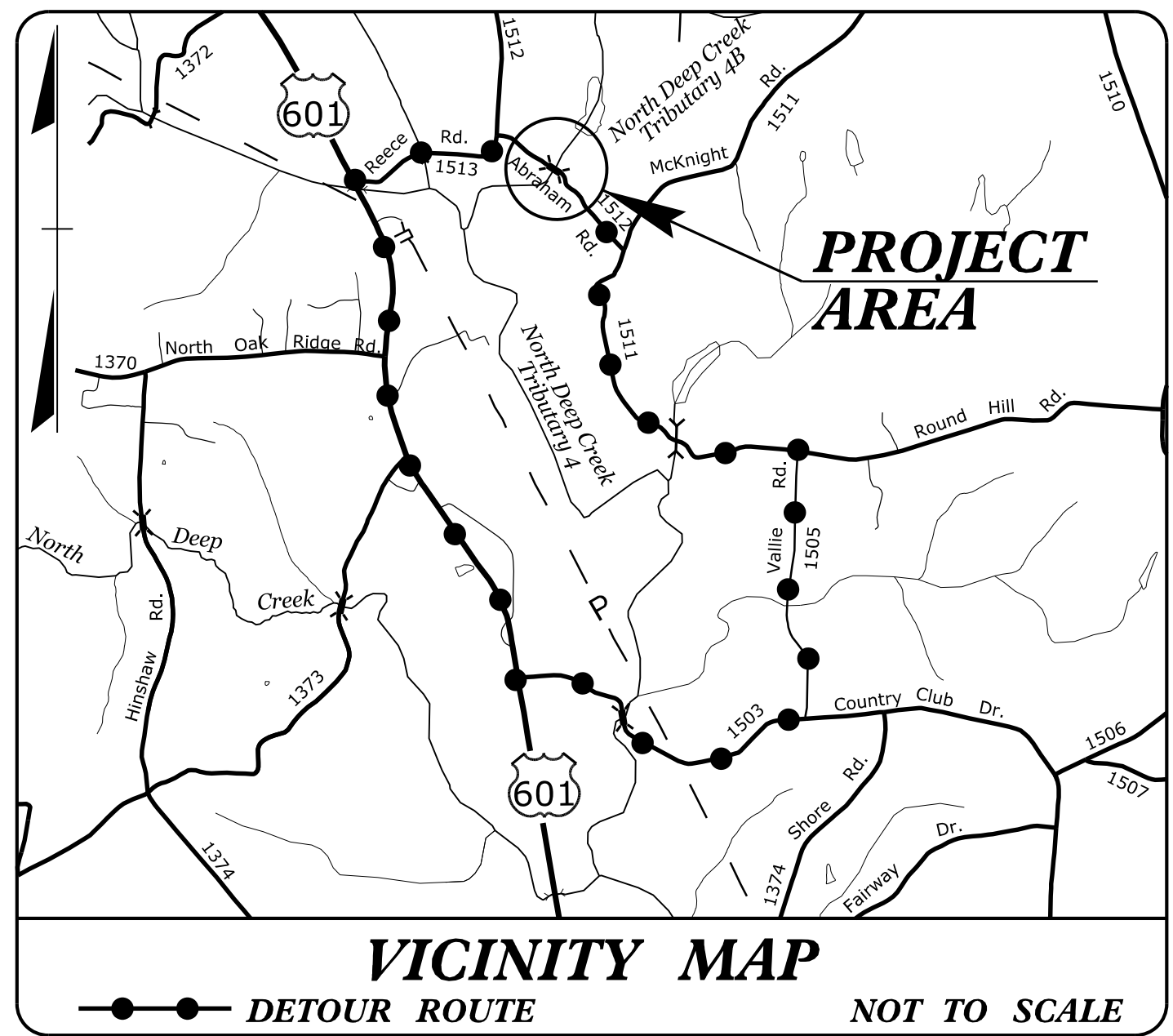
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

YADKIN COUNTY

**LOCATION: REPLACE BRIDGE NO. 80 ON SR 1512 (ABRAHAM RD.)
 OVER NORTH DEEP CREEK TRIBUTARY 4B**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

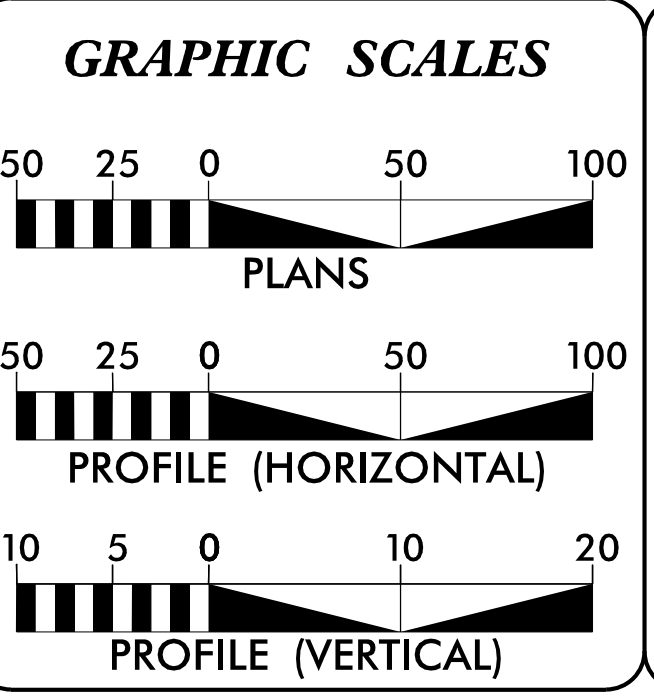
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | BR-0109 | | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 49217.1.1 | | PE | |
| 49217.2.1 | | R/W & UTIL. | |
| 49217.3.1 | | CONST. | |
| | | | |
| | | | |



STRUCTURE

DESIGN EXCEPTION FOR SAG VERTICAL CURVE K VALUE AND NIGHTTIME VERTICAL SSD.

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

| | |
|--------------|----------------------------------|
| ADT 2015 = | 440 |
| ADT 2040 = | 880 |
| V = 55 MPH | |
| FUNC CLASS = | RURAL LOCAL SUB-REGIONAL TIER |

PROJECT LENGTH

| | | |
|----------------------------------|---|-------------|
| LENGTH ROADWAY PROJECT BR-0109 | = | 0.052 MILES |
| LENGTH STRUCTURE PROJECT BR-0109 | = | 0.012 MILES |
| TOTAL LENGTH PROJECT BR-0109 | = | 0.064 MILES |

Plans Prepared By:

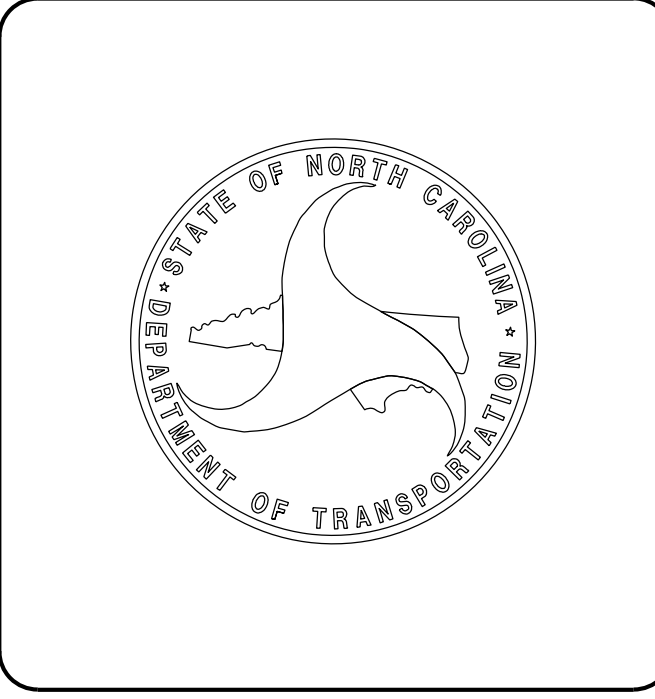
ms consultants, inc.
 5444 Wade Park Blvd.
 Suite 100
 Raleigh, NC 27607
 NC License Number - C-3239

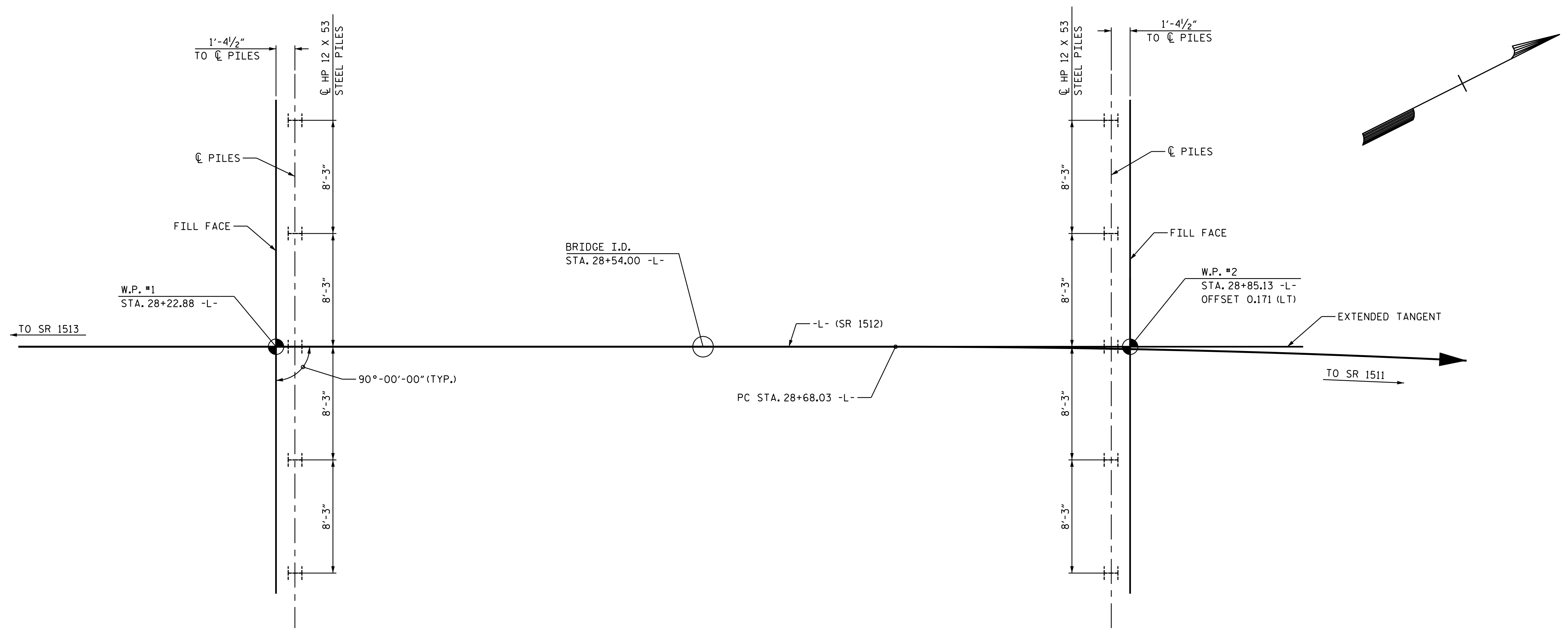
2018 STANDARD SPECIFICATIONS

LETTING DATE:
 JULY 19, 2022

Plans Prepared For:

NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 1000 BIRCH RIDGE DRIVE
 RALEIGH, NC 27610





END BENT 1

FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE

END BENT 2

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS
 PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

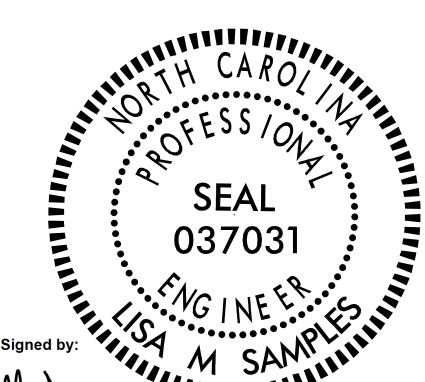
PROJECT NO. BR-0109
YADKIN COUNTY
 STATION: 28+54.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

FOUNDATION LAYOUT

BRIDGE 80 ON SR 1512 OVER
 NORTH DEEP CREEK TRIBUTARY
 4B BETWEEN SR1513 AND SR1511



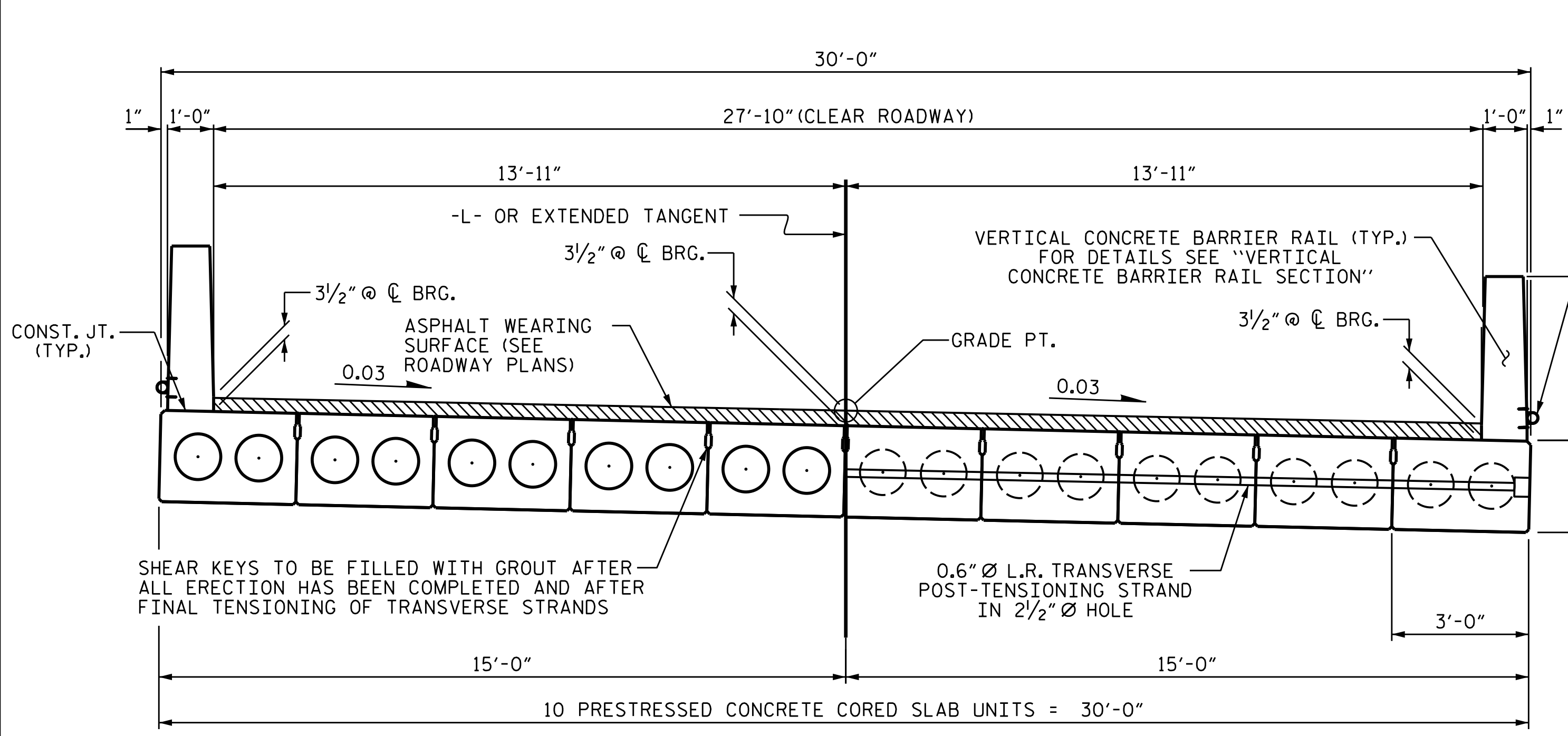
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 5444 Wade Park Blvd.
 Suite 160
 Raleigh, NC 27607
 NC License Number : C-3239

| | | | |
|-----------------------------|--------------|--------|-------|
| DRAWN BY : | J.M. KEPICH | DATE : | 03/20 |
| CHECKED BY : | L.M. SAMPLES | DATE : | 05/21 |
| DESIGN ENGINEER OF RECORD : | L.M. SAMPLES | DATE : | 05/21 |

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

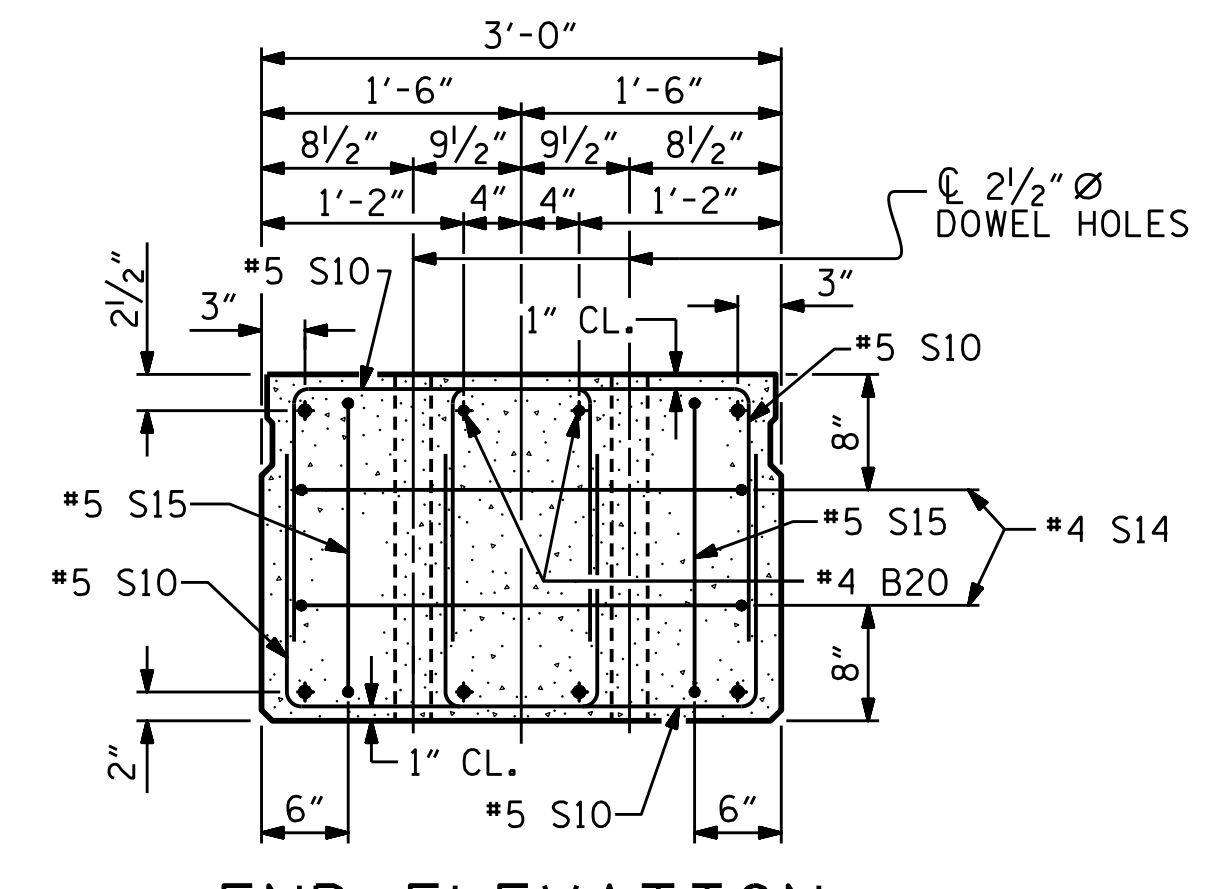
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TOTAL SHEETS 14

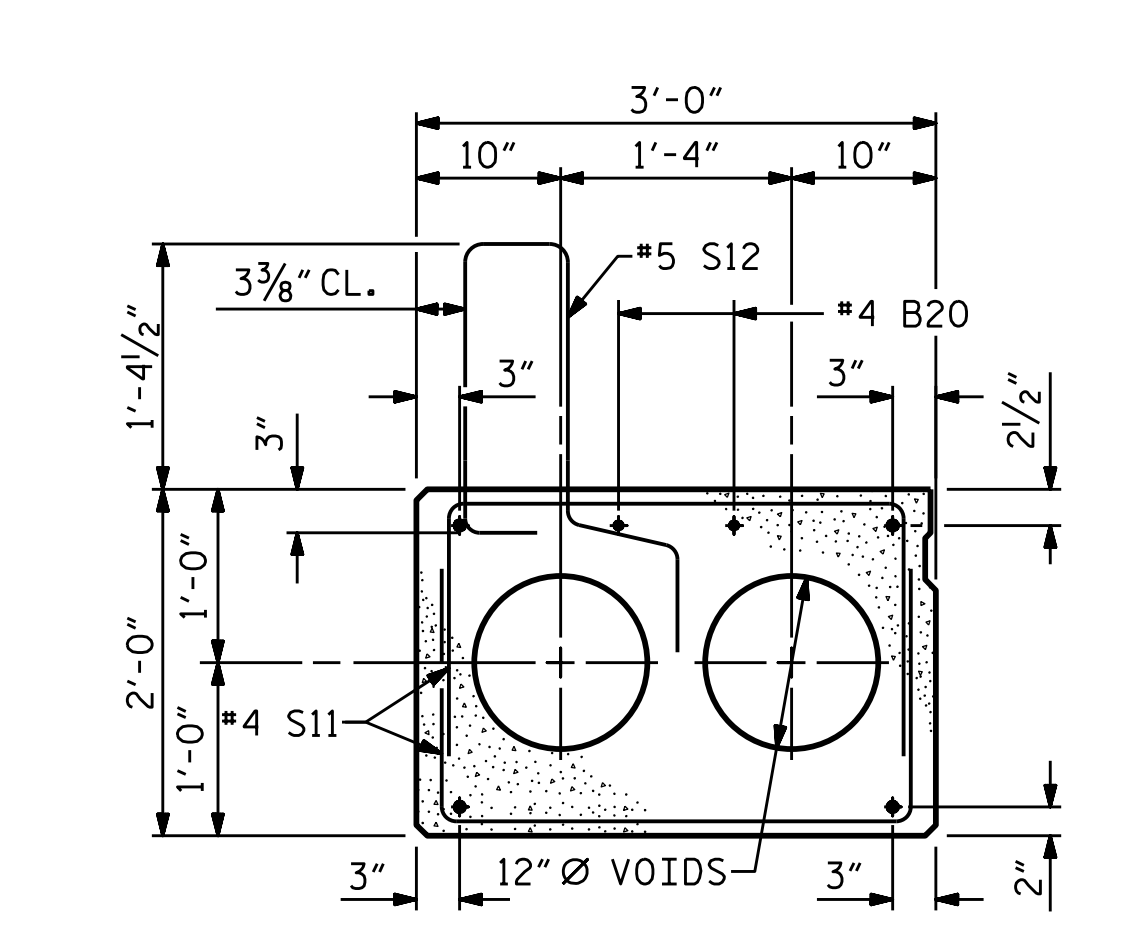


HALF SECTION THROUGH VOIDS TYPICAL SECTION HALF SECTION AT INTERMEDIATE DIAPHRAGMS

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



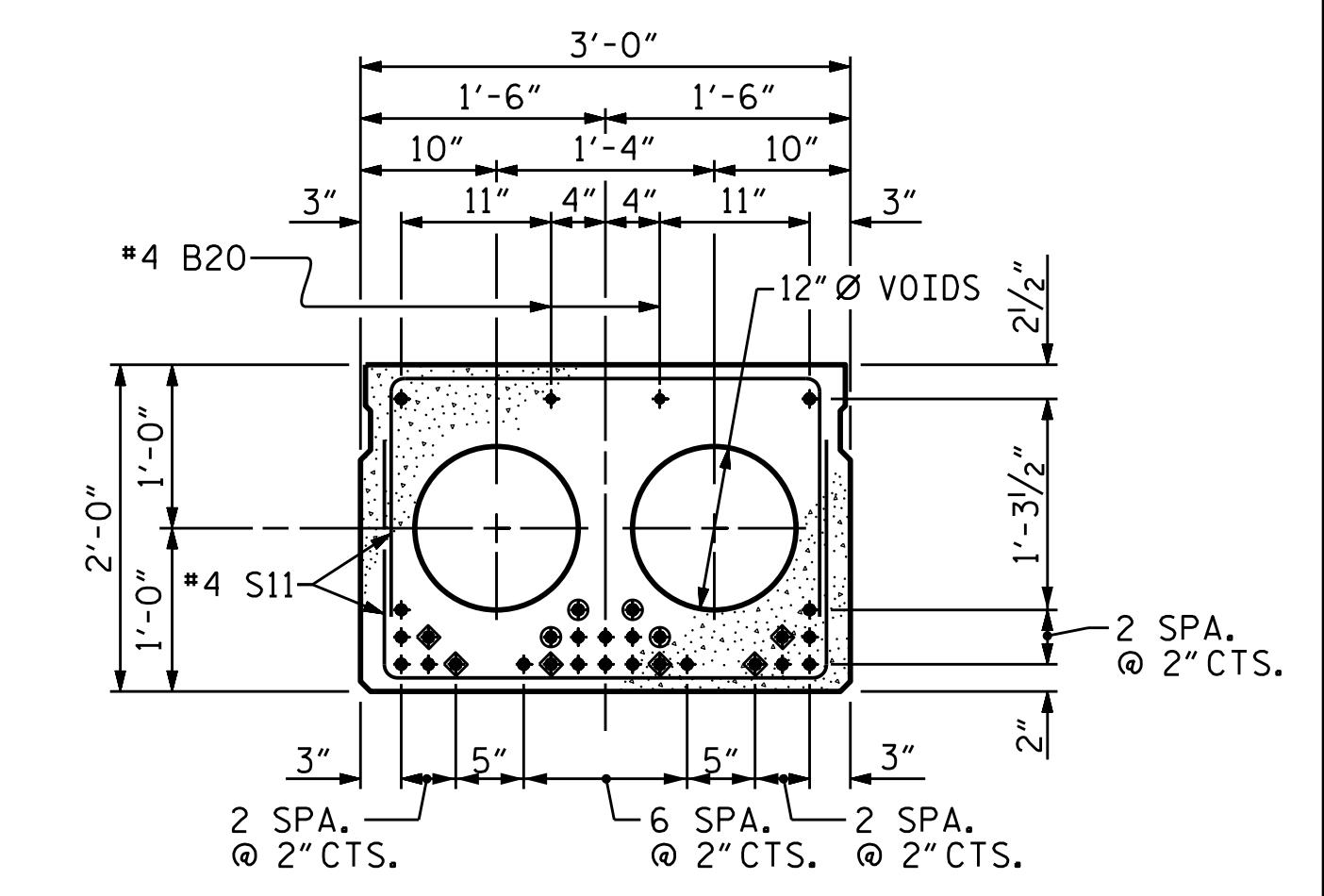
END ELEVATION
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)
INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



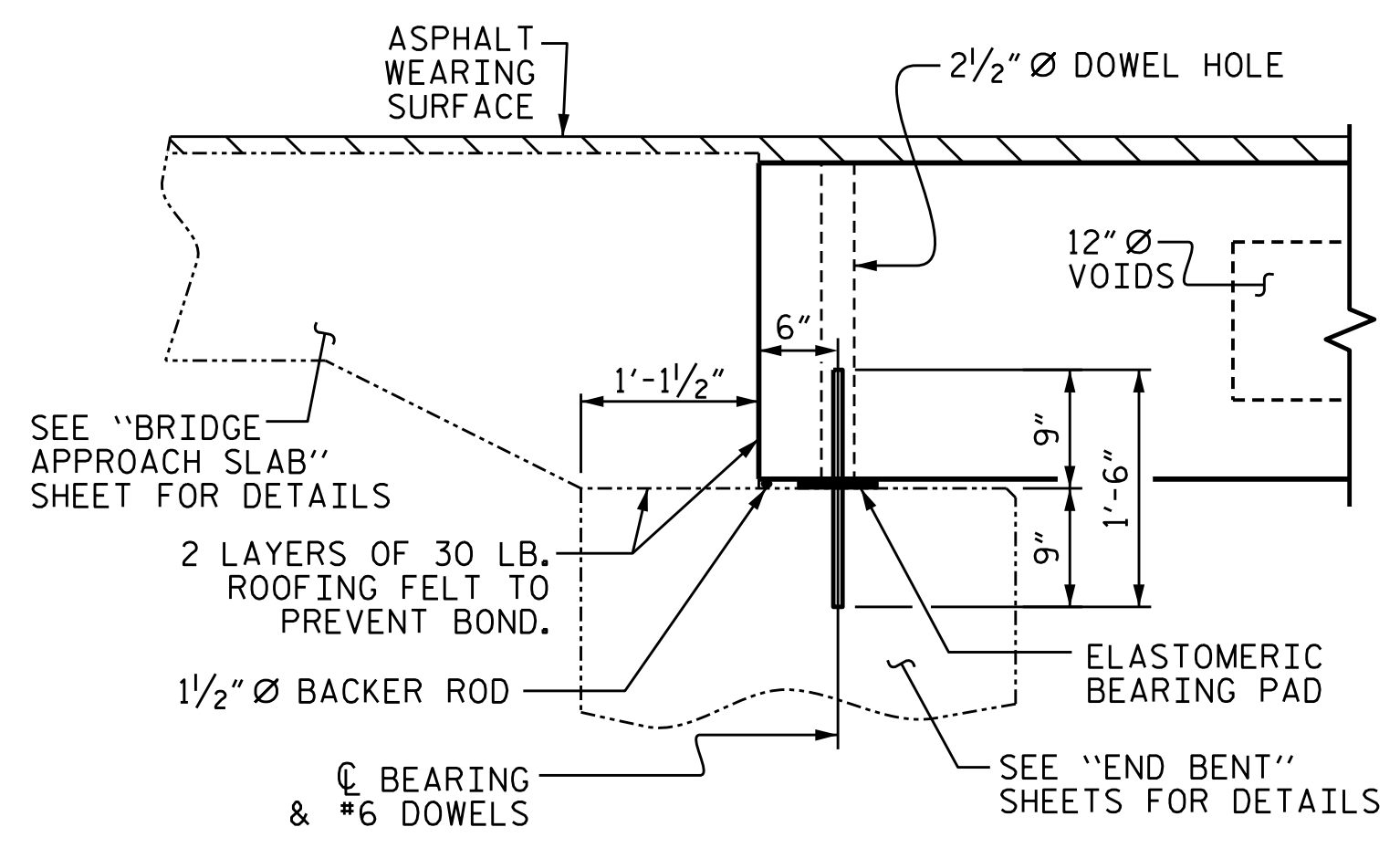
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

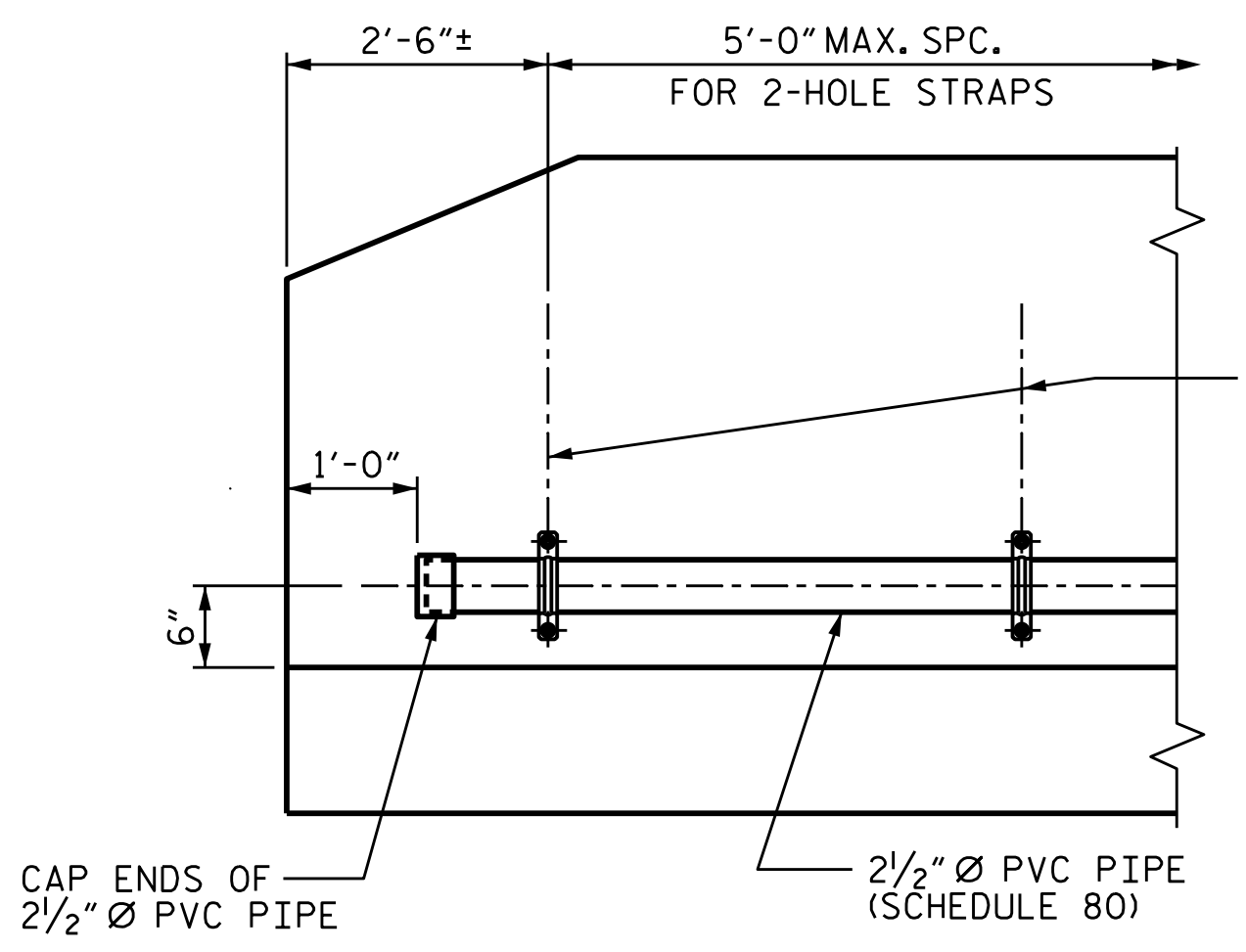
DEBONDING LEGEND



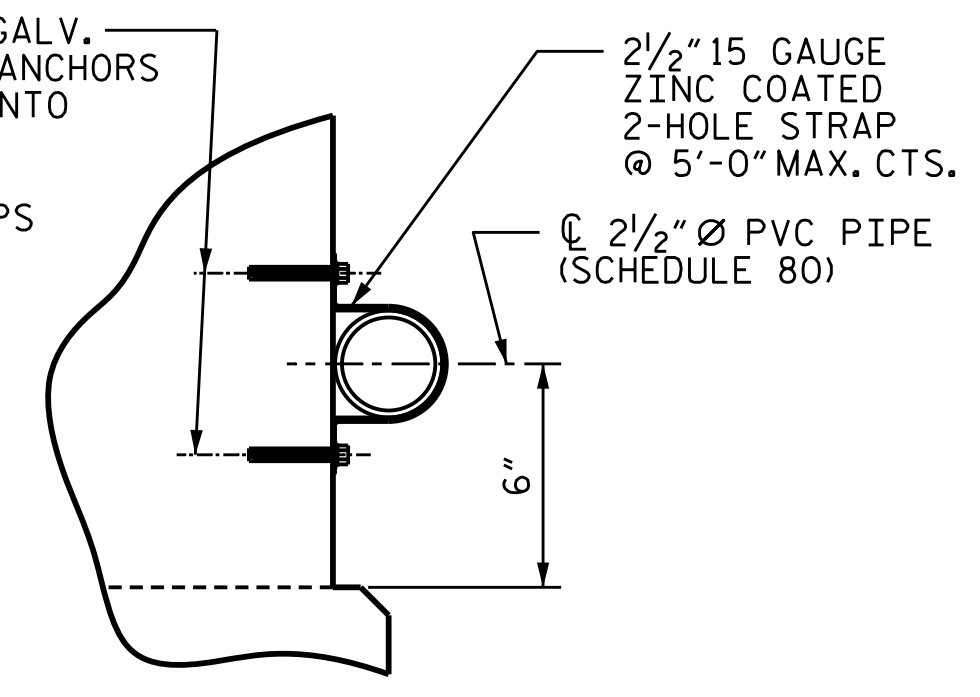
INTERIOR SLAB SECTION (24 STRANDS REQUIRED)
0.6" Ø LOW RELAXATION STRAND LAYOUT



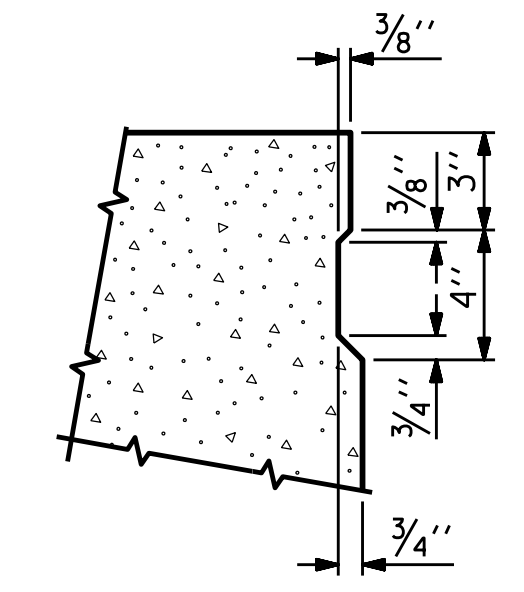
SECTION AT END BENT



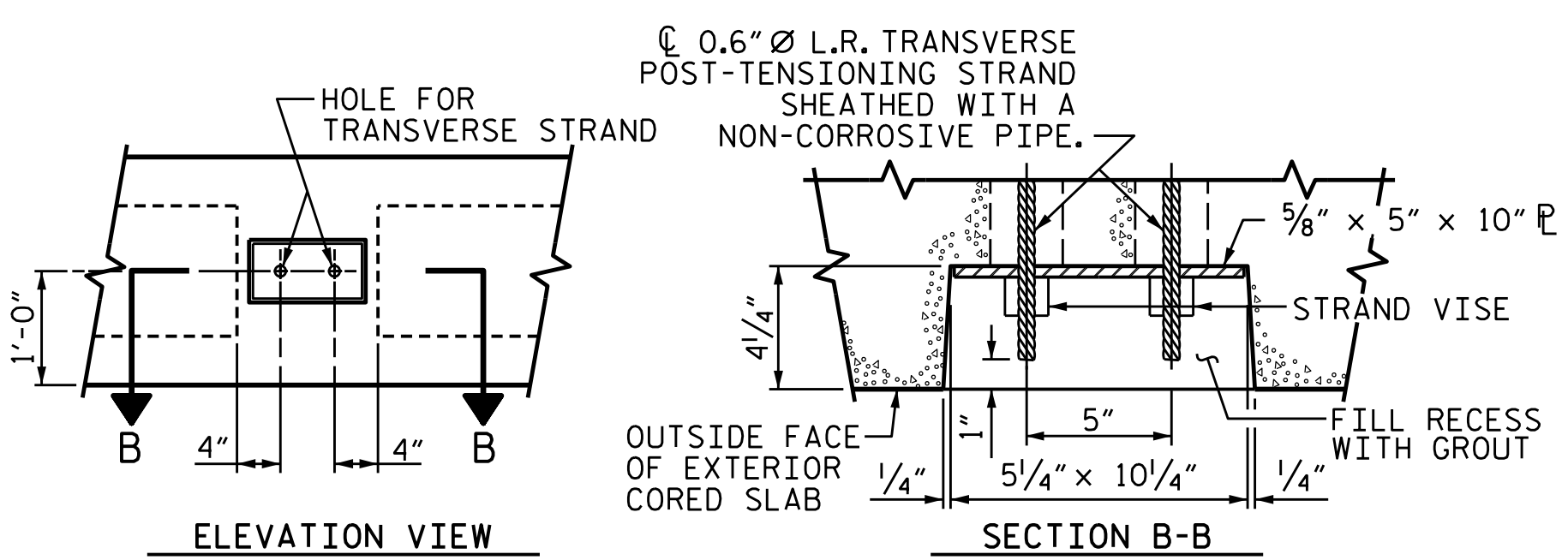
ELEVATION SECTION
FIBER OPTIC CONDUIT SYSTEM DETAILS
2 1/2" Ø SCHEDULE 80 PVC PIPE ATTACHED TO THE BACK OF BOTH RAILS FOR FUTURE FIBER OPTIC CABLE.



SECTION

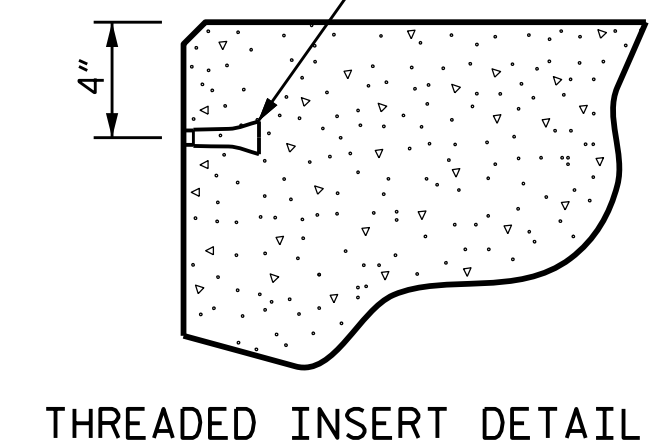


SHEAR KEY DETAIL
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



ELEVATION VIEW SECTION B-B
GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

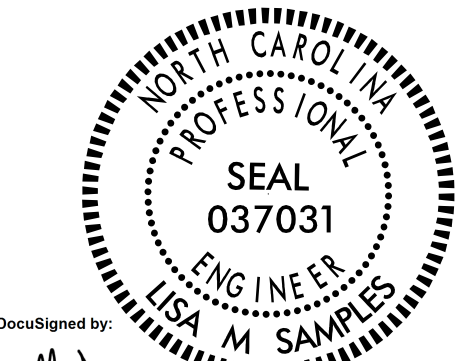
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

| | |
|----------------------------|-------------------|
| ASSEMBLED BY : J.M. KEPICH | DATE : 04/20 |
| CHECKED BY : L.M. SAMPLES | DATE : 05/21 |
| DRAWN BY : MAA 6/10 | REV. 8/14 MAA/TMG |
| CHECKED BY : MKT 7/10 | |

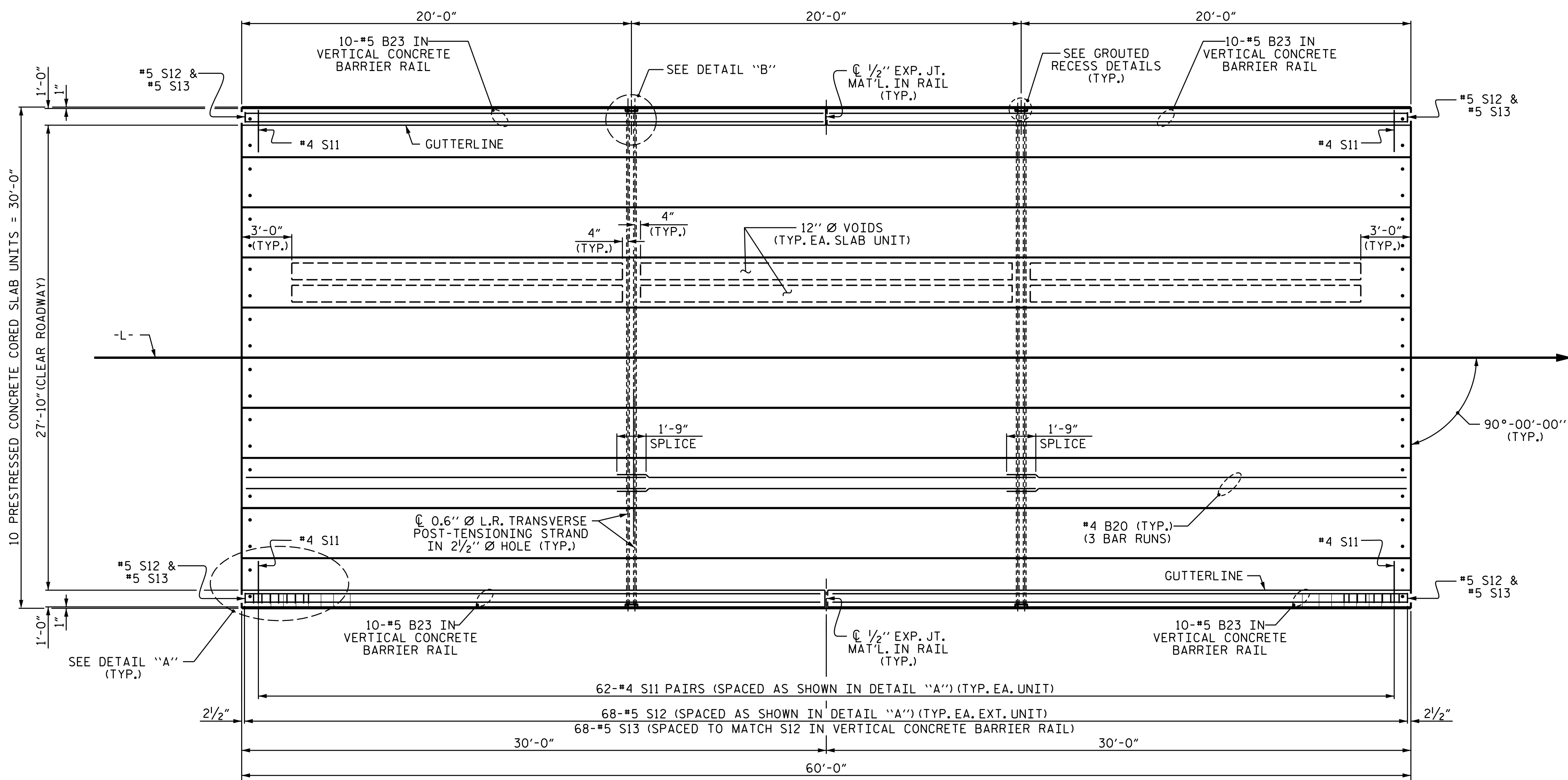
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Raleigh, NC 27607
NC License Number : C-3239



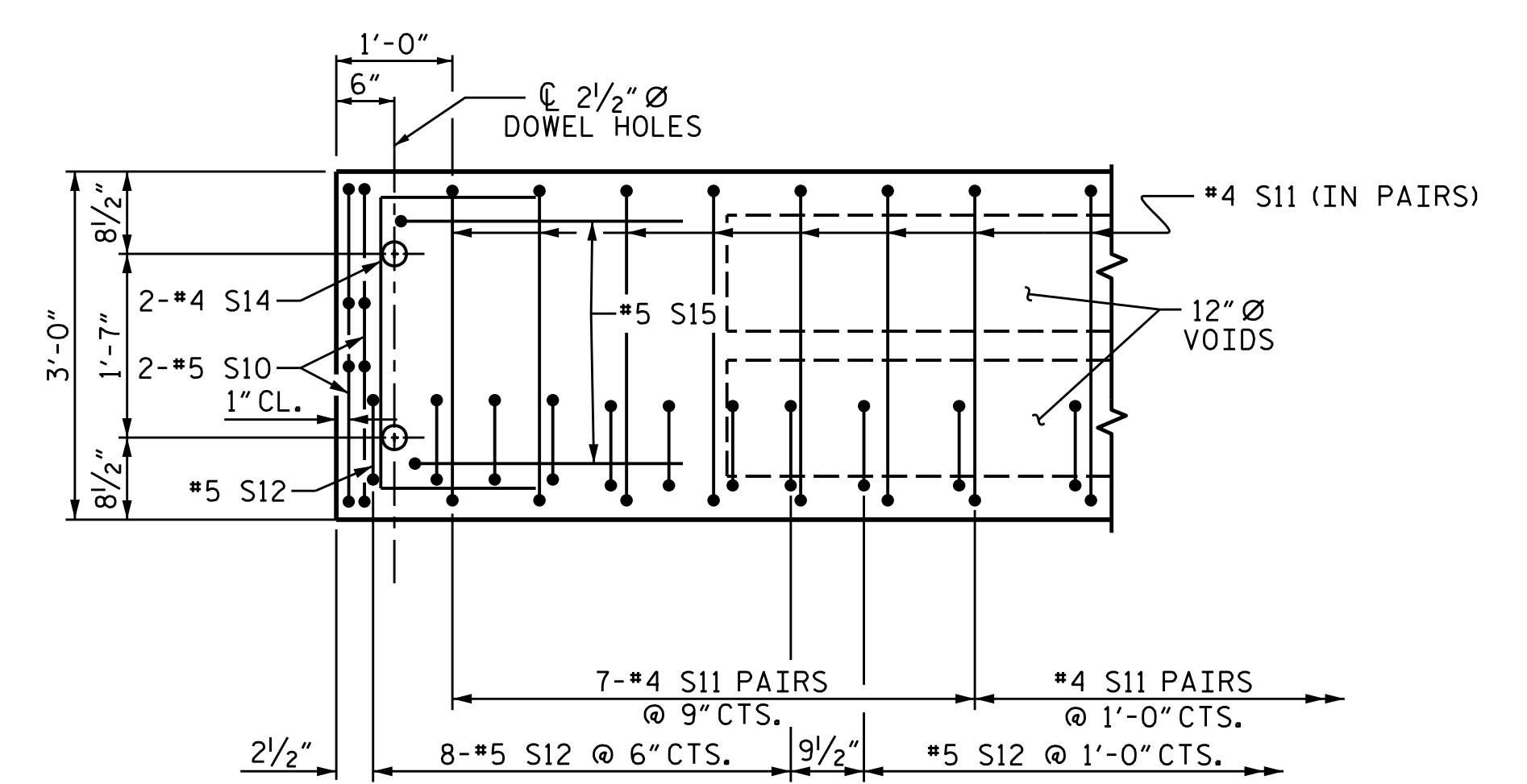
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. BR-0109
YADKIN COUNTY
STATION: 28+54.00 -L-
SHEET 1 of 3

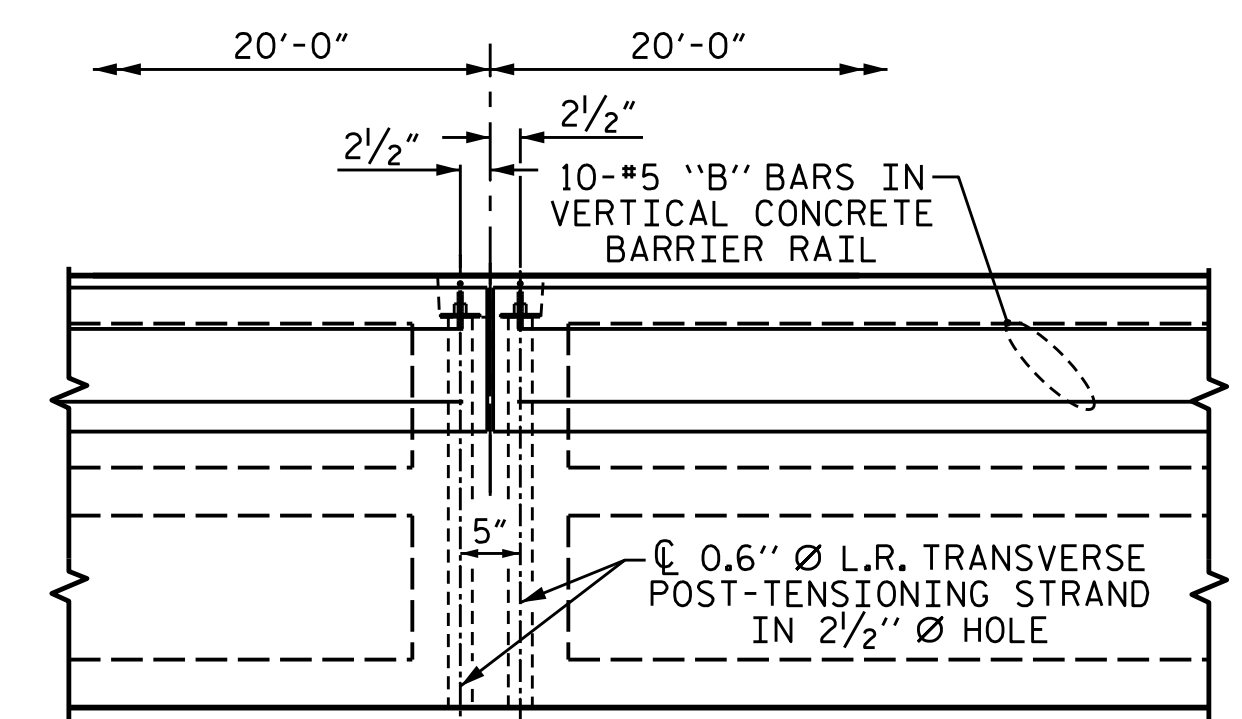
| | | | | | |
|--|-----|-------|-----|-----|-----------------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| SHEET NO. S-05 | | | | | TOTAL SHEETS 14 |



PLAN OF UNIT



DETAIL "A"

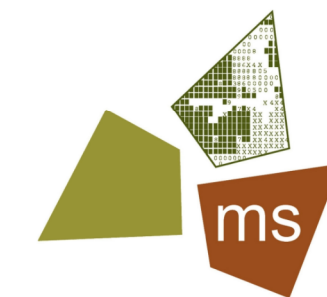


DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

| | |
|----------------------------|----------------------|
| ASSEMBLED BY : J.M. KEPICH | DATE : 04/20 |
| CHECKED BY : L.M. SAMPLES | DATE : 05/21 |
| DRAWN BY : MAA 6/10 | REV. 12/5/11 MAA/AAC |
| CHECKED BY : MKT 7/10 | REV. 8/14 MAA/TMG |

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



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Lisa M. Samples
5/10/2022
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PROJECT NO. BR-0109
YADKIN COUNTY
STATION: 28+54.00 -L-
SHEET 2 of 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 60' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-06 |
| 1 | | | 3 | | | TOTAL SHEETS 14 |
| 2 | | | 4 | | | |

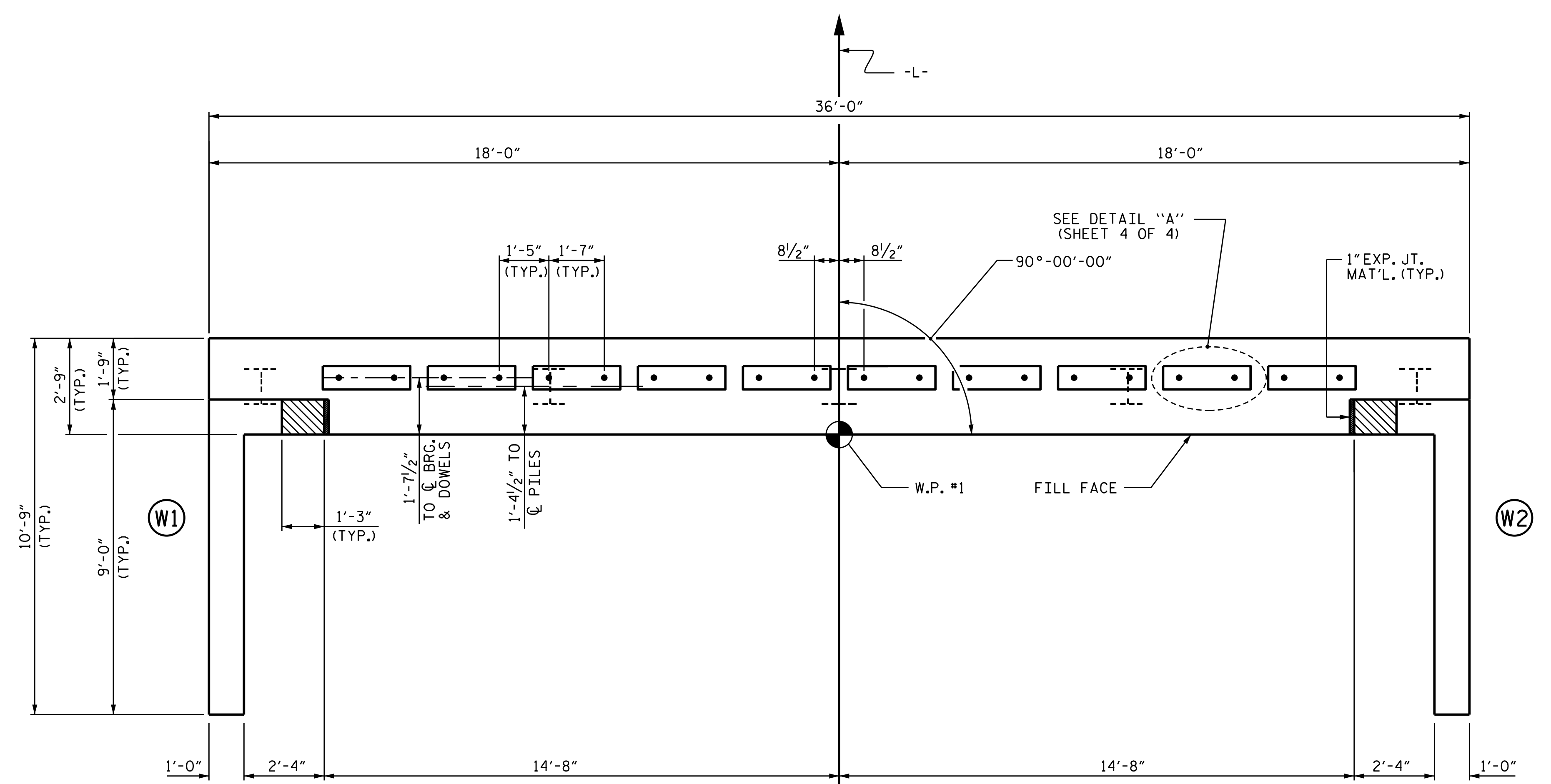
NOTES

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

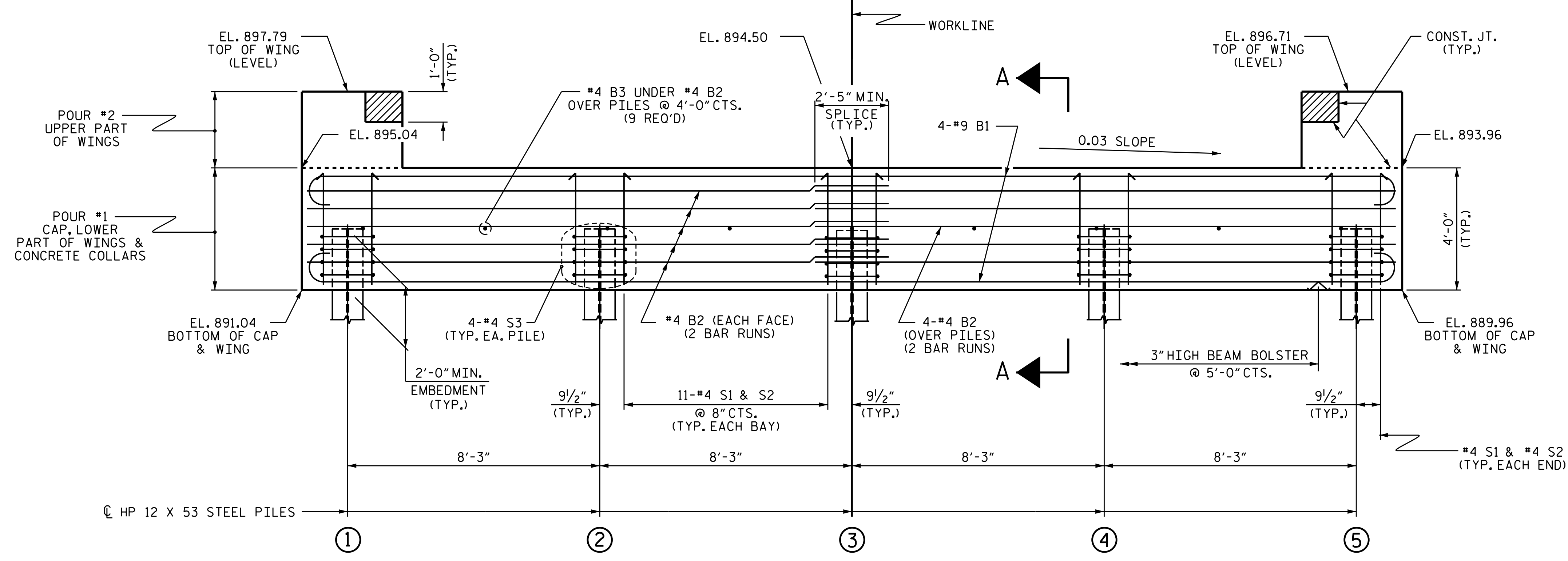
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

| TOP OF PILE ELEVATIONS | |
|------------------------|--------|
| ① | 892.99 |
| ② | 892.74 |
| ③ | 892.50 |
| ④ | 892.25 |
| ⑤ | 892.00 |



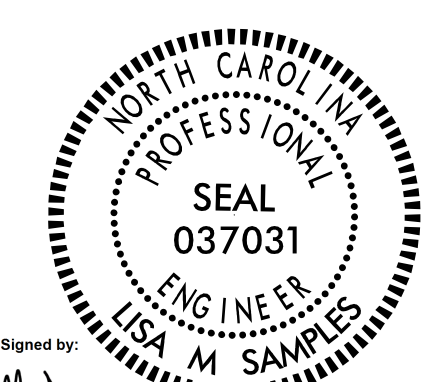
ELEVATION

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BR-0109
YADKIN COUNTY
 STATION: 28+54.00 -L-
 SHEET 1 of 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT No. 1



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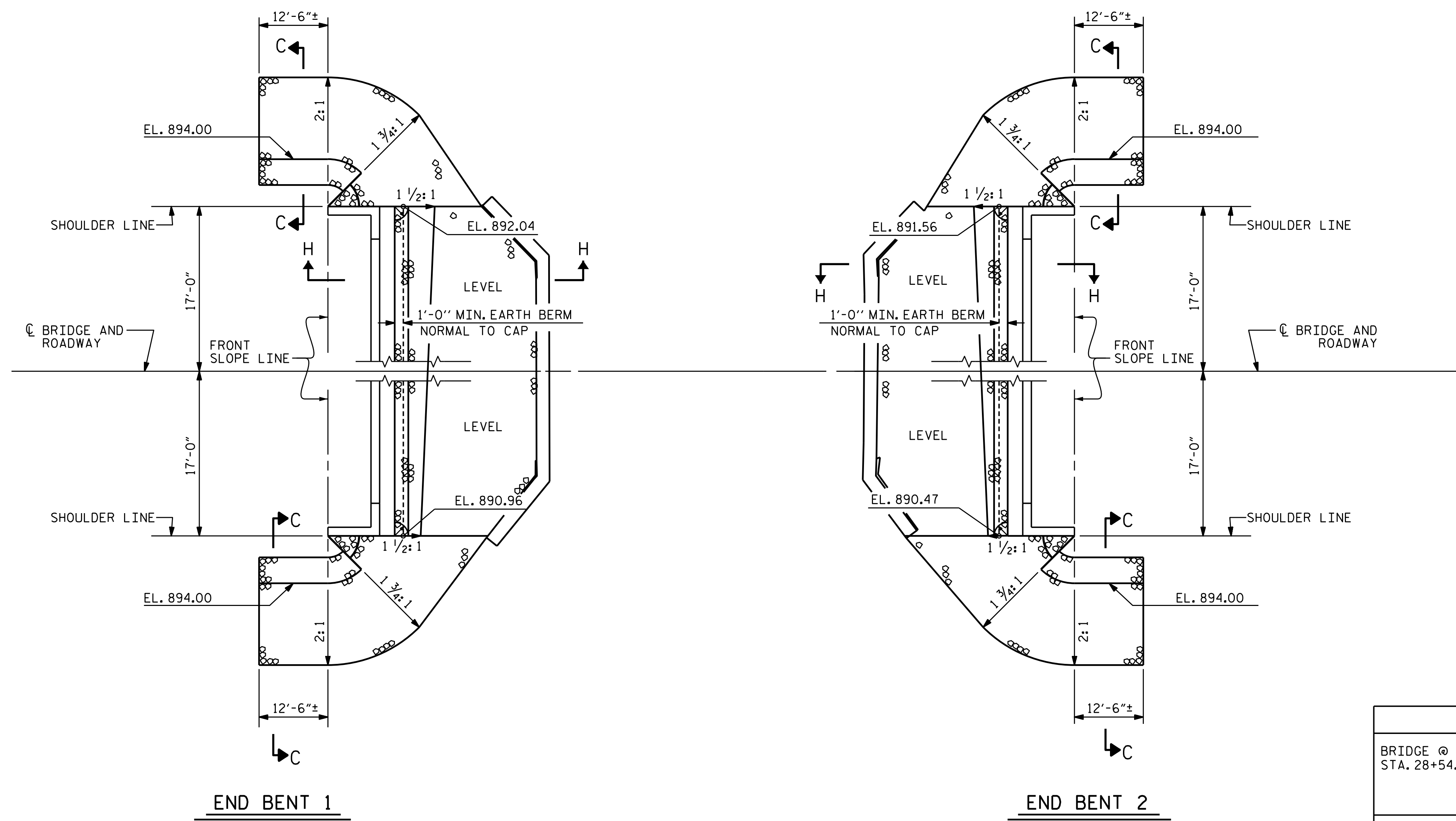
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-09 |
| 1 | | | 3 | | | TOTAL SHEETS 14 |
| 2 | | | 4 | | | |

ASSEMBLED BY : J.M. KEPICH DATE : 04/20
 CHECKED BY : L.M. SAMPLES DATE : 05/21

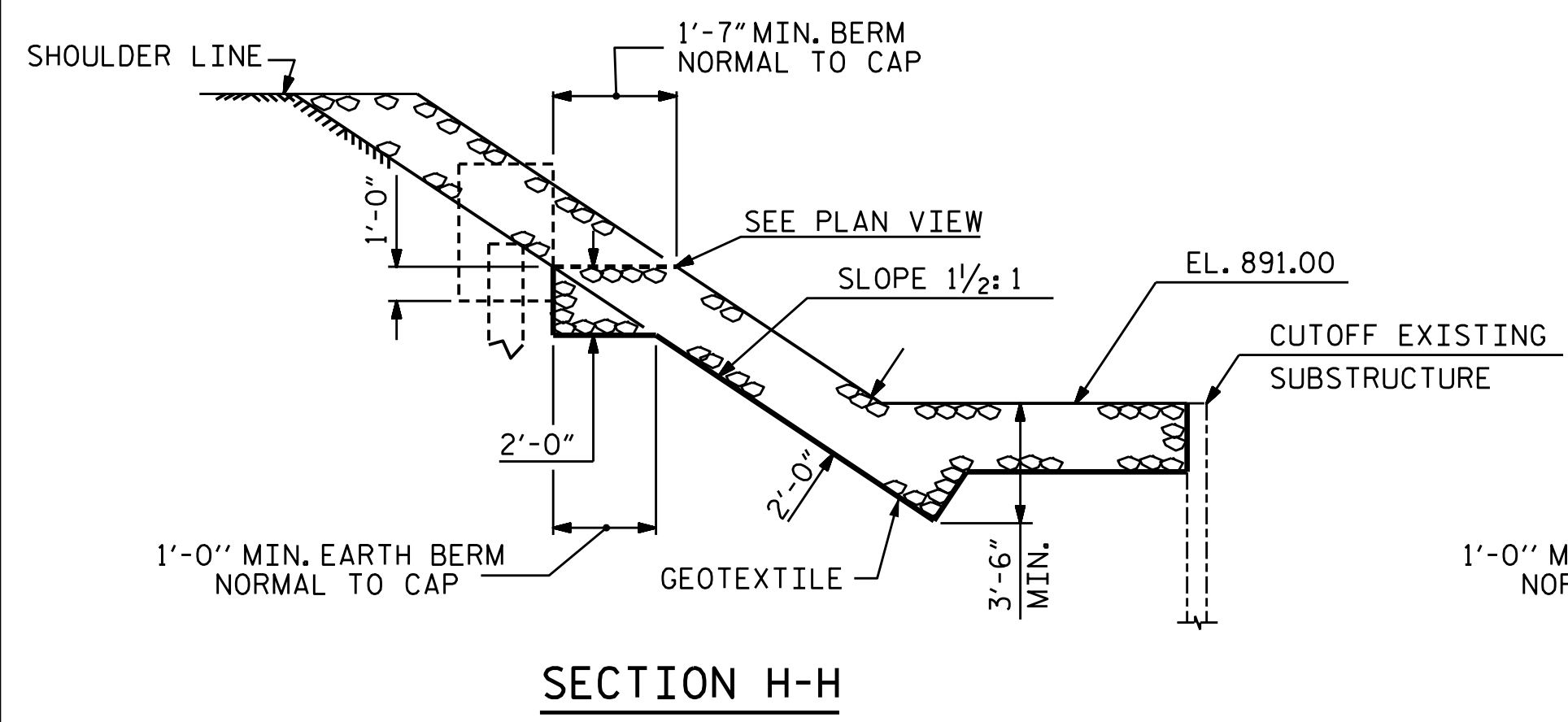
DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

REV. 4/15 MAA/TMC

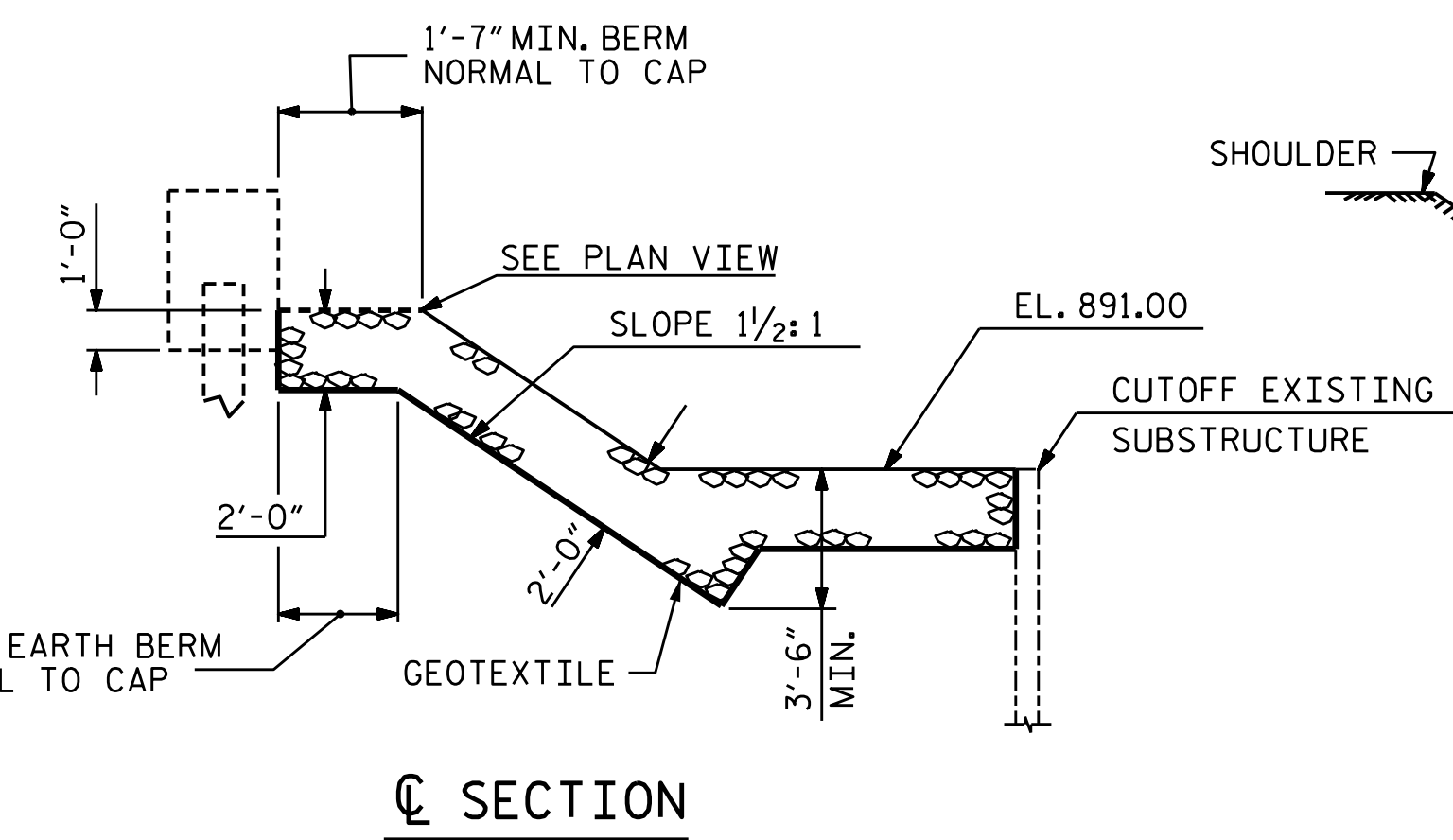
NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



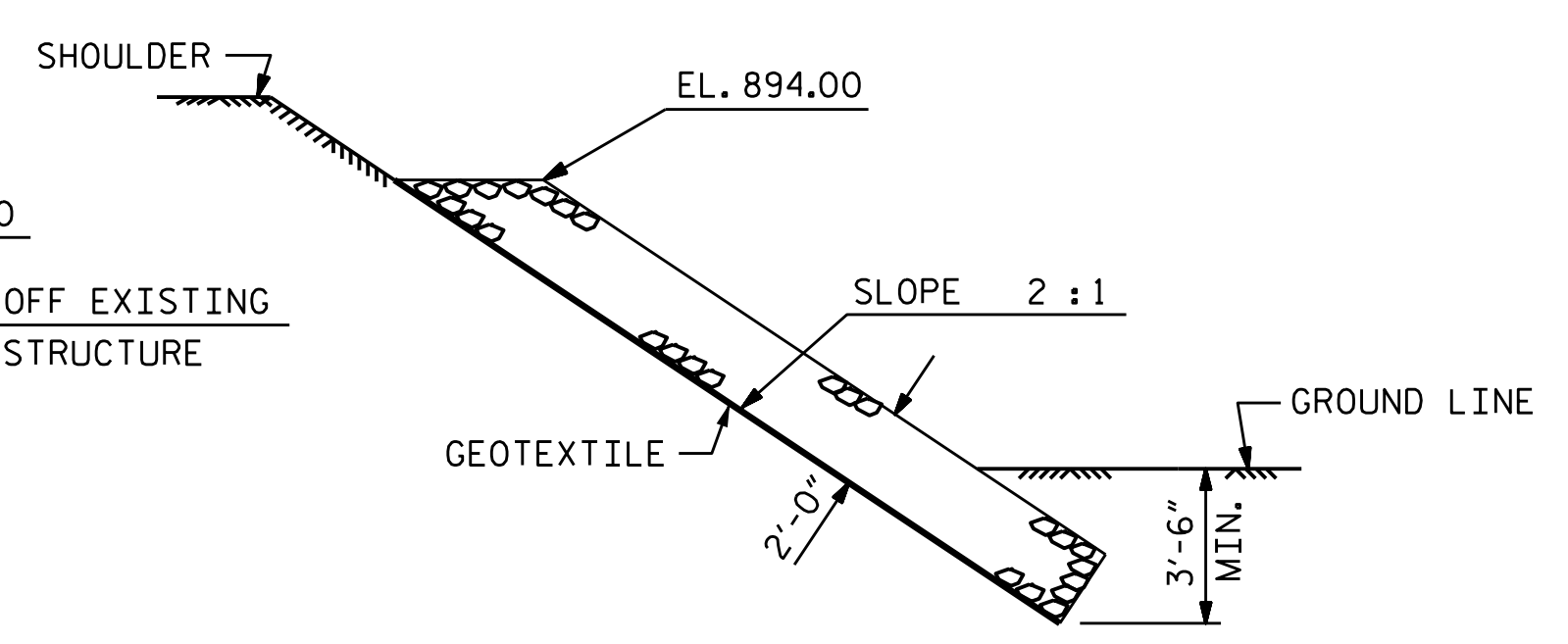
| ESTIMATED QUANTITIES | | |
|-------------------------------|--------------------------------------|----------------------------|
| BRIDGE @ STA. 28+54.00 -L- | RIP RAP CLASS II (2'-0" THICK) | GEOTEXTILE FOR DRAINAGE |
| | TONS | SQUARE YARDS |
| END BENT 1 | 82 | 92 |
| END BENT 2 | 59 | 66 |



SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BR-0109
YADKIN COUNTY
STATION: 28+54.00 -L-

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

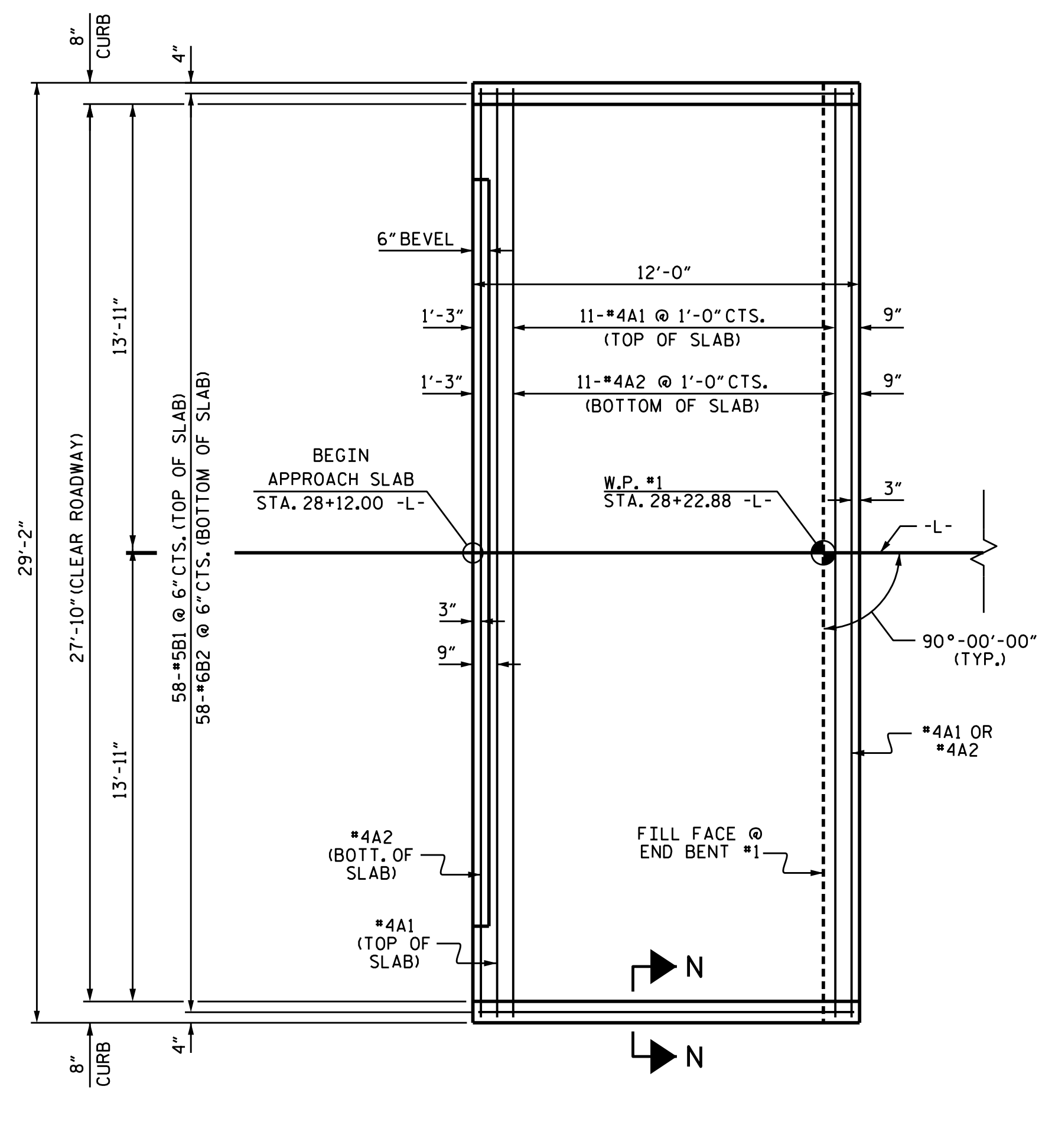


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Lisa M. Samples
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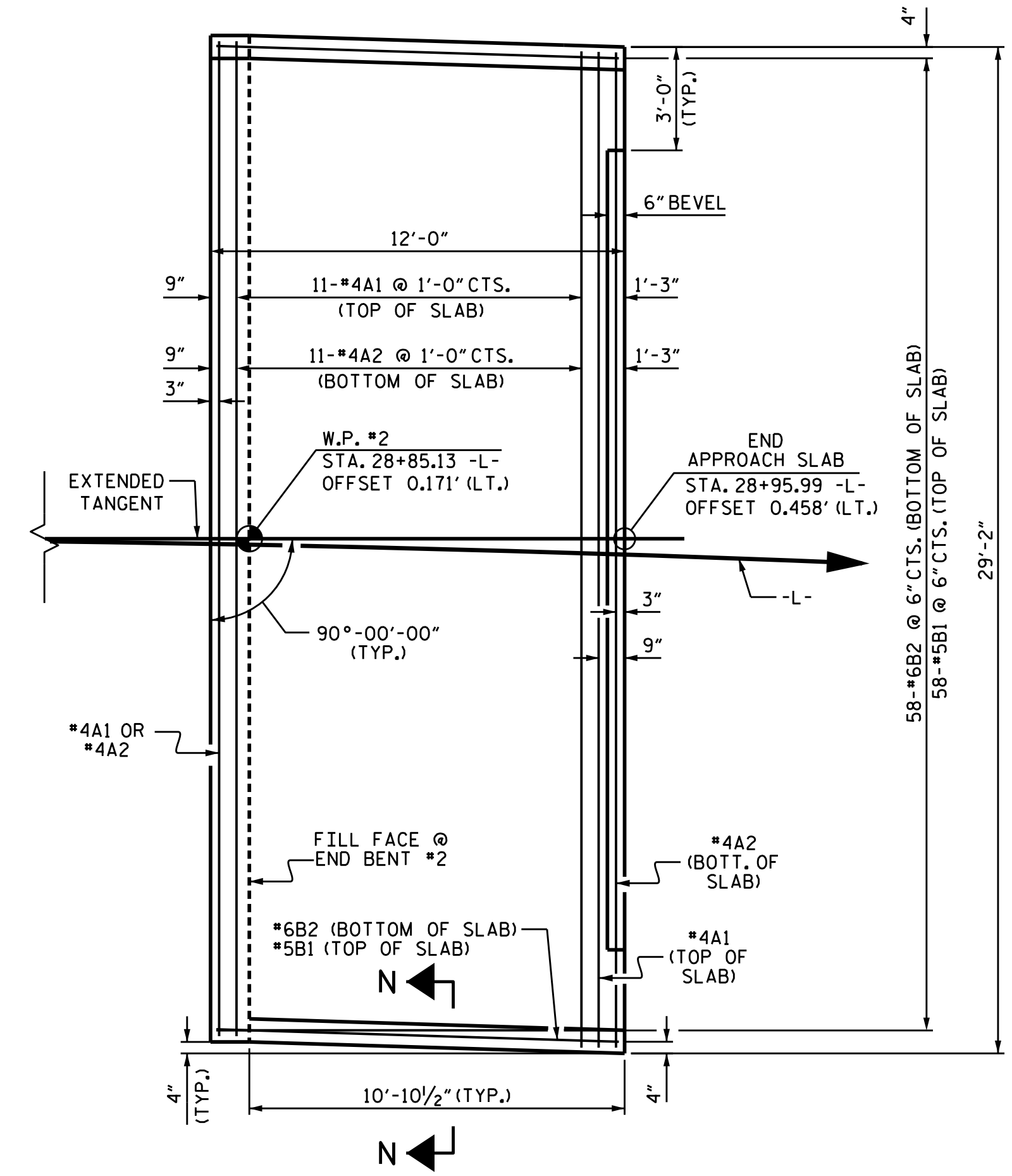
ms consultants, inc.
5444 Wade Park Blvd.
Suite 160
Raleigh, NC 27607
NC License Number : C-3239

| | |
|----------------------------|----------------------|
| ASSEMBLED BY : J.M. KEPICH | DATE : 1/4 |
| CHECKED BY : L.M. SAMPLES | DATE : 05/21 |
| DRAWN BY : REK 1/84 | REV. 10/11/11 MAA/GM |
| CHECKED BY : RDU 1/84 | REV. 12/21/11 MAA/GM |
| | REV. 12/17 MAA/THC |

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-13 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 14 |



PLAN @ END BENT #1

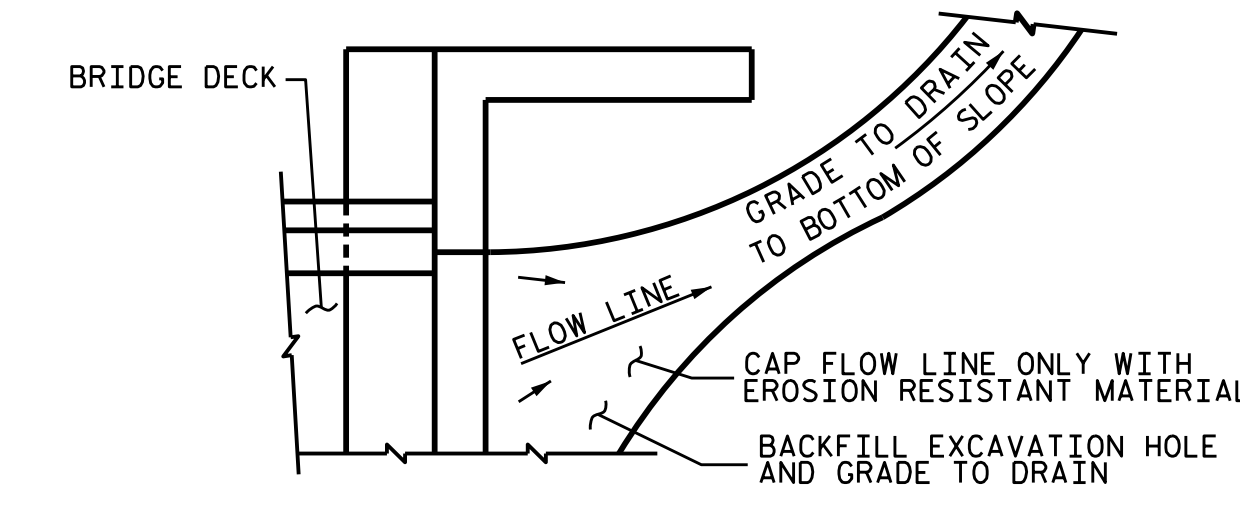


PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

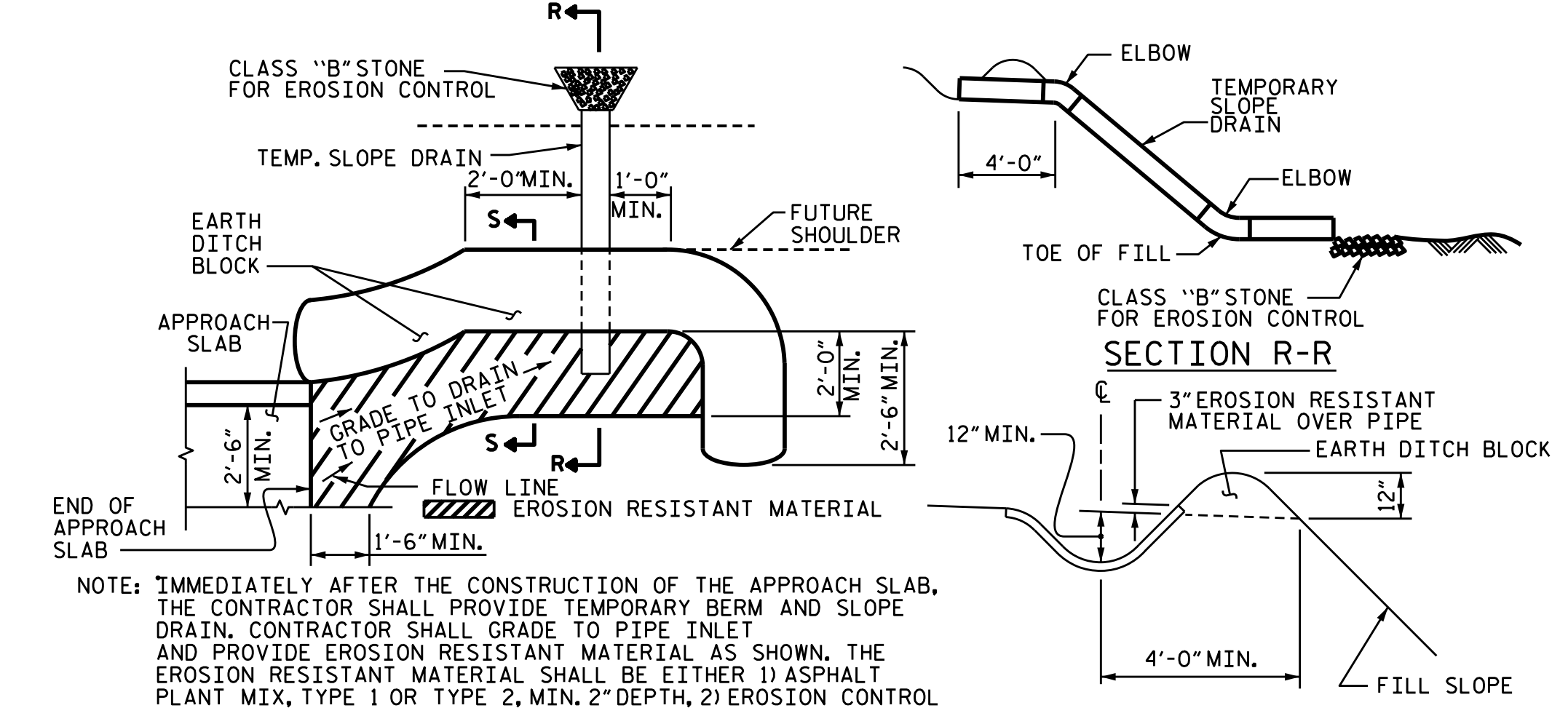
NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.
 GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
 SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
 SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM 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.
 APPROACH SLAB GROOVING IS NOT 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.

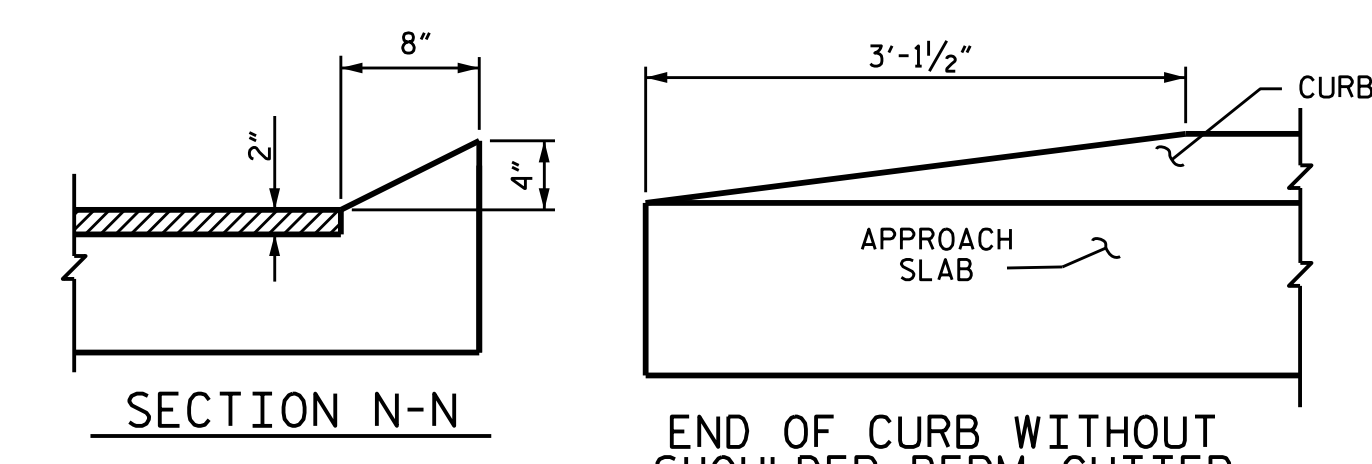
TEMPORARY DRAINAGE DETAIL



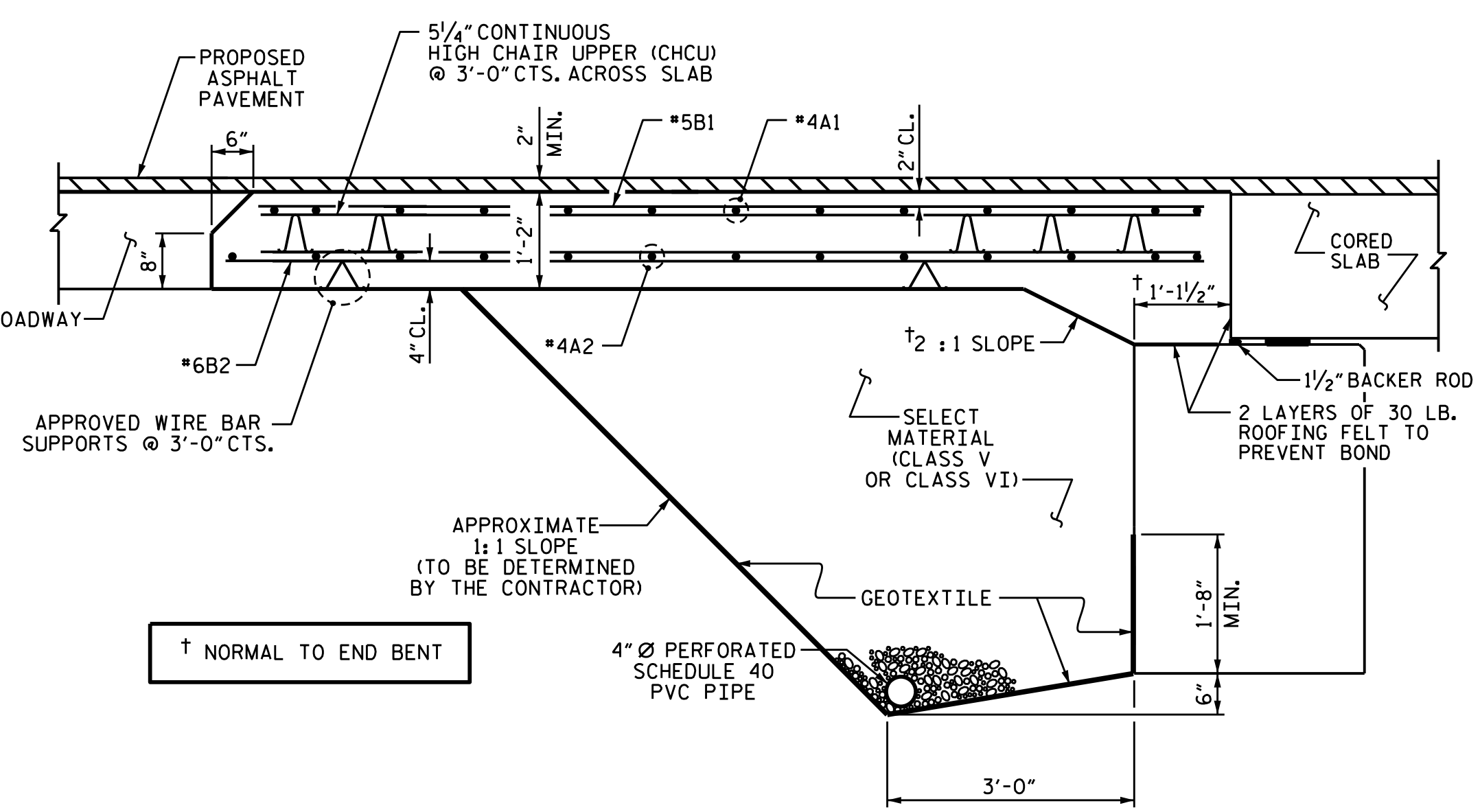
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS



SECTION THRU SLAB
(TYPE II - MODIFIED APPROACH FILL)

| SPLICE LENGTHS | | |
|----------------|--------------|----------|
| BAR SIZE | EPOXY COATED | UNCOATED |
| #4 | 2'-0" | 1'-9" |
| #5 | 2'-6" | 2'-2" |
| #6 | 3'-10" | 2'-7" |

| BILL OF MATERIAL | | | | | |
|---------------------------------|-------|------|------|---------|--------|
| APPROACH SLAB AT EB #1 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A1 | 13 | #4 | SIR | 28'-10" | 25Q |
| A2 | 13 | #4 | SIR | 28'-10" | 25Q |
| *B1 | 58 | #5 | SIR | 11'-2" | 676 |
| B2 | 58 | #6 | SIR | 11'-8" | 1016 |
| REINFORCING STEEL | LBS. | 1266 | | | |
| *EPOXY COATED REINFORCING STEEL | LBS. | 926 | | | |
| CLASS AA CONCRETE | C. Y. | 17.7 | | | |
| APPROACH SLAB AT EB #2 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A1 | 13 | #4 | SIR | 28'-10" | 25Q |
| A2 | 13 | #4 | SIR | 28'-10" | 25Q |
| *B1 | 59 | #5 | SIR | 11'-2" | 688 |
| B2 | 59 | #6 | SIR | 11'-8" | 1034 |
| REINFORCING STEEL | LBS. | 1284 | | | |
| *EPOXY COATED REINFORCING STEEL | LBS. | 938 | | | |
| CLASS AA CONCRETE | C. Y. | 17.7 | | | |

ASSEMBLED BY : J.M. KEPICH DATE : 04/20
 CHECKED BY : L.M. SAMPLES DATE : 05/21
 DRAWN BY : SHS/MAA 5-09
 CHECKED BY : BCH 5-09



ms consultants, inc.
 5444 Wade Park Blvd.
 Suite 160
 Raleigh, NC 27607
 NC License Number : C-3239

DocuSigned by:
 Lisa M. Samples
 5/10/2022
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. BR-0109
 YADKIN COUNTY
 STATION: 28+54.00 -L-

| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
|---|-----|-------|-----|-----|-------|
| STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. S-14
 TOTAL SHEETS 14

