

See Sheet 1-A For Index of Sheets  
 See Sheet 1-B For Conventional Plan Sheet Symbols  
 See Sheet 1-C For Survey Control Sheet

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | B-2950                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 32773.1.1       | BRZ-1222(2)                 | P.E.        |              |
| 32773.2.1       | BRZ-1222(2)                 | ROW & UTIL  |              |
| 32773.3.2       | BRZ-1222(2)                 | CONST       |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

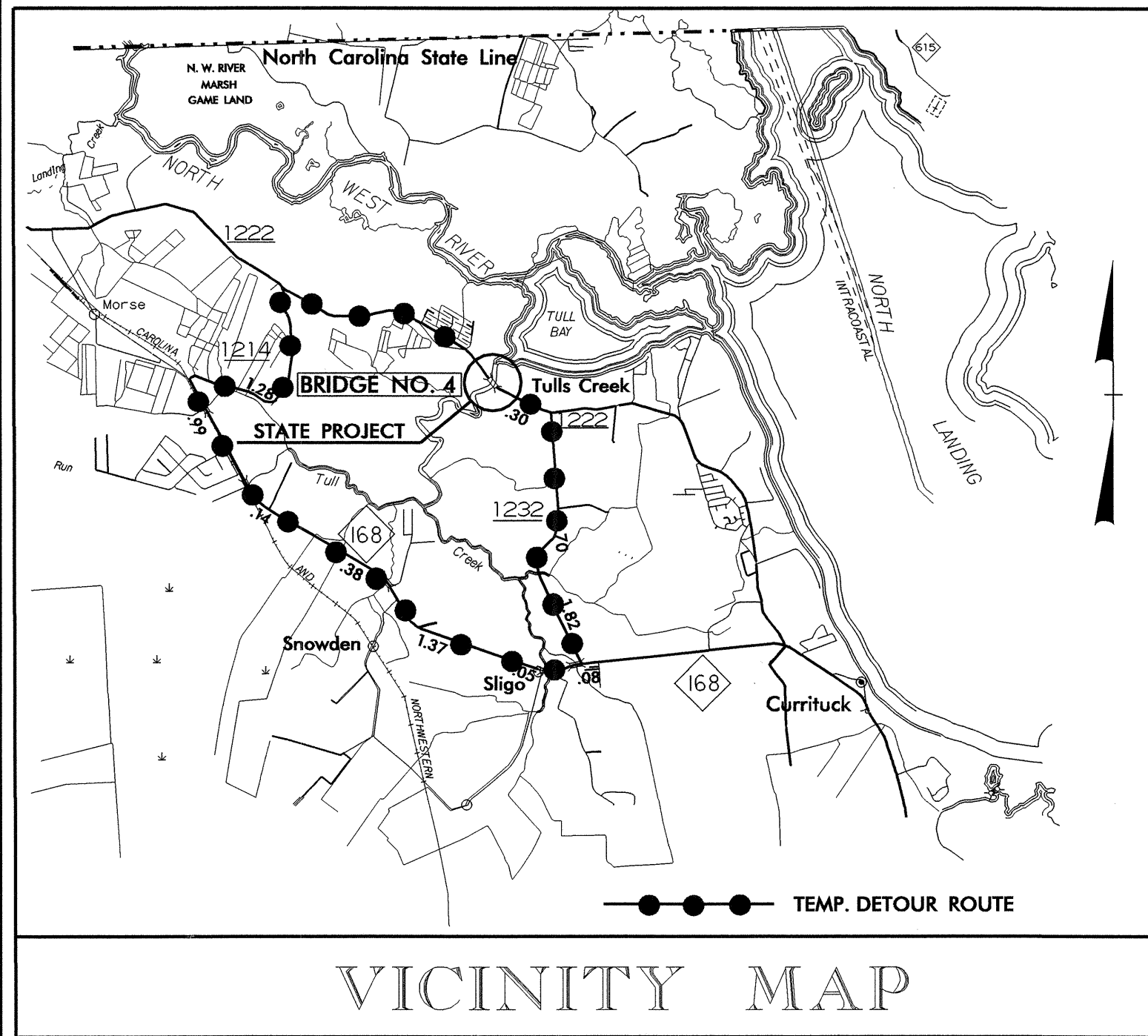
**CURRITUCK COUNTY**

LOCATION: BRIDGE NO. 4 OVER TULLS CREEK  
 ON SR 1222

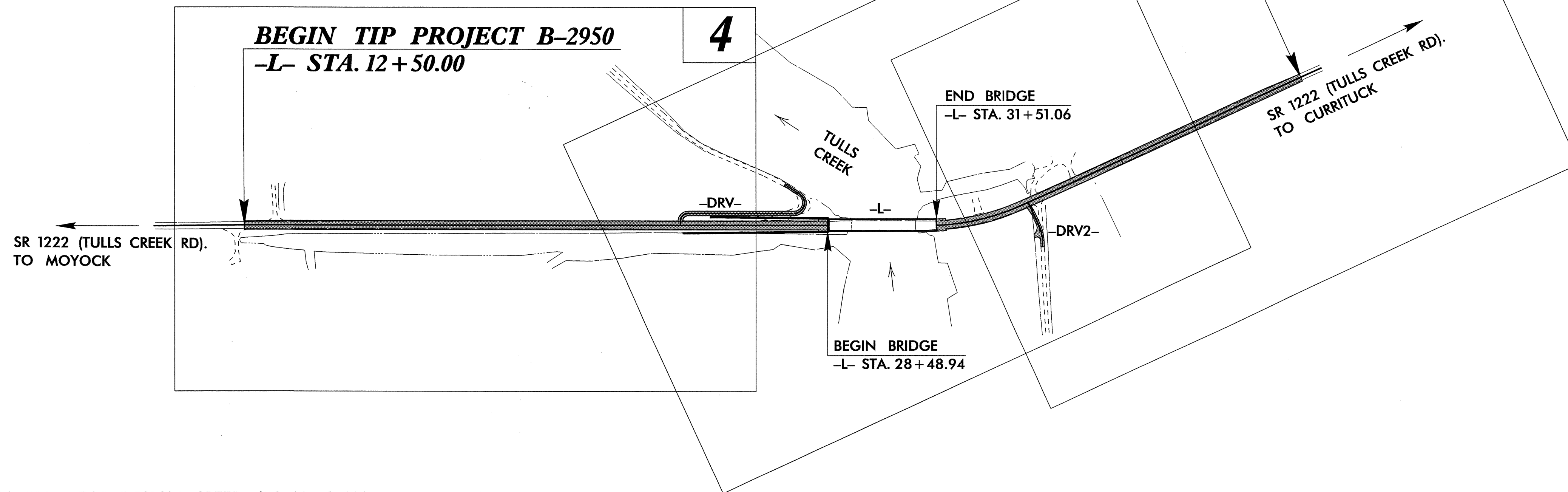
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

TIP PROJECT: B-2950

CONTRACT: C201641

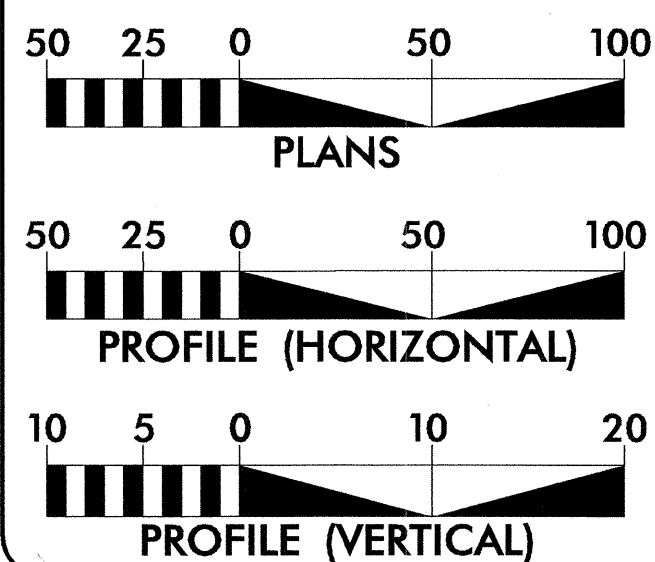


END TIP PROJECT B-2950  
 -L- STA. 42 + 43.10



★ DESIGN EXCEPTIONS REQUIRED FOR DESIGN SPEED (50 MPH), MIN. HORIZONTAL CURVE RADIUS (610') AND HORIZONTAL STOPPING SIGHT DISTANCE (308').

GRAPHIC SCALES



DESIGN DATA

ADT 2007 = 4428  
 ADT 2027 = 8508  
 DHV = 14%  
 D = 60%  
 T = 5% \*  
 V = 50 MPH ★  
 RURAL COLLECTOR  
 \* TTST 2% + DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-2950 = 0.510 MI  
 LENGTH STRUCTURE TIP PROJECT B-2950 = 0.057 MI  
 TOTAL LENGTH TIP PROJECT B-2950 = 0.567 MI

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
 1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
 JUNE 16, 2006

LETTING DATE:  
 AUGUST 21, 2007

GARY LOVERING, PE  
 PROJECT ENGINEER

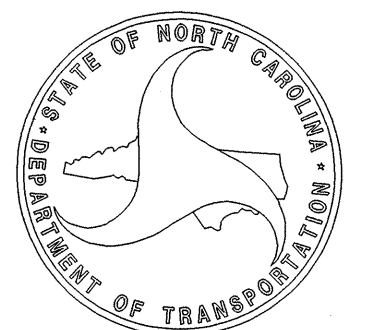
ANTHONY C. WEST  
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

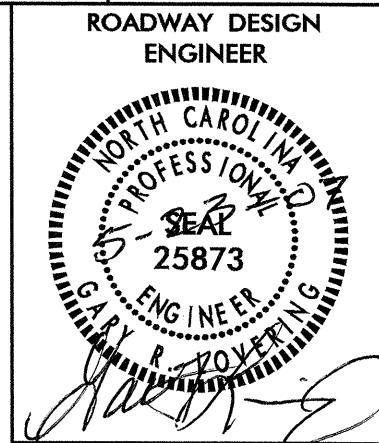
Signature: *Stephen R. Mowbray*  
 SEAL 22100  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA  
 522-47

Signature: *Anthony C. West*  
 SEAL 25873  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA  
 522-47

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER



**INDEX OF SHEETS**

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2006 ROADWAY STANDARD DRAWINGS  
 EFF. 07-18-06  
 REV. 01-02-07

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

| STD.NO.   | TITLE   |
|---|---|
| <b>DIVISION 2 - EARTHWORK</b>                     |   |
| 200.02  | Method of Clearing - Method II  |
| 200.03  | Method of Clearing - Method III   |
| 225.02  | Guide for Grading Subgrade - Secondary and Local                              |
| 225.04  | Method of Obtaining Superelevation - Two Lane Pavement                        |
| <b>DIVISION 3 - PIPE CULVERTS</b>                 |   |
| 300.01  | Method of Pipe Installation - Method 'A'                                      |
| 310.10  | Driveway Pipe Construction  |
| <b>DIVISION 4 - MAJOR STRUCTURES</b>              |   |
| 422.10  | Reinforced Bridge Approach Fills  |
| <b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b> |   |
| 560.01  | Method of Shoulder Construction - High Side of Superelevated Curve - Method I |
| <b>DIVISION 8 - INCIDENTALS</b>                   |   |
| 815.03  | Pipe Underdrain and Blind Drain   |
| 816.04  | Markers for Drainage Structure and Concrete Pad                               |
| 840.00  | Concrete Base Pad for Drainage Structures                                     |
| 840.18  | Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe                       |
| 840.19  | Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe                       |
| 840.27  | Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe                          |
| 840.28  | Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe                          |
| 840.29  | Frames and Narrow Slot Flat Grates  |
| 840.35  | Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates     |
| 840.45  | Precast Drainage Structure  |
| 840.46  | Traffic Bearing Precast Drainage Structure                                    |
| 840.66  | Drainage Structure Steps  |
| 846.01  | Concrete Curb, Gutter and Curb & Gutter                                       |
| 846.04  | Drop Inlet Installation in Shoulder Berm Gutter                               |
| 857.01  | Precast Reinforced Concrete Barrier - 41" Single Faced                        |
| 862.01  | Guardrail Placement   |
| 862.02  | Guardrail Installation  |
| 862.03  | Structure Anchor Units  |
| 862.04  | Anchoring End of Guardrail - B-77 and B-83 Anchor Units                       |
| 876.02  | Guide for Rip Rap at Pipe Outlets   |

**GENERAL NOTES:**  
 2006 SPECIFICATIONS  
 EFFECTIVE: 07-18-06  
 REVISED: 07-18-06

**GRADING AND SURFACING OR RESURFACING AND WIDENING:**  
 THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**CLEARING:** CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II FOR THE WETLAND AREAS (WEST SIDE) AND METHOD III FOR UPLAND AREAS (EAST SIDE).

**SUPERELEVATION:**  
 ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

**SHOULDER CONSTRUCTION:**  
 ASPHALT, EARTH AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

**SIDE ROADS:**  
 THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS.

**UNDERDRAINS:**  
 UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

**GUARDRAIL:**  
 THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

**TEMPORARY SHORING:**  
 SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

**END BENTS:**  
 THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

**UTILITIES:**  
 UTILITY OWNERS ON THIS PROJECT ARE DOMINION POWER - POWER DISTRIBUTION, EMBARQ - TELEPHONE, PIEDMONT NATURAL GAS - GAS, MEDIA COM - CATV AND CURRITUCK COUNTY WATER

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

**RIGHT-OF-WAY MARKERS:**  
 ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

8/17/99

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3/15/06

**Note: Not to Scale**

**\*S.U.E. = Subsurface Utility Engineering**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**BOUNDARIES AND PROPERTY:**

|                                     |       |
|-------------------------------------|-------|
| State Line                          | ----- |
| County Line                         | ----- |
| Township Line                       | ----- |
| City Line                           | ----- |
| Reservation Line                    | ----- |
| Property Line                       | ----- |
| Existing Iron Pin                   | ○     |
| Property Corner                     | ✕     |
| Property Monument                   | EDM   |
| Parcel/Sequence Number              | 123   |
| Existing Fence Line                 | ----- |
| Proposed Woven Wire Fence           | ----- |
| Proposed Chain Link Fence           | ----- |
| Proposed Barbed Wire Fence          | ----- |
| Existing Wetland Boundary           | MLB   |
| Proposed Wetland Boundary           | MLB   |
| Existing Endangered Animal Boundary | EAB   |
| Existing Endangered Plant Boundary  | EPB   |

**BUILDINGS AND OTHER CULTURE:**

|                               |   |
|-------------------------------|---|
| Gas Pump Vent or U/G Tank Cap | ○ |
| Sign                          | ○ |
| Well                          | ○ |
| Small Mine                    | ✕ |
| Foundation                    | ▭ |
| Area Outline                  | ▭ |
| Cemetery                      | + |
| Building                      | ▭ |
| School                        | ▭ |
| Church                        | ▭ |
| Dam                           | ▭ |

**HYDROLOGY:**

|                                    |       |
|------------------------------------|-------|
| Stream or Body of Water            | ----- |
| Hydro, Pool or Reservoir           | ▭     |
| Jurisdictional Stream              | JS    |
| Buffer Zone 1                      | BZ 1  |
| Buffer Zone 2                      | BZ 2  |
| Flow Arrow                         | ←     |
| Disappearing Stream                | ----- |
| Spring                             | ○     |
| Swamp Marsh                        | ✕     |
| Proposed Lateral, Tail, Head Ditch | ----- |
| False Sump                         | ◊     |

**RAILROADS:**

|                    |                                   |
|--------------------|-----------------------------------|
| Standard Gauge     | -----                             |
| RR Signal Milepost | CSX TRANSPORTATION<br>MILEPOST 35 |
| Switch             | SWITCH                            |
| RR Abandoned       | -----                             |
| RR Dismantled      | -----                             |

**RIGHT OF WAY:**

|  |       |
|--|-------|
| Baseline Control Point                                     | ◆     |
| Existing Right of Way Marker                               | △     |
| Existing Right of Way Line                                 | ----- |
| Proposed Right of Way Line                                 | ----- |
| Proposed Right of Way Line with Iron Pin and Cap Marker    | ----- |
| Proposed Right of Way Line with Concrete or Granite Marker | ----- |
| Existing Control of Access                                 | ⊙     |
| Proposed Control of Access                                 | ⊙     |
| Existing Easement Line                                     | E     |
| Proposed Temporary Construction Easement                   | E     |
| Proposed Temporary Drainage Easement                       | TDE   |
| Proposed Permanent Drainage Easement                       | PDE   |
| Proposed Permanent Utility Easement                        | PUE   |

**ROADS AND RELATED FEATURES:**

|                                      |       |
|--------------------------------------|-------|
| Existing Edge of Pavement            | ----- |
| Existing Curb                        | ----- |
| Proposed Slope Stakes Cut            | C     |
| Proposed Slope Stakes Fill           | F     |
| Proposed Wheel Chair Ramp            | WCR   |
| Proposed Wheel Chair Ramp Curb Cut   | WCC   |
| Curb Cut for Future Wheel Chair Ramp | CCFR  |
| Existing Metal Guardrail             | ----- |
| Proposed Guardrail                   | ----- |
| Existing Cable Guiderail             | ----- |
| Proposed Cable Guiderail             | ----- |
| Equality Symbol                      | ⊙     |
| Pavement Removal                     | ▨     |

**VEGETATION:**

|              |          |
|--------------|----------|
| Single Tree  | ○        |
| Single Shrub | ○        |
| Hedge        | -----    |
| Woods Line   | -----    |
| Orchard      | -----    |
| Vineyard     | Vineyard |

**EXISTING STRUCTURES:**

|  |         |
|--|---------|
| MAJOR:                                   |         |
| Bridge, Tunnel or Box Culvert            | CONC    |
| Bridge Wing Wall, Head Wall and End Wall | CONC WW |
| MINOR:                                   |         |
| Head and End Wall                        | CONC HW |
| Pipe Culvert                             | -----   |
| Footbridge                               | -----   |
| Drainage Box: Catch Basin, DI or JB      | CB      |
| Paved Ditch Gutter                       | -----   |
| Storm Sewer Manhole                      | ⊙       |
| Storm Sewer                              | S       |

**UTILITIES:**

|                                     |    |
|-------------------------------------|----|
| POWER:                              |    |
| Existing Power Pole                 | ●  |
| Proposed Power Pole                 | ○  |
| Existing Joint Use Pole             | ●  |
| Proposed Joint Use Pole             | ○  |
| Power Manhole                       | ⊙  |
| Power Line Tower                    | ⊗  |
| Power Transformer                   | ⊗  |
| U/G Power Cable Hand Hole           | PH |
| H-Frame Pole                        | ●  |
| Recorded U/G Power Line             | P  |
| Designated U/G Power Line (S.U.E.*) | P  |

**TELEPHONE:**

|   |      |
|---|------|
| Existing Telephone Pole                     | ●    |
| Proposed Telephone Pole                     | ○    |
| Telephone Manhole                           | ⊙    |
| Telephone Booth                             | ▭    |
| Telephone Pedestal                          | ⊙    |
| Telephone Cell Tower                        | ⊙    |
| U/G Telephone Cable Hand Hole               | PH   |
| Recorded U/G Telephone Cable                | T    |
| Designated U/G Telephone Cable (S.U.E.*)    | T    |
| Recorded U/G Telephone Conduit              | Tc   |
| Designated U/G Telephone Conduit (S.U.E.*)  | Tc   |
| Recorded U/G Fiber Optics Cable             | T FO |
| Designated U/G Fiber Optics Cable (S.U.E.*) | T FO |

**WATER:**

|                                     |           |
|-------------------------------------|-----------|
| Water Manhole                       | ⊙         |
| Water Meter                         | ○         |
| Water Valve                         | ⊗         |
| Water Hydrant                       | ⊙         |
| Recorded U/G Water Line             | W         |
| Designated U/G Water Line (S.U.E.*) | W         |
| Above Ground Water Line             | A/G Water |

**TV:**

|  |       |
|--|-------|
| TV Satellite Dish                          | ☾     |
| TV Pedestal                                | ⊙     |
| TV Tower                                   | ⊗     |
| U/G TV Cable Hand Hole                     | PH    |
| Recorded U/G TV Cable                      | TV    |
| Designated U/G TV Cable (S.U.E.*)          | TV    |
| Recorded U/G Fiber Optic Cable             | TV FO |
| Designated U/G Fiber Optic Cable (S.U.E.*) | TV FO |

**GAS:**

|                                   |         |
|-----------------------------------|---------|
| Gas Valve                         | ⊙       |
| Gas Meter                         | ⊙       |
| Recorded U/G Gas Line             | G       |
| Designated U/G Gas Line (S.U.E.*) | G       |
| Above Ground Gas Line             | A/G Gas |

**SANITARY SEWER:**

|  |                    |
|--|--------------------|
| Sanitary Sewer Manhole                   | ⊙                  |
| Sanitary Sewer Cleanout                  | ⊙                  |
| U/G Sanitary Sewer Line                  | SS                 |
| Above Ground Sanitary Sewer              | A/G Sanitary Sewer |
| Recorded SS Forced Main Line             | FSS                |
| Designated SS Forced Main Line (S.U.E.*) | FSS                |

**MISCELLANEOUS:**

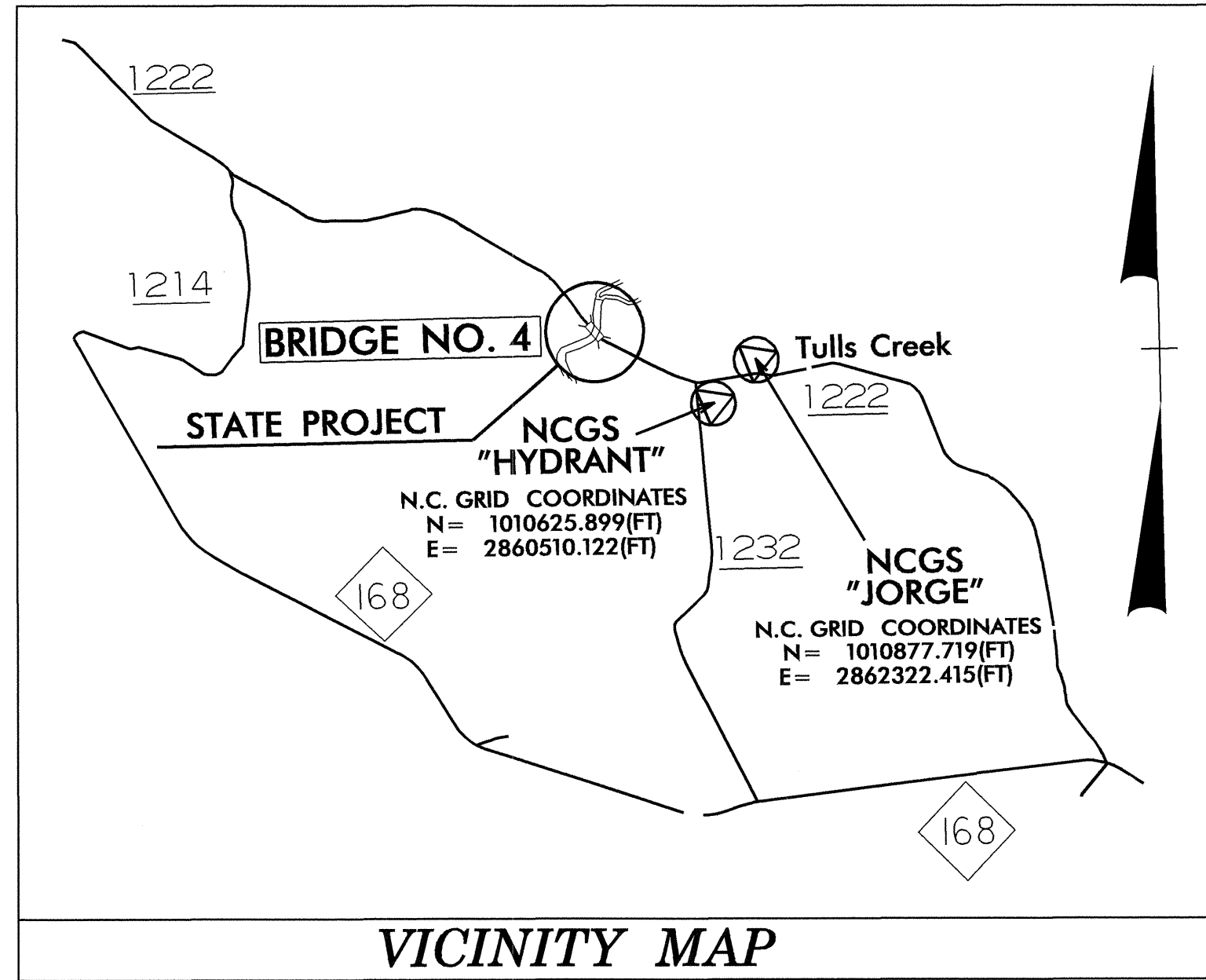
|  |        |
|--|--------|
| Utility Pole                           | ●      |
| Utility Pole with Base                 | ⊙      |
| Utility Located Object                 | ○      |
| Utility Traffic Signal Box             | ⊙      |
| Utility Unknown U/G Line               | UTIL   |
| U/G Tank; Water, Gas, Oil              | ▭      |
| A/G Tank; Water, Gas, Oil              | ▭      |
| U/G Test Hole (S.U.E.*)                | ⊙      |
| Abandoned According to Utility Records | AATUR  |
| End of Information                     | E.O.I. |

# SURVEY CONTROL SHEET B-2950

## CONTROL DATA

| BL | POINT | DESC. | NORTH        | EAST         | ELEVATION | L STATION              | OFFSET   |
|----|-------|-------|--------------|--------------|-----------|------------------------|----------|
|    | 8     | BL-8  | 1013904.7280 | 2855920.7740 | 3.06      | OUTSIDE PROJECT LIMITS |          |
|    | 7     | BL-7  | 1013474.1520 | 2856270.2650 | 2.26      | 15+21.88               | 14.59 RT |
|    | 6     | BL-6  | 1012881.8130 | 2856735.6840 | 2.19      | 22+75.20               | 13.21 RT |
|    | 5     | BL-5  | 1012173.7160 | 2857290.8040 | 9.25      | 31+74.06               | 13.90 RT |
|    | 4     | BL-4  | 1011618.2610 | 2858279.0540 | 2.80      | 43+06.91               | 14.55 RT |

NO SUPPLEMENTAL BENCH MARKS SET!



## END TIP PROJECT B-2950 -L- STA. 42+43.10

### LOCALIZED PROJECT COORDINATES

N = 1,011,660.390  
E = 2,858,228.969

### NCDOT BASELINE STATION "BL-8" LOCALIZED PROJECT COORDINATES

N = 1,013,904.728  
E = 2,855,920.774

### NCDOT BASELINE STATION "BL-7" LOCALIZED PROJECT COORDINATES

N = 1,013,474.152  
E = 2,856,270.265

### NCDOT BASELINE STATION "BL-6" LOCALIZED PROJECT COORDINATES

N = 1,012,881.813  
E = 2,856,735.684

### NCDOT BASELINE STATION "BL-5" LOCALIZED PROJECT COORDINATES

N = 1,012,173.716  
E = 2,857,290.804

### NCDOT BASELINE STATION "BL-4" LOCALIZED PROJECT COORDINATES

N = 1,011,618.261  
E = 2,858,279.054

SR 1222 (TULLS CREEK RD.)  
TO MOYOCK

SR 1222 (TULLS CREEK RD.)  
TO CURRITUCK

## BEG TIP PROJECT B-2950 -L- STA. 12+50.00

### LOCALIZED PROJECT COORDINATES

N = 1,013,696.807  
E = 2,856,113.619

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "HYDRANT" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 1010625.899(FT) EASTING: 2860510.122(FT) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0001084 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HYDRANT" TO -L- STATION 10+00.00 IS N54° 20' 21" W 5,602.94 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING [HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)

FILE: b2950\_ls\_control\_060329.txt

THERE IS NO CALIBRATION FOR THIS PROJECT.

IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊕ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

**NOTE: DRAWING NOT TO SCALE**

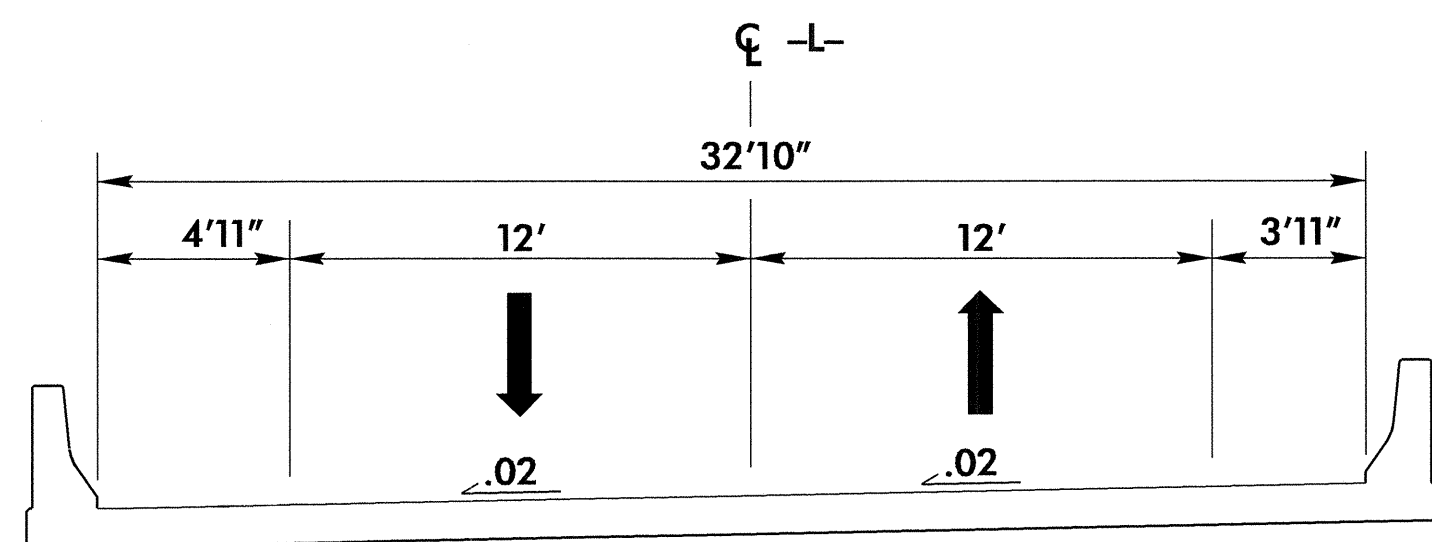
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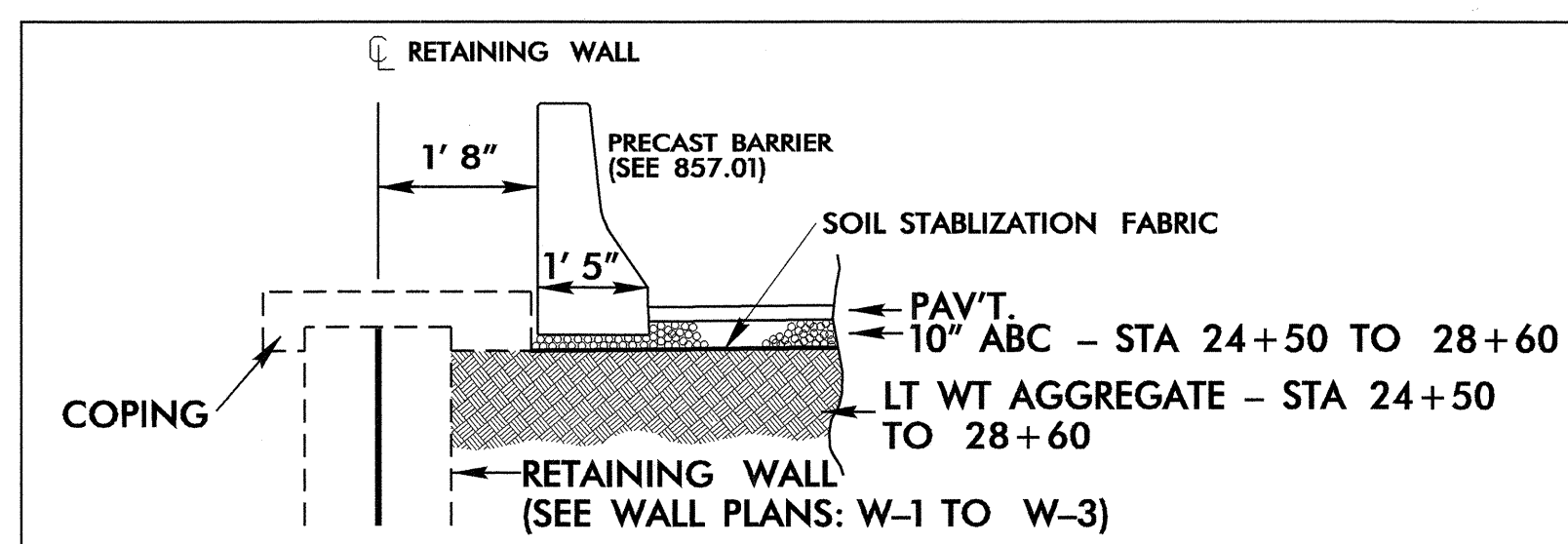
| FINAL PAVEMENT SCHEDULE |   |
|-------------------------|---|
| C1                      | PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.   |
| C2                      | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.       |
| D1                      | PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.   |
| D2                      | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH. |
| E1                      | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.  |
| E2                      | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.         |
| J                       | PROP. 6" AGGREGATE BASE COURSE  |
| T                       | EARTH MATERIAL.   |
| U                       | EXISTING PAVEMENT   |
| W                       | VARIABLE DEPTH ASPHALT PAVEMENT. SEE STANDARD WEDGING DETAIL  |

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



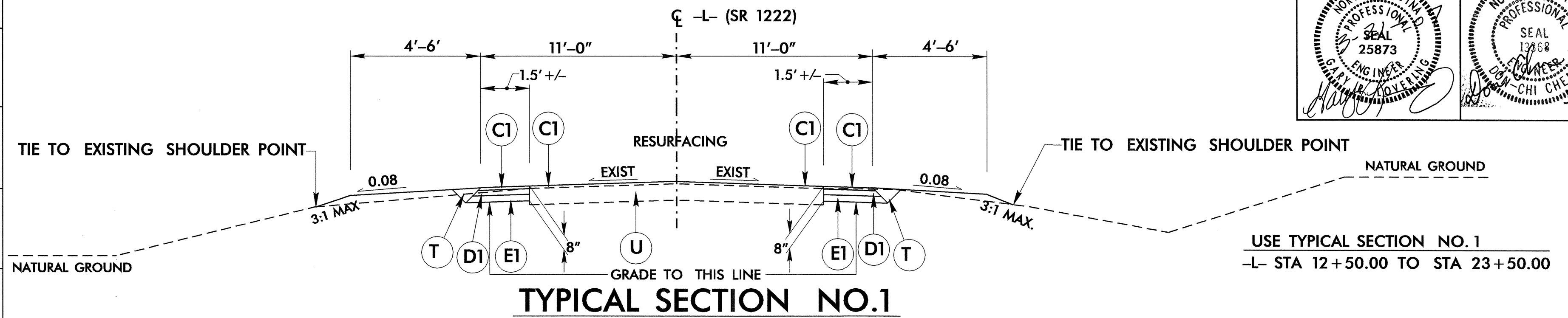
**BRIDGE TYPICAL**

-L- STA. STA 28+48.94  
TO -L- STA 31+51.06



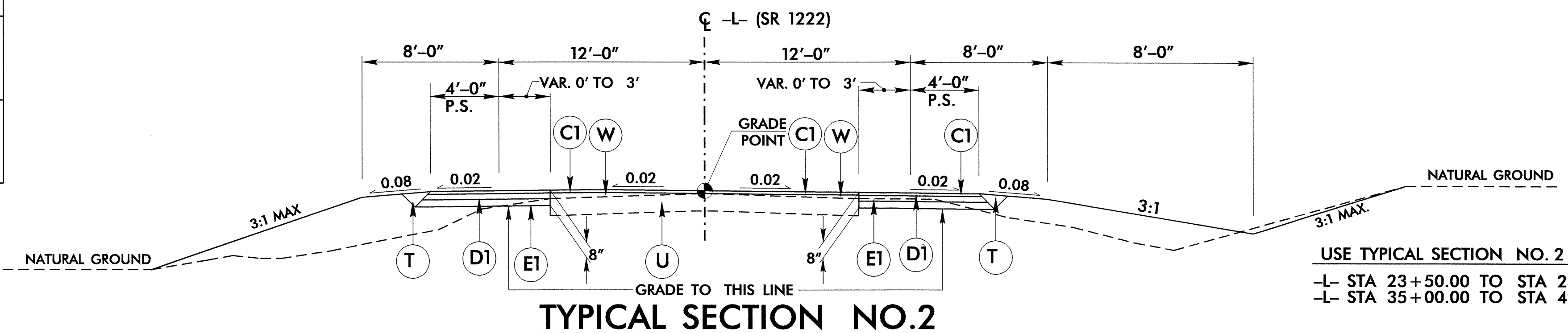
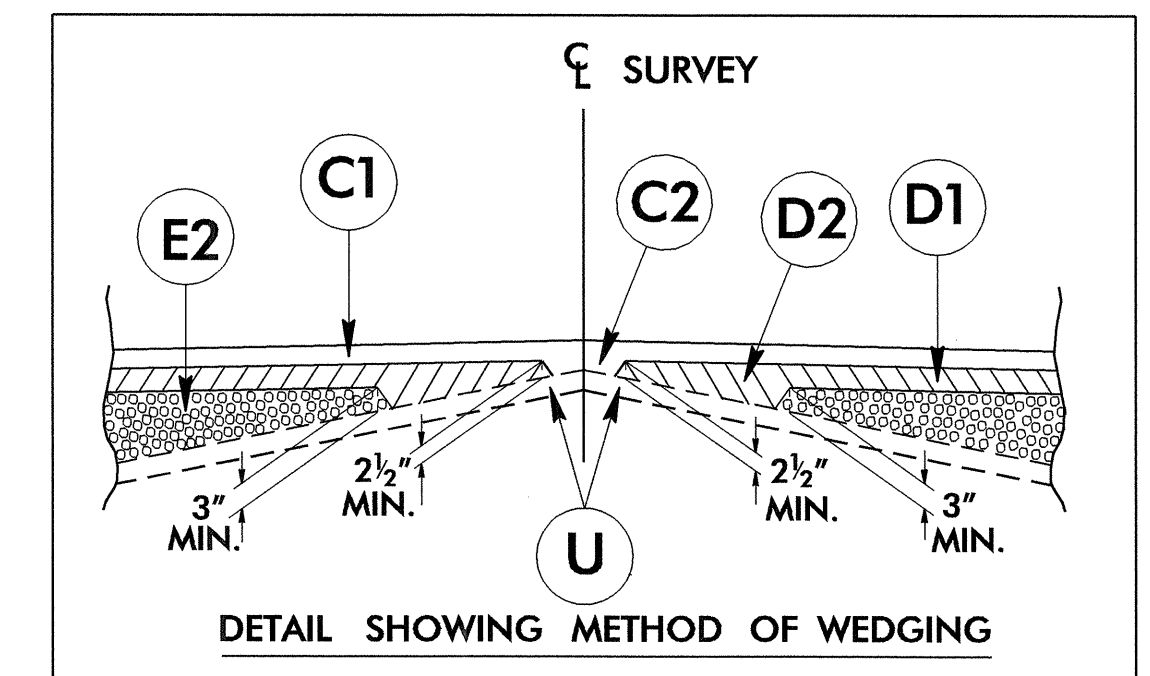
\*\* INSET A \*\*

USE INSET A WITH TYPICAL SECTION NO. 3  
LIGHTWEIGHT AGGREGATE AND 10" ABC LIMITS  
-L- STA 24+50 TO 28+60



**TYPICAL SECTION NO.1**

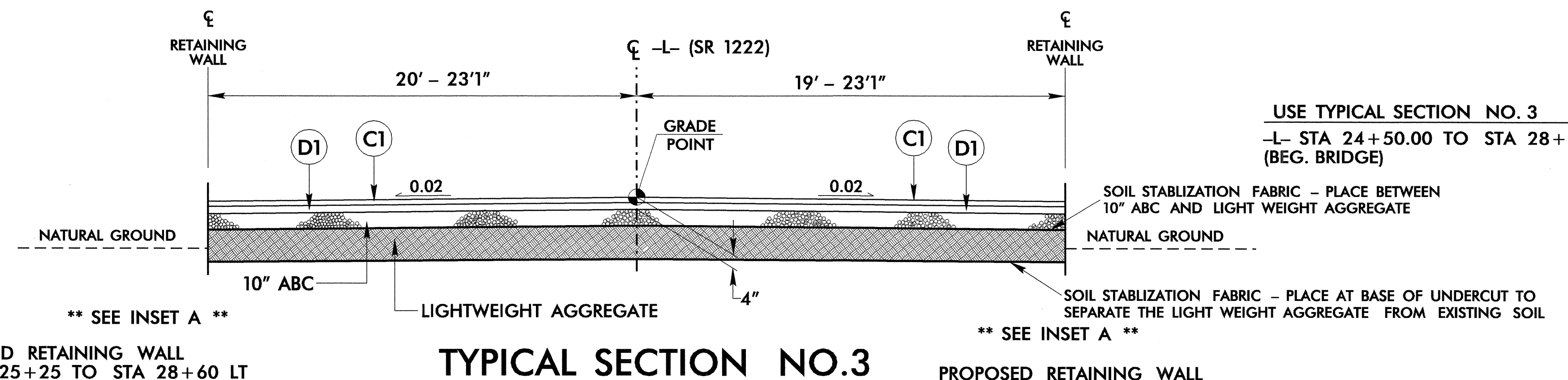
USE TYPICAL SECTION NO. 1  
-L- STA 12+50.00 TO STA 23+50.00



**TYPICAL SECTION NO.2**

USE TYPICAL SECTION NO. 2  
-L- STA 23+50.00 TO STA 24+50.00  
-L- STA 35+00.00 TO STA 42+43.10

NOTE: SEE TYPICAL SECTION NO. 3 FOR RETAINING WALL LOCATION




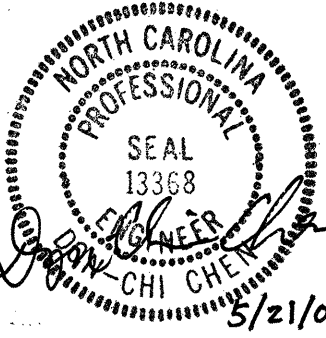
**TYPICAL SECTION NO.3**

PROPOSED RETAINING WALL  
-L- STA 25+25 TO STA 28+60 LT

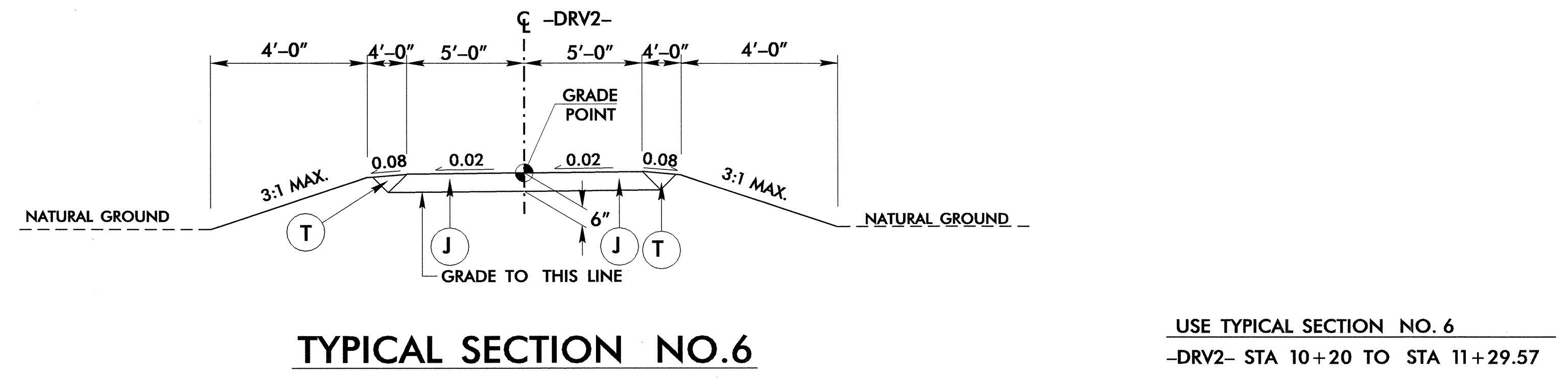
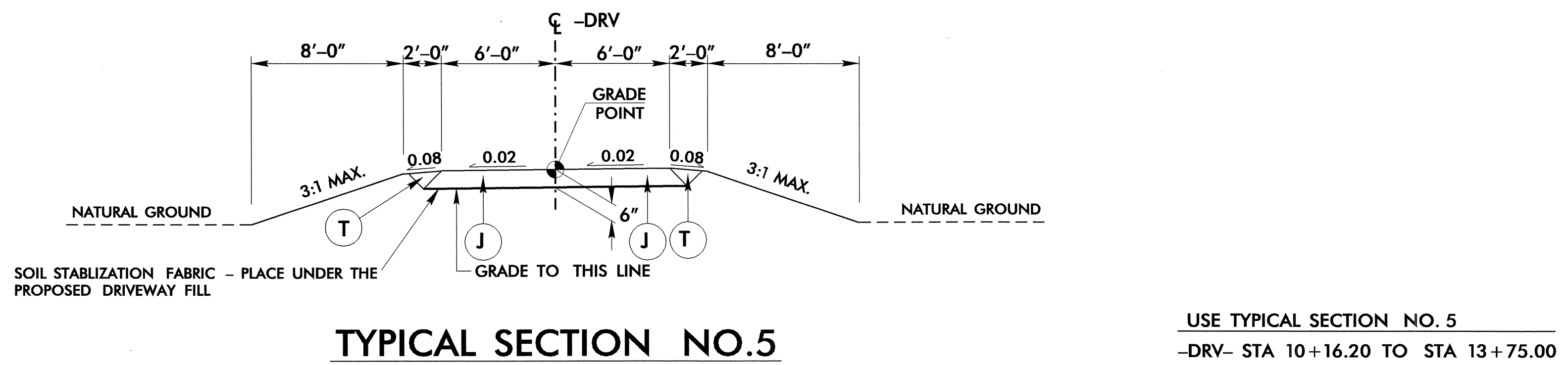
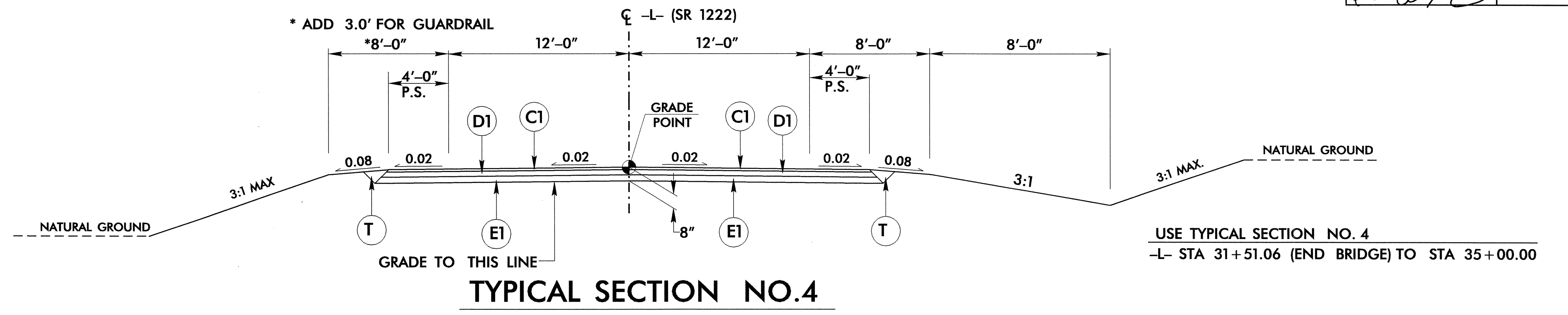
PROPOSED RETAINING WALL  
-L- STA 24+50 TO 28+60 RT

USE TYPICAL SECTION NO. 3  
-L- STA 24+50.00 TO STA 28+48.94 (BEG. BRIDGE)

6/2/09

|   |   |
|---|---|
| PROJECT REFERENCE NO.<br><b>B-2950</b>  | SHEET NO.<br><b>2-A</b>   |
| ROADWAY DESIGN ENGINEER   | PAVEMENT DESIGN ENGINEER  |
| <br>SEAL 25873<br>ENGINEER | <br>SEAL 13368<br>ENGINEER<br>CHI CHEE |

|    |               |
|----|---------------|
| C1 | 1 1/2" S9.5B  |
| C2 | VAR S9.5B     |
| D1 | 2 1/2" I19.0B |
| D2 | VAR I19.0B    |
| E1 | 4" B25.0B     |
| E2 | VAR B25.0B    |
| J  | 6" ABC        |
| T  | EARTH         |
| U  | EXIST         |
| W  | WEDGE         |

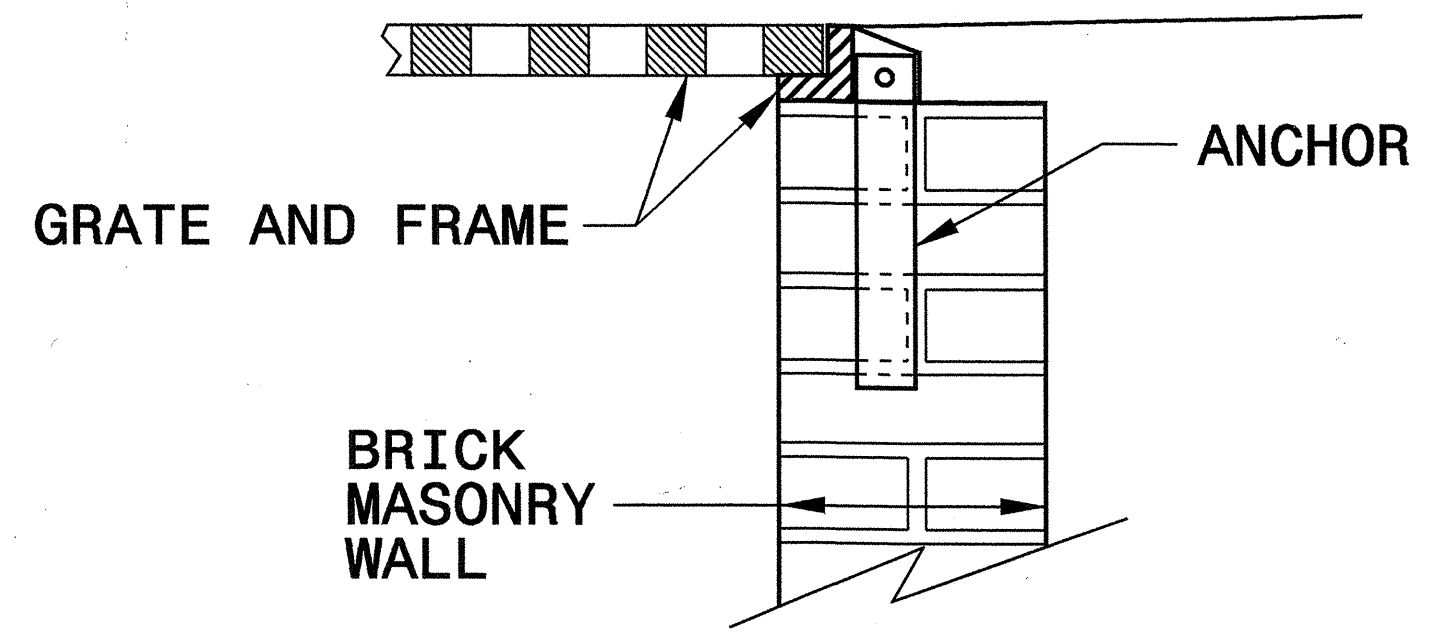


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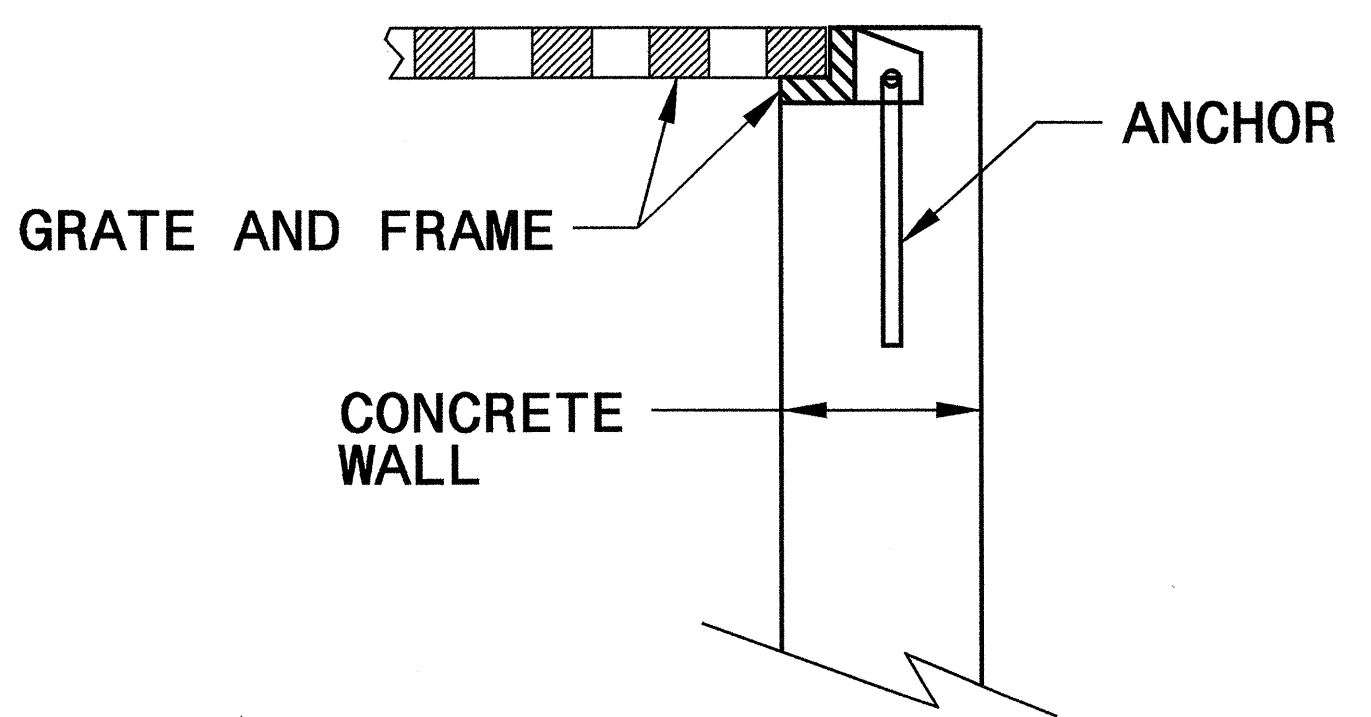
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

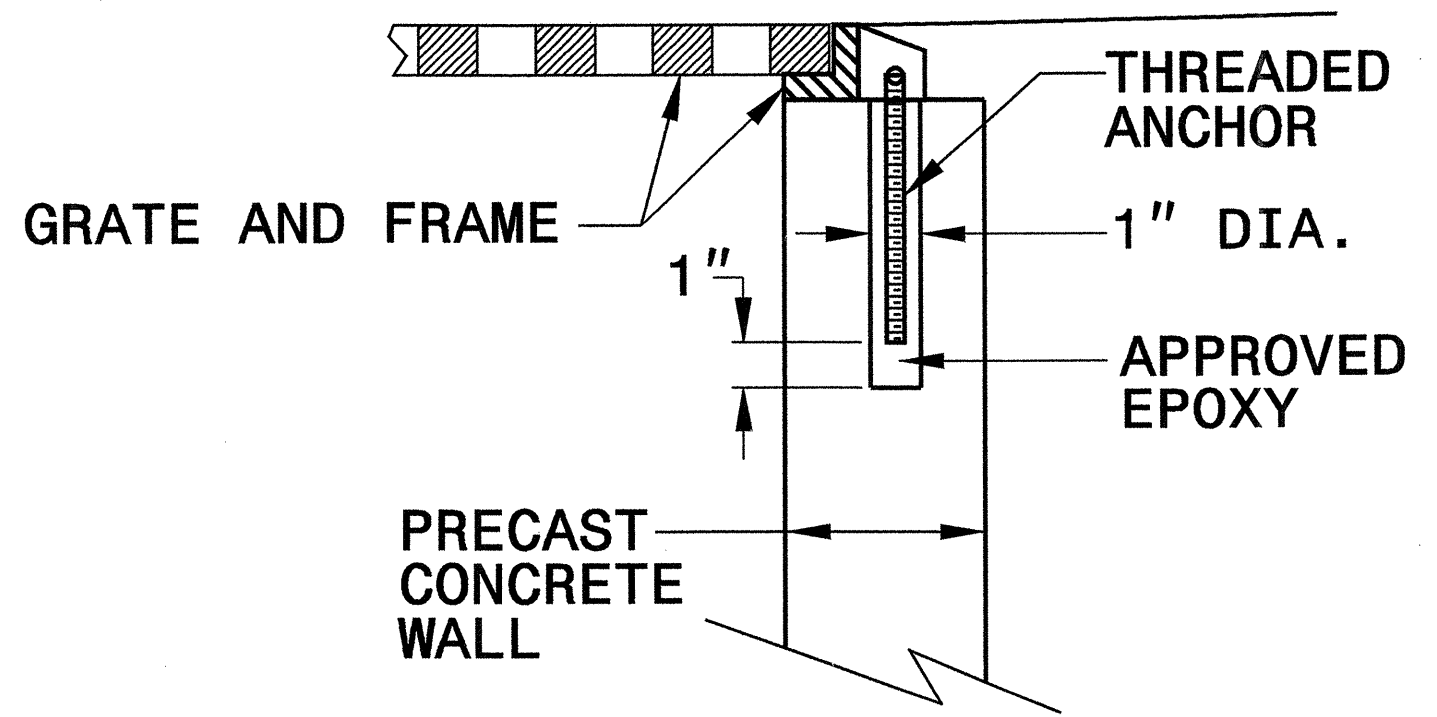
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



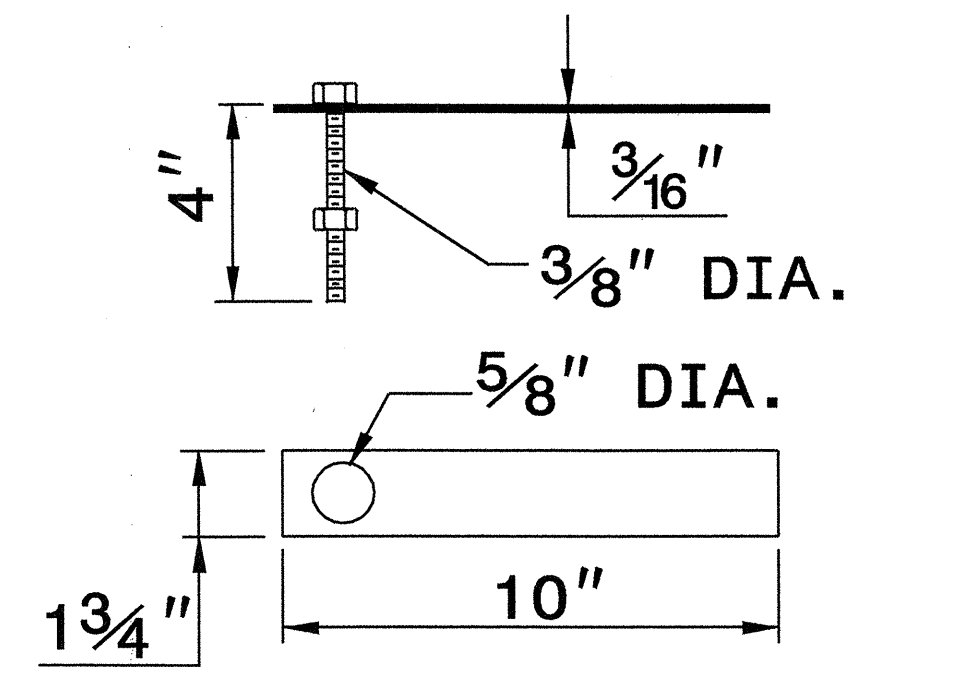
**CONCRETE CONSTRUCTION**



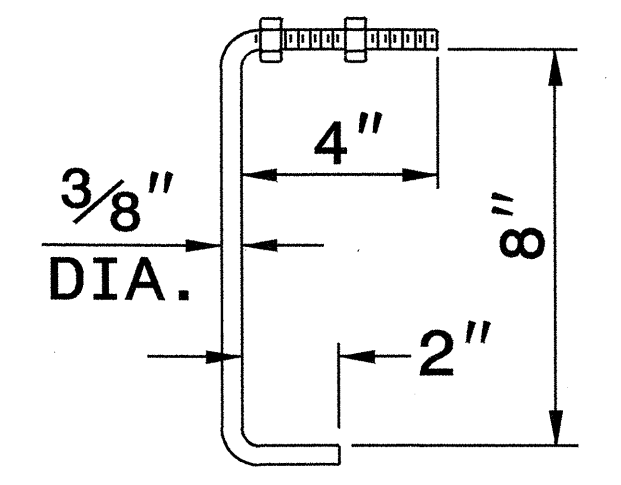
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

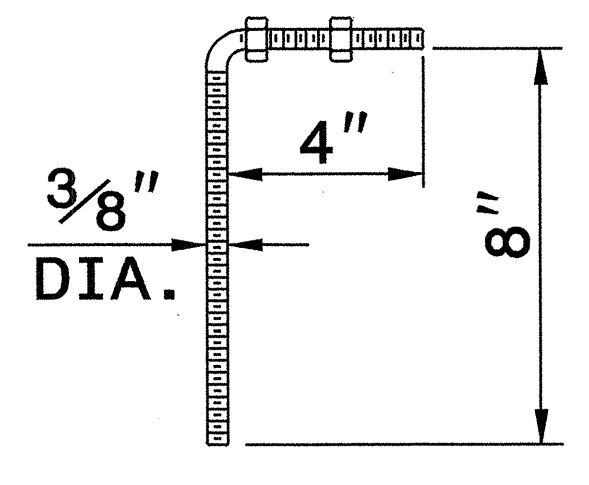
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



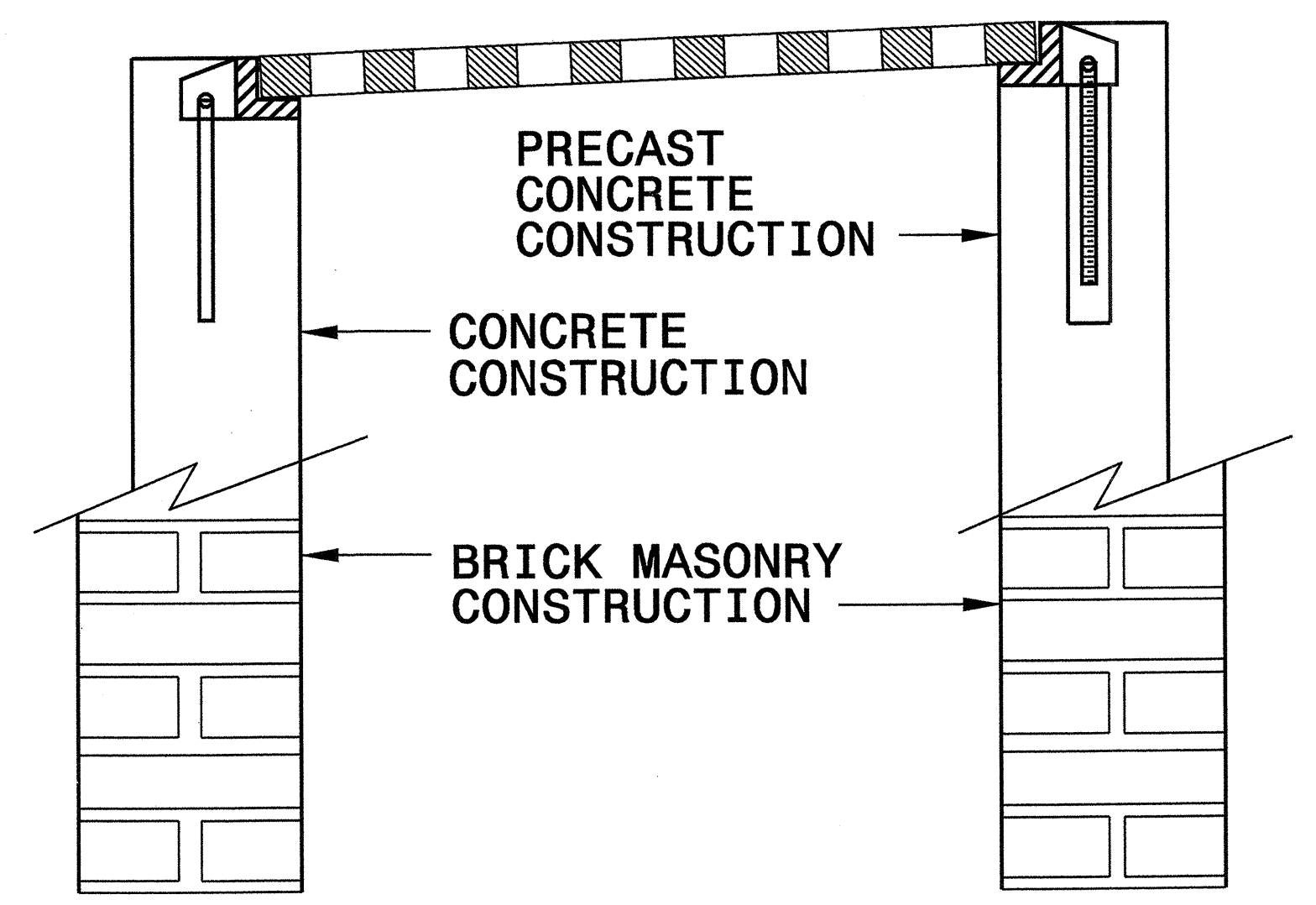
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**

01-MAR-2007 09:04 s:\contracts\contract\special details\viewer\dstds\06\stds to special details\84025 anchorage For Frames\0840d25.dgn J:\viewer\ton AT PS212260

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966  
LOEL S. HOWER  
3/22/07

|   |                |
|---|----------------|
| PROJECT SERVICES UNIT<br>STANDARDS AND SPECIAL DESIGN<br>Office 919-250-4128 FAX 919-250-4119 |                |
| <b>SEE PLATE FOR TITLE</b>  |                |
| ORIGINAL BY: 2006 STD 840.25  | DATE: 07/18/06 |
| MODIFIED BY: E.E. WARD  | DATE: 9/25/06  |
| CHECKED BY:   | DATE:          |
| FILE SPEC.:   |                |



GEOTECHNICAL ENGINEER

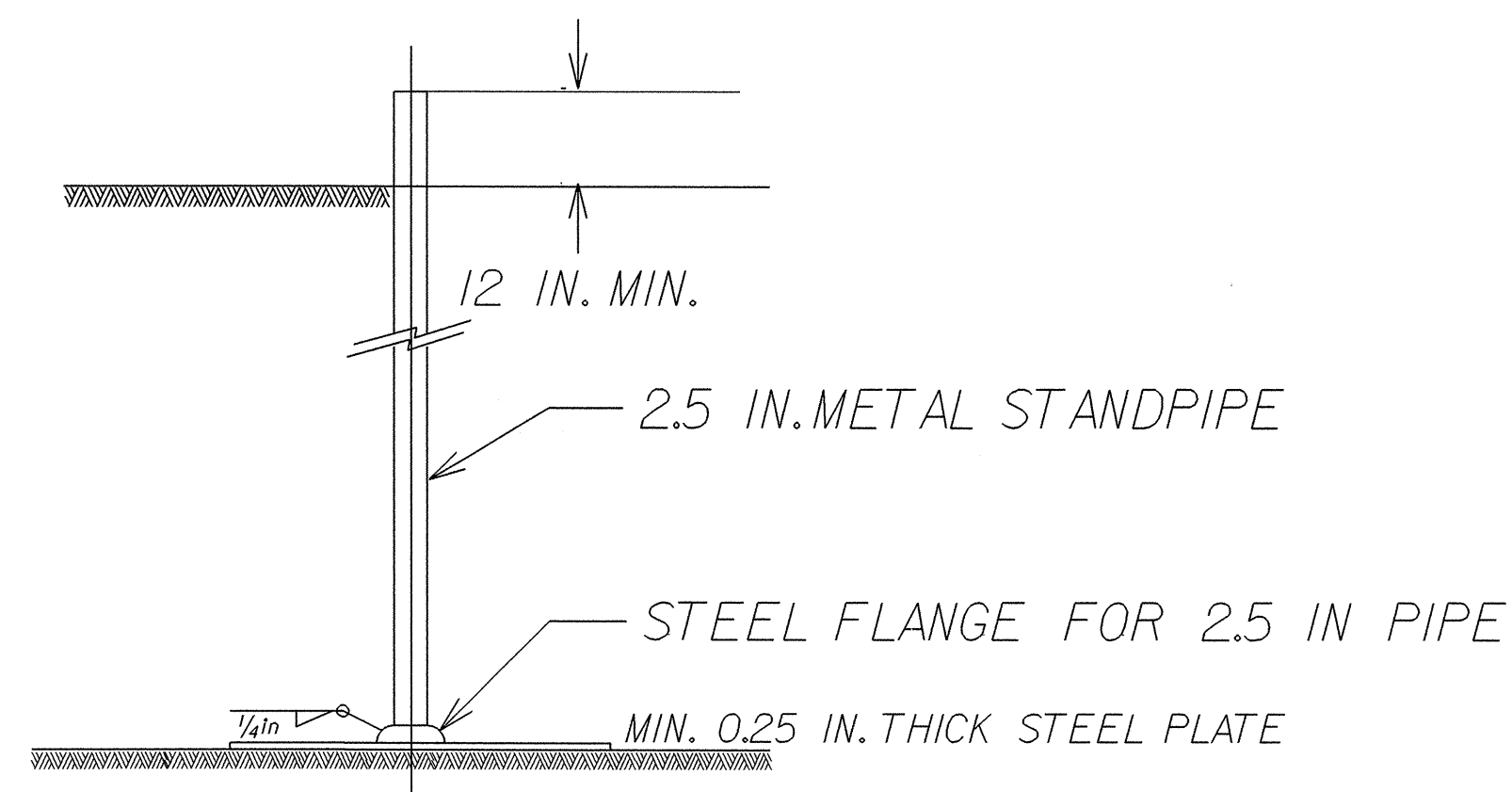
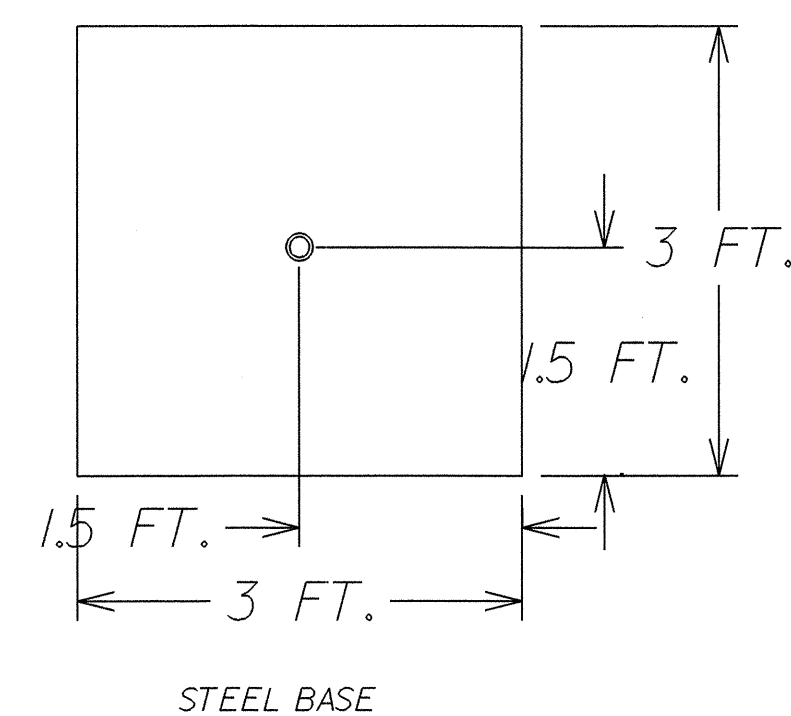
ENGINEER



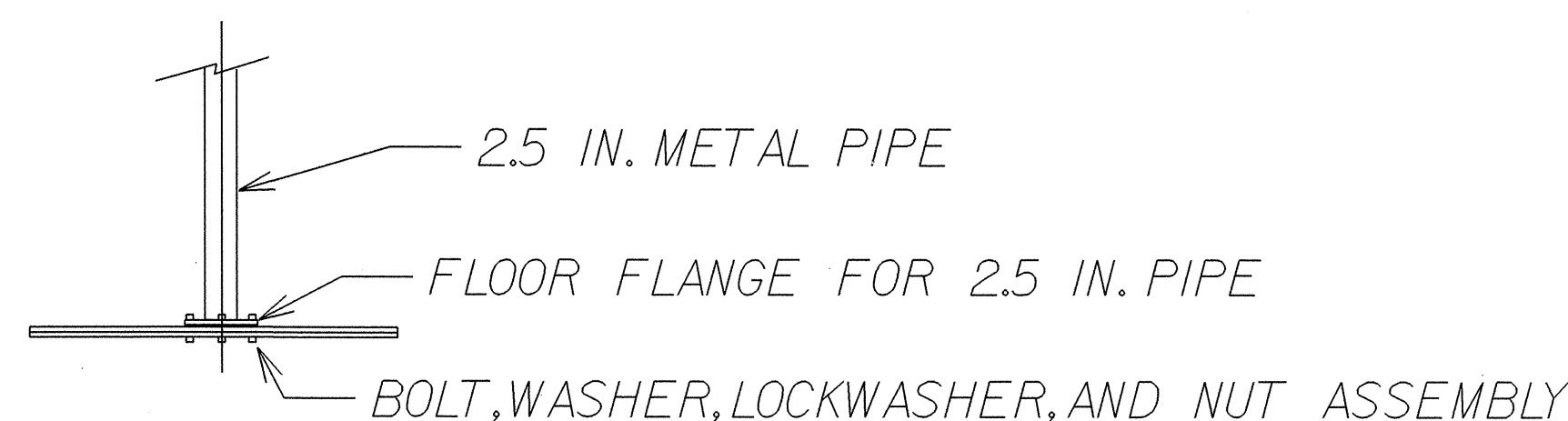
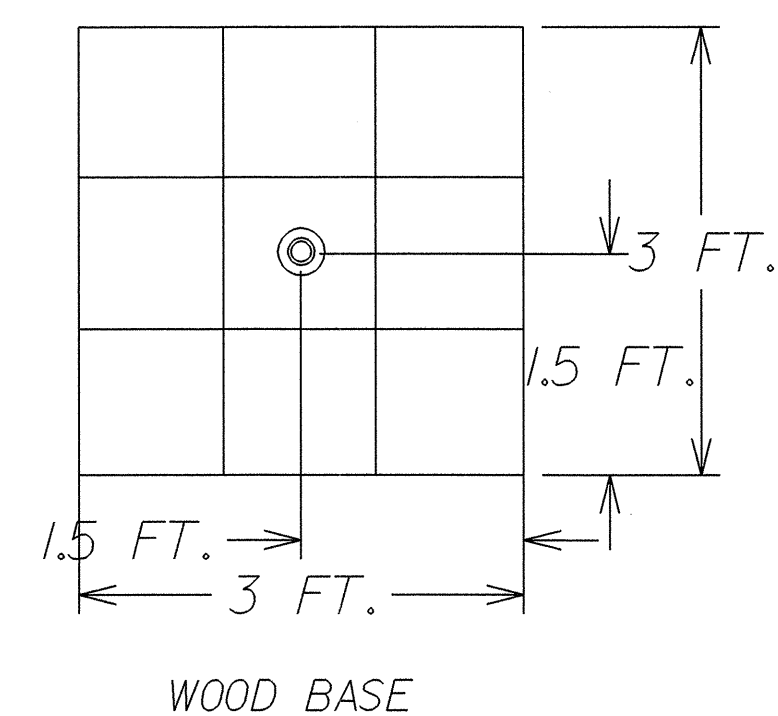
Signature: E. Williams Date: 4/9/07

SIGNATURE DATE

# SETTLEMENT GAUGE DETAIL



DETAIL OF STEEL BASE



DETAIL OF WOOD BASE

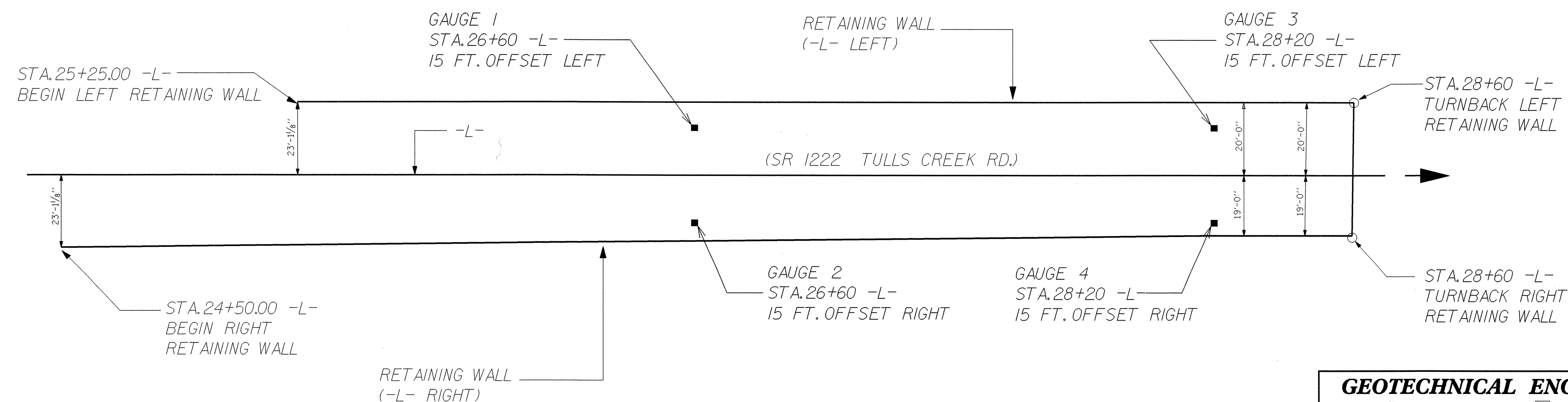
SIX - 1 IN. X 1 FT. X 3 FT. PLANKS OF LUMBER OR TWO PIECES 1 IN. X 3 FT. X 3 FT. EXTERIOR GRADE PLYWOOD, SECURELY FASTENED AND THEN COATED WITH WOOD PRESERVATIVE

## NOTES

1. THE USE OF EITHER THE WOOD BASE OR THE STEEL BASE SETTLEMENT GAUGE SHALL BE THE CONTRACTOR'S OPTION.
2. SETTLEMENT GAUGES SHALL BE INSTALLED BEFORE ANY FILL IS PLACED.
3. SETTLEMENT GAUGE ELEVATIONS ARE TO BE DETERMINED AND RECORDED WEEKLY BY THE RESIDENT ENGINEER. THE INITIAL ELEVATION OF THE SETTLEMENT GAUGE PLATE (AT TOP OF PLATE) SHALL BE DETERMINED AT THE TIME OF INSTALLATION ALONG WITH THE EMBANKMENT ELEVATION. WHEN NEW SECTIONS OF THE PIPE ARE ADDED, ELEVATIONS SHALL BE RECORDED AT THE TOP OF EXISTING PIPE AND AT THE TOP OF THE NEW PIPE. THIS IS TO TAKE INTO ACCOUNT INTERIM SETTLEMENT, VARIABLE PIPE LENGTHS, AND THREAD LENGTHS IN COUPLING. RESULTS OF SETTLEMENT GAUGE READINGS SHALL BE FORWARDED TO MR. K.J. KIM, EASTERN REGIONAL GEOTECHNICAL MANAGER, WITHIN THREE DAYS.

## QUANTITIES

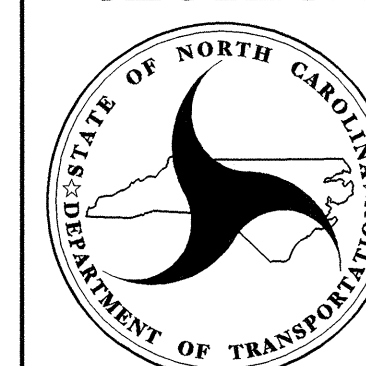
SETTLEMENT GAUGES.....4 EACH



## PLAN VIEW

N.T.S.

## GEOTECHNICAL ENGINEERING UNIT



EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

EMBANKMENT MONITORING DETAIL

## REVISIONS

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

PREPARED BY: E. WILLIAMS DATE: 4/07  
REVIEWED BY: J. BATTS DATE: 4/07

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# SUMMARY OF QUANTITIES

| ItemNumber  | Sec # | Quantity | Unit | Description   | ItemNumber   | Sec # | Quantity | Unit | Description  |
|-------------|-------|----------|------|---|--------------|-------|----------|------|--|
| 00010000-N  | 800   | Lump Sum |      | MOBILIZATION  | 444500000-E  | 1145  | 100      | LF   | BARRICADES (TYPE III)  |
| 000100000-E | 200   | Lump Sum |      | CLEARING & GRUBBING .. ACRE(S)                                  | 445500000-N  | 1150  | 20       | MD   | FLAGGER  |
| 000800000-E | 200   | 1        | ACR  | SUPPLEMENTARY CLEARING & GRUB-<br>BING                          | 468500000-E  | 1205  | 5,400    | LF   | THERMOPLASTIC PAVEMENT MARKING<br>LINES (4", 90 MILS)                    |
| 002200000-E | 225   | 1,160    | CY   | UNCLASSIFIED EXCAVATION   | 468600000-E  | 1205  | 5,400    | LF   | THERMOPLASTIC PAVEMENT MARKING<br>LINES (4", 120 MILS)                   |
| 002900000-N | SP    | Lump Sum |      | REINFORCED BRIDGE APPROACH<br>FILL, STATION *****<br>(31+51.06) | 477000000-E  | 1205  | 1,220    | LF   | COLD APPLIED PLASTIC PAVEMENT<br>MARKING LINES, TYPE ** (4")<br>(TYPE 3) |
| 003600000-E | 225   | 5,500    | CY   | UNDERCUT EXCAVATION   | 490000000-N  | 1251  | 40       | EA   | PERMANENT RAISED PAVEMENT<br>MARKERS                                     |
| 010600000-E | 230   | 7,250    | CY   | BORROW EXCAVATION   | 532520000-E  | 1510  | 18       | LF   | 2" WATER LINE  |
| 012700000-N | SP    | 4        | EA   | EMBANKMENT SETTLEMENT GAUGES                                    | 532620000-E  | 1510  | 1,059    | LF   | 12" WATER LINE   |
| 015600000-E | 250   | 1,350    | SY   | REMOVAL OF EXISTING ASPHALT<br>PAVEMENT                         | 532660000-E  | 1510  | 1,417    | LF   | 16" WATER LINE   |
| 017700000-E | 250   | 780      | SY   | BREAKING OF EXISTING ASPHALT<br>PAVEMENT                        | 555800000-E  | 1515  | 2        | EA   | 12" VALVE  |
| 019500000-E | 265   | 700      | CY   | SELECT GRANULAR MATERIAL  | 564800000-N  | 1515  | 2        | EA   | RELOCATE WATER METER   |
| 019600000-E | 270   | 4,900    | SY   | FABRIC FOR SOIL STABILIZATION                                   | 564900000-N  | 1515  | 1        | EA   | RECONNECT WATER METER  |
| 025500000-E | SP    | 3,850    | TON  | GENERIC GRADING ITEM<br>LIGHT WEIGHT AGGREGATE                  | 580100000-E  | 1530  | 500      | LF   | ABANDON 8" UTILITY PIPE  |
| 031800000-E | 300   | 220      | TON  | FOUNDATION CONDITIONING MATE-<br>RIAL, MINOR STRS               | 587190000-E  | 1550  | 319      | LF   | TRENCHLESS INSTALLATION OF 16"<br>IN SOIL                                |
| 036600000-E | 310   | 808      | LF   | 15" RC PIPE CULVERTS, CLASS<br>III                              | 587191000-E  | 1550  | 100      | LF   | TRENCHLESS INSTALLATION OF 16"<br>NOT IN SOIL                            |
| 037200000-E | 310   | 112      | LF   | 18" RC PIPE CULVERTS, CLASS<br>III                              | 600000000-E  | 1605  | 3,300    | LF   | TEMPORARY SILT FENCE   |
| 037800000-E | 310   | 72       | LF   | 24" RC PIPE CULVERTS, CLASS<br>III                              | 600600000-E  | 1610  | 75       | TON  | STONE FOR EROSION CONTROL,<br>CLASS A                                    |
| 039000000-E | 310   | 68       | LF   | 36" RC PIPE CULVERTS, CLASS<br>III                              | 600900000-E  | 1610  | 165      | TON  | STONE FOR EROSION CONTROL,<br>CLASS B                                    |
| 099500000-E | 340   | 192      | LF   | PIPE REMOVAL  | 601200000-E  | 1610  | 150      | TON  | SEDIMENT CONTROL STONE   |
| 101100000-N | 500   | Lump Sum |      | FINE GRADING  | 601500000-E  | 1615  | 2        | ACR  | TEMPORARY MULCHING   |
| 112100000-E | 520   | 1,190    | TON  | AGGREGATE BASE COURSE   | 601800000-E  | 1620  | 100      | LB   | SEED FOR TEMPORARY SEEDING   |
| 122000000-E | 545   | 10       | TON  | INCIDENTAL STONE BASE   | 602100000-E  | 1620  | 0.5      | TON  | FERTILIZER FOR TEMPORARY SEED-<br>ING                                    |
| 148900000-E | 610   | 710      | TON  | ASPHALT CONC BASE COURSE, TYPE<br>B25.0B                        | 602400000-E  | 1622  | 75       | LF   | TEMPORARY SLOPE DRAINS   |
| 149800000-E | 610   | 700      | TON  | ASPHALT CONC INTERMEDIATE<br>COURSE, TYPE I19.0B                | 602700000-N  | 1622  | 2        | EA   | INLET PROTECTION AT TEMPORARY<br>SLOPE DRAINS                            |
| 151900000-E | 610   | 720      | TON  | ASPHALT CONC SURFACE COURSE,<br>TYPE S9.5B                      | 602900000-E  | SP    | 300      | LF   | SAFETY FENCE   |
| 156000000-E | 620   | 110      | TON  | ASPHALT BINDER FOR PLANT MIX,<br>GRADE PG 64-22                 | 603000000-E  | 1630  | 375      | CY   | SILT EXCAVATION  |
| 202200000-E | 815   | 22.4     | CY   | SUBDRAIN EXCAVATION   | 603600000-E  | 1631  | 600      | SY   | MATTING FOR EROSION CONTROL  |
| 203300000-E | 815   | 16.8     | CY   | SUBDRAIN FINE AGGREGATE   | 603700000-E  | SP    | 10       | SY   | COIR FIBER MAT   |
| 204400000-E | 815   | 100      | LF   | 6" PERFORATED SUBDRAIN PIPE                                     | 604200000-E  | 1632  | 550      | LF   | 1/4" HARDWARE CLOTH  |
| 205500000-E | 815   | 3        | EA   | 6" SUBDRAIN PIPE WYES, TEES, &<br>ELBOWS                        | 604800000-E  | SP    | 115      | SY   | FLOATING TURBIDITY CURTAIN   |
| 206600000-N | 815   | 1        | EA   | CONCRETE PAD FOR SUBDRAIN PIPE<br>OUTLET                        | 6071030000-E | SP    | 50       | LF   | COIR FIBER BAFFLES   |
| 207700000-E | 815   | 6        | LF   | 6" OUTLET PIPE (SUBDRAINS)                                      | 6071050000-E | SP    | 1        | EA   | *** SKIMMER<br>(2")  |
| 228600000-N | 840   | 7        | EA   | MASONRY DRAINAGE STRUCTURES                                     | 608400000-E  | 1660  | 3        | ACR  | SEEDING & MULCHING   |
| 236700000-N | 840   | 7        | EA   | FRAME WITH TWO GRATES, STD<br>840.29                            | 608700000-E  | 1660  | 1.5      | ACR  | MOWING   |
| 255600000-E | 846   | 280      | LF   | SHOULDER BERM GUTTER  | 609000000-E  | 1661  | 50       | LB   | SEED FOR REPAIR SEEDING  |
| 261200000-E | 848   | 35       | SY   | 6" CONCRETE DRIVEWAY  | 609300000-E  | 1661  | 0.25     | TON  | FERTILIZER FOR REPAIR SEEDING  |
| 272400000-E | 857   | 675      | LF   | PRECAST REINFORCED CONCRETE<br>BARRIER, SINGLE FACED            | 609600000-E  | 1662  | 50       | LB   | SEED FOR SUPPLEMENTAL SEEDING  |
| 303000000-E | 862   | 425      | LF   | STEEL BM GUARDRAIL  | 610800000-E  | 1665  | 2        | TON  | FERTILIZER TOPDRESSING   |
| 315000000-N | 862   | 5        | EA   | ADDITIONAL GUARDRAIL POSTS                                      | 611400000-N  | SP    | 2        | HR   | SPECIALIZED HAND MOWING  |
| 327000000-N | SP    | 2        | EA   | GUARDRAIL ANCHOR UNITS, TYPE<br>350                             | 611700000-N  | SP    | 8        | EA   | RESPONSE FOR EROSION CONTROL   |
| 331700000-N | 862   | 2        | EA   | GUARDRAIL ANCHOR UNITS, TYPE<br>B-77                            |              |       |          |      |  |
| 343500000-N | SP    | 2        | EA   | GENERIC GUARDRAIL ITEM<br>IMPACT ATTENUATOR UNIT, TYPE<br>TL-2  |              |       |          |      |  |
| 364900000-E | 876   | 45       | TON  | RIP RAP, CLASS B  |              |       |          |      |  |
| 365600000-E | 876   | 212      | SY   | FILTER FABRIC FOR DRAINAGE                                      |              |       |          |      |  |
| 440000000-E | 1110  | 300      | SF   | WORK ZONE SIGNS (STATIONARY)                                    |              |       |          |      |  |
| 440500000-E | 1110  | 100      | SF   | WORK ZONE SIGNS (PORTABLE)                                      |              |       |          |      |  |
| 441000000-E | 1110  | 60       | SF   | WORK ZONE SIGNS (BARRICADE<br>MOUNTED)                          |              |       |          |      |  |
| 443000000-N | 1130  | 20       | EA   | DRUMS   |              |       |          |      |  |
| 443500000-N | 1135  | 20       | EA   | CONES   |              |       |          |      |  |

5/28/99

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DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

| LOCATION  | UNCLASSIFIED EXCAVATION | UNDERCUT    | EMBT + %    | BORROW      | WASTE       | LIGHT WEIGHT AGGREGATE |
|---|-------------------------|-------------|-------------|-------------|-------------|------------------------|
| <b>SUMMARY NO. 1</b>  |                         |             |             |             |             |                        |
| -L- STA 12+50 TO 24+50<br>(begin retaining wall)  | 118                     |             | 209         | 209         | 118         |                        |
| <b>SUMMARY NO. 1 SUBTOTAL</b>   | <b>118</b>              |             | <b>209</b>  | <b>209</b>  | <b>118</b>  |                        |
| <b>SUMMARY NO. 2*</b>   |                         |             |             |             |             |                        |
| -L- STA 24+50 (begin retaining wall)<br>TO 28+60 (end retaining wall)   |                         | 3612        |             |             | 3612        | *4725                  |
| <b>SUMMARY NO. 2 SUBTOTAL</b>   |                         | <b>3612</b> |             |             | <b>3612</b> | <b>*4725</b>           |
| <b>SUMMARY NO. 3</b>  |                         |             |             |             |             |                        |
| -L- STA 31+51.06 (end bridge) TO<br>STA 42+43.10  | 1004                    | 1373        | 5680        | 5680        | 2377        |                        |
| <b>SUMMARY NO. 3 SUBTOTAL</b>   | <b>1004</b>             | <b>1373</b> | <b>5680</b> | <b>5680</b> | <b>2377</b> |                        |
| <b>SUMMARY NO. 4</b>  |                         |             |             |             |             |                        |
| -DRV- STA 10+16 TO 13+75  | 25                      |             | 202         | 202         | 25          |                        |
| <b>SUMMARY NO. 4 SUBTOTAL</b>   | <b>25</b>               |             | <b>202</b>  | <b>202</b>  | <b>25</b>   |                        |
| <b>SUMMARY NO. 5</b>  |                         |             |             |             |             |                        |
| -DRV2- STA 10+20 TO 11+29.57  | 7                       |             | 160         | 160         | 7           |                        |
| <b>SUMMARY NO. 5 SUBTOTAL</b>   | <b>7</b>                |             | <b>160</b>  | <b>160</b>  | <b>7</b>    |                        |
| <b>TOTAL:</b>   | <b>1154</b>             | <b>4985</b> | <b>6251</b> | <b>6251</b> | <b>6139</b> |                        |
| <b>ADDITIONAL UNDERCUT</b>  |                         | <b>500</b>  | <b>650</b>  | <b>650</b>  | <b>500</b>  |                        |
| <b>PROJECT TOTALS:</b>  | <b>1154</b>             | <b>5485</b> | <b>6901</b> | <b>6901</b> | <b>6639</b> |                        |
| 5% - REPLACE TOPSOIL ON BORROW PITS   |                         |             |             | 345         |             |                        |
| <b>GRAND TOTALS:</b>  | <b>1154</b>             | <b>5485</b> |             | <b>7246</b> | <b>6639</b> | <b>*4725</b>           |
| <b>SAY:</b>   | <b>1160</b>             | <b>5500</b> |             | <b>7250</b> | <b>6650</b> | <b>*4750</b>           |
| *LIGHT WEIGHT AGGREGATE QUANTITY INCLUDES BACKFILL OF UNDERCUT. SEE TYPICAL SECTIONS. SEE X-SECTIONS FOR UNDERCUT ELEVATIONS. |                         |             |             |             |             |                        |

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

6/16/99

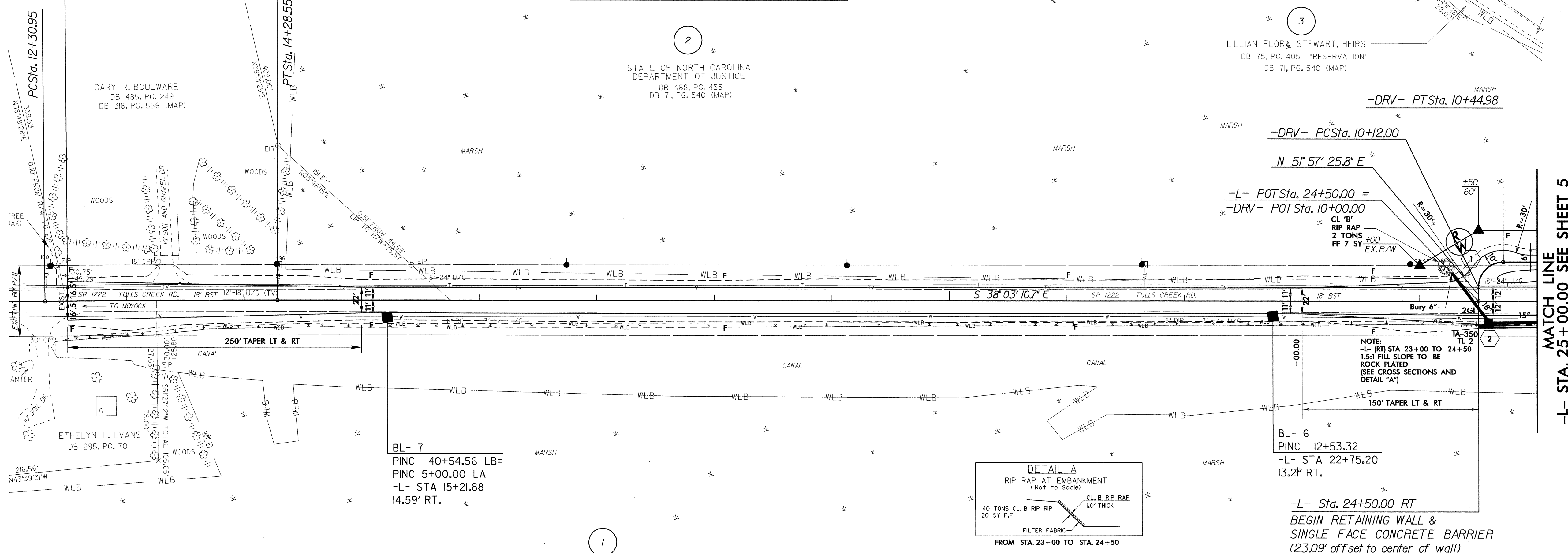
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7/2/99  
19-MAR-2007 14:58  
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**BEGIN TIP PROJECT B-2950**  
**-L- POC STA. 12+50.00**

|                                   |                                    |
|-----------------------------------|------------------------------------|
| -L-                               | -DRV-                              |
| PI Sta 13+29.75                   | PI Sta 10+33.00                    |
| $\Delta = 0^\circ 29' 38.3" (RT)$ | $\Delta = 89^\circ 59' 23.5" (RT)$ |
| $D = 0' 15' 00.0"$                | $D = 272' 50' 13.4"$               |
| $L = 197.59'$                     | $L = 32.98'$                       |
| $T = 98.80'$                      | $T = 21.00'$                       |
| $R = 22,918.31'$                  | $R = 21.00'$                       |
| SE = EXIST                        |                                    |



- NOTES:**
1. RETAINING WALL AND SINGLE FACE CONCRETE BARRIER TO FOLLOW A STRAIGHT LINE TAPER FROM FULL SHOULDER WIDTH (8') TO BRIDGE RAIL ON APPROACH SLAB.
  2. SEE STRUCTURE PLANS FOR RETAINING WALL AND BRIDGE DESIGN FOR -L- & -DRV- PROFILES SEE SHEET 7 & 8 FOR WALL DESIGN SEE SHEETS W-1 TO W-4

P.S. = PAVED SHOULDER  
 \*DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED (50 MPH),  
 MIN. HORIZONTAL CURVE RADIUS (610')  
 AND HORIZONTAL STOPPING SIGHT DISTANCE (308').









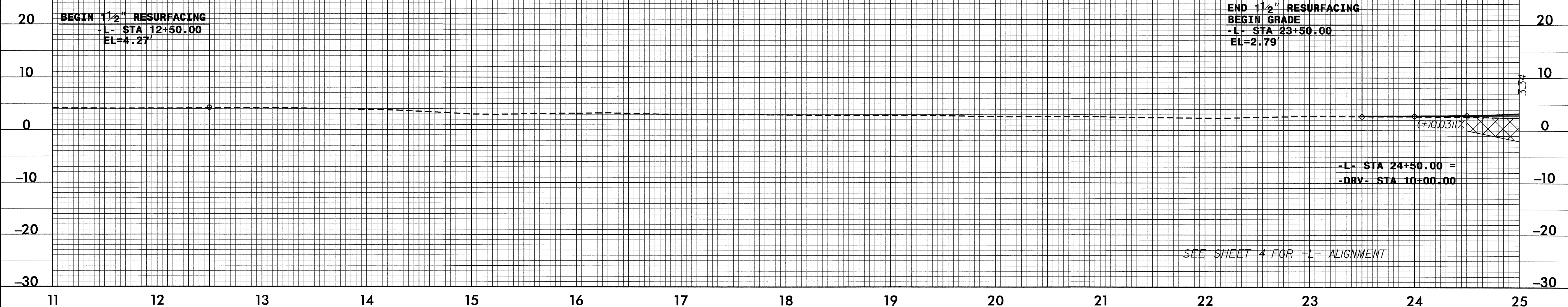
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DESIGN EXCEPTION REQUIRED FOR  
DESIGN SPEED (50 MPH), MIN. HORIZONTAL CURVE RADIUS (610')  
AND HORIZONTAL STOPPING SIGHT DISTANCE (308').

|  |                       |
|--|-----------------------|
| PROJECT REFERENCE NO.<br><b>B-2950</b> | SHEET NO.<br><b>7</b> |
| ROADWAY DESIGN ENGINEER                | HYDRAULICS ENGINEER   |
|  |                       |

LEFT DITCH -----

RIGHT DITCH -----

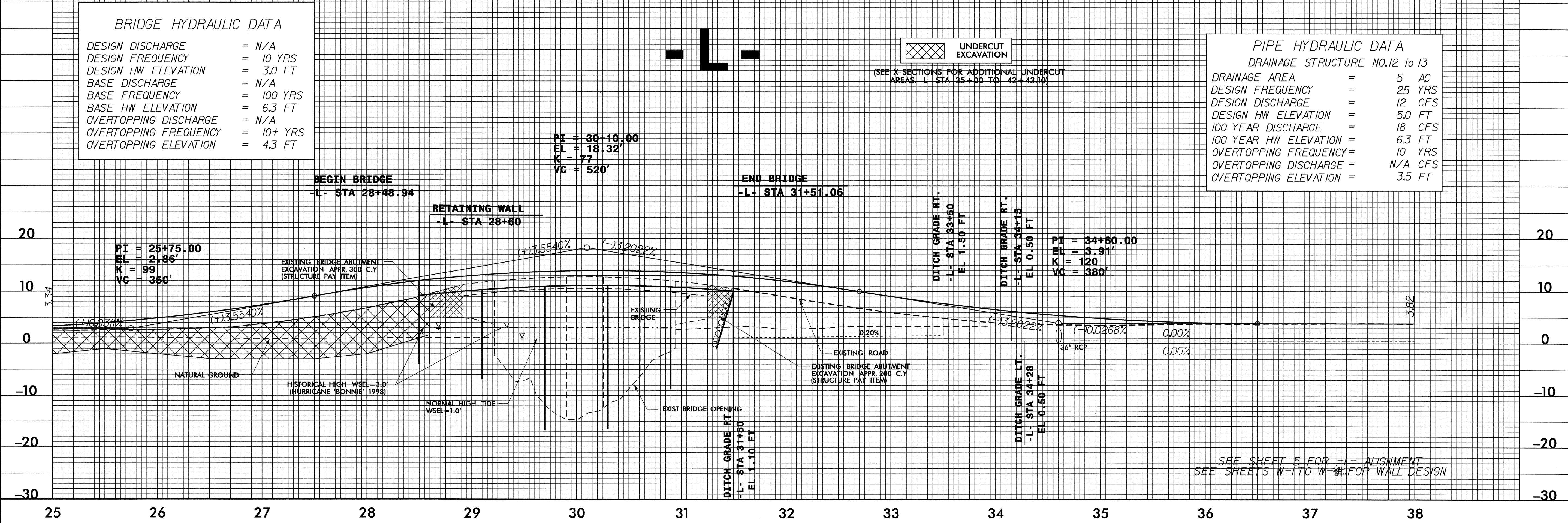


**BRIDGE HYDRAULIC DATA**

|                       |   |         |
|-----------------------|---|---------|
| DESIGN DISCHARGE      | = | N/A     |
| DESIGN FREQUENCY      | = | 10 YRS  |
| DESIGN HW ELEVATION   | = | 3.0 FT  |
| BASE DISCHARGE        | = | N/A     |
| BASE FREQUENCY        | = | 100 YRS |
| BASE HW ELEVATION     | = | 6.3 FT  |
| OVERTOPPING DISCHARGE | = | N/A     |
| OVERTOPPING FREQUENCY | = | 10+ YRS |
| OVERTOPPING ELEVATION | = | 4.3 FT  |

**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO.12 TO 13

|                       |   |         |
|-----------------------|---|---------|
| DRAINAGE AREA         | = | 5 AC    |
| DESIGN FREQUENCY      | = | 25 YRS  |
| DESIGN DISCHARGE      | = | 12 CFS  |
| DESIGN HW ELEVATION   | = | 5.0 FT  |
| 100 YEAR DISCHARGE    | = | 18 CFS  |
| 100 YEAR HW ELEVATION | = | 6.3 FT  |
| OVERTOPPING FREQUENCY | = | 10 YRS  |
| OVERTOPPING DISCHARGE | = | N/A CFS |
| OVERTOPPING ELEVATION | = | 3.5 FT  |



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SEE SHEET 5 FOR -L- ALIGNMENT  
SEE SHEETS W-1 TO W-4 FOR WALL DESIGN

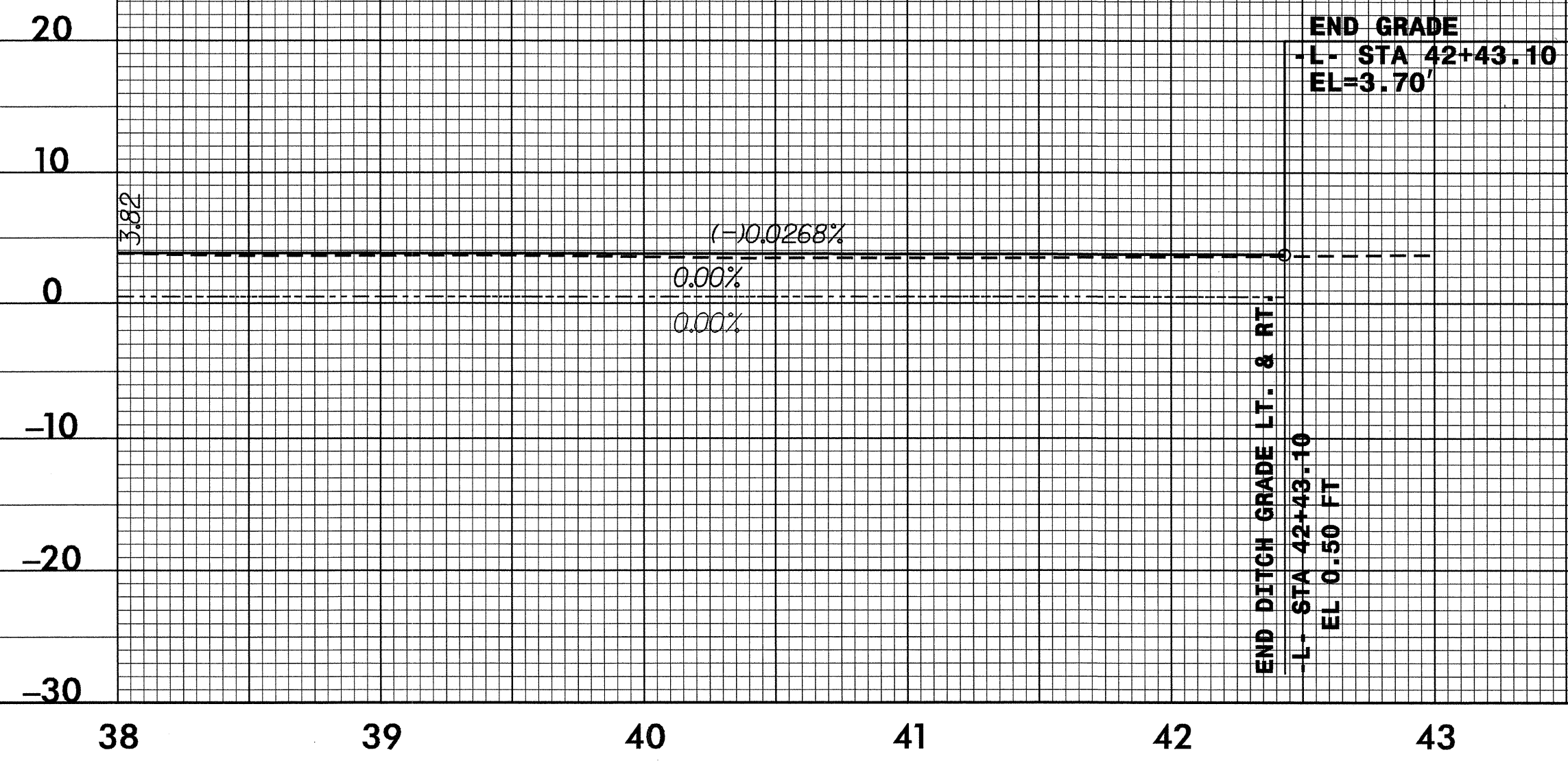


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|  |                       |
|--|-----------------------|
| PROJECT REFERENCE NO.<br><b>B-2950</b> | SHEET NO.<br><b>8</b> |
| ROADWAY DESIGN ENGINEER                | HYDRAULICS ENGINEER   |
|  |                       |

**DESIGN EXCEPTION REQUIRED FOR  
DESIGN SPEED (50 MPH), MIN. HORIZONTAL CURVE RADIUS (610')  
AND HORIZONTAL STOPPING SIGHT DISTANCE (308').**

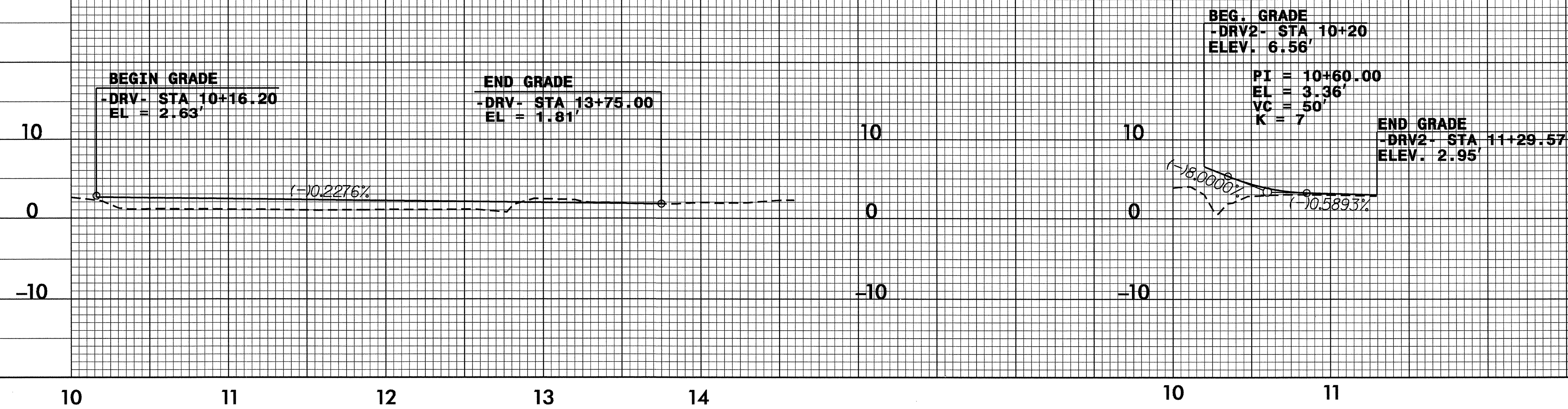
LEFT DITCH -----  
RIGHT DITCH -----



SEE SHEET 6 FOR -L- ALIGNMENT

**- DRV -**

**- DRV2 -**



SEE SHEET 4 & 5 FOR -DRV- & -DRV2- ALIGNMENTS

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