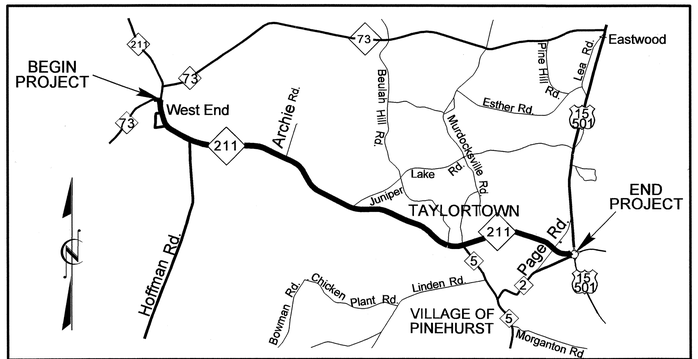
See Sheet 1-A For Index of Sheets




VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# MOORE COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | R-2812 | 1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 34504.1.1 | STP-211 (5) | P.E. |
| 34504.2.2 | STP-0211(25) | R/W, UTIL. |
| 34504.3.2 | STP-0211(26) | CONSTR. |

*LOCATION: NC 211 FROM NC 73 IN WEST END TO THE TRAFFIC CIRCLE IN PINEHURST*

*TYPE OF WORK: GRADING, PAVING, DRAINAGE, CURB & GUTTER SIGNALS, SIGNING, AND CULVERT*

NAD 83

TO ABERDEEN

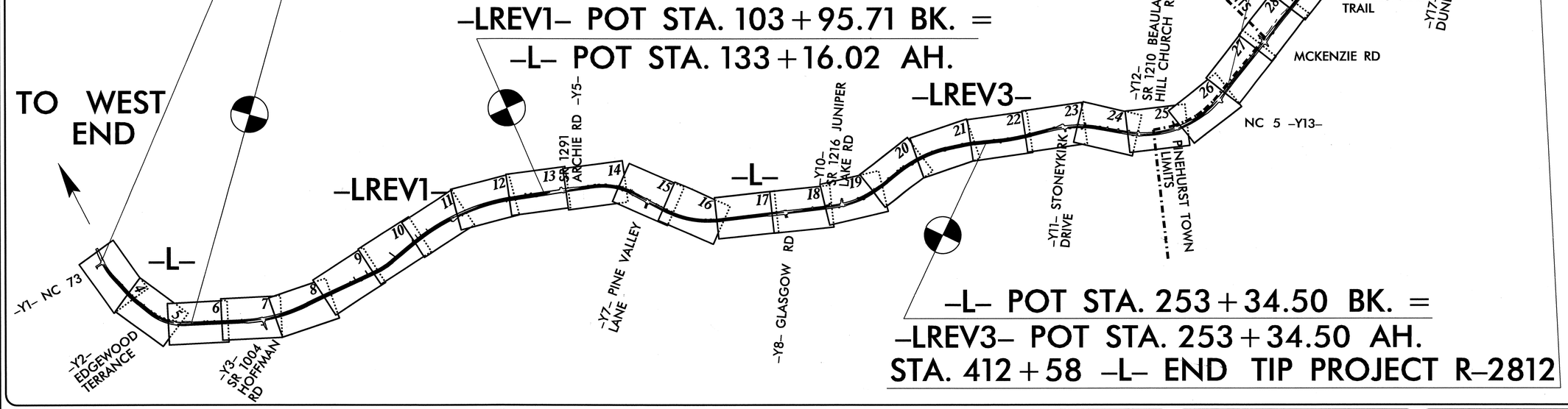
–LREV3– POT STA. 316+74.63 BK. =
–L– POT STA. 317+10.00 AH.

STA. 7+50 –L– BEGIN TIP PROJECT R–2812

–L– POT STA. 39+05.52 BK. =
–LREV1– POT STA. 10+00.00 AH.

–LREV1– POT STA. 103+95.71 BK. =
–L– POT STA. 133+16.02 AH.

TO WEST END




–L– POT STA. 253+34.50 BK. =
–LREV3– POT STA. 253+34.50 AH.

STA. 412+58 –L– END TIP PROJECT R–2812

TIP PROJECT: R–2812

CONTRACT: C202663

**GRAPHIC SCALES**

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

**DESIGN DATA**

| | | |
|---|---|---|
| ADT 2011 | = | 17100 |
| ADT 2031 | = | 22000 |
| DHV | = | 9 % |
| D | = | 52 % |
| T | = | 5 % * |
| V | = | 50 MPH |

* TTST 2 DUAL 3

**PROJECT LENGTH**

*LENGTH ROADWAY TIP PROJECT R–2812 = 7.662 MI.*

*TOTAL LENGTH TIP PROJECT 34504.1.1 = 7.662 MI.*

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 29, 2008

LETTING DATE: OCTOBER 18, 2011

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

TIM GOINS, PE
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

NORTH CAROLINA PROFESSIONAL SEAL 31986 ENGINEER JAMES R. RICE

SIGNATURE: 8/24/11

**ROADWAY DESIGN ENGINEER**

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

SIGNATURE: 8-15-11

**DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER

09/08/99

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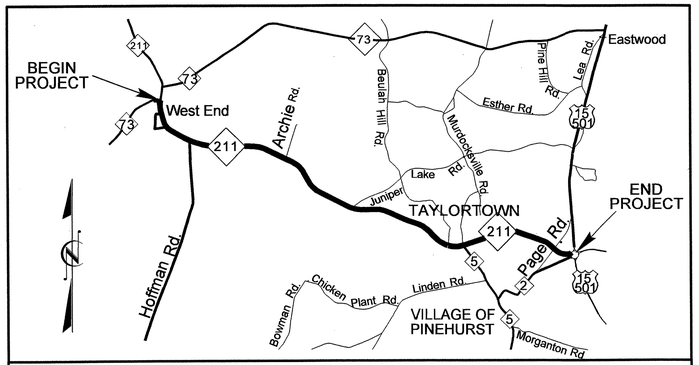
09/08/99

TIP PROJECT: R-2812

CONTRACT: C202663

See Sheet 1-A For Index of Sheets




VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# MOORE COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | R-2812 | 1 | |

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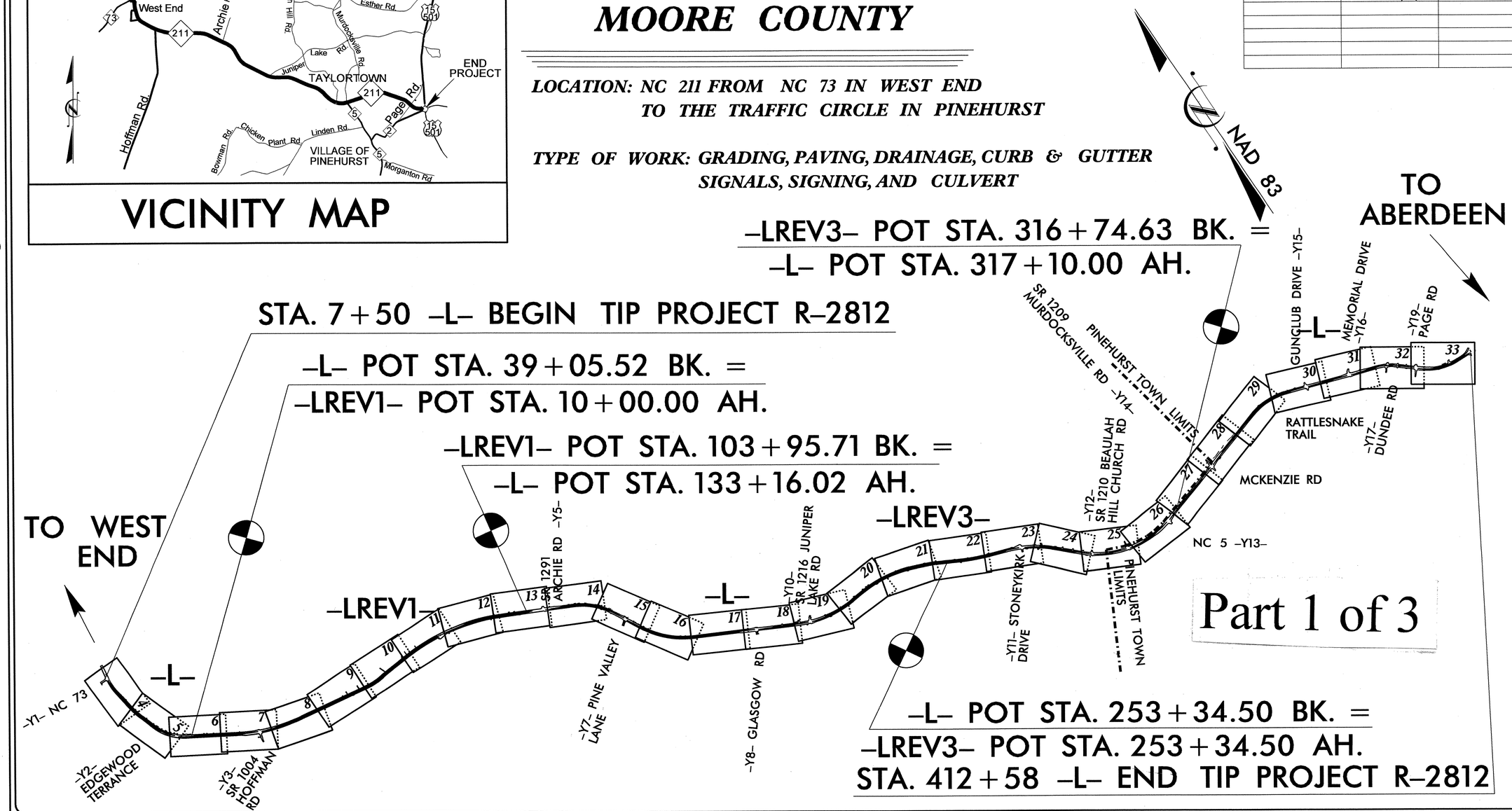


**GRAPHIC SCALES**

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

**DESIGN DATA**

| | | |
|---|---|---|
| ADT 2011 | = | 17100 |
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| DHV | = | 9 % |
| D | = | 52 % |
| T | = | 5 % * |
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* TTST 2 DUAL 3

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 29, 2008

LETTING DATE: OCTOBER 18, 2011

JIMMY GOODNIGHT, PE — PROJECT ENGINEER

TIM GOINS, PE — PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 31986 ENGINEER JAMES R. RICE — SIGNATURE: 8/26/11

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — SIGNATURE: 8-15-11

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

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$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 1-A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 9-12-11

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# INDEX OF SHEETS

INDEX OF SHEETS

| SHEET NUMBER | SHEET |
|---|---|
| 1 | TITLE SHEET |
| 1-A | INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS |
| 1-B | CONVENTIONAL SYMBOLS |
| 1-C THRU 1-D | SURVEY CONTROL SHEETS |
| 2 THRU 2-E | PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS |
| 2-F THRU 2-W | INTERSECTION DETAIL SHEETS |
| 2-X THRU 2-AG | TEMPORARY ALIGNMENT SHEETS |
| 2-AH THRU 2-AI | DETAIL FOR METHOD OF PIPE INSTALLATION |
| 2-AJ | DETAIL OF ANCHORAGE FOR FRAMES |
| 2-AK THRU 2-AL | DETAIL OF CURB RAMP |
| 2-AM THRU 2-AX | DETAIL OF TEMPORARY SHORING |
| 2-AY | DETAIL OF ANCHORED SLOPE STABILIZATION |
| 2-AZ | TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURES |
| 2-AAA | DETAIL FOR TEMPORARY CONTAINMENT OF PETROLEUM CONTAMINATED SOIL |
| 3 (2 SHEETS) | SUMMARY OF QUANTITIES |
| 3-A THRU 3-V | SUMMARY OF DRAINAGE QUANTITIES |
| 3-W | SUMMARY OF EARTHWORK QUANTITIES |
| 3-X | SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL<br>SUMMARY OF TEMPORARY ASPHALT PAVEMENT REMOVAL |
| 3-Y | GUARDRAIL SUMMARY |
| 3-Z THRU 3-AA | PARCEL INDEX SHEET |
| 4 THRU 33 | PLAN SHEETS |
| 34 THRU 54 | PROFILE SHEETS |
| TMP-1 THRU TMP-104 | TRAFFIC CONTROL PLANS |
| SD-1 | SPECIAL SIGN DESIGNS |
| PM-1 THRU PM-19 | PAVEMENT MARKING PLANS |
| EC-1 THRU EC-65 | EROSION CONTROL PLANS |
| RF-1 | REFORESTATION PLANS |
| SIGN-1 THRU SIGN-13 | SIGNING PLANS |
| SIG.1 THRU SIG.147 | TRAFFIC SIGNALS PLANS |
| UC-1 THRU UC-44 | UTILITIES CONSTRUCTION PLANS |
| UO-1 THRU UO-31 | UTILITIES BY OTHERS PLANS |
| X-1 | CROSS SECTIONS INDEX SHEET |
| X-1A THRU X-1L | CROSS-SECTION SUMMARY |
| X-2 THRU X-222 | CROSS-SECTIONS |
| C-1 THRU C-13 | STRUCTURE PLANS |

# LIST OF STANDARDS

EFF. 07-18-06
REV. 01-02-07

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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 |
|---|---|
| DIVISION 2 – EARTHWORK | |
| 200.03 | Method of Clearing – Method III |
| 225.02 | Guide for Grading Subgrade – Secondary and Local |
| 225.05 | Method of Obtaining Superelevation – Divided Highways |
| 225.06 | Method of Grading Sight Distance at Intersections |
| 240.01 | Guide for Berm Ditch Construction |
| DIVISION 3 – PIPE CULVERTS | |
| 300.01 | Method of Pipe Installation – Method 'A' |
| 310.10 | Driveway Pipe Construction |
| DIVISION 5 – SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction – High Side of Superelevated Curve – Method I |
| DIVISION 6 – ASPHALT BASES AND PAVEMENTS | |
| 654.01 | Pavement Repairs |
| DIVISION 8 – INCIDENTALS | |
| 806.01 | Concrete Right-of-Way Marker |
| 806.02 | Granite Right-of-Way Marker |
| 815.03 | Pipe Underdrain and Blind Drain |
| 840.00 | Concrete Base Pad for Drainage Structures |
| 840.01 | Brick Catch Basin – 12" thru 54" Pipe |
| 840.02 | Concrete Catch Basin – 12" thru 54" Pipe |
| 840.03 | Frame, Grates and Hood – for Use on Standard Catch Basin |
| 840.14 | Concrete Drop Inlet – 12" thru 30" Pipe |
| 840.15 | Brick Drop Inlet – 12" thru 30" Pipe |
| 840.16 | Drop Inlet Frame and Grates – for use with Std. Dwg 840.14 and 840.15 |
| 840.17 | Concrete Grated Drop Inlet Type 'A' – 12" thru 72" Pipe |
| 840.18 | Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe |
| 840.19 | Concrete Grated Drop Inlet Type 'D' – 12" thru 36" Pipe |
| 840.22 | Frames and Wide Slot Sag Grates |
| 840.24 | Frames and Narrow Slot Sag Grates |
| 840.25 | Anchorage for Frames – Brick or Concrete (Beg. January 2007 Let Use Detail in Lieu of Standard) |
| 840.26 | Brick Grated Drop Inlet Type 'A' – 12" thru 72" 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 |
| 840.31 | Concrete Junction Box – 12" thru 66" Pipe |
| 840.32 | Brick Junction Box – 12" thru 66" Pipe |
| 840.45 | Precast Drainage Structure |
| 840.54 | Manhole Frame and Cover |
| 840.66 | Drainage Structure Steps |
| 840.71 | Concrete and Brick Pipe Plug |
| 840.72 | Pipe Collar |
| 846.01 | Concrete Curb, Gutter and Curb & Gutter |
| 848.01 | Concrete Sidewalk |
| 848.03 | Driveway Turnout – Drop Curb Type |
| 848.04 | Street Turnout |
| 852.02 | Concrete Mountable Median – for Use with Rigid or Flexible Pavement |
| 852.04 | Method for Placement of Drop Inlets in Grassed Median – Using 1'-6" Curb and Gutter |
| 852.06 | Method for Placement of Drop Inlets in Concrete Islands |
| 862.01 | Guardrail Placement |
| 862.02 | Guardrail Installation |
| 876.02 | Guide for Rip Rap at Pipe Outlets |
| 876.04 | Drainage Ditches with Class 'B' Rip Rap |

# GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS

EFFECTIVE: 07-18-06
REVISED: 07-30-08

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 III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 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 INVOLVED.

UNDERDRAINS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Progress Energy, Centurylink, AT&T,

Time Warner, and Piedmont Natural Gas

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 CONTRACT.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH THE DETAILS IN THE PLANS.

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 1-B |

***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 — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

## *BUILDINGS AND OTHER CULTURE:*

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- 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
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

## *RAILROADS:*

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — 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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

## *ROADS AND RELATED FEATURES:*

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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 — S
- Storm Sewer — S

## *UTILITIES:*

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- 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 — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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 — W
- 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 — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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:

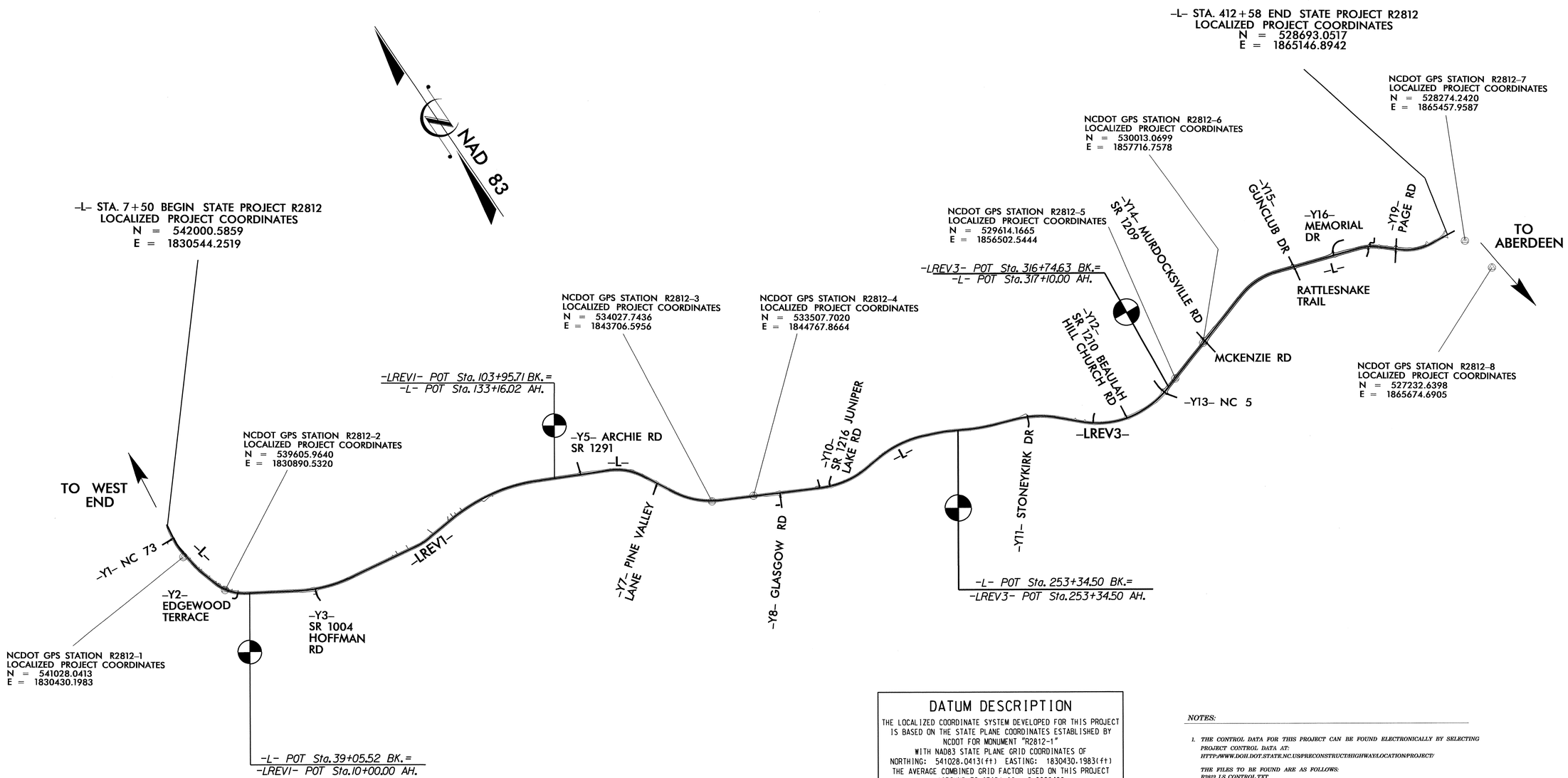
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- 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.

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 1C |
| Location and Surveys | |

# SURVEY CONTROL SHEET R-2812




## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2812-1"
WITH NAD83 STATE PLANE GRID COORDINATES OF
NORTHING: 541028.0413(ft) EASTING: 1830430.1983(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998490
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2812-1" TO -L- STATION 7+50 IS
N 06° 41' 19" E 979.21'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD29

*NOTES:*

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
*HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

*THE FILES TO BE FOUND ARE AS FOLLOWS:*
*R2812_LS_CONTROL.TXT*

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
*PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.*

*NOTE: DRAWING NOT TO SCALE*

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 1D |
| Location and Surveys | |

# SURVEY CONTROL SHEET R-2812

BL

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 1 | BL-1 | 541646.2296 | 1830523.4947 | 602.30 | 11+03.83 | 28.95 LT |
| 101 | R2812-1 | 541028.0413 | 1830430.1983 | 597.07 | 17+18.59 | 76.06 RT |
| 102 | R2812-2 | 539605.9648 | 1830890.5320 | 601.02 | 32+05.82 | 19.84 RT |
| 76 | BL-76 | 539257.6673 | 1831114.4612 | 600.85 | 36+01.86 | 80.33 RT |
| 4 | BL-4 | 539112.4224 | 1831371.7788 | 598.76 | 38+85.53 | 52.96 RT |

| POINT | DESC. | NORTH | EAST | ELEVATION | LREV1 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 5 | BL-5 | 538233.7529 | 1832904.5575 | 595.88 | 27+43.83 | 30.57 RT |
| 6 | BL-6 | 537926.4917 | 1833891.2767 | 590.23 | 37+74.05 | 15.95 RT |
| 7 | BL-7 | 537751.0829 | 1834955.9524 | 577.59 | 48+52.35 | 29.51 RT |
| 8 | BL-8 | 537737.5472 | 1836113.0796 | 562.36 | 60+02.85 | 125.69 LT |
| 9 | BL-9 | 537747.2266 | 1837404.6568 | 563.08 | 73+17.78 | 42.31 LT |
| 10 | BL-10 | 537768.8847 | 1838676.9718 | 540.12 | 85+70.35 | 123.16 LT |
| 11 | BL-11 | 537292.5576 | 1839898.0015 | 544.92 | 98+61.69 | 28.74 LT |

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 77 | BL-77 | 537075.6519 | 1840399.7539 | 545.57 | 133+27.84 | 47.63 LT |
| 12 | BL-12 | 536697.4987 | 1841063.6609 | 534.14 | 140+89.83 | 8.53 RT |
| 13 | BL-13 | 536176.5818 | 1842148.6132 | 525.32 | 152+87.04 | 42.98 LT |
| 14 | BL-14 | 535394.7008 | 1842706.2764 | 531.24 | 162+38.69 | 43.25 LT |
| 15 | BL-15 | 534616.0147 | 1843094.1247 | 514.29 | 171+07.90 | 8.27 RT |
| 103 | R2812-3 | 534027.7436 | 1843706.5956 | 517.31 | 179+57.31 | 16.87 RT |
| 104 | R2812-4 | 533507.7020 | 1844767.8664 | 524.78 | 191+37.71 | 13.54 LT |
| 55 | BL-55 | 533183.3296 | 1845410.9072 | 526.68 | 198+57.93 | 16.46 LT |
| 18 | BL-18 | 532845.1360 | 1845952.5258 | 536.29 | 204+94.05 | 38.99 RT |
| 19 | BL-19 | 532507.7506 | 1846689.5171 | 531.50 | 213+02.41 | 18.84 RT |
| 20 | BL-20 | 532377.4969 | 1847479.5798 | 505.95 | 221+05.58 | 17.61 LT |
| 21 | BL-21 | 532481.1092 | 1848594.5842 | 471.33 | 232+25.21 | 47.97 LT |
| 22 | BL-22 | 532282.5433 | 1849539.5186 | 443.43 | 241+86.46 | 3.54 RT |

| POINT | DESC. | NORTH | EAST | ELEVATION | LREV3 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 23 | BL-23 | 531606.9568 | 1850947.8029 | 471.72 | 257+51.79 | 18.82 RT |
| 24 | BL-24 | 531396.5779 | 1851487.3848 | 458.64 | 263+29.90 | 1.42 LT |
| 25 | BL-25 | 530956.9472 | 1852705.9949 | 407.41 | 276+16.46 | 64.39 LT |
| 81 | BL-81 | 530243.9260 | 1853555.8350 | 447.56 | 287+13.73 | 79.67 LT |
| 26 | BL-26 | 529951.0441 | 1853755.8225 | 451.51 | 290+61.73 | 1.86 LT |
| 27 | BL-27 | 529378.4343 | 1854745.9177 | 485.30 | 301+99.32 | 64.64 RT |
| 28 | BL-28 | 529327.8783 | 1855716.5122 | 515.34 | 311+51.33 | 70.23 RT |
| 58 | BL-58 | 529474.6037 | 1855981.8174 | 516.12 | 314+38.06 | 20.05 LT |

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 105 | R2812-5 | 529614.1665 | 1856502.5444 | 512.93 | 320+12.94 | 2.07 RT |
| 106 | R2812-6 | 530013.0699 | 1857716.7578 | 457.07 | 332+92.96 | 8.09 LT |
| 31 | BL-31 | 530461.1923 | 1859144.8741 | 466.26 | 347+87.71 | 0.02 RT |
| 32 | BL-32 | 530652.9974 | 1860070.9214 | 497.98 | 357+32.49 | 32.07 LT |
| 33 | BL-33 | 530429.7337 | 1861012.3851 | 503.92 | 366+93.71 | 50.18 LT |
| 34 | BL-34 | 530079.4270 | 1862073.0365 | 494.70 | 378+10.71 | 52.22 LT |
| 35 | BL-35A | 529722.2680 | 1863063.2310 | 499.37 | 388+57.93 | 41.18 LT |
| 136 | BL-36A | 529497.4290 | 1863387.6440 | 506.78 | 392+44.10 | 36.21 LT |
| 36 | BL-36 | 529142.1753 | 1863658.5501 | 509.11 | 396+81.67 | 51.98 RT |
| 37 | BL-37 | 528815.6533 | 1864166.7459 | 506.03 | 402+75.00 | 37.20 RT |
| 79 | BL-79 | 528792.9190 | 1864502.4910 | 505.37 | 406+04.10 | 36.43 LT |
| 38 | BL-38 | 528668.7130 | 1865000.2154 | 501.49 | 411+14.05 | 37.23 RT |

BY1

| POINT | DESC. | NORTH | EAST | ELEVATION | Y1 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 1 | BL-1 | 541646.2296 | 1830523.4947 | 602.30 | OUTSIDE PROJECT LIMITS | |
| 50 | BL-50 | 541628.5991 | 1830068.0524 | 600.16 | OUTSIDE PROJECT LIMITS | |

BY2

| POINT | DESC. | NORTH | EAST | ELEVATION | Y2 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 76 | BL-76 | 539257.6673 | 1831114.4612 | 600.85 | 10+78.37 | 37.26 LT |
| 51 | BL-51 | 539416.9595 | 1830796.1244 | 602.78 | OUTSIDE PROJECT LIMITS | |

BY3

| POINT | DESC. | NORTH | EAST | ELEVATION | Y3 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 5 | BL-5 | 538233.7529 | 1832904.5575 | 595.88 | 10+51.45 | 119.01 RT |
| 52 | BL-52 | 537707.9304 | 1832978.0032 | 595.59 | OUTSIDE PROJECT LIMITS | |

BY4

| POINT | DESC. | NORTH | EAST | ELEVATION | Y5 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 53 | BL-53 | 537174.7852 | 1841164.8907 | 539.78 | OUTSIDE PROJECT LIMITS | |
| 12 | BL-12 | 536697.4987 | 1841063.6609 | 534.14 | OUTSIDE PROJECT LIMITS | |

BY5

| POINT | DESC. | NORTH | EAST | ELEVATION | Y7 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 14 | BL-14 | 535394.7008 | 1842706.2764 | 531.24 | OUTSIDE PROJECT LIMITS | |
| 54 | BL-54 | 535089.3143 | 1842423.5014 | 525.68 | OUTSIDE PROJECT LIMITS | |

BY6

| POINT | DESC. | NORTH | EAST | ELEVATION | Y10 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 56 | BL-56 | 532891.5651 | 1847112.2358 | 539.95 | OUTSIDE PROJECT LIMITS | |
| 19 | BL-19 | 532507.7506 | 1846689.5171 | 531.50 | OUTSIDE PROJECT LIMITS | |

BY7

| POINT | DESC. | NORTH | EAST | ELEVATION | Y12 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 57 | BL-57 | 529892.8388 | 1854907.5282 | 474.92 | OUTSIDE PROJECT LIMITS | |
| 27 | BL-27 | 529378.4343 | 1854745.9177 | 485.30 | OUTSIDE PROJECT LIMITS | |

BY8

| POINT | DESC. | NORTH | EAST | ELEVATION | Y13 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 60 | BL-60 | 529847.2740 | 1855932.8070 | 509.77 | 10+47.72 | 38.47 RT |
| 58 | BL-58 | 529474.6037 | 1855981.8174 | 516.12 | 14+15.24 | 43.73 RT |
| 59 | BL-59 | 529022.3146 | 1856291.4316 | 525.79 | OUTSIDE PROJECT LIMITS | |

BY9

| POINT | DESC. | NORTH | EAST | ELEVATION | Y14 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 62 | BL-62 | 530539.5025 | 1857725.3077 | 453.98 | OUTSIDE PROJECT LIMITS | |
| 61 | BL-61 | 530239.2813 | 1857772.5812 | 453.48 | 11+37.94 | 16.04 LT |
| 106 | R2812-6 | 530013.0699 | 1857716.7578 | 457.07 | 13+52.87 | 73.72 RT |
| 63 | BL-63 | 529693.7267 | 1857857.2136 | 472.55 | 16+89.94 | 16.23 LT |
| 64 | BL-64 | 529483.8714 | 1857889.2149 | 483.11 | OUTSIDE PROJECT LIMITS | |

BY10

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 65 | BL-65 | 529626.6664 | 1857570.0455 | 481.59 | 330+33.53 | 315.28 RT |
| 63 | BL-63 | 529693.7267 | 1857857.2136 | 472.55 | 333+27.48 | 338.86 RT |

BY11

| POINT | DESC. | NORTH | EAST | ELEVATION | Y15 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 66 | BL-66 | 530779.5906 | 1861111.0850 | 494.47 | OUTSIDE PROJECT LIMITS | |
| 33 | BL-33 | 530429.7337 | 1861012.3851 | 503.92 | 12+65.08 | 36.69 RT |
| 67 | BL-67 | 529946.5346 | 1861007.3615 | 501.98 | OUTSIDE PROJECT LIMITS | |

BY12

| POINT | DESC. | NORTH | EAST | ELEVATION | Y16 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 69 | BL-69 | 530147.2133 | 1862803.8999 | 467.24 | OUTSIDE PROJECT LIMITS | |
| 68 | BL-68 | 530270.9598 | 1862431.6828 | 481.06 | 12+11.44 | 16.28 RT |
| 34 | BL-34 | 530079.4270 | 1862073.0365 | 494.70 | 15+68.31 | 103.89 RT |

BY13

| POINT | DESC. | NORTH | EAST | ELEVATION | Y17 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 35 | BL-35A | 529722.2680 | 1863063.2310 | 499.37 | OUTSIDE PROJECT LIMITS | |
| 70 | BL-70 | 529338.2057 | 1862769.4118 | 502.88 | OUTSIDE PROJECT LIMITS | |

BY14

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 136 | BL-36A | 529497.4290 | 1863387.6440 | 506.78 | 392+44.10 | 36.21 LT |
| 71 | BL-71 | 529185.8569 | 1862991.4261 | 508.95 | 391+14.97 | 455.47 RT |

BY15

| POINT | DESC. | NORTH | EAST | ELEVATION | Y19 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 73 | BL-73A | 529414.0110 | 1863942.7130 | 510.97 | OUTSIDE PROJECT LIMITS | |
| 36 | BL-36 | 529142.1753 | 1863658.5501 | 509.11 | 13+54.98 | 23.81 RT |
| 75 | BL-75 | 528870.4868 | 1863515.4831 | 506.59 | 16+58.18 | 24.67 LT |

BY16

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 373 | BL-73A | 529414.0110 | 1863942.7130 | 510.97 | 397+15.49 | 339.81 LT |
| 74 | BL-74 | 529203.6456 | 1864148.5232 | 510.77 | 400+61.11 | 300.20 LT |

BY17

| POINT | DESC. | NORTH | EAST | ELEVATION | Y4 STATION | OFFSET |
|---|---|---|---|---|---|---|
| 78 | BL-78 | 537440.6400 | 1840394.2239 | 545.86 | OUTSIDE PROJECT LIMITS | |
| 77 | BL-77 | 537075.6519 | 1840399.7539 | 545.57 | 12+32.38 | 30.29 LT |

BY18

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 82 | BL-82 | 530334.0180 | 1853799.0190 | 458.26 | 288+55.26 | 317.07 LT |
| 81 | BL-81 | 530243.9260 | 1853555.8350 | 447.56 | 287+44.36 | 78.68 LT |

BY19

| POINT | DESC. | NORTH | EAST | ELEVATION | WESTGATE STATION | OFFSET |
|---|---|---|---|---|---|---|
| 83 | BL-83 | 530007.1620 | 1854007.2330 | 458.22 | 12+06.54 | 13.97 RT |
| 26 | BL-26 | 529951.0441 | 1853755.8225 | 451.51 | 10+88.67 | 147.08 LT |

BY20

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 80 | BL-80 | 528962.3000 | 1864593.4790 | 505.79 | 406+74.50 | 217.44 LT |
| 79 | BL-79 | 528792.9190 | 1864502.4910 | 505.37 | 406+04.10 | 36.43 LT |

BM1 ELEVATION = 597.39
N 542094 E 1830586
L STATION 10+00
N 12° 41' 23.4" E DIST 349.87
RR SPIKE IN BASE OF POWER POLE

BM2 ELEVATION = 597.15
N 540927 E 1830349
L STATION 18+00 170 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM3 ELEVATION = 606.46
N 539256 E 1830947
Y2 STATION 12+22 22 LEFT
RR SPIKE IN BASE OF POWER POLE

BM4 ELEVATION = 597.41
N 537883 E 1832987
Y3 STATION 13+65 31 LEFT
RR SPIKE IN BASE OF POWER POLE

BM5 ELEVATION = 597.53
N 537768 E 1834128
LREV1 STATION 40+30.00 135 RIGHT
RR SPIKE IN BASE OF 20 INCH PINE TREE

BM6 ELEVATION = 573.82
N 537630 E 1835478
LREV1 STATION 53+87.00 73 RIGHT
RR SPIKE IN BASE OF 10 INCH BLACKJACK OAK TREE

BM7 ELEVATION = 558.27
N 537637 E 1836713
LREV1 STATION 66+19.00 0 LEFT
RR SPIKE IN BASE OF 15 INCH PINE TREE

BM8 ELEVATION = 561.05
N 537612 E 1837814
LREV1 STATION 77+24.00 109 RIGHT
RR SPIKE IN BASE OF 10 INCH PINE TREE

BM9 ELEVATION = 537.47
N 537476 E 1839102
LREV1 STATION 90+47.00 71 RIGHT
RR SPIKE IN BASE OF 15 INCH PINE TREE

BM10 ELEVATION = 541.85
N 537204 E 1841166
Y5 STATION 10+00
N 5° 48' 32.8" E DIST 146.45
RR SPIKE IN BASE OF POWER POLE

BM11 ELEVATION = 531.24
N 535768 E 1842259
L STATION 156+75 157 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM12 ELEVATION = 520.61
N 534691 E 1842912
L STATION 169+48 117 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM13 ELEVATION = 516.32
N 533585 E 1844281
L STATION 186+69 139 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM14 ELEVATION = 536.49
N 532923 E 1845558
L STATION 201+07 149 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM15 ELEVATION = 527.42
N 532367 E 1846813
L STATION 214+61 111 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM16 ELEVATION = 468.62
N 532316 E 1848472
L STATION 230+96 114 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM17 ELEVATION = 447.82
N 531988 E 1850028
L STATION 247+82 173 RIGHT
RR SPIKE IN BASE OF 20 INCH PINE TREE

BM18 ELEVATION = 483.89
N 531413 E 1851098
LREV3 STATION 259+67.00 129 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM19 ELEVATION = 425.08
N 530912 E 1852317
Y11 STATION 12+23 57 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM20 ELEVATION = 444.38
N 529899 E 1853669
LREV3 STATION 290+30.00 94 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM21 ELEVATION = 477.86
N 529681 E 1854729
Y12 STATION 11+55 40 RIGHT
RR SPIKE IN BASE OF TELEPHONE POLE

BM22 ELEVATION = 531.12
N 529115 E 1856191
Y13 STATION 18+19 51 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM23 ELEVATION = 471.05
N 529713 E 1857811
Y14 STATION 16+63 27 RIGHT
RR SPIKE IN BASE OF TELEPHONE POLE

BM24 ELEVATION = 477.16
N 530547 E 1859138
L STATION 348+07 84 LEFT
RR SPIKE IN BASE OF POWER POLE

BM25 ELEVATION = 505.48
N 530139 E 1860982
Y15 STATION 15+59 28 RIGHT
RR SPIKE IN BASE OF POWER POLE

BM26 ELEVATION = 503.03
N 529519 E 1863070
Y17 STATION 11+26 52 LEFT
RR SPIKE IN BASE OF POWER POLE

BM27 ELEVATION = 508.38
N 528957 E 1864157
L STATION 402+07 87 LEFT
RR SPIKE IN BASE OF POWER POLE

BM28 ELEVATION = 503.32
N 528521 E 1864992
L STATION 411+19 185 RIGHT
RR SPIKE IN BASE OF 24 INCH PINE TREE

## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2812-1"
WITH NAD83 STATE PLANE GRID COORDINATES OF
NORTHING: 541028.0413(ft) EASTING: 1830430.1983(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998490
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2812-1" TO -L- STATION 10+79.34 IS
N 06° 41' 19" E 979.21'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD29

*NOTE: DRAWING NOT TO SCALE*

*NOTES:*

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
*HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

*THE FILES TO BE FOUND ARE AS FOLLOWS:*
*R2812_LS_CONTROL.TXT*

⊙ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
*PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.*

6/2/99
08-JUL-2011 07:44
R:\Roadway\Proj\R-2812_ls_ld.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2 |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

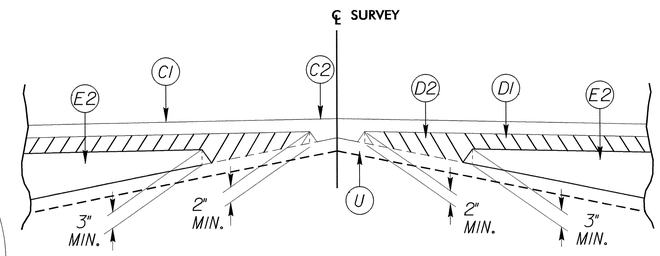
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — Timothy D. Goins 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — Vladimir Mitchev 8/25/11

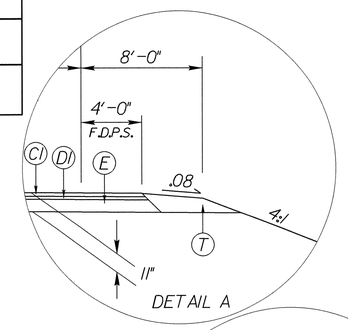
# PAVEMENT SCHEDULE

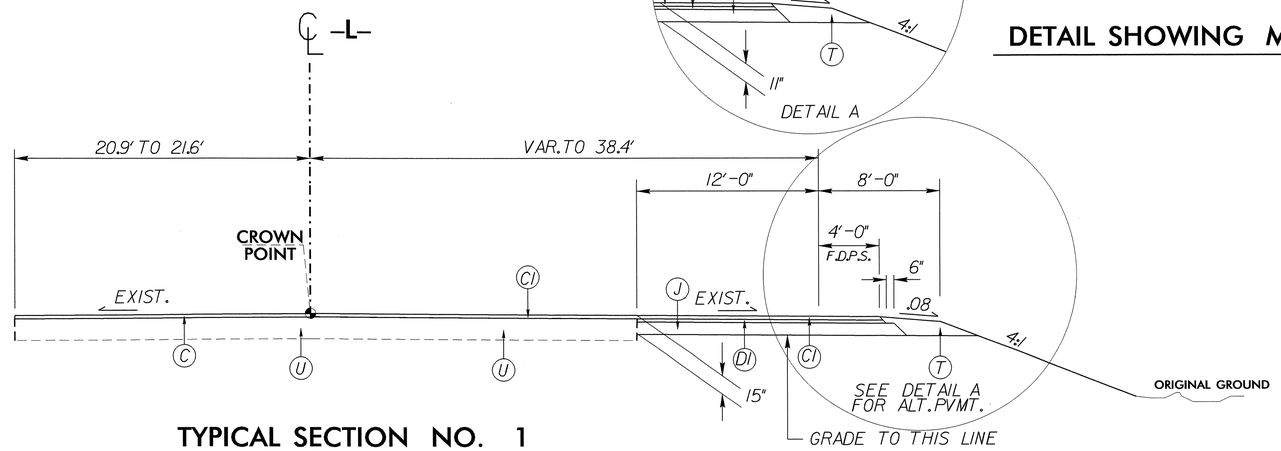
| | |
|---|---|
| C | PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| C1 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C2 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS |
| D | PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| D1 | PROP. APPROX. 4 " ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH. |
| E | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| E1 | PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS |
| 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 5 1/2" IN DEPTH. |
| J | PROP. 8" AGGREGATE BASE COURSE. |
| L2 | CLASS IV SUBRADE STABILIZATION |
| N2 | FABRIC FOR SOIL STABILIZATION |
| R | 2'-6" CONCRETE CURB AND GUTTER. |
| R1 | 1'-6" CONCRETE CURB AND GUTTER. |
| R2 | 5" MONOLITHIC CONCRETE ISLAND (KEYED IN) |
| S | 4" CONCRETE SIDEWALK. |
| T | EARTH MATERIAL. |
| U | EXISTING PAVEMENT. |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL) |

NOTE: PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.




## DETAIL SHOWING METHOD OF WEDGING

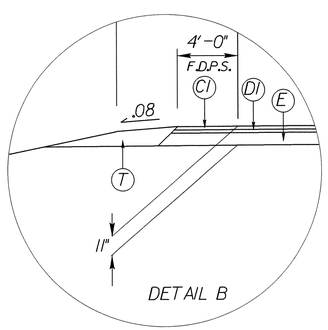


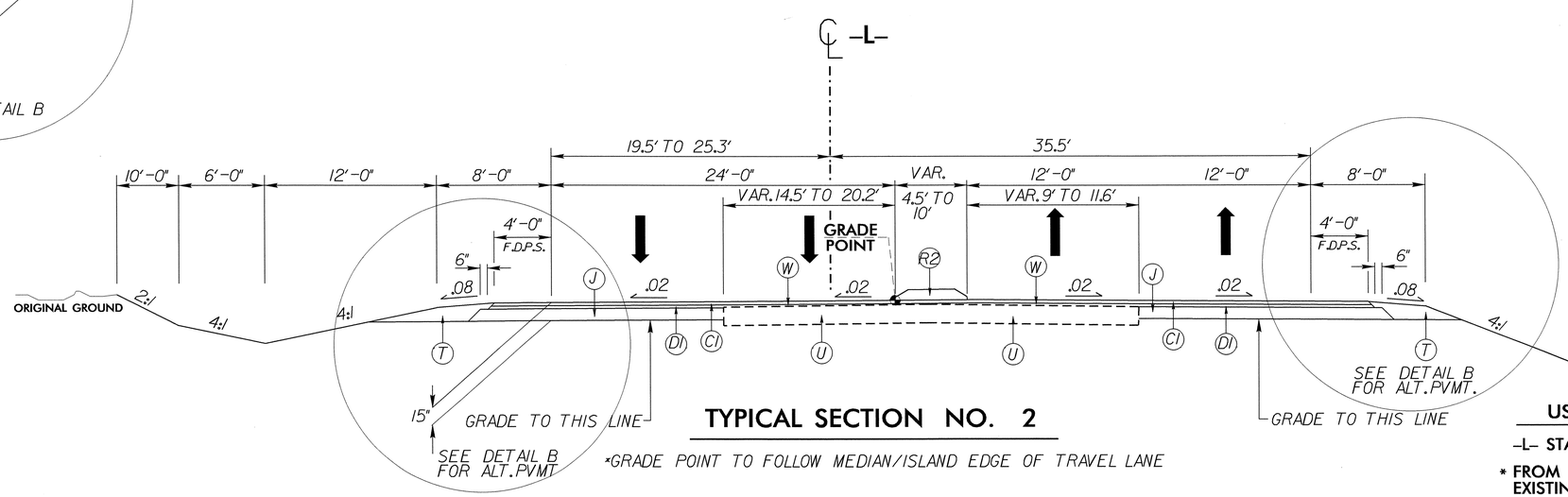




## TYPICAL SECTION NO. 1

**USE TYPICAL SECTION NO. 1**

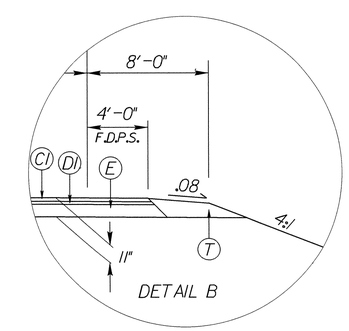
**-L- STA. 7+50.00 TO -L- STA. 12+50**




## TYPICAL SECTION NO. 2

*GRADE POINT TO FOLLOW MEDIAN/ISLAND EDGE OF TRAVEL LANE




**USE TYPICAL SECTION NO. 2**

**-L- STA. 12+50.00 TO -L- STA. 14+46.50**

*** FROM 10+00.00 TO 12+50.00 OVERLAY EXISTING PAVEMENT WITH 2.75" S9.5B**

6/2/99

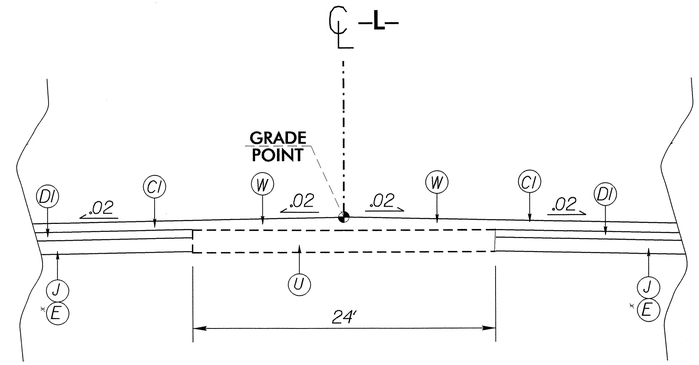
11-AUG-2011 09:16
R:\Roadway\Proj\r2812_rdy_typ.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-A |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — Timothy D. Goins 10-6-11

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — Vladimir Mitchev 10/06/11

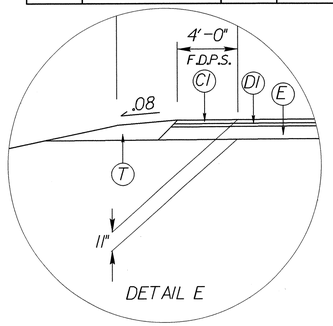
| | | | | | |
|---|---|---|---|---|---|
| C | 1½" S9.5B | E1 | 8" B25.0B | U | EXIST. PAVEMENT |
| C1 | 3" S9.5B | E2 | VAR. DEPTH B25.0B | W | WEDGING |
| C2 | VAR. DEPTH S9.5 B | J | 8" ABC | | |
| D | 2½" I19.0 B | R | 2'-6" CONC. C&G | | |
| D1 | 4" I19.0 B | R1 | 1'-6" CONC. C&G | | |
| D2 | VAR. DEPTH I19.0B | S | 4" CONC. SIDEWALK | | |
| E | 4" B25.0B | T | EARTH MATERIAL | | |

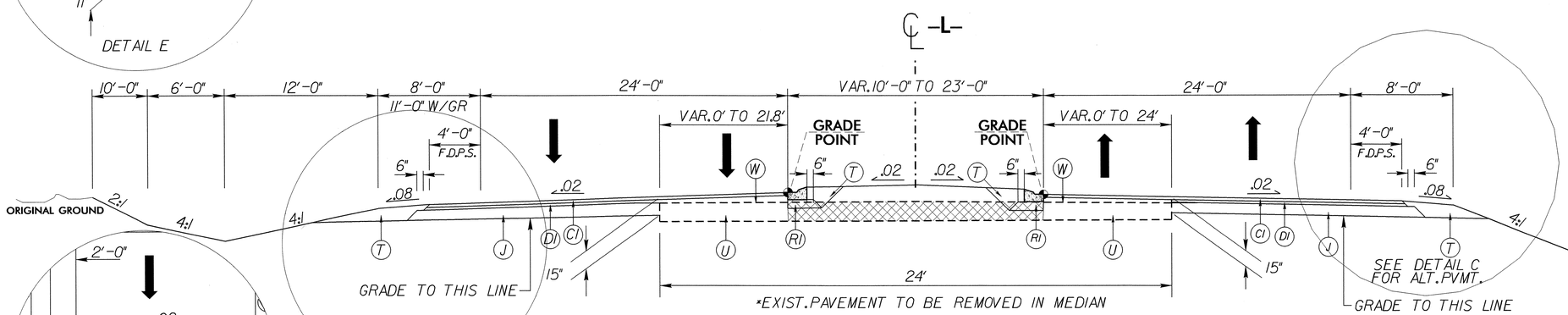


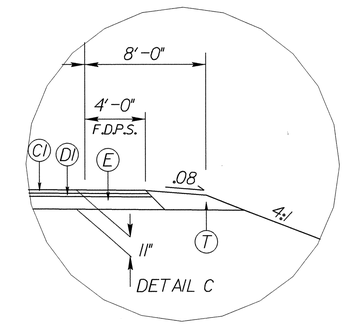

## INTERSECTION DETAIL

*ALT. PAVEMENT DESIGN

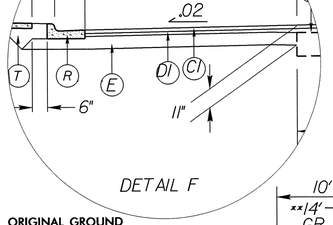
-L- STA. 32+00 TO -L- STA. 39+05.52
-LREV1- STA. 28+11 TO -LREV1- STA. 29+07
-L- STA. 140+17 TO -L- STA. 141+14
-L- STA. 162+67 TO -L- STA. 163+64
-L- STA. 198+35 TO -L- STA. 199+32
-L- STA. 212+64 TO -L- STA. 213+62
-LREV3- STA. 272+65 TO -LREV3- STA. 274+16
-LREV3- STA. 291+59 TO -LREV3- STA. 292+59.40
-LREV3- STA. 301+33 TO -L- STA. 302+30
-LREV3- STA. 314+36 TO -LREV3- STA. 315+33
-L- STA. 333+22.50 TO -L- STA. 334+20
-L- STA. 366+83 TO -L- STA. 367+80
-L- STA. 378+63 TO -L- STA. 379+60
-L- STA. 396+53 TO -L- STA. 397+53



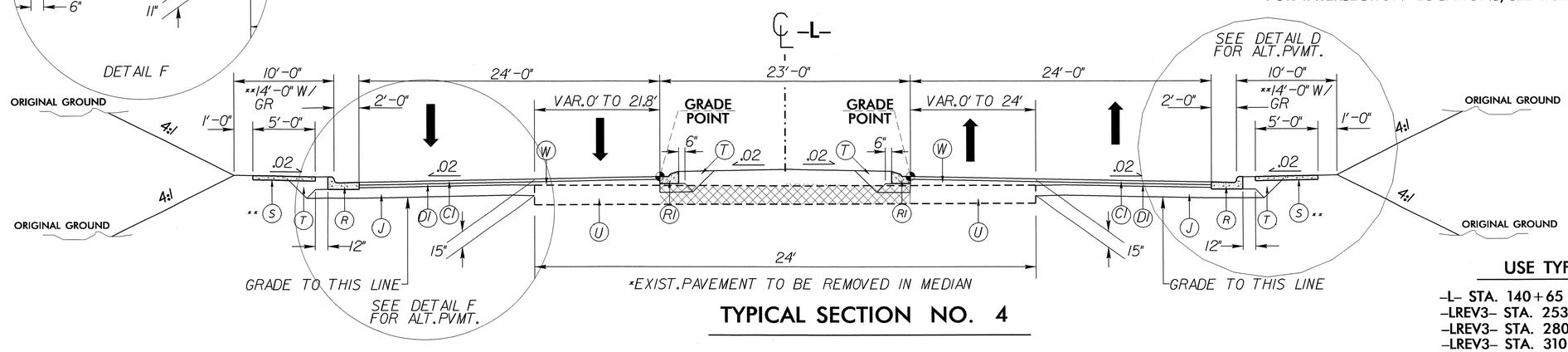

## TYPICAL SECTION NO. 3

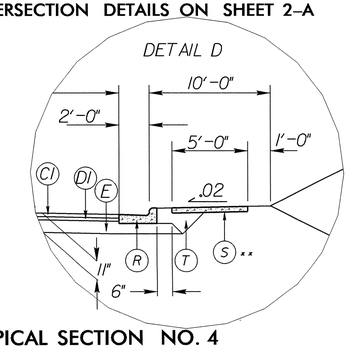



## USE TYPICAL SECTION NO. 3

-L- STA. 14+46.50 TO -L- STA. 39+05.52
-LREV1- STA. 10+00 TO -L- STA. 103+95.71
-L- STA. 133+16.02 TO -L- STA. 140+65

***FOR INTERSECTION LOCATIONS, SEE INTERSECTION DETAILS ON SHEET 2-A




## TYPICAL SECTION NO. 4

## USE TYPICAL SECTION NO. 4

-L- STA. 140+65 TO -L- STA. 253+34.50
-LREV3- STA. 253+34.50 TO -LREV3- STA. 275+00
-LREV3- STA. 280+00 TO -LREV3- STA. 305+15
-LREV3- STA. 310+00 TO -LREV3- STA. 316+74.63
-L- STA. 317+10 TO -L- STA. 409+23.26

**PROP. 5' SIDEWALK ON RT. SIDE FROM -LREV3- 315+00+/- TO -L- RT. STA. 396+87 +/-

**PROP. 5' SIDEWALK ON LT. SIDE FROM -LREV3- 315+00+/- TO -L- LT. STA. 405+95 +/-

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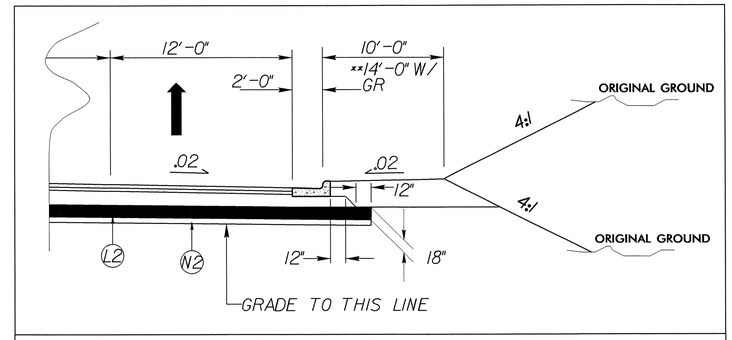
| | | | | | |
|---|---|---|---|---|---|
| C | 1½" S9.5B | E1 | 8" B25.0B | S | 4" CONC. SIDEWALK |
| C1 | 3" S9.5B | E2 | VAR. DEPTH B25.0B | T | EARTH MATERIAL |
| C2 | VAR. DEPTH S9.5 B | J | 8" ABC | U | EXIST. PAVEMENT |
| D | 2½" I19.0 B | L2 | CL. IV SUBGRADE STAB. | W | WEDGING |
| D1 | 4" I19.0 B | N2 | FABRIC FOR SOIL STABIL. | | |
| D2 | VAR. DEPTH I19.0B | R | 2'-6" CONC. C&G | | |
| E | 4" B25.0B | R1 | 1'-6" CONC. C&G | | |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-B |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

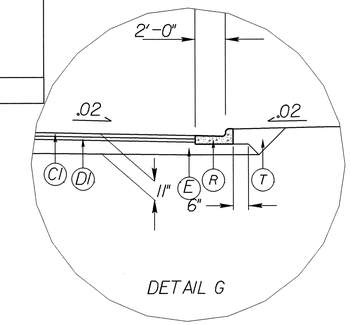
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER DIMIR G. MITCHEV 08/25/11

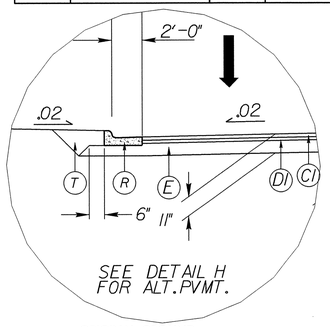



SHALLOW UNDERCUT DETAIL

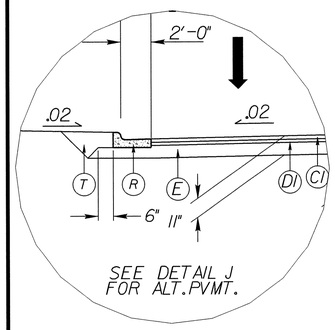
-L- 148+00 TO 160+00
-L- 186+00 TO 188+00
-L- 247+00 TO 250+00
-L- 283+00 TO 286+00
-L- 361+00 TO 369+00
-L- 373+00 TO 375+00



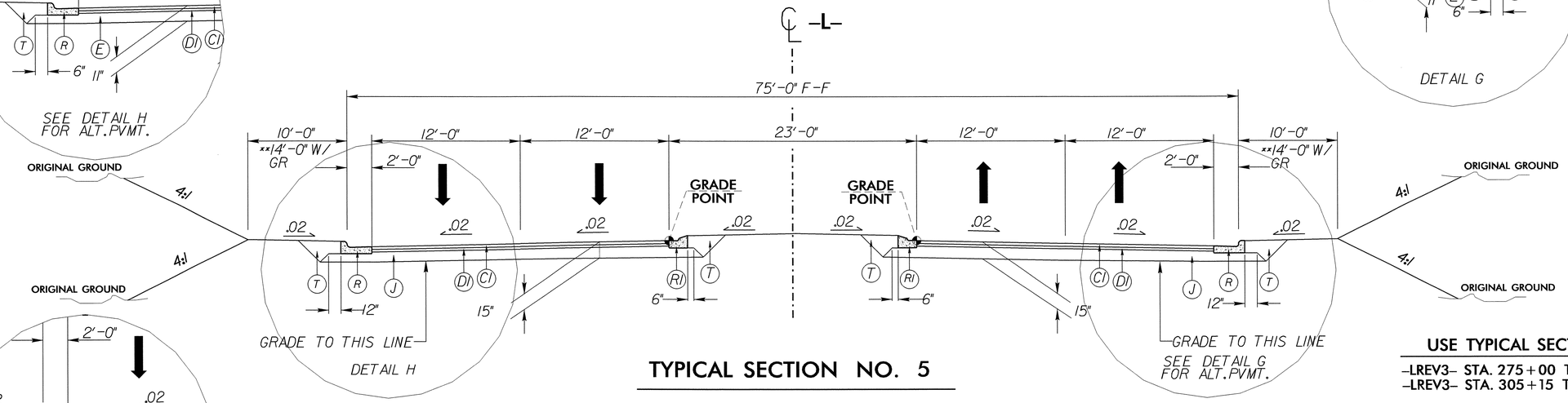

DETAIL G




SEE DETAIL H FOR ALT.PVMT.




SEE DETAIL J FOR ALT.PVMT.

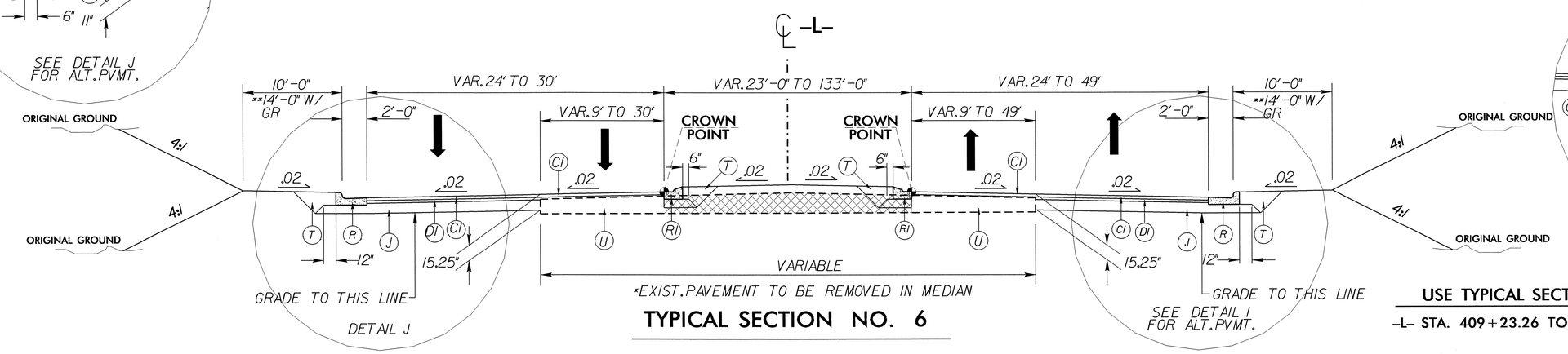



TYPICAL SECTION NO. 5

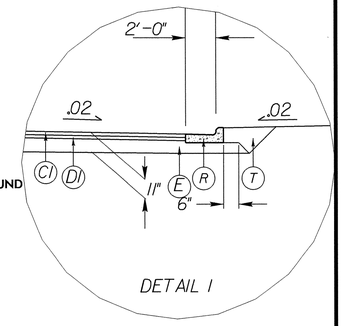
USE TYPICAL SECTION NO. 5

-LREV3- STA. 275+00 TO -LREV3- STA. 280+00
-LREV3- STA. 305+15 TO -LREV3- STA. 310+00

***FOR INTERSECTION LOCATIONS, SEE INTERSECTION DETAILS.




TYPICAL SECTION NO. 6




DETAIL I

USE TYPICAL SECTION NO. 6

-L- STA. 409+23.26 TO -L- STA. 412+40

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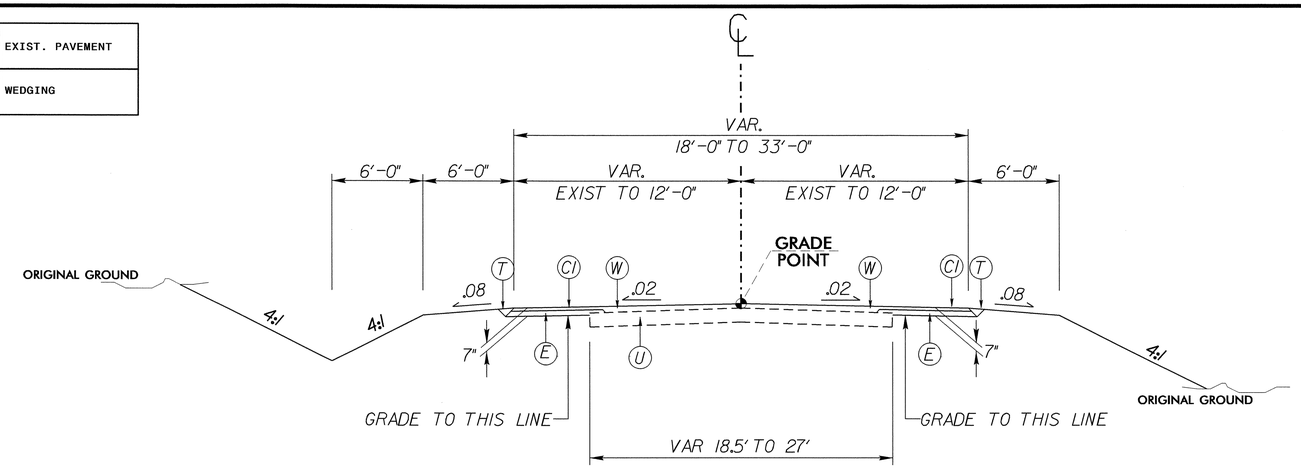
| | | | | | |
|---|---|---|---|---|---|
| C | 1½" S9.5B | E1 | 8" B25.0B | U | EXIST. PAVEMENT |
| C1 | 3" S9.5B | E2 | VAR. DEPTH B25.0B | W | WEDGING |
| C2 | VAR. DEPTH S9.5 B | J | 8" ABC | | |
| D | 2½" I19.0 B | R | 2'-6" CONC. C&G | | |
| D1 | 4" I19.0 B | R1 | 1'-6" CONC. C&G | | |
| D2 | VAR. DEPTH I19.0B | S | 4" CONC. SIDEWALK | | |
| E | 4" B25.0B | T | EARTH MATERIAL | | |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-C |

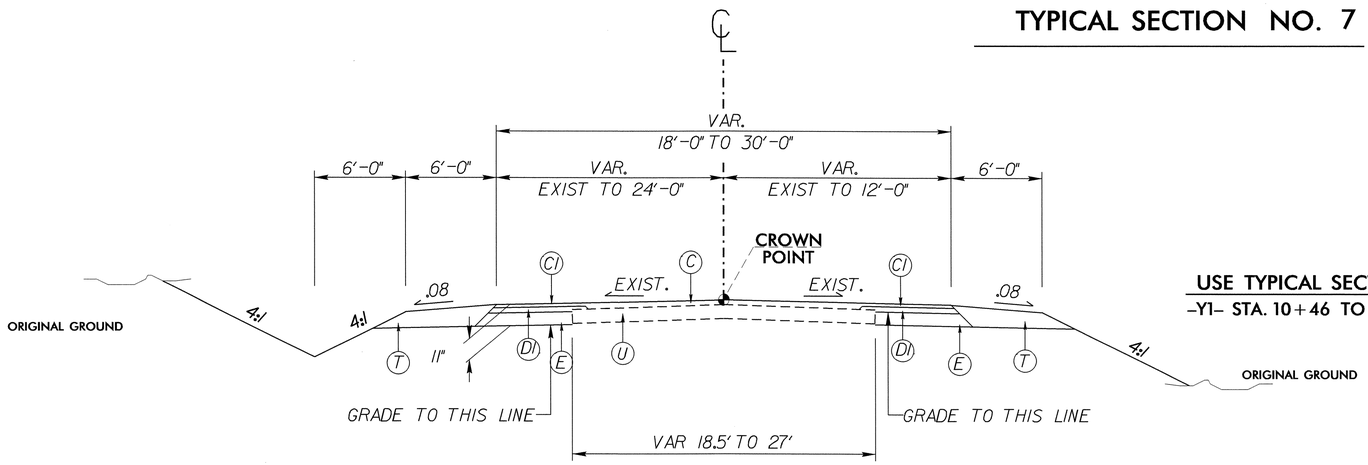
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 9-7-11

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 09/07/11




## TYPICAL SECTION NO. 7

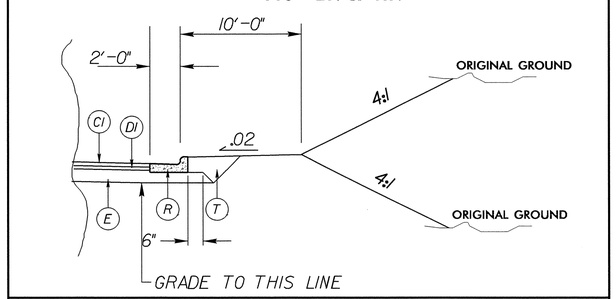
**USE TYPICAL SECTION NO. 7**
-Y3- STA. 11+50 TO 13+11.20
-Y13- STA. 14+83.60 TO 15+60.00
-Y14- STA. 11+30.00 TO 13+01.39
-Y15- STA. 12+00.00 TO 12+87.30
-Y15- STA. 13+59.68 TO 14+25
-Y16- STA. 14+60.00 TO 15+73.02




## TYPICAL SECTION NO. 8

**USE TYPICAL SECTION NO. 8**
-Y1- STA. 10+46 TO 12+16.45

**-Y10- LT. & RT.**




**DETAIL M**

**USE DETAIL M IN CONJUNCTION WITH T.S. 9**
*NOTE: USE MAINLINE PAVEMENT DESIGN FOR -Y10-

| FULL DEPTH PAVEMENT REPAIR | |
|---|---|
| -L- STA. 379+00 | 100 /6 LF |
| -L- STA. 374+00 | 100 /6 LF |
| -L- STA. 214+00 | 20 /6 LF |
| -L- STA. 141+50 | 500 /6 LF |
| -L- STA. 11+00 | 100 /6 LF |
| -LREV1- STA. 43+99.52 | 100 /12 LF |

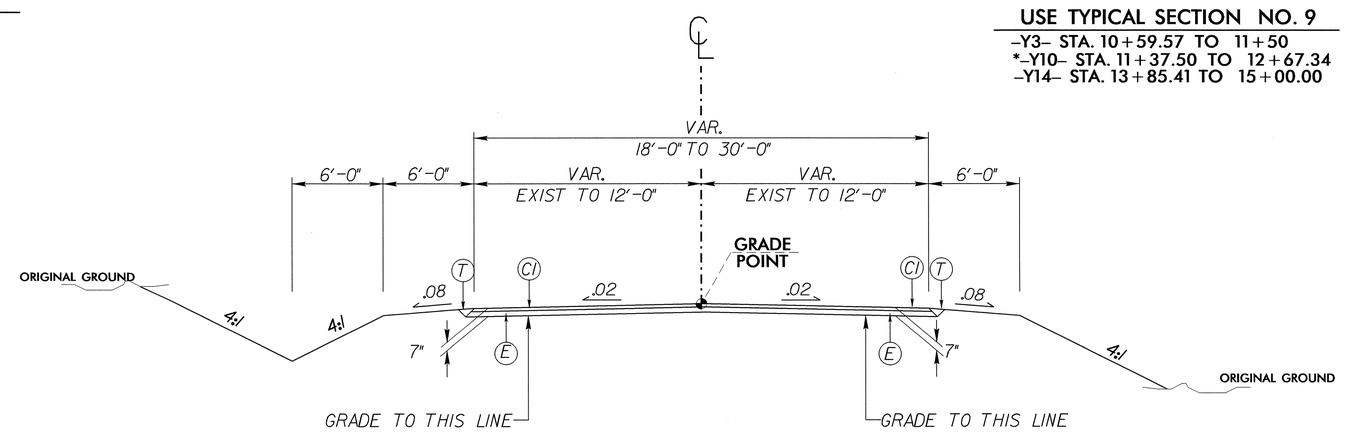
USE IN CONJUNCTION WITH TYPICALS 2 – 4

-L-LT 10+79 TO 17+00 REMOVE PAVEMENT AND REPLACE WITH FULL DEPTH PAVEMENT (4' – 7' WIDTH)

EXISTING PAVEMENT TO BE REMOVED AND REPLACED WITH 8" B25.0B AND 1.5" S9.5B

AT THE DISCRETION OF THE ENGINEER, SUBGRADE SHOULD BE STABILIZED WITH AGGREGATE

**USE TYPICAL SECTION NO. 9**
-Y3- STA. 10+59.57 TO 11+50
*-Y10- STA. 11+37.50 TO 12+67.34
-Y14- STA. 13+85.41 TO 15+00.00




## TYPICAL SECTION NO. 9

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| | | | | | |
|---|---|---|---|---|---|
| C | 1½" S9.5B | E1 | 8" B25.0B | U | EXIST. PAVEMENT |
| C1 | 3" S9.5B | E2 | VAR. DEPTH B25.0B | W | WEDGING |
| C2 | VAR. DEPTH S9.5 B | J | 8" ABC | | |
| D | 2½" I19.0 B | R | 2'-6" CONC. C&G | | |
| D1 | 4" I19.0 B | R1 | 1'-6" CONC. C&G | | |
| D2 | VAR. DEPTH I19.0B | S | 4" CONC. SIDEWALK | | |
| E | 4" B25.0B | T | EARTH MATERIAL | | |

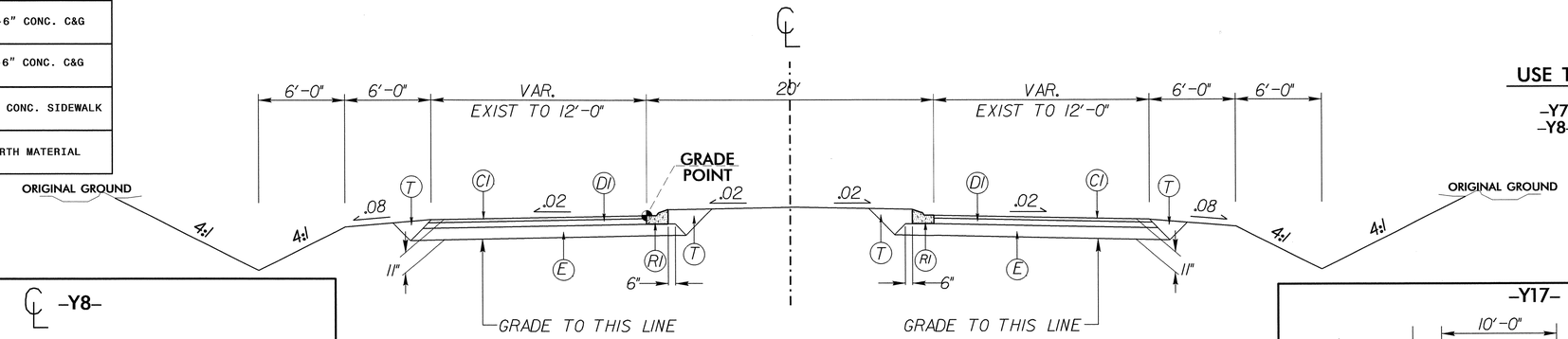
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-D |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 9-7-11

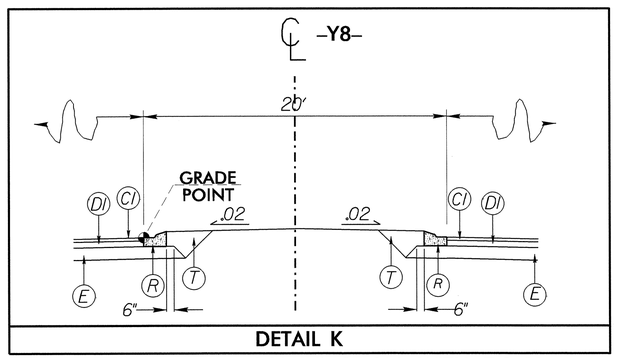
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
Vladimir G. Mitchev 09/07/11

## USE TYPICAL SECTION NO. 10

–Y7– STA. 10+35.76 TO 11+75
–Y8– STA. 10+35.50 TO 11+29

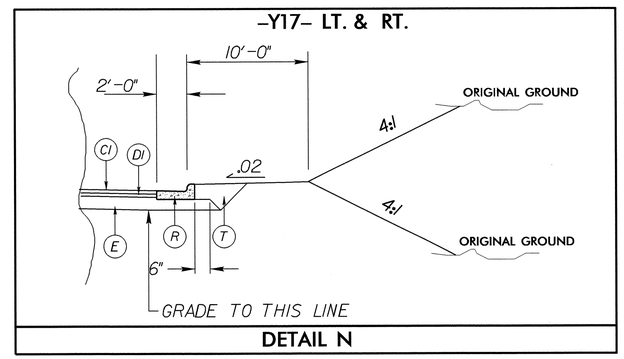



## TYPICAL SECTION NO. 10




DETAIL K

USE DETAIL K IN CONJUNCTION WITH T.S. 10

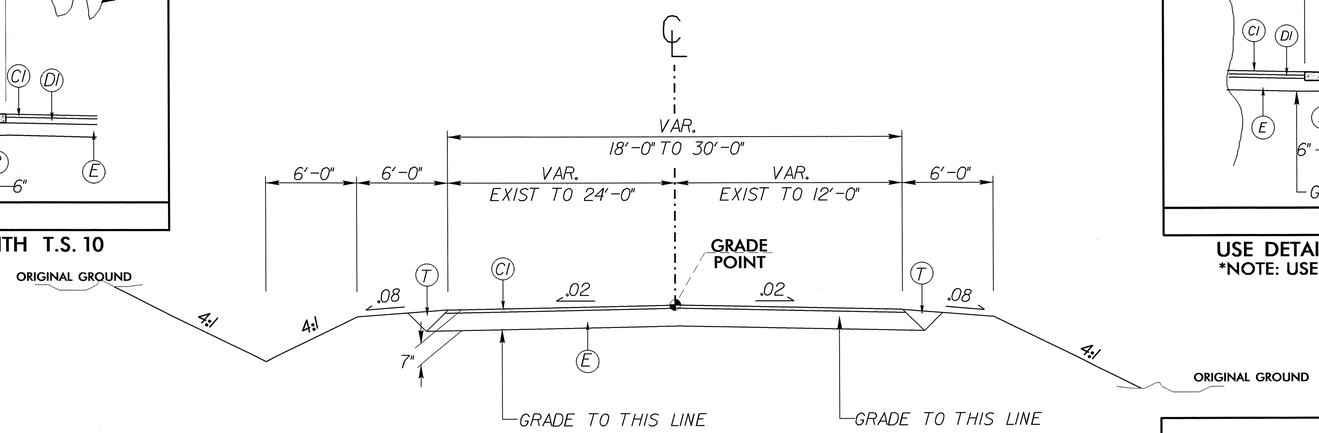



DETAIL N

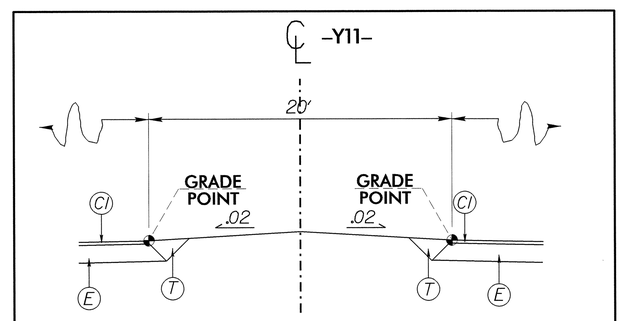
USE DETAIL N IN CONJUNCTION WITH T.S. 11
*NOTE: USE MAINLINE PAVEMENT DESIGN FOR –Y17–

## USE TYPICAL SECTION NO. 11

–Y11– STA. 10+94.76 TO 11+75.00
–Y12– STA. 11+75.00 TO 13+52.86
*–Y17– STA. 10+35.50 TO 11+78.21




## TYPICAL SECTION NO. 11

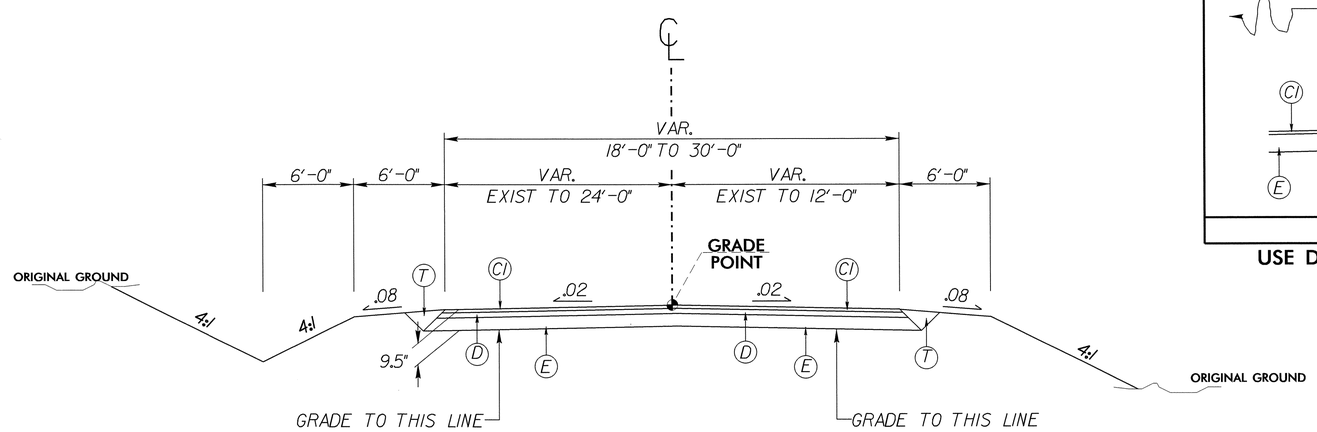



DETAIL L

USE DETAIL L IN CONJUNCTION WITH T.S. 11

## USE TYPICAL SECTION NO. 12

–Y19– STA. 13+40.31 TO 15+30.00




## TYPICAL SECTION NO. 12

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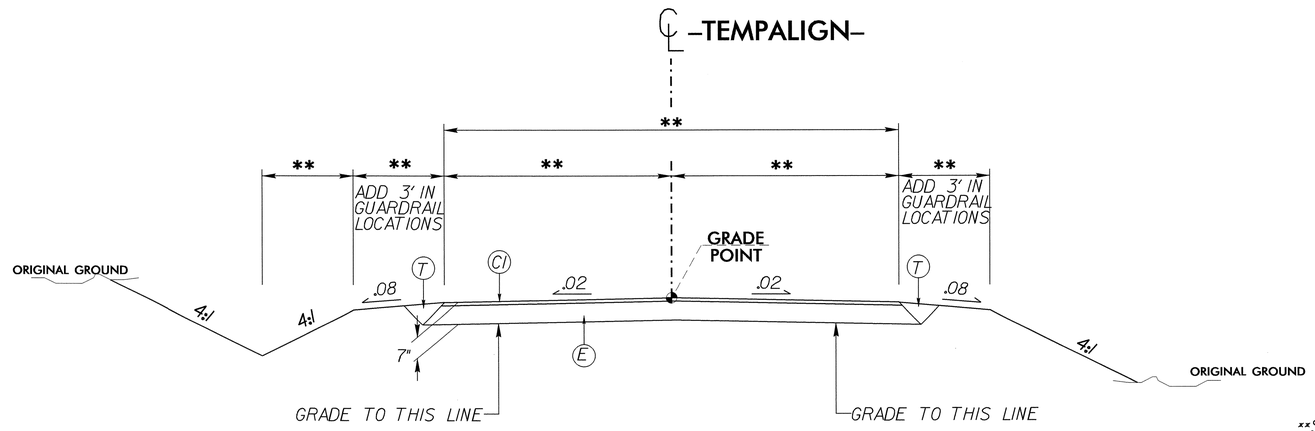
| | |
|---|---|
| C | 1½" S9.5B |
| C1 | 3" S9.5B |
| C2 | VAR. DEPTH S9.5 B |
| E | 4" B25.0B |
| T | EARTH MATERIAL |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-E |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-25-11

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
Vladimir G. Mitchev 08/25/11



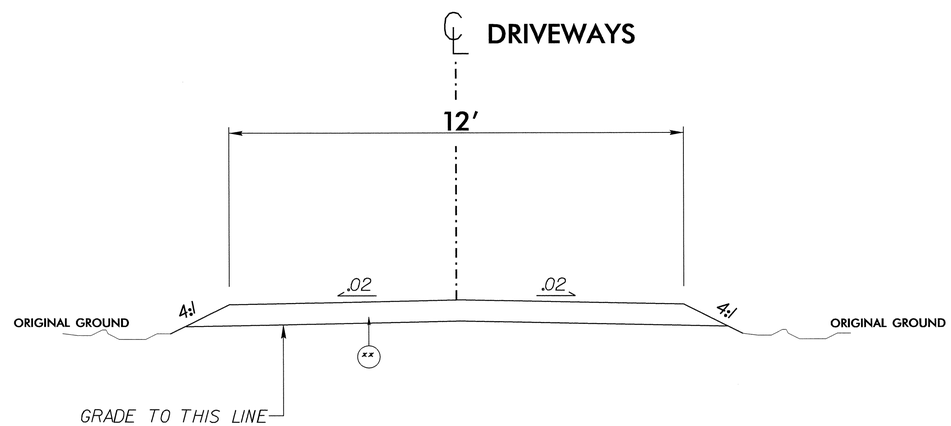

## TYPICAL SECTION NO. 13

### USE TYPICAL SECTION NO. 13

-TEMPALIGN1- THRU -TEMPALIGN8-

NOTE: USE THIS PAVEMENT DESIGN FOR ALL TEMPORARY PAVEMENT LOCATIONS. SEE TMP PLANS FOR LOCATIONS.

**SEE TMP PLANS FOR PAVEMENT & SHLDR.WIDTHS




## TYPICAL SECTION NO. 14

### USE TYPICAL SECTION NO. 14

DRIVEWAY LOCATIONS

**CONSTRUCT DRIVEWAYS WITH THE FOLLOWING MATERIALS:

| | |
|---|---|
| EXISTING SOIL DRIVE | INCIDENTAL STONE |
| ASPHALT DRIVE | 1.5" S9.5B |

6/2/99

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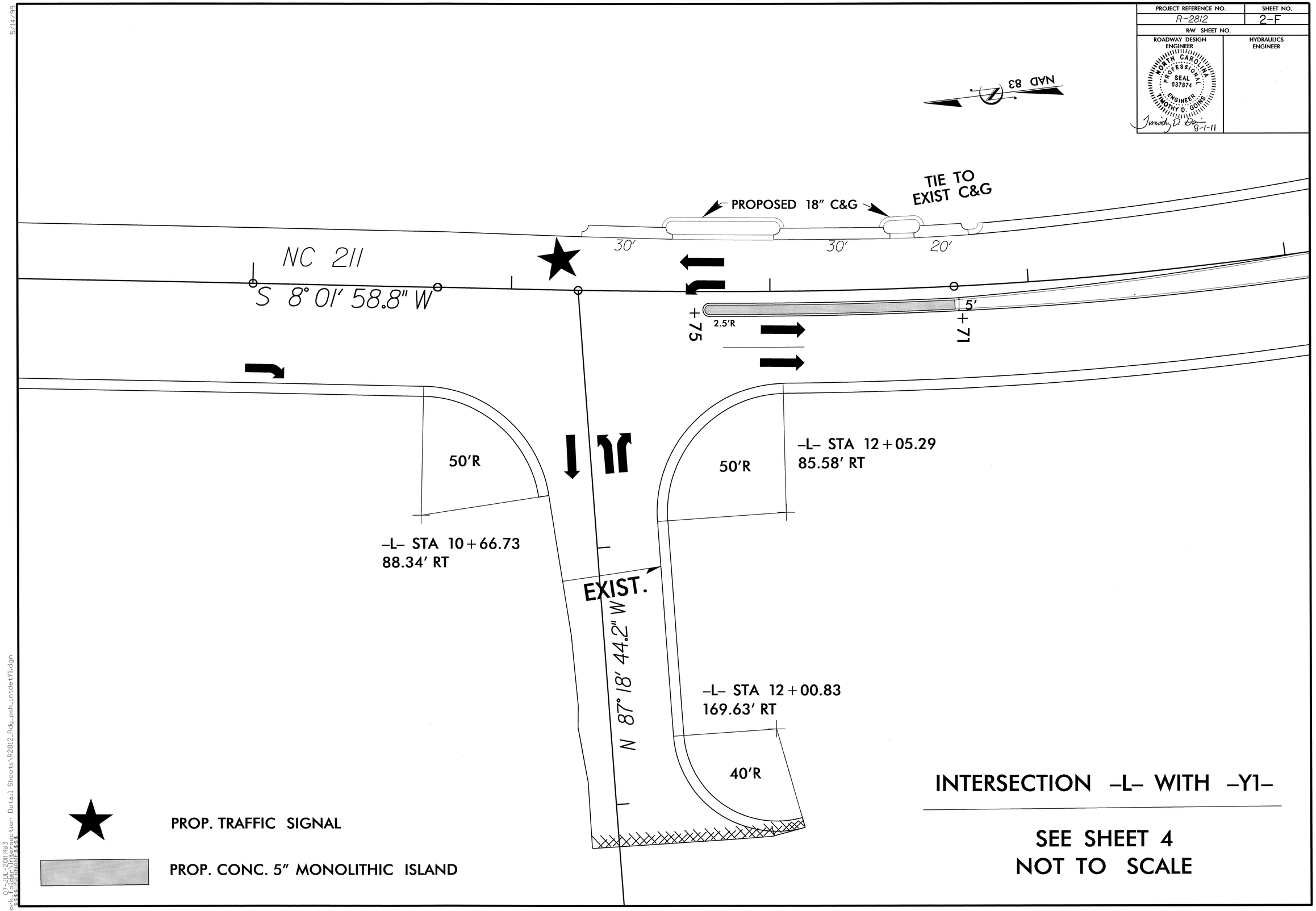
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-F |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




# INTERSECTION -L- WITH -Y1-

SEE SHEET 4
NOT TO SCALE

5/14/99

07-JUL-2011 14:13
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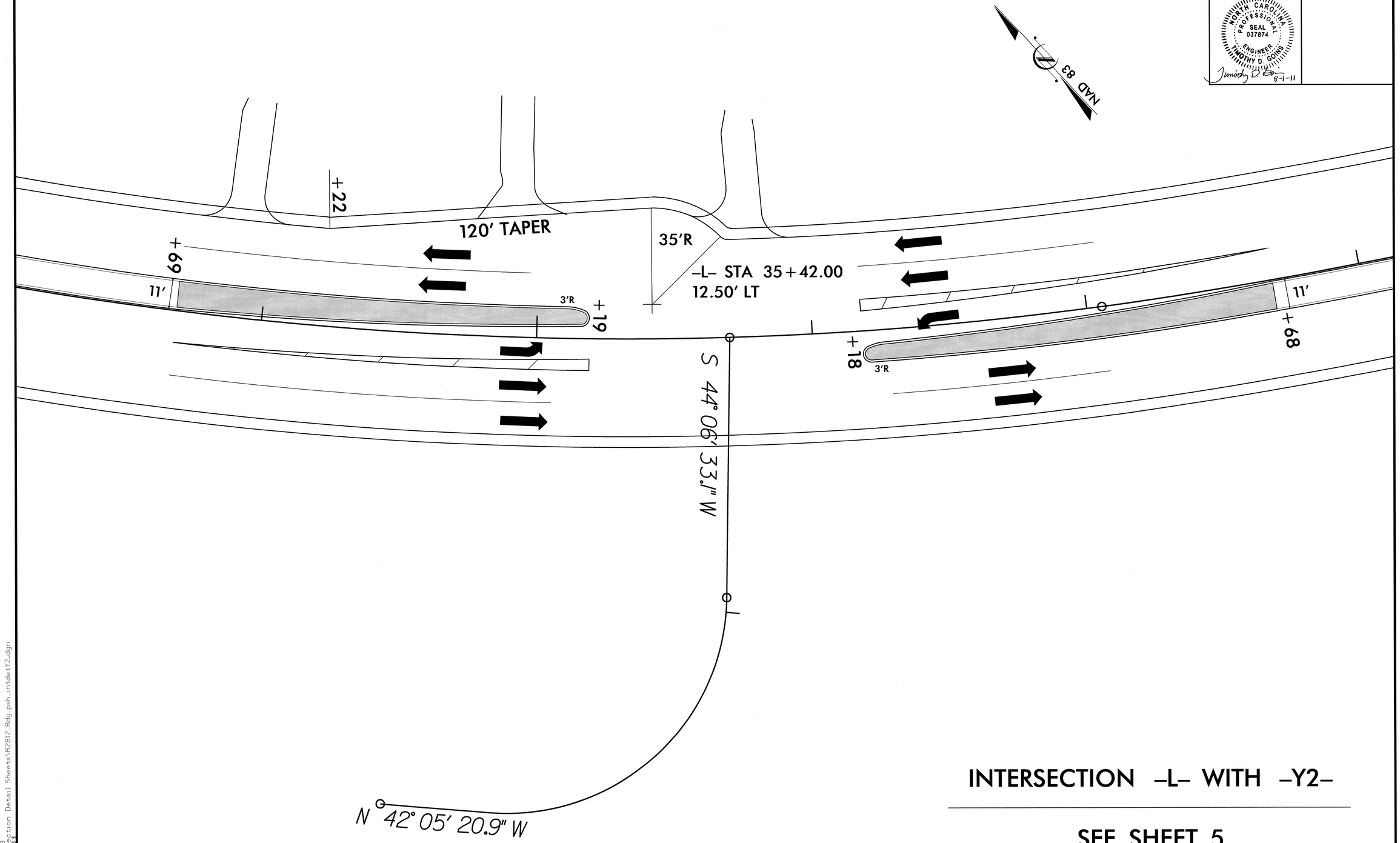
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-G |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
8-1-11




INTERSECTION -L- WITH -Y2-

SEE SHEET 5
NOT TO SCALE

5/14/99

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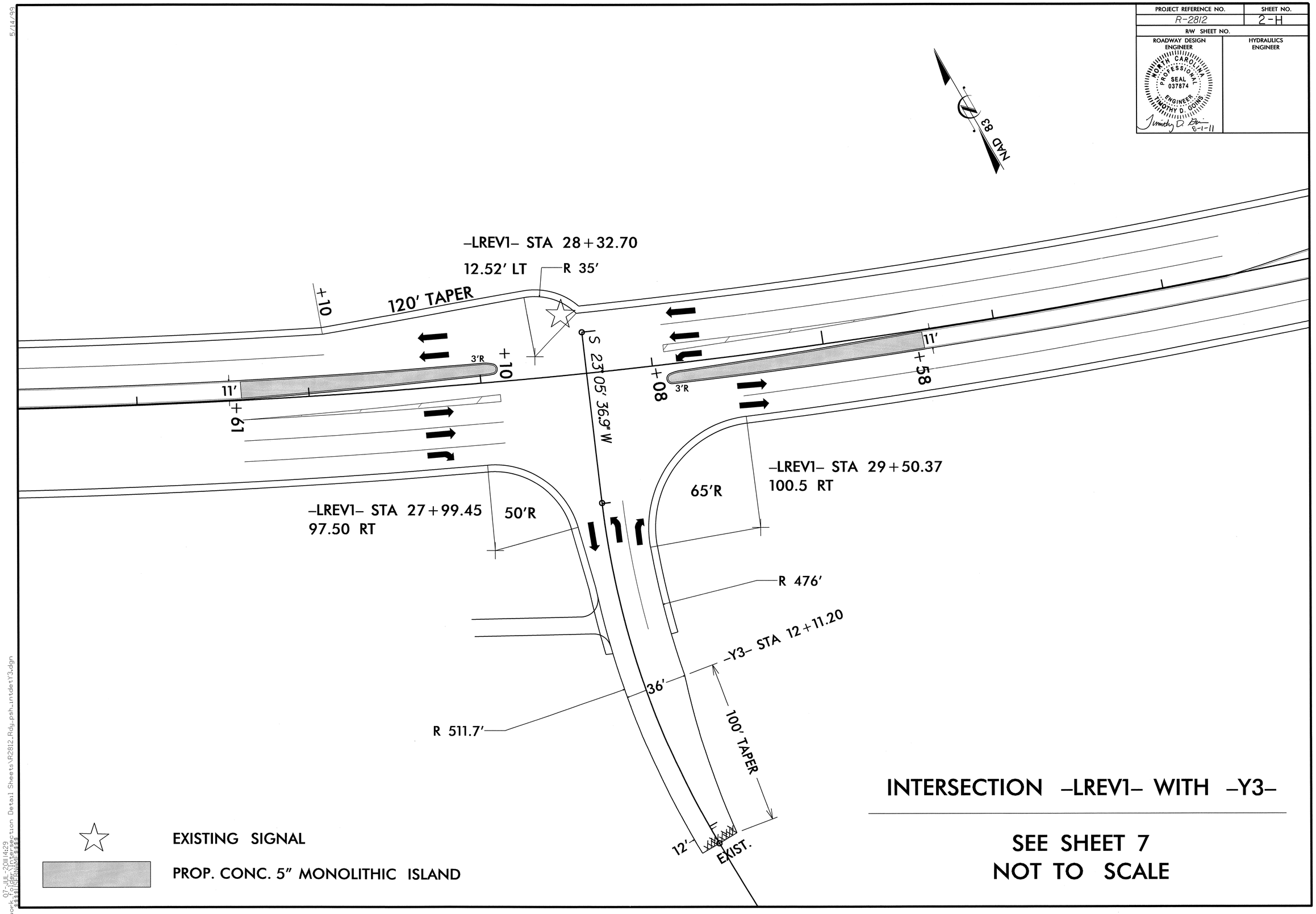
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-H |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




# INTERSECTION -LREV1- WITH -Y3-

SEE SHEET 7
NOT TO SCALE

5/14/99

07-JUL-2011 14:29
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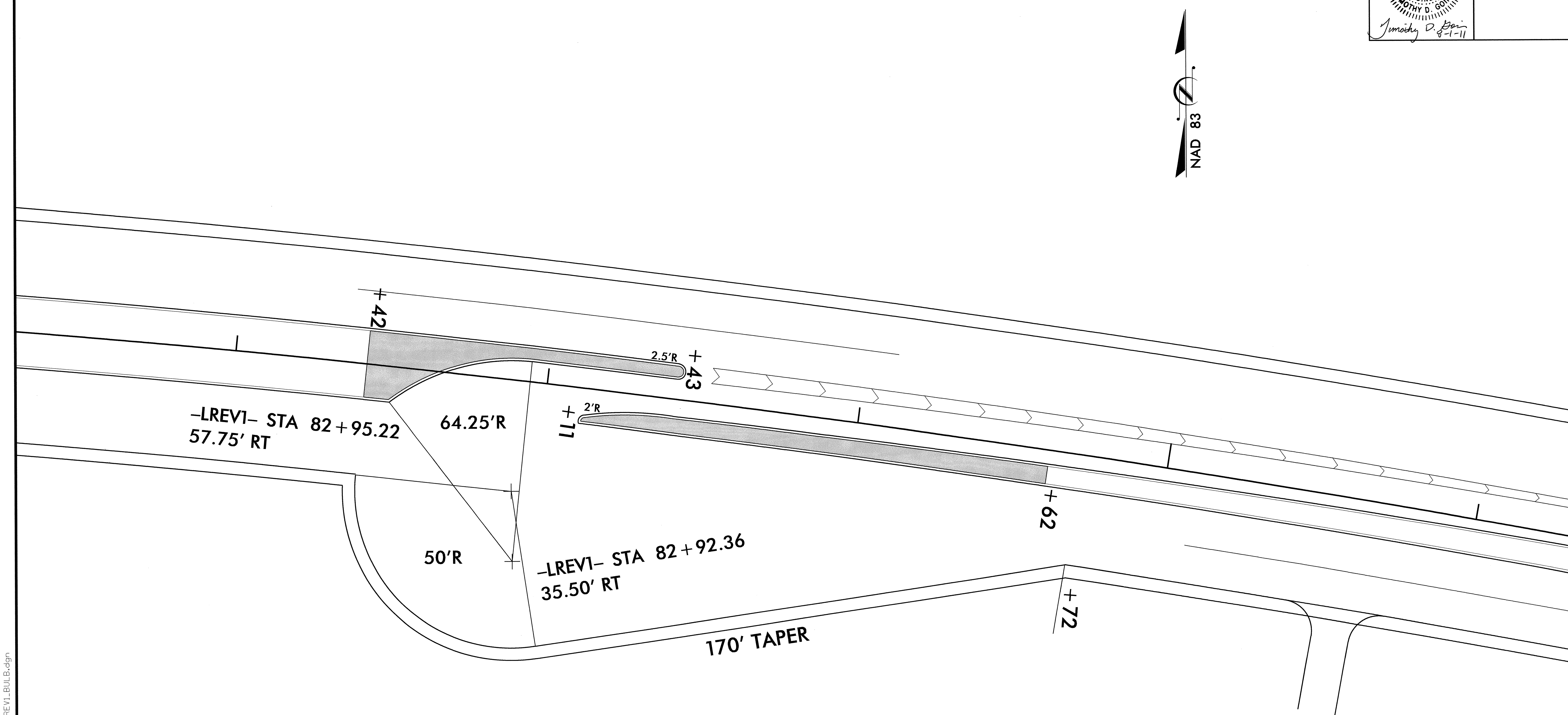
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-1 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




PROP. CONC. 5" MONOLITHIC ISLAND

-LREV1- U-TURN BULB

SEE SHEET 11
NOT TO SCALE

11-JUL-2011 14:52
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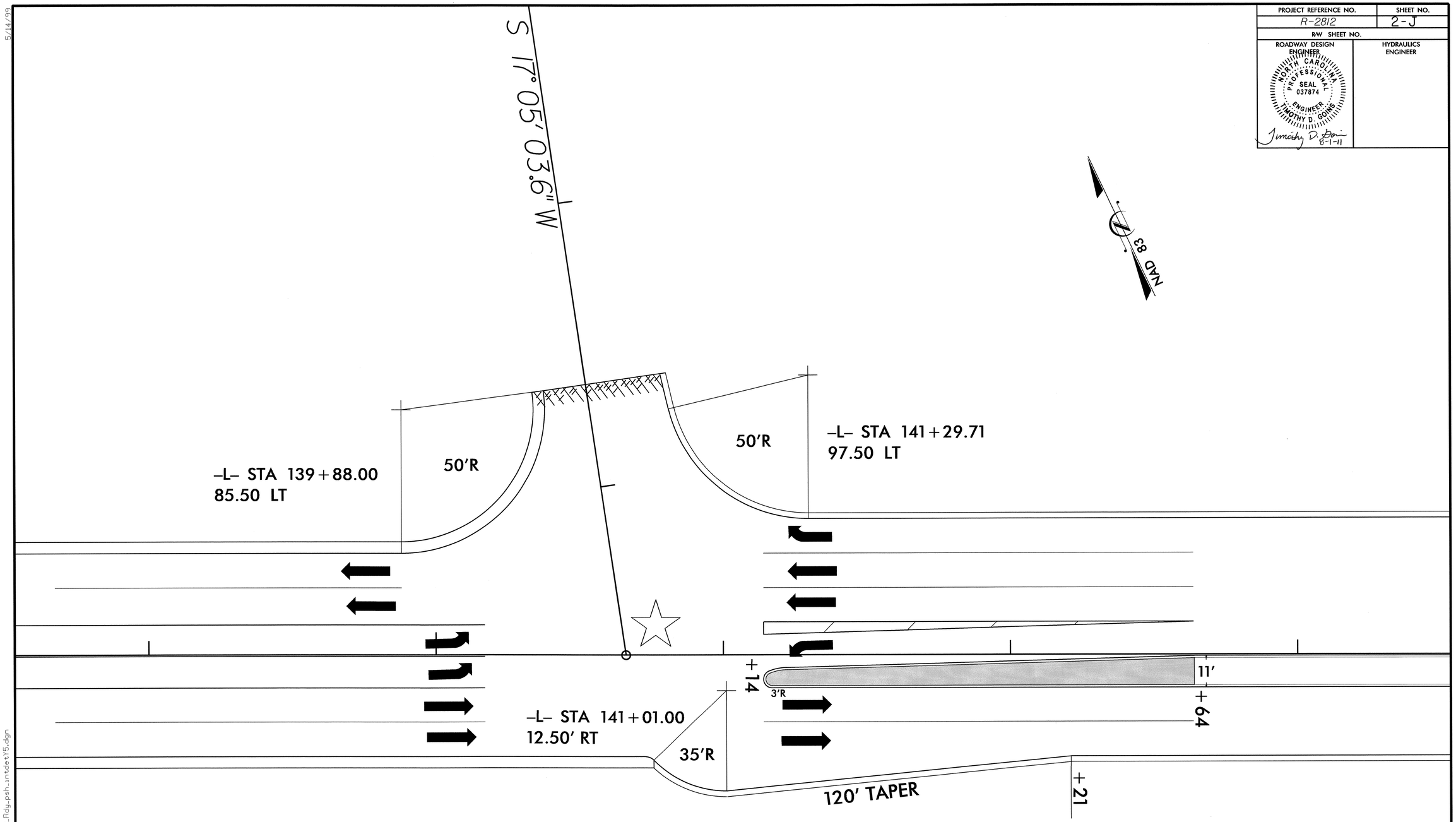
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-J |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




EXISTING SIGNAL

PROP. CONC. 5" MONOLITHIC ISLAND

# INTERSECTION -L- WITH -Y5-

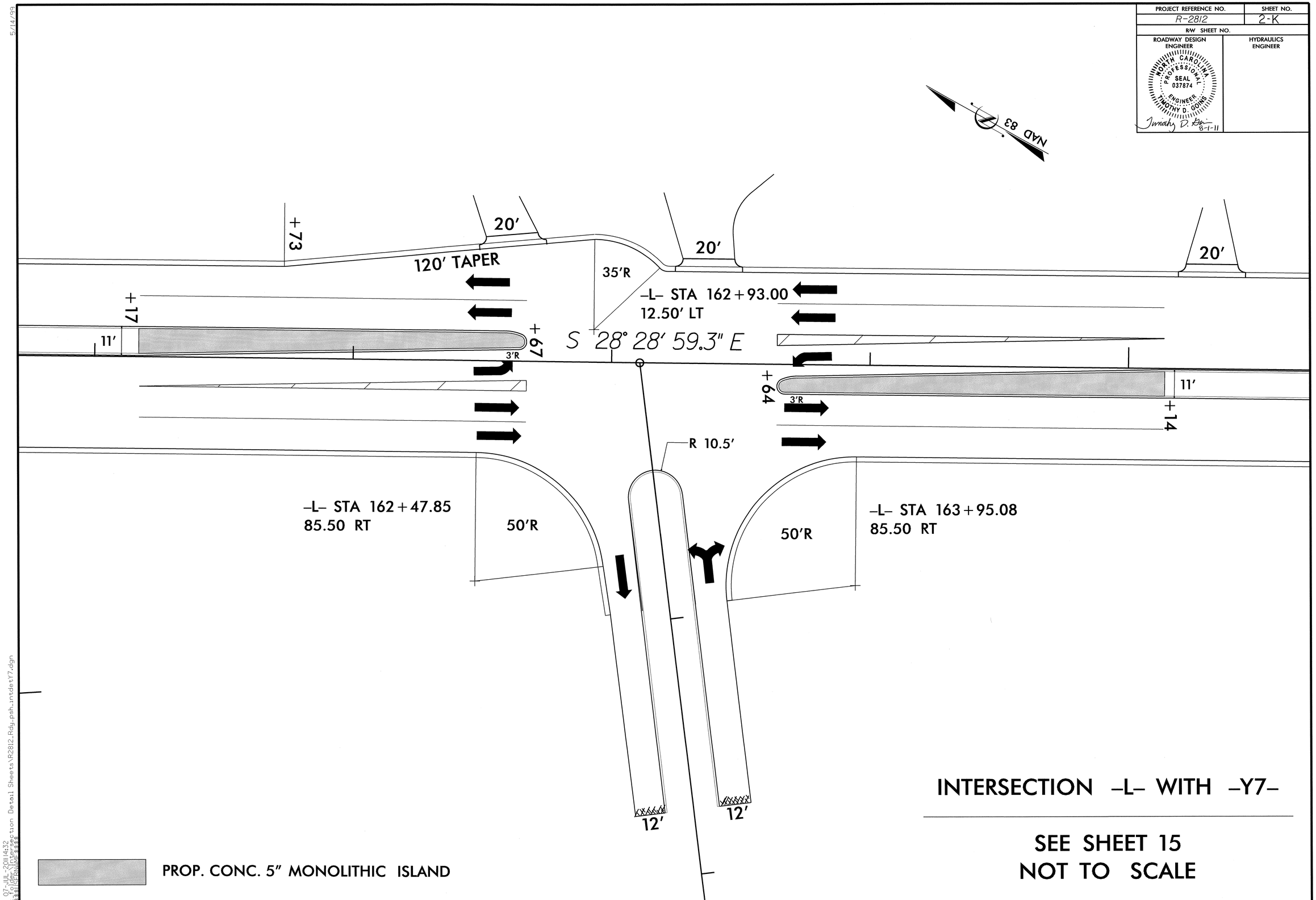
SEE SHEET 13
NOT TO SCALE

5/14/99

07-JUL-2011 14:31
al_work_folder\Intersection Detail Sheets\R2812_Rdy_psh_intdetY5.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-K |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




INTERSECTION -L- WITH -Y7-

SEE SHEET 15
NOT TO SCALE

5/14/99

07-JUL-2011 14:32
al_work_folder\Intersection Detail Sheets\R2812_Rdy_psh_intdetY7.dgn
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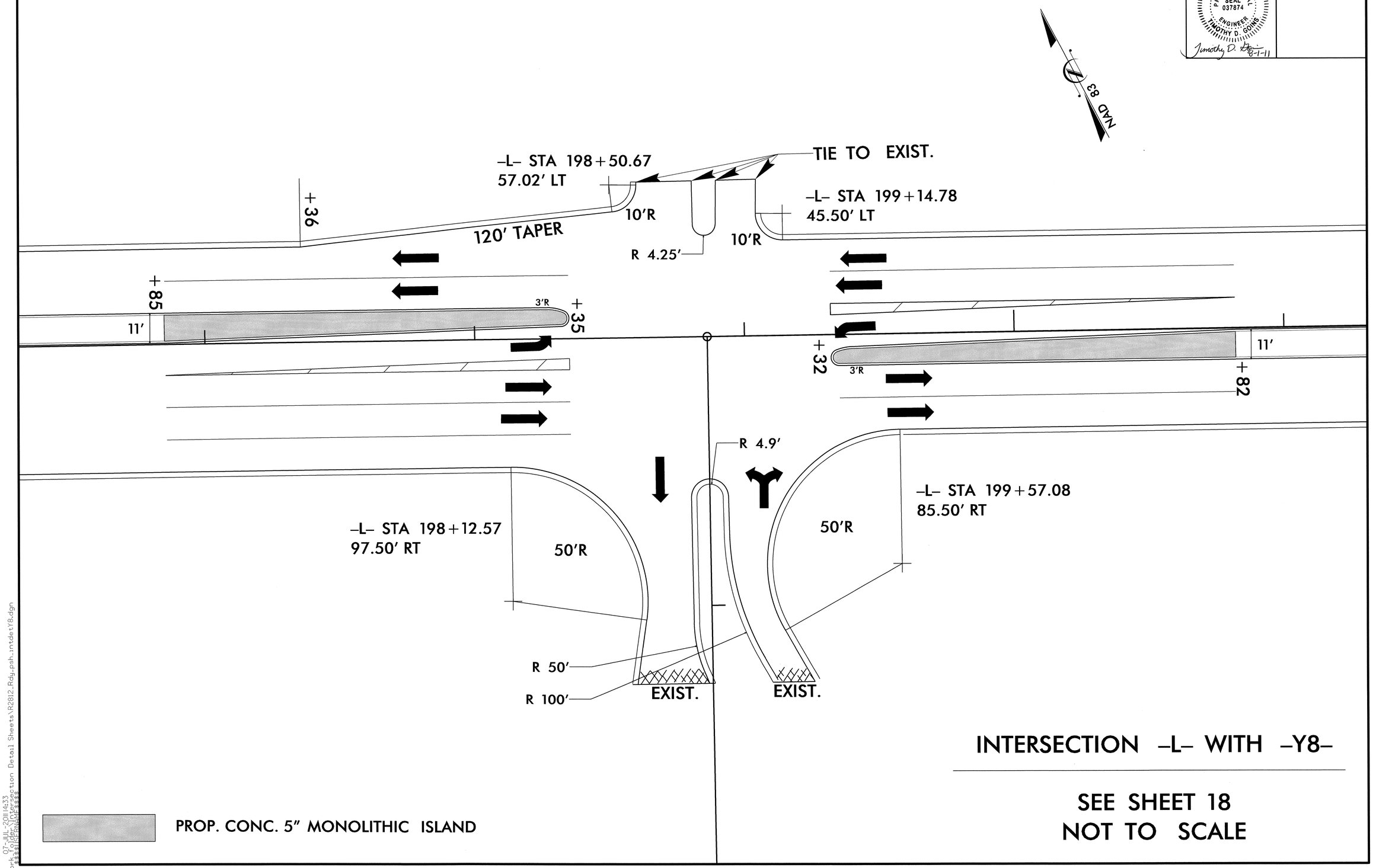
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-L |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




INTERSECTION -L- WITH -Y8-

SEE SHEET 18
NOT TO SCALE

5/14/99

07-JUL-2011 14:33
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5/14/99

| PROJECT REFERENCE NO. | SHEET NO. |
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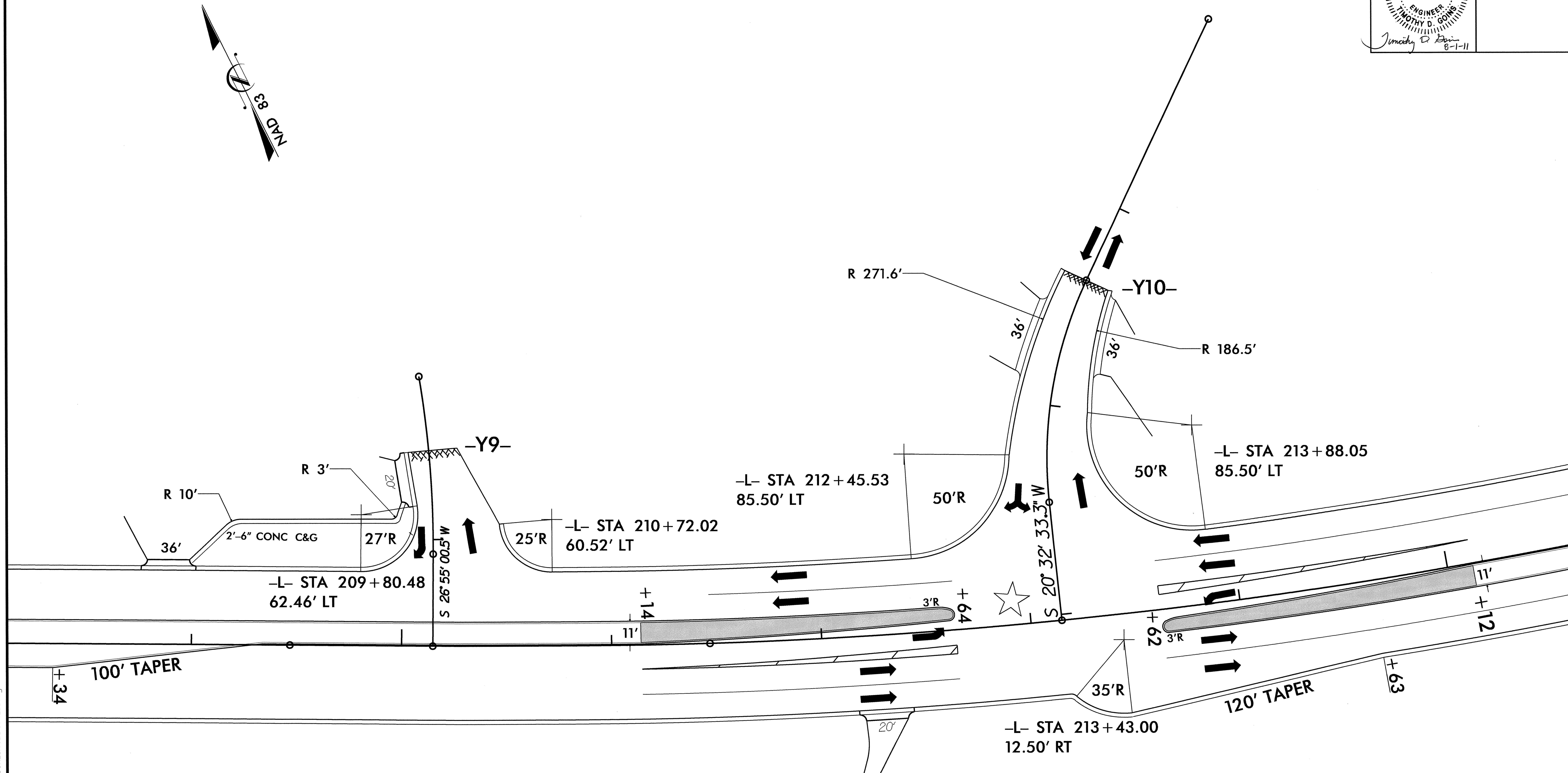
| R-2812 | 2-M |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




# INTERSECTION -L- WITH -Y9- & -Y10-

SEE SHEET 19
NOT TO SCALE

☆ EXISTING SIGNAL

PROP. CONC. 5" MONOLITHIC ISLAND

07-JUL-2011 14:34
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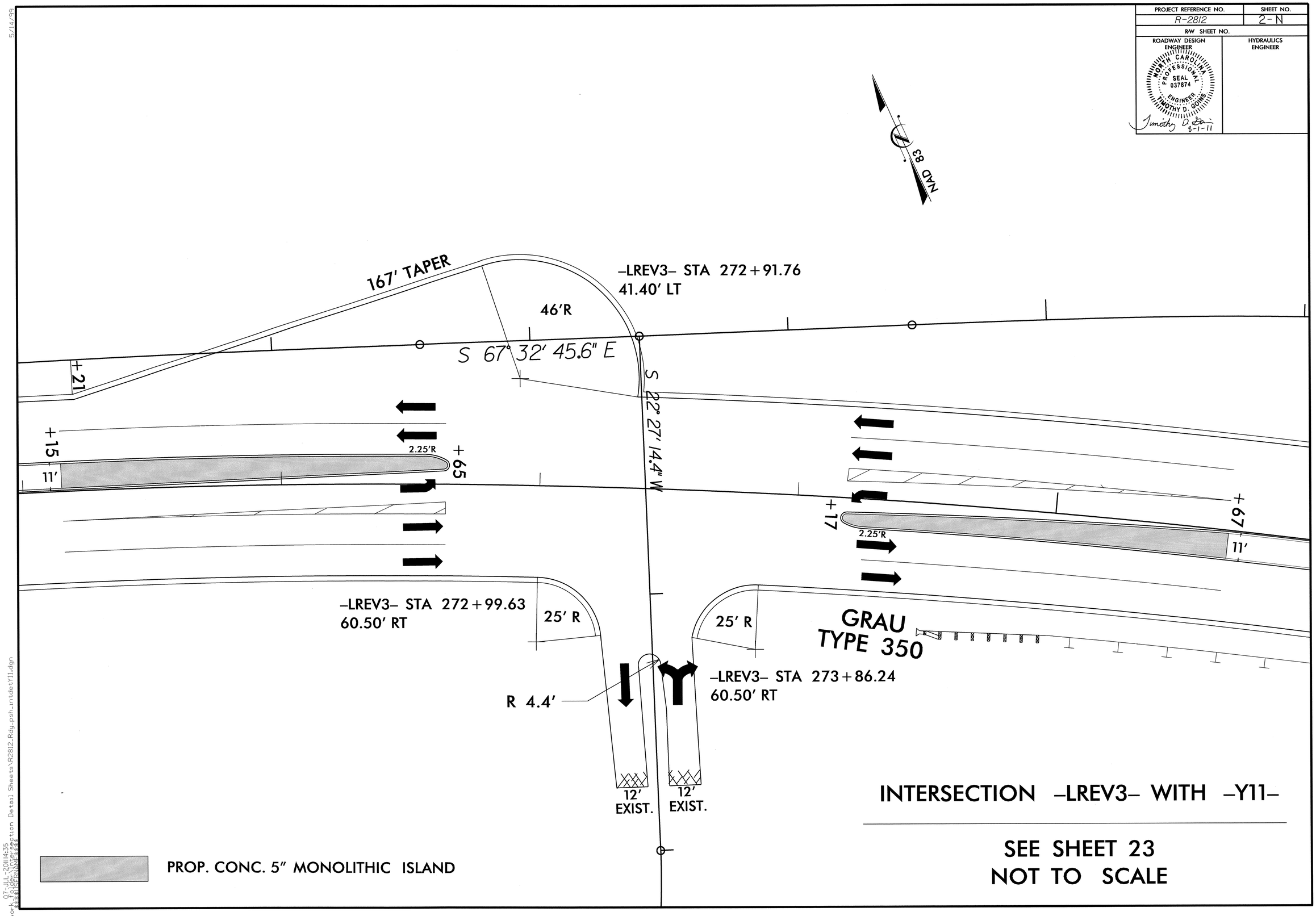
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-N |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




INTERSECTION -LREV3- WITH -Y11-

SEE SHEET 23
NOT TO SCALE

5/14/99

07-JUL-2011 14:35
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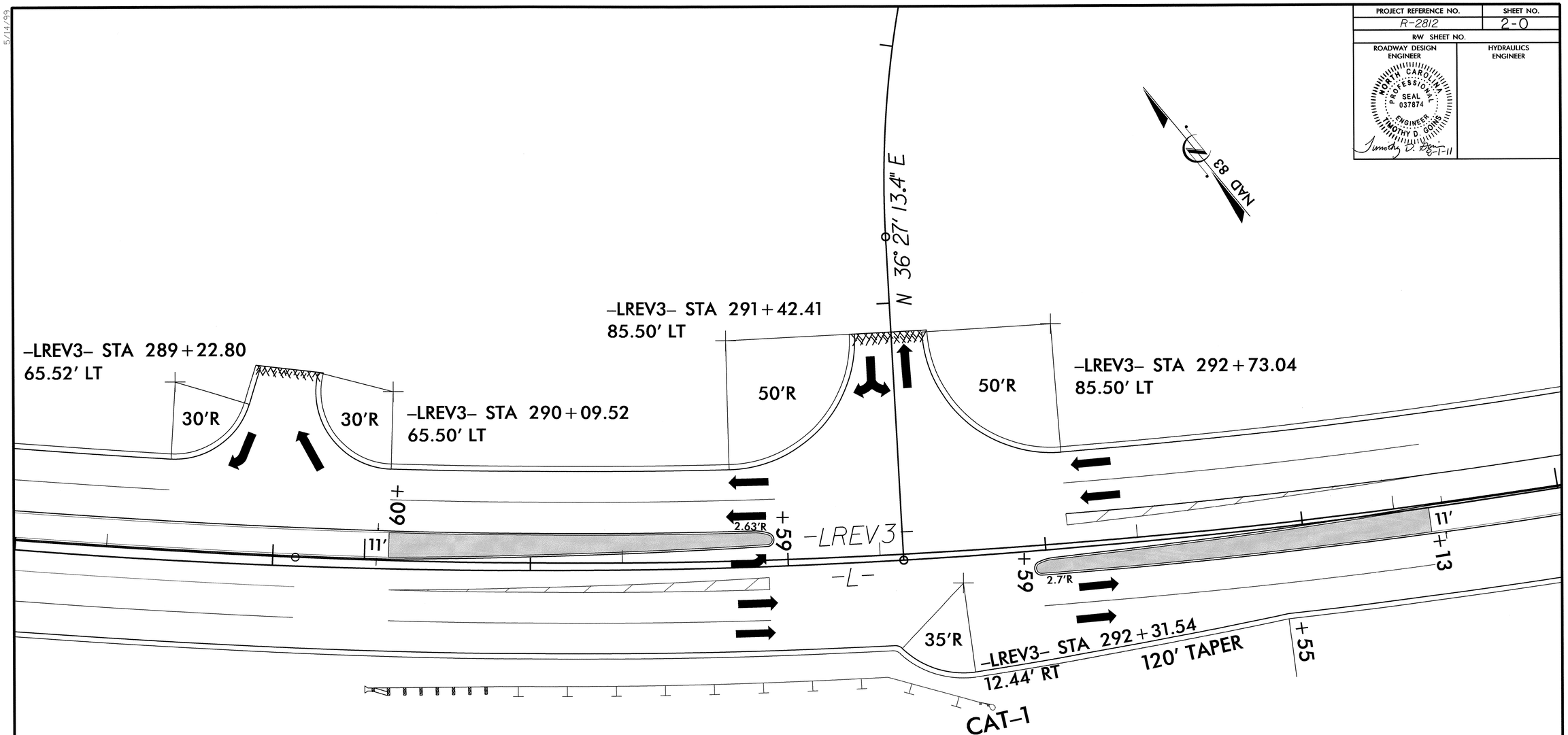
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




PROP. CONC. 5" MONOLITHIC ISLAND

# INTERSECTION -LREV3- WITH -WESTGATE-

SEE SHEETS 24 & 25
NOT TO SCALE

5/14/99

07-JUL-2011 14:36
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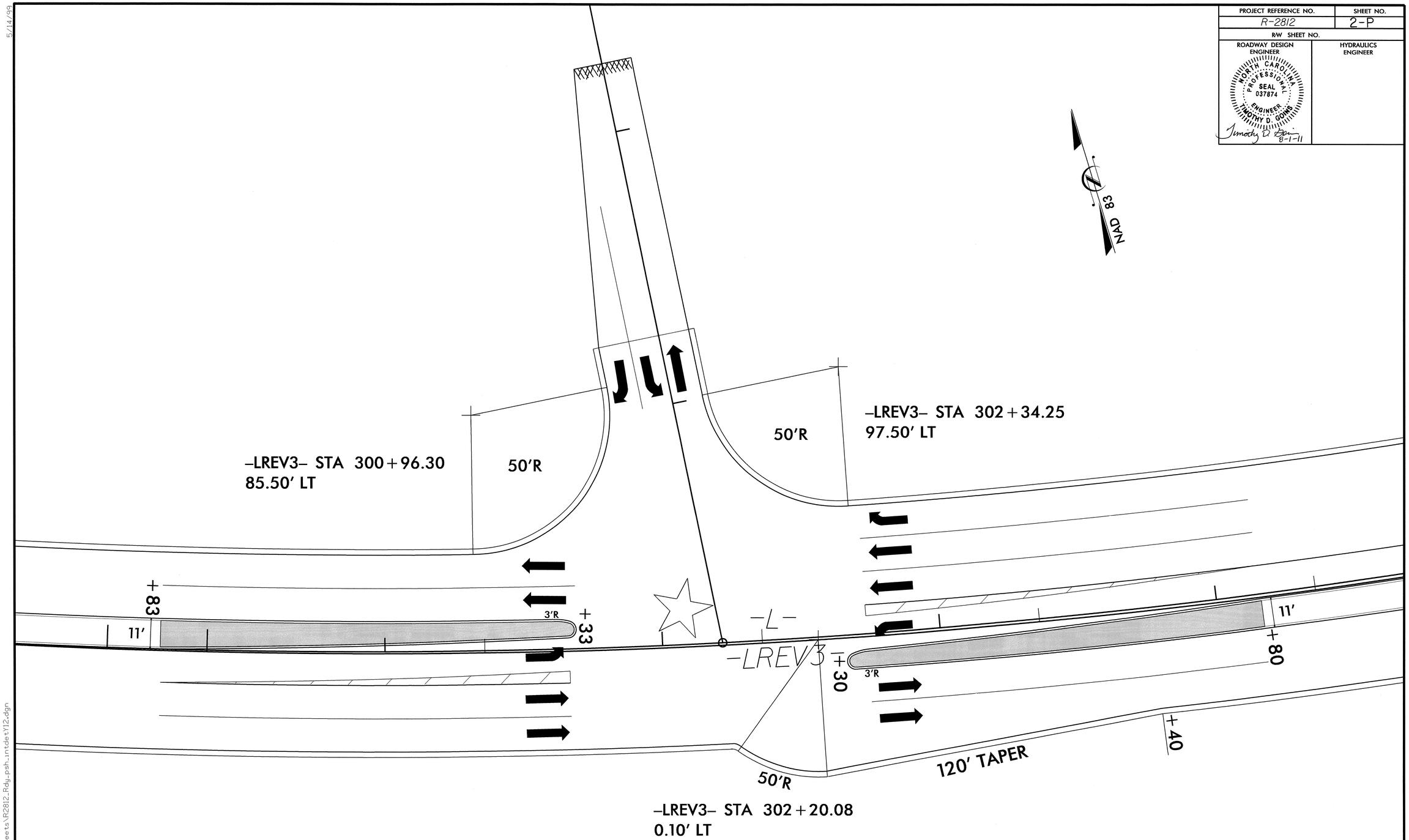
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-P |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




EXISTING SIGNAL

PROP. CONC. 5" MONOLITHIC ISLAND

# INTERSECTION -LREV3- WITH -Y12-

SEE SHEET 25
NOT TO SCALE

5/14/99

07-JUL-2011 14:37
al_work_folder\Intersection Detail Sheets\R2812_Rdy_psh_intdetY12.dgn
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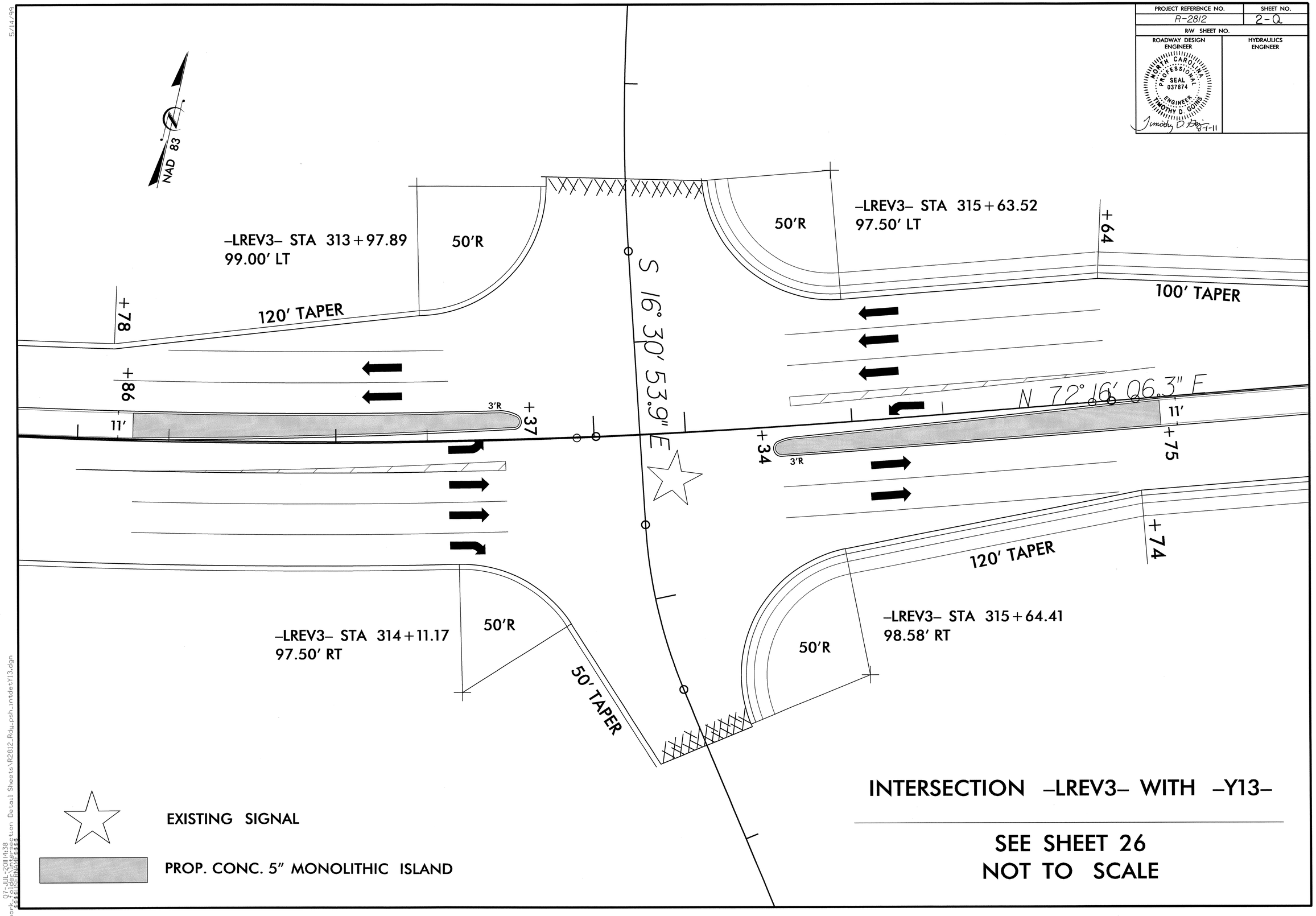
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-Q |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




INTERSECTION -LREV3- WITH -Y13-

SEE SHEET 26
NOT TO SCALE

5/14/99

07-JUL-2011 14:38
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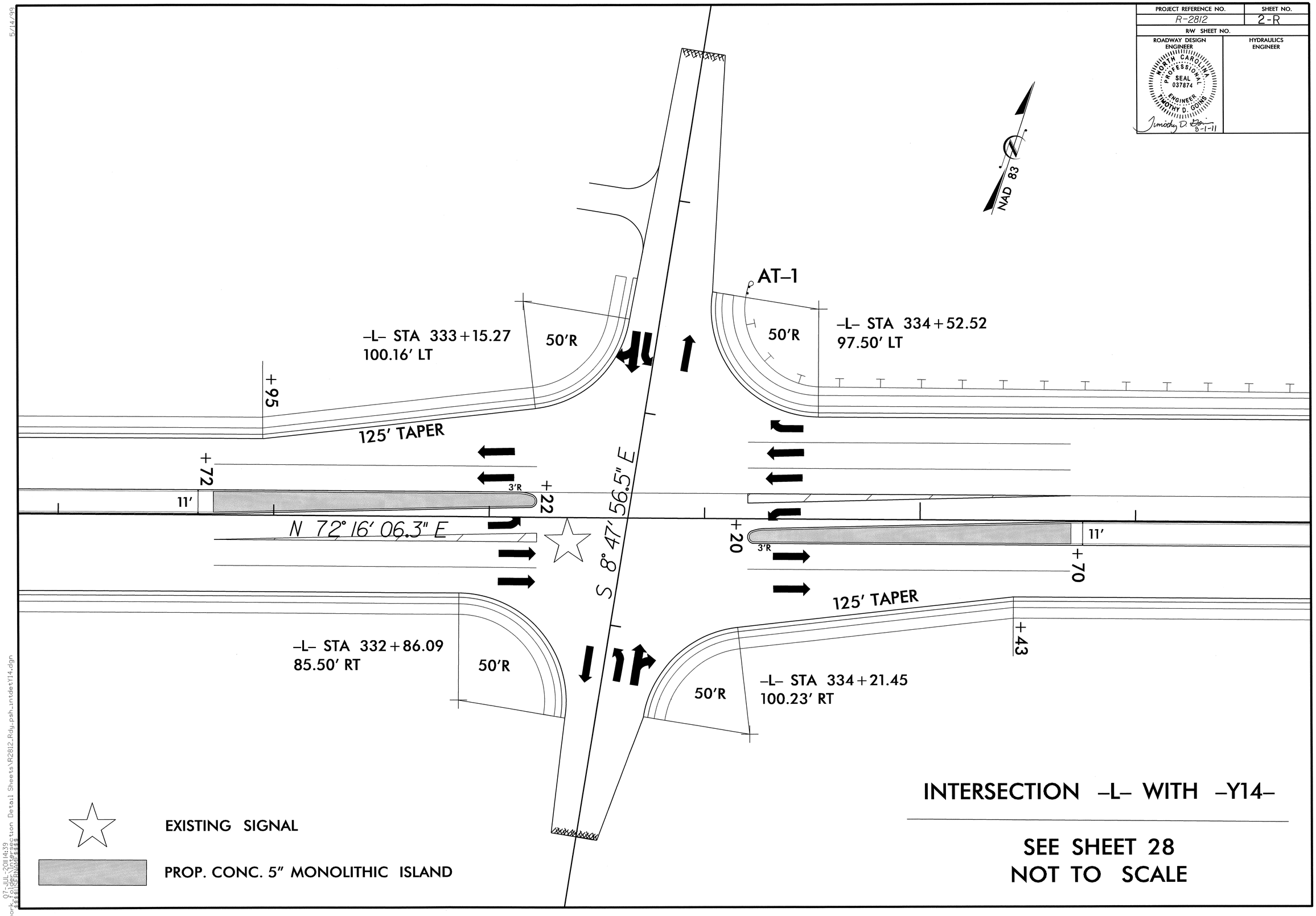
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-R |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




INTERSECTION -L- WITH -Y14-

SEE SHEET 28
NOT TO SCALE

5/14/99

07-JUL-2011 14:39
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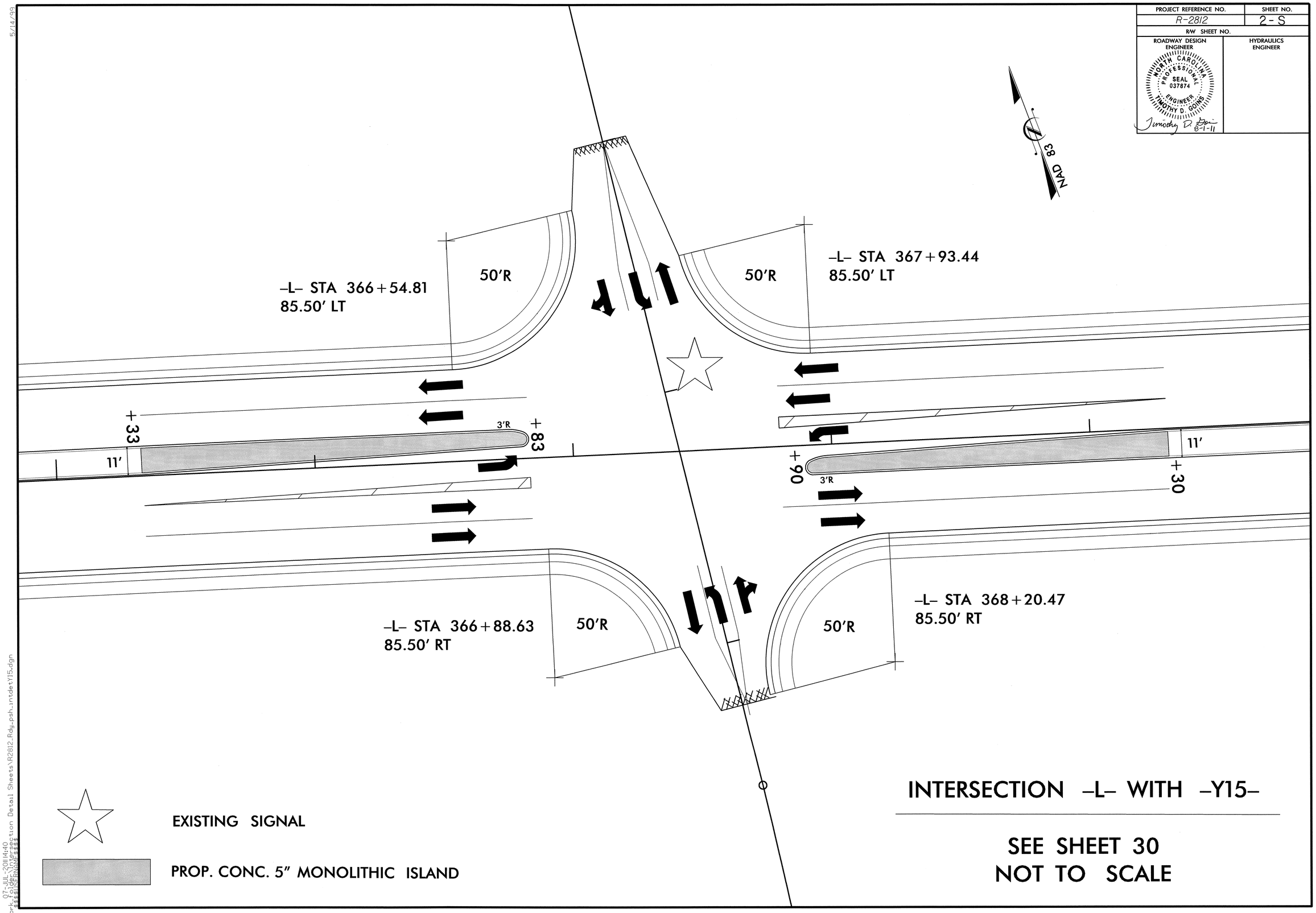
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-S |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




INTERSECTION -L- WITH -Y15-

SEE SHEET 30
NOT TO SCALE

5/14/99

07-JUL-2011 14:40
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$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
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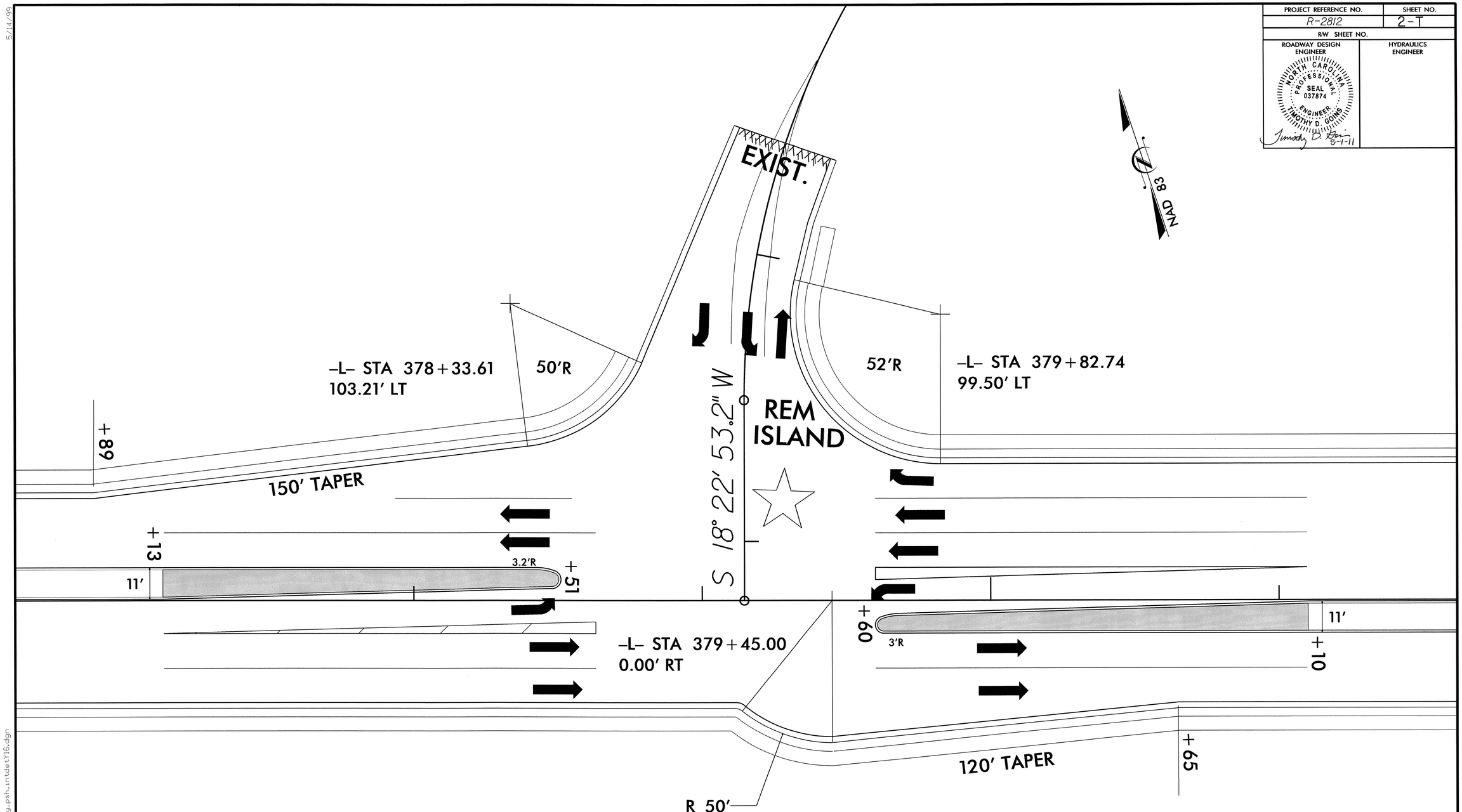
| R-2812 | 2-T |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




EXISTING SIGNAL

PROP. CONC. 5" MONOLITHIC ISLAND

# INTERSECTION -L- WITH -Y16-

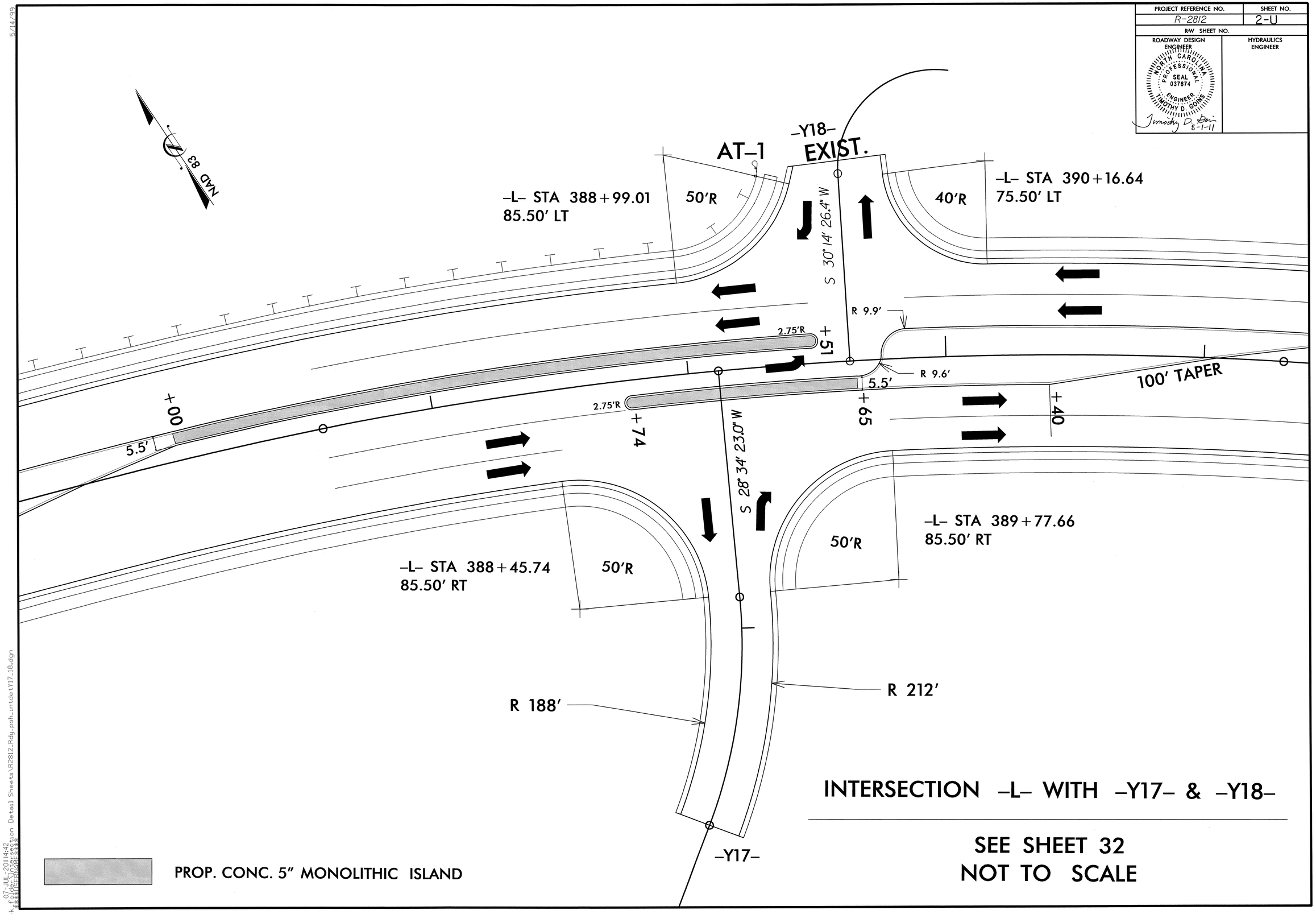
SEE SHEET 31
NOT TO SCALE

5/14/99

07-JUL-2011 14:41
al_work_folder\Intersection Detail Sheets\R2812_Rdy_psh_intdetY16.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-U |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11




INTERSECTION -L- WITH -Y17- & -Y18-

SEE SHEET 32
NOT TO SCALE

5/14/99

07-JUL-2011 14:42
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$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
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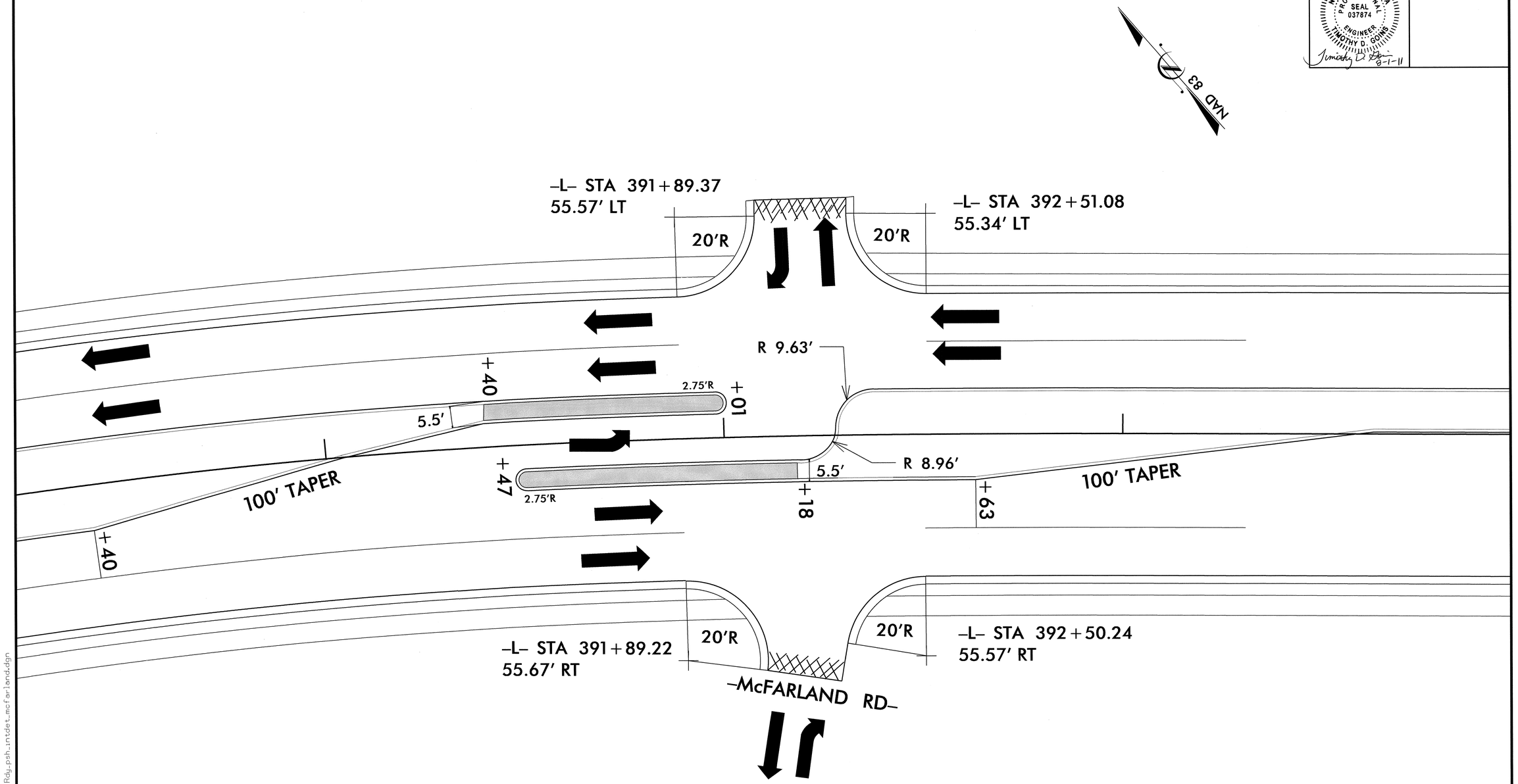
| R-2812 | 2-V |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. COINS
8-1-11




INTERSECTION -L- WITH -McFARLAND RD-

SEE SHEET 32
NOT TO SCALE

PROP. CONC. 5" MONOLITHIC ISLAND

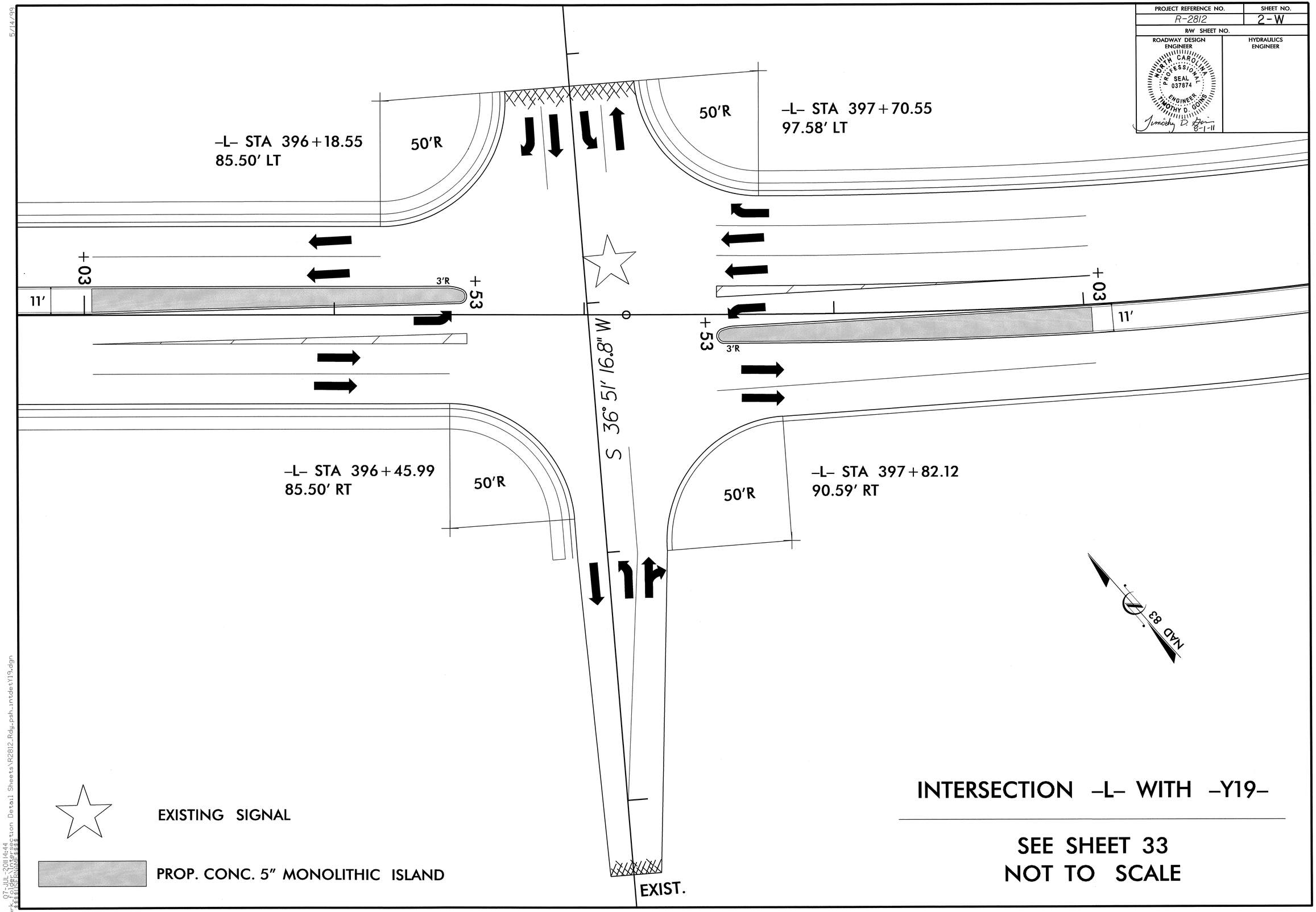
5/14/99

07-JUL-2011 14:43
Detail Sheets\R-2812_Rdy_psh_intdet_mcfarland.dgn

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-W |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11




INTERSECTION -L- WITH -Y19-

SEE SHEET 33
NOT TO SCALE

5/14/99

07-JUL-2011 14:44
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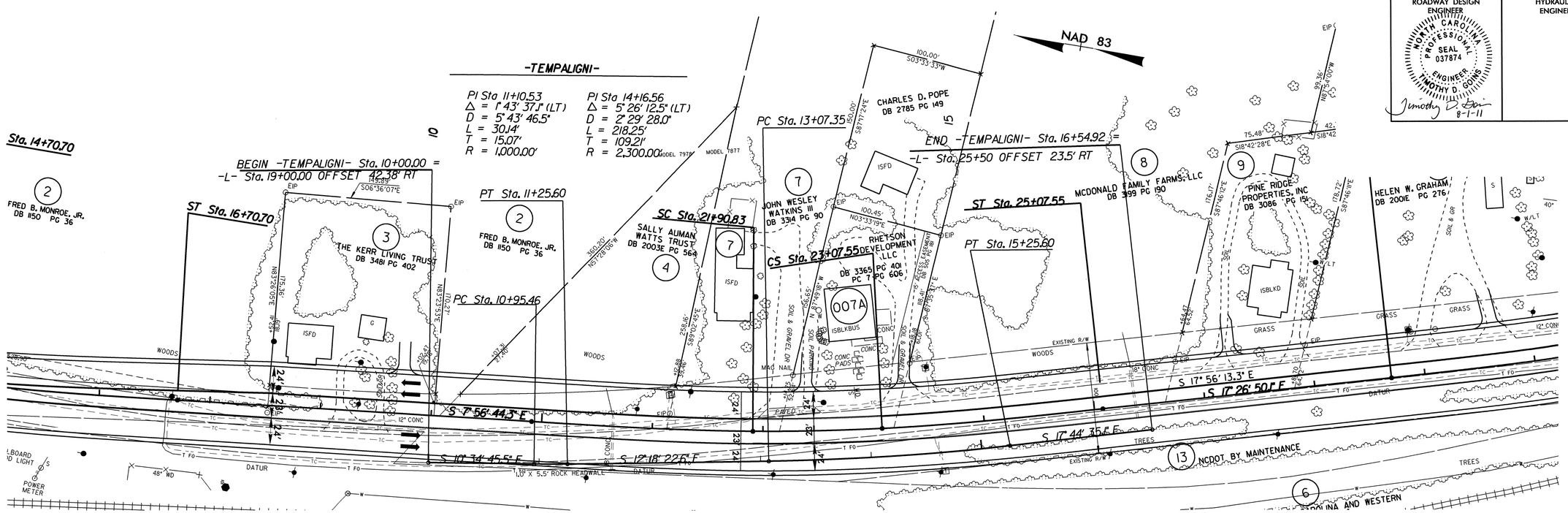
$$$$USERNAME$$$$

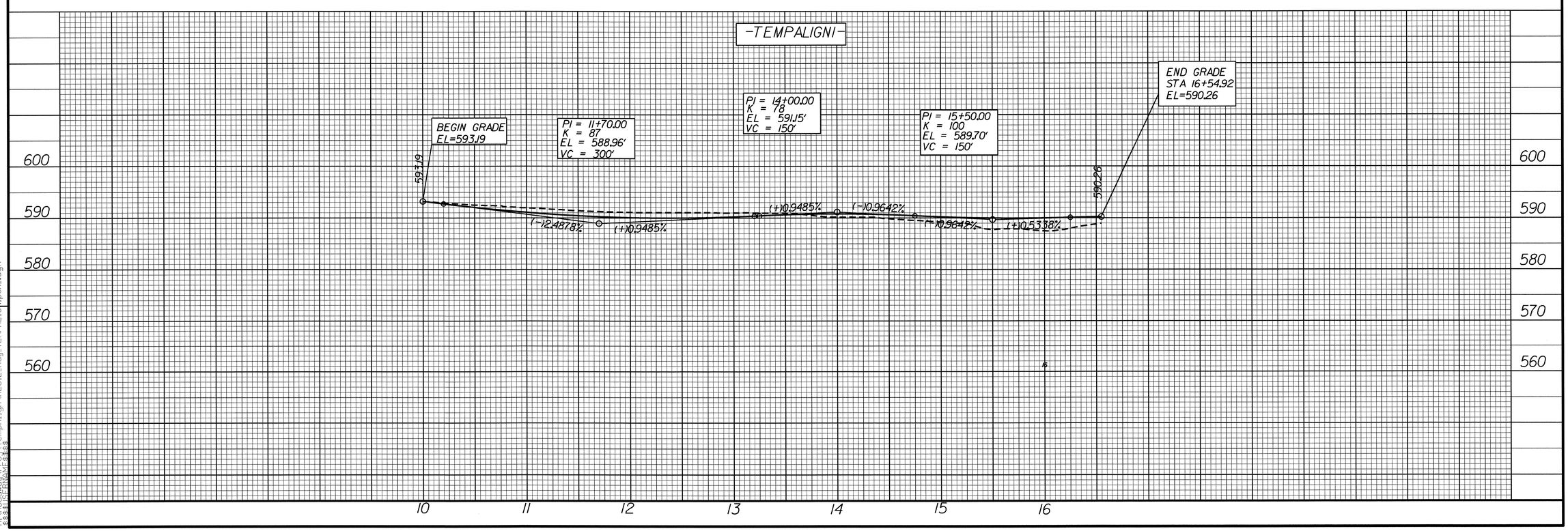
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-X |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

8-1-11

**NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTHS**




REVISIONS

8/17/99

29-JUL-2011 2:05
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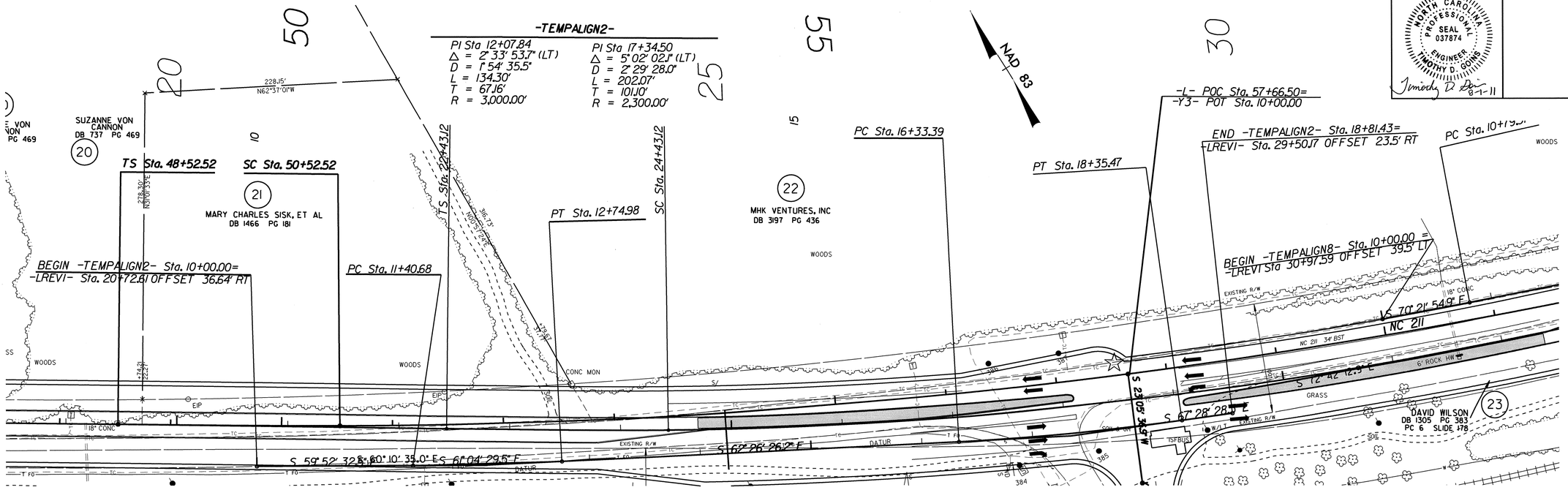
$$$$USERNAME$$$$

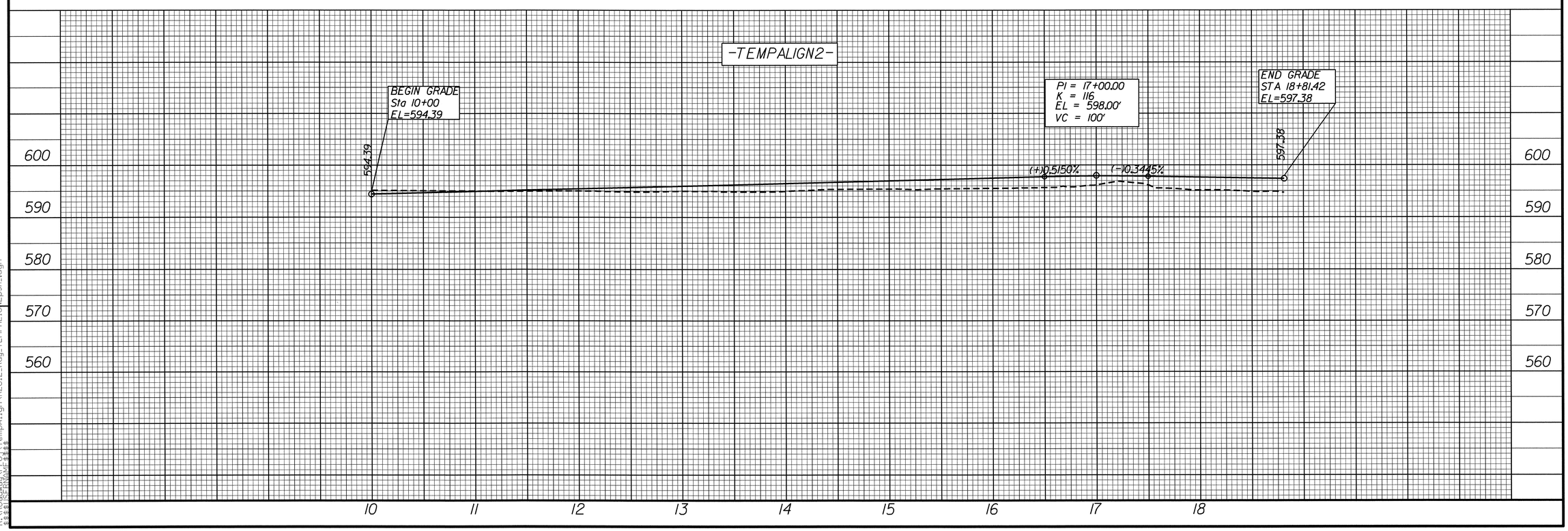
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-Y |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. SONING

8-1-11

NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTHS




REVISIONS

8/17/99

29-JUL-2011 12:05
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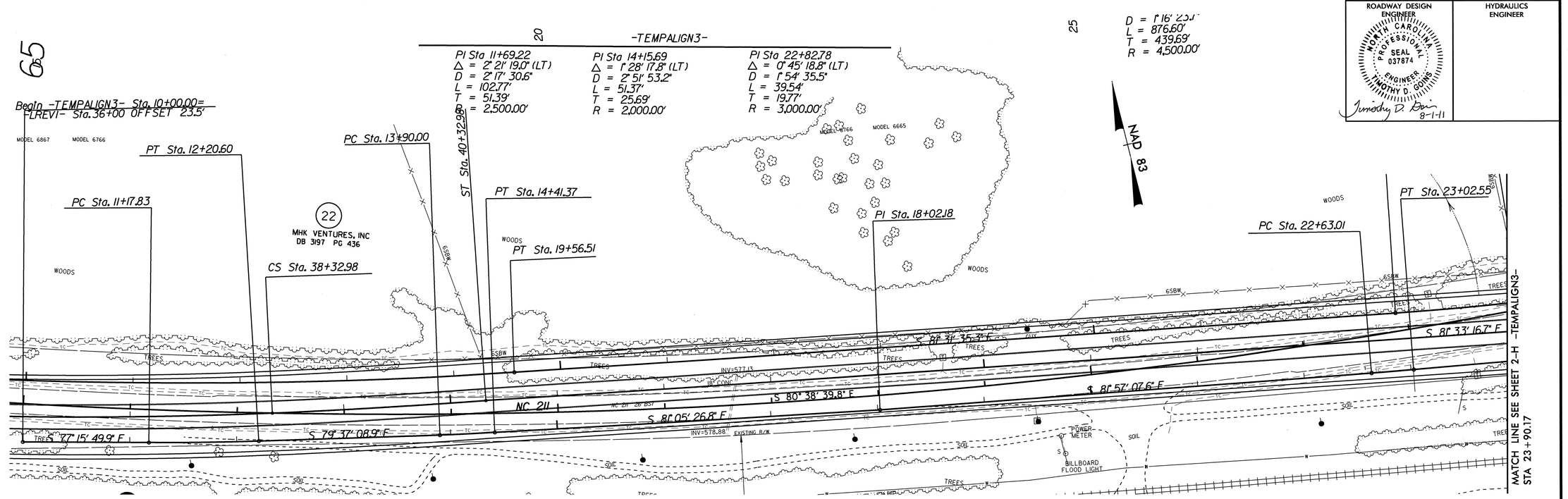
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-Z |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTH




REVISIONS

8/17/99

29-JUL-2011 12:04
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| PROJECT REFERENCE NO. | SHEET NO. |
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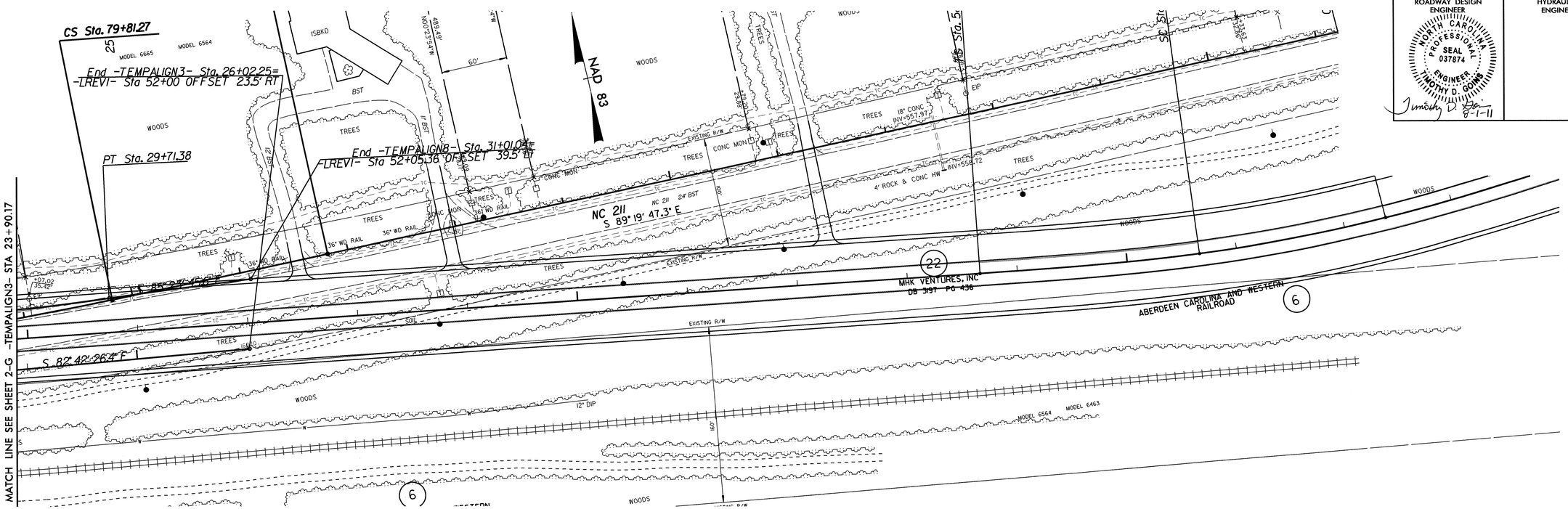
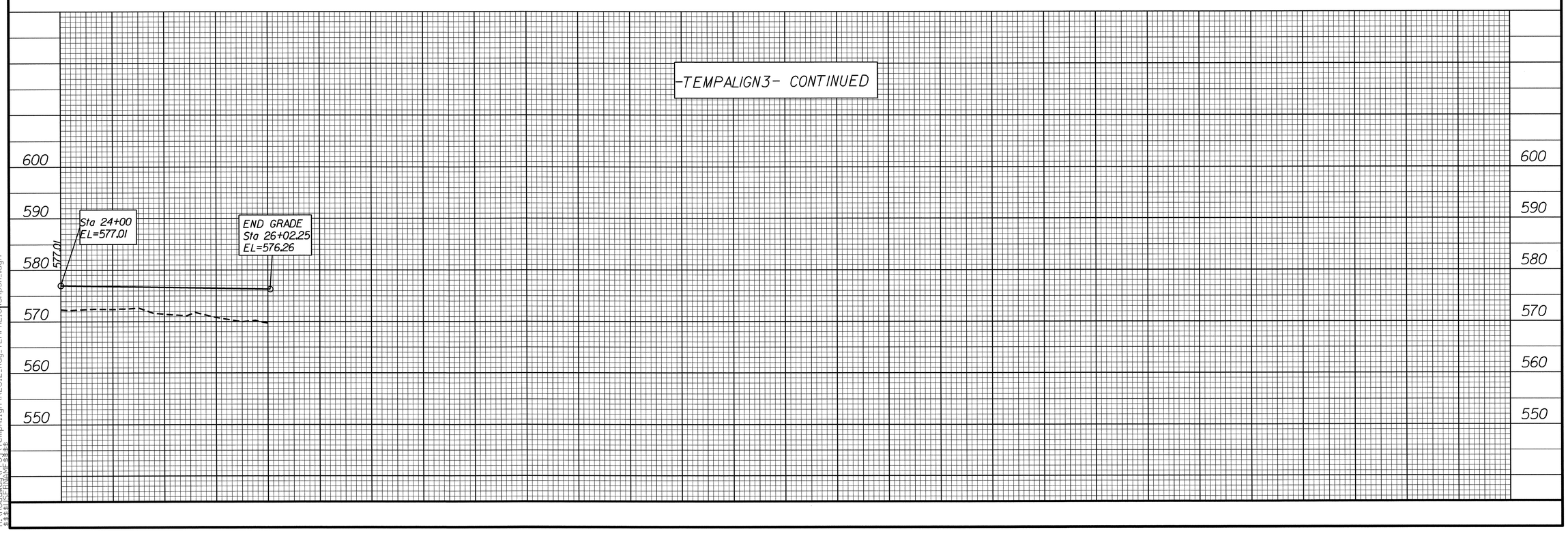
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

**NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTHS**




REVISIONS

8/17/99

29-JUL-2011 12:04
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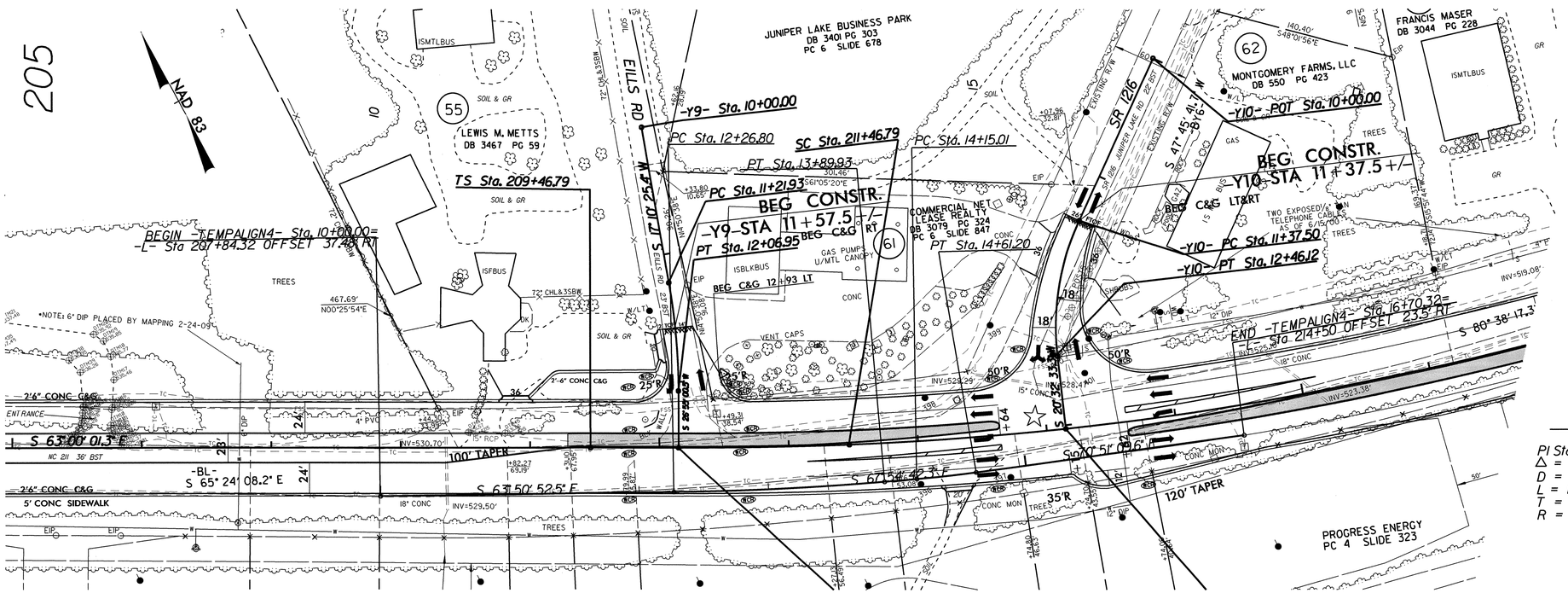
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AB |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

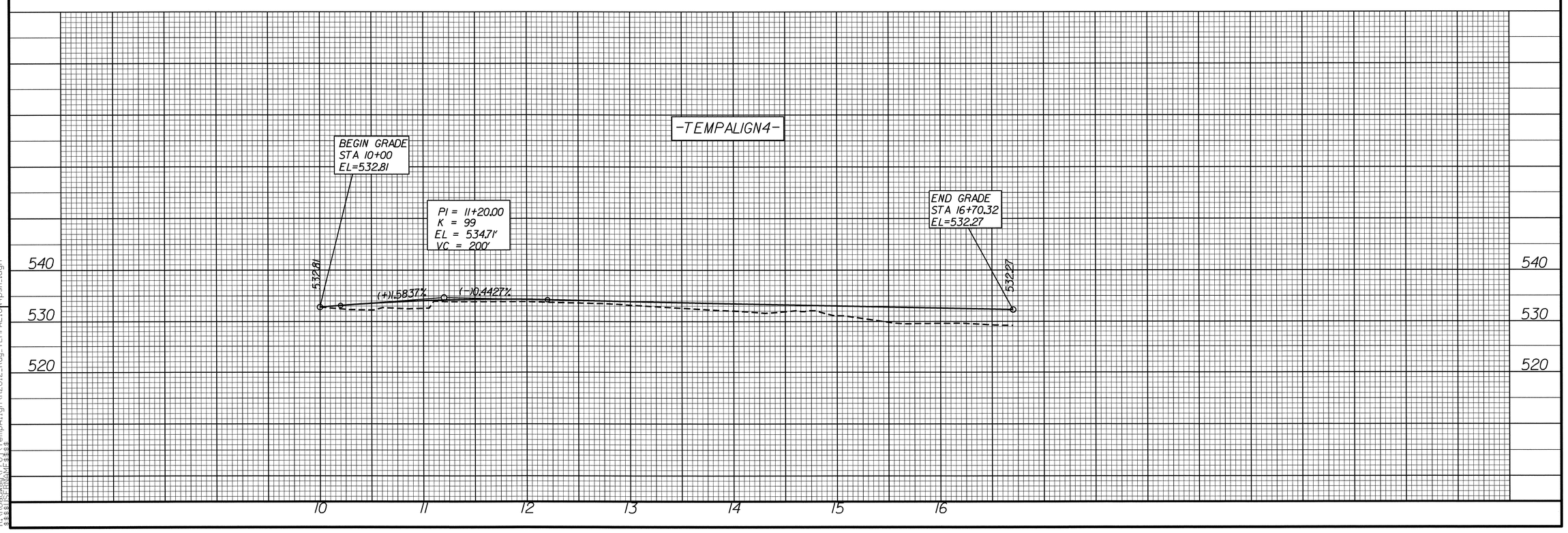
Timothy D. Goins 8-1-11

NOTE: SEE TMP PLANS FOR TEMPORARY PAVEMENT ALIGNMENT PAVEMENT WIDTHS




-TEMPALIGN4-

| PI Sta 13+08.40 | PI Sta 14+38.11 |
|---|---|
| Δ = 4° 03' 49.9" (LT) | Δ = 2° 56' 27.3" (LT) |
| D = 2° 29' 28.0" | D = 6° 21' 58.3" |
| L = 163.13' | L = 46.20' |
| T = 81.60' | T = 23.10' |
| R = 2,300.00' | R = 900.00' |




REVISIONS

8/17/99

29-JUL-2011 12:03
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| PROJECT REFERENCE NO. | SHEET NO. |
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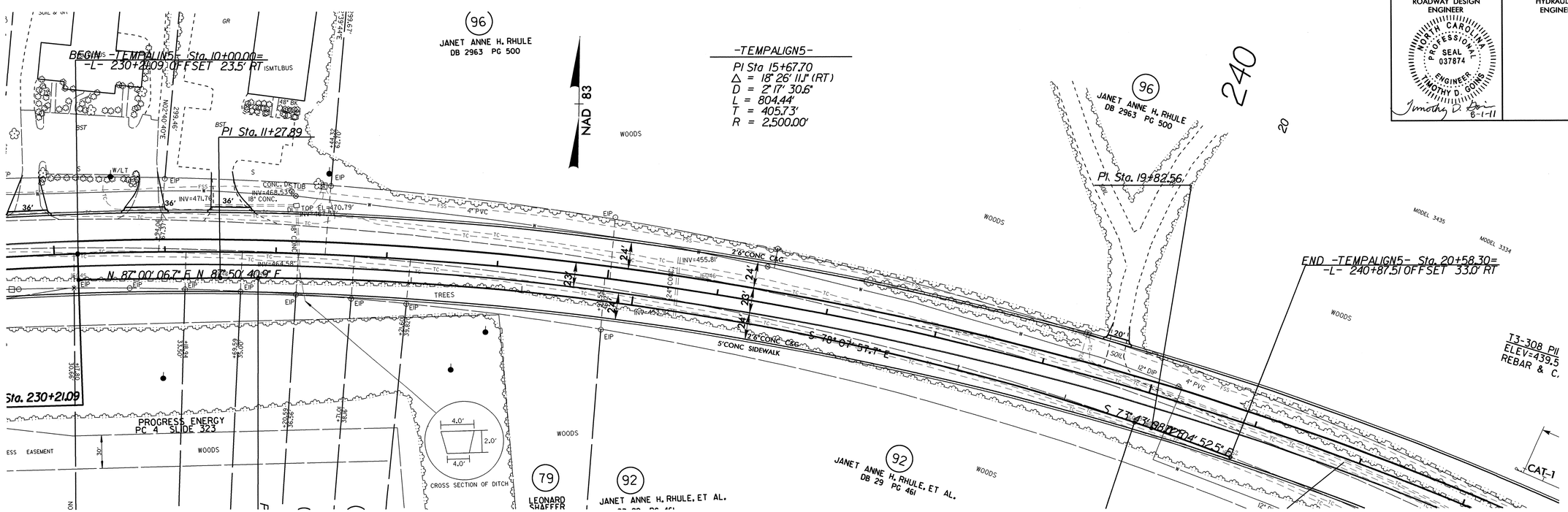
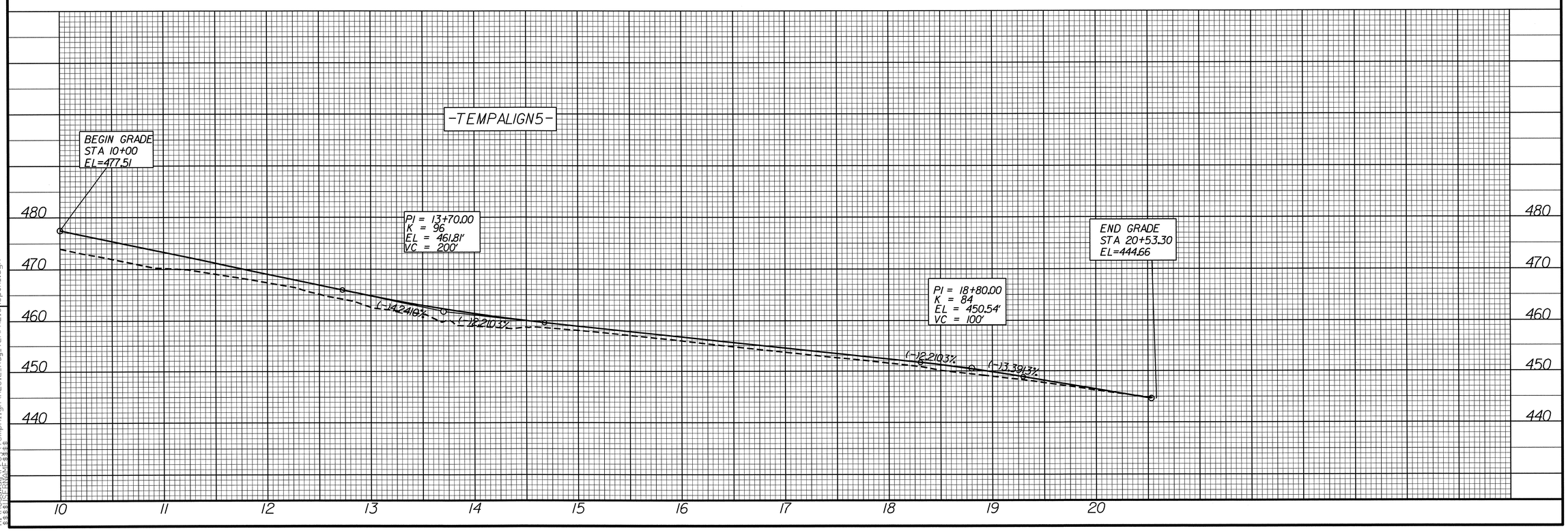
| R-2812 | 2-AC |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 6-1-11

**NOTE: SEE TMP PLANS FOR TEMPORARY PAVEMENT ALIGNMENT PAVEMENT WIDTHS**




REVISIONS

8/17/99

29-JUL-2011 12:03
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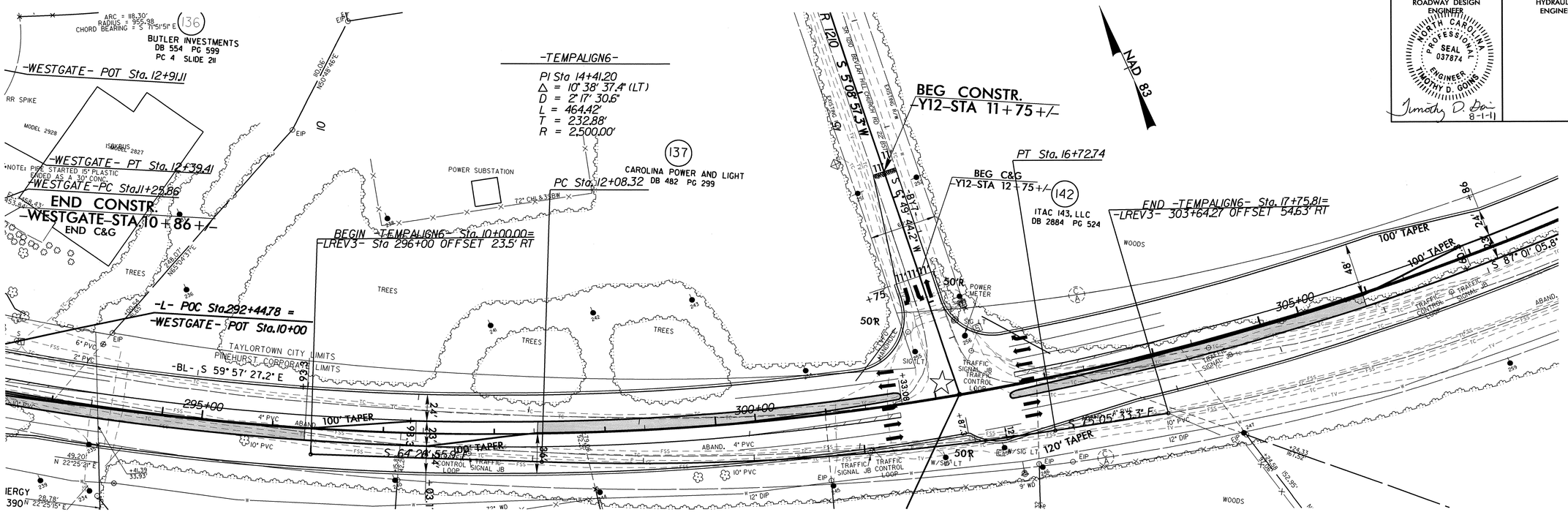
$$$$USERNAME$$$$

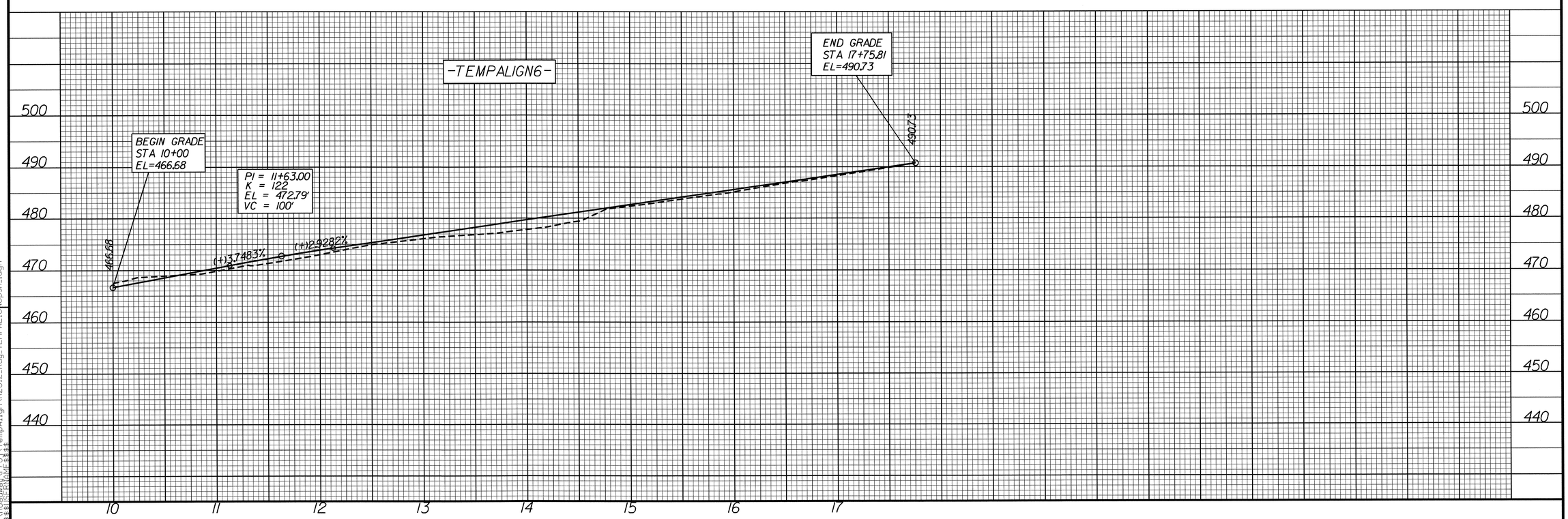
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AD |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

**NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTHS**




REVISIONS

8/17/99

29-JUL-2011 12:02
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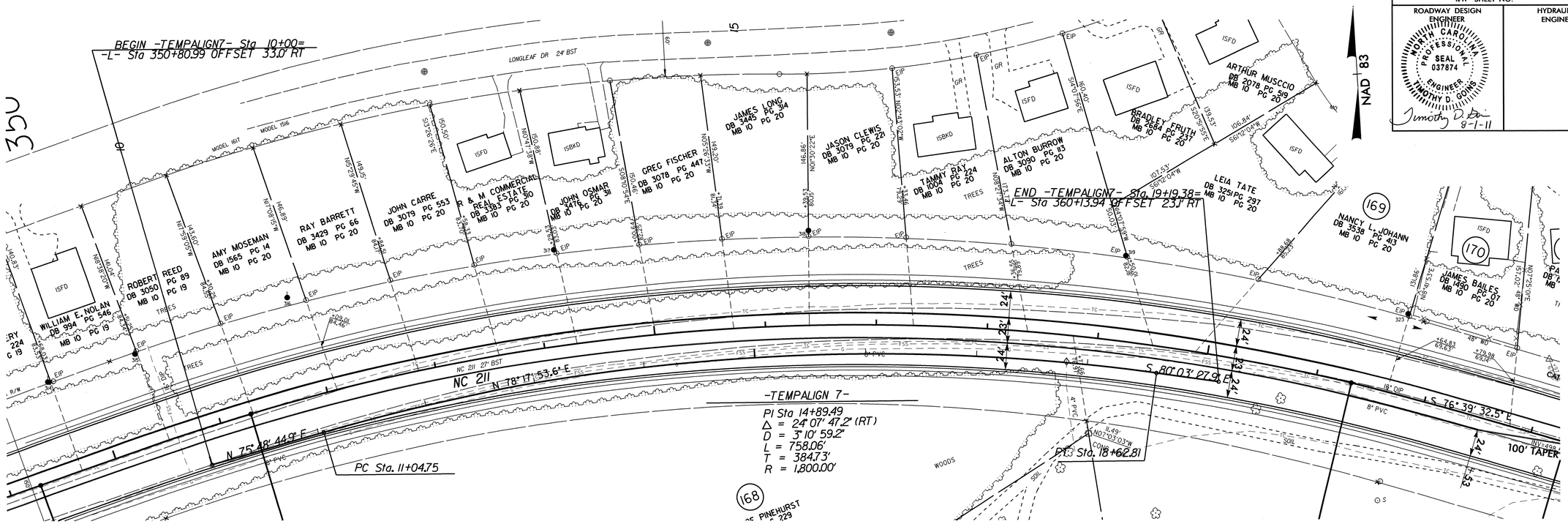
$$$$USERNAME$$$$

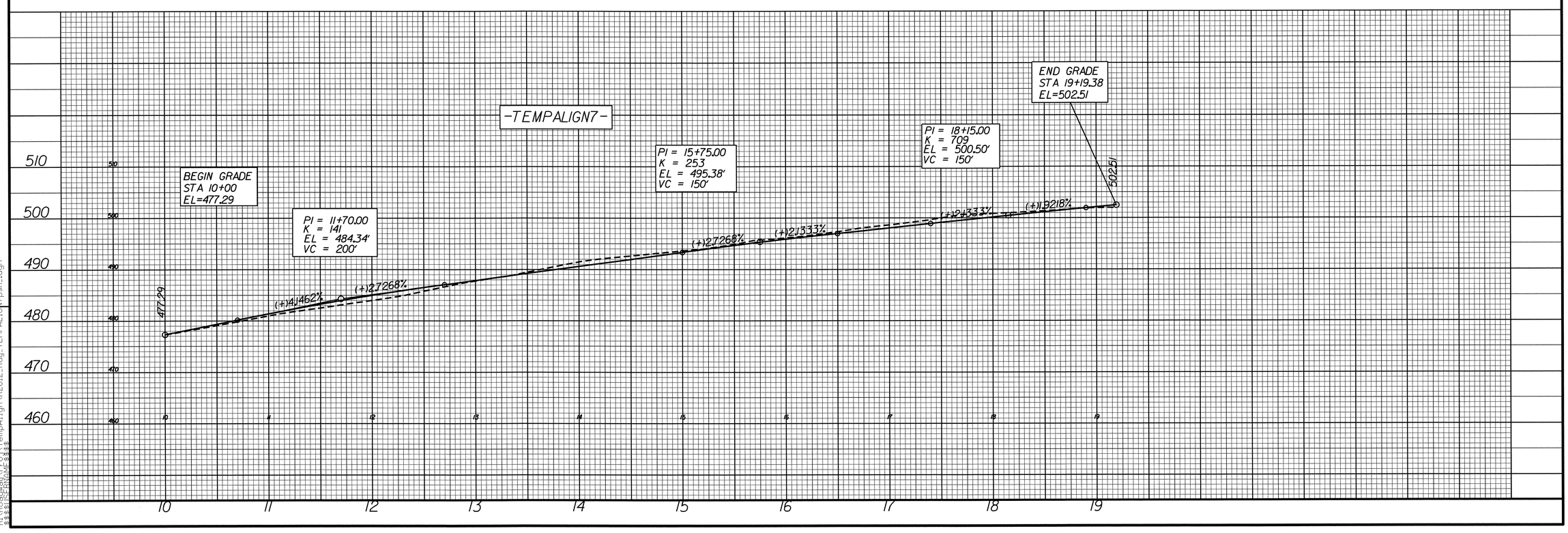
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AE |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

**NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTHS**




REVISIONS

29-JUL-2011 12:02
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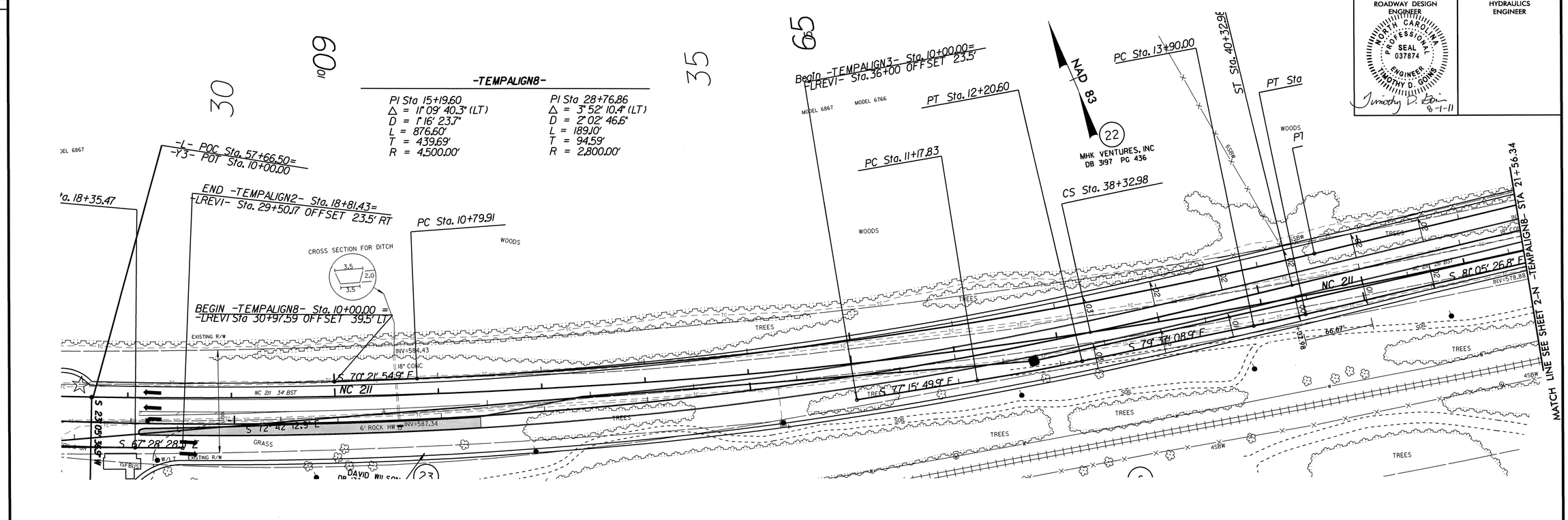
$$$$USERNAME$$$$

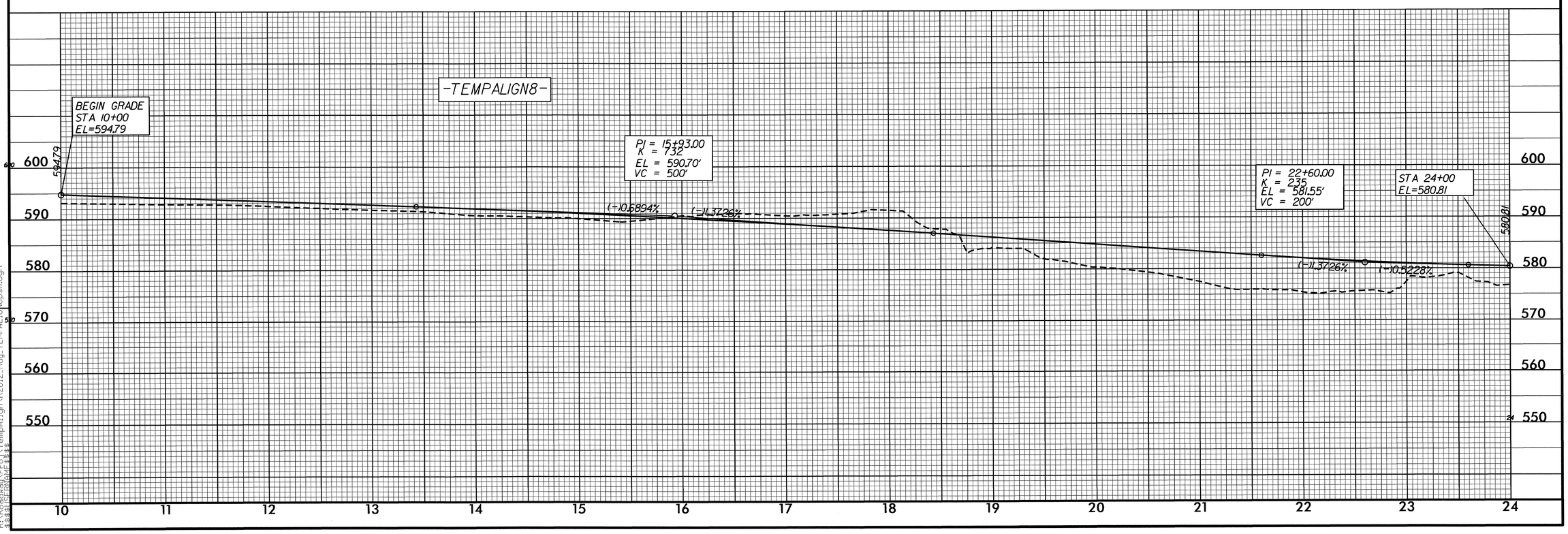
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AF |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVEMENT WIDTHS

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8/17/99

29-JUL-2011 12:01
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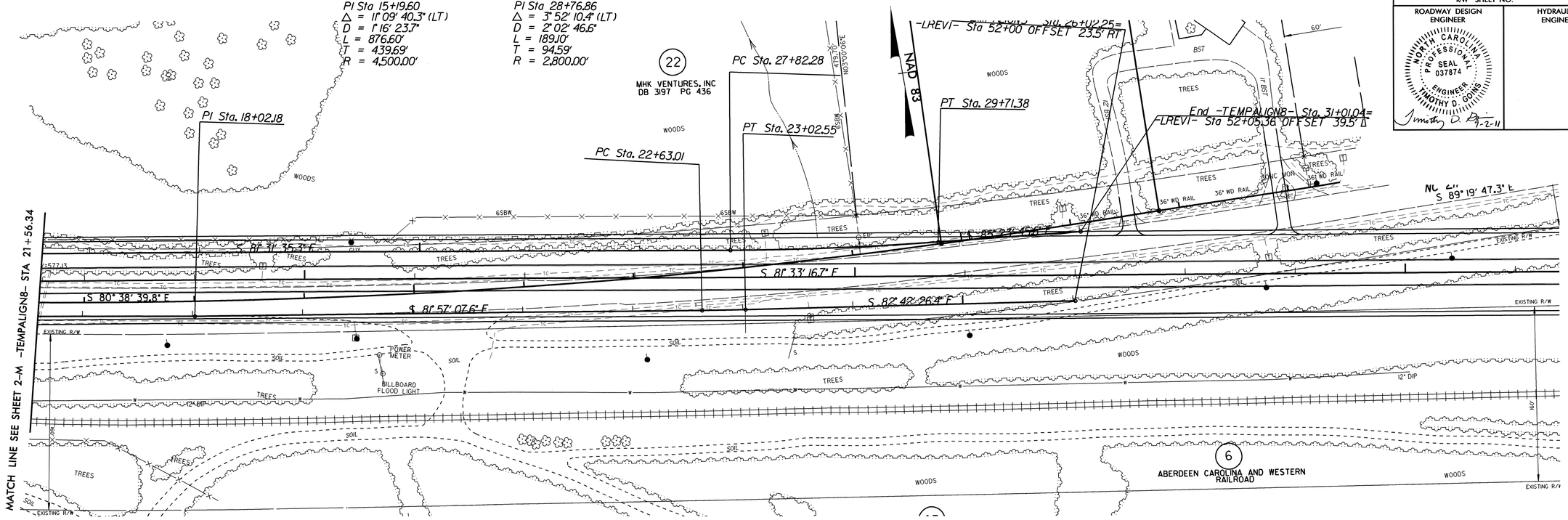
$$$$USERNAME$$$$

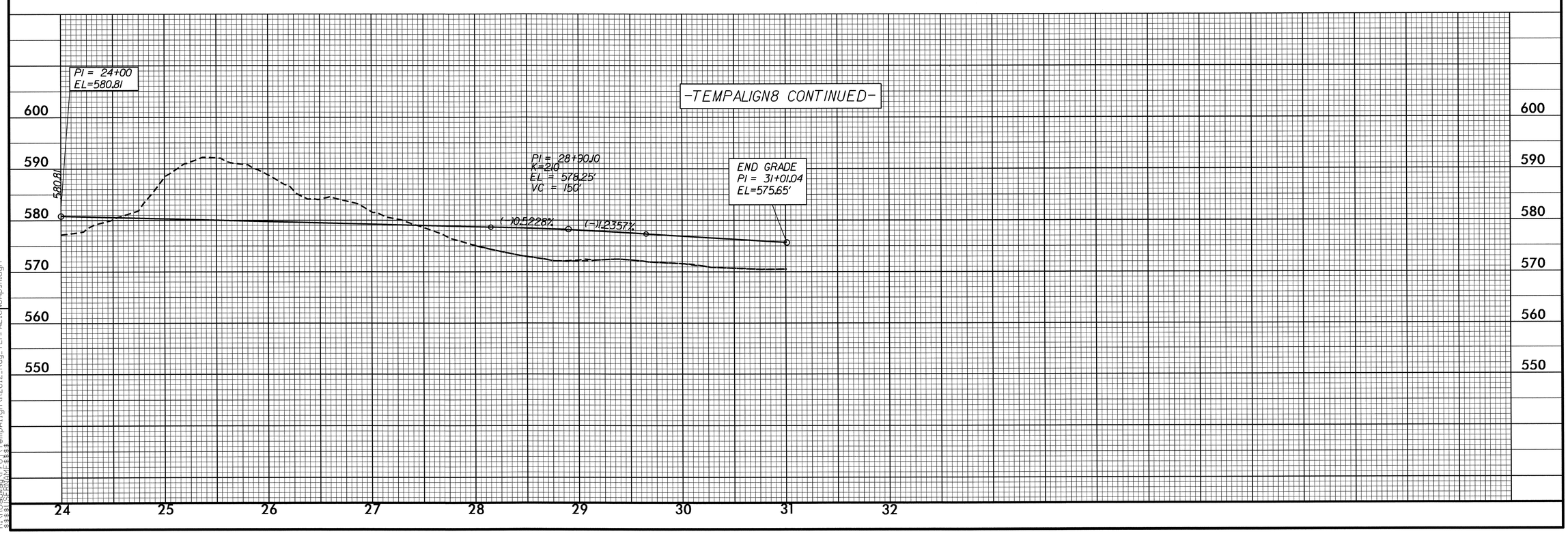
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AG |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 9-2-11

**NOTE: SEE TMP PLANS FOR TEMPORARY ALIGNMENT PAVMENT WIDTHS**




REVISIONS

8/17/99

02-SEP-2011 08:56
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jhowerton AT PS237501

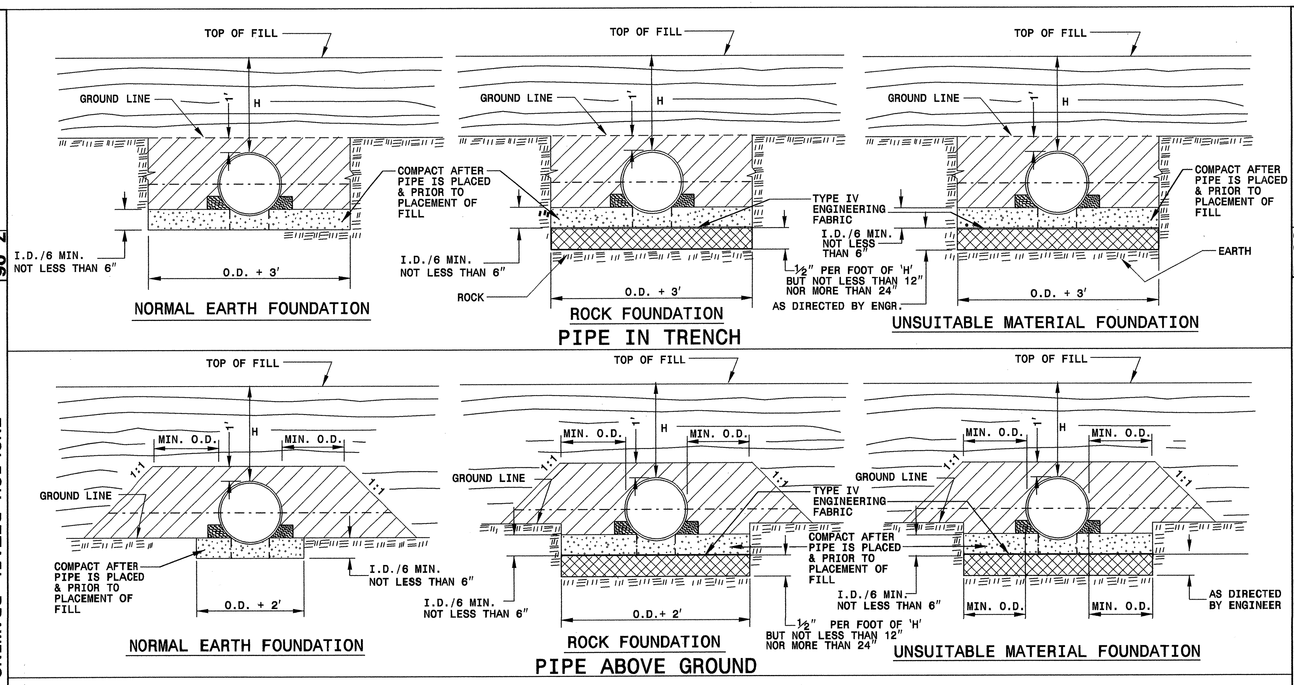
5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR
**METHOD OF PIPE INSTALLATION**

FLEXIBLE PIPE




GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

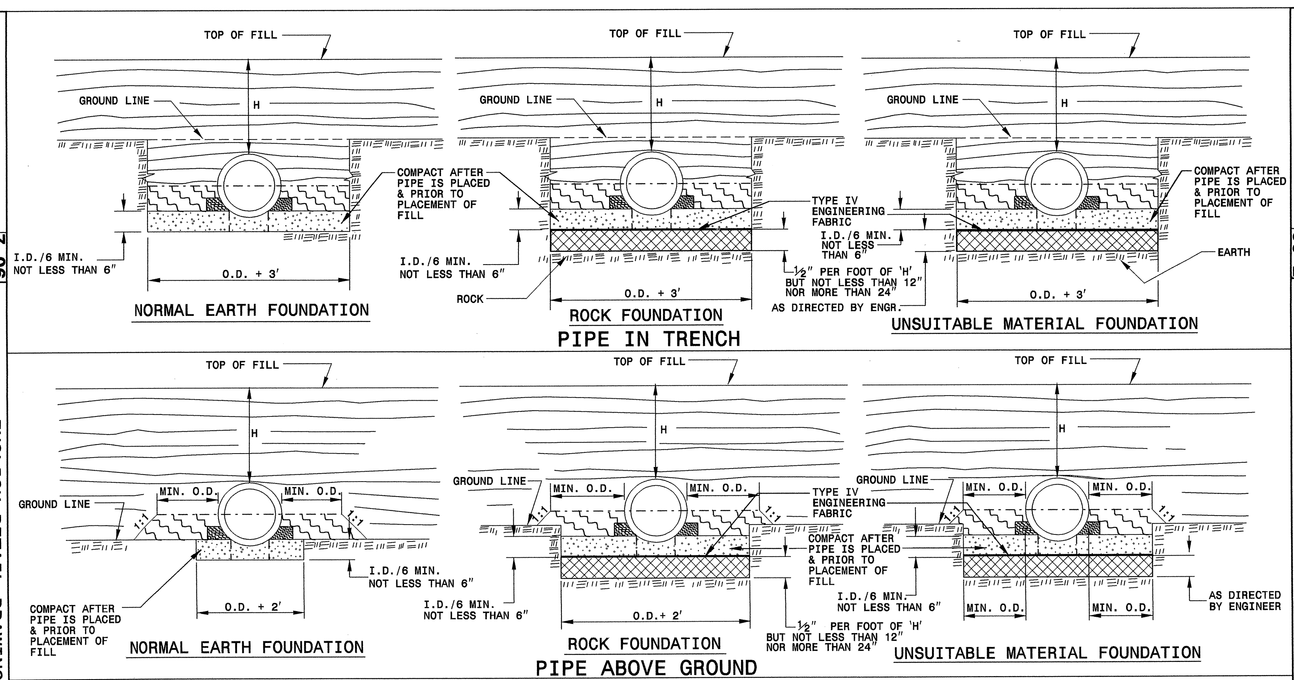
SHEET 1 OF 3
**300D01**

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

7-06

ENGLISH DETAIL DRAWING FOR
**METHOD OF PIPE INSTALLATION**

RIGID PIPE




GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 2 OF 3
**300D01**

**PROJECT SERVICES UNIT**
**STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

NORTH CAROLINA PROFESSIONAL SEAL 02986 ENGINEER

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC/ericward/stds/stdstoderails/30001/0300d01.dgn

**SEE PLATE FOR TITLE**

PROJECT REFERENCE NO. R-2812
SHEET NO. 2-AH

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

7-06

ENGLISH DETAIL DRAWING FOR
**METHOD OF PIPE INSTALLATION**
FILL HEIGHT TABLES

SHEET 3 OF 3
**300D01**

# FLEXIBLE PIPE

**Round Corrugated Steel Pipe**
**2 2/3 x ½ corrugation ****

| Diameter (inches) | Minimum cover (inches) | Maximum Height of Cover (feet) (Ga) 16 | 14 | 12 | 10 | 8 |
|---|---|---|---|---|---|---|
| 12 | 12 | 204 | 256 | | | |
| 15 | 12 | 162 | 204 | | | |
| 18 | 12 | 135 | 169 | 239 | | |
| 21 | 12 | 115 | 145 | 204 | | |
| 24 | 12 | 100 | 126 | 178 | | |
| 30 | 12 | 79 | 100 | 142 | | |
| 36 | 12 | 65 | 83 | 117 | 152 | |
| 42 | 12 | 55 | 70 | 100 | 130 | 160 |
| 48 | 12 | 48 | 61 | 87 | 113 | 139 |
| 54 | 12 | | 54 | 77 | 100 | 123 |
| 60 | 12 | | | 69 | 90 | 111 |
| 66 | 12 | | | | 81 | 100 |
| 72 | 12 | | | | 74 | 91 |
| 78 | 12 | | | | | 81 |
| 84 | 12 | | | | | 69 |

**Round Corrugated Aluminum Pipe**
**2 2/3 x ½ corrugation ****

| Diameter (inches) | Minimum cover (inches) | Maximum Height of Cover (feet) (Ga) 16 | 14 | 12 | 10 | 8 |
|---|---|---|---|---|---|---|
| 12 | 12 | 123 | 155 | 218 | 281 | 344 |
| 15 | 12 | 98 | 123 | 174 | 224 | 275 |
| 18 | 12 | 81 | 102 | 144 | 187 | 228 |
| 21 | 12 | 69 | 87 | 123 | 160 | 195 |
| 24 | 12 | 60 | 76 | 108 | 139 | 171 |
| 27 | 12 | | 67 | 95 | 123 | 151 |
| 30 | 12 | | 60 | 85 | 111 | 136 |
| 36 | 12 | | 50 | 71 | 92 | 113 |
| 42 | 12 | | | 60 | 78 | 96 |
| 48 | 12 | | | 52 | 68 | 84 |
| 54 | 12 | | | 46 | 50 | 74 |
| 60 | 12 | | | | 50 | 62 |
| 66 | 12 | | | | | 51 |
| 72 | 12 | | | | | 41 |

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

# RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

(For fills > 40′ & < 80′ use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA
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7-06

ENGLISH DETAIL DRAWING FOR
**METHOD OF PIPE INSTALLATION**
FILL HEIGHT TABLES

SHEET 3 OF 3
**300D01**

**PROJECT SERVICES UNIT**
**STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC/ericward/stds/stddetails/30001/0300d01.dgn

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER

PROJECT REFERENCE NO. R-2812
SHEET NO. 2-A1

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AJ |

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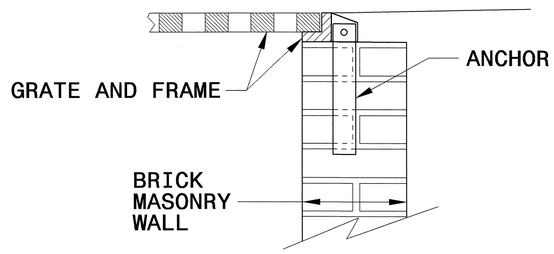
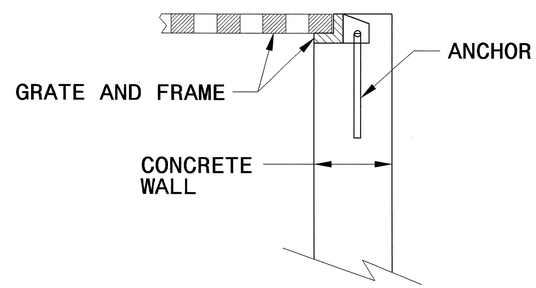
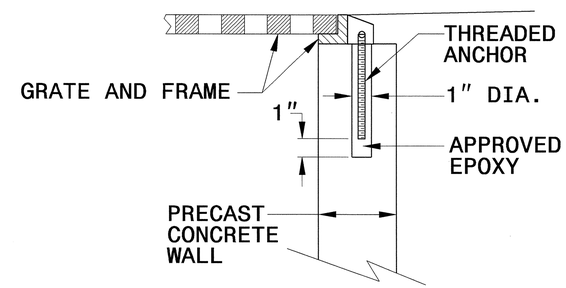
RALEIGH, N.C.




**BRICK MASONRY CONSTRUCTION**



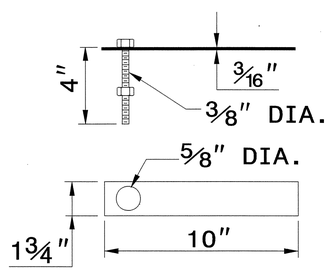

**CONCRETE CONSTRUCTION**



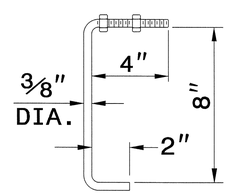

**PRECAST CONCRETE CONSTRUCTION**

## DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

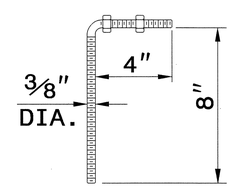
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



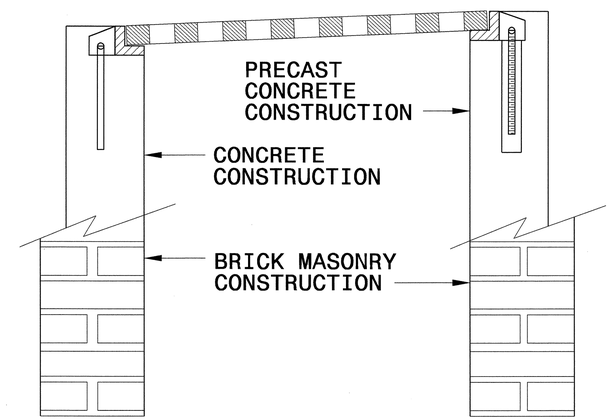

**MASONRY ANCHOR**
3/8" DIA. BOLT WITH PLATE




**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**

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

SHEET 1 OF 1
**840D25**

STATE OF
NORTH CAROLINA
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RALEIGH, N.C.

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

SHEET 1 OF 1
**840D25**

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
8/16/11

**PROJECT SERVICES UNIT**
**STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

$$$$$$SYSTIME$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AK |

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

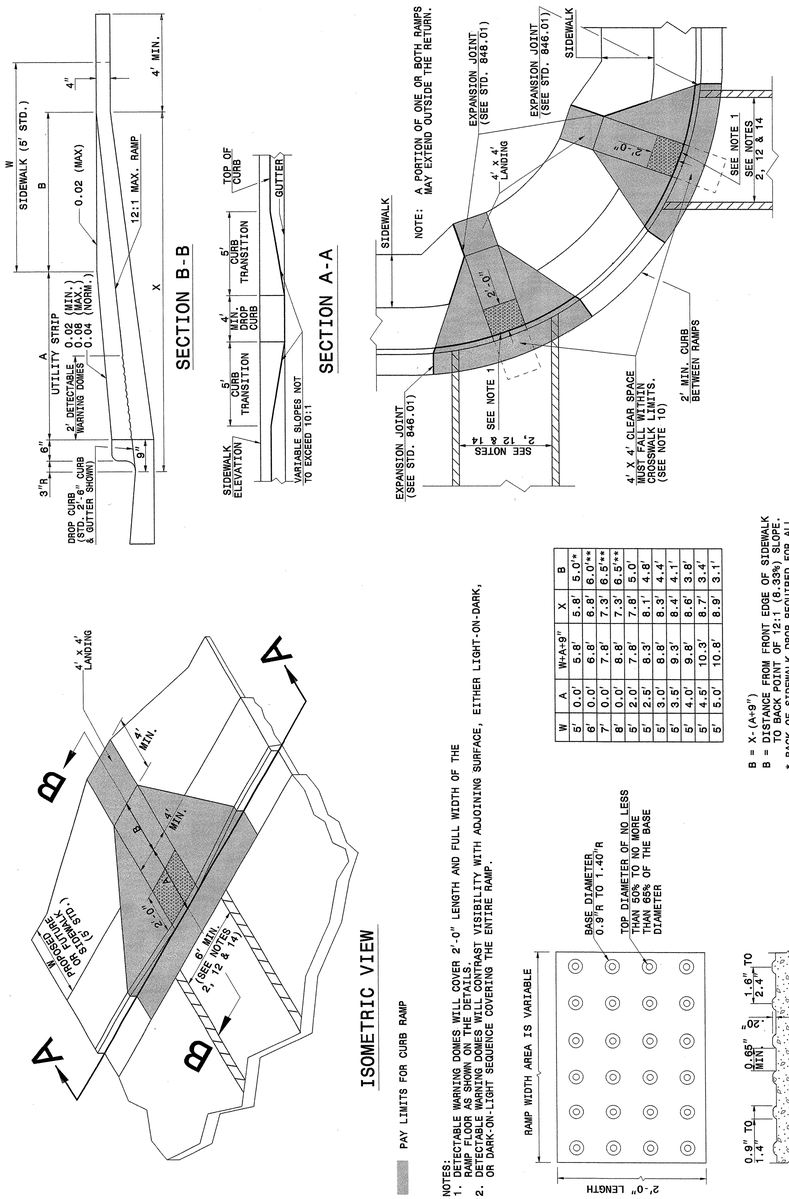
ENGLISH DETAIL DRAWING FOR

**CURB RAMP**

PROPOSED CURB AND GUTTER

SHEET 1 OF 3

**848D05**




| W | A | W+A+9" | X | B |
|---|---|---|---|---|
| 5' | 0.0' | 5.8' | 5.8' | 5.0'* |
| 6' | 0.0' | 6.8' | 6.8' | 6.0'** |
| 7' | 0.0' | 7.8' | 7.3' | 6.5'** |
| 8' | 0.0' | 8.8' | 7.3' | 6.5'** |
| 5' | 2.0' | 7.8' | 7.8' | 5.0' |
| 5' | 2.5' | 8.3' | 8.1' | 4.8' |
| 5' | 3.0' | 8.8' | 8.3' | 4.4' |
| 5' | 3.5' | 9.3' | 8.4' | 4.1' |
| 5' | 4.0' | 9.8' | 8.6' | 3.8' |
| 5' | 4.5' | 10.3' | 8.7' | 3.4' |
| 5' | 5.0' | 10.8' | 8.9' | 3.1' |

STATE OF
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RALEIGH, N.C.

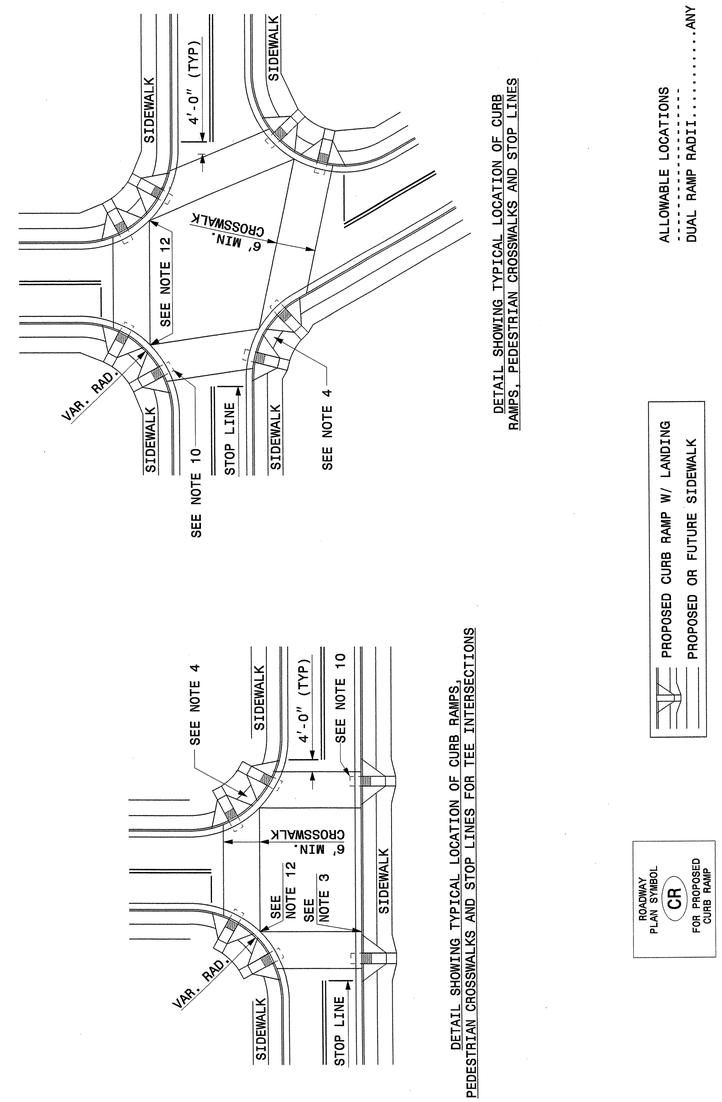
ENGLISH DETAIL DRAWING FOR

**CURB RAMP**

PROPOSED CURB AND GUTTER

SHEET 2 OF 3

**848D05**




STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

**CURB RAMP**

PROPOSED CURB AND GUTTER

SHEET 2 OF 3

**848D05**

**PROJECT SERVICES UNIT**
**STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: STD.NO.848.05 DATE: 4-22-10
MODIFIED BY: DATE:
CHECKED BY: DATE: 4/12/10
FILE SPEC.: /SpecialDetails/EricWard/STDS/848d05.dgn

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$$$$USERNAME$$$$

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

ENGLISH DETAILS DRAWING FOR

**CURB RAMPS**

NOTES

SHEET 3 OF 3

**848D05**

NOTES:

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGHT THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'X5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

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

ENGLISH DETAIL DRAWING FOR

**CURB RAMPS**

NOTES

SHEET 3 OF 3

**848D05**

**CONTRACT STANDARDS AND DEVELOPMENT UNIT**
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: STD.NO.848.05 DATE: 4-22-11
MODIFIED BY: DATE:
CHECKED BY: DATE: 5/9/11
FILE SPEC.: Spec:ra:Details/Ert:ahwrd/STD5/848d05.dgn

NORTH CAROLINA PROFESSIONAL SEAL 025865 ENGINEER

PROJECT REFERENCE NO. R-2812

SHEET NO. 2-AL

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AM |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HUDDEN

Scott A. Hudden 3/29/07

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

# STANDARD TEMPORARY MSE WALL OPTIONS

| TEMPORARY MSE WALL OPTION | VENDOR | CONTACT INFORMATION | REINFORCEMENT TYPE | SHEETS |
|---|---|---|---|---|
| TEMPORARY FABRIC WALL | N/A | N/A | POLYESTER OR POLYPROPYLENE FABRIC | 3 |
| HILFIKER TEMPORARY WALL | HILFIKER RETAINING WALLS | 1902 HILFIKER LANE, EUREKA, CA 95503-5711<br>707-443-5093 WWW.HILFIKER.COM | WELDED WIRE MAT | 4 |
| SIERRASCAPE TEMPORARY WALL | TENSAR EARTH TECHNOLOGIES, INC | 5883 GLENRIDGE DRIVE, SUITE 200 ATLANTA, GA 30328-5363<br>404-250-1290 WWW.TENSARCORP.COM | GEOGRID | 5 |
| RETAINED EARTH TEMPORARY WALL | THE REINFORCED EARTH COMPANY | 8614 WESTWOOD CENTER DRIVE, SUITE 1100 VIENNA, VA 22182-2233<br>703-749-4325 WWW.REINFORCEDEARTH.COM | WELDED WIRE MESH | 6-8 |
| TERRATREL TEMPORARY WALL | THE REINFORCED EARTH COMPANY | 8614 WESTWOOD CENTER DRIVE, SUITE 1100 VIENNA, VA 22182-2233<br>703-749-4325 WWW.REINFORCEDEARTH.COM | RIBBED STEEL STRIPS | 9-11 |

FOR STANDARD TEMPORARY MSE WALLS, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT TEMPORARY MSE WALLS OR STANDARD SHORING, STANDARD TEMPORARY MSE WALLS ARE OPTIONAL.

WHEN NOTES ON PLANS REQUIRE TEMPORARY MSE WALLS, USE STANDARD TEMPORARY MSE WALLS OR CONTRACTOR DESIGNED TEMPORARY MSE WALLS.

WHEN THE ALIGNMENT OF STANDARD TEMPORARY MSE WALLS RESULTS IN AN INTERIOR ANGLE LESS THAN 90 DEGREES, SUBMIT AN ACUTE CORNER DETAIL FOR THE SPECIFIC SITUATION IN ACCORDANCE WITH THE WALL VENDOR RECOMMENDATIONS. ALSO, SUBMIT A "STANDARD TEMPORARY MSE WALL SELECTION FORM" FOR EACH TEMPORARY MSE WALL LOCATION. SUBMIT THESE ITEMS AT LEAST 14 DAYS BEFORE BEGINNING WALL CONSTRUCTION.

STANDARD TEMPORARY MSE WALLS ARE BASED ON THE FOLLOWING CONDITIONS:
1) MAXIMUM WALL HEIGHT IS 28'-0" (8.5m).
2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
3) EXISTING OR FINISHED GRADE IN FRONT OF WALL IS 6:1 (H:V) SLOPE OR FLATTER.
4) THE GRADE OF THE TOP OF WALL IS LESS THAN 4% FOR RETAINED EARTH AND TERRATREL TEMPORARY WALLS.
5) DESIGN SERVICE LIFE IS 3 YEARS.
6) MATERIAL IN REINFORCED ZONE IS SHORING BACKFILL.
7) MAXIMUM APPLIED BEARING PRESSURE IS 1 TSF (100 KPA) FOR WALL HEIGHTS UP TO 8'-0" (2.4m), 2 TSF (195 KPA) FOR WALL HEIGHTS BETWEEN 8'-0" AND 18'-0" (2.4m AND 5.5m) AND 3 TSF (290 KPA) FOR WALL HEIGHTS OVER 18'-0" (5.5m).

STANDARD TEMPORARY MSE WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMMED SOIL PARAMETERS:
TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/$M^3$)
FRICTION ANGLE = 30 DEGREES
COHESION = 0 PSF (0 KPA)
GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF REINFORCED ZONE.

DO NOT USE STANDARD TEMPORARY MSE WALLS WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW THE BOTTOM OF REINFORCED ZONE.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF STANDARD TEMPORARY MSE WALLS. COLLECT AND DIRECT RUNOFF AWAY FROM WALLS AND SHORING BACKFILL.

EXCAVATE AS NECESSARY FOR STANDARD TEMPORARY MSE WALLS IN ACCORDANCE WITH THE FOLLOWING FOR THE WALL OPTION CHOSEN:
1) MINIMUM EMBEDMENT OF 18" (450mm) UNLESS WALL BEARS ON ROCK, CONCRETE OR PAVEMENT AS DETERMINED BY THE ENGINEER
2) VERTICAL STEPS IN INCREMENTS EQUAL TO THE VERTICAL REINFORCEMENT SPACING
3) WITH THE EXCEPTION OF EITHER THE FIRST OR LAST SECTION OF WALL, HORIZONTAL SECTION LENGTHS IN INCREMENTS EQUAL TO THE FOLLOWING:

| STANDARD TEMPORARY MSE WALL OPTION | INCREMENT |
|---|---|
| TEMPORARY FABRIC WALL | 9'-0" (2.7m) MIN (VARIES) |
| HILFIKER TEMPORARY WALL | 10'-0" (3.0m) MIN (VARIES) |
| SIERRASCAPE TEMPORARY WALL | 18'-7¼" (5.7m) |
| RETAINED EARTH TEMPORARY WALL | 24'-0" (7.3m) |
| TERRATREL TEMPORARY WALL | 19'-8" (6.0m) |

DO NOT PLACE SHORING BACKFILL OR FIRST REINFORCEMENT LAYER UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND FOUNDATION MATERIAL.

IF APPLICABLE, INSTALL FOUNDATIONS LOCATED WITHIN THE REINFORCED ZONE BEFORE BEGINNING WALL CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

ERECT AND MAINTAIN FACINGS AND FORMS AS SHOWN ON THE STANDARD TEMPORARY MSE WALL DETAILS. STAGGER VERTICAL JOINTS OF FACINGS AND FORMS TO CREATE A RUNNING BOND WHEN POSSIBLE UNLESS SHOWN OTHERWISE ON THESE DETAILS.

PLACE FACINGS AND FORMS AS NEAR TO VERTICAL AS POSSIBLE WITH NO NEGATIVE BATTER. CONSTRUCT STANDARD TEMPORARY MSE WALLS WITH A VERTICAL AND HORIZONTAL TOLERANCE OF 3" (75mm) WHEN MEASURED WITH A 10'-0" (3m) STRAIGHT EDGE AND AN OVERALL VERTICAL PLUMBNESS (BATTER) AND HORIZONTAL ALIGNMENT OF LESS THAN 6" (150mm).

PLACE REINFORCEMENT AT LOCATIONS AND ELEVATIONS SHOWN ON THE STANDARD TEMPORARY MSE WALL DETAILS AND IN SLIGHT TENSION FREE OF KINKS, FOLDS, WRINKLES OR CREASES.

DO NOT SPLICE REINFORCEMENT IN THE REINFORCEMENT DIRECTION (RD), i.e., PARALLEL TO THE WALL FACE. SEAMS ARE ALLOWED IN THE CROSS-REINFORCEMENT DIRECTION (CRD).

CONTACT THE ENGINEER WHEN EXISTING OR FUTURE STRUCTURES SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT. TO AVOID STRUCTURES, DELFECT, SKEW AND MODIFY REINFORCEMENT.

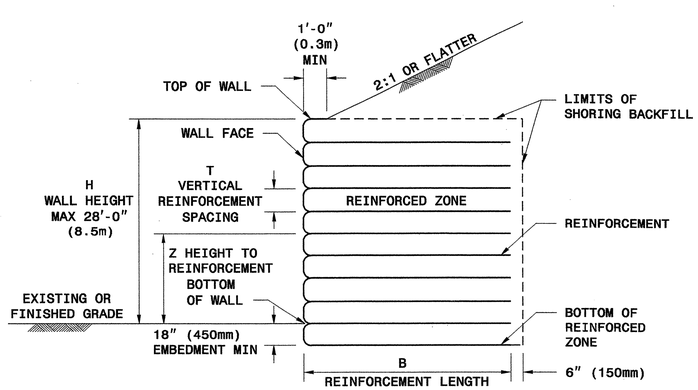
PLACE SHORING BACKFILL IN 8" TO 10" (200mm to 250mm) THICK LIFTS AND COMPACT IN ACCORDANCE WITH SUBARTICLE 235-4(C) OF THE STANDARD SPECIFICATIONS. USE ONLY HAND OPERATED COMPACTION EQUIPMENT WITHIN 3'-0" (1m) OF THE WALL FACE.

DO NOT DAMAGE REINFORCEMENT WHEN PLACING AND COMPACTING SHORING BACKFILL. DO NOT OPERATE HEAVY EQUIPMENT ON REINFORCEMENT UNTIL IT IS COVERED WITH AT LEAST 10" (250mm) OF SHORING BACKFILL. DO NOT USE SHEEPSFOOT, GRID ROLLERS OR OTHER TYPES OF COMPACTION EQUIPMENT WITH FEET.

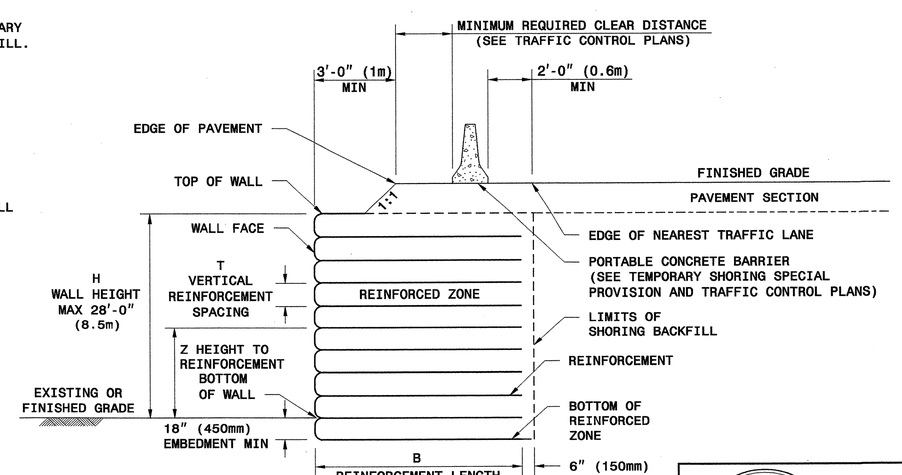
COVER REINFORCING AND RETENTION FABRIC WITH AT LEAST 3" (75mm) OF SHORING BACKFILL. PLACE TOP REINFORCEMENT LAYER BETWEEN 4" AND 24" (100mm and 600mm) BELOW TOP OF WALL DEPENDING ON WALL OPTION.

BENCH STANDARD TEMPORARY MSE WALLS INTO THE SIDES OF EXCAVATIONS WHERE APPLICABLE.

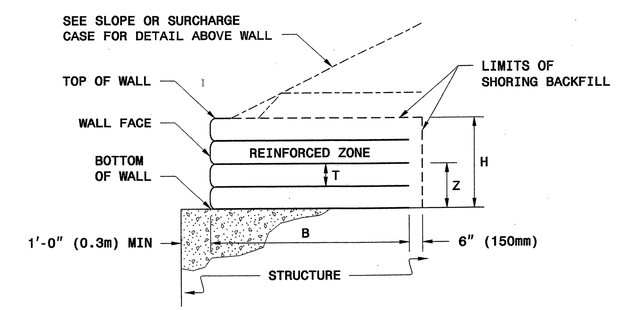
IF THE TOP OF WALL IS WITHIN 5'-0" (1.5m) OF FINISHED GRADE, REMOVE TOP FORM OR FACING AND INCORPORATE THE TOP REINFORCEMENT LAYER INTO THE FILL WHEN PLACING FILL IN FRONT OF THE WALL. STANDARD TEMPORARY MSE WALLS REMAIN IN PLACE PERMANENTLY UNLESS REQUIRED OTHERWISE.




## SLOPE CASE




## SURCHARGE CASE




## TEMPORARY MSE WALL ON STRUCTURE

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS

SHEET 1 OF 11 DATE: 2-20-07

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AN |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

HOW TO USE THIS SHEET:

- FOR ALL WALL OPTIONS, DETERMINE MINIMUM REQUIRED REINFORCEMENT LENGTH (B) FROM TABLE AT RIGHT BASED ON WALL HEIGHT (H) AND SLOPE OR SURCHARGE CASE
- FOR STANDARD TEMPORARY FABRIC WALL, SEE SHEET 3 FOR FABRIC STRENGTH REQUIREMENTS BASED ON WALL HEIGHT (H)
- FOR ALL OTHER WALL OPTIONS, DETERMINE REINFORCEMENT TYPE FROM TABLES BELOW FOR EACH HEIGHT TO REINFORCEMENT (Z) BASED ON WALL HEIGHT (H) AND SLOPE OR SURCHARGE CASE

# MINIMUM REQUIRED REINFORCEMENT LENGTH B (FT)

(FOR ALL WALL OPTIONS)

| WALL HEIGHT H (FT) | <8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SLOPE CASE | 8 | 11 | 13 | 14 | 16 | 18 | 20 | 22 | 24 | 25 | 27 |
| SURCHARGE CASE | 8 | 9 | 11 | 12 | 14 | 15 | 16 | 18 | 19 | 21 | 22 |

## TERRATREL TEMPORARY WALL (STRIPS PER LEVEL PER PANEL)

H (FT)

| <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT-INCHES) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 3 | 27 - 8 |
| | | | | | | | | | | | 3 | 3 | 26 -10 |
| | | | | | | | | | | | 3 | 3 | 25 - 2 |
| | | | | | | | | | | 3 | 3 | 3 | 23 - 6 |
| | | | | | | | | | 3 | 3 | 3 | 3 | 21 -10 |
| | | | | | | | | 3 | 3 | 3 | 3 | 3 | 20 - 2 |
| | | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 18 - 6 |
| | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 16 -10 |
| | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 15 - 2 |
| | | | | | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 13 - 6 |
| | | | | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 11 -10 |
| | | | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 - 2 |
| | | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 8 - 6 |
| | 5 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 6 -10 |
| | 5 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5 - 2 |
| 5 | 5 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 - 6 |
| 5 | 5 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 -10 |
| 5 | 5 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 - 2 |
| 5 | 5 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | -0 - 8 |

SLOPE AND SURCHARGE CASES

## SIERRASCAPE TEMPORARY WALL (GEOGRID TYPE)

11 = UX1100MSE
14 = UX1400MSE
15 = UX1500MSE
16 = UX1600MSE
17 = UX1700MSE

H (FT)

| <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 11 | 26.5 |
| | | | | | | | | | | | 11 | 11 | 25.5 |
| | | | | | | | | | | | 11 | 11 | 24 |
| | | | | | | | | | | 11 | 11 | 11 | 22.5 |
| | | | | | | | | | 11 | 11 | 11 | 15 | 21 |
| | | | | | | | | 11 | 11 | 11 | 14 | 15 | 19.5 |
| | | | | | | | | 11 | 11 | 11 | 14 | 15 | 18 |
| | | | | | | | 11 | 11 | 11 | 14 | 15 | 15 | 16.5 |
| | | | | | | 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 |
| | | | | | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 13.5 |
| | | | | | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 12 |
| | | | | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 16 | 10.5 |
| | | | 11 | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 16 | 9 |
| | | 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 7.5 |
| | | 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 6 |
| | 11 | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 4.5 |
| 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 3 |
| 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 1.5 |
| 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | 0 |
| 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | -1.5 |

SLOPE CASE

H (FT)

| <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 11 | 26.5 |
| | | | | | | | | | | | | 11 | 25.5 |
| | | | | | | | | | | | 11 | 11 | 24 |
| | | | | | | | | | | 11 | 11 | 11 | 22.5 |
| | | | | | | | | | 11 | 11 | 11 | 15 | 21 |
| | | | | | | | | 11 | 11 | 11 | 14 | 15 | 19.5 |
| | | | | | | | | 11 | 11 | 11 | 14 | 15 | 18 |
| | | | | | | | 11 | 11 | 11 | 14 | 15 | 15 | 16.5 |
| | | | | | | 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 |
| | | | | | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 13.5 |
| | | | | | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 12 |
| | | | | 11 | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 16 | 10.5 |
| | | | 11 | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 16 | 9 |
| | | 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 7.5 |
| | | 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 6 |
| | 11 | 11 | 11 | 11 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 4.5 |
| 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 3 |
| 11 | 11 | 11 | 11 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 1.5 |
| 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | 0 |
| 11 | 11 | 11 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | -1.5 |

SURCHARGE CASE

## HILFIKER TEMPORARY WALL (WELDED WIRE MAT TYPE)

4.5 = W4.5 x W3.5
7.0 = W7.0 x W3.5
9.5 = W9.5 x W4.0

H (FT)

| <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 4.5 | 26 |
| | | | | | | | | | | | 4.5 | 7.0 | 24 |
| | | | | | | | | | | 4.5 | 7.0 | 7.0 | 22 |
| | | | | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 20 |
| | | | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 18 |
| | | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 16 |
| | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 14 |
| | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 12 |
| | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 10 |
| | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 8 |
| | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 6 |
| | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 4 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 7.0 | 3 |
| 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 7.0 | 2 |
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 7.0 | 7.0 | 1 |
| 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 7.0 | 7.0 | 0 |
| 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | -1.5 |

SLOPE CASE

H (FT)

| <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 4.5 | 26 |
| | | | | | | | | | | | 4.5 | 7.0 | 24 |
| | | | | | | | | | | 4.5 | 7.0 | 7.0 | 22 |
| | | | | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 20 |
| | | | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 18 |
| | | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 16 |
| | | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 14 |
| | | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 12 |
| | | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 10 |
| | | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 8 |
| | | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 6 |
| | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 4 |
| 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 2 |
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 7.0 | 1 |
| 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 7.0 | 0 |
| 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | -1.5 |

SURCHARGE CASE

## RETAINED EARTH TEMPORARY WALL (WELDED WIRE MESH TYPE)

3X1 = 3W8 x W8 x 1.0′
3X2 = 3W8 x W8 x 2.0′

H (FT)

| <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT-INCHES) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 3X1 | 27 - 6 |
| | | | | | | | | | | | | 3X1 | 26 -10 |
| | | | | | | | | | | | 3X1 | 3X2 | 25 - 2 |
| | | | | | | | | | | 3X1 | 3X1 | 3X2 | 23 - 6 |
| | | | | | | | | | 3X1 | 3X1 | 3X2 | 3X2 | 21 -10 |
| | | | | | | | | 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 20 - 2 |
| | | | | | | | 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 18 - 6 |
| | | | | | | | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 16 -10 |
| | | | | | | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 15 - 2 |
| | | | | | 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 13 - 6 |
| | | | | 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 11 -10 |
| | | | 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 10 - 2 |
| | | 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 8 - 6 |
| | | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 6 -10 |
| | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 5 - 2 |
| 3X1 | 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3 - 6 |
| 3X1 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 1 -10 |
| 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 0 - 2 |
| 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | 3X2 | -1 - 6 |

SLOPE AND SURCHARGE CASES

NOTES FOR HILFIKER TEMPORARY WALL

1) CAP MAT AT TOP OF WALL IS NOT INCLUDED IN TABLES.
2) REINFORCEMENT IS NOT REQUIRED AT 1′ LEVEL FOR SLOPE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 24′.
3) REINFORCEMENT IS NOT REQUIRED AT 3′ LEVEL FOR SLOPE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 26′.
4) REINFORCEMENT IS NOT REQUIRED AT 1′ LEVEL FOR SURCHARGE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 26′.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY MSE WALL REINFORCEMENT TABLES - ENGLISH UNITS

SHEET 2 OF 11 DATE: 2-20-07

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AO |

GEOTECHNICAL ENGINEER

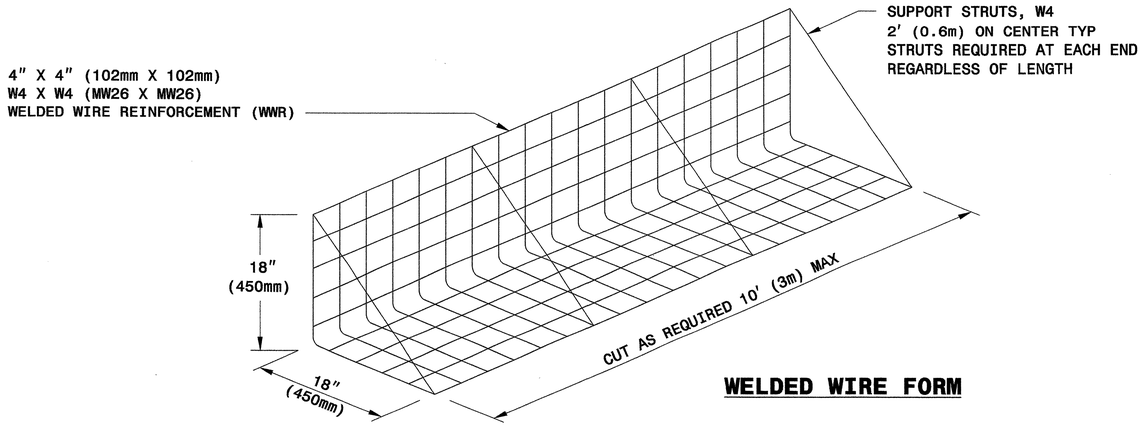
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07

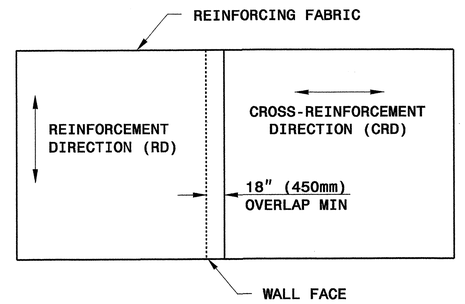
SIGNATURE DATE

ENGINEER

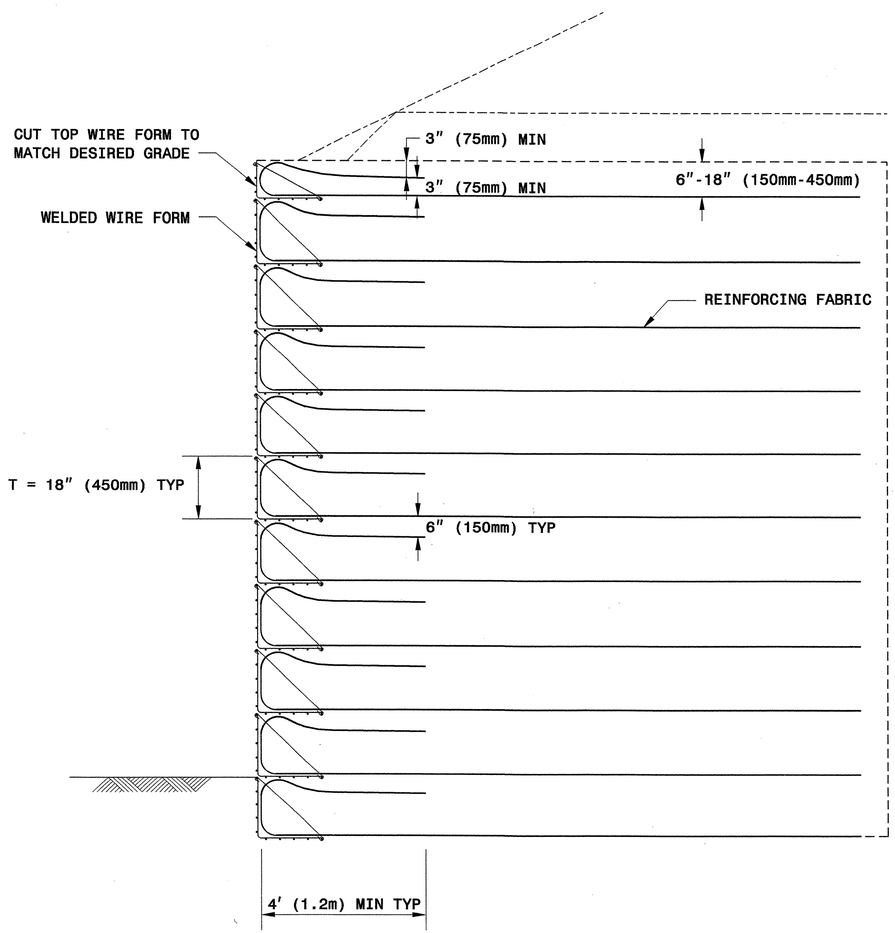
SIGNATURE DATE




**WELDED WIRE FORM**




**PLAN VIEW OF FABRIC OVERLAP**




**TYPICAL SECTION**

## MINIMUM REQUIRED REINFORCING FABRIC STRENGTH FOR RD*
## (SLOPE AND SURCHARGE CASES)

| WALL HEIGHT H FEET (M) | POLYESTER WIDE WIDTH TENSILE STRENGTH @ ULTIMATE LB/INCH (KN/M) | POLYPROPYLENE WIDE WIDTH TENSILE STRENGTH @ ULTIMATE LB/INCH (KN/M) |
|---|---|---|
| 4 (1.2) | 200 (35) | 200 (35) |
| 6 (1.8) | 200 (35) | 200 (35) |
| 8 (2.4) | 200 (35) | 200 (35) |
| 10 (3.0) | 200 (35) | 230 (40) |
| 12 (3.7) | 220 (39) | 264 (46) |
| 14 (4.3) | 248 (43) | 297 (52) |
| 16 (4.9) | 276 (48) | 330 (58) |
| 18 (5.5) | 304 (53) | 364 (64) |
| 20 (6.1) | 332 (58) | 397 (70) |
| 22 (6.7) | 359 (63) | 431 (76) |
| 24 (7.3) | 387 (68) | 464 (81) |
| 26 (7.9) | 415 (73) | 497 (87) |
| 28 (8.5) | 443 (78) | 531 (93) |

*RD = REINFORCEMENT DIRECTION

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

STANDARD DRAWING NO. 1801.02

TEMPORARY FABRIC WALL

SHEET 3 OF 11 DATE: 12-19-06

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AP |

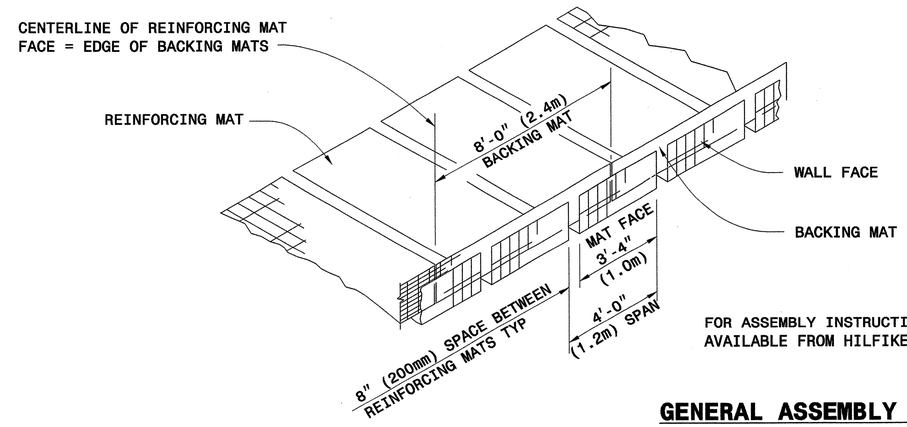
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07
SIGNATURE DATE

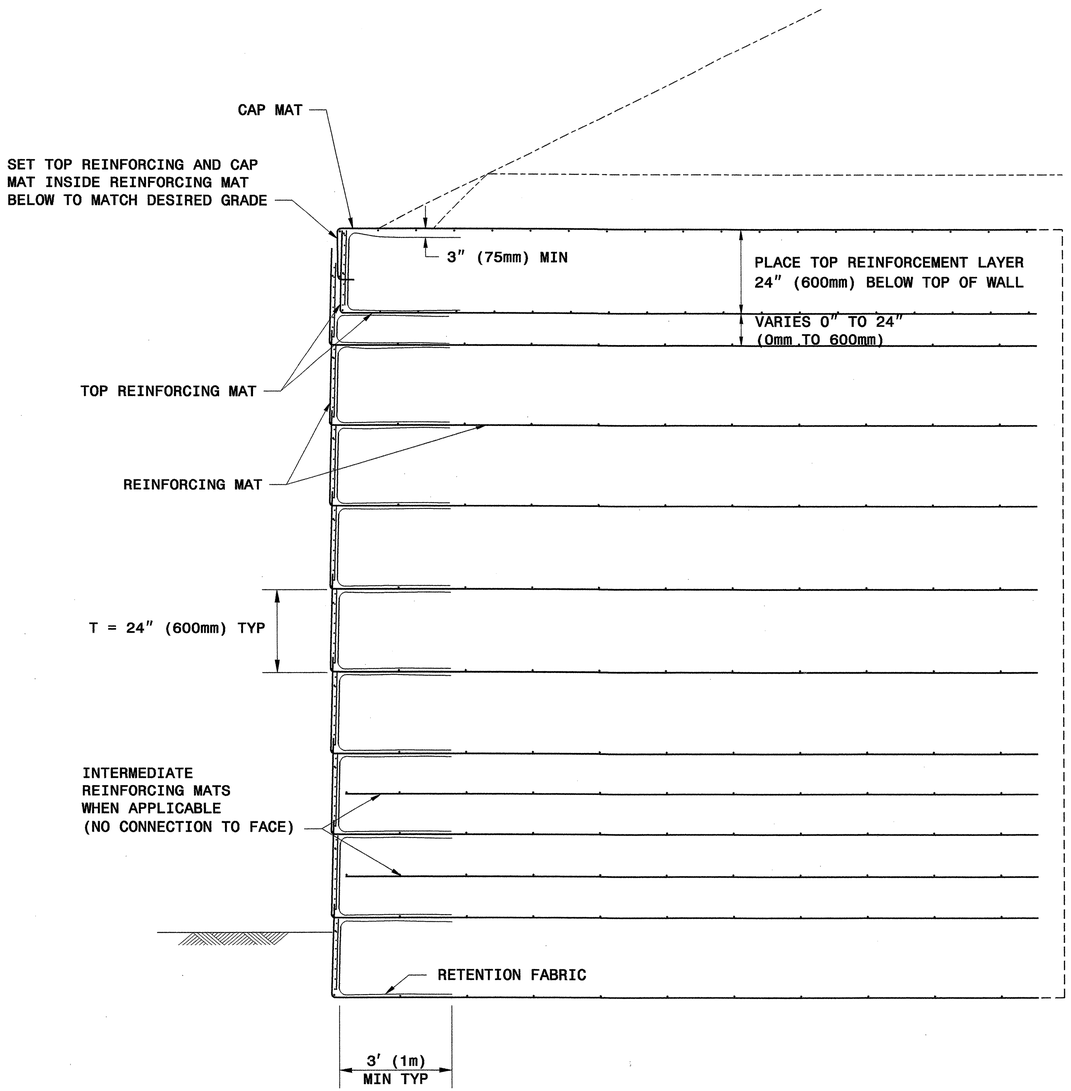
ENGINEER

SIGNATURE DATE

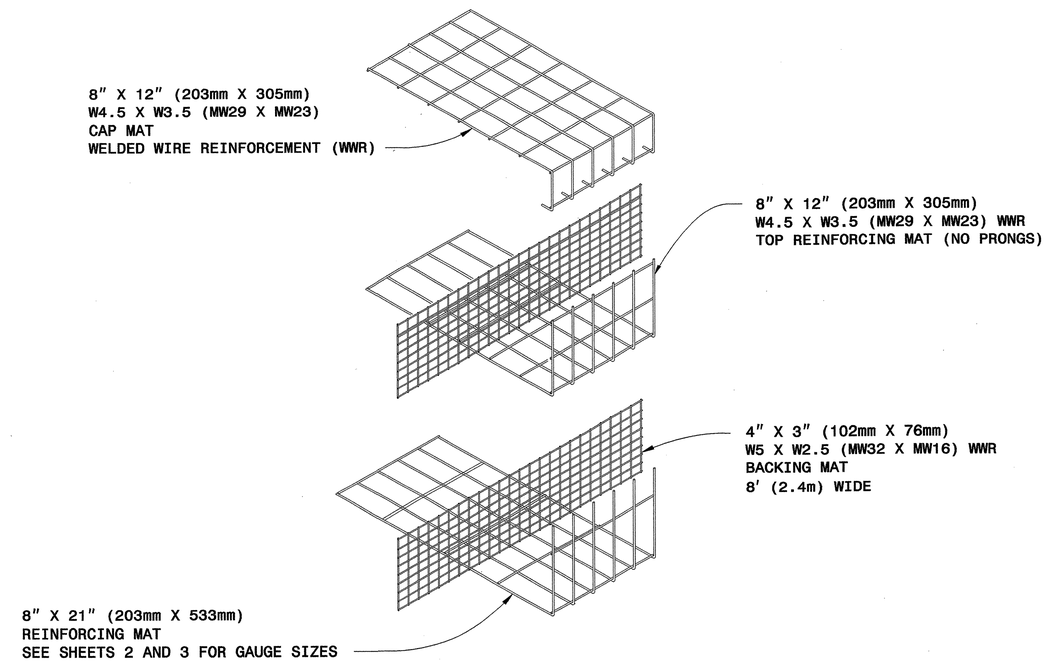



FOR ASSEMBLY INSTRUCTIONS, SEE WELDED WIRE WALL CONSTRUCTION GUIDE AVAILABLE FROM HILFIKER WEBSITE AT WWW.HILFIKER.COM/WWW

## GENERAL ASSEMBLY DETAIL




## TYPICAL SECTION




## WALL COMPONENTS

HILFIKER RETAINING WALLS

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

**STANDARD DRAWING NO. 1801.02**

HILFIKER TEMPORARY WALL

SHEET 4 OF 11 DATE: 12-19-06

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AQ |

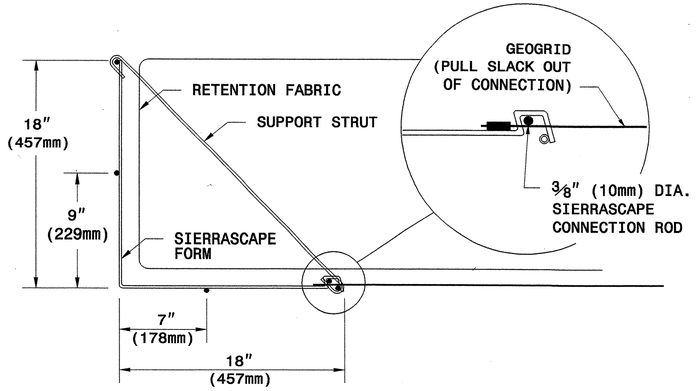
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

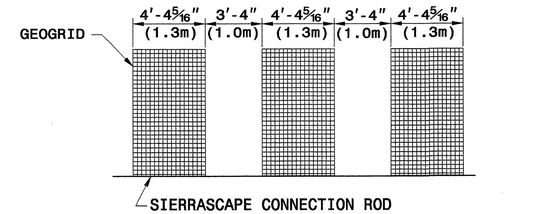
Scott A. Hidden 3/29/07
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

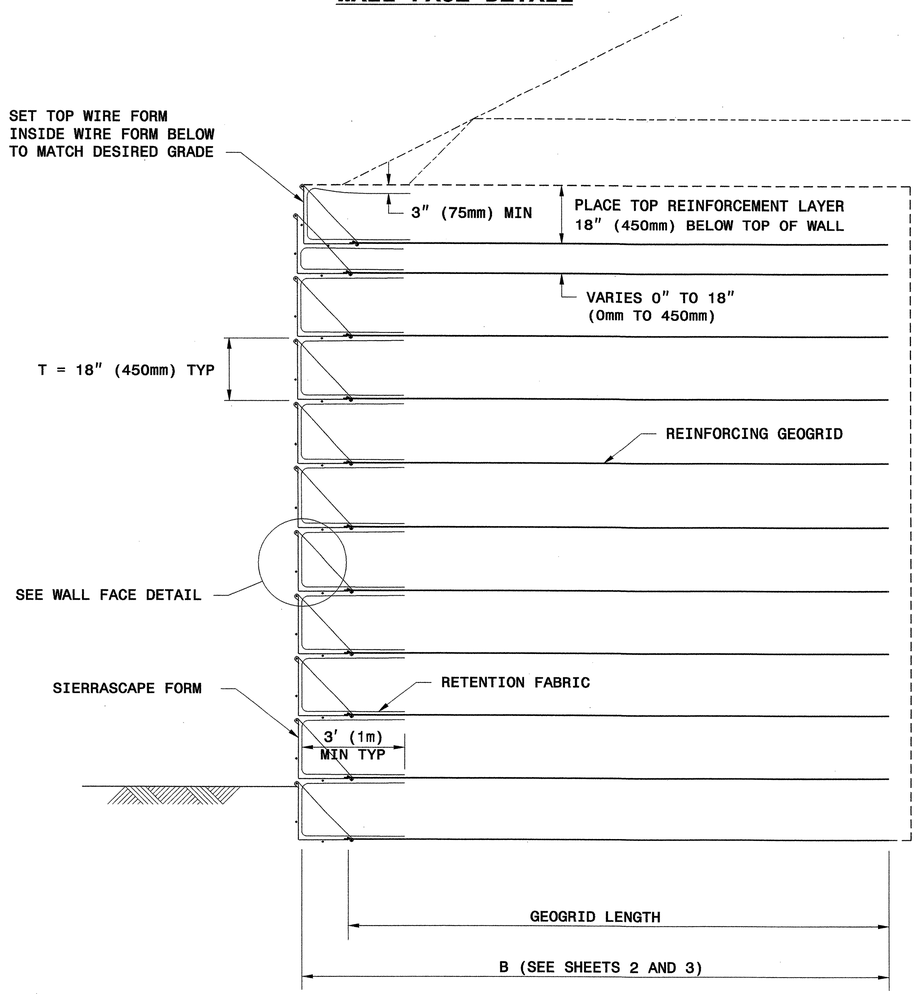



## WALL FACE DETAIL

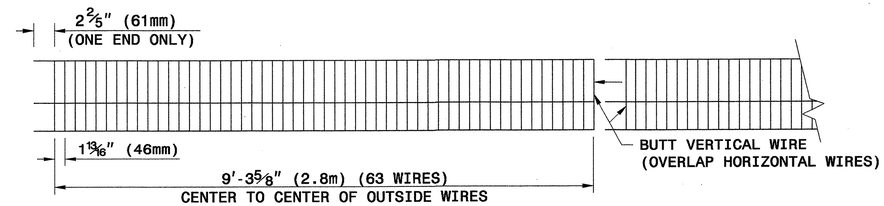



PLACE ALTERNATE LAYERS OF GEOGRID IN STAGGERED PATTERN SUCH THAT THE LAYER ABOVE IS CENTERED OVER SPACE BELOW

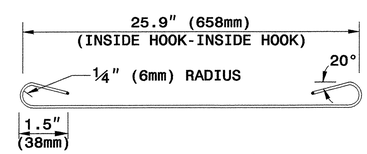
## TYPICAL GEOGRID COVERAGE



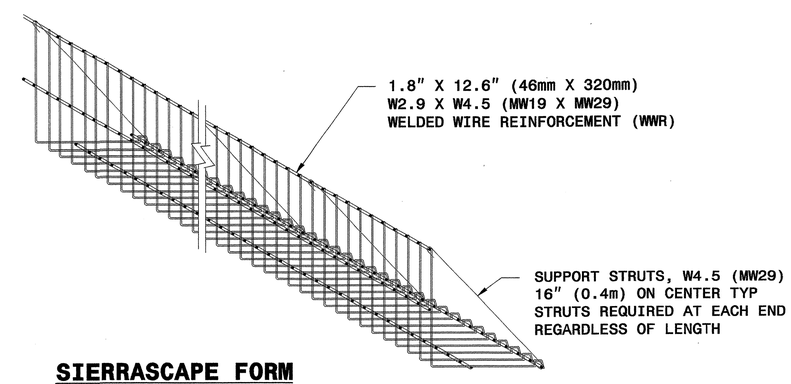

## TYPICAL SECTION




## ELEVATION VIEW




## SUPPORT STRUT




## SIERRASCAPE FORM

## WALL COMPONENTS

TENSAR®
TENSAR EARTH TECHNOLOGIES, INC.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

**STANDARD DRAWING NO. 1801.02**

SIERRASCAPE TEMPORARY WALL

SHEET 5 OF 11 DATE: 12-19-06

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AR |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

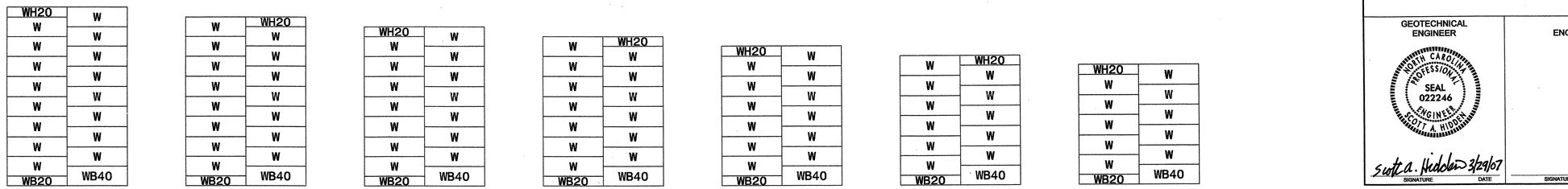
Scott A. Hidden 3/29/07

SIGNATURE DATE

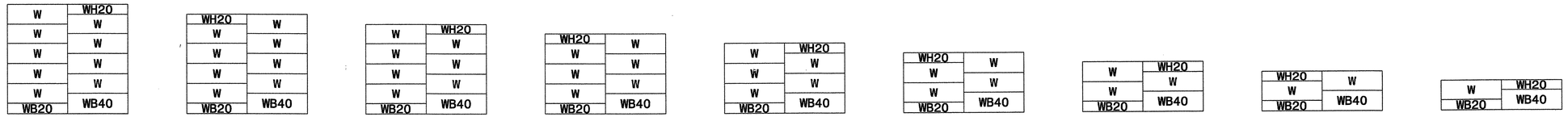
ENGINEER

SIGNATURE DATE

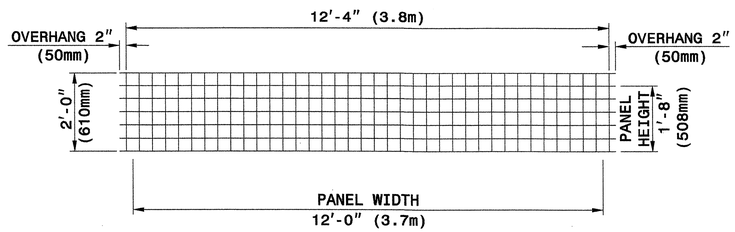
## PANEL LAYOUTS



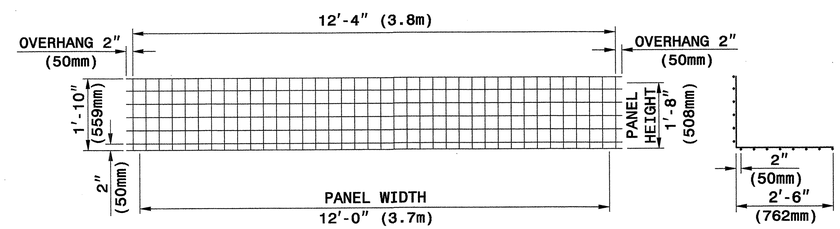

| H - WALL HEIGHT | | | | | | | |
|---|---|---|---|---|---|---|---|
| (FEET-INCHES) | < 28 - 0 | < 27 - 0 | < 25 - 4 | < 23 - 8 | < 22 - 0 | < 20 - 4 | < 18 - 8 |
| (METER) | < 8.5 | < 8.2 | < 7.7 | < 7.2 | < 6.7 | < 6.2 | < 5.7 |



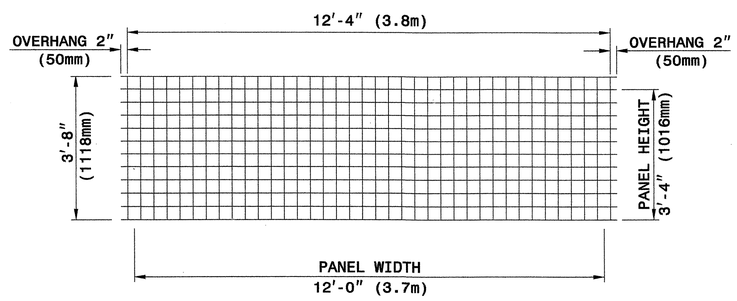

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (FEET-INCHES) | < 17 - 0 | < 15 - 4 | < 13 - 8 | < 12 - 0 | < 10 - 4 | < 8 - 8 | < 7 - 0 | < 5 - 4 | < 3 - 8 |
| (METER) | < 5.2 | < 4.7 | < 4.2 | < 3.7 | < 3.2 | < 2.6 | < 2.1 | < 1.6 | < 1.1 |



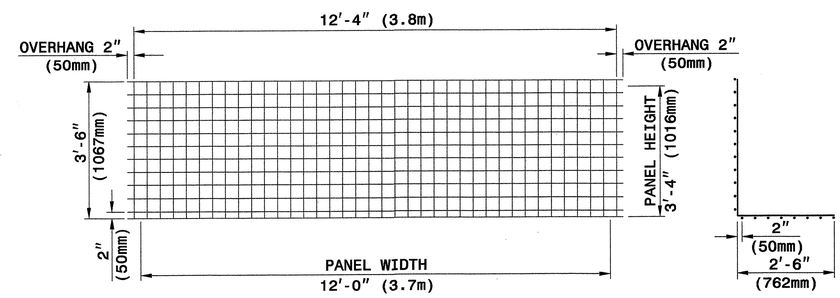

**TYPE WH20**




**TYPE WB20** **SECTION**




**TYPE W**




**TYPE WB40** **SECTION**

**WELDED WIRE FACINGS** **WELDED WIRE FORMS**

**PANEL TYPES (WELDED WIRE FACINGS AND FORMS)**

**4" X 4" (100mm X 100mm), W8 X W8 (MW52 X MW52) WELDED WIRE REINFORCEMENT (WWR)**

The Reinforced Earth Company

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

*GEOTECHNICAL ENGINEERING UNIT*

*STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH*

*STANDARD DRAWING NO. 1801.02*

RETAINED EARTH TEMPORARY WALL

SHEET 6 OF 11 DATE: 12-19-06

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AS |

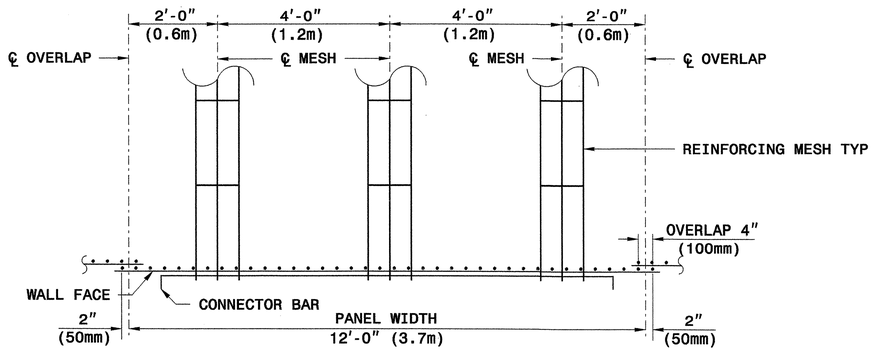
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07
SIGNATURE DATE

ENGINEER

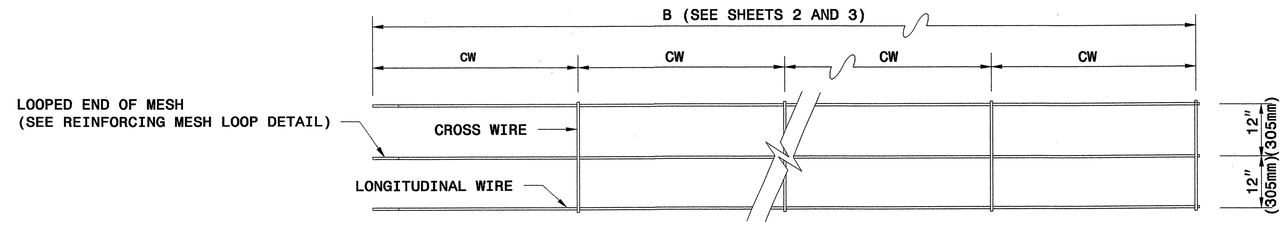
SIGNATURE DATE




## REINFORCING MESH PLACEMENT DETAIL
## (PLAN VIEW)

½" (13mm) DIA. BAR

## CONNECTOR BAR



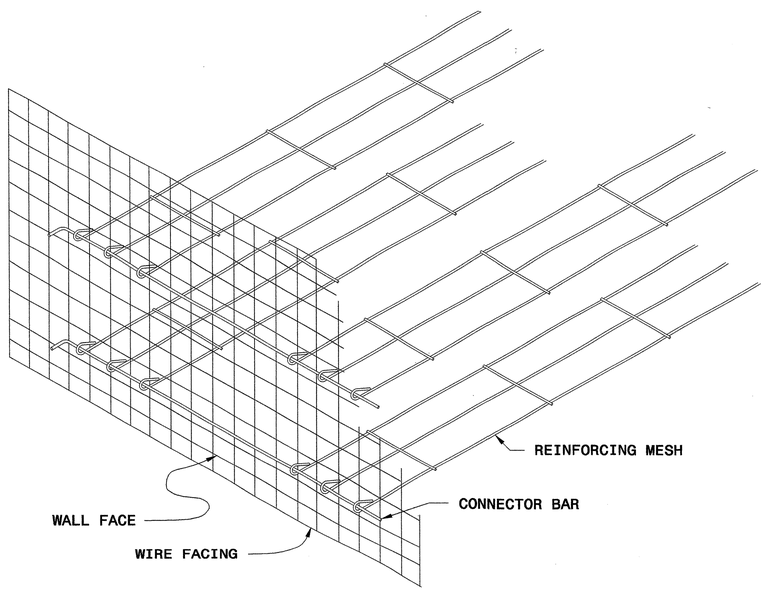

IF REINFORCEMENT LENGTH IS NOT AN INCREMENT OF 2'-0" (610mm) MAKE CW EQUAL TO 12" (305mm) AT THE END OF THE REINFORCING MESH OPPOSITE THE LOOPED END

**3W8 X W8 x 2.0' (3MW52 X MW52 X 610mm)**

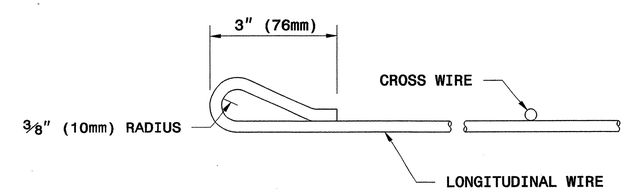
NO. OF LONGITUDINAL WIRES
GAUGE OF LONGITUDINAL WIRES
GAUGE OF CROSS WIRES
SPACING OF CROSS WIRES IN FT (mm), CW

## REINFORCING MESH DESIGNATION

## REINFORCING MESH




## GENERAL ASSEMBLY DETAIL




## REINFORCING MESH LOOP DETAIL

The Reinforced Earth Company

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

STANDARD DRAWING NO. 1801.02

RETAINED EARTH TEMPORARY WALL

SHEET 7 OF 11 DATE: 12-19-06

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|---|---|
| | 2-AT |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07

SIGNATURE DATE

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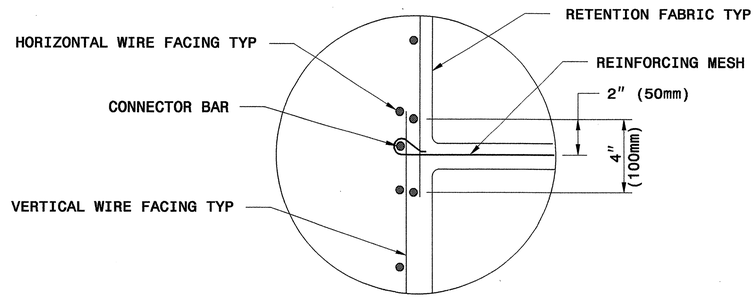
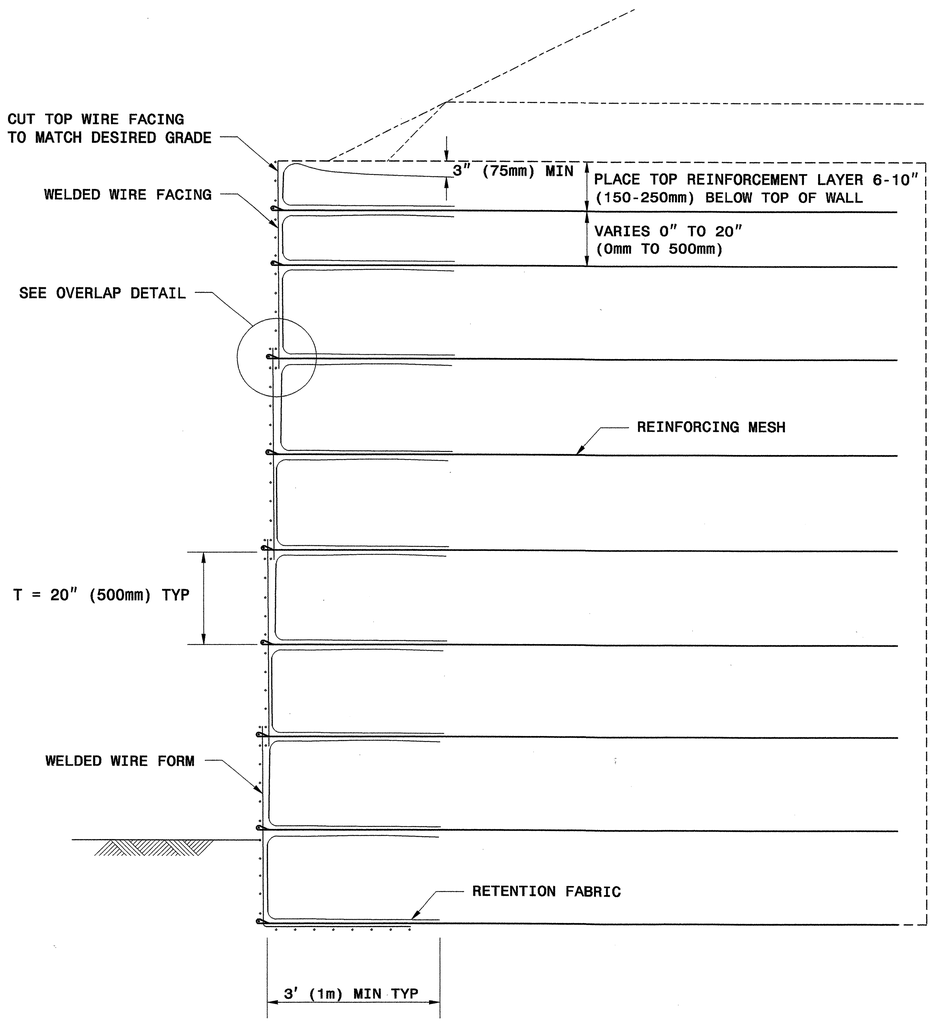
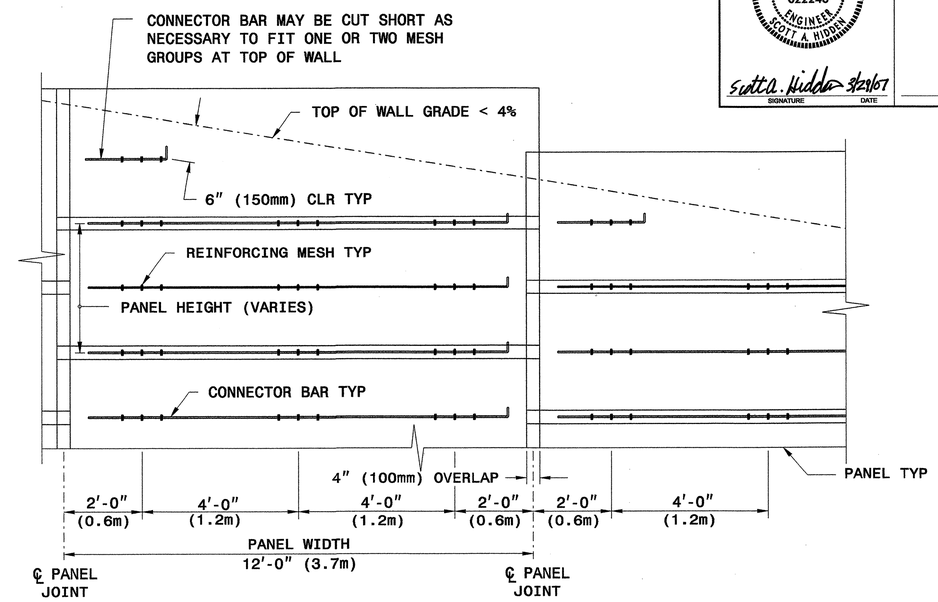


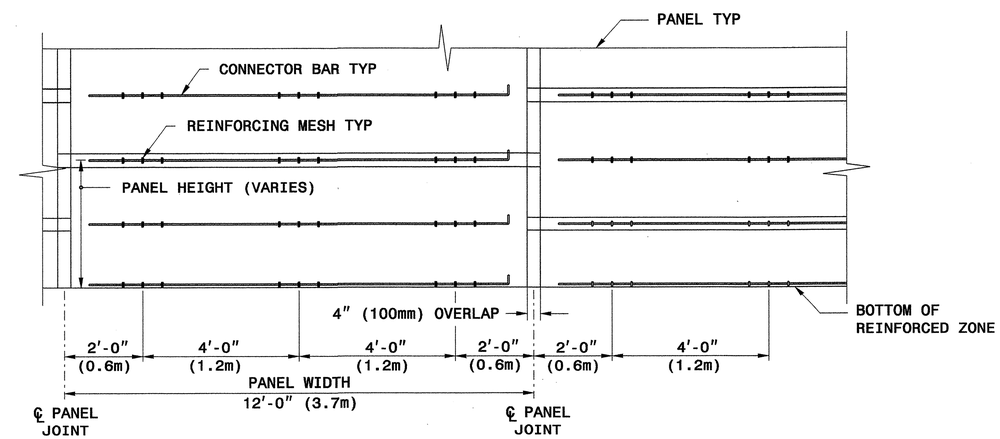

## OVERLAP DETAIL




## TYPICAL SECTION




## TYPICAL ELEVATION @ TOP OF WALL
## (WIRES NOT SHOWN FOR CLARITY)




## TYPICAL ELEVATION @ BOTTOM OF WALL
## (WIRES NOT SHOWN FOR CLARITY)

The Reinforced Earth Company

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

STANDARD DRAWING NO. 1801.02

RETAINED EARTH TEMPORARY WALL

SHEET 8 OF 11 DATE: 12-19-06

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|---|---|
| | 2-AU |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

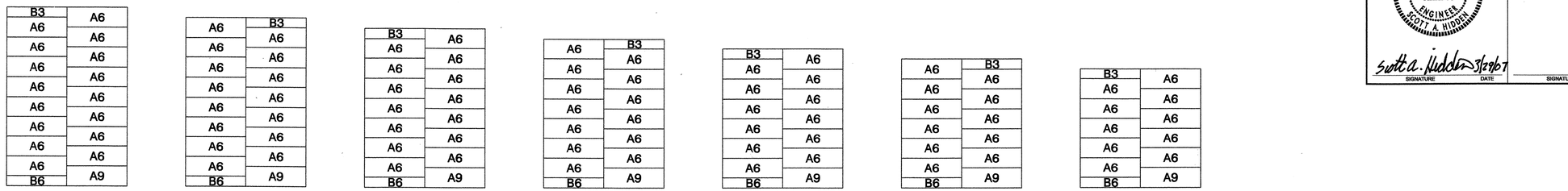
Scott A. Hidden 3/29/07

SIGNATURE DATE

ENGINEER

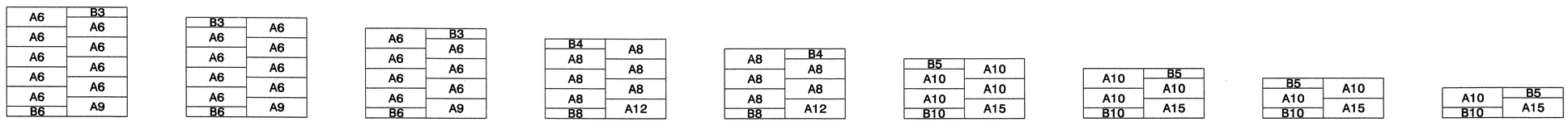
SIGNATURE DATE

## PANEL LAYOUTS

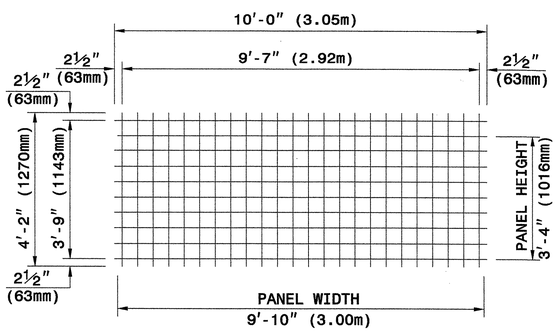



H - WALL HEIGHT

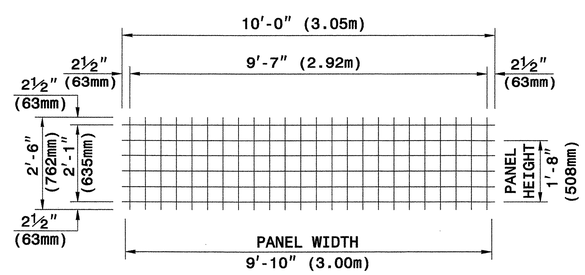
| | | | | | | |
|---|---|---|---|---|---|---|
| (FEET-INCHES) | < 28 - 0 | < 27 - 8 | < 26 - 0 | < 24 - 4 | < 22 - 8 | < 21 - 0 | < 19 - 4 |
| (METER) | < 8.5 | < 8.4 | < 7.9 | < 7.4 | < 6.9 | < 6.4 | < 5.9 |



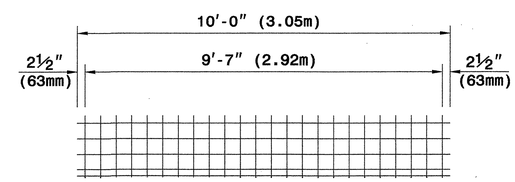

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| (FEET-INCHES) | < 17 - 8 | < 16 - 0 | < 14 - 4 | < 12 - 8 | < 11 - 0 | < 9 - 4 | < 7 - 8 | < 6 - 0 | < 4 - 4 |
| (METER) | < 5.4 | < 4.9 | < 4.4 | < 3.9 | < 3.4 | < 2.8 | < 2.3 | < 1.8 | < 1.3 |



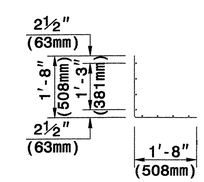

**TYPE A**




**TYPE B**




**WELDED WIRE FORM**




**SECTION**

## WELDED WIRE FACINGS

## PANEL TYPES (WELDED WIRE FACINGS AND FORM

**5" X 5" (125mm X 125mm), W5 X W5 (MW32 X MW32) WELDED WIRE REINFORCEMENT (WWR)**

The Reinforced Earth Company

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

*GEOTECHNICAL ENGINEERING UNIT*

*STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH*

*STANDARD DRAWING NO. 1801.02*

TERRATREL TEMPORARY WALL

SHEET 9 OF 11 DATE: 12-19-06

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| | 2-AV |

GEOTECHNICAL ENGINEER

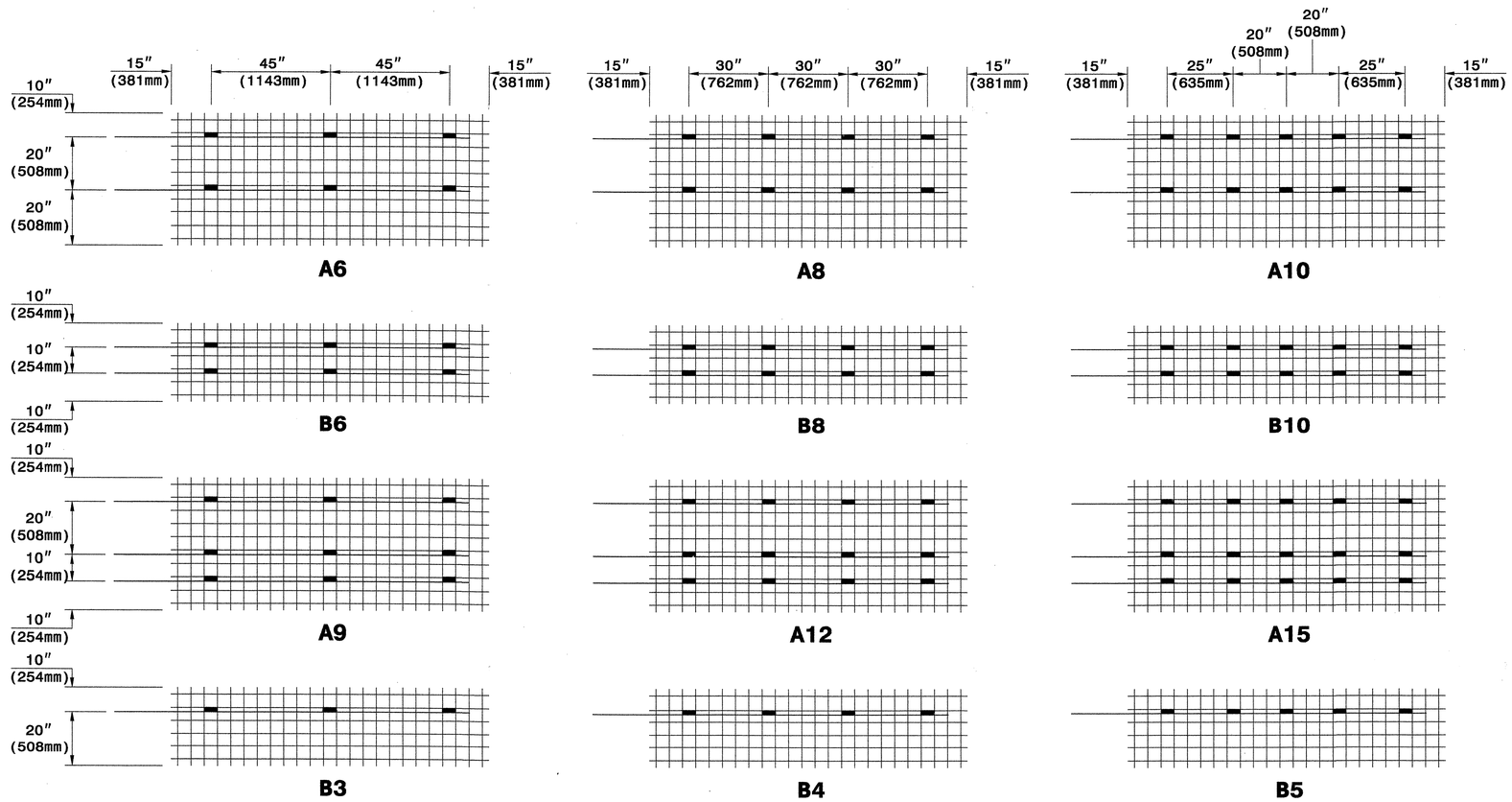
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/2/07

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

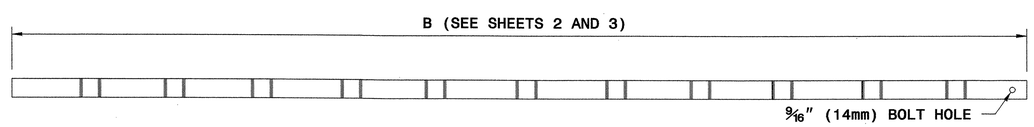



KEY: A8

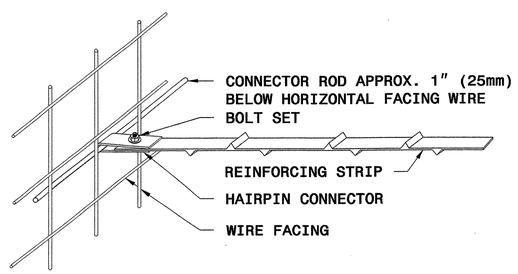
NUMBER OF REINFORCING STRIPS

PANEL TYPE

## CONNECTOR ROD AND REINFORCING STRIP PLACEMENT DIAGRAMS




**REINFORCING STRIP - 2" X 5/32" (50mm X 4mm)**



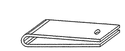

**STRIP TO FACING CONNECTION**

½" (13mm) DIA. ROD

**CONNECTOR ROD**

½" (13mm) BOLT WITH NUT AND WASHER

**BOLT SET**



**HAIRPIN CONNECTOR**

## WALL COMPONENTS

The Reinforced Earth Company

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

STANDARD DRAWING NO. 1801.02

TERRATREL TEMPORARY WALL

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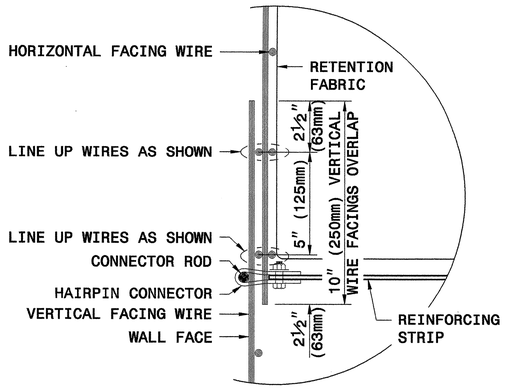
| PROJECT REFERENCE NO. | SHEET |
|---|---|
| | 2-AW |

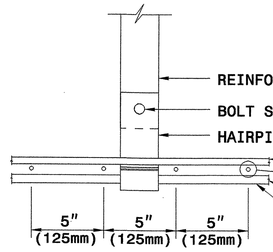
GEOTECHNICAL ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN — SIGNATURE — DATE

ENGINEER — SIGNATURE — DATE



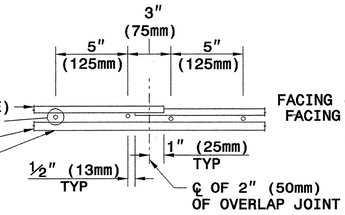

OVERLAP FACINGS VERTICALLY ONE FULL 5" (125mm) WIRE SQUARE DISREGARDING HALF SQUARES AT EDGES

## VERTICAL OVERLAP DETAIL



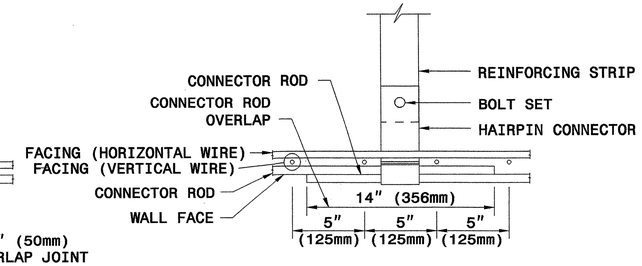

## PLAN DETAIL 'A'

## STRIP CONNECTION



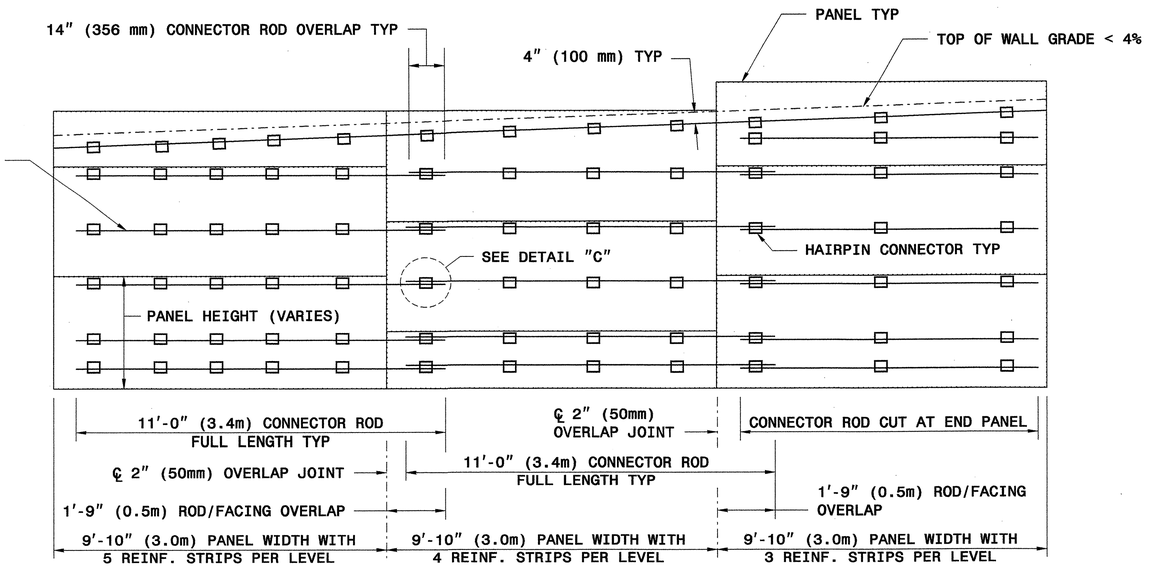

## PLAN DETAIL 'B'

## HORIZONTAL OVERLAP DETAIL



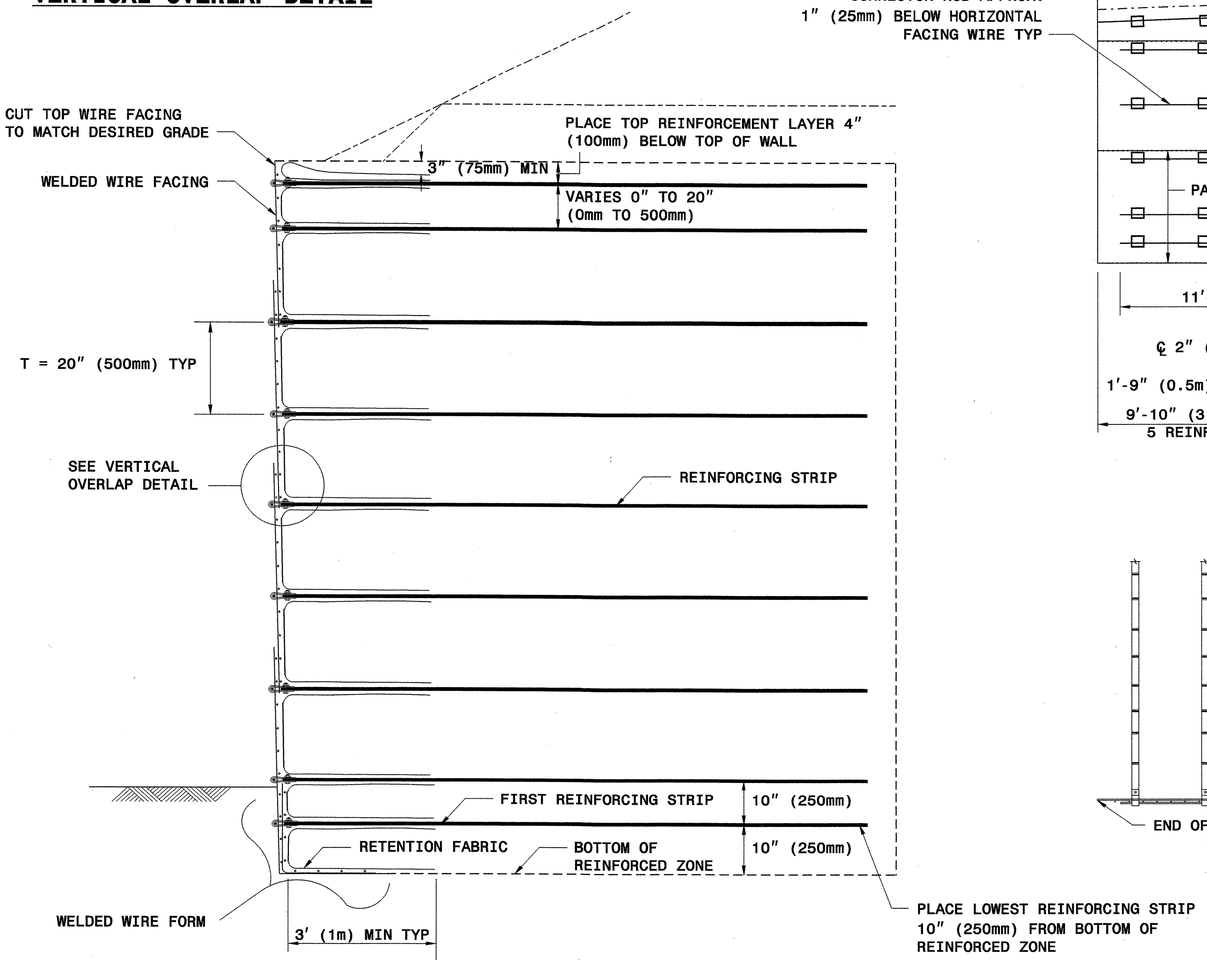

## PLAN DETAIL 'C'

## STRIP CONNECTION WITH HORIZONTAL OVERLAP DETAIL

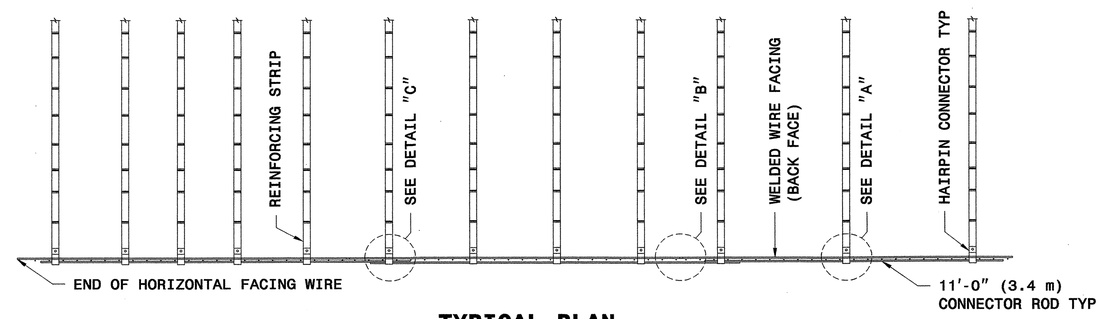



## TYPICAL ELEVATION

## (WIRES NOT SHOWN FOR CLARITY)




## TYPICAL SECTION




## TYPICAL PLAN

The Reinforced Earth Company

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

**STANDARD DRAWING NO. 1801.02**

TERRATREL TEMPORARY WALL

SHEET 11 OF 11 — DATE: 12-19-06

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| R-2812 | 2-AX |

GEOTECHNICAL ENGINEER

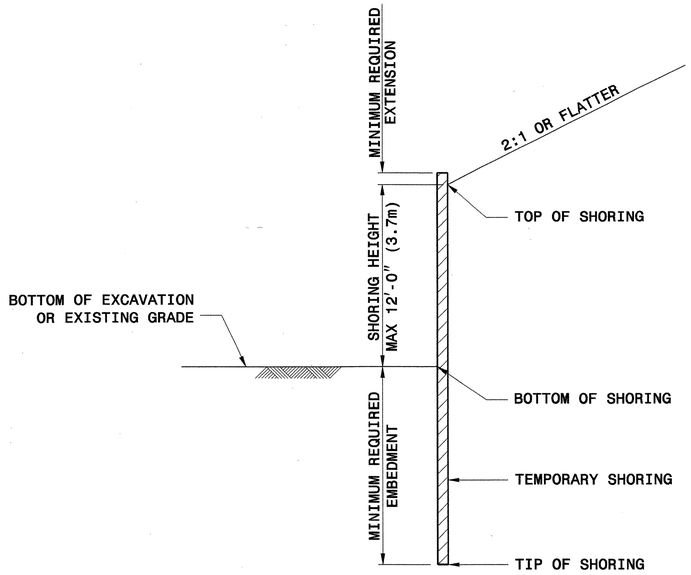
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07

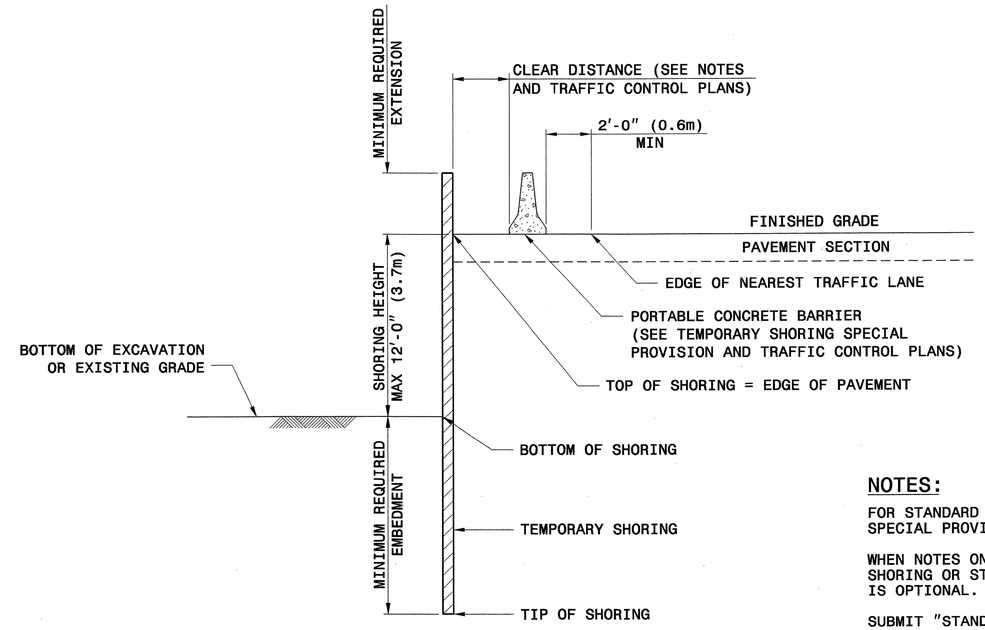
SIGNATURE DATE

ENGINEER

SIGNATURE DATE




## SLOPE CASE




## SURCHARGE CASE

| | | SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT | | | | | SURCHARGE CASE WITH TRAFFIC IMPACT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SHEET PILES | | H PILES WITH TIMBER LAGGING | | | SHEET PILES | | H PILES WITH TIMBER LAGGING | | |
| | | | | MINIMUM REQUIRED EMBEDMENT FT (m) | | | | | MINIMUM REQUIRED EMBEDMENT FT (m) | | |
| GROUNDWATER CONDITION | SHORING HEIGHT FT (m) | MINIMUM REQUIRED EMBEDMENT FT (m) | MINIMUM REQUIRED SECTION MODULUS $IN^3/FT$ ($cm^3/m$) | HP 10x42 (HP 250x62) | HP 12x53 (HP 310x79) | HP 14x73 (HP 360x108) | MINIMUM REQUIRED EMBEDMENT FT (m) | MINIMUM REQUIRED SECTION MODULUS $IN^3/FT$ ($cm^3/m$) | HP 10x42 (HP 250x62) | HP 12x53 (HP 310x79) | HP 14x73 (HP 360x108) |
| GROUNDWATER ELEVATION BELOW TIP OF SHORING | < 6 (1.8) | 7.5 (2.3) | 3.0 (161) | 8.0 (2.4) | 8.0 (2.4) | 8.0 (2.4) | 11.0 (3.4) | 10.0 (538) | 9.5 (2.9) | 9.5 (2.9) | 9.5 (2.9) |
| | 7 (2.1) | 8.5 (2.6) | 4.5 (242) | 9.5 (2.9) | 9.5 (2.9) | 9.5 (2.9) | 12.0 (3.7) | 12.0 (645) | 10.5 (3.2) | 10.5 (3.2) | 10.5 (3.2) |
| | 8 (2.4) | 10.0 (3.0) | 6.5 (349) | 10.5 (3.2) | 10.5 (3.2) | 10.5 (3.2) | 12.5 (3.8) | 14.0 (753) | 11.5 (3.5) | 11.5 (3.5) | 11.5 (3.5) |
| | 9 (2.7) | 11.0 (3.4) | 9.5 (511) | -- | 12.0 (3.7) | 12.0 (3.7) | 13.5 (4.1) | 16.5 (887) | -- | 12.5 (3.8) | 12.5 (3.8) |
| | 10 (3.0) | 12.5 (3.8) | 13.0 (699) | -- | -- | 13.5 (4.1) | 14.0 (4.3) | 19.5 (1048) | -- | 13.5 (4.1) | 13.5 (4.1) |
| | 11 (3.4) | 13.5 (4.1) | 17.0 (914) | -- | -- | 14.5 (4.4) | 15.0 (4.6) | 22.5 (1210) | -- | -- | 14.5 (4.4) |
| | 12 (3.7) | 15.0 (4.6) | 21.5 (1156) | -- | -- | 16.0 (4.9) | 16.0 (4.9) | 25.5 (1371) | -- | -- | 15.5 (4.7) |
| GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND TIP OF SHORING | < 6 (1.8) | 11.5 (3.5) | 4.5 (242) | 11.5 (3.5) | 11.5 (3.5) | 11.5 (3.5) | 16.0 (4.9) | 12.0 (645) | 13.0 (4.0) | 13.0 (4.0) | 13.0 (4.0) |
| | 7 (2.1) | 13.0 (4.0) | 7.0 (376) | 13.0 (4.0) | 13.0 (4.0) | 13.0 (4.0) | 17.0 (5.2) | 14.5 (780) | 14.5 (4.4) | 14.5 (4.4) | 14.5 (4.4) |
| | 8 (2.4) | 15.0 (4.6) | 10.0 (538) | -- | 15.0 (4.6) | 15.0 (4.6) | 18.0 (5.5) | 17.0 (914) | -- | 15.5 (4.7) | 15.5 (4.7) |
| | 9 (2.7) | 17.0 (5.2) | 14.0 (753) | -- | 17.0 (5.2) | 17.0 (5.2) | 19.0 (5.8) | 20.0 (1075) | -- | 17.0 (5.2) | 17.0 (5.2) |
| | 10 (3.0) | 18.5 (5.6) | 19.5 (1048) | -- | -- | 18.5 (5.6) | 20.0 (6.1) | 23.5 (1263) | -- | -- | 18.5 (5.6) |
| | 11 (3.4) | 20.5 (6.3) | 26.0 (1398) | -- | -- | -- | 21.0 (6.4) | 28.0 (1505) | -- | -- | 20.0 (6.1) |
| | 12 (3.7) | 22.5 (6.9) | 33.0 (1774) | -- | -- | -- | 22.0 (6.7) | 33.0 (1774) | -- | -- | 21.5 (6.6) |

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFFIC IMPACT".

## NOTES:

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
4) H PILE SPACING IS 6'-0" (1.8m).
5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
TOTAL UNIT WEIGHT = 120 PCF (18.8 $KN/M^3$)
FRICTION ANGLE = 30 DEGREES
COHESION = 0 PSF (0 KPA)
GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**GEOTECHNICAL ENGINEERING UNIT**

**STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH**

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

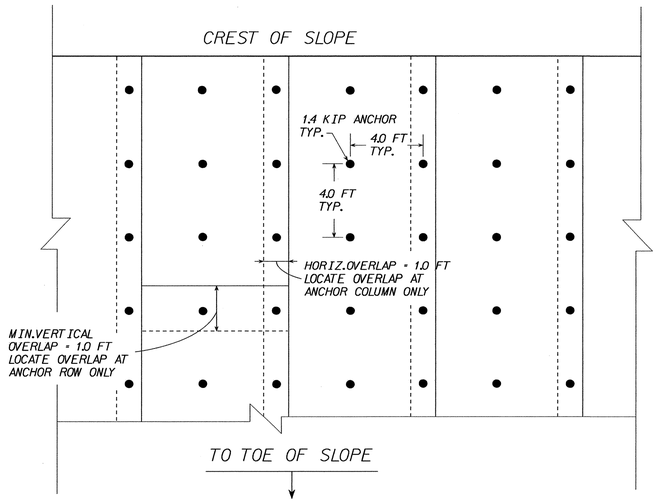
DATE: 2-20-07

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| R-2812 | 2-AY |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25521 ENGINEER JOHN L. PILIPCHUK

SIGNATURE DATE SIGNATURE DATE



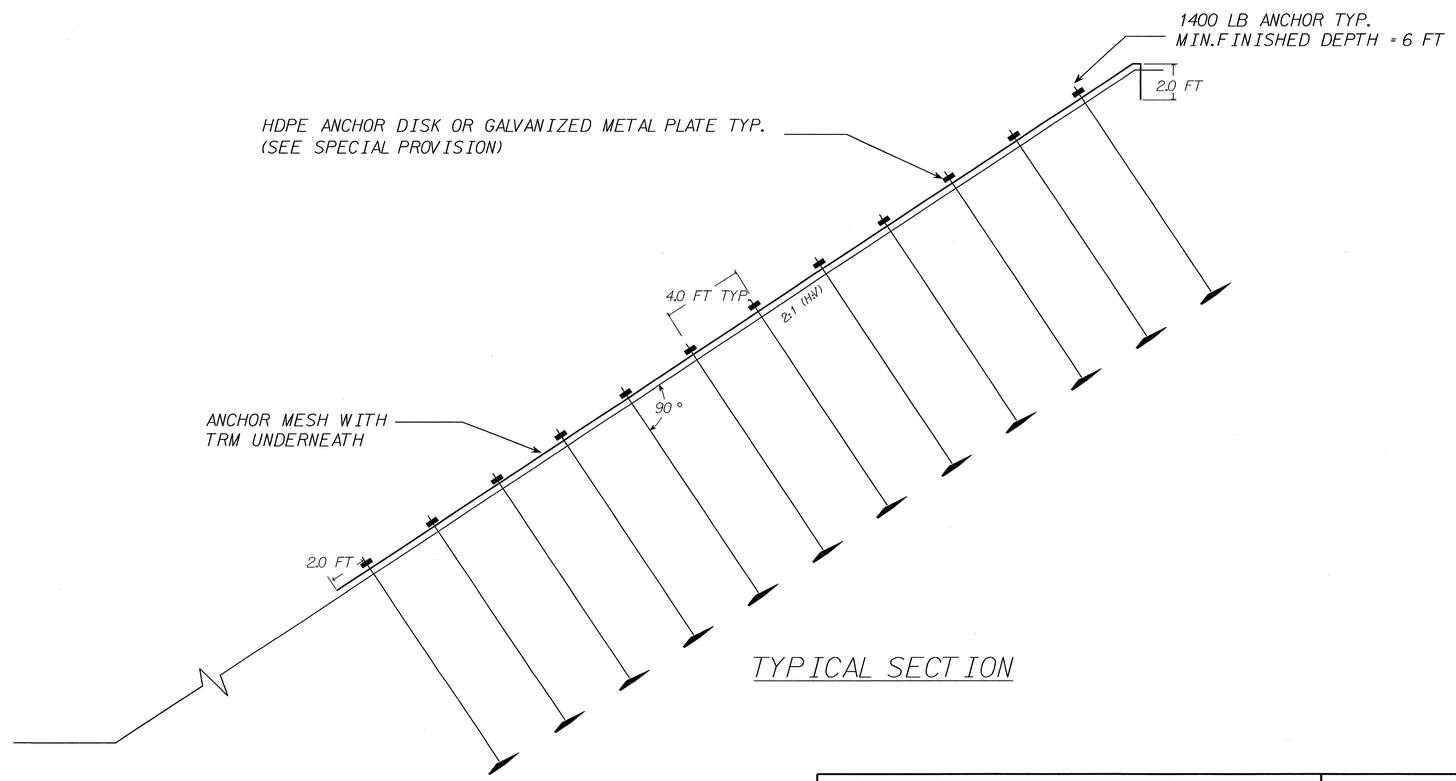

OVERLAP DETAIL

## NOTES AND SEQUENCE OF WORK

1. FOR SLOPE STABILIZATION,SEE ANCHORED SLOPE STABILIZATION SPECIAL PROVISION.
2. CONSTRUCT SLOPES AS SHOWN ON THE PLANS.REMOVE AND REPLACE ANY EXCESSIVELY WET OR SOFT AREAS AS DIRECTED BY THE ENGINEER.
3. INSTALL TURF REINFORCEMENT MAT (TRM) DOWN THE SLOPE.EMBED TRM A MINIMUM OF 2 FT AT THE TOP OF THE SLOPE.
4. INSTALL ANCHORS THROUGH THE TRM TO A SUFFICIENT DEPTH TO ACHIEVE THE REQUIRED TEST LOAD AND A FINISHED DEPTH OF 6 FT.
5. UNROLL ANCHOR MESH AND INSTALL ANCHOR HEAD COMPONENTS (HDPE DISC OR STEEL PLATE).
6. TEST LOAD AND LOCK-OFF THE ANCHORS.
   - SLOWLY LOAD EACH ANCHOR TO 1800 LBS.
   - DECREASE LOAD AND LOCK OFF ANCHOR AT 1400 LBS.
8. ALL INSTALLED ANCHORS MUST BE LOAD TESTED AND LOCKED-OFF BY THE END OF EACH WORK DAY.
9. SEEDING AND FINAL SURFACE TREATMENT ARE AS DIRECTED BY THE ENGINEER.

## ESTIMATED QUANTITIES

| | |
|---|---|
| SLOPE STABILIZATION | 1000 SQ.YDS. |




TYPICAL SECTION

| | |
|---|---|
| PREPARED BY: S. CLARK, PE | DATE: 5/2009 |
| REVIEWED BY: J. L. PILIPCHUK, PE | DATE: 8/2011 |

**GEOTECHNICAL ENGINEERING UNIT**

☐ EASTERN REGIONAL OFFICE
☒ WESTERN REGIONAL OFFICE

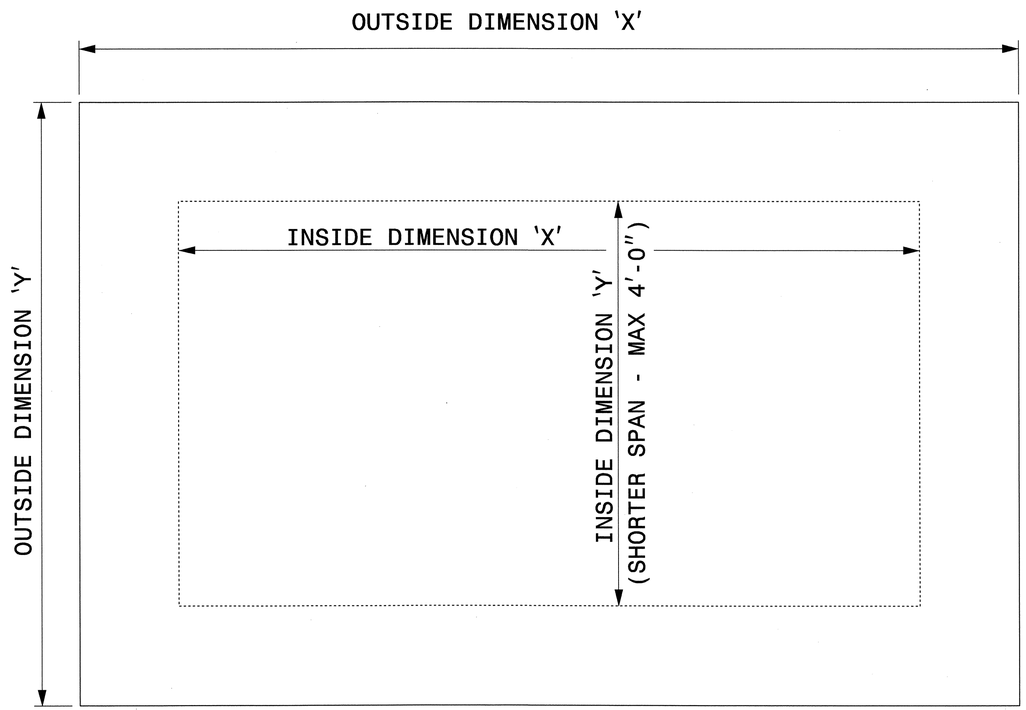
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

# ANCHORED SLOPE STABILIZATION

REVISIONS

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

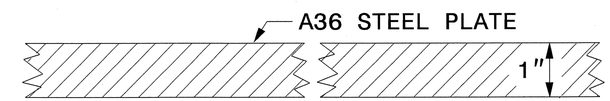
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 2-AZ |



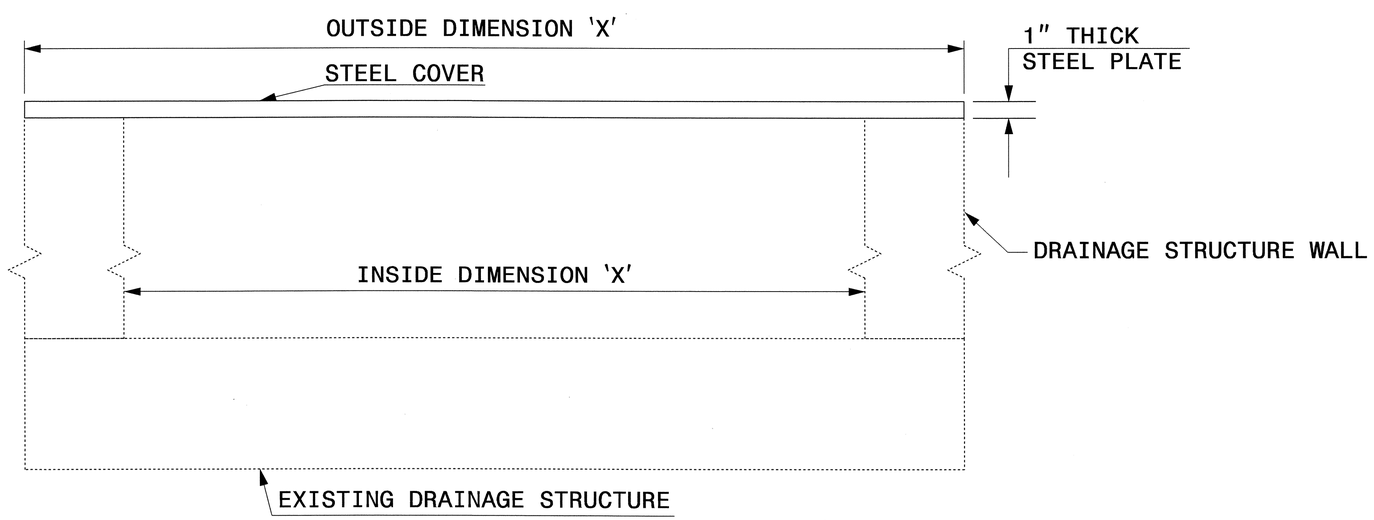

## PLAN VIEWS

GENERAL NOTES:

- -USE GRADE A36 STEEL
- -STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- -FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- -SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- -QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.




## SECTION VIEW OF STEEL TOP PLATE




## ELEVATION VIEWS

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON 8/26/11

**CONTRACT STANDARDS AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE**

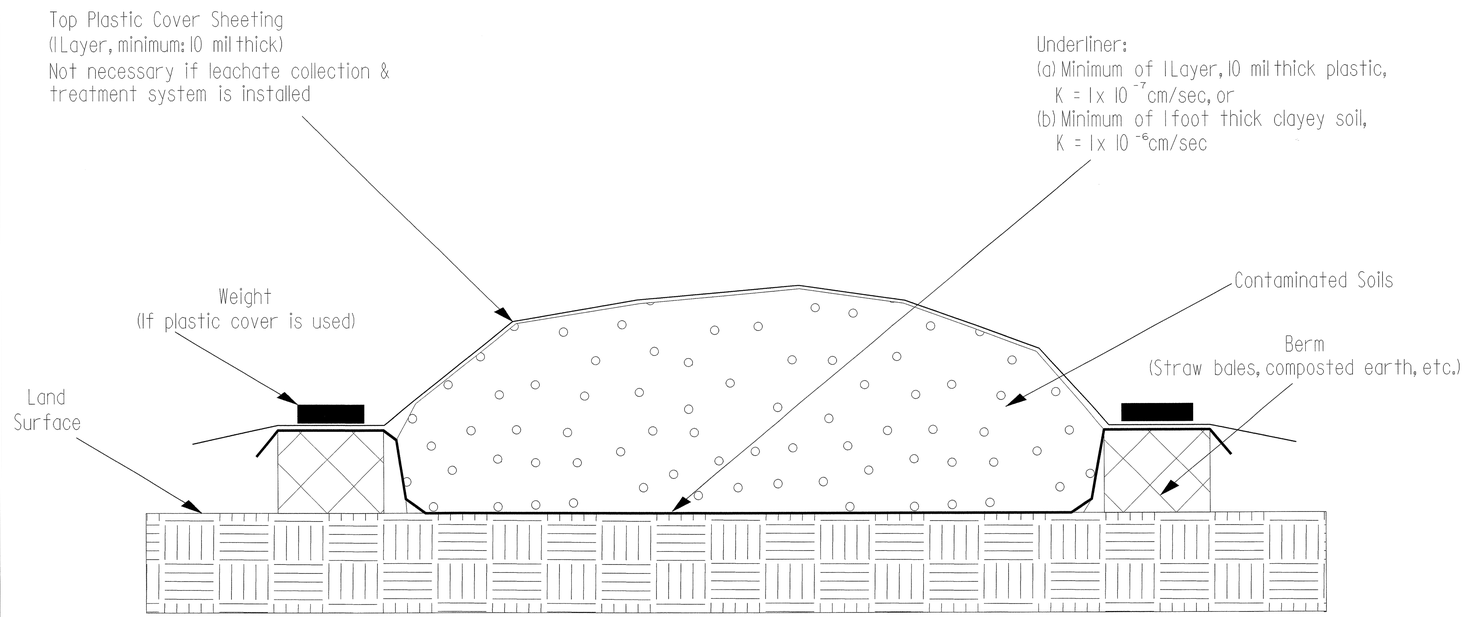
ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: DATE:
CHECKED BY: DATE: 8/22/11
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

22-AUG-2011 08:36
S:\Contracts\Contracts\Special Details\jhowerton\Steel Cover.dgn
$$$$USERNAME$$$$

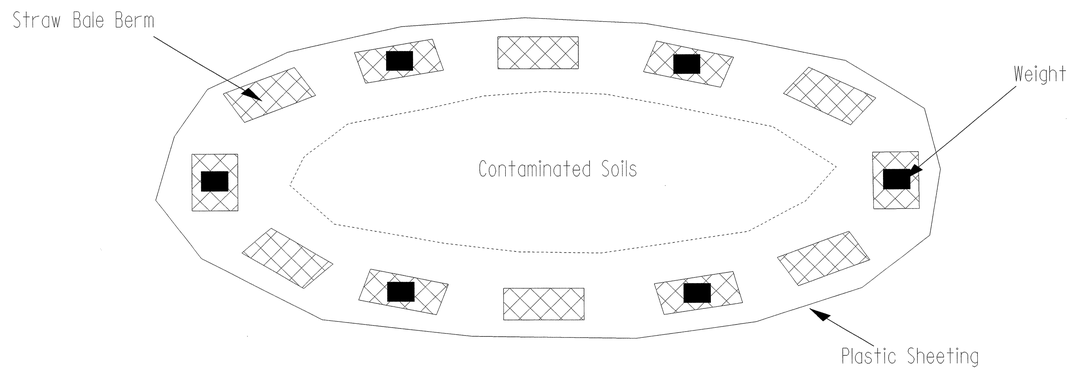
| PROJECT REFERENCE NO. | SHEET |
| --- | --- |
| R-2812 | 2-AAA |

# Detail for Temporary Containment of Petroleum Contaminated Soil

## Cross-Section View




## Map View



| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 3(1 of 2) |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS
# SUMMARY OF QUANTITIES

**STATE OF NORTH CAROLINA**
**DIVISION OF HIGHWAYS**
**ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202663**

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 0000100000-N | 800 | Lump Sum | | MOBILIZATION |
| 0001000000-E | 200 | Lump Sum | | CLEARING & GRUBBING .. ACRE(S) |
| 0008000000-E | 200 | 3 | ACR | SUPPLEMENTARY CLEARING & GRUBBING |
| 0015000000-N | 205 | 2 | EA | SEALING ABANDONED WELLS |
| 0036000000-E | 225 | 14,000 | CY | UNDERCUT EXCAVATION |
| 0038000000-E | SP | 6,472 | CY | SHALLOW UNDERCUT |
| 0080000000-E | SP | 12,232 | TON | CLASS IV SUBGRADE STABILIZATION |
| 0134000000-E | 240 | 3,630 | CY | DRAINAGE DITCH EXCAVATION |
| 0141000000-E | 240 | 1,640 | LF | BERM DITCH CONSTRUCTION |
| 0156000000-E | 250 | 81,870 | SY | REMOVAL OF EXISTING ASPHALT PAVEMENT |
| 0196000000-E | 270 | 15,362 | SY | FABRIC FOR SOIL STABILIZATION |
| 0199000000-E | SP | 2,240 | SF | TEMPORARY SHORING |
| 0241000000-E | SP | 1,000 | SY | GENERIC GRADING ITEM SLOPE STABILIZATION |
| 0255000000-E | SP | 100 | TON | GENERIC GRADING ITEM EXCAVATION AND STOCKPILING CONTAMINATED SOIL |
| 0262000000-N | SP | 1,000 | EA | GENERIC GRADING ITEM HORIZONTAL DRAINS |
| 0318000000-E | SP | 6,183 | TON | FOUNDATION CONDITIONING MATERIAL, MINOR STRS |
| 0320000000-E | SP | 13,660 | SY | FOUNDATION CONDITIONING FABRIC |
| 0973100000-E | SP | 100 | LF | **" WELDED STEEL PIPE, ****" THICK, GRADE ** IN SOIL (60", 0.875". B) |
| 0986000000-E | SP | 160 | LF | GENERIC PIPE ITEM 15" PLAIN CS PIPE |
| 0987000000-E | 310 | 432 | LF | GENERIC PIPE ITEM 15" CS PIPE CULVERTS, 0.064" THICK |
| 0987000000-E | 310 | 23,456 | LF | GENERIC PIPE ITEM 15" RC PIPE CULVERTS, CLASS III |
| 0987000000-E | 310 | 160 | LF | GENERIC PIPE ITEM 15" RC PIPE CULVERTS, CLASS IV |
| 0987000000-E | 310 | 476 | LF | GENERIC PIPE ITEM 15" SIDE DRAIN PIPE |
| 0987000000-E | 310 | 116 | LF | GENERIC PIPE ITEM 18" CS PIPE CULVERTS, 0.064" THICK |
| 0987000000-E | 310 | 9,168 | LF | GENERIC PIPE ITEM 18" RC PIPE CULVERTS, CLASS III |
| 0987000000-E | 310 | 172 | LF | GENERIC PIPE ITEM 18" SIDE DRAIN PIPE |
| 0987000000-E | 310 | 124 | LF | GENERIC PIPE ITEM 24" CS PIPE CULVERTS, 0.064" THICK |
| 0987000000-E | 310 | 5,940 | LF | GENERIC PIPE ITEM 24" RC PIPE CULVERTS, CLASS III |
| 0987000000-E | 310 | 28 | LF | GENERIC PIPE ITEM 24" SIDE DRAIN PIPE |
| 0987000000-E | 310 | 36 | LF | GENERIC PIPE ITEM 30" CS PIPE CULVERTS, 0.079" THICK |
| 0987000000-E | 310 | 584 | LF | GENERIC PIPE ITEM 30" RC PIPE CULVERTS, CLASS III |
| 0987000000-E | 310 | 136 | LF | GENERIC PIPE ITEM 36" RC PIPE CULVERTS, CLASS III |
| 0987000000-E | 310 | 28 | LF | GENERIC PIPE ITEM 48" RC PIPE CULVERTS, CLASS III |
| 0987000000-E | 310 | 92 | LF | GENERIC PIPE ITEM 60" RC PIPE CULVERTS, CLASS III |
| 0988000000-E | 310 | 12 | EA | GENERIC PIPE ITEM 15" CS PIPE ELBOWS, 0.064" THICK |
| 0988000000-E | 310 | 4 | EA | GENERIC PIPE ITEM 18" CS PIPE ELBOWS, 0.064" THICK |
| 0988000000-E | 310 | 4 | EA | GENERIC PIPE ITEM 24" CS PIPE ELBOWS, 0.064" THICK |
| 0995000000-E | 340 | 2,122 | LF | PIPE REMOVAL |
| 1011000000-N | 500 | Lump Sum | | FINE GRADING |
| 1110000000-E | 510 | 10,000 | TON | STABILIZER AGGREGATE |
| 1220000000-E | 545 | 300 | TON | INCIDENTAL STONE BASE |
| 1498000000-E | 610 | 57,150 | TON | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B |
| 1519000000-E | 610 | 47,450 | TON | ASPHALT CONC SURFACE COURSE, TYPE S9.5B |
| 1693000000-E | 654 | 400 | TON | ASPHALT PLANT MIX, PAVEMENT REPAIR |
| 2000000000-N | 806 | 165 | EA | RIGHT OF WAY MARKERS |
| 2022000000-E | SP | 224 | CY | SUBDRAIN EXCAVATION |
| 2033000000-E | SP | 168 | CY | SUBDRAIN FINE AGGREGATE |
| 2044000000-E | SP | 1,000 | LF | 6" PERFORATED SUBDRAIN PIPE |
| 2070000000-N | SP | 2 | EA | SUBDRAIN PIPE OUTLETS |
| 2077000000-E | SP | 12 | LF | 6" OUTLET PIPE (SUBDRAINS) |
| 2190000000-N | 828 | 20 | EA | TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE |
| 2253000000-E | 840 | 6.165 | CY | PIPE COLLARS |
| 2264000000-E | 840 | 7.301 | CY | PIPE PLUGS |
| 2286000000-N | 840 | 478 | EA | MASONRY DRAINAGE STRUCTURES |
| 2297000000-E | 840 | 5.09 | CY | MASONRY DRAINAGE STRUCTURES |
| 2308000000-E | 840 | 126 | LF | MASONRY DRAINAGE STRUCTURES |
| 2354200000-N | 840 | 4 | EA | FRAME WITH GRATE, STD 840.24 |
| 2364000000-N | 840 | 196 | EA | FRAME WITH TWO GRATES, STD 840.16 |
| 2366000000-N | 840 | 40 | EA | FRAME WITH TWO GRATES, STD 840.24 |
| 2374000000-N | 840 | 20 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) |
| 2374000000-N | 840 | 101 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F) |
| 2374000000-N | 840 | 116 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) |
| 2396000000-N | 840 | 4 | EA | FRAME WITH COVER, STD 840.54 |
| 2451000000-N | 852 | 193 | EA | CONCRETE TRANSITIONAL SECTION FOR DROP INLETS |
| 2542000000-E | 846 | 67,780 | LF | 1'-6" CONCRETE CURB & GUTTER |
| 2549000000-E | 846 | 54,450 | LF | 2'-6" CONCRETE CURB & GUTTER |
| 2591000000-E | 848 | 9,570 | SY | 4" CONCRETE SIDEWALK |
| 2612000000-E | 848 | 610 | SY | 6" CONCRETE DRIVEWAY |
| 2655000000-E | 852 | 3,770 | SY | 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN) |
| 2759000000-N | SP | 20 | EA | GENERIC PAVING ITEM CONCRETE CURB RAMPS |
| 3030000000-E | 862 | 8,200 | LF | STEEL BM GUARDRAIL |
| 3045000000-E | 862 | 37.5 | LF | STEEL BM GUARDRAIL, SHOP CURVED |
| 3150000000-N | 862 | 10 | EA | ADDITIONAL GUARDRAIL POSTS |
| 3210000000-N | 862 | 17 | EA | GUARDRAIL ANCHOR UNITS, TYPE CAT-1 |
| 3270000000-N | SP | 18 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 |
| 3380000000-E | 862 | 312.5 | LF | TEMPORARY STEEL BM GUARDRAIL |
| 3389100000-N | SP | 2 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY |
| 3436000000-N | 862 | 2 | EA | GENERIC GUARDRAIL ITEM GUARDRAIL ANCHOR UNITS, TYPE CAT-1 TEMPORARY |
| 3628000000-E | 876 | 250 | TON | RIP RAP, CLASS I |
| 3649000000-E | 876 | 3,200 | TON | RIP RAP, CLASS B |
| 3656000000-E | 876 | 15,305 | SY | FILTER FABRIC FOR DRAINAGE |
| 3659000000-N | SP | 2 | EA | PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON |
| 4057000000-E | SP | 12 | CY | OVERHEAD FOOTING |
| 4072000000-E | 903 | 4,361 | LF | SUPPORTS, 3-LB STEEL U-CHANNEL |
| 4082100000-N | SP | Lump Sum | | SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (405+00 -L-) |
| 4096000000-N | 904 | 29 | EA | SIGN ERECTION, TYPE D |
| 4102000000-N | 904 | 163 | EA | SIGN ERECTION, TYPE E |
| 4108000000-N | 904 | 39 | EA | SIGN ERECTION, TYPE F |
| 4116100000-N | 904 | 9 | EA | SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D) |
| 4155000000-N | 907 | 101 | EA | DISPOSAL OF SIGN SYSTEM, U-CHANNEL |
| 4400000000-E | 1110 | 1,536 | SF | WORK ZONE SIGNS (STATIONARY) |
| 4405000000-E | 1110 | 848 | SF | WORK ZONE SIGNS (PORTABLE) |
| 4410000000-E | 1110 | 63 | SF | WORK ZONE SIGNS (BARRICADE MOUNTED) |
| 4415000000-N | 1115 | 2 | EA | FLASHING ARROW PANELS, TYPE C |
| 4420000000-N | 1120 | 5 | EA | CHANGEABLE MESSAGE SIGN |
| 4430000000-N | 1130 | 1,571 | EA | DRUMS |
| 4435000000-N | 1135 | 300 | EA | CONES |
| 4445000000-E | 1145 | 2,208 | LF | BARRICADES (TYPE III) |
| 4455000000-N | 1150 | 900 | MD | FLAGGER |
| 4465000000-N | 1160 | 4 | EA | TEMPORARY CRASH CUSHIONS |
| 4470000000-N | 1160 | 1 | EA | RESET TEMPORARY CRASH CUSHIONS |
| 4480000000-N | 1165 | 2 | EA | TMIA |
| 4485000000-E | 1170 | 449 | LF | PORTABLE CONCRETE BARRIER |
| 4510000000-N | SP | 192 | HR | LAW ENFORCEMENT |
| 4600000000-N | SP | 23 | EA | GENERIC TRAFFIC CONTROL ITEM WARNING FLAGS |
| 4650000000-N | 1251 | 1,917 | EA | TEMPORARY RAISED PAVEMENT MARKERS |
| 4685000000-E | 1205 | 40,602 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) |
| 4686000000-E | 1205 | 18,301 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) |
| 4695000000-E | 1205 | 9,651 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) |
| 4697000000-E | 1205 | 650 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS) |
| 4710000000-E | 1205 | 1,612 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS) |
| 4725000000-E | 1205 | 215 | EA | THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) |
| 4810000000-E | 1205 | 824,450 | LF | PAINT PAVEMENT MARKING LINES (4") |
| 4820000000-E | 1205 | 5,912 | LF | PAINT PAVEMENT MARKING LINES (8") |
| 4830000000-E | 1205 | 332 | LF | PAINT PAVEMENT MARKING LINES (16") |
| 4835000000-E | 1205 | 5,778 | LF | PAINT PAVEMENT MARKING LINES (24") |
| 4840000000-N | 1205 | 20 | EA | PAINT PAVEMENT MARKING CHARACTER |
| 4845000000-N | 1205 | 558 | EA | PAINT PAVEMENT MARKING SYMBOL |
| 4850000000-E | 1205 | 130,042 | LF | REMOVAL OF PAVEMENT MARKING LINES (4") |
| 4860000000-E | 1205 | 1,837 | LF | REMOVAL OF PAVEMENT MARKING LINES (8") |
| 4900000000-N | 1251 | 421 | EA | PERMANENT RAISED PAVEMENT MARKERS |
| 5325000000-E | 1510 | 749 | LF | **" WATER LINE (1-1/4") |
| 5325600000-E | 1510 | 1,644 | LF | 6" WATER LINE |
| 5325800000-E | 1510 | 29 | LF | 8" WATER LINE |
| 5326200000-E | 1510 | 8,793 | LF | 12" WATER LINE |
| 5326600000-E | 1510 | 1,476 | LF | 16" WATER LINE |
| 5540000000-E | 1515 | 3 | EA | 6" VALVE |
| 5546000000-E | 1515 | 2 | EA | 8" VALVE |
| 5558000000-E | 1515 | 6 | EA | 12" VALVE |
| 5558600000-E | 1515 | 3 | EA | 16" VALVE |
| 5589200000-E | 1515 | 2 | EA | 2" AIR RELEASE VALVE |
| 5648000000-N | 1515 | 5 | EA | RELOCATE WATER METER |
| 5649000000-N | 1515 | 2 | EA | RECONNECT WATER METER |
| 5666000000-E | 1515 | 1 | EA | FIRE HYDRANT |
| 5672000000-N | 1515 | 14 | EA | RELOCATE FIRE HYDRANT |
| 5691000000-E | 1520 | 2,842 | LF | **" SANITARY GRAVITY SEWER (15") |
| 5691700000-E | 1520 | 148 | LF | 18" SANITARY GRAVITY SEWER |
| 5709200000-E | 1520 | 4,450 | LF | 4" FORCE MAIN SEWER |
| 5709300000-E | 1520 | 40 | LF | 6" FORCE MAIN SEWER |
| 5709500000-E | 1520 | 2,022 | LF | 10" FORCE MAIN SEWER |
| 5709700000-E | 1520 | 3,483 | LF | 16" FORCE MAIN SEWER |
| 5775000000-E | 1525 | 3 | EA | 4' DIA UTILITY MANHOLE |
| 5776000000-E | 1525 | 15 | EA | 5' DIA UTILITY MANHOLE |
| 5782000000-E | 1525 | 55.3 | LF | UTILITY MANHOLE WALL, 5' DIA |
| 5798000000-E | 1530 | 767 | LF | ABANDON **" UTILITY PIPE (1-1/4") |
| 5798000000-E | 1530 | 126 | LF | ABANDON **" UTILITY PIPE (15") |
| 5798000000-E | 1530 | 5,086 | LF | ABANDON **" UTILITY PIPE (4") |
| 5800000000-E | 1530 | 942 | LF | ABANDON 6" UTILITY PIPE |
| 5801000000-E | 1530 | 43 | LF | ABANDON 8" UTILITY PIPE |
| 5802000000-E | 1530 | 4,895 | LF | ABANDON 10" UTILITY PIPE |
| 5804000000-E | 1530 | 8,979 | LF | ABANDON 12" UTILITY PIPE |
| 5810000000-E | 1530 | 4,463 | LF | ABANDON 16" UTILITY PIPE |
| 5815500000-N | 1530 | 2 | EA | REMOVE FIRE HYDRANT |
| 5828000000-N | 1530 | 10 | EA | REMOVE UTILITY MANHOLE |
| 5836000000-E | 1540 | 62 | LF | 24" ENCASEMENT PIPE |
| 5836200000-E | 1540 | 191 | LF | 30" ENCASEMENT PIPE |
| 5871000000-E | 1550 | 191 | LF | TRENCHLESS INSTALLATION OF **" IN SOIL (30") |
| 6000000000-E | 1605 | 40,000 | LF | TEMPORARY SILT FENCE |
| 6006000000-E | 1610 | 5,750 | TON | STONE FOR EROSION CONTROL, CLASS A |
| 6009000000-E | 1610 | 11,000 | TON | STONE FOR EROSION CONTROL, CLASS B |
| 6012000000-E | 1610 | 10,400 | TON | SEDIMENT CONTROL STONE |
| 6015000000-E | 1615 | 300 | ACR | TEMPORARY MULCHING |
| 6018000000-E | 1620 | 11,500 | LB | SEED FOR TEMPORARY SEEDING |
| 6021000000-E | 1620 | 47.5 | TON | FERTILIZER FOR TEMPORARY SEEDING |
| 6024000000-E | 1622 | 7,500 | LF | TEMPORARY SLOPE DRAINS |
| 6027000000-N | 1622 | 150 | EA | INLET PROTECTION AT TEMPORARY SLOPE DRAINS |
| 6029000000-E | SP | 500 | LF | SAFETY FENCE |
| 6030000000-E | 1630 | 26,000 | CY | SILT EXCAVATION |
| 6036000000-E | 1631 | 110,600 | SY | MATTING FOR EROSION CONTROL |
| 6037000000-E | SP | 500 | SY | COIR FIBER MAT |
| 6038000000-E | SP | 2,250 | SY | PERMANENT SOIL REINFORCEMENT MAT |
| 6042000000-E | 1632 | 24,300 | LF | 1/4" HARDWARE CLOTH |
| 6045000000-E | SP | 400 | LF | **" TEMPORARY PIPE (24") |
| 6070000000-N | SP | 10 | EA | SPECIAL STILLING BASINS |
| 6071012000-E | SP | 16,275 | LF | COIR FIBER WATTLE |
| 6071020000-E | SP | 9,250 | LB | POLYACRYLAMIDE (PAM) |
| 6071030000-E | SP | 4,000 | LF | COIR FIBER BAFFLE |
| 6071050000-E | SP | 20 | EA | **" SKIMMER (1-1/2") |
| 6084000000-E | 1660 | 300 | ACR | SEEDING & MULCHING |
| 6087000000-E | 1660 | 300 | ACR | MOWING |
| 6090000000-E | 1661 | 4,850 | LB | SEED FOR REPAIR SEEDING |
| 6093000000-E | 1661 | 13.25 | TON | FERTILIZER FOR REPAIR SEEDING |
| 6096000000-E | 1662 | 8,150 | LB | SEED FOR SUPPLEMENTAL SEEDING |
| 6108000000-E | 1665 | 244.25 | TON | FERTILIZER TOPDRESSING |
| 6111000000-E | SP | 160 | LF | IMPERVIOUS DIKE |
| 6114500000-N | SP | 30 | MHR | SPECIALIZED HAND MOWING |
| 6117000000-N | SP | 100 | EA | RESPONSE FOR EROSION CONTROL |
| 6123000000-E | 1670 | 10 | ACR | REFORESTATION |

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# STATE OF NORTH CAROLINA
# SUMMARY OF QUANTITIES

| PROJECT REFERENCE No. | SHEET No. |
|---|---|
| | 3 (2 of 2) |

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 7000000000-E | 1705 | 26 | EA | PEDESTRIAN SIGNAL HEAD (**", ** SECTION) (16", 1 SECTION W/COUNTDOWN) |
| 7060000000-E | 1705 | 26,760 | LF | SIGNAL CABLE |
| 7120000000-E | 1705 | 123 | EA | VEHICLE SIGNAL HEAD (12", 3 SECTION) |
| 7132000000-E | 1705 | 23 | EA | VEHICLE SIGNAL HEAD (12", 4 SECTION) |
| 7144000000-E | 1705 | 20 | EA | VEHICLE SIGNAL HEAD (12", 5 SECTION) |
| 7252000000-E | 1710 | 2,760 | LF | MESSENGER CABLE (1/4") |
| 7264000000-E | 1710 | 6,720 | LF | MESSENGER CABLE (3/8") |
| 7279000000-E | 1715 | 4,930 | LF | TRACER WIRE |
| 7288000000-E | 1715 | 10 | LF | PAVED TRENCHING (**********) (1, 2") |
| 7300000000-E | 1715 | 9,495 | LF | UNPAVED TRENCHING (**********) (1, 2") |
| 7300000000-E | 1715 | 180 | LF | UNPAVED TRENCHING (**********) (2, 2") |
| 7300000000-E | 1715 | 245 | LF | UNPAVED TRENCHING (**********) (3, 2") |
| 7301000000-E | 1715 | 1,740 | LF | DIRECTIONAL DRILL (**********) (1, 2") |
| 7301000000-E | 1715 | 1,600 | LF | DIRECTIONAL DRILL (**********) (2, 2") |
| 7324000000-N | 1716 | 61 | EA | JUNCTION BOX (STANDARD SIZE) |
| 7348000000-N | 1716 | 47 | EA | JUNCTION BOX (OVER-SIZED, HEAVY DUTY) |
| 7360000000-N | 1720 | 31 | EA | WOOD POLE |
| 7372000000-N | 1721 | 80 | EA | GUY ASSEMBLY |
| 7408000000-E | 1722 | 9 | EA | 1" RISER WITH WEATHERHEAD |
| 7420000000-E | 1722 | 47 | EA | 2" RISER WITH WEATHERHEAD |
| 7432000000-E | 1722 | 7 | EA | 2" RISER WITH HEAT SHRINK TUBING |
| 7444000000-E | 1725 | 26,280 | LF | INDUCTIVE LOOP SAWCUT |
| 7456000000-E | 1726 | 74,210 | LF | LEAD-IN CABLE (**********) (14-2) |

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 7516000000-E | 1730 | 13,460 | LF | COMMUNICATIONS CABLE (**FIBER) (12) |
| 7552000000-N | 1731 | 6 | EA | INTERCONNECT CENTER |
| 7564000000-N | 1732 | 6 | EA | FIBER-OPTIC TRANSCEIVER, DROP & REPEAT |
| 7566000000-N | 1733 | 16 | EA | DELINEATOR MARKER |
| 7574000000-N | SP | 1 | EA | FURNISH FIBER-OPTIC TRANSCEIVER |
| 7575160000-E | 1734 | 640 | LF | REMOVE EXISTING COMMUNICATIONS CABLE |
| 7576000000-N | SP | 20 | EA | METAL STRAIN SIGNAL POLE |
| 7613000000-N | SP | 39 | EA | SOIL TEST |
| 7614100000-E | SP | 234 | CY | DRILLED PIER FOUNDATION |
| 7624000000-N | 1743 | 16 | EA | SIGNAL PEDESTAL WITH FOUNDATION |
| 7631000000-N | SP | 19 | EA | MAST ARM WITH METAL POLE DESIGN |
| 7636000000-N | 1745 | 20 | EA | SIGN FOR SIGNALS |
| 7675000000-N | SP | 3 | EA | LED BLANKOUT SIGN |
| 7684000000-N | 1750 | 10 | EA | SIGNAL CABINET FOUNDATION |
| 7756000000-N | 1751 | 10 | EA | CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED) |
| 7780000000-N | 1751 | 66 | EA | DETECTOR CARD (TYPE 2070L) |
| 7901000000-N | 1753 | 10 | EA | CABINET BASE EXTENDER |
| 7980000000-N | SP | 16 | EA | GENERIC SIGNAL ITEM DECORATIVE BASE COVER FOR PEDESTRIAN PEDESTAL |
| 7980000000-N | SP | 19 | EA | GENERIC SIGNAL ITEM DECORATIVE BASE COVER FOR MAST ARM POLE ASSEMBLY |
| 7980000000-N | SP | 19 | EA | GENERIC SIGNAL ITEM METAL POLE WITH SINGLE MAST ARM |
| 7980000000-N | SP | 35 | EA | GENERIC SIGNAL ITEM POWDER COAT FOR DECORATVE BASES |
| 7980000000-N | SP | 16 | EA | GENERIC SIGNAL ITEM POWDER COAT FOR PEDESTRIAN PEDESTAL |

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 7980000000-N | SP | 19 | EA | GENERIC SIGNAL ITEM POWDER COAT FOR SINGLE MAST ARM WITH METAL POLE |
| 7980000000-N | SP | 1 | EA | GENERIC SIGNAL ITEM WIRELESS MAGNETIC SENSOR VEHICLE DETECTOR SYSTEM |
| ******* BEGIN SCHEDULE AA ******* ******* ( 2 ALTERNATES ) ******* | | | | |
| 0022000000-E AA1 | 225 | 94,500 | CY | UNCLASSIFIED EXCAVATION |
| 0106000000-E AA1 | 230 | 299,200 | CY | BORROW EXCAVATION |
| 1121000000-E AA1 | 520 | 110,800 | TON | AGGREGATE BASE COURSE |
| 1489000000-E AA1 | 610 | 36,920 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0B |
| 1575000000-E AA1 | SP | 7,215 | TON | ASPHALT BINDER FOR PLANT MIX |
| *** OR *** | | | | |
| 0022000000-E AA2 | 225 | 71,300 | CY | UNCLASSIFIED EXCAVATION |
| 0106000000-E AA2 | 230 | 340,100 | CY | BORROW EXCAVATION |
| 1489000000-E AA2 | 610 | 79,230 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0B |
| 1575000000-E AA2 | SP | 9,080 | TON | ASPHALT BINDER FOR PLANT MIX |
| ******* END SCHEDULE AA ******* | | | | |

RALE-1093997

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-A |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| Station / Size / Thickness or Gauge | Location (LT, RT, or CL) | Structure No. From | Structure No. To | Top Elevation | Invert Elevation | Invert Elevation | Slope Critical | Class III R.C. Pipe (Unless Noted Otherwise) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. Pipe (Unless Noted Otherwise) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | Class III R.C. Pipe or Aluminized C.S. Pipe, Type IR or HDPE Pipe, Type S or D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. Pipe Class IV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15+56 -L- | LT | 1 | | | 590.62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | | 590.62 | 590.26 | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+56 -L- | CL | 2 | | 599.24 | 590.26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | 4 | | 590.26 | 589.9 | | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+56 -L- | RT | 3 | | 597.21 | 593.96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3 | 2 | | 593.96 | 590.26 | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16+28 -L- | CL | 4 | | 598.66 | 589.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4 | 5 | | 589.9 | 587.82 | | | | 416 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+42 -L- | CL | 5 | | 595.01 | 587.82 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 | 7 | | 587.82 | 585.29 | | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+64 -L- | CL | 7 | | 591.62 | 585.29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7 | 6 | | 585.29 | 577.55 | | | | 104 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+64 -L- | RT | 8 | | 588.8 | 585.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8 | 7 | | 585.55 | 585.29 | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+91 -L- | CL | 9 | | 591.64 | 588.39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 9 | 7 | | 588.39 | 585.29 | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 22+41 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 23+32 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 26+27 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 28+61 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 29+59 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 30+07 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 31+26 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 32+37 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 32+65 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+40 -L- | CL | 15 | | 591.53 | 588.28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 15 | 16 | | 588.28 | 587.86 | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+90 -L- | CL | 16 | | 591.11 | 587.86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 16 | 19 | | 587.86 | 582.9 | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25+25 -L- | CL | 17 | | 586.57 | 583.32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 17 | 19 | | 583.32 | 582.9 | | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25+38 -L- | CL | 19 | | 590.45 | 582.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 19 | 18 | | 582.9 | 580.96 | | | | | 88 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+13 -L- | LT | 20 | | 591.71 | 588.46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 20 | 21 | | 588.46 | 588.02 | | | 68 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+13 -L- | CL | 21 | | 594.54 | 588.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 21 | 19 | | 588.02 | 582.9 | | | | 276 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+12 -L- | RT | 22 | | 591.55 | 588.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 22 | 21 | | 588.3 | 588.02 | | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+84 -L- | CL | 23 | | 596.54 | 593.29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 23 | 21 | | 593.29 | 588.02 | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 33+92 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 35+76 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+09 -L- | CL | 29 | | 600.28 | 593.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 29 | 32 | | 593.4 | 589.55 | | | 196 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+10 -L- | RT | 30 | | 597.01 | 593.76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 30 | 29 | | 593.76 | 593.4 | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+05 -L- | LT | 31 | | 592.6 | 589.26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 31 | 33 | | 589.26 | 589.04 | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+05 -L- | CL | 32 | | 599.44 | 589.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 32 | 31 | | 589.55 | 589.26 | | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+83 -L- | CL | 34 | | 598.85 | 589.93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 34 | 32 | | 589.93 | 589.55 | | | | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 924 | 1104 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Station | Location | Structure No. From | Structure No. To | 15" Side Drain Pipe | 18" Side Drain Pipe | 24" Side Drain Pipe | Endwalls Std. 838.01 or Std. 838.11 (Unless Noted Otherwise) Cu. Yards R.C.P. | C.S.P. | Quanities for Drainage Structures Per Each (0' thru 5.0') | *Total L.F. for Pay Quantity Shall Be Col. 'A' + (1.3 X Col.'B') Lin. Ft. A 5.0' thru 10.0' | B 10.0' and Above | C.B. Std. 840.01 or Std. 840.02 | Frame, Grates, and Hood Standard 840.03 Type of Grate E | F | G | Concrete Transitional Section Catch Basin | Drop Inlet | D.I. Std. 840.14 or Std. 840.15 | D.I. Frame with Two Grates Std. 840.16 | G.D.I. Type "A" Std. 840.17 or 840.26 | G.D.I. Type "B" Std. 840.18 or 840.27 | G.D.I. Type "D" Std. 840.19 or 840.28 | G.D.I. Frame with Grate Std. 840.20 | G.D.I. Frame with Two Grates Std. 840.22 | | G.D.I. (N.S.) Frame with Two Grates Std. 840.24 | G.D.I. (N.S.) Frame with One Grate Std. 840.24 | J.B. Std. 840.31 or 840.32 | M.H. Frame and Cover Std. 840.54 | | | | | | | | | | | | | | | | Corr. Steel Elbows No. & Size | Conc. Collars Cl. "B" C.Y. Std. 840.72 | Conc. & Brick Pipe Plug, C.Y. Std. 840.71 | Pipe Removal Lin. Ft. | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15+56 -L- | LT | 1 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+56 -L- | CL | 2 | | | | | | | 1 | 3.98 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI W/ FL GR |
| | | 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+56 -L- | RT | 3 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 3 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16+28 -L- | CL | 4 | | | | | | | 1 | 3.76 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 62 | 12"RCP Remove STA 18+07 -L- , DI w/ FL GR |
| | | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+42 -L- | CL | 5 | | | | | | | 1 | 2.19 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 48 | 18" RCP Remove STA 20+64 -L- , DI w/ FL GR |
| | | 5 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+64 -L- | CL | 7 | | | | | | | 1 | 1.33 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 7 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+64 -L- | RT | 8 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 8 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+91 -L- | CL | 9 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 9 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 22+41 -L- | LT | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 23+32 -L- | LT | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 26+27 -L- | LT | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 28+61 -L- | LT | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 29+59 -L- | LT | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 30+07 -L- | LT | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 31+26 -L- | LT | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 32+37 -L- | LT | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 32+65 -L- | LT | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+40 -L- | CL | 15 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 15 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+90 -L- | CL | 16 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 16 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25+25 -L- | CL | 17 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 48 | 18"RCP Remove STA 25+36 -L- , 2GI(B) |
| | | 17 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25+38 -L- | CL | 19 | | | | | | | 1 | 2.05 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | JB w/MH |
| | | 19 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+13 -L- | LT | 20 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 20 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+13 -L- | CL | 21 | | | | | | | 1 | 1.02 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 18 | STA 29+42 -L- Remove pipe, DI w/ FL GR |
| | | 21 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+12 -L- | RT | 22 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 21 | STA 30+12 -L- Remove pipe, 2GI(B) |
| | | 22 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+84 -L- | CL | 23 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 23 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 33+92 -L- | LT | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 35+76 -L- | LT | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+09 -L- | CL | 29 | | | | | | | 1 | 1.38 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 29 | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+10 -L- | RT | 30 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 30 | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+05 -L- | LT | 31 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 31 | 33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+05 -L- | CL | 32 | | | | | | | 1 | 4.89 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 32 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+83 -L- | CL | 34 | | | | | | | 1 | 3.92 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 34 | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | 252 | 0 | 0 | 0 | 0 | 21 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 | 12 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 197 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-B |

RALE-1093997

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38+00 -L- | RT | 35 | | 592.17 | 590.25 | | | | | | | | | | |
| | | 35 | 34 | | 590.25 | 589.93 | | | 64 | | | | | | |
| 38+48 -L- | CL | 36 | | 598.82 | 594 | | | | | | | | | | |
| | | 36 | 34 | | 594 | 589.93 | | | 48 | | | | | | |
| Drive13+87 -LREV1- | LT | | | | | | | | | | | | | | |
| Drive 14+60 -LREV1- | LT | | | | | | | | | | | | | | |
| 16+00 -LREV1- | LT | 37 | | 592.75 | 588.63 | | | | | | | | | | |
| | | 37 | 39 | | 588.63 | 588.24 | | | | 52 | | | | | |
| 16+00 -LREV1- | RT | 38 | | 592.75 | 589.25 | | | | | | | | | | |
| | | 38 | 37 | | 589.25 | 588.63 | | | | 124 | | | | | |
| 19+60 -LREV1- | RT | 42 | | 591.23 | 587.73 | | | | | | | | | | |
| | | 42 | 40 | | 587.73 | 579.9 | | | | | 164 | | | | |
| 23+50 -LREV1- | RT | 48 | | 593.47 | 590.22 | | | | | | | | | | |
| | | 48 | 49 | | 590.22 | 590.04 | | | 52 | | | | | | |
| 23+50 -LREV1- | CL | 49 | | 596.45 | 590.04 | | | | | | | | | | |
| | | 49 | 47 | | 590.04 | 589.69 | | | | 76 | | | | | |
| 24+00 -LREV1- | CL | 50 | | 596.55 | 593.25 | | | | | | | | | | |
| | | 50 | 56 | | 593.25 | 592.89 | | | 24 | | | | | | |
| 24+43 -LREV1- | CL | 51 | | 596.59 | 593.34 | | | | | | | | | | |
| | | 51 | 50 | | 593.34 | 593.25 | | | 48 | | | | | | |
| 23+00 -LREV1- | CL | 53 | | 596.26 | 593.01 | | | | | | | | | | |
| | | 53 | 55 | | 593.01 | 592.77 | | | 24 | | | | | | |
| 23+25 -LREV1- | CL | 55 | | 596.36 | 592.77 | | | | | | | | | | |
| | | 55 | 49 | | 592.77 | 590.04 | | | 24 | | | | | | |
| 23+77 -LREV1- | CL | 56 | | 596.5 | 592.89 | | | | | | | | | | |
| | | 56 | 49 | | 592.89 | 590.04 | | | 24 | | | | | | |
| 27+80 -LREV1- | CL | 57 | | 597.24 | 593.99 | | | | | | | | | | |
| | | 57 | 58 | | 593.99 | 591.35 | | | 20 | | | | | | |
| 28+00 -LREV1- | CL | 58 | | 597.19 | 591.35 | | | | | | | | | | |
| | | 58 | 60 | | 591.35 | 589.17 | | | | | | | | | |
| 28+00 -LREV1- | RT | 59 | | 595 | 591.75 | | | | | | | | | | |
| | | 59 | 58 | | 591.75 | 591.35 | | | | | | | | | |
| 28+51 -LREV1- | LT | 60 | | 592.42 | 589.17 | | | | | | | | | | |
| | | 60 | 61 | | 589.17 | 588.83 | | | 52 | | | | | | |
| 30+00 -LREV1- | CL | 62 | | 596.77 | 593.52 | | | | | | | | | | |
| | | 62 | 63 | | 593.52 | 589.67 | | | | 52 | | | | | |
| 30+50 -LREV1- | CL | 63 | | 596.53 | 589.67 | | | | | | | | | | |
| | | 63 | 65 | | 589.67 | 589.17 | | | | | 100 | | | | |
| 31+60 -LREV1- | CL | 65 | | 596 | 589.17 | | | | | | | | | | |
| | | 65 | 64 | | 589.17 | 582.92 | | | | | 64 | | | | |
| | | 66 | 63 | | 590.03 | 589.71 | | | | | 72 | | | | |
| 32+50 -LREV1- | CL | 67 | | 595.29 | 592.04 | | | | | | | | | | |
| | | 67 | 68 | | 592.04 | 591.74 | | | 60 | | | | | | |
| 33+10 -LREV1- | CL | 68 | | 595.09 | 591.74 | | | | | | | | | | |
| | | 68 | 69 | | 591.74 | 591.28 | | | 92 | | | | | | |
| 34+00 -LREV1- | CL | 69 | | 594.79 | 591.28 | | | | | | | | | | |
| | | 69 | 70 | | 591.28 | 590.82 | | | 92 | | | | | | |
| 34+90 -LREV1- | CL | 70 | | 594.48 | 590.82 | | | | | | | | | | |
| | | 70 | 72 | | 590.82 | 586.28 | | | 80 | | | | | | |
| | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 704 | 304 | 400 | 0 | 0 | 0 | 0 |

SIZE / THICKNESS OR GAUGE

| STATION | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN SECTION | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38+00 -L- | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(D) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38+48 -L- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive13+87 -LREV1- | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 14+60 -LREV1- | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16+00 -LREV1- | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16+00 -LREV1- | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 53 | 18" RCP Remove STA 19+19 -LREV1- |
| 19+60 -LREV1- | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+50 -LREV1- | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+50 -LREV1- | | | | | | | 1 | 0.91 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24+00 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24+43 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+00 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+25 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+77 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27+80 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+00 -LREV1- | | | | | | | 1 | 0.34 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+00 -LREV1- | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+51 -LREV1- | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30+00 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30+50 -LREV1- | | | | | | | 1 | 1.86 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31+60 -LREV1- | | | | | | | 1 | 1.83 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 71 | 18" RCP Remove STA 31+58 -LREV1- |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 32+50 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33+10 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34+00 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34+90 -LREV1- | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | 160 | 44 | 0 | 0 | 0 | 0 | 23 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 16 | 16 | 0 | 4 | 3 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-C |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35+70 -LREV1- | LT | 71 | | 589.89 | 586.64 | | | | | | | | | | |
| | | 71 | 72 | | 586.64 | 586.26 | | | 76 | | | | | | |
| 35+70 -LREV1- | CL | 72 | | 594.01 | 586.26 | | | | | | | | | | |
| | | 72 | 74 | | 586.28 | 585.68 | | | 80 | | | | | | |
| 35+70 -LREV1- | RT | 73 | | 591.37 | 588.12 | | | | | | | | | | |
| | | 73 | 72 | | 588.12 | 586.28 | | | 56 | | | | | | |
| 36+50 -LREV1- | CL | 74 | | 593.33 | 585.68 | | | | | | | | | | |
| | | 74 | 75 | | 585.68 | 584.78 | | | 120 | | | | | | |
| 37+70 -LREV1- | CL | 75 | | 591.93 | 584.78 | | | | | | | | | | |
| | | 75 | 77 | | 584.78 | 583.51 | | | 132 | | | | | | |
| 39+50 -LREV1- | LT | 76 | | 585.13 | 581.88 | | | | | | | | | | |
| | | 76 | 79 | | 581.88 | 581.54 | | | 68 | | | | | | |
| 39+00 -LREV1- | CL | 77 | | 589.9 | 583.51 | | | | | | | | | | |
| | | 77 | 79 | | 583.51 | 581.54 | | | 48 | | | | | | |
| 39+00 -LREV1- | RT | 78 | | 587.02 | 583.77 | | | | | | | | | | |
| | | 78 | 77 | | 583.77 | 583.51 | | | 52 | | | | | | |
| 39+49 -LREV1- | CL | 79 | | 588.98 | 581.54 | | | | | | | | | | |
| | | 79 | 80 | | 581.54 | 576.98 | | | | 300 | | | | | |
| 42+50 -LREV1- | CL | 80 | | 584.35 | 576.98 | | | | | | | | | | |
| | | 80 | 82 | | 576.98 | 576 | | | | 88 | | | | | |
| 42+50 -LREV1- | RT | 81 | | 580.49 | 577.24 | | | | | | | | | | |
| | | 81 | 80 | | 577.24 | 576.98 | | | 52 | | | | | | |
| 49+00 -LREV1- | LT | 90 | | 575.5 | 571.25 | | | | | | | | | | |
| | | 90 | 91 | | 571.25 | 570.1 | | | | 64 | | | | | |
| 49+64 -LREV1- | LT | 91 | | 574 | 570.1 | | | | | | | | | | |
| | | 91 | 89 | | 570.1 | 570 | | | | 12 | | | | | |
| 49+00 -LREV1- | RT | 92 | | 575.37 | 571.87 | | | | | | | | | | |
| | | 92 | 90 | | 571.87 | 571.25 | | | | 124 | | | | | |
| 58+17 -LREV1- | CL | | | | 558.02 | 557.55 | | | | 148 | | | | | |
| 61+00 -LREV1- | CL | 93 | | 564.18 | 560.93 | | | | | | | | | | |
| | | 93 | 94 | | 560.93 | 559.71 | | | 200 | | | | | | |
| 63+00 -LREV1- | CL | 94 | | 562.96 | 559.71 | | | | | | | | | | |
| | | 94 | 95 | | 559.71 | 559.31 | | | 80 | | | | | | |
| 63+80 -LREV1- | CL | 95 | | 562.73 | 559.31 | | | | | | | | | | |
| | | 95 | 96 | | 559.31 | 558.95 | | | 72 | | | | | | |
| 64+50 -LREV1- | CL | 96 | | 562.69 | 558.95 | | | | | | | | | | |
| | | 96 | 97 | | 558.95 | 555.43 | | | 76 | | | | | | |
| Drive 65+52 -LREV1- | LT | | | | | | | | | | | | | | |
| 67+08 -LREV1- | CL | 105 | OUT | | 555.5 | 553.85 | | | | 144 | | | | | |
| Drive 72+94 -LREV1- | LT | | | | | | | | | | | | | | |
| Drive 74+02 -LREV1- | LT | | | | | | | | | | | | | | |
| 73+51 -LREV1- | CL | 105 | | 565.37 | 562.2 | | | | | | | | | | |
| | | 105 | 107 | | 562.2 | 556.62 | | | | 100 | | | | | |
| | | 106 | 107 | | 557.25 | 556.62 | | | | | 84 | | | | |
| 74+50 -LREV1- | CL | 107 | | 564.82 | 556.62 | | | | | | | | | | |
| | | 107 | 108 | | 556.62 | 555.87 | | | | | 100 | | | | |
| 75+50 -LREV1- | CL | 108 | | 563.95 | 555.87 | | | | | | | | | | |
| | | 108 | 109 | | 555.87 | 554.73 | | | | | 152 | | | | |
| 76+03 -LREV1- | LT | | | | | | | | | | | | | | |
| 77+00 -LREV1- | CL | 109 | | 562.07 | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1112 | 980 | 336 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35+70 -LREV1- | 71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 71 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+70 -LREV1- | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 72 | 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+70 -LREV1- | 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 73 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36+50 -LREV1- | 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 74 | 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+70 -LREV1- | 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 75 | 77 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+50 -LREV1- | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 76 | 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+00 -LREV1- | 77 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 77 | 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+00 -LREV1- | 78 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 78 | 77 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+49 -LREV1- | 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 79 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42+50 -LREV1- | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 80 | 82 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42+50 -LREV1- | 81 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 81 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49+00 -LREV1- | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | 91 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49+64 -LREV1- | 91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 91 | 89 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49+00 -LREV1- | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 92 | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 58+17 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 61+00 -LREV1- | 93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 93 | 94 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63+00 -LREV1- | 94 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 94 | 95 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63+80 -LREV1- | 95 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 95 | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64+50 -LREV1- | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 96 | 97 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 65+52 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | 28 | | |
| 67+08 -LREV1- | 105 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 72+94 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | |
| Drive 74+02 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | |
| 73+51 -LREV1- | 105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 105 | 107 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 106 | 107 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 74+50 -LREV1- | 107 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 107 | 108 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75+50 -LREV1- | 108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 108 | 109 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 76+03 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | |
| 77+00 -LREV1- | 109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 28 | 0 | 0 |

| STATION | FROM | TO | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.29 | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35+70 -LREV1- | 71 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 71 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+70 -LREV1- | 72 | | 1 | 2.22 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 72 | 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+70 -LREV1- | 73 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 73 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36+50 -LREV1- | 74 | | 1 | 2.15 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 74 | 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+70 -LREV1- | 75 | | 1 | 1.65 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 75 | 77 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+50 -LREV1- | 76 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 76 | 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+00 -LREV1- | 77 | | 1 | 0.89 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 77 | 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+00 -LREV1- | 78 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2(GI)B |
| | 78 | 77 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39+49 -LREV1- | 79 | | 1 | 1.94 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 79 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42+50 -LREV1- | 80 | | 1 | 1.87 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 80 | 82 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42+50 -LREV1- | 81 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 57 | 18"RCP Remove STA 42+62 -LREV1-, 2GI(B) |
| | 81 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49+00 -LREV1- | 90 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 90 | 91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49+64 -LREV1- | 91 | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | JB w/ MH |
| | 91 | 89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49+00 -LREV1- | 92 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 92 | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 58+17 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 51 | 18" RCP Remove STA 58+36 -LREV1- |
| 61+00 -LREV1- | 93 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 93 | 94 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63+00 -LREV1- | 94 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 94 | 95 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63+80 -LREV1- | 95 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 95 | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64+50 -LREV1- | 96 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 96 | 97 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 65+52 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 67+08 -LREV1- | 105 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 45 | 18" RCP Remove STA 67+20 -LREV1- |
| Drive 72+94 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 74+02 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 73+51 -LREV1- | 105 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 105 | 107 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 106 | 107 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 74+50 -LREV1- | 107 | | 1 | 3.2 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 107 | 108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75+50 -LREV1- | 108 | | 1 | 3.08 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 108 | 109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 76+03 -LREV1- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 77+00 -LREV1- | 109 | | 1 | 2.34 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| SHEET TOTALS | | | 22 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 14 | 14 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | |

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-D |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

**ABBREVIATIONS**

- C.B. — CATCH BASIN
- N.D.I. — NARROW DROP INLET
- D.I. — DROP INLET
- G.D.I. — GRATED DROP INLET
- G.D.I.(N.S.) — GRATED DROP INLET (NARROW SLOT)
- J.B. — JUNCTION BOX
- M.H. — MANHOLE
- T.B.D.I. — TRAFFIC BEARING DROP INLET
- T.B.J.B. — TRAFFIC BEARING JUNCTION BOX

| STATION (SIZE / THICKNESS OR GAUGE) | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C.P. (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 109 | 110 | | 554.73 | 553.59 | | | | | 152 | | | | |
| 78+50 -LREV1- | CL | 110 | | 559.48 | 553.59 | | | | | | | | | | |
| | | 110 | 111 | | 553.59 | 552.26 | | | | | 152 | | | | |
| 80+00 -LREV1- | CL | 111 | | 556.18 | 552.26 | | | | | | | | | | |
| | | 111 | 111A | | 552.26 | 548.84 | | | | | 52 | | | | |
| 81+50 -LREV1- | CL | 113 | | 552.35 | 549.18 | | | | | | | | | | |
| | | 113 | 114 | | 549.18 | 545.42 | | | 152 | | | | | | |
| 83+00 -LREV1- | CL | 114 | | 548.59 | 545.42 | | | | | | | | | | |
| | | 114 | 115 | | 545.42 | 542.46 | | | 152 | | | | | | |
| 84+50 -LREV1- | CL | 115 | | 545.63 | 542.46 | | | | | | | | | | |
| | | 115 | 116 | | 542.46 | 540.43 | | | 152 | | | | | | |
| Drive 85+60 -LREV1- | RT | | | | | | | | | | | | | | |
| 86+00 -LREV1- | CL | 116 | | 543.6 | 540.43 | | | | | | | | | | |
| | | 116 | 117 | | 540.43 | 535.11 | | | 100 | | | | | | |
| 87+00 -LREV1- | CL | 117 | | 542.76 | 535.11 | | | | | | | | | | |
| | | 117 | 118 | | 535.11 | 534.69 | | | 84 | | | | | | |
| 88+00 -LREV1- | CL | 119 | | 542.34 | 535.61 | | | | | | | | | | |
| | | 119 | 117 | | 535.61 | 535.11 | | | 100 | | | | | | |
| 88+54 -LREV1- | CL | 120 | | 542.27 | 535.89 | | | | | | | | | | |
| | | 120 | 119 | | 535.89 | 535.61 | | | 56 | | | | | | |
| 89+00 -LREV1- | CL | 121 | | 542.32 | 536.13 | | | | | | | | | | |
| | | 121 | 120 | | 536.13 | 535.89 | | | 48 | | | | | | |
| 89+51 -LREV1- | CL | 122A | | 542.46 | 536.39 | | | | | | | | | | |
| | | 122A | 121 | | 536.39 | 536.13 | | | 52 | | | | | | |
| 90+50 -LREV1- | CL | 122 | | 542.94 | 536.89 | | | | | | | | | | |
| | | 122 | 122A | | 536.89 | 536.39 | | | 100 | | | | | | |
| 91+51 -LREV1- | CL | 123 | | 543.44 | 537.39 | | | | | | | | | | |
| | | 123 | 122 | | 537.39 | 536.89 | | | 100 | | | | | | |
| 92+50 -LREV1- | CL | 123A | | 543.93 | 537.89 | | | | | | | | | | |
| | | 123A | 123 | | 537.89 | 537.39 | | | 100 | | | | | | |
| 93+50 -LREV1- | CL | 125 | | 544.43 | 538.39 | | | | | | | | | | |
| | | 125 | 124 | | 538.39 | 537.34 | | | 100 | | | | | | |
| 94+50 -LREV1- | CL | 126 | | 544.42 | 538.89 | | | | | | | | | | |
| | | 126 | 125 | | 538.89 | 538.39 | | | 100 | | | | | | |
| 95+49 -LREV1- | CL | 126A | | 545.42 | 539.39 | | | | | | | | | | |
| | | 126A | 126 | | 538.89 | | | | 100 | | | | | | |
| 96+50 -LREV1- | CL | 127 | | 545.91 | 539.89 | | | | | | | | | | |
| | | 127 | 126A | | 539.39 | | | | 100 | | | | | | |
| 96+50 -LREV1- | RT | 128 | | 543 | 540.25 | | | | | | | | | | |
| | | 128 | 127 | | 540.25 | 539.89 | | | 72 | | | | | | |
| 97+50 -LREV1- | CL | 129 | | 546.41 | 543.09 | | | | | | | | | | |
| | | 129 | 127 | | 543.09 | 539.89 | | | 100 | | | | | | |
| 98+50 -LREV1- | CL | 129A | | 546.76 | 543.59 | | | | | | | | | | |
| | | 129A | 129 | | 543.59 | 543.09 | | | 100 | | | | | | |
| Drive 97+36 -LREV1- | RT | | | | | | | | | | | | | | |
| Drive 98+30 -LREV1- | LT | | | | | | | | | | | | | | |
| Drive 98+36 -LREV1- | LT | | | | | | | | | | | | | | |
| Drive 102+33 -LREV1- | LT | | | | | | | | | | | | | | |
| Drive 103+68 -LREV1- | LT | | | | | | | | | | | | | | |
| 133+50-L- | LT | 133 | | 539.37 | 536.27 | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1868 | 0 | 356 | 0 | 0 | 0 | 0 |

| STATION | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C.P. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 109 | 110 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 78+50 -LREV1- | 110 | | | | | | | 1 | 0.89 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 110 | 111 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80+00 -LREV1- | 111 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 111 | 111A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 81+50 -LREV1- | 113 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 113 | 114 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 83+00 -LREV1- | 114 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 114 | 115 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 84+50 -LREV1- | 115 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 115 | 116 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 85+60 -LREV1- | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 86+00 -LREV1- | 116 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 116 | 117 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 87+00 -LREV1- | 117 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 117 | 118 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88+00 -LREV1- | 119 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 119 | 117 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88+54 -LREV1- | 120 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 120 | 119 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89+00 -LREV1- | 121 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 121 | 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89+51 -LREV1- | 122A | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 122A | 121 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90+50 -LREV1- | 122 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 122 | 122A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 91+51 -LREV1- | 123 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 123 | 122 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 92+50 -LREV1- | 123A | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 123A | 123 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 93+50 -LREV1- | 125 | | | | | | | 1 | 1.04 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 125 | 124 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 94+50 -LREV1- | 126 | | | | | | | 1 | 1.03 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 126 | 125 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 95+49 -LREV1- | 126A | | | | | | | 1 | 1.03 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 126A | 126 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 96+50 -LREV1- | 127 | | | | | | | 1 | 1.02 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 127 | 126A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 96+50 -LREV1- | 128 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | 2GI(B) |
| | 128 | 127 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 97+50 -LREV1- | 129 | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | 2 GI w/ FL GR |
| | 129 | 127 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 98+50 -LREV1- | 129A | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | DI w/ FL GR |
| | 129A | 129 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 97+36 -LREV1- | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 98+30 -LREV1- | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 98+36 -LREV1- | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 102+33 -LREV1- | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 103+68 -LREV1- | | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 133+50-L- | 133 | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | 2GI(B) |
| SHEET TOTALS | | | 84 | 68 | 0 | 0 | 0 | 22 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 20 | 20 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | |

| STATION | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-E |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 133 | 134 | | 536.37 | 535.75 | | | | 124 | | | | | | | | | | | | | | | | | | |
| 133+50-L- | RT | 134 | | 539.37 | 535.75 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 134 | 135 | | 535.75 | 534.06 | | | | 48 | | | | | | | | | | | | | | | | | | |
| | | 136 | 137 | | 529.31 | 525.77 | | | | | 148 | | | | | | | | | | | | | | | | | |
| 140+82 -L- | LT | 139 | | 534.02 | 530.96 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 139 | 137A | | 530.96 | 530.17 | | | 80 | | | | | | | | | | | | | | | | | | | |
| 141+00 -L- | LT | 139A | | 534.69 | 531.52 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 139A | 139 | | 531.52 | 530.96 | | | 28 | | | | | | | | | | | | | | | | | | | |
| 140+82 -L- | RT | 140 | | 534.44 | 531.15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 140 | 138 | | 531.15 | 527.07 | | | 60 | | | | | | | | | | | | | | | | | | | |
| 141+01 -L- | RT | 141 | | 534.32 | 531.25 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 141 | 140 | | 531.15 | | | | 20 | | | | | | | | | | | | | | | | | | | |
| 141+24 -L- | LT | 142 | | 534.59 | 531.2 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 142 | 139 | | 531.2 | 530.96 | | | 48 | | | | | | | | | | | | | | | | | | | |
| 142+00 -L- | LT | 143 | | 534.75 | 531.58 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 143 | 142 | | 531.58 | 531.2 | | | 76 | | | | | | | | | | | | | | | | | | | |
| 142+22 -L- | RT | 144 | | 534.87 | 531.87 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 144 | 141 | | 531.87 | 531.25 | | | 120 | | | | | | | | | | | | | | | | | | | |
| 142+50 -L- | LT | 145 | | 534.84 | 531.84 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 145 | 143 | | 531.84 | 531.58 | | | 52 | | | | | | | | | | | | | | | | | | | |
| 145+00 -L- | LT | 146 | | 534.56 | 531.56 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 146 | 147 | | 531.56 | 531.16 | | | 80 | | | | | | | | | | | | | | | | | | | |
| 145+00 -L- | RT | 147 | | 534.64 | 531.16 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 147 | 150 | | 531.16 | 528.77 | | | | 168 | | | | | | | | | | | | | | | | | | |
| 146+68 -L- | LT | 149 | | 532.48 | 529.15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 149 | 150 | | 529.15 | 528.77 | | | | 76 | | | | | | | | | | | | | | | | | | |
| 146+68 -L- | RT | 150 | | 532.48 | 528.77 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 150 | 148 | | 528.77 | 517.4 | | | | | | | | | | | | 36 | | | | | | | | | | |
| 146+93 -L- | LT | 151 | | 532.27 | 529.27 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 151 | 149 | | 529.27 | 529.15 | | | | 24 | | | | | | | | | | | | | | | | | | |
| 148+43 -L- | CL | 152 | | 530.27 | 527.1 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 152 | 153 | | 527.1 | 526.67 | | | 24 | | | | | | | | | | | | | | | | | | | |
| 148+68 -L- | CL | 153 | | 529.84 | 526.67 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 153 | 154 | | 526.67 | 526.29 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 148+68 -L- | RT | 154 | | 529.29 | 526.29 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 154 | 158 | | 526.29 | 519.6 | | | 100 | | | | | | | | | | | | | | | | | | | |
| Drive 149+08 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 149+68 -L- | LT | 156 | | 526.46 | 523.71 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 156 | 157 | | 523.71 | 523.43 | | | 52 | | | | | | | | | | | | | | | | | | | |
| 149+69 -L- | CL | 157 | | 528.19 | 523.43 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 157 | 158 | | 523.43 | 519.6 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 149+68 -L- | RT | 158 | | 527.13 | 519.6 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 158 | 155 | | 519.6 | 514 | | | | | | | | | | | | | 28 | | | | | | | | | |
| 151+00 -L- | CL | 159 | | 526.36 | 523.19 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 159 | 160 | | 523.19 | 520.1 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 151+00 -L- | RT | 160 | | 525.3 | 520.1 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 160 | 158 | | 520.1 | 519.6 | | | | | 128 | | | | | | | | | | | | | | | | | |
| 152+18 -L- | CL | 161 | | 525.73 | 522.56 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 161 | 163 | | 522.56 | 522.46 | | | 20 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 892 | 440 | 276 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 133 | 134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 133+50-L- | 134 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | |
| | 134 | 135 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 136 | 137 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140+82 -L- | 139 | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| | 139 | 137A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 141+00 -L- | 139A | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 139A | 139 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140+82 -L- | 140 | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| | 140 | 138 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 141+01 -L- | 141 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 141 | 140 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 141+24 -L- | 142 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 142 | 139 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 142+00 -L- | 143 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 143 | 142 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 142+22 -L- | 144 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 144 | 141 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 142+50 -L- | 145 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 145 | 143 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 145+00 -L- | 146 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 146 | 147 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 145+00 -L- | 147 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 147 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 146+68 -L- | 149 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 149 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 146+68 -L- | 150 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 150 | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 146+93 -L- | 151 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 151 | 149 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 148+43 -L- | 152 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 152 | 153 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 148+68 -L- | 153 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 153 | 154 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 148+68 -L- | 154 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 154 | 158 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 149+08 -L- | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 149+68 -L- | 156 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | |
| | 156 | 157 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 149+69 -L- | 157 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 157 | 158 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 149+68 -L- | 158 | | | | | | | | | | | | | | | | 1 | 2.53 | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 158 | 155 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 151+00 -L- | 159 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 159 | 160 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 151+00 -L- | 160 | | | | | | | | | | | | | | | | 1 | 0 | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 160 | 158 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 152+18 -L- | 161 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 161 | 163 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 23 | 3 | 0 | 15 | 2 | 5 | 8 | 0 | 6 | 6 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 133 | 134 | | | | | | | | | | | | | | | | | | | |
| 133+50-L- | 134 | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 134 | 135 | | | | | | | | | | | | | | | | | | | |
| | 136 | 137 | | | | | | | | | | | | | | | | | | 65 | 18" RCP Remove STA 138+88 -L- |
| 140+82 -L- | 139 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 139 | 137A | | | | | | | | | | | | | | | | | | | |
| 141+00 -L- | 139A | | | | | | | | | | | | | | | | | | | 57 | 18" RCP Remove STA 12+76 -Y5-, DI |
| | 139A | 139 | | | | | | | | | | | | | | | | | | | |
| 140+82 -L- | 140 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 140 | 138 | | | | | | | | | | | | | | | | | | | |
| 141+01 -L- | 141 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 141 | 140 | | | | | | | | | | | | | | | | | | | |
| 141+24 -L- | 142 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 142 | 139 | | | | | | | | | | | | | | | | | | | |
| 142+00 -L- | 143 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 143 | 142 | | | | | | | | | | | | | | | | | | | |
| 142+22 -L- | 144 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 144 | 141 | | | | | | | | | | | | | | | | | | | |
| 142+50 -L- | 145 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 145 | 143 | | | | | | | | | | | | | | | | | | | |
| 145+00 -L- | 146 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 146 | 147 | | | | | | | | | | | | | | | | | | | |
| 145+00 -L- | 147 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 147 | 150 | | | | | | | | | | | | | | | | | | | |
| 146+68 -L- | 149 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 149 | 150 | | | | | | | | | | | | | | | | | | | |
| 146+68 -L- | 150 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 150 | 148 | | | | | | | | | | | | | | | 2@18" | | | | |
| 146+93 -L- | 151 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 151 | 149 | | | | | | | | | | | | | | | | | | | |
| 148+43 -L- | 152 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 152 | 153 | | | | | | | | | | | | | | | | | | | |
| 148+68 -L- | 153 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 153 | 154 | | | | | | | | | | | | | | | | | | | |
| 148+68 -L- | 154 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 154 | 158 | | | | | | | | | | | | | | | | | | | |
| Drive 149+08 -L- | | | | | | | | | | | | | | | | | | | | 40 | 18" RCP Remove STA 149+08 -L- |
| 149+68 -L- | 156 | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 156 | 157 | | | | | | | | | | | | | | | | | | | |
| 149+69 -L- | 157 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 157 | 158 | | | | | | | | | | | | | | | | | | | |
| 149+68 -L- | 158 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 158 | 155 | | | | | | | | | | | | | | | 2@24" | | | | |
| 151+00 -L- | 159 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 159 | 160 | | | | | | | | | | | | | | | | | | | |
| 151+00 -L- | 160 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 160 | 158 | | | | | | | | | | | | | | | | | | | |
| 152+18 -L- | 161 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 161 | 163 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2@24"; 2@18" | 0 | 0 | 162 | |

**ABBREVIATIONS**

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-F |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

ABBREVIATIONS

- C.B. CATCH BASIN
- N.D.I. NARROW DROP INLET
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
- G.D.I.(N.S.) GRATED DROP INLET (NARROW SLOT)
- J.B. JUNCTION BOX
- M.H. MANHOLE
- T.B.D.I. TRAFFIC BEARING DROP INLET
- T.B.J.B. TRAFFIC BEARING JUNCTION BOX

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 152+38 -L- | CL | 163 | | 525.7 | 522.46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 163 | 164 | | 522.46 | 520.78 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 152+38 -L- | RT | 164 | | 524.67 | 520.78 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | | 164 | 160 | | 520.78 | 520.1 | | | | | 136 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 152+58 -L- | CL | 165 | | 525.73 | 522.56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 165 | 163 | | 522.56 | 522.46 | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 153+50 -L- | CL | 167 | | 526.15 | 522.98 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 167 | 168 | | 522.98 | 521.34 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 153+50 -L- | RT | 168 | | 525.09 | 521.34 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 168 | 164 | | 521.34 | 520.78 | | | | | 108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155+00 -L- | CL | 169 | | 528.03 | 524.86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 169 | 170 | | 524.86 | 522.98 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155+00 -L- | RT | 170 | | 526.97 | 523.72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 170 | 168 | | 523.72 | 521.34 | | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 156+50 -L- | CL | 172 | | 530.24 | 527.07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 172 | 173 | | 527.07 | 526.18 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 156+50 -L- | RT | 173 | | 529.18 | 526.18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 173 | 170 | | 526.18 | 522.98 | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 158+00 -L- | CL | 174 | | 532.26 | 529.09 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 174 | 175 | | 529.09 | 528.21 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 158+00 -L- | RT | 175 | | 531.21 | 528.21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 175 | 173 | | 528.21 | 526.18 | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 159+24 -L- | CL | 176 | | 533.43 | 530.26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 176 | 174 | | 530.26 | 529.09 | | | 124 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 162+10 -L- | CL | 178 | | 532.02 | 527.73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 50 | 18" RCP Remove STA 161+55 -L- , DI w/ FL GR |
| | | 178 | 177 | | 527.73 | 526.5 | | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 179 | 180 | | 529.2 | 528.61 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 162+26 -L- | RT | 180 | | 531.87 | 528.61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 180 | 178 | | 528.61 | 527.73 | | | | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 162+46 -L- | RT | 181 | | 531.71 | 528.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 181 | 180 | | 528.71 | 528.61 | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 162+91 -L- | LT | 183 | | 531.19 | 528.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 183 | 178 | | 528.19 | 527.73 | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 164+00 -L- | LT | 184 | | 530.78 | 527.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 184 | 187 | | 527.4 | 525.23 | | | 228 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 164+00 -L- | RT | 185 | | 530.78 | 527.78 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 185 | 184 | | 527.78 | 527.4 | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 166+02 -L- | RT | 186 | | 528.96 | 525.96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 186 | 188 | | 525.96 | 525.61 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 166+27 -L- | LT | 187 | | 528.51 | 525.23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 187 | 190 | | 525.23 | 521.48 | | | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 166+27 -L- | LT | 188 | | 528.61 | 525.61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 188 | 187 | | 525.61 | 525.23 | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 167+77 -L- | CL | 189 | | 526.01 | 522.84 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 189 | 191 | | 522.84 | 522.12 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 168+03 -L- | LT | 190 | | 524.73 | 521.48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 190 | 192 | | 521.48 | 512.27 | | | | 244 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 26 | 15" RCP Remove STA 168+25 -L- |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1408 | 504 | 244 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 14 | 1 | 5 | 8 | 0 | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-G |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. | | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) | | | | | | | | C.S. PIPE (UNLESS NOTED OTHERWISE) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | | | | | | | | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 12" | 15" | 18" | 24" | | 30" | | 36" | | 42" | | 48" | |
| THICKNESS OR GAUGE | | FROM | TO | | | | | | | | | | | | | .064 | .064 | .064 | .064 | | .079 | | .079 | | .109 | | .109 | |
| 168+03 -L- | CL | 191 | | 525.29 | 522.12 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 191 | 190 | | 522.12 | 521.48 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 170+50 -L- | LT | 192 | | 515.52 | 512.27 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 192 | 194 | | 512.27 | 506.54 | | | | | | | | | | | | 40 | | | | | | | | | | |
| 170+50 -L- | CL | 193 | | 516.58 | 513.41 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 193 | 192 | | 513.41 | 512.27 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 172+50 -L- | CL | 195 | | 512.32 | 509.15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 195 | 198 | | 509.15 | 507.96 | | | 56 | | | | | | | | | | | | | | | | | | | |
| 173+00 -L- | RT | 196 | 198 | | 509.18 | 507.96 | | | | | 60 | | | | | | | | | | | | | | | | | |
| 173+06 -L- | CL | 198 | | 511.88 | 507.96 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 198 | 199 | | 507.96 | 506.6 | | | | | 44 | | | | | | | | | | | | | | | | | |
| 173+12 -L- | LT | 199 | | 510.8 | 506.6 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 199 | 197 | | 506.6 | 499.5 | | | | | | | | | | | | | 72 | | | | | | | | | |
| 173+55 -L- | LT | 200 | | 510.68 | 506.82 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 200 | 199 | | 506.82 | 506.6 | | | | | 44 | | | | | | | | | | | | | | | | | |
| 173+55 -L- | CL | 201 | | 511.74 | 508.46 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 201 | 198 | | 508.46 | 507.96 | | | | | 48 | | | | | | | | | | | | | | | | | |
| 174+00 -L- | LT | 202 | | 510.79 | 507.04 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 202 | 200 | | 507.04 | 506.82 | | | | | 44 | | | | | | | | | | | | | | | | | |
| 174+00 -L- | CL | 203 | | 511.85 | 508.68 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 203 | 201 | | 508.68 | 508.46 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 175+00 -L- | CL | 204 | | 512.61 | 509.44 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 204 | 203 | | 509.44 | 508.68 | | | 100 | | | | | | | | | | | | | | | | | | | |
| 176+50 -L- | LT | 205 | | 513.26 | 510.01 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 205 | 202 | | 510.01 | 507.04 | | | | 244 | | | | | | | | | | | | | | | | | | |
| 176+50 -L- | CL | 206 | | 514.32 | 511.15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 206 | 205 | | 511.15 | 510.01 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 178+50 -L- | LT | 208 | | 515.92 | 512.92 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 208 | 205 | | 512.92 | 510.01 | | | 196 | | | | | | | | | | | | | | | | | | | |
| 178+50 -L- | CL | 209 | | 516.98 | 513.81 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 209 | 208 | | 513.81 | 512.92 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 180+00 -L- | CL | 210 | | 518.02 | 514.85 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 210 | 209 | | 514.85 | 513.81 | | | 152 | | | | | | | | | | | | | | | | | | | |
| 181+84 -L- | CL | 211 | | 518.44 | 515.27 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 211 | 213 | | 515.27 | 515.15 | | | 24 | | | | | | | | | | | | | | | | | | | |
| 182+09 -L- | LT | 212 | | 517.8 | 514.8 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 212 | 214 | | 514.8 | 513.3 | | | 176 | | | | | | | | | | | | | | | | | | | |
| 182+09 -L- | CL | 213 | | 518.37 | 515.15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 213 | 212 | | 515.15 | 514.8 | | | 44 | | | | | | | | | | | | | | | | | | | |
| 183+84 -L- | LT | 214 | | 516.6 | 513.3 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 214 | 217 | | 513.3 | 512.72 | | | 116 | | | | | | | | | | | | | | | | | | | |
| 183+84 -L- | RT | 215 | | 516.6 | 513.6 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 215 | 214 | | 513.6 | 513.3 | | | 76 | | | | | | | | | | | | | | | | | | | |
| 185+00 -L- | LT | 217 | | 515.89 | 512.72 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 217 | 219 | | 512.72 | 512.46 | | | 52 | | | | | | | | | | | | | | | | | | | |
| 185+00 -L- | RT | 218 | | 515.89 | 512.89 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 218 | 220 | | 512.89 | 512.63 | | | 52 | | | | | | | | | | | | | | | | | | | |
| 185+50 -L- | LT | 219 | | 515.71 | 512.46 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 219 | 221 | | 512.46 | 512.28 | | | 36 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1300 | 244 | 240 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | STRUCTURE NO. FROM | TO | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 168+03 -L- | 191 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 191 | 190 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 26 | 15" RCP Remove STA 169+70 -L- |
| 170+50 -L- | 192 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 192 | 194 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2@18" | | | | |
| 170+50 -L- | 193 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 193 | 192 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 172+50 -L- | 195 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 195 | 198 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 173+00 -L- | 196 | 198 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 173+06 -L- | 198 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 64 | 24" RCP Remove STA 173+07 -L- , DI w/ FL GR |
| | 198 | 199 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 173+12 -L- | 199 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 199 | 197 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2@24" | | | | |
| 173+55 -L- | 200 | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 200 | 199 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 173+55 -L- | 201 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 201 | 198 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 174+00 -L- | 202 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 202 | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 174+00 -L- | 203 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 203 | 201 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 175+00 -L- | 204 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 204 | 203 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 176+50 -L- | 205 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 205 | 202 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 176+50 -L- | 206 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 206 | 205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 178+50 -L- | 208 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 208 | 205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 178+50 -L- | 209 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 209 | 208 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180+00 -L- | 210 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 210 | 209 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 181+84 -L- | 211 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 211 | 213 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 182+09 -L- | 212 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 212 | 214 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 182+09 -L- | 213 | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 213 | 212 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 183+84 -L- | 214 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 214 | 217 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 183+84 -L- | 215 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 215 | 214 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 185+00 -L- | 217 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 217 | 219 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 185+00 -L- | 218 | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 218 | 220 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 185+50 -L- | 219 | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 219 | 221 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 12 | 1 | 5 | 6 | 0 | 12 | 12 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2@24";2@18" | 0 | 0 | 90 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-H |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

ABBREVIATIONS

- C.B. CATCH BASIN
- N.D.I. NARROW DROP INLET
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
- G.D.I.(N.S.) GRATED DROP INLET (NARROW SLOT)
- J.B. JUNCTION BOX
- M.H. MANHOLE
- T.B.D.I. TRAFFIC BEARING DROP INLET
- T.B.J.B. TRAFFIC BEARING JUNCTION BOX

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 185+50 -L- | RT | 220 | | 515.71 | 512.63 | | | | | | | | | | |
| | | 220 | 222 | | 512.63 | 511.61 | | | 36 | | | | | | |
| 185+84 -L- | LT | 221 | | 515.65 | 512.28 | | | | | | | | | | |
| | | 221 | 226 | | 512.28 | 510.97 | | | 56 | | | | | | |
| 185+84 -L- | RT | 222 | | 515.36 | 511.61 | | | | | | | | | | |
| | | 222 | 227 | | 511.61 | 511.35 | | | | | 52 | | | | |
| | | | | | | | | | | | | | | | |
| 185+84 -L- | RT | 223 | 222 | | 514.36 | 511.61 | | | | | 28 | | | | |
| 186+40 -L- | LT | 226 | | 515.84 | 510.97 | | | | | | | | | | |
| | | 226 | 225 | | 510.97 | 510.16 | | | | | 24 | | | | |
| 186+37 -L- | RT | 227 | | 515.84 | 511.35 | | | | | | | | | | |
| | | 227 | 226 | | 511.35 | 510.97 | | | | | 76 | | | | |
| 187+00 -L- | LT | 228 | | 516.32 | 513.07 | | | | | | | | | | |
| | | 228 | 226 | | 513.07 | 510.97 | | | | 60 | | | | | |
| 187+00 -L- | RT | 229 | | 516.32 | 513.32 | | | | | | | | | | |
| | | 229 | 227 | | 513.32 | 511.35 | | | 64 | | | | | | |
| 188+00 -L- | LT | 230 | | 517.99 | 514.61 | | | | | | | | | | |
| | | 230 | 228 | | 514.61 | 513.07 | | | | 100 | | | | | |
| 188+00 -L- | RT | 231 | | 517.99 | 514.99 | | | | | | | | | | |
| | | 231 | 230 | | 514.99 | 514.61 | | | 76 | | | | | | |
| 190+00 -L- | LT | 232 | | 523.41 | 520.03 | | | | | | | | | | |
| | | 232 | 230 | | 520.03 | 514.61 | | | 200 | | | | | | |
| 190+00 -L- | RT | 233 | | 523.41 | 520.41 | | | | | | | | | | |
| | | 233 | 232 | | 520.41 | 520.03 | | | 76 | | | | | | |
| 194+35 -L- | LT | 234 | | 524.75 | 518.42 | | | | | | | | | | |
| | | 234 | 237 | | 518.42 | 518.03 | | | | | 40 | | | | |
| 194+36 -L- | RT | 235 | | 525.55 | 518.82 | | | | | | | | | | |
| | | 235 | 234 | | 518.82 | 518.42 | | | | | 80 | | | | |
| 194+36 -L- | RT | 236 | | 522.42 | 518.92 | | | | | | | | | | |
| | | 236 | 235 | | 518.92 | 518.82 | | | | 24 | | | | | |
| 194+87 -L- | LT | 238 | | 524.65 | 520.5 | | | | | | | | | | |
| | | 238 | 234 | | 520.5 | 518.42 | | | | | 52 | | | | |
| 194+87 -L- | RT | 239 | | 524.41 | 521.01 | | | | | | | | | | |
| | | 239 | 235 | | 521.01 | 520.75 | | | | 52 | | | | | |
| 195+10 -L- | LT | 240 | | 524.44 | 520.6 | | | | | | | | | | |
| | | 240 | 238 | | 520.6 | 520.5 | | | | | 24 | | | | |
| 195+10 -L- | RT | 241 | | 524.2 | 521.11 | | | | | | | | | | |
| | | 241 | 239 | | 521.11 | 521.01 | | | | 24 | | | | | |
| 195+33 -L- | LT | 242 | | 524.49 | 520.7 | | | | | | | | | | |
| | | 242 | 240 | | 520.7 | 520.6 | | | | | 24 | | | | |
| 195+56 -L- | RT | 243 | | 524.33 | 521.33 | | | | | | | | | | |
| | | 243 | 241 | | 521.33 | 521.11 | | | | 44 | | | | | |
| 196+50 -L- | LT | 244 | | 525.25 | 521.28 | | | | | | | | | | |
| | | 244 | 242 | | 521.28 | 520.7 | | | | | 116 | | | | |
| 196+50 -L- | RT | 245 | | 525.01 | 521.76 | | | | | | | | | | |
| | | 245 | 243 | | 521.76 | 521.28 | | | | 96 | | | | | |
| 198+10 -L- | RT | 246 | | 526.82 | 523.82 | | | | | | | | | | |
| | | 246 | 245 | | 523.82 | 521.76 | | | 160 | | | | | | |
| 198+56 -L- | LT | 247 | | 528.43 | 524.48 | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 668 | 400 | 516 | 0 | 0 | 0 | 0 |

| STATION | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | STRUCTURE NO. FROM | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 185+50 -L- | 220 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 185+84 -L- | 221 | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| 185+84 -L- | 222 | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| 186+40 -L- | 226 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 186+37 -L- | 227 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 187+00 -L- | 228 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 187+00 -L- | 229 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 188+00 -L- | 230 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 188+00 -L- | 231 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 190+00 -L- | 232 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 190+00 -L- | 233 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 194+35 -L- | 234 | 1 | 1.33 | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 194+36 -L- | 235 | 1 | 1.73 | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 194+36 -L- | 236 | 1 | | | | | | | | | | | 1 | | | | | | 1 | 1 | | | |
| 194+87 -L- | 238 | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| 194+87 -L- | 239 | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| 195+10 -L- | 240 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 195+10 -L- | 241 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 195+33 -L- | 242 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 195+56 -L- | 243 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 196+50 -L- | 244 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| 196+50 -L- | 245 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 198+10 -L- | 246 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| 198+56 -L- | 247 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 24 | 3 | 0 | 23 | 4 | 10 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

| STATION | STRUCTURE NO. FROM | STRUCTURE NO. TO | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 185+50 -L- | 220 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 185+84 -L- | 221 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| 185+84 -L- | 222 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| 185+84 -L- | 223 | 222 | | | | | | | | | | | | | | | | | | | | OPEN END |
| 186+40 -L- | 226 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 186+37 -L- | 227 | | | | | | | | | | | | | | | | | | | | 50 | 18" RCP Remove STA 186+38 -L-, CB w/ TYPE G |
| 187+00 -L- | 228 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 187+00 -L- | 229 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 188+00 -L- | 230 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 188+00 -L- | 231 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 190+00 -L- | 232 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 190+00 -L- | 233 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 194+35 -L- | 234 | | | | | | | | | | | | | | | | | | | | 69 | 18" RCP Remove STA 194+36 -L- , CB w/ TYPE G |
| 194+36 -L- | 235 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 194+36 -L- | 236 | | | | | | | | | | | | | | | | | | | | | 3GI(A) |
| 194+87 -L- | 238 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| 194+87 -L- | 239 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| 195+10 -L- | 240 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 195+10 -L- | 241 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 195+33 -L- | 242 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 195+56 -L- | 243 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 196+50 -L- | 244 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 196+50 -L- | 245 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 198+10 -L- | 246 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 198+56 -L- | 247 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-I |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 247 | 244 | | 524.48 | 521.28 | | | | | 208 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 199+60 -L- | LT | 248 | | 529.13 | 525 | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 248 | 247 | | 525 | 524.48 | | | | | 104 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 199+60 -L- | RT | 249 | | 529.13 | 525.38 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 249 | 248 | | 525.38 | 525 | | | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 199+60 -L- | RT | 250 | 249 | 529 | 525.38 | | | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 199+80 -L- | RT | 251 | | 529.41 | 526.41 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 251 | 249 | | 526.41 | 525.38 | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 202+00 -L- | LT | 252 | | 532.71 | 529.33 | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 252 | 248 | | 529.33 | 525 | | | 240 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 202+00 -L- | RT | 253 | | 532.71 | 529.71 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 253 | 252 | | 529.71 | 529.33 | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 202+50 -L- | RT | 253A | | 533.74 | 530.74 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 253A | 253 | | 530.74 | 530.48 | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 207+50 -L- | LT | 254 | | 535.52 | 532.52 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 254 | 257 | | 532.52 | 530.8 | | | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 207+70 -L- | RT | 255 | | 535.38 | 532.38 | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 255 | 258 | | 532.38 | 530.34 | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 208+47 -L- | LT | 257 | | 534.93 | 530.8 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 257 | 261 | | 530.8 | 530.4 | | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 208+35 -L- | RT | 258 | | 535.05 | 530.34 | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | 57 | 18" RCP Remove STA 208+35 -L-, CB w/ TYPE F |
| | | 258 | 259 | | 530.34 | 529.67 | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 208+50 -L- | LT | 260 | 257 | | 531 | 530.8 | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 208+35 -L- | LT | 261 | | 535.05 | 530.4 | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 261 | 258 | | 530.4 | 530.34 | | | | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 209+81 -L- | LT | 262 | | 533.88 | 530.88 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 262 | 263 | | 530.88 | 530.37 | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 210+80 -L- | LT | 263 | | 533.37 | 530.37 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 263 | 264A | | 530.37 | 529.61 | | | 68 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 210+80 -L- | LT | 264 | | 534.17 | 531 | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | DI w/ FL GR |
| | | 264 | 263 | | 531 | 530.37 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 211+50 -L- | LT | 264A | | 532.61 | 529.61 | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 264A | 267 | | 529.61 | 528.71 | | | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 212+36 -L- | CL | 265 | | 533.09 | 529.92 | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | DI w/ FL GR |
| | | 265 | 268 | | 529.92 | 529 | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 212+43 -L- | LT | 266 | | | | | | | | | | | | | | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | | | DI |
| | | 266 | 267 | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 212+43 -L- | LT | 267 | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | 53 | 15" RCP Remove STA 212+74 -L-, CB w/ TYPE G |
| | | 267 | 269 | | | | | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 212+43 -L- | CL | 268 | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | DI w/ FL GR |
| | | 268 | 267 | | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 213+92 -L- | LT | 269 | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 269 | 271 | | | | | | | 204 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216+00 -L- | LT | 270 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | 2GI(B) |
| | | 270 | 271 | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216+00 -L- | LT | 271 | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 271 | 272 | | | | | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | 62 | 18" RCP Remove STA 215+00 -L- |
| 216+00 -L- | CL | 272 | | | | | | | | | | | | | | 1 | 1.04 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | DI w/ FL GR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 924 | 476 | 460 | 0 | 0 | 0 | 0 | 23 | 1 | 0 | 17 | 0 | 5 | 12 | 0 | 4 | 5 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 172 | |

| SIZE | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 24" | 30" | 30" | 36" | 36" | 42" | 42" | 48" | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| THICKNESS OR GAUGE | .064 | .064 | .064 | .064 | | .079 | | .079 | | .109 | | .109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

| COMPUTED BY: | BMS | DATE: | 7/28/2011 |
|---|---|---|---|
| CHECKED BY: | JRR | DATE: | 7/29/2011 |

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-J |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| Station | Location (LT, RT, or CL) | Structure No. From | Structure No. To | Top Elevation | Invert Elevation | Invert Elevation | Slope Critical | Class III R.C. Pipe (Unless Noted Otherwise) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. Pipe (Unless Noted Otherwise) 12" | 15" | 18" | 24" | 24" | 30" | 30" | 36" | 36" | 42" | 42" | 48" | 48" | Class III R.C. Pipe or Aluminized C.S. Pipe, Type IR or HDPE Pipe, Type S or D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. Pipe Class IV | 15" Side Drain Pipe | 18" Side Drain Pipe | 24" Side Drain Pipe | Endwalls Std. 838.01 or Std. 838.11 (Unless Noted Otherwise) Cu. Yards R.C.P. | C.S.P. | Quanities for Drainage Structures Per Each (0' thru 5.0') | *Total L.F. for Pay Quantity Shall Be Col. 'A' + (1.3 X Col.'B') Lin. Ft. A 5.0' thru 10.0' | B 10.0' and Above | C.B. Std. 840.01 or Std. 840.02 | Frame, Grates, and Hood Standard 840.03 Type of Grate E | F | G | Concrete Transitional Section Catch Basin | Drop Inlet | D.I. Std. 840.14 or Std. 840.15 | D.I. Frame with Two Grates Std. 840.16 | G.D.I. Type "A" Std. 840.17 or 840.26 | G.D.I. Type "B" Std. 840.18 or 840.27 | G.D.I. Type "D" Std. 840.19 or 840.28 | G.D.I. Frame with Grate Std. 840.20 | G.D.I. Frame with Two Grates Std. 840.22 | | G.D.I. (N.S.) Frame with Two Grates Std. 840.24 | G.D.I. (N.S.) Frame with One Grate Std. 840.24 | J.B. Std. 840.31 or 840.32 | M.H. Frame and Cover Std. 840.54 | | | | | | | | | | | | | | | | Corr. Steel Elbows No. & Size | Conc. Collars Cl. "B" C.Y. Std. 840.72 | Conc. & Brick Pipe Plug, C.Y. Std. 840.71 | Pipe Removal Lin. Ft. | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thickness or Gauge | | | | | | | | | | | | | | | | .064 | .064 | .064 | .064 | | .079 | | .079 | | .109 | | .109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 272 | 273 | | 522.76 | 520.87 | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 217+75 -L- | LT | 274 | | 519.91 | 516.91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 66 | 18" RCP Remove STA 217+33 -L-, 2GI(B) |
| | | 274 | 275 | | 516.91 | 516.79 | | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 217+75 -L- | LT | 275 | | 522.57 | 516.79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.78 | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 275 | 276 | | 516.79 | 516.55 | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 217+75 -L- | CL | 276 | | 522.79 | 516.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.24 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 276 | 277 | | 516.55 | 510.68 | | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220+00 -L- | LT | 278 | | 511.03 | 508.03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 278 | 279 | | 508.03 | 507.79 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220+00 -L- | CL | 279 | | 511.84 | 507.79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 279 | 282 | | 507.79 | 497.13 | | | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 221+75 -L- | LT | 280 | | 500.49 | 497.49 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 280 | 281 | | 497.49 | 497.35 | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 221+75 -L- | LT | 281 | | 503.57 | 497.35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.22 | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 281 | 282 | | 497.35 | 497.13 | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 221+74 -L- | CL | 282 | | 504.38 | 497.13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.26 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 282 | 283 | | 497.13 | 494.34 | | | | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 223+50 -L- | CL | 283 | | 497.76 | 494.34 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 283 | 286 | | 494.34 | 485.17 | | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 224+36 -L- | LT | 284 | | 493.21 | 489.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | 3GI(A) |
| | | 284 | 285 | | 489.71 | 489.5 | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 224+45 -L- | LT | 285 | | 494.04 | 489.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 50 | 18" RCP Remove STA 224+45 -L-, CB w/ TYPE G |
| | | 285 | 286 | | 489.5 | 485.17 | | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 245+50 -L- | CL | 286 | | 494.84 | 485.17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 4.67 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 286 | 287 | | 485.17 | 478.82 | | | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225+49 -L- | CL | 288 | | 492.11 | 485.67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 6.44 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 288 | 286 | | 485.67 | 485.17 | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225+74 -L- | CL | 289 | | 491.46 | 485.81 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.65 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 289 | 288 | | 485.81 | 485.67 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 226+83 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 226+07 -L- | LT | 291 | | 490.13 | 486.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 291 | 292 | | 486.19 | 485.97 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 226+07 -L- | CL | 292 | | 490.56 | 485.97 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 292 | 289 | | 485.97 | 485.81 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drive 229+80 -L- | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 226+40 -L- | LT | 294 | | 489.35 | 486.35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 37 | STA 229+78 -L- Remove pipe , CB w/ TYPE G |
| | | 294 | 291 | | 486.35 | 486.19 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 229+00 -L- | LT | 295 | | 479.92 | 476.92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | 3GI(A) |
| | | 295 | 296 | | 476.92 | 476.36 | | | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 229+00 -L- | CL | 296 | | 482.15 | 476.36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.79 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 296 | 297 | | 476.36 | 475.7 | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 229+00 -L- | RT | 297 | | 481.37 | 475.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.67 | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 297 | 300 | | 475.7 | 472.18 | | | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230+50 -L- | LT | 298 | | 475.66 | 472.66 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | | 298 | 299 | | 472.66 | 472.4 | | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230+50 -L- | CL | 299 | | 477.19 | 472.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | | 299 | 300 | | 472.4 | 472.18 | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230+50 -L- | RT | 300 | | 476.38 | 472.18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 300 | 304 | | 472.18 | 466.76 | | | | | 172 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 452 | 688 | 524 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 0 | 0 | 0 | 23 | 19 | 0 | 8 | 0 | 2 | 6 | 0 | 10 | 10 | 10 | 2 | 3 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-K |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive 231+56 -L- | LT | | | | | | | | | | | | | | |
| 232+16 -L- | LT | 302 | | 471.69 | 468.69 | | | | | | | | | | |
| | | 302 | 303 | | 468.69 | 467.91 | | | | 52 | | | | | |
| 232+19 -L- | CL | 303 | | 471.52 | 467.6 | | | | | | | | | | |
| | | 303 | 304 | | 466.76 | 466.76 | | | | | 44 | | | | |
| 232+25 -L- | RT | 304 | | 470.51 | 466.76 | | | | | | | | | | |
| | | 304 | 305 | | 466.76 | 463.28 | | | | | 44 | | | | |
| 233+00 -L- | LT | 306 | | 466.5 | 463.5 | | | | | | | | | | |
| | | 306 | 307 | | 463.5 | 463.22 | | | | 56 | | | | | |
| 233+00 -L- | CL | 307 | | 468.8 | 463.22 | | | | | | | | | | |
| | | 307 | 308 | | 463.22 | 461.98 | | | | 100 | | | | | |
| 234+00 -L- | CL | 308 | | 465.4 | 461.98 | | | | | | | | | | |
| | | 308 | 309 | | 461.98 | 453.51 | | | | 92 | | | | | |
| 235+63 -L- | CL | 310 | | 460.23 | 457.06 | | | | | | | | | | |
| | | 310 | 311 | | 457.06 | 456.42 | | | 44 | | | | | | |
| 235+66 -L- | RT | 311 | | 459.42 | 456.42 | | | | | | | | | | |
| | | 311 | 312 | | 456.42 | 447.9 | | | | | | | | | |
| 237+50 -L- | CL | 313 | | 455.71 | 452.54 | | | | | | | | | | |
| | | 313 | 314 | | 452.54 | 446.95 | | | 188 | | | | | | |
| 239+38 -L- | LT | 313A | | 450.48 | 447.73 | | | | | | | | | | |
| | | 313A | 314 | | 447.73 | 446.95 | | | 48 | | | | | | |
| 239+39 -L- | CL | 314 | | 450.93 | 446.95 | | | | | | | | | | |
| | | 314 | 315 | | 446.95 | 444.62 | | | | 112 | | | | | |
| 240+50 -L- | CL | 315 | | 448.04 | 444.62 | | | | | | | | | | |
| | | 315 | 316 | | 444.62 | 440.95 | | | | 100 | | | | | |
| 241+50 -L- | CL | 316 | | 444.37 | 440.95 | | | | | | | | | | |
| | | 316 | 317 | | 440.95 | 440.29 | | | | 44 | | | | | |
| 241+50 -L- | RT | 317 | | 444.57 | 440.29 | | | | | | | | | | |
| | | 317 | 318 | | 440.29 | 439.5 | | | | 28 | | | | | |
| 242+75 -L- | CL | 319 | | 442.98 | 437.85 | | | | | | | | | | |
| | | 319 | 321 | | 437.85 | 437.57 | | | 44 | | | | | | |
| 242+75 -L- | RT | 320 | | 442.18 | 439.18 | | | | | | | | | | |
| | | 320 | 319 | | 439.18 | 437.85 | | | 44 | | | | | | |
| 243+18 -L- | CL | 321 | | 442.48 | 437.57 | | | | | | | | | | |
| | | 321 | 322 | | 437.57 | 437.27 | | | | 68 | | | | | |
| 243+75 -L- | CL | 323 | | 442.18 | 437.85 | | | | | | | | | | |
| | | 323 | 321 | | 437.85 | 437.57 | | | 56 | | | | | | |
| 243+75 -L- | RT | 324 | | 441.38 | 438.38 | | | | | | | | | | |
| | | 324 | 326 | | 438.38 | 438.23 | | | 28 | | | | | | |
| 244+04 -L- | CL | 325 | | 442.11 | 438.01 | | | | | | | | | | |
| | | 325 | 323 | | 438.01 | 437.85 | | | 28 | | | | | | |
| 244+04 -L- | RT | 326 | | 441.3 | 438.23 | | | | | | | | | | |
| | | 326 | 325 | | 438.23 | 438.01 | | | 44 | | | | | | |
| 244+25 -L- | CL | 327 | | 442.15 | 438.96 | | | | | | | | | | |
| | | 327 | 325 | | 438.96 | 438.01 | | | 20 | | | | | | |
| 244+25 -L- | RT | 328 | | 441.35 | 438.35 | | | | | | | | | | |
| | | 328 | 326 | | 438.23 | | | | 20 | | | | | | |
| 244+75 -L- | CL | 329 | | 442.39 | 439.22 | | | | | | | | | | |
| | | 329 | 327 | | 439.22 | 438.96 | | | 52 | | | | | | |
| | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 616 | 652 | 88 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive 231+56 -L- | | | | | | | | | | | | | | | | | | | | | | | | | | 40 | | | |
| 232+16 -L- | 302 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 302 | 303 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 232+19 -L- | 303 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 303 | 304 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 232+25 -L- | 304 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 304 | 305 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 233+00 -L- | 306 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 306 | 307 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 233+00 -L- | 307 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 307 | 308 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 234+00 -L- | 308 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 308 | 309 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 235+63 -L- | 310 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 310 | 311 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 235+66 -L- | 311 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 311 | 312 | | 48 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 237+50 -L- | 313 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 313 | 314 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 239+38 -L- | 313A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 313A | 314 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 239+39 -L- | 314 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 314 | 315 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 240+50 -L- | 315 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 315 | 316 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 241+50 -L- | 316 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 316 | 317 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 241+50 -L- | 317 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 317 | 318 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 242+75 -L- | 319 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 319 | 321 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 242+75 -L- | 320 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 320 | 319 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 243+18 -L- | 321 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 321 | 322 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 243+75 -L- | 323 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 323 | 321 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 243+75 -L- | 324 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 324 | 326 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 244+04 -L- | 325 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 325 | 323 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 244+04 -L- | 326 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 326 | 325 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 244+25 -L- | 327 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 327 | 325 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 244+25 -L- | 328 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 328 | 326 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 244+75 -L- | 329 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 329 | 327 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |

| STATION | FROM | TO | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive 231+56 -L- | | | | | | | | | | | | | | | | | | | | | | | |
| 232+16 -L- | 302 | | 1 | | | | | | | | | | | 1 | | | | | | 1 | 1 | | |
| | 302 | 303 | | | | | | | | | | | | | | | | | | | | | |
| 232+19 -L- | 303 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 303 | 304 | | | | | | | | | | | | | | | | | | | | | |
| 232+25 -L- | 304 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 304 | 305 | | | | | | | | | | | | | | | | | | | | | |
| 233+00 -L- | 306 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | |
| | 306 | 307 | | | | | | | | | | | | | | | | | | | | | |
| 233+00 -L- | 307 | | 1 | 0.58 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 307 | 308 | | | | | | | | | | | | | | | | | | | | | |
| 234+00 -L- | 308 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 308 | 309 | | | | | | | | | | | | | | | | | | | | | |
| 235+63 -L- | 310 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 310 | 311 | | | | | | | | | | | | | | | | | | | | | |
| 235+66 -L- | 311 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 311 | 312 | | | | | | | | | | | | | | | | | | | | | |
| 237+50 -L- | 313 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 313 | 314 | | | | | | | | | | | | | | | | | | | | | |
| 239+38 -L- | 313A | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | |
| | 313A | 314 | | | | | | | | | | | | | | | | | | | | | |
| 239+39 -L- | 314 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 314 | 315 | | | | | | | | | | | | | | | | | | | | | |
| 240+50 -L- | 315 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 315 | 316 | | | | | | | | | | | | | | | | | | | | | |
| 241+50 -L- | 316 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 316 | 317 | | | | | | | | | | | | | | | | | | | | | |
| 241+50 -L- | 317 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 317 | 318 | | | | | | | | | | | | | | | | | | | | | |
| 242+75 -L- | 319 | | 1 | 0.13 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 319 | 321 | | | | | | | | | | | | | | | | | | | | | |
| 242+75 -L- | 320 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 320 | 319 | | | | | | | | | | | | | | | | | | | | | |
| 243+18 -L- | 321 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 321 | 322 | | | | | | | | | | | | | | | | | | | | | |
| 243+75 -L- | 323 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 323 | 321 | | | | | | | | | | | | | | | | | | | | | |
| 243+75 -L- | 324 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 324 | 326 | | | | | | | | | | | | | | | | | | | | | |
| 244+04 -L- | 325 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 325 | 323 | | | | | | | | | | | | | | | | | | | | | |
| 244+04 -L- | 326 | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | |
| | 326 | 325 | | | | | | | | | | | | | | | | | | | | | |
| 244+25 -L- | 327 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 327 | 325 | | | | | | | | | | | | | | | | | | | | | |
| 244+25 -L- | 328 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| | 328 | 326 | | | | | | | | | | | | | | | | | | | | | |
| 244+75 -L- | 329 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 329 | 327 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 24 | 1 | 0 | 7 | 1 | 5 | 1 | 0 | 14 | 14 | 14 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 |

| STATION | FROM | TO | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive 231+56 -L- | | | | | | | | | | | | | | | | | | | | | 36 | STA 229+78 -L- Remove pipe |
| 232+16 -L- | 302 | | | | | | | | | | | | | | | | | | | | | 3GI(A) |
| | 302 | 303 | | | | | | | | | | | | | | | | | | | 39 | STA 230+82 -L- Remove pipe |
| 232+19 -L- | 303 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 303 | 304 | | | | | | | | | | | | | | | | | | | 80 | 18" RCP Remove STA 231+79 -L- |
| 232+25 -L- | 304 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 304 | 305 | | | | | | | | | | | | | | | | | | | 55 | 18"RCP Remove STA 232+19 -L- |
| 233+00 -L- | 306 | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 306 | 307 | | | | | | | | | | | | | | | | | | | | |
| 233+00 -L- | 307 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 307 | 308 | | | | | | | | | | | | | | | | | | | | |
| 234+00 -L- | 308 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 308 | 309 | | | | | | | | | | | | | | | | | | | | |
| 235+63 -L- | 310 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 310 | 311 | | | | | | | | | | | | | | | | | | | 54 | 24" RCP Remove STA 235+62 -L- |
| 235+66 -L- | 311 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 311 | 312 | | | | | | | | | | | | | | | | 2@15" | | | | |
| 237+50 -L- | 313 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 313 | 314 | | | | | | | | | | | | | | | | | | | | |
| 239+38 -L- | 313A | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 313A | 314 | | | | | | | | | | | | | | | | | | | | |
| 239+39 -L- | 314 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 314 | 315 | | | | | | | | | | | | | | | | | | | | |
| 240+50 -L- | 315 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 315 | 316 | | | | | | | | | | | | | | | | | | | | |
| 241+50 -L- | 316 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 316 | 317 | | | | | | | | | | | | | | | | | | | | |
| 241+50 -L- | 317 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 317 | 318 | | | | | | | | | | | | | | | | | | | | |
| 242+75 -L- | 319 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 319 | 321 | | | | | | | | | | | | | | | | | | | | |
| 242+75 -L- | 320 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 320 | 319 | | | | | | | | | | | | | | | | | | | | |
| 243+18 -L- | 321 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 321 | 322 | | | | | | | | | | | | | | | | | | | | |
| 243+75 -L- | 323 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 323 | 321 | | | | | | | | | | | | | | | | | | | | |
| 243+75 -L- | 324 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 324 | 326 | | | | | | | | | | | | | | | | | | | | |
| 244+04 -L- | 325 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 325 | 323 | | | | | | | | | | | | | | | | | | | | |
| 244+04 -L- | 326 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 326 | 325 | | | | | | | | | | | | | | | | | | | | |
| 244+25 -L- | 327 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 327 | 325 | | | | | | | | | | | | | | | | | | | | |
| 244+25 -L- | 328 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 328 | 326 | | | | | | | | | | | | | | | | | | | | |
| 244+75 -L- | 329 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 329 | 327 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2@15" | 0 | 0 | 264 | |

**ABBREVIATIONS**

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

| COMPUTED BY: | BMS | DATE: | 7/28/2011 |
|---|---|---|---|
| CHECKED BY: | JRR | DATE: | 7/29/2011 |

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-L |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 30" .079 | 36" .079 | 42" .109 | 48" .109 | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | CORR. STEEL ELBOWS NO. & SIZE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 245+75 -L- | CL | 330 | | 443.63 | 440.46 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 330 | 331 | | 440.46 | 439.82 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 245+75 -L- | RT | 331 | | 442.82 | 439.82 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | CB w/ TYPE G |
| | | 331 | 332 | | 439.82 | 434 | | | | | | | | | | | 40 | | | | | | | | | | | | | | | | | | 2@15" | |
| 246+50 -L- | CL | 333 | | 445.17 | 442 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 333 | 330 | | 442 | 440.46 | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 247+75 -L- | CL | 334 | | 448.86 | 445.69 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 334 | 333 | | 445.69 | 442 | | | 124 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 249+25 -L- | CL | 335 | | 435.38 | 449.33 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 335 | 334 | | 449.33 | 445.69 | | | 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 249+25 -L- | RT | 336 | | 452.57 | 449.57 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | CB w/ TYPE G |
| | | 336 | 335 | | 449.57 | 449.33 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 251+00 -L- | CL | 337 | | 460.27 | 457.1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 337 | 338 | | 457.1 | 456.62 | | | 88 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 251+60 -L- | CL | 339 | | 462.1 | 458.93 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 339 | 337 | | 458.93 | 457.1 | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 253+60 -LREV3- | LT | 340 | | 467.07 | 464.07 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | CB w/ TYPE F |
| | | 340 | 341 | | 464.07 | 463.85 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 253+60 -LREV3- | CL | 341 | | 467.36 | 463.85 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 341 | 339 | | 463.85 | 458.93 | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 254+00 -LREV3- | LT | 342 | | 467.83 | 464.83 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | CB w/ TYPE F |
| | | 342 | 340 | | 464.83 | 464.07 | | | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 254+00 -LREV3- | CL | 343 | | 468.28 | 465.11 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 343 | 341 | | 465.11 | 463.85 | | | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 254+50 -LREV3- | CL | 344 | | 469.36 | 466.19 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 344 | 343 | | 466.19 | 465.11 | | | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 254+99 -LREV3- | LT | 345 | | 469.55 | 466.55 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | CB w/ TYPE F |
| | | 345 | 348 | | 466.55 | 465.53 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 255+00 -LREV3 - | CL | 346 | | 470.34 | 467.17 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 346 | 345 | | 467.17 | 466.55 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 256+50 -LREV3- | CL | 349 | | 472.51 | 469.34 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 349 | 346 | | 469.34 | 467.17 | | | 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 257+50 -LREV3- | CL | 350 | | 473.14 | 469.97 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 350 | 349 | | 469.97 | 469.34 | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 259+25 -LREV3- | CL | 351 | | 472.58 | 469.41 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 351 | 352 | | 469.41 | 467.09 | | | 128 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 260+51 -LREV3- | CL | 352 | | 470.26 | 467.09 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 352 | 354 | | 467.09 | 462.26 | | | 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 262+00 -LREV3- | LT | 353 | | 464.64 | 461.64 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | CB w/ TYPE G |
| | | 353 | 353A | | 461.64 | 461.5 | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 262+00 -LREV3- | CL | 354 | | 465.43 | 462.26 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 354 | 354A | | 462.26 | 456.02 | | | 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 263+50 -LREV3- | CL | 354A | | 459.19 | 456.02 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 354A | 355 | | 456.02 | 454.46 | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 263+85 -LREV3- | CL | 355 | | 457.63 | 454.46 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | DI w/ FL GR |
| | | 355 | 355A | | 454.46 | 454.16 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 263+85 -LREV3- | LT | 356 | | 457.5 | 454.5 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | CB w/ TYPE G |
| | | 356 | 357 | | 454.5 | 451.38 | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1892 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 7 | 0 | 3 | 4 | 0 | 17 | 17 | 17 | 2@15" | |

| CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-M |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264+50 -LREV3- | LT | 357 | | 454.38 | 451.38 | | | | | | | | | | |
| | | 357 | 358 | | 451.38 | 451.16 | | | 36 | | | | | | |
| 266+00 -LREV3- | CL | 359 | | 447.37 | 444.2 | | | | | | | | | | |
| | | 359 | 360 | | 444.2 | 443.94 | | | 48 | | | | | | |
| | | | | | | | | | | | | | | | |
| 266+00 -LREV3- | RT | 360 | | 446.94 | 443.94 | | | | | | | | | | |
| | | 360 | 360A | | 443.94 | 443.66 | | | 20 | | | | | | |
| 267+50 -LREV3- | CL | 363A | | 440.89 | 437.72 | | | | | | | | | | |
| | | 363A | 363 | | 437.72 | 432.69 | | | 152 | | | | | | |
| 269+00 -LREV3- | CL | 363 | | 435.86 | 432.69 | | | | | | | | | | |
| | | 363 | 364 | | 432.69 | 432.3 | | | 44 | | | | | | |
| 269+00 -LREV3- | RT | 364 | | 435.3 | 432.3 | | | | | | | | | | |
| | | 364 | 364A | | 432.3 | 432.08 | | | 56 | | | | | | |
| 271+00 -LREV3- | CL | 365 | | 429.2 | 426.03 | | | | | | | | | | |
| | | 365 | 366 | | 426.03 | 425.12 | | | 48 | | | | | | |
| 271+00 -LREV3- | RT | 366 | | 428.12 | 425.12 | | | | | | | | | | |
| | | 366 | 366A | | 425.12 | 424.96 | | | 32 | | | | | | |
| 272+54 -LREV3- | CL | 367 | | 423.84 | 420.67 | | | | | | | | | | |
| | | 367 | 368 | | 420.67 | 418.1 | | | 52 | | | | | | |
| 272+75 -LREV3- | RT | 368 | | 421.85 | 418.1 | | | | | | | | | | |
| | | 368 | 369 | | 421.5 | 418.1 | | | | | | | | | |
| 272+5 -LREV3- | | 368 | 371 | | 418.1 | 413.74 | | | | | 88 | | | | |
| 273+63 -LREV3- | RT | 370 | | 416.8 | 413.8 | | | | | | | | | | |
| | | 370 | 371 | | 413.8 | 413.74 | | | 12 | | | | | | |
| | | 371 | 372 | | 413.74 | 413.23 | | | | | 88 | | | | |
| 274+51 -LREV3- | RT | 372 | | 416.98 | 413.23 | | | | | | | | | | |
| | | 372 | 373 | | 413.23 | 413.03 | | | | | 44 | | | | |
| 276+00 -LREV3- | CL | 374 | | 412.63 | 409.46 | | | | | | | | | | |
| | | 374 | 376 | | 409.46 | 408.48 | | | 100 | | | | | | |
| 276+50 -LREV3- | RT | 375 | | 411.43 | 408.43 | | | | | | | | | | |
| | | 375 | 377 | | 408.43 | 407.95 | | | 48 | | | | | | |
| 277+00 -LREV3- | CL | 376 | | 411.65 | 408.48 | | | | | | | | | | |
| | | 376 | 379 | | 408.48 | 408.28 | | | 48 | | | | | | |
| 277+00 -LREV3- | RT | 377 | | 410.95 | 407.95 | | | | | | | | | | |
| | | 377 | 378 | | 407.95 | 407.75 | | | | 44 | | | | | |
| 277+47 -LREV3- | RT | 378 | | 410.95 | 407.75 | | | | | | | | | | |
| | | 378 | 380 | | 407.75 | 407.25 | | | | 100 | | | | | |
| 277+47 -LREV3- | CL | 379 | | 412.05 | 408.28 | | | | | | | | | | |
| | | 379 | 378 | | 408.28 | 407.75 | | | | 36 | | | | | |
| 278+50 -LREV3- | RT | 380 | | 411.5 | 407.25 | | | | | | | | | | |
| | | 380 | 384 | | 407.25 | 406.71 | | | | 108 | | | | | |
| 278+54 -LREV3- | CL | 381 | | 412.58 | 409.41 | | | | | | | | | | |
| | | 381 | 380 | | 409.41 | 407.25 | | | 48 | | | | | | |
| 383+00 -LREV3- | CL | 383 | | 415.29 | 412.12 | | | | | | | | | | |
| | | 383 | 384 | | 412.12 | 406.71 | | | 60 | | | | | | |
| 279+60 -LREV3- | RT | 384 | | 413.28 | 406.71 | | | | | | | | | | |
| | | 384 | 382 | | 406.71 | 401.55 | | | | | | | | | |
| 281+00 -LREV3- | CL | 385 | | 416.7 | 413.53 | | | | | | | | | | |
| | | 385 | 383 | | 413.53 | 412.12 | | | 100 | | | | | | |
| | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 904 | 288 | 220 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264+50 -LREV3- | 357 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 357 | 358 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 266+00 -LREV3- | 359 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 359 | 360 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 266+00 -LREV3- | 360 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 360 | 360A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 267+50 -LREV3- | 363A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 363A | 363 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 269+00 -LREV3- | 363 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 363 | 364 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 269+00 -LREV3- | 364 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 364 | 364A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271+00 -LREV3- | 365 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 365 | 366 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271+00 -LREV3- | 366 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 366 | 366A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 272+54 -LREV3- | 367 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 367 | 368 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 272+75 -LREV3- | 368 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 368 | 369 | | | | 24 | | | | | | | | | | | | | | | | | | | | | | | |
| 272+5 -LREV3- | 368 | 371 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 273+63 -LREV3- | 370 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 370 | 371 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 371 | 372 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 274+51 -LREV3- | 372 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 372 | 373 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276+00 -LREV3- | 374 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 374 | 376 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276+50 -LREV3- | 375 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 375 | 377 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+00 -LREV3- | 376 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 376 | 379 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+00 -LREV3- | 377 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 377 | 378 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+47 -LREV3- | 378 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 378 | 380 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+47 -LREV3- | 379 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 379 | 378 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 278+50 -LREV3- | 380 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 380 | 384 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 278+54 -LREV3- | 381 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 381 | 380 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 383+00 -LREV3- | 383 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 383 | 384 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 279+60 -LREV3- | 384 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 384 | 382 | | | 40 | | | | | | | | | | | | | | | | | | | | | | | | |
| 281+00 -LREV3- | 385 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 385 | 383 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 40 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264+50 -LREV3- | 357 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 357 | 358 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 266+00 -LREV3- | 359 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 359 | 360 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 266+00 -LREV3- | 360 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 360 | 360A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 267+50 -LREV3- | 363A | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 363A | 363 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 269+00 -LREV3- | 363 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 363 | 364 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 269+00 -LREV3- | 364 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 364 | 364A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271+00 -LREV3- | 365 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 365 | 366 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271+00 -LREV3- | 366 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 366 | 366A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 272+54 -LREV3- | 367 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 367 | 368 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 63 | 18"RCP Remove STA 273+29 -LREV3- |
| 272+75 -LREV3- | 368 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 368 | 369 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OPEN END |
| 272+5 -LREV3- | 368 | 371 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 273+63 -LREV3- | 370 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | TIE TO EX CB |
| | 370 | 371 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 371 | 372 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 274+51 -LREV3- | 372 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 372 | 373 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276+00 -LREV3- | 374 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 374 | 376 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276+50 -LREV3- | 375 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 375 | 377 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+00 -LREV3- | 376 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 376 | 379 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+00 -LREV3- | 377 | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 377 | 378 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+47 -LREV3- | 378 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 378 | 380 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277+47 -LREV3- | 379 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 379 | 378 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10x6 RCBC Remove STA 278+25 -LREV3- |
| 278+50 -LREV3- | 380 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 380 | 384 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 278+54 -LREV3- | 381 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 381 | 380 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 383+00 -LREV3- | 383 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 383 | 384 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 279+60 -LREV3- | 384 | | 1 | 2 | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 384 | 382 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 281+00 -LREV3- | 385 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 385 | 383 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 22 | 2 | 0 | 11 | 1 | 5 | 5 | 0 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | |

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

| COMPUTED BY: | BMS | DATE: | 7/28/2011 |
|---|---|---|---|
| CHECKED BY: | JRR | DATE: | 7/29/2011 |

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-N |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282+50- LREV3- | CL | 385C | | 424.94 | 421.77 | | | | | | | | | | |
| | | 385C | 385A | | 421.77 | 419.37 | | | 52 | | | | | | |
| 282+00 -LREV3- | CL | 385A | | 422.54 | 419.37 | | | | | | | | | | |
| | | 385A | 385B | | 419.37 | 418.73 | | | 48 | | | | | | |
| 282+00 - LREV3- | RT | 385B | | 421.73 | 418.73 | | | | | | | | | | |
| | | 385B | 385D | | 418.73 | 414.76 | | | 40 | | | | | | |
| 284+10 -LREV3- | LT | 386 | | 432.52 | 429.27 | | | | | | | | | | |
| | | 386 | 386A | | 429.27 | 429.11 | | | | 28 | | | | | |
| 284+00 -LREV3- | RT | 387A | | 431.93 | 428.76 | | | | | | | | | | |
| | | 387A | 390 | | 428.76 | 420.69 | | | | | | | | | |
| 284+50 -LREV3- | LT | 388 | | 433.59 | 430.34 | | | | | | | | | | |
| | | 388 | 386 | | 430.34 | 429.27 | | | | 40 | | | | | |
| 286+00 -LREV3- | LT | 391 | | 439.72 | 436.47 | | | | | | | | | | |
| | | 391 | 388 | | 436.47 | 430.34 | | | | 152 | | | | | |
| 287+25 -LREV3- | LT | 392 | | 442.68 | 439.68 | | | | | | | | | | |
| | | 392 | 393 | | 439.68 | 439.58 | | | | 20 | | | | | |
| 287+24 -LREV3- | LT | 393 | | 443.57 | 439.58 | | | | | | | | | | |
| | | 393 | 391 | | 439.58 | 436.47 | | | | 124 | | | | | |
| 286+00 -LREV3- | RT | 391C | | 439.82 | 436.42 | | | | | | | | | | |
| | | 391C | 391D | | 436.42 | 432.59 | | | | | | | | | |
| 288+50 -LREV3- | LT | 395 | | 446.78 | 443.78 | | | | | | | | | | |
| | | 395 | 393 | | 443.78 | 439.58 | | | 124 | | | | | | |
| 290+11 -LREV3- | LT | 395A | | 447.65 | 444.9 | | | | | | | | | | |
| | | 395A | 395B | | 444.9 | 444.78 | | | 24 | | | | | | |
| 290+10 -LREV3- | LT | 395B | | 450.17 | 444.78 | | | | | | | | | | |
| | | 395B | 395 | | 444.78 | 443.78 | | | 160 | | | | | | |
| 289+50 -LREV3- | CL | 396A | | 449.38 | 446.21 | | | | | | | | | | |
| | | 396A | 396 | | 446.21 | 443.3 | | | 120 | | | | | | |
| 288+31 -LREV3- | CL | 396 | | 446.47 | 443.3 | | | | | | | | | | |
| | | 396 | 396B | | 443.3 | 440.75 | | | 72 | | | | | | |
| 291+48 -LREV3- | LT | 397 | | 456.36 | 453.36 | | | | | | | | | | |
| | | 397 | 400 | | 453.36 | 450.23 | | | 116 | | | | | | |
| 292+55 -LREV3- | LT | 399 | | 453.6 | 450.43 | | | | | | | | | | |
| | | 399 | 400 | | 450.43 | 450.23 | | | | | | 36 | | | |
| 292+64 -LREV3- | LT | 400 | | 455.63 | 450.23 | | | | | | | | | | |
| | | 400 | 401 | | 450.23 | 449.75 | | | | | | | 44 | | |
| 292+65 -LREV3- | CL | 401 | | 456.71 | 449.75 | | | | | | | | | | |
| | | 401 | 398 | | 449.75 | 443.27 | | | | | | | 92 | | |
| SHEET TOTALS | | | | | | | | 0 | 756 | 364 | 0 | 36 | 136 | 0 | 0 |

| STATION | FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282+50- LREV3- | 385C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 385C | 385A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 282+00 -LREV3- | 385A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 385A | 385B | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 282+00 - LREV3- | 385B | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 385B | 385D | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 284+10 -LREV3- | 386 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 386 | 386A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 284+00 -LREV3- | 387A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 387A | 390 | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 284+50 -LREV3- | 388 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 388 | 386 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 286+00 -LREV3- | 391 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 391 | 388 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 287+25 -LREV3- | 392 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 392 | 393 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 287+24 -LREV3- | 393 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 393 | 391 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 286+00 -LREV3- | 391C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 391C | 391D | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 288+50 -LREV3- | 395 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 395 | 393 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 290+11 -LREV3- | 395A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 395A | 395B | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 290+10 -LREV3- | 395B | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 395B | 395 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 289+50 -LREV3- | 396A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 396A | 396 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 288+31 -LREV3- | 396 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 396 | 396B | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 291+48 -LREV3- | 397 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 397 | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 292+55 -LREV3- | 399 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 399 | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 292+64 -LREV3- | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 400 | 401 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 292+65 -LREV3- | 401 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 401 | 398 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | FROM | TO | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282+50- LREV3- | 385C | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 385C | 385A | | | | | | | | | | | | | | | | | | | | | |
| 282+00 -LREV3- | 385A | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 385A | 385B | | | | | | | | | | | | | | | | | | | | | |
| 282+00 - LREV3- | 385B | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| | 385B | 385D | | | | | | | | | | | | | | | | | | | | | |
| 284+10 -LREV3- | 386 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 386 | 386A | | | | | | | | | | | | | | | | | | | | | |
| 284+00 -LREV3- | 387A | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| | 387A | 390 | | | | | | | | | | | | | | | | | | | | | |
| 284+50 -LREV3- | 388 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 388 | 386 | | | | | | | | | | | | | | | | | | | | | |
| 286+00 -LREV3- | 391 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 391 | 388 | | | | | | | | | | | | | | | | | | | | | |
| 287+25 -LREV3- | 392 | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | |
| | 392 | 393 | | | | | | | | | | | | | | | | | | | | | |
| 287+24 -LREV3- | 393 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 393 | 391 | | | | | | | | | | | | | | | | | | | | | |
| 286+00 -LREV3- | 391C | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 391C | 391D | | | | | | | | | | | | | | | | | | | | | |
| 288+50 -LREV3- | 395 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 395 | 393 | | | | | | | | | | | | | | | | | | | | | |
| 290+11 -LREV3- | 395A | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | |
| | 395A | 395B | | | | | | | | | | | | | | | | | | | | | |
| 290+10 -LREV3- | 395B | | 1 | 0.39 | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 395B | 395 | | | | | | | | | | | | | | | | | | | | | |
| 289+50 -LREV3- | 396A | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 396A | 396 | | | | | | | | | | | | | | | | | | | | | |
| 288+31 -LREV3- | 396 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 396 | 396B | | | | | | | | | | | | | | | | | | | | | |
| 291+48 -LREV3- | 397 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 397 | 400 | | | | | | | | | | | | | | | | | | | | | |
| 292+55 -LREV3- | 399 | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | |
| | 399 | 400 | | | | | | | | | | | | | | | | | | | | | |
| 292+64 -LREV3- | 400 | | 1 | 0.4 | | 1 | | 1 | | | | | | | | | | | | | | | |
| | 400 | 401 | | | | | | | | | | | | | | | | | | | | | |
| 292+65 -LREV3- | 401 | | 1 | 1.96 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| | 401 | 398 | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 19 | 3 | 0 | 11 | 0 | 9 | 2 | 0 | 5 | 5 | 5 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |

| STATION | FROM | TO | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282+50- LREV3- | 385C | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 385C | 385A | | | | | | | | | | | | | | | | | | | | |
| 282+00 -LREV3- | 385A | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 385A | 385B | | | | | | | | | | | | | | | | | | | | |
| 282+00 - LREV3- | 385B | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 385B | 385D | | | | | | | | | | | | | | | | | | | | |
| 284+10 -LREV3- | 386 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 386 | 386A | | | | | | | | | | | | | | | | | | | | |
| 284+00 -LREV3- | 387A | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 387A | 390 | | | | | | | | | | | | | | | | | | | | |
| 284+50 -LREV3- | 388 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 388 | 386 | | | | | | | | | | | | | | | | | | | | |
| 286+00 -LREV3- | 391 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 391 | 388 | | | | | | | | | | | | | | | | | | | | |
| 287+25 -LREV3- | 392 | | | | | | | | | | | | | | | | | | | | 74 | 18" RCP Remove STA 286+90 -LREV3-, 2GI(B) |
| | 392 | 393 | | | | | | | | | | | | | | | | | | | | |
| 287+24 -LREV3- | 393 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 393 | 391 | | | | | | | | | | | | | | | | | | | | |
| 286+00 -LREV3- | 391C | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 391C | 391D | | | | | | | | | | | | | | | | | | | | |
| 288+50 -LREV3- | 395 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 395 | 393 | | | | | | | | | | | | | | | | | | | 42 | 18" RCP Remove STA 289+64 -LREV3- |
| 290+11 -LREV3- | 395A | | | | | | | | | | | | | | | | | | | | | 2GI(B) |
| | 395A | 395B | | | | | | | | | | | | | | | | | | | | |
| 290+10 -LREV3- | 395B | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 395B | 395 | | | | | | | | | | | | | | | | | | | | |
| 289+50 -LREV3- | 396A | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 396A | 396 | | | | | | | | | | | | | | | | | | | | |
| 288+31 -LREV3- | 396 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 396 | 396B | | | | | | | | | | | | | | | | | | | | |
| 291+48 -LREV3- | 397 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 397 | 400 | | | | | | | | | | | | | | | | | | | 71 | 18" RCP Remove STA 292+15 -LREV3- |
| 292+55 -LREV3- | 399 | | | | | | | | | | | | | | | | | | | | | 2GI(D) |
| | 399 | 400 | | | | | | | | | | | | | | | | | | | | STA 292+53 -LREV3- Remove DI |
| 292+64 -LREV3- | 400 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 400 | 401 | | | | | | | | | | | | | | | | | | | 73 | 30" RCP Remove STA 292+45 -LREV3- |
| 292+65 -LREV3- | 401 | | | | | | | | | | | | | | | | | | | | | Special Detail DI |
| | 401 | 398 | | | | | | | | | | | | | | | | | | | | STA 291+68 Energy Dissipator Basin |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 260 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-O |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 293+01 -LREV3- | LT | 402 | | 456.36 | 453.36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 402 | 400 | | 453.36 | 450.23 | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | |
| 293+00 -LREV3- | CL | 403 | | 457.44 | 453.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 403 | 401 | | 453.02 | 449.75 | | | | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | |
| 294+51 -LREV3- | CL | 404 | | 461.53 | 457.11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 404 | 403 | | 457.11 | 453.02 | | | | | | 152 | | | | | | | | | | | | | | | | | | | | | | | | |
| 297+00 -LREV3- | CL | 406 | | 468.96 | 464.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 406 | 407 | | 464.71 | 464.27 | | | | | | 48 | | | | | | | | | | | | | | | | | | | | | | | | |
| 297+01 -LREV3- | CL | 407 | | 469.99 | 464.27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 407 | 404 | | 464.27 | 457.11 | | | | | | 248 | | | | | | | | | | | | | | | | | | | | | | | | |
| 298+00 -LREV3- | LT | 408 | | 472.16 | 467.91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 408 | 406 | | 467.91 | 464.71 | | | | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 298+00 -LREV3- | CL | 409 | | 472.88 | 469.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 409 | 408 | | 469.71 | 467.91 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 301+00 -LREV3- | LT | 410 | | 480.77 | 477.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 410 | 408 | | 477.02 | 467.91 | | | | | 296 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 302+34 -LREV3- | LT | 411 | | 482.14 | 478.39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 411 | 410 | | 478.39 | 477.02 | | | | | 132 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 302+35 -LREV3- | CL | 412 | | 486.09 | 482.17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 412 | 411 | | 482.17 | 478.39 | | | | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 303+00 -LREV3- | LT | 413 | | 485.75 | 482.75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 413 | 411 | | 482.75 | 478.39 | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 303+00 -LREV3- | CL | 414 | | 487.29 | 483.37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 414 | 412 | | 483.37 | 482.17 | | | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 305+00 -LREV3- | CL | 416 | | 493.42 | 489.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 416 | 414 | | 489.5 | 483.37 | | | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 307+00 -LREV3- | LT | 418 | | 498 | 495 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 418 | 419 | | 495 | 494.76 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 307+00 -LREV3- | CL | 419 | | 499.15 | 494.76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 419 | 416 | | 494.76 | 489.5 | | | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 309+00 -LREV3- | CL | 420 | | 505.2 | 501.78 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 420 | 419 | | 501.78 | 494.76 | | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 310+00 -LREV3- | CL | 422 | | 508.17 | 504.75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 422 | 420 | | 504.75 | 501.78 | | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 311+00 -LREV3- | LT | 423 | | 509.42 | 506.42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 423 | 424 | | 506.42 | 506.02 | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 311+00 -LREV3- | CL | 424 | | 510.15 | 506.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 424 | 422 | | 506.02 | 504.75 | | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 312+50 -LREV3- | LT | 425 | | 512.57 | 509.57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 425 | 423 | | 509.57 | 506.42 | | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 312+50 -LREV3- | CL | 426 | | 513.17 | 510 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 426 | 425 | | 510 | 509.57 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315+47 -LREV3- | RT | 429 | | 517.71 | 515.78 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 429 | 428 | | 515.78 | 515.24 | | | 136 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315+64 -LREV3- | CL | 430 | | 519.27 | 516.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 430 | 429 | | 516.1 | 515.78 | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 319+42 -L- | LT | 431 | | 516.19 | 513.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 431 | 432 | | 513.19 | 510.29 | | | 108 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 320+50 -L- | LT | 432 | | 513.67 | 510.29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 432 | 434 | | 510.29 | 487.67 | | | 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1140 | 436 | 948 | 548 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | STRUCTURE NO. FROM | STRUCTURE NO. TO | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 293+01 -LREV3- | 402 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 402 | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 293+00 -LREV3- | 403 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 403 | 401 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 294+51 -LREV3- | 404 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 404 | 403 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 297+00 -LREV3- | 406 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 406 | 407 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 297+01 -LREV3- | 407 | | | | | | | | 1 | 0.72 | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 407 | 404 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 298+00 -LREV3- | 408 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 408 | 406 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 298+00 -LREV3- | 409 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 409 | 408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 301+00 -LREV3- | 410 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 410 | 408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 302+34 -LREV3- | 411 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 411 | 410 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 302+35 -LREV3- | 412 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 412 | 411 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 303+00 -LREV3- | 413 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 413 | 411 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 303+00 -LREV3- | 414 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 414 | 412 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 305+00 -LREV3- | 416 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 416 | 414 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 307+00 -LREV3- | 418 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 418 | 419 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 307+00 -LREV3- | 419 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 419 | 416 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 309+00 -LREV3- | 420 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 420 | 419 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 310+00 -LREV3- | 422 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 422 | 420 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 311+00 -LREV3- | 423 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 423 | 424 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 311+00 -LREV3- | 424 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 424 | 422 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 312+50 -LREV3- | 425 | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 425 | 423 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 312+50 -LREV3- | 426 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 426 | 425 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 65 | 18" RCP Remove STA 312+93 -LREV3- |
| 315+47 -LREV3- | 429 | | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2GI(D) |
| | 429 | 428 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315+64 -LREV3- | 430 | | | | | | | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 430 | 429 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 319+42 -L- | 431 | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 431 | 432 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 320+50 -L- | 432 | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 432 | 434 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 1 | 0 | 11 | 0 | 9 | 2 | 0 | 13 | 13 | 13 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 65 | |

| ABBREVIATIONS | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-P |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | PREFORMED SCOUR HOLE | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 320+50 -L- | RT | 433 | | 513.67 | 510.67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 433 | 432 | | 510.67 | 510.29 | | | 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 325+50 -L- | LT | 434 | | 490.67 | 487.67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 434 | 437 | | 487.67 | 469.22 | | | 352 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 325+50 -L- | RT | 435 | | 490.67 | 487.67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 435 | 438 | | 487.67 | 469.47 | | | 348 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 329+00 -L- | LT | 437 | | 472.47 | 469.22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 437 | 440 | | 469.22 | 459.52 | | | | 252 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 329+00 -L- | RT | 438 | | 472.47 | 469.47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 438 | 441 | | 469.47 | 459.52 | | | 252 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 331+50 -L- | LT | 440 | | 462.77 | 459.52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 440 | 443 | | 459.52 | 454.75 | | | | 136 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 331+50 -L- | RT | 441 | | 462.77 | 459.52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 441 | 442 | | 459.52 | 456.38 | | | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 332+50 -L- | RT | 442 | | 459.63 | 456.38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 442 | 444 | | 456.38 | 455.44 | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 332+86 -L- | LT | 443 | | 458.5 | 454.75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 443 | 446 | | 454.75 | 453.89 | | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 332+86 -L- | RT | 444 | | 458.69 | 455.44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 444 | 445 | | 455.44 | 453.86 | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 333+21 -L- | LT | 446 | | 457.64 | 453.89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 446 | 449 | | 453.89 | 451.31 | | | | | 132 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 65 | STA 333+85 -L- Remove 18"RCP |
| 334+53 -L- | LT | 449 | | 455.06 | 451.31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 449 | 448 | | 451.31 | 441.24 | | | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 334+52 -L- | RT | 450 | | 455.09 | 452.09 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 450 | 451 | | 452.09 | 450.42 | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | PSH STA 334+52 -L- |
| 336+30 -L- | LT | 452 | | 451.18 | 448.18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 452 | 454 | | 448.18 | 447.82 | | | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 336+50 -L- | RT | 453 | | 452.42 | 449.42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 453 | 455 | | 449.42 | 448.4 | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 337+00 -L- | LT | 454 | | 451.16 | 447.82 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 454 | 457 | | 447.82 | 446.55 | | | 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 337+00 -L- | RT | 455 | | 451.4 | 448.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 455 | 460 | | 448.4 | 446.06 | | | 180 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 338+50 -L- | LT | 457 | | 449.55 | 446.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 457 | 459 | | 446.06 | | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 339+00 -L- | LT | 459 | | 449.06 | 446.06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 459 | OUT | | 446.06 | | | | | | | | | | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2@15" | | | | |
| 338+81 -L- | RT | 460 | | 449.06 | 446.06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 460 | 458 | | 446.06 | 435.45 | | | | | | | | | | | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2@15" | | | | |
| 340+00 -L- | LT | 461 | | 448.43 | 445.43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | | 461 | 463 | | 445.43 | 445.27 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 340+00 -L- | RT | 462 | | 448.43 | 445.43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | | 462 | 464 | | 445.43 | 445.27 | | | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 340+31 -L- | LT | 463 | | 448.39 | 445.27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | | 463 | 465 | | 445.27 | 445.05 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 340+31 -L- | RT | 464 | | 448.39 | 445.27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.418 | | STA 340+54 -L- Collar, CB w/ TYPE E |
| | | 464 | 466 | | 445.27 | 445.05 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.418 | | STA 340+75 -L- Collar |
| 340+75 -L- | LT | 465 | | 448.47 | 445.05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0.465 | | | STA 340+76 -L- PLUG 48" CMP, CB w/ TYPE F |
| SHEET TOTALS | | | | | | | | 0 | 1824 | 460 | 232 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 2 | 12 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4@15" | 0.465 | 6.836 | 65 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-Q |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 465 | 467 | | 445.05 | 444.91 | | | 24 | | | | | | |
| 340+75 -L- | RT | 466 | | 448.47 | 445.05 | | | | | | | | | | |
| | | 466 | 468 | | 445.05 | 444.91 | | | 24 | | | | | | |
| 341+00 -L- | LT | 467 | | 448.54 | 444.91 | | | | | | | | | | |
| | | 467 | 469 | | 444.91 | 444.53 | | | 76 | | | | | | |
| 341+00 -L- | RT | 468 | | 448.54 | 444.91 | | | | | | | | | | |
| | | 468 | 470 | | 444.91 | 444.53 | | | 76 | | | | | | |
| 341+75 -L- | LT | 469 | | 448.91 | 444.53 | | | | | | | | | | |
| | | 469 | 469A | | 444.53 | 430.05 | | | | | | | | | |
| 341+75 -L- | RT | 470 | | 448.91 | 444.53 | | | | | | | | | | |
| | | 470 | 471 | | 444.53 | 434.49 | | | | | | | | | |
| 342+60 -L- | LT | 471A | | 449.85 | 446.85 | | | | | | | | | | |
| | | 471A | 469 | | 446.85 | 444.53 | | | 84 | | | | | | |
| 342+60 -L- | RT | 471B | | 449.85 | 446.85 | | | | | | | | | | |
| | | 471B | 470 | | 446.85 | 444.53 | | | 84 | | | | | | |
| 343+50 -L- | LT | 472 | | 451.58 | 448.58 | | | | | | | | | | |
| | | 472 | 471A | | 448.58 | 446.85 | | | 92 | | | | | | |
| 343+50 -L- | RT | 473 | | 451.58 | 448.33 | | | | | | | | | | |
| | | 473 | 474 | | 448.33 | 446.3 | | | | 32 | | | | | |
| 346+00 -L- | LT | 475 | | 459.26 | 456.01 | | | | | | | | | | |
| | | 475 | 476 | | 456.01 | 455.63 | | | 76 | | | | | | |
| 346+00 -L- | RT | 476 | | 459.26 | 455.63 | | | | | | | | | | |
| | | 476 | 473 | | 455.63 | 448 | | | | 252 | | | | | |
| 349+78 -L- | CL | 477 | | 475.31 | 472.14 | | | | | | | | | | |
| | | 477 | 478 | | 472.14 | 471.75 | | | 44 | | | | | | |
| | | 478 | 476 | | 471.75 | 455.63 | | | 380 | | | | | | |
| 350+28 -L- | CL | 479 | | 477.34 | 474.17 | | | | | | | | | | |
| | | 479 | 477 | | 474.17 | 472.14 | | | 52 | | | | | | |
| 351+28 -L- | CL | 480 | | 481.33 | 478.16 | | | | | | | | | | |
| | | 480 | 479 | | 478.16 | 474.17 | | | 100 | | | | | | |
| 352+00 -L- | RT | 482 | | 483.11 | 479.86 | | | | | | | | | | |
| | | 482 | 481 | | 479.86 | 476.58 | | | | 24 | | | | | |
| 352+50 -L- | CL | 483 | | 486.06 | 482.89 | | | | | | | | | | |
| | | 483 | 484 | | 482.89 | 481.75 | | | 44 | | | | | | |
| 352+50 -L- | RT | 484 | | 485 | 481.75 | | | | | | | | | | |
| | | 484 | 482 | | 481.75 | 479.86 | | | | 48 | | | | | |
| 354+50 -L- | CL | 485 | | 492.31 | 489.14 | | | | | | | | | | |
| | | 485 | 486 | | 489.14 | 488 | | | 44 | | | | | | |
| 354+51 -L- | RT | 486 | | 491.25 | 488 | | | | | | | | | | |
| | | 486 | 484 | | 488 | 481.75 | | | | 196 | | | | | |
| 357+00 -L- | CL | 487 | | 497.39 | 494.22 | | | | | | | | | | |
| | | 487 | 488 | | 494.22 | 493.33 | | | 44 | | | | | | |
| 357+00 -L- | RT | 488 | | 496.33 | 493.33 | | | | | | | | | | |
| | | 488 | 486 | | 493.33 | 488 | | | 244 | | | | | | |
| 359+50 -L- | CL | 489 | | 502.27 | 499.1 | | | | | | | | | | |
| | | 489 | 490 | | 499.1 | 498.21 | | | 44 | | | | | | |
| 359+51 -L- | RT | 490 | | 501.21 | 498.21 | | | | | | | | | | |
| | | 490 | 488 | | 498.21 | 493.33 | | | 244 | | | | | | |
| 361+32 -L- | CL | 491 | | 504.82 | 501.65 | | | | | | | | | | |
| | | 491 | 492 | | 501.65 | 500.76 | | | 44 | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1820 | 552 | 0 | 0 | 0 | 0 | 0 |

| STRUCTURE NO. FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 24" | 30" | 30" | 36" | 36" | 42" | 42" | 48" | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| THICKNESS OR GAUGE | | .064 | .064 | .064 | .064 | | .079 | | .079 | | .109 | | .109 | | | | | | | | | | | | | | | |
| 465 | 467 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 466 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 466 | 468 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 467 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 467 | 469 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 468 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 468 | 470 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 469 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 469 | 469A | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 470 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 470 | 471 | | 60 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 471A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 471A | 469 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 471B | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 471B | 470 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 472 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 472 | 471A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 473 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 473 | 474 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 475 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 475 | 476 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 476 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 476 | 473 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 477 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 477 | 478 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 478 | 476 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 479 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 479 | 477 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 480 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 480 | 479 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 482 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 482 | 481 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 483 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 483 | 484 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 484 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 484 | 482 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 485 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 485 | 486 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 486 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 486 | 484 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 487 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 487 | 488 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 488 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 488 | 486 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 489 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 489 | 490 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 490 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 490 | 488 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 491 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 491 | 492 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 0 | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STRUCTURE NO. FROM | TO | QUANITIES FOR DRAINAGE STRUCTURES: PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A: 5.0' THRU 10.0' | B: 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 465 | 467 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 466 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 466 | 468 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 467 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 467 | 469 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 468 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 468 | 470 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 469 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 469 | 469A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2@15" | | | | |
| 470 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 470 | 471 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2@15" | | | | |
| 471A | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 471A | 469 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 471B | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 471B | 470 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 472 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 472 | 471A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 473 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 473 | 474 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 475 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 475 | 476 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 476 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 476 | 473 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 477 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 477 | 478 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 478 | 476 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 479 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 479 | 477 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 480 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 480 | 479 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 482 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 482 | 481 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 483 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 483 | 484 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 484 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 484 | 482 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 485 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 485 | 486 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 486 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 486 | 484 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 487 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 487 | 488 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 488 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 488 | 486 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 489 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 489 | 490 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 490 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 490 | 488 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 491 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 491 | 492 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 24 | 0 | 0 | 16 | 0 | 5 | 11 | 0 | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4@15" | 0 | 0 | 0 | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-R |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 361+32 -L- | RT | 492 | | 503.76 | 500.76 | | | | | | | | | | | | CB w/ TYPE G |
| | | 492 | 490 | | 500.76 | 498.21 | | | 176 | | | | | | | 62 | STA 363+38 -L- Remove18" RCP |
| 364+63 -L- | LT | 496 | | 504.4 | 501.4 | | | | | | | | | | | | CB w/ TYPE G |
| | | 496 | 498 | | 501.4 | 501.24 | | | 32 | | | | | | | | |
| 364+32 -L- | RT | 497 | | 504.47 | 501.22 | | | | | | | | | | | | CB w/ TYPE F |
| | | 497 | 499 | | 501.22 | 500.58 | | | | 64 | | | | | | | |
| 364+95 -L- | LT | 498 | | 504.39 | 501.24 | | | | | | | | | | | | CB w/ TYPE E |
| | | 498 | 500 | | 501.24 | 499.17 | | | 56 | | | | | | | | |
| 364+95 -L- | RT | 499 | | 504.39 | 500.58 | | | | | | | | | | | | CB w/ TYPE E |
| | | 499 | 501 | | 500.58 | 499.74 | | | | 56 | | | | | | | |
| 365+50 -L- | LT | 500 | | 504.44 | 499.31 | | | | | | | | | | | | CB w/ TYPE F |
| | | 500 | 500A | | 499.31 | 498.09 | | | | 44 | | | | | | | |
| | | | | | | | | | | | | | | | | | SCOUR HOLE STA 365+35 -L- |
| 364+32 -L- | RT | 500B | 497 | | 501.46 | 501.36 | | | | 28 | | | | | | | OPEN END |
| 365+50 -L- | RT | 501 | | 504.44 | 499.88 | | | | | | | | | | | | CB w/ TYPE F |
| | | 501 | 500 | | 499.88 | 499.31 | | | | 76 | | | | | | | |
| 366+00 -L- | LT | 501A | | 504.6 | 501.6 | | | | | | | | | | | | CB w/ TYPE F |
| | | 501A | 500 | | 501.6 | 499.31 | | | 52 | | | | | | | | |
| 366+00 -L- | RT | 501B | | 504.6 | 501.6 | | | | | | | | | | | | CB w/ TYPE G |
| | | 501B | 501 | | 501.6 | 499.98 | | | 52 | | | | | | | | |
| 366+55 -L- | LT | 502 | | 504.8 | 501.8 | | | | | | | | | | | | CB w/ TYPE F |
| | | 502 | 501A | | 501.8 | 501.6 | | | 56 | | | | | | | | |
| 366+55 -L- | RT | 503 | | 504.8 | 501.8 | | | | | | | | | | | | CB w/ TYPE G |
| | | 503 | 501B | | 501.8 | 501.6 | | | 56 | | | | | | | | |
| 369+50 -L- | LT | 504 | | 504.84 | 501.84 | | | | | | | | | | | | CB w/ TYPE G |
| | | 504 | 506 | | 501.84 | 500.32 | | | 152 | | | | | | | | |
| 369+50 -L- | RT | 505 | | 504.84 | 501.84 | | | | | | | | | | | | CB w/ TYPE F |
| | | 505 | 507 | | 501.84 | 500.7 | | | 152 | | | | | | | | |
| 371+00 -L- | LT | 506 | | 503.7 | 500.32 | | | | | | | | | | | | CB w/ TYPE G |
| | | 506 | 508 | | 500.32 | 498.77 | | | 200 | | | | | | | | |
| 371+00 -L- | RT | 507 | | 503.7 | 500.7 | | | | | | | | | | | | CB w/ TYPE F |
| | | 507 | 506 | | 500.7 | 500.32 | | | 76 | | | | | | | | |
| 373+00 -L- | LT | 508 | | 501.77 | 498.77 | | | | | | | | | | | | CB w/ TYPE G |
| | | 508 | 510 | | 498.77 | 497.58 | | | 124 | | | | | | | | |
| 373+00 -L- | RT | 509 | | 501.77 | 498.77 | | | | | | | | | | | | CB w/ TYPE F |
| | | 509 | 511 | | 498.77 | 497.58 | | | 124 | | | | | | | | |
| 374+25 -L- | LT | 510 | | 500.58 | 497.58 | | | | | | | | | | | | CB w/ TYPE G |
| | | 510 | 513 | | 497.58 | 496.11 | | | 124 | | | | | | | | |
| 374+25 -L- | RT | 511 | | 500.58 | 497.58 | | | | | | | | | | | | CB w/ TYPE F |
| | | 511 | 514 | | 497.58 | 496.11 | | | 124 | | | | | | | | |
| 375+50 -L- | LT | 513 | | 499.11 | 496.11 | | | | | | | | | | | | CB w/ TYPE G |
| | | 513 | 512 | | 496.11 | 494.84 | | | 24 | | | | | | | | |
| 375+50 -L- | RT | 514 | | 499.11 | 496.11 | | | | | | | | | | | | CB w/ TYPE F |
| | | 514 | 516 | | 496.11 | 494.89 | | | 100 | | | | | | | | |
| 377+00 -L- | LT | 515 | | 497.16 | 494.16 | | | | | | | | | | | | CB w/ TYPE G |
| | | 515 | 517 | | 494.16 | 491.83 | | | 152 | | | | | | | | |
| 376+50 -L- | RT | 516 | | 497.89 | 494.89 | | | | | | | | | | | | CB w/ TYPE F |
| | | 516 | 518 | | 494.89 | 491.96 | | | 200 | | | | | | | | |
| 375+50 -L- | RT | 516A | 516 | | 497.5 | 494.89 | | | 28 | | | | | | | | OPEN END |
| 378+50 -L- | LT | 517 | | 494.83 | 491.83 | | | | | | | | | | | | CB w/ TYPE G |
| SHEET TOTALS | | | | | | | | 0 | 2060 | 268 | 0 | 0 | 0 | 0 | 0 | 62 | |

| STATION | STRUCTURE NO. FROM | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | PREFORMED SCOUR HOLE |
|---|---|---|---|---|---|---|---|---|---|
| 361+32 -L- | 492 | 1 | | | 1 | | | 1 | |
| 364+63 -L- | 496 | 1 | | | 1 | | | 1 | |
| 364+32 -L- | 497 | 1 | | | 1 | | 1 | | |
| 364+95 -L- | 498 | 1 | | | 1 | 1 | | | |
| 364+95 -L- | 499 | 1 | | | 1 | 1 | | | |
| 365+50 -L- | 500 | 1 | 0.13 | | 1 | | 1 | | |
| | | | | | | | | | 1 |
| 365+50 -L- | 501 | 1 | | | 1 | | 1 | | |
| 366+00 -L- | 501A | 1 | | | 1 | 1 | | | |
| 366+00 -L- | 501B | 1 | | | 1 | 1 | | | |
| 366+55 -L- | 502 | 1 | | | 1 | | 1 | | |
| 366+55 -L- | 503 | 1 | | | 1 | | | 1 | |
| 369+50 -L- | 504 | 1 | | | 1 | | | 1 | |
| 369+50 -L- | 505 | 1 | | | 1 | | 1 | | |
| 371+00 -L- | 506 | 1 | | | 1 | | | 1 | |
| 371+00 -L- | 507 | 1 | | | 1 | | 1 | | |
| 373+00 -L- | 508 | 1 | | | 1 | | | 1 | |
| 373+00 -L- | 509 | 1 | | | 1 | | 1 | | |
| 374+25 -L- | 510 | 1 | | | 1 | | | 1 | |
| 374+25 -L- | 511 | 1 | | | 1 | | 1 | | |
| 375+50 -L- | 513 | 1 | | | 1 | | | 1 | |
| 375+50 -L- | 514 | 1 | | | 1 | | 1 | | |
| 377+00 -L- | 515 | 1 | | | 1 | | | 1 | |
| 376+50 -L- | 516 | 1 | | | 1 | | 1 | | |
| 378+50 -L- | 517 | 1 | | | 1 | | | 1 | |
| SHEET TOTALS | | 24 | 0.13 | 0 | 24 | 4 | 10 | 10 | 1 |

| | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

RD248595

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-S |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 517 | 519 | | 491.83 | 419.31 | | | | 84 | | | | | |
| 378+50 -L- | RT | 518 | | 495.21 | 491.96 | | | | | | | | | | |
| | | 518 | 521 | | 491.96 | 490.56 | | | | 124 | | | | | |
| 379+75 -L- | RT | 521 | | 493.81 | 490.56 | | | | | | | | | | |
| | | 521 | 523 | | 490.56 | 489.69 | | | | 124 | | | | | |
| 381+00 -L- | LT | 522 | | 492.73 | 489.73 | | | | | | | | | | |
| | | 522 | 524 | | 489.73 | 489.11 | | | | | 124 | | | | |
| 381+00 -L-. | RT | 523 | | 492.99 | 489.24 | | | | | | | | | | |
| | | 523 | 522 | | 489.24 | 488.24 | | | | 88 | | | | | |
| 382+25 -L- | LT | 524 | | 491.73 | 488.73 | | | | | | | | | | |
| | | 524 | 526 | | 488.73 | 488.59 | | | | | 24 | | | | |
| 382+25 -L- | RT | 525 | | 491.99 | 488.24 | | | | | | | | | | |
| | | 525 | 527 | | 488.24 | 488.09 | | | 24 | | | | | | |
| 382+50 -L- | LT | 526 | | 491.59 | 488.59 | | | | | | | | | | |
| | | 526 | 530 | | 488.59 | 488.33 | | | | | 52 | | | | |
| 382+50 -L- | RT | 527 | | 491.84 | 488.09 | | | | | | | | | | |
| | | 527 | 529 | | 488.09 | 487.97 | | | 24 | | | | | | |
| 382+75 -L- | RT | 529 | | 491.87 | 487.97 | | | | | | | | | | |
| | | 529 | 532 | | 487.97 | 487.47 | | | 100 | | | | | | |
| 383+00 -L- | LT | 530 | | 491.66 | 488.33 | | | | | | | | | | |
| | | 530 | 531 | | 488.33 | 487.95 | | | | | 76 | | | | |
| 383+75 -L- | LT | 531 | | 491.8 | 487.95 | | | | | | | | | | |
| | | 531 | 535 | | 487.95 | 482.59 | | | | | 72 | | | | |
| 383+75 -L- | RT | 532 | | 491.92 | 487.47 | | | | | | | | | | |
| | | 532 | 536 | | 487.47 | 483.35 | | | 72 | | | | | | |
| 384+40 -L- | RT | 533 | 536 | | 483.55 | 483.35 | | | | | 40 | | | | |
| 384+47 -L- | LT | 535 | | 492.26 | 482.59 | | | | | | | | | | |
| | | 535 | 534 | | 482.59 | 482 | | | | | 40 | | | | |
| 384+47 -L- | RT | 536 | | 492.26 | 483.35 | | | | | | | | | | |
| | | 536 | 535 | | 483.35 | 482.59 | | | | | 76 | | | | |
| 386+07 -L- | CL | 538 | | 494.82 | 491.65 | | | | | | | | | | |
| | | 538 | 539 | | 491.65 | 491.25 | | | 44 | | | | | | |
| 386+07 -L- | RT | 539 | | 494.25 | 491.25 | | | | | | | | | | |
| | | 539 | 537 | | 490 | | | | 64 | | | | | | |
| 386+32 -L- | CL | 540 | | 495.32 | 492.15 | | | | | | | | | | |
| | | 540 | 538 | | 492.15 | 491.65 | | | 24 | | | | | | |
| 386+57 -L- | CL | 541 | | 495.84 | 492.67 | | | | | | | | | | |
| | | 541 | 540 | | 492.67 | 492.15 | | | 24 | | | | | | |
| 387+57 -L- | CL | 542 | | 498.83 | 493.58 | | | | | | | | | | |
| | | 542 | 541 | | 493.58 | 492.67 | | | 100 | | | | | | |
| 387+57 -L- | RT | 543 | | 496.82 | 493.82 | | | | | | | | | | |
| | | 543 | 542 | | 493.82 | 493.58 | | | 48 | | | | | | |
| 388+80 -L- | CL | 546 | | 500.78 | 497.61 | | | | | | | | | | |
| | | 546 | 547A | | 497.61 | 497.09 | | | 104 | | | | | | |
| 389+96 -L- | CL | 547A | | 503.37 | 497.09 | | | | | | | | | | |
| | | 547A | 547 | | 497.09 | 496.99 | | | | | 20 | | | | |
| 389+84 -L- | RT | 548 | | 501.84 | 497.65 | | | | | | | | | | |
| | | 548 | 547A | | 497.65 | 497.09 | | | | | 32 | | | | |
| 391+50 -L- | RT | 551 | | 504.58 | 498.45 | | | | | | | | | | |
| | | 551 | 548 | | 498.45 | 497.65 | | | | | 160 | | | | |
| SHEET TOTALS | | | | | | | | 0 | 628 | 420 | 716 | 0 | 0 | 0 | 0 |

| | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| STATION | STRUCTURE NO. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 378+50 -L- | 518 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE F |
| 379+75 -L- | 521 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE F |
| 381+00 -L- | 522 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE G |
| 381+00 -L-. | 523 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE F |
| 382+25 -L- | 524 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE G |
| 382+25 -L- | 525 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE F |
| 382+50 -L- | 526 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE E |
| 382+50 -L- | 527 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE E |
| 382+75 -L- | 529 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE F |
| 383+00 -L- | 530 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE G |
| 383+75 -L- | 531 | 1 | | | 1 | | 1 | | | | | | | | | | CB w/ TYPE F |
| 383+75 -L- | 532 | 1 | | | 1 | | | 1 | | | | | | | | | |
| | 532-536 | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 384+40 -L- | 533-536 | | | | | | | | | | | | | | | 23 | STA 384+40 -L- Remove pipe |
| 384+47 -L- | 535 | 1 | 4.29 | | 1 | | 1 | | | | | | | | | 74 | STA 384+46-L- 24"RCP Remove, CB w/ TYPE F |
| 384+47 -L- | 536 | 1 | 3.91 | | 1 | | 1 | | | | | | | | | | CB w/ TYPE G |
| 386+07 -L- | 538 | 1 | | | | | | | | 1 | 1 | 1 | | | | | DI w/ FL GR |
| 386+07 -L- | 539 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE F |
| 386+32 -L- | 540 | 1 | | | | | | | | 1 | 1 | 1 | | | | | DI w/ FL GR |
| 386+57 -L- | 541 | 1 | | | | | | | | 1 | 1 | 1 | | | | | DI w/ FL GR |
| 387+57 -L- | 542 | 1 | 0.25 | | | | | | | 1 | 1 | 1 | | | | | DI w/ FL GR |
| 387+57 -L- | 543 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE G |
| 388+80 -L- | 546 | 1 | | | | | | | | 1 | 1 | 1 | | | | | DI w/ FL GR |
| 389+96 -L- | 547A | 1 | 1.28 | | | | | | | 1 | 1 | 1 | | | | | JB w/ MH |
| 389+84 -L- | 548 | 1 | | | 1 | | | 1 | | | | | | | | | CB w/ TYPE G |
| 391+50 -L- | 551 | 1 | 1.13 | | 1 | | | 1 | | | | | | | | | CB w/ TYPE G |
| SHEET TOTALS | | 24 | 11 | 0 | 18 | 0 | 9 | 9 | 0 | 6 | 6 | 6 | 0 | 0 | 0 | 97 | |

| | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET TOTALS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-T |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 389+85 -L- | RT | 549 | | | | | | | | | | | | | |
| | | 549 | 548 | | | | | | 20 | | | | | | |
| 391+54 -L- | CL | 552 | | | | | | | | | | | | | |
| | | 552 | 551 | | | | | | | | 28 | | | | |
| 392+38 -L- | CL | 553 | | | | | | | | | | | | | |
| | | 553 | 552 | | | | | | | | 84 | | | | |
| 393+25 -L- | CL | 554 | | | | | | | | | | | | | |
| | | 554 | 553 | | | | | | | | 88 | | | | |
| 395+75 -L- | CL | 556 | | | | | | | | | | | | | |
| | | 556 | 554 | | | | | | | 252 | | | | | |
| 393+25 -L- | RT | 555 | | | | | | | | | | | | | |
| | | 555 | 554 | | | | | | 44 | | | | | | |
| 396+00 -L- | CL | 557 | | | | | | | | | | | | | |
| | | 557 | 556 | | | | | | | 24 | | | | | |
| 396+00 -L- | CL | 558 | | | | | | | | | | | | | |
| | | 558 | 557 | | | | | | | 40 | | | | | |
| 397+70-L- | LT | 559 | | | | | | | | | | | | | |
| | | 559 | 558 | | | | | | | 144 | | | | | |
| 399+00 -L- | LT | 561 | | | | | | | | | | | | | |
| | | 561 | 559 | | | | | | | 128 | | | | | |
| 398+50 -L- | CL | 560 | | | | | | | | | | | | | |
| | | 560 | 562 | | | | | | 52 | | | | | | |
| 400+50 -L- | LT | 563 | | | | | | | | | | | | | |
| | | 563 | 561 | | | | | | 144 | | | | | | |
| 399+00 -L- | CL | 562 | | | | | | | | | | | | | |
| | | 562 | 561 | | | | | | 60 | | | | | | |
| 400+50 -L- | LT | 563A | | | | | | | | | | | | | |
| | | 563A | 563 | | | | | | 16 | | | | | | |
| | | | | | | | | | | | | | | | |
| 400+50 -L- | CL | 564 | | | | | | | | | | | | | |
| | | 564 | 563 | | | | | | 56 | | | | | | |
| 402+00 -L | CL | 565 | | | | | | | | | | | | | |
| | | 565 | 567 | | | | | | 52 | | | | | | |
| 402+50 -L- | LT | 566 | | | | | | | | | | | | | |
| | | 566 | 568 | | | | | | 120 | | | | | | |
| 402+50 -L- | CL | 567 | | | | | | | | | | | | | |
| | | 567 | 566 | | | | | | 44 | | | | | | |
| 403+74 -L- | LT | 568 | | | | | | | | | | | | | |
| | | 568 | 570 | | | | | | 124 | | | | | | |
| 403+75 -L- | CL | 569 | | | | | | | | | | | | | |
| | | 569 | 568 | | | | | | 44 | | | | | | |
| 405+00 -L- | LT | 570 | | | | | | | | | | | | | |
| | | 570 | 572 | | | | | | 64 | | | | | | |
| 405+00 -L- | CL | 571 | | | | | | | | | | | | | |
| | | 571 | 570 | | | | | | 44 | | | | | | |
| 405+64 -L- | LT | 572 | | | | | | | | | | | | | |
| | | 572 | 574 | | | | | | 116 | | | | | | |
| 406+23 -L- | CL | 573 | | | | | | | | | | | | | |
| | | 573 | 575 | | | | | | 60 | | | | | | |
| | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 0 | 1060 | 588 | 200 | 0 | 0 | 0 | 0 |

| FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 549 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 549 | 548 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 552 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 552 | 551 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 553 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 553 | 552 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 554 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 554 | 553 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 556 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 556 | 554 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 555 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 555 | 554 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 557 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 557 | 556 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 558 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 558 | 557 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 559 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 559 | 558 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 561 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 561 | 559 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 560 | 562 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 563 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 563 | 561 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 562 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 562 | 561 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 563A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 563A | 563 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 564 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 564 | 563 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 565 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 565 | 567 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 566 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 566 | 568 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 567 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 567 | 566 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 568 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 568 | 570 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 569 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 569 | 568 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 570 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 570 | 572 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 571 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 571 | 570 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 572 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 572 | 574 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 573 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 573 | 575 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| FROM | TO | QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 549 | | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | |
| 549 | 548 | | | | | | | | | | | | | | | | | | | | | |
| 552 | | 1 | 2.29 | | 1 | | | 1 | | | | | | | | | | | | | | |
| 552 | 551 | | | | | | | | | | | | | | | | | | | | | |
| 553 | | 1 | 3.48 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 553 | 552 | | | | | | | | | | | | | | | | | | | | | |
| 554 | | 1 | 4.2 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 554 | 553 | | | | | | | | | | | | | | | | | | | | | |
| 556 | | 1 | 5 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 556 | 554 | | | | | | | | | | | | | | | | | | | | | |
| 555 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| 555 | 554 | | | | | | | | | | | | | | | | | | | | | |
| 557 | | 1 | 4.97 | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 557 | 556 | | | | | | | | | | | | | | | | | | | | | |
| 558 | | 1 | 3.96 | | 1 | | 1 | | | | | | | | | | | | | | | |
| 558 | 557 | | | | | | | | | | | | | | | | | | | | | |
| 559 | | 1 | 2.14 | | 1 | | 1 | | | | | | | | | | | | | | | |
| 559 | 558 | | | | | | | | | | | | | | | | | | | | | |
| 561 | | 1 | 0.4 | | 1 | | | 1 | | | | | | | | | | | | | | |
| 561 | 559 | | | | | | | | | | | | | | | | | | | | | |
| 560 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 560 | 562 | | | | | | | | | | | | | | | | | | | | | |
| 563 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| 563 | 561 | | | | | | | | | | | | | | | | | | | | | |
| 562 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 562 | 561 | | | | | | | | | | | | | | | | | | | | | |
| 563A | | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | |
| 563A | 563 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 564 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 564 | 563 | | | | | | | | | | | | | | | | | | | | | |
| 565 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 565 | 567 | | | | | | | | | | | | | | | | | | | | | |
| 566 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| 566 | 568 | | | | | | | | | | | | | | | | | | | | | |
| 567 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 567 | 566 | | | | | | | | | | | | | | | | | | | | | |
| 568 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| 568 | 570 | | | | | | | | | | | | | | | | | | | | | |
| 569 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 569 | 568 | | | | | | | | | | | | | | | | | | | | | |
| 570 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| 570 | 572 | | | | | | | | | | | | | | | | | | | | | |
| 571 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 571 | 570 | | | | | | | | | | | | | | | | | | | | | |
| 572 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |
| 572 | 574 | | | | | | | | | | | | | | | | | | | | | |
| 573 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| 573 | 575 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 24 | 26 | 0 | 10 | 0 | 2 | 8 | 0 | 12 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| FROM | TO | | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 549 | | | | | | | | | | | | | | | | | | | | | DI |
| 549 | 548 | | | | | | | | | | | | | | | | | | | | |
| 552 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 552 | 551 | | | | | | | | | | | | | | | | | | | | |
| 553 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 553 | 552 | | | | | | | | | | | | | | | | | | | | |
| 554 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 554 | 553 | | | | | | | | | | | | | | | | | | | | |
| 556 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 556 | 554 | | | | | | | | | | | | | | | | | | | | |
| 555 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 555 | 554 | | | | | | | | | | | | | | | | | | | | |
| 557 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 557 | 556 | | | | | | | | | | | | | | | | | | | | |
| 558 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| 558 | 557 | | | | | | | | | | | | | | | | | | | | STA 12+30 -Y19- Remove & Replace CB |
| 559 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 559 | 558 | | | | | | | | | | | | | | | | | | | | |
| 561 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 561 | 559 | | | | | | | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 560 | 562 | | | | | | | | | | | | | | | | | | | | |
| 563 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 563 | 561 | | | | | | | | | | | | | | | | | | | | |
| 562 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 562 | 561 | | | | | | | | | | | | | | | | | | | | |
| 563A | | | | | | | | | | | | | | | | | | | | | DI |
| 563A | 563 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 564 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 564 | 563 | | | | | | | | | | | | | | | | | | | | |
| 565 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 565 | 567 | | | | | | | | | | | | | | | | | | | | |
| 566 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 566 | 568 | | | | | | | | | | | | | | | | | | | | |
| 567 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 567 | 566 | | | | | | | | | | | | | | | | | | | | |
| 568 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 568 | 570 | | | | | | | | | | | | | | | | | | | | |
| 569 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 569 | 568 | | | | | | | | | | | | | | | | | | | | |
| 570 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 570 | 572 | | | | | | | | | | | | | | | | | | | | |
| 571 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 571 | 570 | | | | | | | | | | | | | | | | | | | | |
| 572 | | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| 572 | 574 | | | | | | | | | | | | | | | | | | | | |
| 573 | | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 573 | 575 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

ABBREVIATIONS

- C.B. CATCH BASIN
- N.D.I. NARROW DROP INLET
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
- G.D.I.(N.S.) GRATED DROP INLET (NARROW SLOT)
- J.B. JUNCTION BOX
- M.H. MANHOLE
- T.B.D.I. TRAFFIC BEARING DROP INLET
- T.B.J.B. TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-U |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)*

RD248595

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 406+83 -L- | LT | 574 | | 504.87 | 501.52 | | | | | | | | | | |
| | | 574 | OUT | | 501.52 | 501.38 | | | 28 | | | | | | |
| 406+83 -L- | CL | 575 | | 505.63 | 502.46 | | | | | | | | | | |
| | | 575 | 576 | | 502.46 | 502.26 | | | 40 | | | | | | |
| 407+23 -L- | CL | 576 | | 505.42 | 502.26 | | | | | | | | | | |
| | | 576 | 577 | | 502.26 | 502.11 | | | 28 | | | | | | |
| 407+50 -L- | CL | 577 | | 505.28 | 502.11 | | | | | | | | | | |
| | | 577 | 578 | | 502.11 | 501.72 | | | 44 | | | | | | |
| 407+50 -L- | LT | 578 | | 504.72 | 501.72 | | | | | | | | | | |
| | | 578 | OUT | | 501.72 | 501.29 | | | 24 | | | | | | |
| 409+23 -L- | LT | 580 | | 503.52 | 500.52 | | | | | | | | | | |
| | | 580 | 581 | | 500.52 | 499.97 | | | 76 | | | | | | |
| 410+00 -L- | LT | 581 | | 503.26 | 499.97 | | | | | | | | | | |
| | | 581 | 583 | | 499.97 | 499.38 | | | 104 | | | | | | |
| 410+00 -L- | RT | 582 | | 503.2 | 500.2 | | | | | | | | | | |
| | | 582 | 581 | | 500.2 | 499.97 | | | 72 | | | | | | |
| 411+02 -L- | LT | 583 | | 502.38 | 499.38 | | | | | | | | | | |
| | | 583 | 584 | | 499.38 | 499.3 | | | 52 | | | | | | |
| 411+50 -L- | LT | 584 | | 502.37 | 499.3 | | | | | | | | | | |
| | | 584 | OUT | | 499.3 | 499.27 | | | 20 | | | | | | |
| 64+66 -L- | CL | 96A | | 562.88 | 559.43 | | | | | | | | | | |
| | | 96A | 96 | | 559.43 | 558.95 | | | 16 | | | | | | |
| 80+00 -L- | CL | 111A | | 555.24 | 548.84 | | | | | | | | | | |
| | | 111A | 112 | | 548.84 | 542.86 | | | | | 52 | | | | |
| 349+78 -L- | RT | 478 | | | 474.75 | 471.75 | | | | | | | | | |
| 389+96 -L- | CL | 547 | | 503.24 | 496.99 | | | | | | | | | | |
| | | 547 | OUT | | 496.99 | 495.71 | | | | | 44 | | | | |
| 273+62 -LREV3- | RT | 371 | | 418.2 | 413.74 | | | | | | | | | | |
| 290+90 | RT | 398 | | 449.04 | 442.27 | | | | | | | | | | |
| | | 398 | 398A | | 442.27 | 442.19 | | | | | | | | | 28 |
| 38+00 -LREV1- | RT | T-1 | | | | | | | | | | | | | |
| 329+00 -L- | LT | T-2 | | | | | | | | | | | | | |
| 340+30 -L- | LT | T-3 | | | | | | | | | | | | | |
| 375+20 -L- | RT | T-4 | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | 504 | 0 | 96 | 0 | 0 | 0 | 28 |
| SHEET 3-V | | | | | | | | | | | | | | | |
| PROJECT TOTALS | | | | | | | | | 23456 | 9168 | 5940 | 584 | 136 | 0 | 28 |

| STATION | FROM | TO | C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064 | 15" .064 | 18" .064 | 24" .064 | 24" | 30" .079 | 30" | 36" .079 | 36" | 42" .109 | 42" | 48" .109 | 48" | CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D (UNLESS OTHERWISE NOTED) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" R.C. PIPE CLASS IV | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 406+83 -L- | 574 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 574 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 406+83 -L- | 575 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 575 | 576 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 407+23 -L- | 576 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 576 | 577 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 407+50 -L- | 577 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 577 | 578 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 407+50 -L- | 578 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 578 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 409+23 -L- | 580 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 580 | 581 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 410+00 -L- | 581 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 581 | 583 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 410+00 -L- | 582 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 582 | 581 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 411+02 -L- | 583 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 583 | 584 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 411+50 -L- | 584 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 584 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64+66 -L- | 96A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 96A | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80+00 -L- | 111A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 111A | 112 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 349+78 -L- | 478 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 389+96 -L- | 547 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 547 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 273+62 -LREV3- | 371 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 290+90 | 398 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 398 | 398A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38+00 -LREV1- | T-1 | | | | | | | | | | | | | | | | | 40 | | | | | | | | | | | |
| 329+00 -L- | T-2 | | | | | | | | | | | | | | | | | 36 | | | | | | | | | | | |
| 340+30 -L- | T-3 | | | | | | | | | | | | | | | | | 36 | | | | | | | | | | | |
| 375+20 -L- | T-4 | | | | | | | | | | | | | | | | | 48 | | | | | | | | | | | |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SHEET 3-V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT TOTALS | | | 0 | 432 | 116 | 124 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 476 | 172 | 28 | 0 | 0 |

| STATION | FROM | TO | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FRAME WITH ONE GRATE STD. 840.24 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | PREFORMED SCOUR HOLE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 406+83 -L- | 574 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 574 | OUT | | | | | | | | | | | | | | | | | | | | | | |
| 406+83 -L- | 575 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 575 | 576 | | | | | | | | | | | | | | | | | | | | | | |
| 407+23 -L- | 576 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 576 | 577 | | | | | | | | | | | | | | | | | | | | | | |
| 407+50 -L- | 577 | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 577 | 578 | | | | | | | | | | | | | | | | | | | | | | |
| 407+50 -L- | 578 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 578 | OUT | | | | | | | | | | | | | | | | | | | | | | |
| 409+23 -L- | 580 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 580 | 581 | | | | | | | | | | | | | | | | | | | | | | |
| 410+00 -L- | 581 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 581 | 583 | | | | | | | | | | | | | | | | | | | | | | |
| 410+00 -L- | 582 | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| | 582 | 581 | | | | | | | | | | | | | | | | | | | | | | |
| 411+02 -L- | 583 | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| | 583 | 584 | | | | | | | | | | | | | | | | | | | | | | |
| 411+50 -L- | 584 | | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | |
| | 584 | OUT | | | | | | | | | | | | | | | | | | | | | | |
| 64+66 -L- | 96A | | 1 | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| | 96A | 96 | | | | | | | | | | | | | | | | | | | | | | |
| 80+00 -L- | 111A | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1 | |
| | 111A | 112 | | | | | | | | | | | | | | | | | | | | | | |
| 349+78 -L- | 478 | | 1 | 1.25 | | 1 | 1 | | | | | | | | | | | | | | | | | |
| 389+96 -L- | 547 | | | | | | | | | | | | | | | | | | | | | | | |
| | 547 | OUT | | | | | | | | | | | | | | | | | | | | | | |
| 273+62 -LREV3- | 371 | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1 | |
| 290+90 | 398 | | 1 | 1.77 | | | | | | | | | | | | | | | | | | 1 | | |
| | 398 | 398A | | | | | | | | | | | | | | | | | | | | | | |
| 38+00 -LREV1- | T-1 | | | | | | | | | | | | | | | | | | | | | | | |
| 329+00 -L- | T-2 | | | | | | | | | | | | | | | | | | | | | | | |
| 340+30 -L- | T-3 | | | | | | | | | | | | | | | | | | | | | | | |
| 375+20 -L- | T-4 | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 15 | 3 | 0 | 8 | 4 | 0 | 4 | 0 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| SHEET 3-V | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT TOTALS | | | 478 | 126 | 0 | 237 | 20 | 101 | 116 | 0 | 193 | 196 | 196 | 4 | 31 | 5 | 0 | 0 | 0 | 40 | 4 | 5 | 4 | 2 |

| STATION | FROM | TO | | | | | | | | | | | | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 406+83 -L- | 574 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 574 | OUT | | | | | | | | | | | | | | | | | | | |
| 406+83 -L- | 575 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 575 | 576 | | | | | | | | | | | | | | | | | | | |
| 407+23 -L- | 576 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 576 | 577 | | | | | | | | | | | | | | | | | | | |
| 407+50 -L- | 577 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 577 | 578 | | | | | | | | | | | | | | | | | | | |
| 407+50 -L- | 578 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 578 | OUT | | | | | | | | | | | | | | | | | | | |
| 409+23 -L- | 580 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 580 | 581 | | | | | | | | | | | | | | | | | | | |
| 410+00 -L- | 581 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE F |
| | 581 | 583 | | | | | | | | | | | | | | | | | | | |
| 410+00 -L- | 582 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 582 | 581 | | | | | | | | | | | | | | | | | | | |
| 411+02 -L- | 583 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE G |
| | 583 | 584 | | | | | | | | | | | | | | | | | | | |
| 411+50 -L- | 584 | | | | | | | | | | | | | | | | | | | | CB w/ TYPE E |
| | 584 | OUT | | | | | | | | | | | | | | | | | | | |
| 64+66 -L- | 96A | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| | 96A | 96 | | | | | | | | | | | | | | | | | | | |
| 80+00 -L- | 111A | | | | | | | | | | | | | | | | | | | | JB w/ MH |
| | 111A | 112 | | | | | | | | | | | | | | | | | | | |
| 349+78 -L- | 478 | | | | | | | | | | | | | | | | | | | | DI w/ FL GR |
| 389+96 -L- | 547 | | | | | | | | | | | | | | | | | | | | |
| | 547 | OUT | | | | | | | | | | | | | | | | | | | |
| 273+62 -LREV3- | 371 | | | | | | | | | | | | | | | | | | | | JB w/ MH |
| | | | | | | | | | | | | | | | | | | | | | JB w/ MH |
| 290+90 | 398 | | | | | | | | | | | | | | | | | | | | |
| | 398 | 398A | | | | | | | | | | | | | | | | | | | |
| 38+00 -LREV1- | T-1 | | | | | | | | | | | | | | | | | | | | Plain C.S. Pipe |
| 329+00 -L- | T-2 | | | | | | | | | | | | | | | | | | | | Plain C.S. Pipe |
| 340+30 -L- | T-3 | | | | | | | | | | | | | | | | | | | | Plain C.S. Pipe |
| 375+20 -L- | T-4 | | | | | | | | | | | | | | | | | | | | Plain C.S. Pipe |
| SHEET TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| SHEET 3-V | | | | | | | | | | | | | | | | | | 5.7 | 0.465 | | |
| | | | | | | | | | | | | | | | | | 12@15" | | | | |
| | | | | | | | | | | | | | | | | | 4@18" | | | | |
| PROJECT TOTALS | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4@24" | 6.165 | 7.301 | 2122 | |

ABBREVIATIONS

- C.B. — CATCH BASIN
- N.D.I. — NARROW DROP INLET
- D.I. — DROP INLET
- G.D.I. — GRATED DROP INLET
- G.D.I.(N.S.) — GRATED DROP INLET (NARROW SLOT)
- J.B. — JUNCTION BOX
- M.H. — MANHOLE
- T.B.D.I. — TRAFFIC BEARING DROP INLET
- T.B.J.B. — TRAFFIC BEARING JUNCTION BOX

RD248595

COMPUTED BY: BMS DATE: 7/28/2011

CHECKED BY: JRR DATE: 7/29/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-V |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)*

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54" | 60" | 66" | 72" | 78" | 84" | C.S. PIPE (UNLESS NOTED OTHERWISE) 54" .109 | 54" .138 | 54" .168 | 54" SHOP ELON-GATED .138 | 54" SHOP ELON-GATED .168 | 60" .138 | 60" .168 | 66" .138 | 66" .168 | 72" .139 | 72" .168 | STRUCTURAL PLATE PIPE 60" 12 | 60" 10 | 66" 12 | 66" 10 | 72" 12 | 72" 10 | REINFORCED ENWALLS WITH R.C. - C.Y. | REINFORCED ENWALLS WITH C.S. - C.Y. | MASONRY DRAINAGE STRUCTURES CUBIC YARDS | C.B. STD. 840.01 OR 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | CONCRETE TRANSITIONAL SECTION DROP INLET | J.B. STD. 840.31 OR 840.32 | 60" Welded Steel Pipe; Grade B; 0.875" Thick | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 340+75 -L- | RT | 466A | 466B | | 428.9 | 428.2 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.85 | | | |
| 340+64 -L- | CL | 466B | 466E | | 428.2 | 425.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 100 | | 2.85 | 0.465 | | TRENCHLESS INSTALL. WELDED STEEL PIPE |
| 340+54 -L- | LT | 466E | 466D | | 425.5 | 424.5 | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 340+44 -L- | LT | 466D | 466C | | 423.4 | 423.3 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 340+44 -L- | LT | 466B | | 431.4 | 423.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5.09 | | | | | | | 1 | | | | | | |
| SHEET TOTALS | | | | | | | | | 92 | | | | | | | | | | | | | | | | | | | | | | | | 5.09 | | | | | | | 1 | 100 | | 5.7 | 0.465 | | |

ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| G.D.I.(N.S.) | GRATED DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING |

COMPUTED BY: NNA DATE: 6/17/2011
CHECKED BY: TG DATE: 7/28/2011

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-W |

RD244542

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## SUMMARY OF EARTHWORK IN CUBIC YARDS

| Station | Uncl. Excav. | Embank. +% | Borrow | Waste |
|---|---|---|---|---|
| PHASE I | | | | |
| -L- 7+50 .00 TO 14+50 RT | 2212 | 60 | 0 | 2152 |
| -TEMPALIGN1 10+00 TO 16+54.92 | 856 | 449 | 0 | 407 |
| -L- 25+00 TO 30+50 RT | 782 | 833 | 51 | 0 |
| -TEMPALIGN2- 10+00 TO 18+81.43 | 227 | 1069 | 842 | 0 |
| -LREV1- 29+50 TO 36+00 RT | 551 | 3378 | 2827 | 0 |
| -TEMPALIGN3- 10+00 TO 26+02.25 | 3150 | 2666 | 0 | 484 |
| -LREV1- 52+00 TO 82+00 RT | 3498 | 25157 | 21659 | 0 |
| -LREV1- 82+00 TO 103+95.97 RT | 3521 | 15613 | 12092 | 0 |
| -L- 133+16 TO 163+00 RT | 2945 | 15128 | 14071 | 1888 |
| -L- 163+00 TO 195+00 RT | 2152 | 5772 | 3620 | 0 |
| -Y7- 10+50 TO 11+75 | 359 | 0 | 0 | 359 |
| -TEMPALIGN4- 10+00 TO 16+70.32 | 323 | 1602 | 1279 | 0 |
| -L- 214+50 TO 231+50 RT | 4 | 22787 | 22783 | 0 |
| -TEMPALIGN5- 10+00 TO 20+58.30 | 660 | 2916 | 2256 | 0 |
| -LREV3- 256+00 TO 286+00 RT | 5018 | 24572 | 19677 | 123 |
| -LREV3- 286+00 TO 296+00 RT | 203 | 10223 | 10020 | 0 |
| -TEMPALIGN6- 10+00 TO 17+75.81 | 860 | 532 | 0 | 328 |
| -Y11- 11+00 TO 11+75 | 185 | 26 | 0 | 159 |
| -TEMPALIGN7- 10+00 TO 19+19.38 | 3050 | 311 | 0 | 2739 |
| -L- 360+00 TO 391+92 RT | 3980 | 9366 | 5608 | 222 |
| -Y15- 14+00 TO 14+25 RT of -L- | 28 | 0 | 0 | 28 |
| -L- 16+00 TO 20+00 LT | 0 | 2173 | 2173 | 0 |
| -L- 35+00 TO 39+05.52 LT | 1472 | 1756 | 284 | 0 |
| -LREV1- 10+00 TO 21+05 LT | 192 | 10307 | 10115 | 0 |
| -TEMPALIGN8- 10+00 TO 31+01.04 | 9785 | 9469 | 0 | 316 |
| -LREV1-56+00 TO 73+00 LT | 4305 | 14894 | 10589 | 0 |
| -LREV1- 82+00 TO 90+00 LT | 0 | 9781 | 9781 | 0 |
| -L- 185+00 TO 208+50 LT | 1138 | 5934 | 4796 | 0 |
| -L- 240+00 253+34.5 LT | 2414 | 11346 | 9544 | 612 |
| -LREV3- 253+35 TO 253+75 LT | 203 | 1 | 0 | 202 |
| -LREV3- 302+38 TO 314+00 LT | 1093 | 3042 | 1949 | 0 |
| -LREV3- 315+68 TO 316+74.63 LT | 29 | 40 | 11 | 0 |
| -L- 317+10 TO 329+87 LT. | 5234 | 3306 | 0 | 1928 |
| -L- 334+25 TO 352+50 LT | 1822 | 33293 | 31471 | 0 |
| -Y17- 11+00 TO 11+78 | 70 | 37 | 0 | 33 |
| SUMMARY TOTALS PHASE I: | 62321 | 247839 | 197498 | 11980 |
| WASTE IN LIEU OF BORROW PHASE I | | | -9135 | -9135 |
| SUBTOTAL | 62321 | 247839 | 188363 | 2845 |
| PHASE II | | | | |
| -L- 11+26 TO 16+00 LT | 296 | 164 | 0 | 132 |
| -L- 20+00 TO 35+00 LT | 4973 | 3221 | 0 | 1752 |
| -LREV1- 21+05 TO 56+00 LT | 7037 | 9959 | 2922 | 0 |
| -LREV1- 73+00 TO 82+00 LT | 22 | 8665 | 8643 | 0 |
| -LREV1- 90+00 TO 103+95.71 LT | 3566 | 4043 | 477 | 0 |
| -L- 133+16 TO 163+00 LT | 4249 | 3113 | 0 | 1136 |
| -L- 163+00 TO 185+00 LT | 473 | 6746 | 6273 | 0 |
| -L- 208+50 TO 240+00 LT | 2807 | 7966 | 5159 | 0 |
| -LREV3- 253+75 TO 283+75 LT | 2230 | 17202 | 14972 | 0 |
| -LREV3- 283+75 TO 302+38 LT | 1241 | 3337 | 2318 | 222 |
| -LREV3- 314+00 TO 315+68 LT | 241 | 116 | 0 | 125 |
| -L- 329+87 TO 334+25 LT | 620 | 1601 | 981 | 0 |
| -L- 352+50 TO 382+50 LT | 1483 | 6072 | 4589 | 0 |
| -L- 382+50 TO 412+40 LT | 2081 | 5752 | 3671 | 0 |
| -Y12- 12+00 TO 13+00 | 71 | 2 | 0 | 69 |
| -Y14- 11+30 TO 12+00 LT of -L- | 86 | 48 | 0 | 38 |
| -Y15- 12+00 TO 12+50 LT of -L- | 35 | 0 | 0 | 35 |
| -Y10- 11+50 TO 12+50 | 203 | 24 | 0 | 179 |
| SUMMARY SUBTOTALS PHASE II: | 31714 | 78031 | 50005 | 3688 |
| WASTE IN LIEU OF BORROW PHASE II | | | -2708 | -2708 |
| SUBTOTAL | 31714 | 78031 | 47297 | 980 |

## SUMMARY OF EARTHWORK IN CUBIC YARDS (CONTINUED)

| Station | Uncl. Excav. | Embank +% | Borrow | Waste |
|---|---|---|---|---|
| PHASE III | | | | |
| -L- 14+50 TO 25+00 RT | 1491 | 1511 | 20 | 0 |
| -L- 30+50 TO 39+05.50 RT | 873 | 803 | 0 | 70 |
| -LREV1- 10+00 TO 29+50 RT | 3333 | 2038 | 0 | 1295 |
| -LREV1- 36+00 TO 52+00 RT | 4705 | 1590 | 0 | 3115 |
| -L- 195+00 TO 214+50 RT | 2460 | 2113 | 0 | 347 |
| -L- 231+50 TO 253+34.78 RT | 1411 | 8294 | 7048 | 165 |
| -LREV3- 253+34.5 TO 256+00 RT | 518 | 200 | 0 | 318 |
| -LREV3- 296+00 TO 316+74 RT | 4686 | 2698 | 0 | 1988 |
| -L- 317+10 TO 347+10 RT | 987 | 9244 | 8257 | 0 |
| -L- 347+10 TO 360+00 RT | 425 | 3324 | 2899 | 0 |
| -L- 391+92 TO 412+40 RT | 1202 | 3371 | 2169 | 0 |
| -Y1- 10+00 TO 12+16 | 729 | 0 | 0 | 729 |
| -Y3- 11+00 TO 13+00 | 193 | 162 | 0 | 31 |
| -Y14- 14+50 TO 15+00 RT of -L- | 213 | 48 | 0 | 165 |
| -Y8- 11+00 TO 11+29 | 187 | 4 | 0 | 183 |
| -Y13- 15+00 TO 15+60 | 100 | 0 | 0 | 100 |
| -Y19- 14+50 TO 15+30 | 42 | 113 | 71 | 0 |
| SUMMARY SUBTOTALS PHASE III | 23555 | 35513 | 20464 | 8506 |
| WASTE IN LIEU OF BORROW PHASE III | | | -8341 | -8341 |
| SUBTOTAL | 23555 | 35513 | 12123 | 165 |
| PROJECT SUBTOTALS | 117590 | 361383 | 247783 | 3990 |
| LOSS DUE TO CLEAR. & GRUB. | -23100 | | 23100 | |
| ADDITIONAL UNDERCUT | | | | |
| SHOULDER CONSTRUCTION | | 14000 | 14000 | |
| PROJECT TOTALS | 94490 | 375383 | 284883 | 3990 |
| EST. TO REPLACE TOP SOIL ON BORROW PITS | | | 14245 | |
| GRAND TOTALS | 94490 | 375383 | 299128 | 3990 |
| SAY | **94500** | | **299200** | |
| PVMT. STR. VOL. = 34817 CY | | | | |
| DRAINAGE DITCH EXCAVATION : | **3630** | CUBIC YARDS | | |
| EST. UNDERCUT CONTINGENCY | **14000** | CUBIC YARDS | | |
| EST. SHALLOW UNDERCUT BY STATIONS | **5972** | CUBIC YARDS | | |
| EST. SHALLOW UNDERCUT CONTINGENCY | **500** | CUBIC YARDS | | |
| TOTAL SHALLOW UNDERCUT | **6472** | CUBIC YARDS | | |
| CLASS IV SUBGADE STABILIZATION | **12232** | TONS | | |

*EARTHWORK TOTALS FOR ALTERNATE PAV'T. DESIGN*

| | | | | |
|---|---|---|---|---|
| SUMMARY TOTALS | 117590 | 361383 | 247783 | 3990 |
| ADJ. FOR ALT. PAV'T DESIGN | -23254 | 20540 | 43794 | -3990 |
| ADDITIONAL UNDERCUT | | | | |
| LOSS DUE TO CLEAR. & GRUB. | -23100 | | 23100 | |
| SHOULDER CONSTRUCTION | | 9200 | 9200 | |
| PROJECT TOTALS | 71236 | 391123 | 323877 | 0 |
| EST. TO REPLACE TOP SOIL ON BORROW PITS | | | 16194 | |
| TOTAL | 71236 | | 340071 | |
| SAY | **71300** | | **340100** | |
| PAV'T STRUCTURE VOLUME = 21160 CY | | | | |
| DRAINAGE DITCH EXCAVATION : | **3630** | CUBIC YARDS | | |
| EST. UNDERCUT CONTINGENCY | **14000** | CUBIC YARDS | | |
| EST. SHALLOW UNDERCUT BY STATIONS | **5972** | CUBIC YARDS | | |
| EST. SHALLOW UNDERCUT CONTINGENCY | **500** | CUBIC YARDS | | |
| TOTAL SHALLOW UNDERCUT | **6472** | CUBIC YARDS | | |
| CLASS IV SUBGADE STABILIZATION | **12232** | TONS | | |

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.

| COMPUTED BY: NA DATE: 4/26/11 |
|---|
| CHECKED BY: DDL DATE: 4/27/11 |

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2812 | 3-X |

RD238311

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

| LINE | Station | Station | LOC LT/RT/CL | $YD^2$ |
|---|---|---|---|---|
| -L- | 10+79 | 17+00 | LT | 483.78 |
| -L- | 7+50 | 11+16 | RT | 434.67 |
| -L- | 11+71 | 15+65 | LT | 192.00 |
| -L- | 14+95 | 15+48 | LT | 78.89 |
| -L- | 16+44 | 19+55 | RT | 117.00 |
| -L- | 19+98 | 31+85 | RT | 1892.67 |
| -L- | 36+95.24 | 39+05.52 | RT | 145.56 |
| LREV1- | 10+00 | 19+59 | RT | 412.22 |
| LREV1- | 32+76 | 39+00 | RT | 701.33 |
| LREV1- | 39+00 | 49+34 | RT | 1168.11 |
| LREV1- | 49+34 | 51+72 | RT | 362.89 |
| LREV1- | 51+72 | 93+94 | LT | 10954.78 |
| LREV1- | 94+53 | 103+96 | RT | 1564.00 |
| -L- | 145+14 | 150+24 | RT | 264.89 |
| -L- | 150+24 | 159+32 | RT | 1565.67 |
| -L- | 167+36 | 180+41 | RT | 1887.44 |
| -L- | 180+41 | 183+04 | RT | 647.44 |
| -L- | 183+04 | 195+00 | RT | 2491.67 |
| -L- | 202+67 | 209+29 | RT | 928.00 |
| -Y10- | 11+54 | 12+66 | RT | 144.67 |
| -L- | 216+96 | 220+87 | RT | 379.67 |
| -L- | 220+87 | 228+75 | LT | 1029.56 |
| -L- | 228+75 | 236+13 | LT | 997.22 |
| -L- | 236+13 | 241+41 | LT | 715.78 |
| -L- | 241+41 | 253+35 | RT | 2110.67 |
| -LREV3- | 253+35 | 257+21 | RT | 438.44 |
| -LREV3- | 257+21 | 260+00 | LT | 571.78 |
| -LREV3- | 260+00 | 269+30 | LT | 380.89 |
| -LREV3- | 295+93 | 297+03 | CL | 175.44 |
| -LREV3- | 297+03 | 298+03 | CL | 185.22 |
| -LREV3- | 302+35 | 305+60 | RT | 713.67 |
| -LREV3- | 305+60 | 314+71 | RT | 2635.67 |
| -L- | 337+55 | 349+29 | RT | 668 |
| -L- | 349+29 | 355+70 | RT | 894.22 |
| -L- | 355+70 | 363+48 | RT | 1349.33 |
| -Y16- | 14+84 | 15+68 | RT | 63.78 |
| -Y16- | 14+85 | 15+73 | LT | 183.22 |
| -L- | 383+37 | 386+99 | LT | 276.78 |
| -L- | 383+80 | 388+56 | LT | 232.56 |
| -L- | 389+65 | 391+40 | RT | 329.56 |
| -Y17- | 10+37 | 11+51 | LT | 200.33 |
| -L- | 392+18 | 393+59 | CL | 279.22 |
| -L- | 400+87 | 409+23 | CL | 2,063.33 |
| -L- | 409+23 | 410+65 | CL | 287.11 |
| -Y3- | 10+70 | 11+62 | RT | 281.67 |
| -Y3- | 11+69 | 13+11 | RT | 99.44 |
| -L- | 11+00 | | | 66.67 |
| -L- | 73+00 | | | 66.67 |
| -L- | 141+50 | | | 13.33 |
| -L- | 214+00 | | | 333.33 |
| -L- | 374+00 | | | 133.33 |
| -L- | 379+00 | | | 66.67 |
| | | | **TOTAL** | **44660** |
| | | | **SAY** | **44,670** |

## SUMMARY OF TEMPORARY ASPHALT PAVEMENT REMOVAL

| LINE | Station | Station | LOC LT/RT/CL | $YD^2$ |
|---|---|---|---|---|
| L | 30+50 | 35+11 | | 11233 |
| L | 148+00 | 162+00 | | 622.22 |
| LREV1 | 32+00 | 39+00 | | 622.22 |
| LREV1 | 49+00 | 52+50 | | 311.11 |
| LREV1 | 30+50 | 35+11 | | 204.89 |
| L | 177+00 | 186+25 | | 620.67 |
| L | 252+50 | 256+00 | | 311.11 |
| LREV3 ( median areas) | 264+00 | 279+82 | | 162.11 |
| LREV3 | 286+58 | 287+11 | | 89.56 |
| LREV3 ( Median, westgate) | 289+20 | 289+97 | | 88.11 |
| L | 362+21 | 366+83 | | 51.33 |
| L | 387+30 | 389+31 | | 193.78 |
| L | 389+75 | 390+50 | | 66.78 |
| L | 389+90 | 392+07 | | 241.11 |
| L | 392+38 | 394+27 | | 459.56 |
| L | 394+50 | 410+21 | | 2714.67 |
| L | 207+50 | 209+29 | | 123.78 |
| L | 389+75 | 391+04 | | 222.22 |
| L | 401+00 | 407+00 | | 683.89 |
| TempAlign1 | 10+00 | 16+55 | | 1600.92 |
| TempAlign2 | 10+00 | 18+81 | | 2154.61 |
| TempAlign3 | 10+00 | 14+52 | | 502.41 |
| TempAlign3 | 21+52 | 26+02 | | 1100.61 |
| TempAlign4 | 207+84 | 214+50 | | 1628 |
| TempAlign5 | 231+50 | 240+00 | | 2078 |
| TempAlign6 | 296+00 | 303+00 | | 1711.11 |
| TempAlign7 | 350+82 | 360+00 | | 2244.00 |
| TempAlign8 | 30+98 | 52+05 | | 5150.44 |
| | | | | |
| | | | **TOTAL:** | **37192** |
| | | | **SAY:** | **37200** |

PROJECT TOTAL 81,870

RD248595

| COMPUTED BY: | ddl | DATE: | 3-8-2011 |
|---|---|---|---|
| CHECKED BY: | TDG | DATE: | 7-11-11 |

# DIVISION OF HIGHWAYS
# STATE OF NORTH CAROLINA

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 3-Y |

# GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | LENGTH | | | WARRANT POINT | | "N" DIST. FROM E.O.L. | TOTAL SHOUL WIDTH | FLARE LENGTH | | W | | ANCHORS | | | | | | | | | IMPACT ATTENUATOR TYPE 350 | | SINGLE FACED CONCRETE BARRIER | REMOVE EXISTING GUARDRAIL | REMOVE & STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | STRAIGHT | SHOP CURVED | DOUBLE FACED | APPROACH END | TRAILING END | | | APPROACH END | TRAILING END | APPROACH END | TRAILING END | XI MOD | XI | GRAU 350 | M-350 | XIII | CAT-1 | VI MOD | BIC | | G | NG | | | | |
| LREV1 | 43+00 | 46+00 | LT | 300 | | | 44+00 | 45+00 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| LREV1 | 55+00 | 59+00 | RT | 400 | | | 56+00 | 58+00 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| L | 134+00 | 139+50 | RT | 550 | | | 135+00 | 138+50 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| L | 171+00 | 174+00 | LT | 300 | | | 172+00 | 173+00 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| L | 218+50 | 224+00 | RT | 550 | | | 219+50 | 223+00 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| L | 233+50 | 236+00 | RT | 250 | | | 234+50 | 235+00 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| L | 243+00 | 247+50 | LT | 450 | | | 244+00 | 246+50 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| L | 242+50 | 246+50 | RT | 400 | | | 243+50 | 245+50 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| LREV3 | 267+50 | 271+00 | LT | 350 | | | 268+50 | 271+00 | 9 | 12 | | 50 | | 1 | | | | | | | | | | | | | | | |
| LREV3 | 274+50 | 281+50 | RT | 700 | | | 275+50 | 280+50 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| LREV3 | 275+00 | 282+50 | LT | 750 | | | 276+00 | 282+50 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| LREV3 | 290+50 | 293+50 | RT | 300 | | | 291+50 | 292+50 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| L | 316+75 | 322+50 | LT | 575 | | | 317+75 | 321+50 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| L | 333+50 | 343+50 | LT | 1000 | 37.5 | | 334+50 | 342+50 | 9 | 12 | | 50 | | 1 | | | 1 | | | | | | | | | | | | |
| L | 336+50 | 343+50 | RT | 700 | | | 337+50 | 342+50 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| L | 350+00 | 354+00 | LT | 400 | | | 351+00 | 353+00 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| L | 362+25 | 364+50 | LT | 225 | | | 363+31.93 | 363+50 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| L | 382+00 | 389+50 | LT | 750 | | | 383+00 | 388+50 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | |
| L | 402+87.5 | 405+12.50 | RT | 225 | | | 405+00 | 405+00 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | |
| SUBTOTAL | | | | 9175 | 37.5 | | | | | | | | | | | | 18 | | | 17 | | | | | | | | | |
| LESS ANCHOR DEDCUTIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRAU 350 | | 18 @ 50' | | -900 | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAT-1 | | 17 @ 6.25' | | -106.25 | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL | | | | 8168.75 | | | | | | | | | | | | | 18 | | | 17 | | | | | | | | | |
| SAY | | | | 8200 | 37.5 | | | | | | | | | | | | | | | | | | | | | | | | |
| ADDITIONAL GUARDRAIL POST | | | | 10EA | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEMP | ALIGNMENT GUARDRAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALIGN5 | 13+75 | 15+25 | RT | 150 | | | 14+50 | 14+50 | 9 | 12 | 50 | | 1 | | | | 1 | | | 1 | | | | | | | | | TEMPALIGN5 |
| ALIGN8 | 22+45 | 24+95 | LT | 250 | | | 23+95 | 23+45 | 9 | 12 | | 50 | | 1 | | | 1 | | | 1 | | | | | | | | | TEMPALIGN8 |
| TOTALS | | | | 400 | | | | | | | | | | | | | 2 | | | 2 | | | | | | | | | |
| LESS | DEDUCTIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRAU 350 | | 2@50' | | -100' | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAT-1 | | 2@6.25' | | -12.5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TOTAL | | | 287.5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | SAY | 312.5 | | | | | | | | | | | | | | | | | | | | | | | | | |

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 3-Z |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *PARCEL INDEX SHEET*

| PARCEL No. | SHEET No. | PROPERTY OWNER NAME |
|---|---|---|
| 1 | 4 | MC,B,MC,LLC |
| 2 | 4 | FRED B. MONROE, JR. |
| 3 | 4 | THE KERR LIVING TRUST |
| 4 | 4 | SALLY AUMAN WATTS TRUST |
| 5 | 4 | MCNEILL OIL CO. |
| 6 | 4,5,6,7,8,9,10,13,14 | ABERDEEN CAROLINA AND WESTERN RAILROAD |
| 6 | 15,16 | ABERDEEN CAROLINA AND WESTERN RAILROAD |
| 7 | 4,5 | JOHN WESLEY WATKINS III |
| 007A | 5 | RHETSON DEVELOPMENT LLC |
| 8 | 5 | MCDONALD FAMILY FARMS, LLC |
| 9 | 5 | PINE RIDGE PROPERTIES, INC |
| 10 | 5 | HELEN W. GRAHAM |
| 11 | 5 | DREXEL BRADLEY |
| 12 | 5 | TATE RENTAL PROPERTIES, LLC |
| 13 | 5 | NCDOT BY MAINTENANCE |
| 14 | 6 | TATE RENTAL PROPERTIES |
| 15 | 6 | J. HARRISON ATKINS |
| 16 | 6 | AGUSTIN LUGO |
| 17 | 6 | MARY CHARLES SISK, ET AL |
| 18 | 6 | GREGORY RUSH |
| 19 | 6 | NATHANIEL & ROBBIE HAILEY |
| 20 | 6,7 | SUZANNE VON CANNON |
| 21 | 7 | MARY CHARLES SISK, ET AL |
| 22 | 7,8,9,10,11,12,13,15 | MHK VENTURES, INC |
| 23 | 7,8,9 | DAVID WILSON |
| 24 | 9 | RICHARD LEWIS |
| 25 | 9 | WILLIAM MARR CHRISCOE, JR. |
| 26 | 9 | WILLIAM MARR CHRISCOE, JR. |
| 28 | 10 | W. A. JOHNSON JR. |
| 30 | 10,11 | NELLIE MCRAE DUNN |
| 31 | 11 | DOROTHY PHILLIPS |
| 32 | 11 | DONALD PARKER |
| 34 | 11,12,13 | ANNE MONROE CENCI |
| 35 | 13 | JON A. GILES |
| 37 | 13,14 | MOORE COUNTY |
| 38 | 14 | DWIGHT ELLISON |
| 39 | 14 | BRUCE D. PRITCHARD |
| 41 | 14 | PATRICIA RUSH |
| 42 | 14,15 | WAYNE HADDOCK |
| 43 | 14 | HADAM, LLC |
| 44 | 14,15 | PROGRESS ENERGY |
| 45 | 15 | H & R REAL ESTATE MANAGEMENT |
| 45A | 15 | PATRICIA WADDELL |
| 46 | 15 | ARLENE K. RITTER |
| 46A | 15 | NELL MUNN |
| 46B | 15 | KERI & JESSIE MYRICK |
| 47 | 15 | SONLIGHT INDEPENDENT CHURCH |
| 48 | 15,16 | DONNIE WILLARD |
| 50 | 16,17,18 | MCDONALD FAMILY FARMS, LLC |
| 50A | 11 | MCDONALD FAMILY FARMS, INC |
| 51 | 16 | RETIREMENT ACCOUNTS INC. |
| 52 | 16,17,18 | PINEWILD PROJECT LIMITED PARTNERSHIP |
| 52 | 23,24,25 | PINEWILD PROPERTY OWNERS ASSOCIATION |
| 54 | 17,18 | FIRST BAPTIST CHURCH OF PINEHURST, INC |
| 55 | 18 | LEWIS M. METTS |
| 56 | 18 | PHYLLIS D. SEXTON |
| 57 | 18 | LEONARD SHAFFER |
| 58 | 18 | PHYLLIS SEXTON |
| 59 | 18,19 | LEONARD SHAFFER |
| 61 | 19 | COMMERCIAL NET LEASE REALTY |

| PARCEL No. | SHEET No. | PROPERTY OWNER NAME |
|---|---|---|
| 62 | 19 | MONTGOMERY FARMS, LLC |
| 63 | 19 | FRANCIS MASER |
| 64 | 19 | CARTER GRINE |
| 64A | 19 | CARTER GRINE |
| 64B | 19 | HOWARD HARRIS |
| 64C | 19 | JEFFREY ETHERIDGE |
| 64C | 20 | JEFFREY ETHERIDGE |
| 64D | 20 | JANICE ARNETTE |
| 64E | 20 | EDU-CARE |
| 78 | 19,20 | FOUR SEASONS REALTY |
| 79 | 20 | LEONARD SHAFFER |
| 92 | 20,21,22 | JANET ANNE H. RHULE, ET AL. |
| 93 | 20 | JANICE ARNETTE |
| 94 | 20 | DANIEL ADAMS |
| 95 | 20 | KENNETH KINTNER |
| 96 | 20,21 | JANET ANNE H. RHULE |
| 98 | 21,22 | JANET ANNE H. RHULE, ET AL. |
| 99 | 22 | HARRY GRAHAM |
| 100 | 22 | JENNIE GRAHAM |
| 101 | 22 | LEONARD SHAFFER |
| 113 | 22 | THOMAS COTTINGHAM |
| 114 | 22,23 | BAPTIST CHILDRENS HOME |
| 115 | 23,24 | RAS PROPERTIES, LLC |
| 116 | 23 | LEONARD SHAFFER |
| 117 | 23 | LEONARD SHAFFER |
| 120 | 23 | PHYLLIS SEXTON |
| 123 | 23 | DELORES CATHERMAN |
| 124 | 23 | FRANK MCSHANE |
| 125 | 23 | KENNETH DOTSON |
| 126 | 23 | NEW COVENANT FELLOWSHIP |
| 128 | 23 | STEVEN TUCHTEN |
| 130 | 24 | PHILLIP BROWN |
| 132 | 24 | GABRIELLE D. GARRETSON TRUSTEE |
| 133 | 24 | ALEX SPEIGHT |
| 134 | 24 | FIRST HEALTH OF THE CAROLINA'S |
| 135 | 24,25 | LEACH INVESTMENT PROPERTIES, LLC |
| 136 | 25 | BUTLER INVESTMENTS |
| 137 | 25 | CAROLINA POWER AND LIGHT |
| 138 | 25 | JERIANNE RANERI |
| 138A | 25 | DONALD THOMAS |
| 139 | 25 | JOHN RANDALL |
| 140 | 25 | PAMELA C. BRADLEY |
| 141 | 25 | IRENE CORBIN |
| 141A | 25,26 | RICHARD STARNER |
| 142 | 25,26 | ITAC 143, LLC |
| 148 | 26 | OLMSTED VILLAGE WEST LIMITED PARTNERSHIP |
| 149 | 26 | DELTA WELLS, LLC |
| 150 | 26 | LENA GORDON |
| 151 | 26,27 | MOORE COUNTY |
| 152 | 27 | DANIEL STRICKLAND, INC |
| 153 | 27 | ROBERT HOLUB |
| 154 | 27 | JOHN B. CLAYTON |
| 155 | 27 | ZAI JIE LI |
| 156 | 27 | JENNIFER GOFF |
| 157 | 27 | DORIS GWINN |
| 158 | 27 | DAVID ROSEN |
| 159 | 26,27 | LOG, L.L.C. |
| 160 | 27 | OLMSTEAD VILLAGE WEST LIMITED |
| 160A | 27,28 | CAMELLIA PARKE 2, LLC |
| 161 | 28 | ROBERT MCNEELEY |

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 3-AA |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## *PARCEL INDEX SHEET*

| PARCEL No. | SHEET No. | PROPERTY OWNER NAME |
|---|---|---|
| 162 | 28 | DAVID B. FEW |
| 163 | 28 | JAMES B. ALLEN, JR. |
| 164 | 28 | R & M COMMERCIAL REAL ESTATE |
| 165 | 28 | KAREN ROBINSON |
| 166 | 28 | JOEL SMITH |
| 167 | 28 | MICHAEL T. ROBINSON |
| 168 | 28,29 | VILLAGE OF PINEHURST |
| 169 | 30 | NANCY L. JOHANN |
| 170 | 30 | JAMES BAILES |
| 171 | 30 | PAUL WILLIAMS |
| 172 | 30 | LISA DEWEY |
| 173 | 30 | RONALD SAFKO |
| 174 | 30 | R&M COMMERCIAL REAL ESTATE |
| 175 | 31,32 | FIRST HEALTH OF THE CAROLINAS |
| 176 | 31 | SANDHILLS CENTER FOR MENTAL HEALTH |
| 177 | 31,32 | F. JOSEPH GOSSMAN |
| 178 | 32 | W.J. BARNHARDT |
| 179 | 32 | KELLY MCLEAN, JR. |
| 180 | 32 | MOORE MEMORIAL HOSPITAL HEALTHCARE CORPORATION |
| 181 | 32 | NCDOT |
| 182 | 32,33 | PINEHURST NEUROLOGY |
| 183 | 32,33 | FRANCIS SCAGNELLI |
| 184 | 33 | CLETA GETTYS |
| 185 | 33 | GOFFER'S NEST, LLC |
| 186 | 33 | JOHN ROBERTS |
| 193 | 33 | CLES PROPERTIES INC. |
| 194 | 33 | MOORE REGIONAL HOSPITAL INC. |
| 195 | 33 | FIRST-CITIZENS BANK & TRUST CO. |
| 196 | 33 | MID SOUTH BANK AND TRUST CO. |
| 197 | 33 | MID SOUTH BANK AND TRUST CO. |
| 198 | 33 | OK PROPERTY MANAGEMENT, LLC |
| 199 | 4 | JR SQUARE, LLC |

| PARCEL No. | SHEET No. | PROPERTY OWNER NAME |
|---|---|---|

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — Timothy D. Goins 8-30-11

NORTH CAROLINA PROFESSIONAL SEAL 31926 ENGINEER JAMES R. RICE — 8/30/11

NAD 83

-L-

| PIs Sta 12+04.60 | PI Sta 13+71.13 | PIs Sta 15+37.40 |
|---|---|---|
| Θs = 4° 00' 00.0" | Δ = 7° 58' 43.0" (LT) | Θs = 4° 00' 00.0" |
| Ls = 200.00' | D = 4° 00' 00.0" | Ls = 200.00' |
| LT = 133.37' | L = 199.46' | LT = 133.37' |
| ST = 66.70' | T = 99.89' | ST = 66.70' |
| | R = 1,432.39' | |
| | SE = 0.07' | |

-L-

| PIs Sta 21+24.19 | PI Sta 22+49.21 | PIs Sta 23+74.24 |
|---|---|---|
| Θs = 3° 00' 00.0" | Δ = 3° 30' 05.9" (LT) | Θs = 3° 00' 00.0" |
| Ls = 200.00' | D = 3° 00' 00.0" | Ls = 200.00' |
| LT = 133.35' | L = 116.72' | LT = 133.35' |
| ST = 66.68' | T = 58.38' | ST = 66.68' |
| | R = 1,909.86' | |
| | SE = 0.06 | |

NC 211

9100 / 17000 — 750 / 1350 — 1250 / 1850 — 9600 / 17500

2000 / 3200

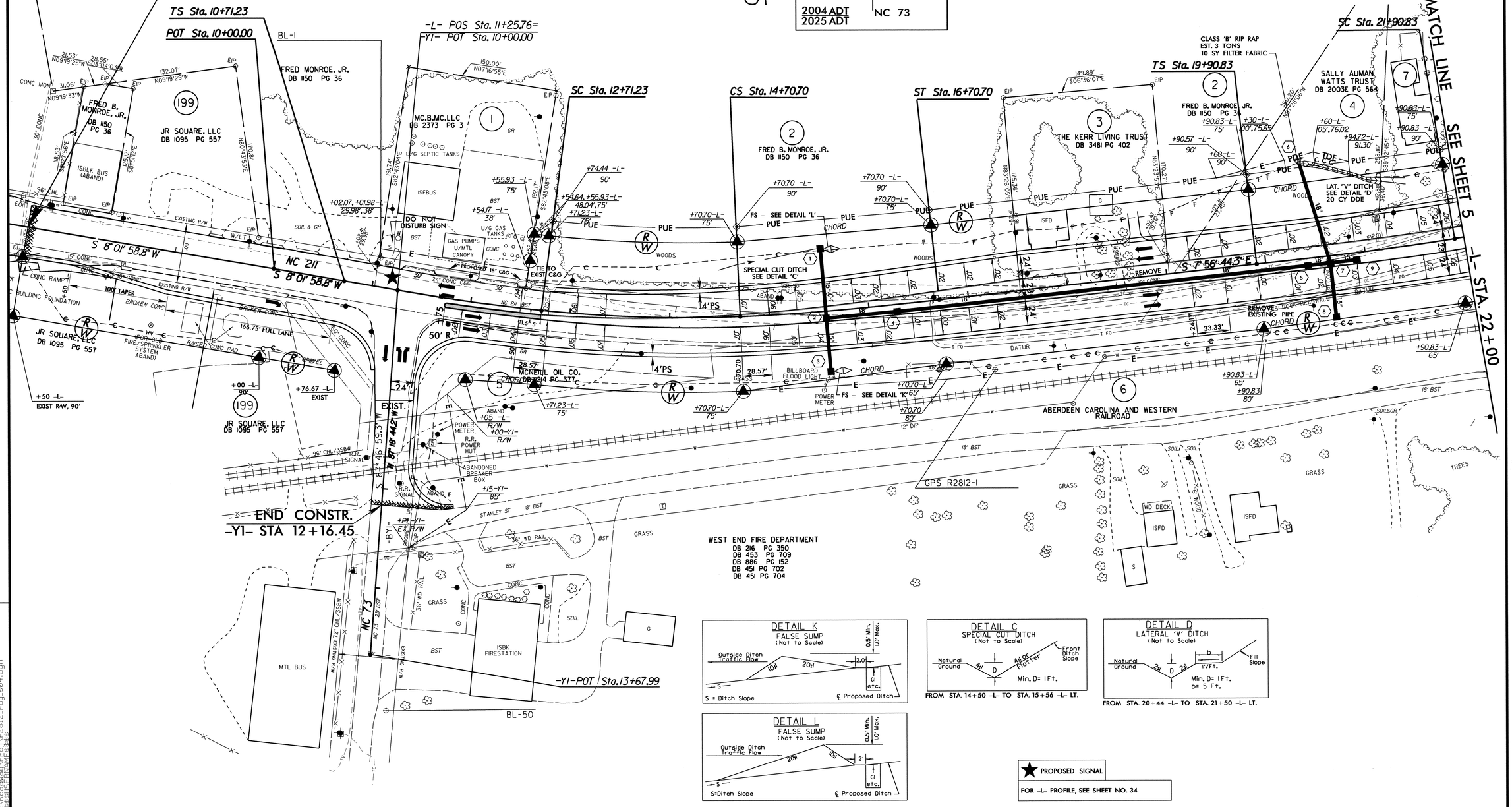
2004 ADT / 2025 ADT — NC 73

15

20

# BEGIN TIP PROJECT R-2812

## -L- STA 7+50










FROM STA. 14+50 -L- TO STA. 15+56 -L- LT.




FROM STA. 20+44 -L- TO STA. 21+50 -L- LT.




★ PROPOSED SIGNAL

FOR -L- PROFILE, SEE SHEET NO. 34

REVISIONS

8/17/99

30-AUG-2011 10:59
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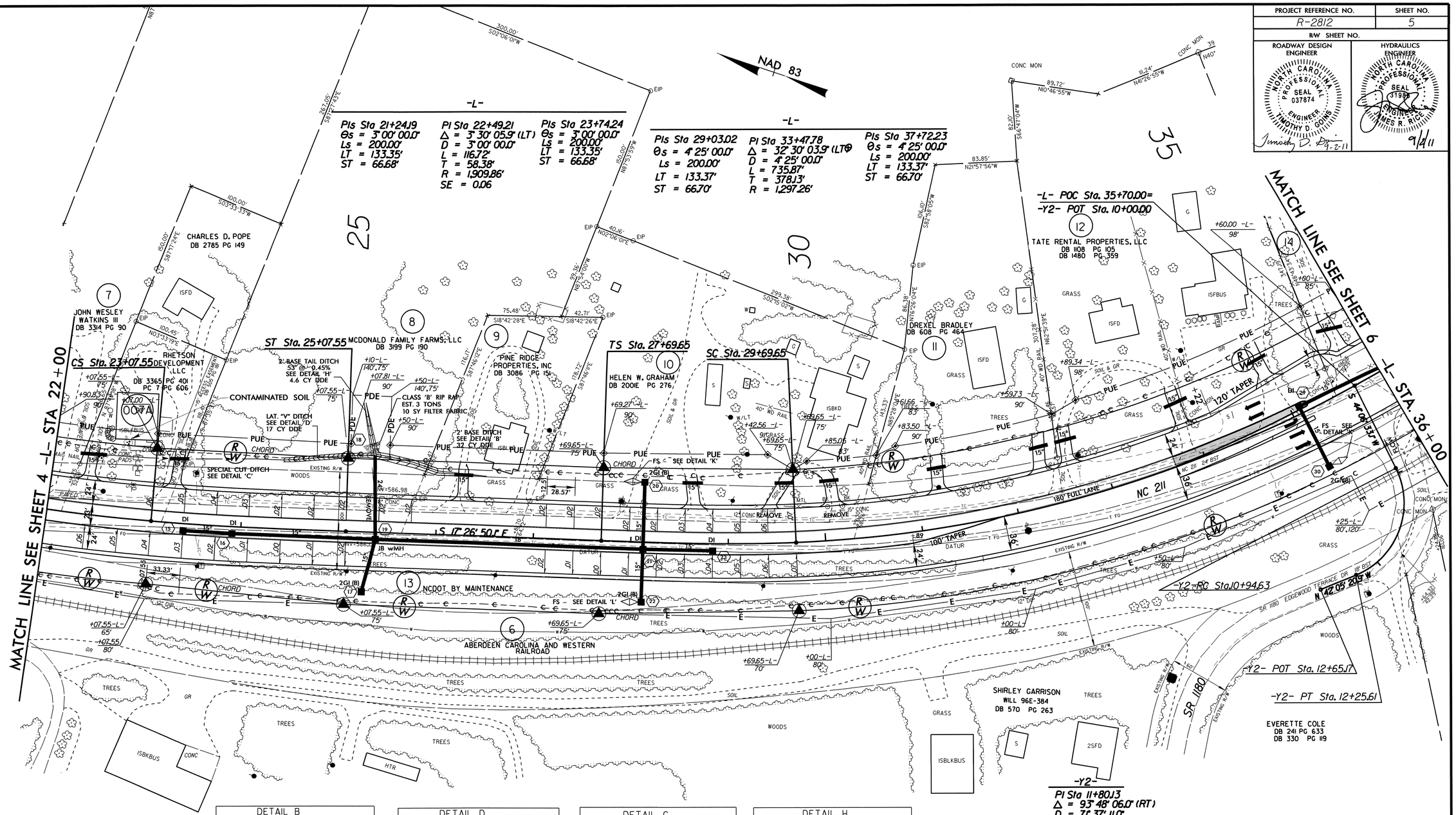
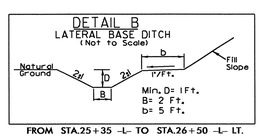
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 5 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

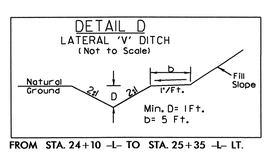
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS 9-2-11

NORTH CAROLINA PROFESSIONAL SEAL 31998 ENGINEER JAMES R. RICE JR. 9/2/11

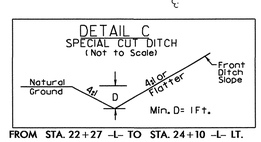


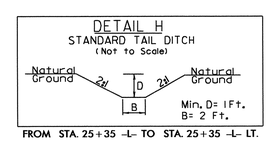

FROM STA.25+35 -L- TO STA.26+50 -L- LT.



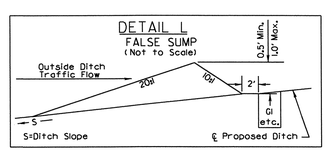

FROM STA. 24+10 -L- TO STA. 25+35 -L- LT.

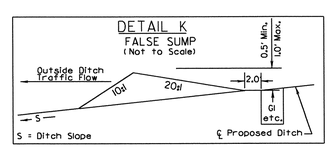



FROM STA. 22+27 -L- TO STA. 24+10 -L- LT.




FROM STA. 25+35 -L- TO STA. 25+35 -L- LT.




FOR -L- PROFILE, SEE SHEET NO. 34

REVISIONS

8/17/99

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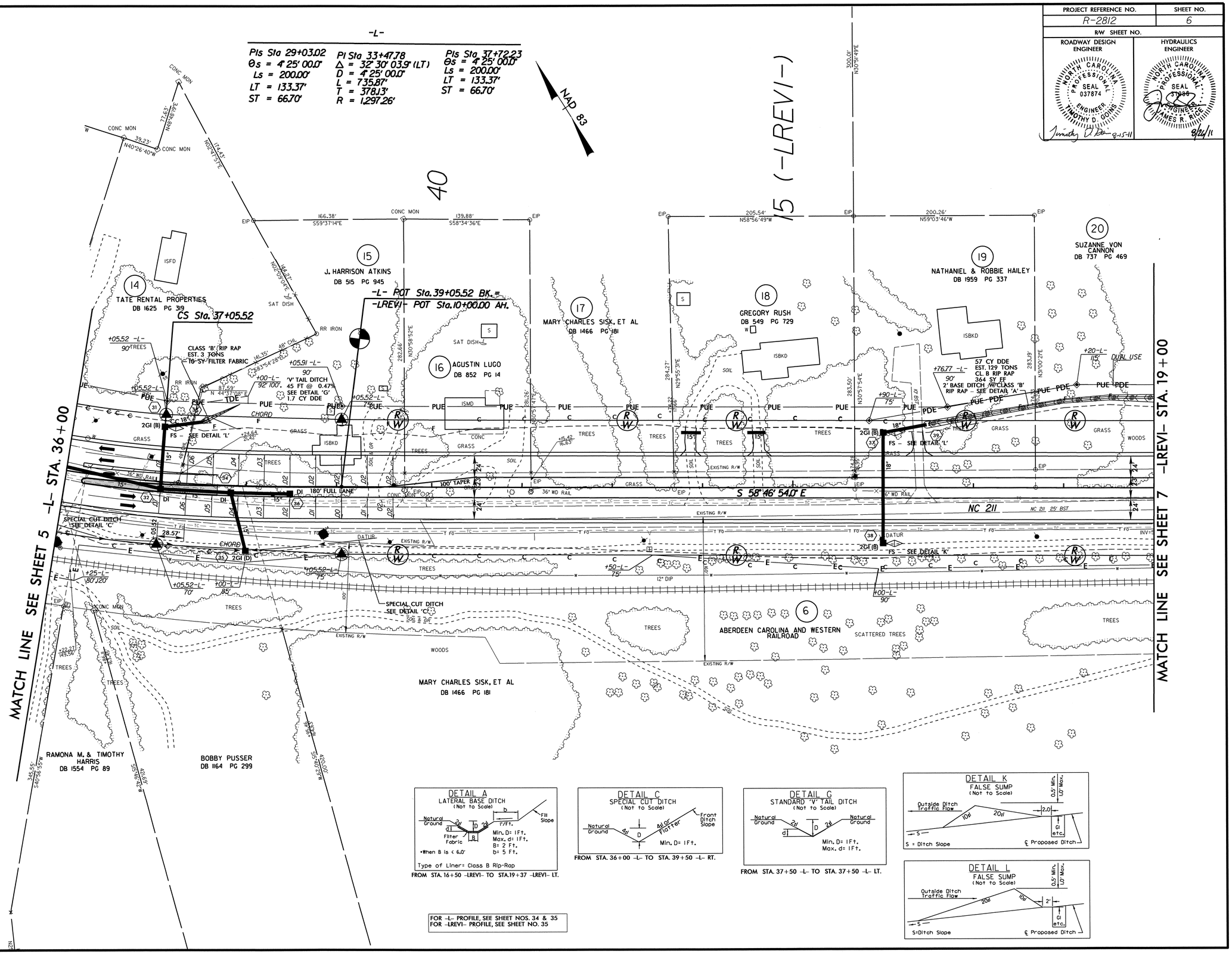
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 6 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 17236 ENGINEER JAMES R. RICE — 8/26/11




DETAIL A
LATERAL BASE DITCH
(Not to Scale)




FROM STA. 16+50 -LREVI- TO STA.19+37 -LREVI- LT.

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)




FROM STA. 36+00 -L- TO STA. 39+50 -L- RT.

DETAIL G
STANDARD 'V' TAIL DITCH
(Not to Scale)




FROM STA. 37+50 -L- TO STA. 37+50 -L- LT.

DETAIL K
FALSE SUMP
(Not to Scale)




DETAIL L
FALSE SUMP
(Not to Scale)




FOR -L- PROFILE, SEE SHEET NOS. 34 & 35
FOR -LREVI- PROFILE, SEE SHEET NO. 35

REVISIONS

8/17/99

11-AUG-2011 16:58
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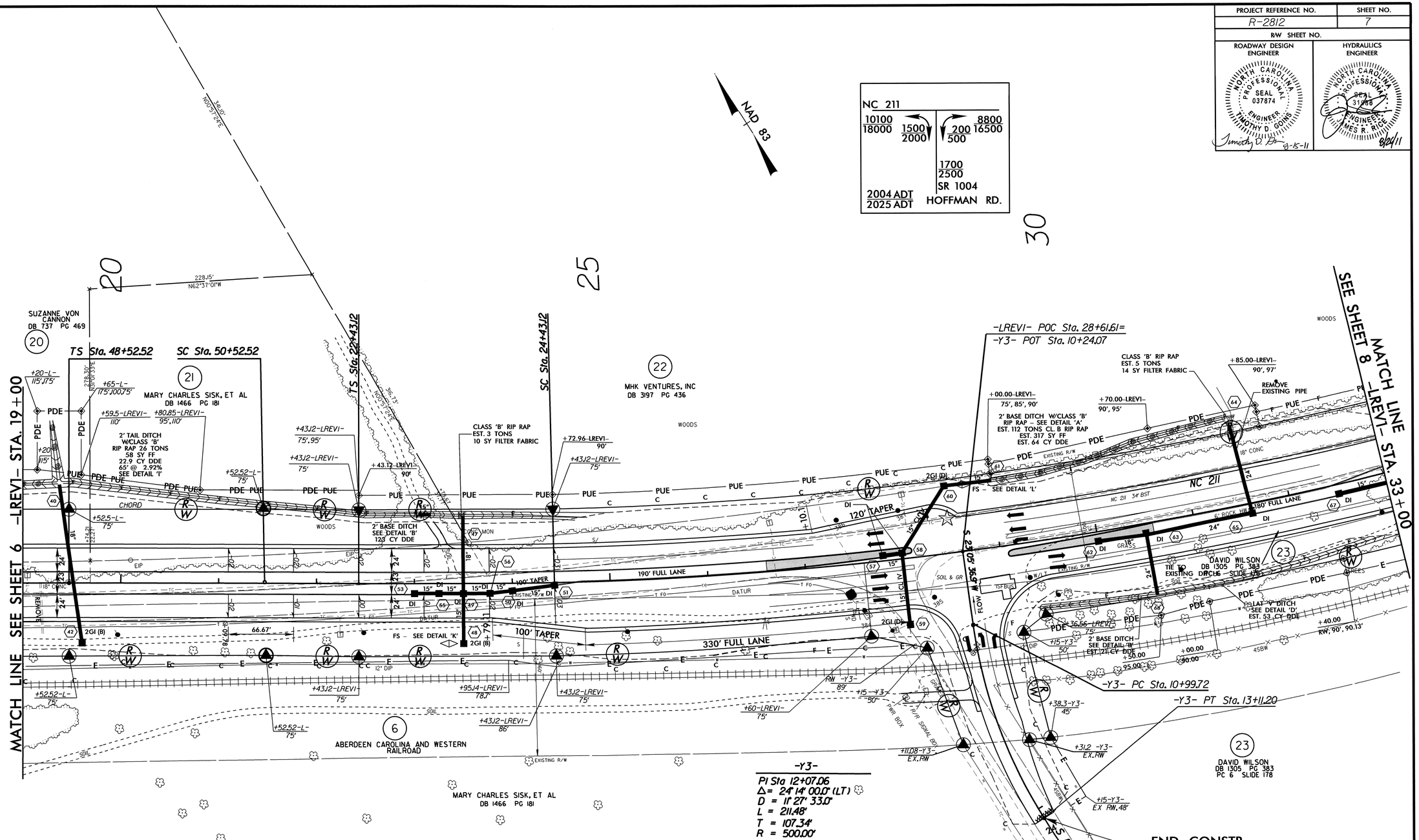
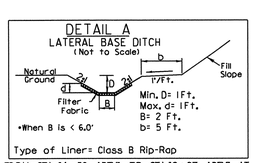
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 7 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

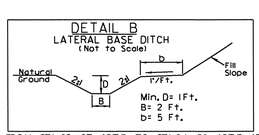
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 9-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31968 ENGINEER JAMES R. RICE
8/24/11

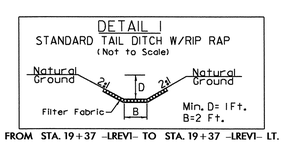


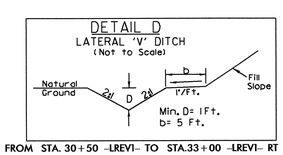

FROM STA. 16+50 -LREV1- TO STA.19+37 -LREV1- LT
FROM STA. 29+00 -LREV1- TO STA.31+50 -LREV1- LT



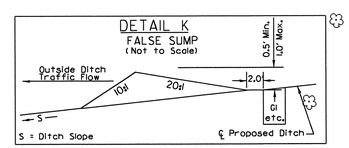

FROM STA. 19+37 -LREV1- TO STA.24+50 -LREV1- LT
FROM STA. 29+50 -LREV1- TO STA.30+50 -LREV1- RT

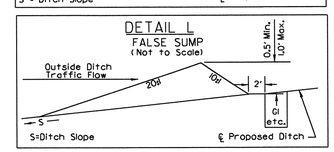



FROM STA. 19+37 -LREV1- TO STA. 19+37 -LREV1- LT.




FROM STA. 30+50 -LREV1- TO STA.33+00 -LREV1- RT




☆ EXISTING SIGNAL TO BE REVISED

FOR -LREV1- PROFILE, SEE SHEET NO. 35
FOR -Y3- PROFILE, SEE SHEET NO. 50

REVISIONS

8/17/99

11-AUG-2011 16:58
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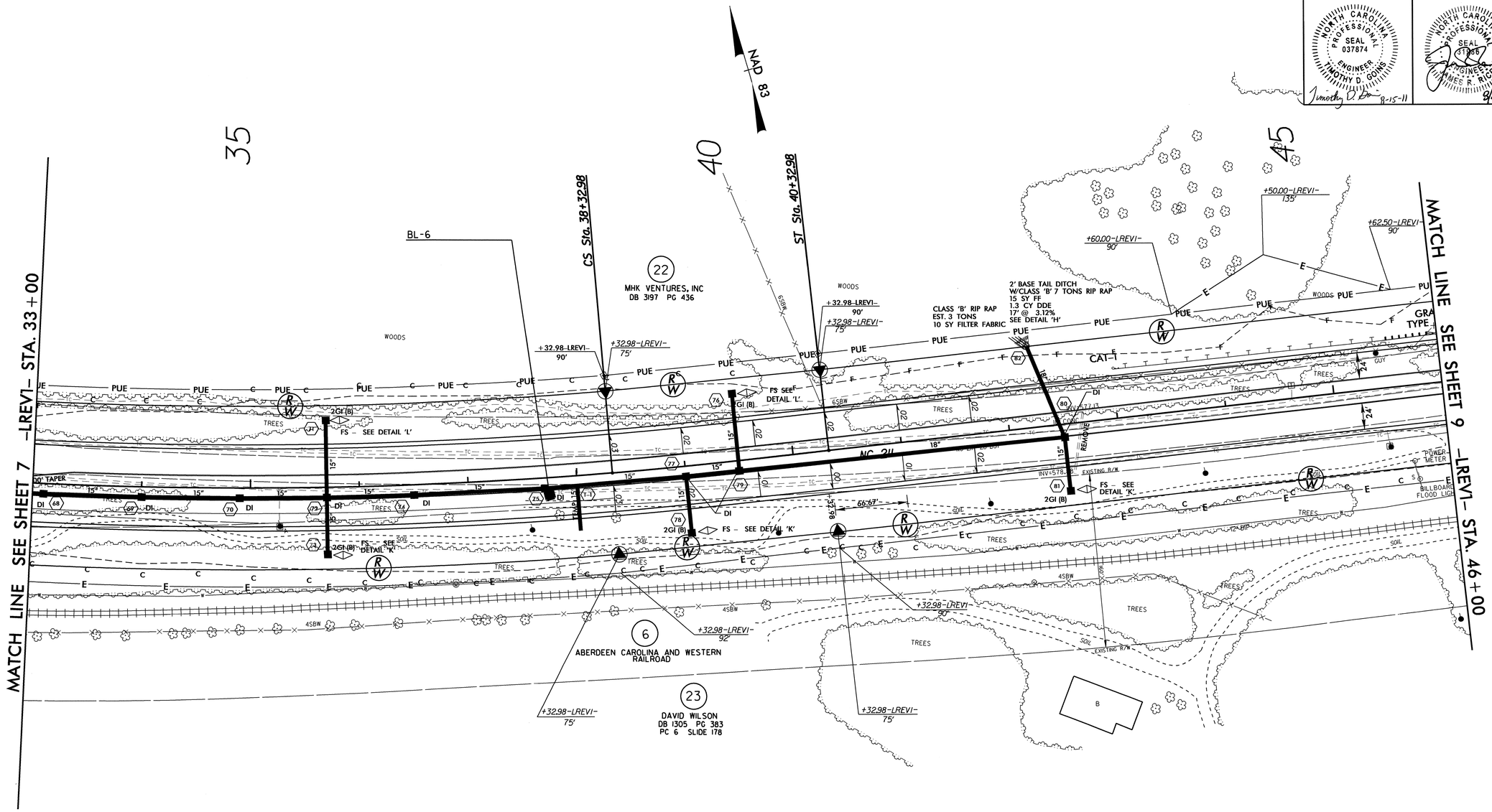
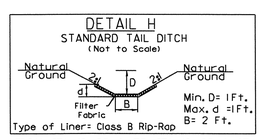
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 8 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

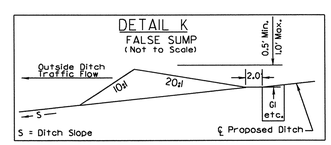
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-15-11

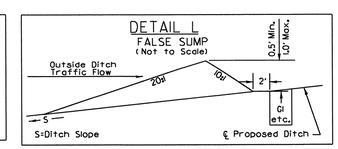
NORTH CAROLINA PROFESSIONAL SEAL 31366 ENGINEER JAMES R. RICE
8/24/11




FROM STA. 42+25 -L- TO STA. 42+25 -L- LT.




FOR -LREV1- PROFILE, SEE SHEET NOS. 35 & 36

REVISIONS

8/17/99

11-AUG-2011 16:59
R:\Roadway\Proj\r2812_rdy_s08.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 9 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 9-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31968 ENGINEER JAMES R. RIDLE — 8/24/11

REVISIONS

8/17/99

MATCH LINE SEE SHEET 8 -LREV1- STA. 46+00

MATCH LINE SEE SHEET 10 -LREV1- STA. 58+50

NAD 83

22 MHK VENTURES, INC DB 3197 PG 436

24 RICHARD LEWIS DB 2003E PG 280 MB 3 PG 105

22 MHK VENTURES INC DB 3197 PG 436

25 WILLIAM MARR CHRISCOE, JR. DB 636 PG 52

26 WILLIAM MARR CHRISCOE, JR. DB 184 PG 569

23 DAVID WILSON DB 1305 PG 383 PC 6 SLIDE 178

6 ABERDEEN CAROLINA AND WESTERN RAILROAD

NC 211

CLASS 'B' RIP RAP EST. 3 TONS 10 SY FILTER FABRIC

2' BASE TAIL DITCH 115' @ 0.3% SEE DETAIL 'H' 51.1 CY DDE

2' BASE SDG SEE DETAIL 'X'

GRAU TYPE 350

2' BASE DITCH SEE DETAIL 'B' EST. 45 CY DDE

2' BASE DITCH W/CLASS 'B' RIP RAP - SEE DETAIL 'A' EST. 22-TONS CL. B RIP RAP 63 SY FF 24 CY DDE

2' BASE DITCH W/CLASS 'B' RIP RAP - SEE DETAIL 'A' EST. 45 TONS CL. B RIP RAP EST. 127 SY FF EST. 27 CY DDE

FS - SEE DETAIL 'K'

+00-LREV1- 75.90'

+85.76-LREV1- 90'

+85.76-LREV1- EX.RW

S 81° 33' 16.7" E

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, B, b, 1'/Ft., Fill Slope, d1, Filter Fabric
Min. D = 1Ft.
Max. d = 1Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap

FROM STA. 49+00 -LREV1- TO STA.49+50 -LREV1- RT
FROM STA. 55+00 -LREV1- TO STA.56+00 -LREV1- RT

DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, B, b, 1'/Ft., Fill Slope
Min. D= 1Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 49+50 -LREV1- TO STA.53+50 -LREV1- RT
FROM STA. 56+00 -LREV1- TO STA.58+00 -LREV1- RT

DETAIL L
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 20d, 10d, 2', 0.5' Min., 1.0' Max., GI etc.
S=Ditch Slope
℄ Proposed Ditch

DETAIL K
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 10d, 20d, 2.0', 0.5' Min., 1.0' Max., GI etc.
S = Ditch Slope
℄ Proposed Ditch

DETAIL X
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 4d, D, B, 4d or Flatter, Front Ditch Slope
Max. d= 1Ft.
B= 2 Ft.

FROM STA. 53+50 -LREV1- TO STA.55+00 -LREV1- RT

DETAIL H
STANDARD TAIL DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, Natural Ground, B
Min. D= 1Ft.
B= 2 Ft.

FROM STA. 58+00 -LREV1- TO STA. 59+00 -LREV1- LT.

-LREV1-

PIs Sta 59+99.45
Θs = 3° 49' 11.0"
Ls = 200.00'
LT = 133.36'
ST = 66.69'

PI Sta 61+52.28
Δ = 6° 34' 39.2" (LT)
D = 3° 49' 11.0"
L = 172.20'
T = 86.19'
R = 1,500.00'

FOR -LREV1- PROFILE, SEE SHEET NO. 36

11-AUG-2011 17:00
R:\Roadway\Proj\r2812_rdy_s09.dgn
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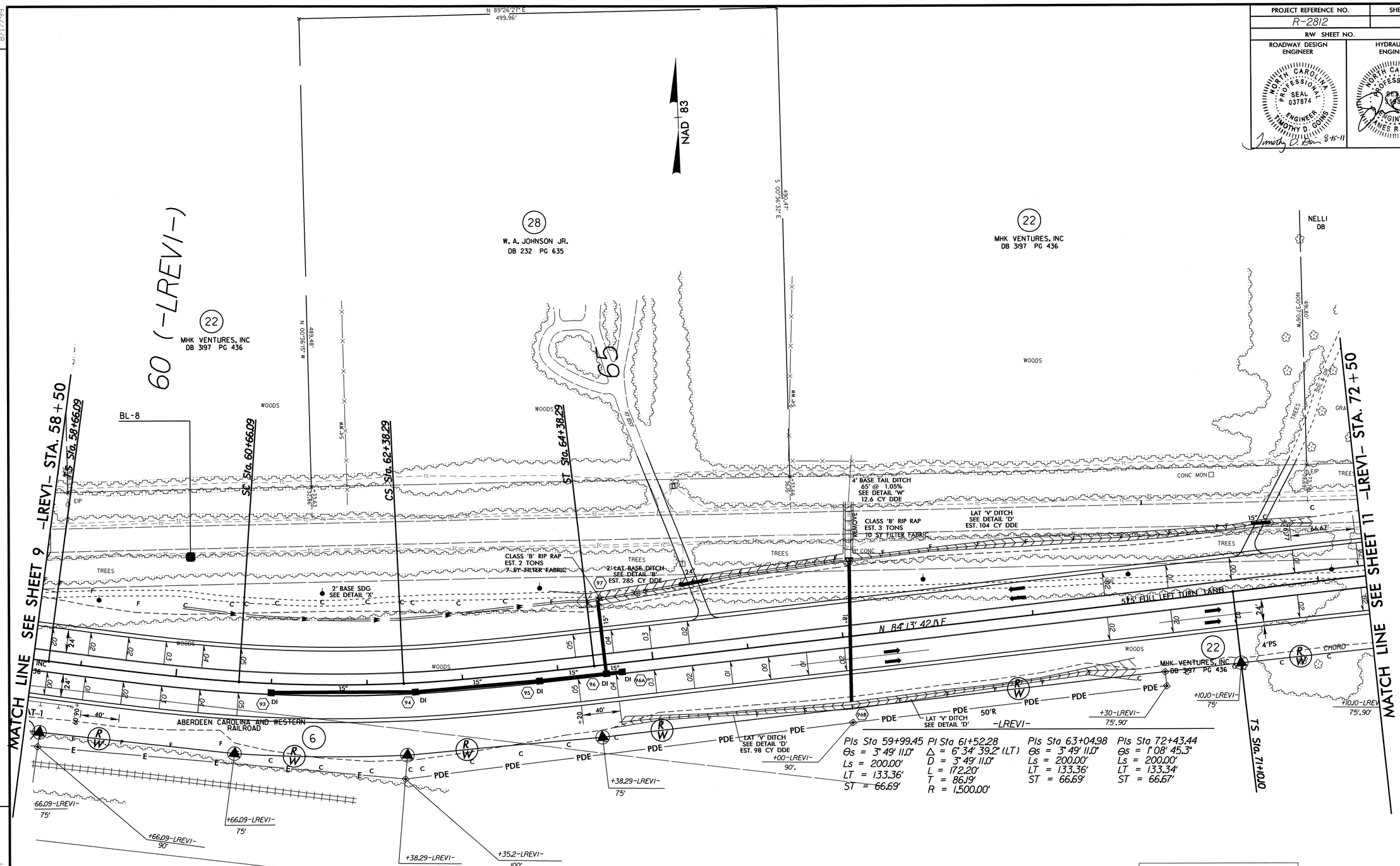
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 10 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOING
Timothy D. Going 8-15-11

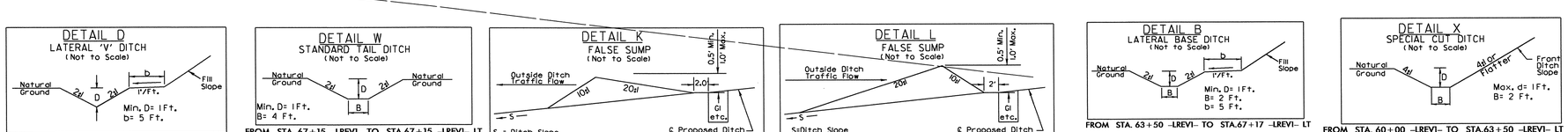
NORTH CAROLINA PROFESSIONAL SEAL 31486 ENGINEER JAMES R. RICE
8/22/11

REVISIONS

8/17/99




FOR -LREVI- PROFILE, SEE SHEET NOS. 36 & 37




FROM STA. 67+15 -LREVI- TO STA.72+00 -LREVI- LT
FROM STA. 65+00 -LREVI- TO STA.69+50 -LREVI- RT

FROM STA. 67+15 -LREVI- TO STA.67+15 -LREVI- LT

FROM STA. 63+50 -LREVI- TO STA.67+17 -LREVI- LT

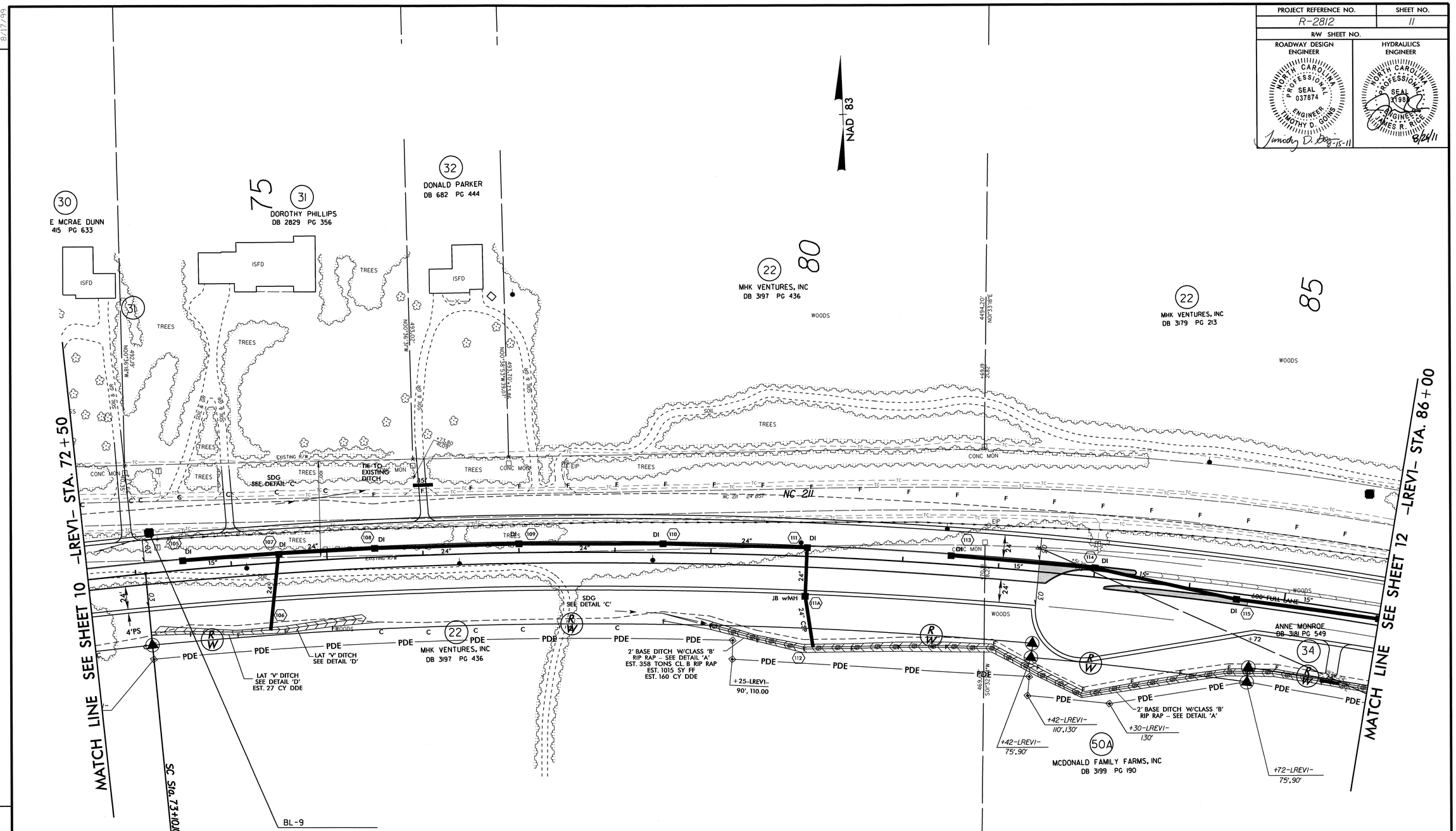
FROM STA. 60+00 -LREVI- TO STA.63+50 -LREVI- LT

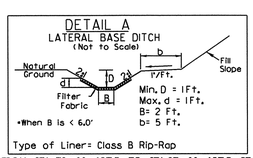
11-AUG-2011 17:00
R:\Roadway\Proj\r2812_rdy_sl0.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 11 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

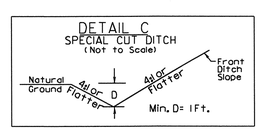
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 21398 ENGINEER JAMES R. RICE
8/24/11

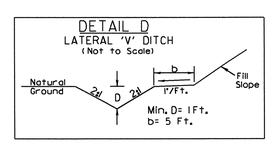



FROM STA. 79+00 -LREV1- TO STA.87+00 -LREV1- RT




FROM STA. 74+50 -LREV1- TO STA.75+50 -LREV1- LT
FROM STA. 78+00 -LREV1- TO STA.79+00 -LREV1- rT




FROM STA. 73+50 -LREV1- TO STA.75+50 -LREV1- rT

FOR -LREV1- PROFILE, SEE SHEET NO. 37

REVISIONS

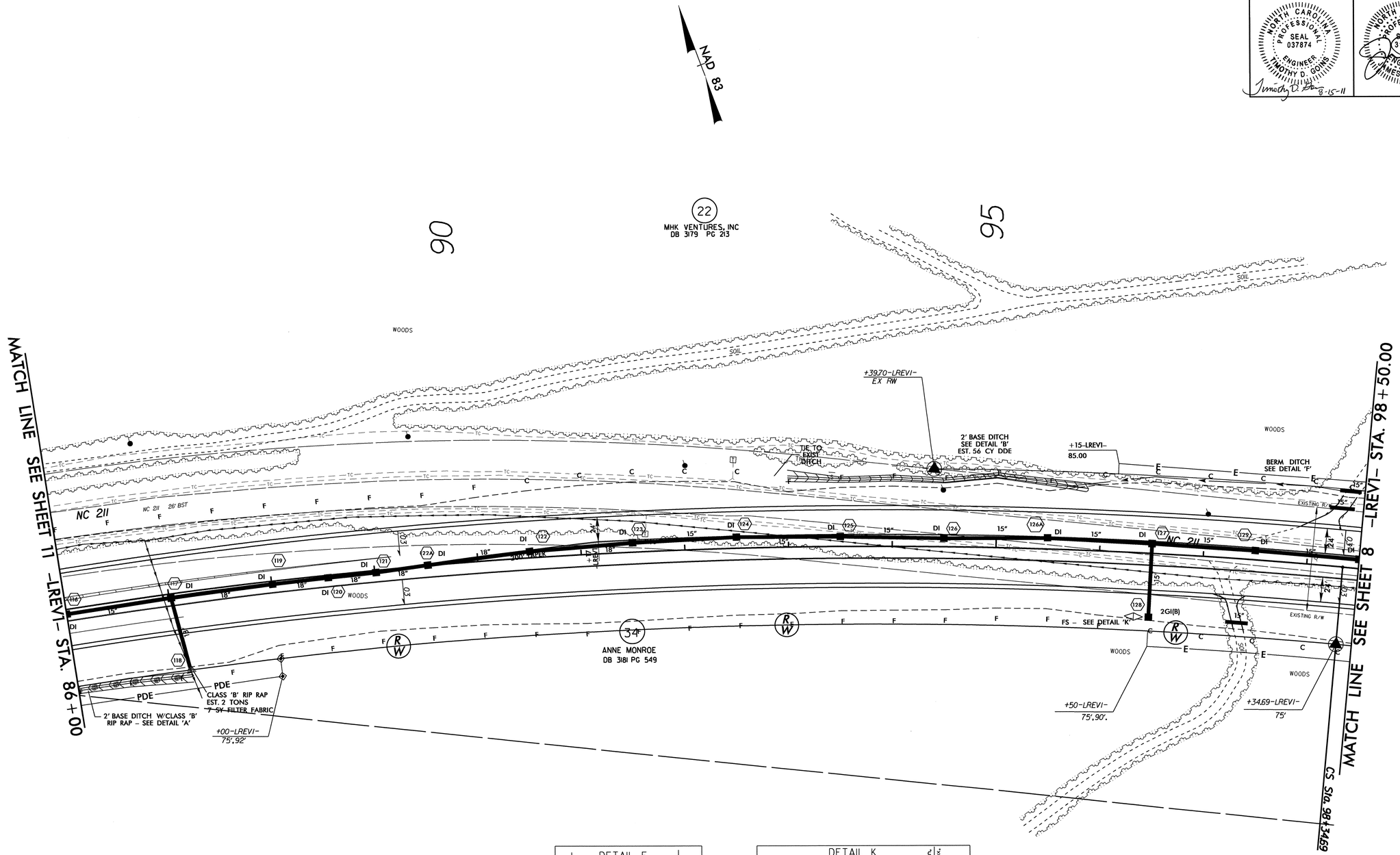
8/17/99

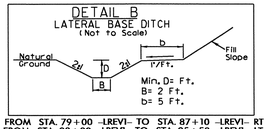
15-AUG-2011 10:44
R:\Roadway\Proj\r2812_rdy_sll.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 12 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

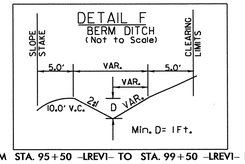
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31968 ENGINEER JAMES R. RICE
8/24/11

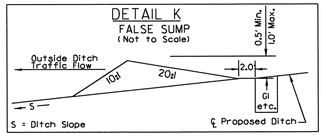



FROM STA. 79+00 -LREV1- TO STA. 87+10 -LREV1- RT
FROM STA. 93+00 -LREV1- TO STA. 95+50 -LREV1- LT.




FROM STA. 95+50 -LREV1- TO STA. 99+50 -LREV1- LT.




FOR -LREV1- PROFILE, SEE SHEET NOS. 37 & 38

REVISIONS

8/17/99

11-AUG-2011 7:01
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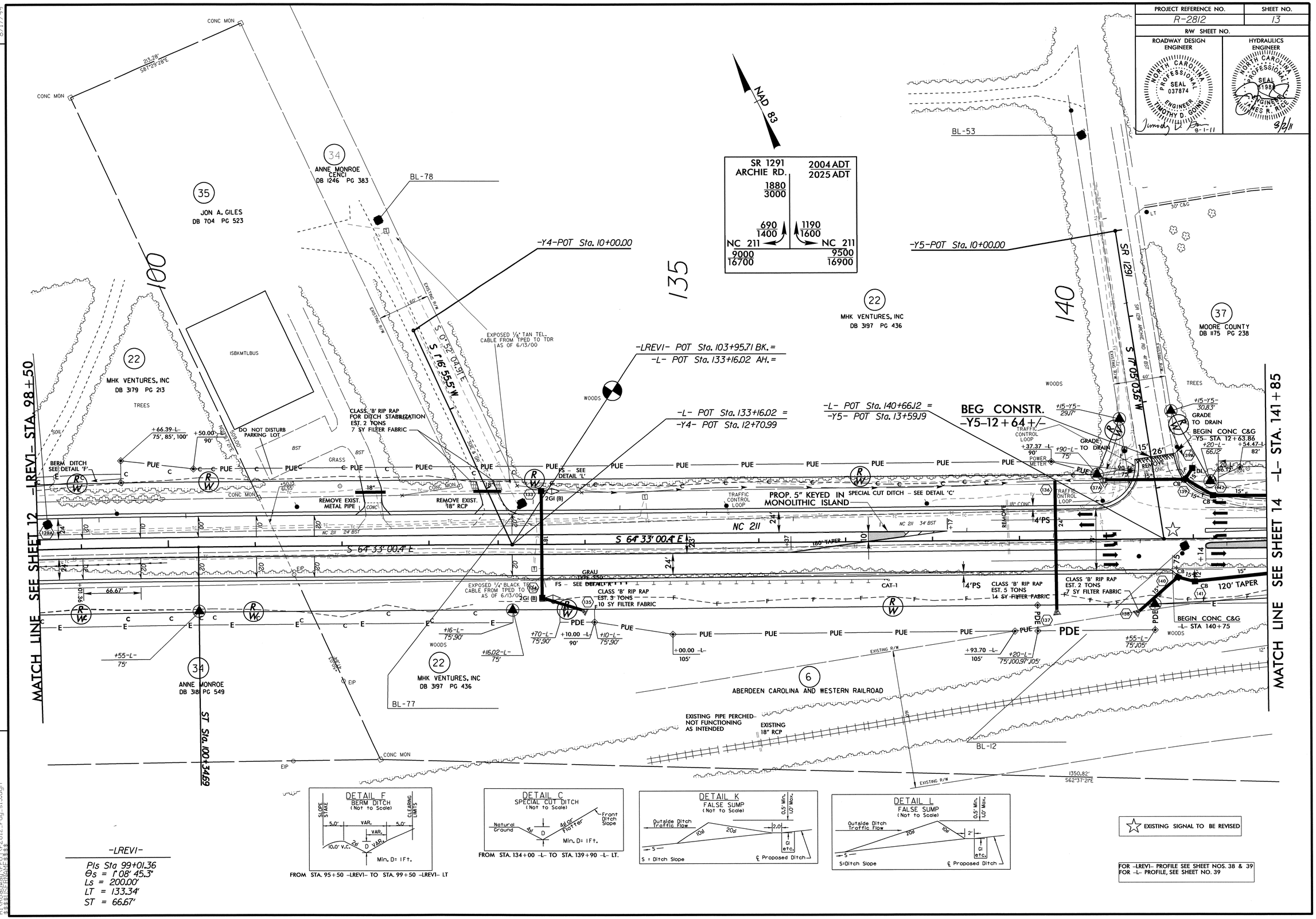
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 13 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |




-LREV1-

Pls Sta 99+01.36
Θs = 1°08' 45.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

REVISIONS

8/17/99

01-AUG-2011 13:01
R:\Roadway\Proj\r2812_rdy_s13.dgn
$$$$USERNAME$$$$

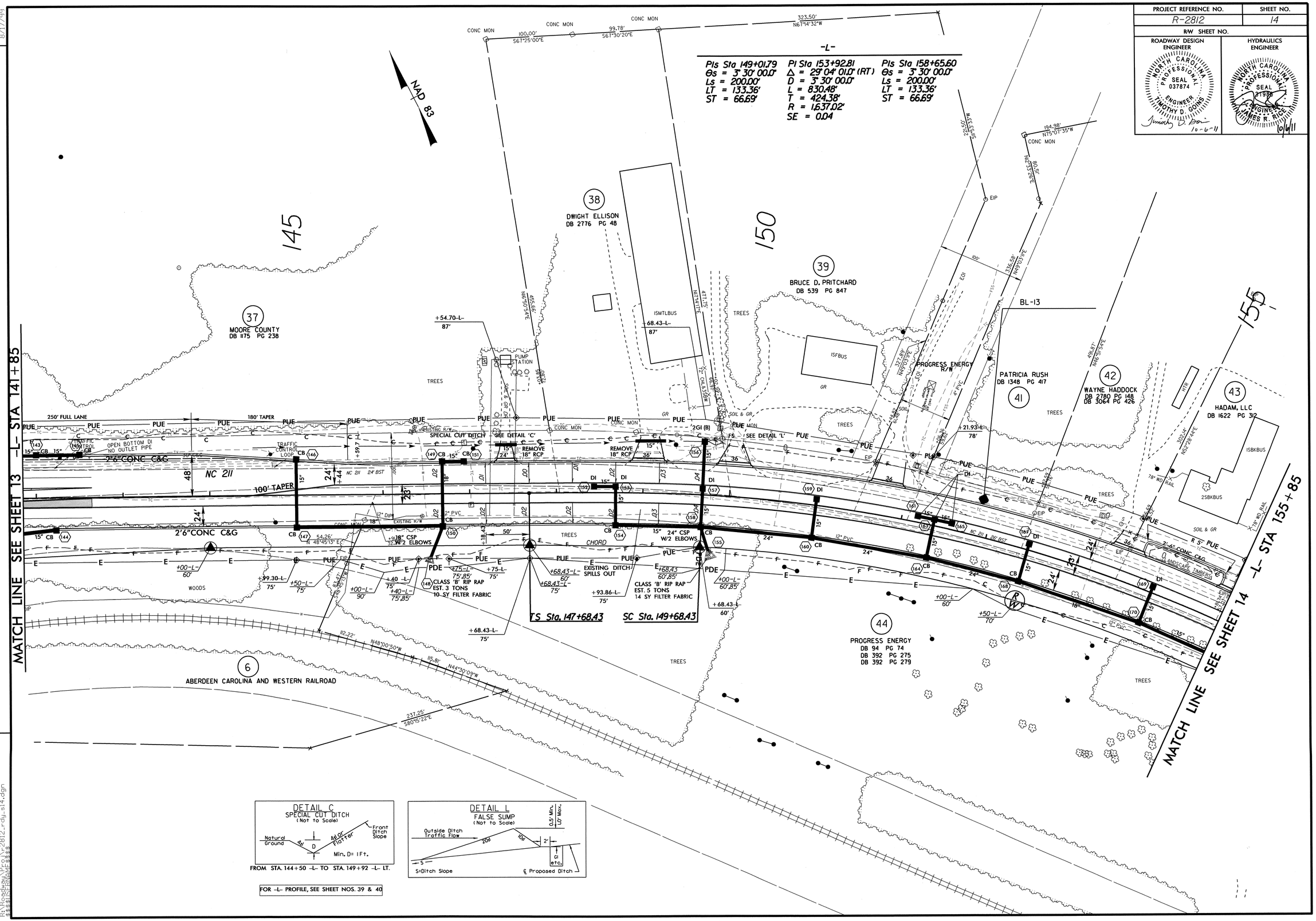
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 14 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 10-6-11

NORTH CAROLINA PROFESSIONAL SEAL 21982 ENGINEER JAMES R. RICK — 10/6/11

REVISIONS

8/17/99




06-OCT-2011 09:31
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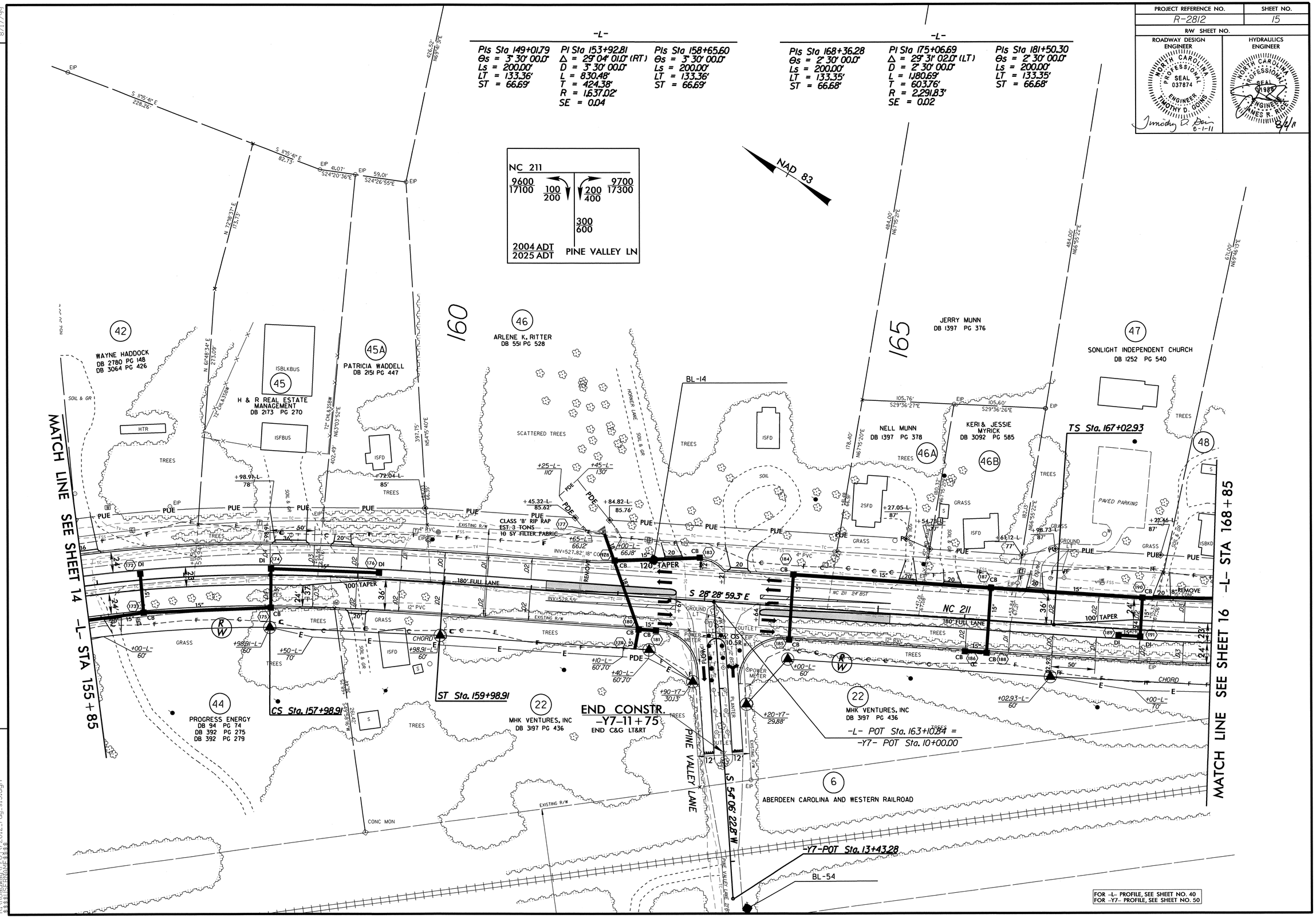
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 15 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |




REVISIONS

8/17/99

29-JUL-2011 11:49
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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 16 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31266 ENGINEER JAMES R. RICE
8/25/11

REVISIONS

8/17/99

-L-

| | | |
|---|---|---|
| PIs Sta 168+36.28 | PI Sta 175+06.69 | PIs Sta 181+50.30 |
| Es = 2' 30' 00.0" | Δ = 29' 31' 02.0" (LT) | Es = 2' 30' 00.0" |
| Ls = 200.00' | D = 2' 30' 00.0" | Ls = 200.00' |
| LT = 133.35' | L = 1,180.69' | LT = 133.35' |
| ST = 66.68' | T = 603.76' | ST = 66.68' |
| | R = 2,291.83' | |
| | SE = 0.02 | |

NAD 83

MATCH LINE SEE SHEET 17 -L- STA 182+35

MATCH LINE SEE SHEET 15 -L- STA 168+85

104.99' N29°13'22"W
93.41' N28°21'40"W
115.00' N28°21'40"W
673.00' N29°36'59"W
661.28' N66°53'32"E
105.08' S60°21'56"E
358.10' N29°24'44"W
358.10' N29°24'44"W

170 175 180

48 DONNIE WILLARD DB 817 PG 438

50 MCDONALD FAMILY FARMS, LLC DB 3199 PG 190

51 RETIREMENT ACCOUNTS INC. DB 841 PG 277

50 MCDONALD FAMILY FARMS, LLC DB 3199 PG 190

52 PINEWILD PROJECT LIMITED PARTNERSHIP DB 729 PG 408

49

6 ABERDEEN CAROLINA AND WESTERN RAILROAD

CS Sta. 180+83.62

SC Sta. 169+02.93

BL-15

GPS R2812-3

NC 211

CLASS 'B' RIP RAP EST. 3 TONS 10 SY FILTER FABRIC

CLASS 'B' RIP RAP EST. 5 TONS 14 SY FILTER FABRIC

24" CSP W/2 ELBOWS

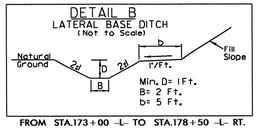
18" CSP W/2 ELBOWS

REMOVE EXISTING PIPE

2' BASE DITCH SEE DETAIL 'B' EST. 141 CY DDE

+85-L- 62.36',90',130'
+20-L- 61.96',85',130'
+50-L- 85',64.7'
+80-L- 85',64.44'
+00.00-L- 85'
+85.00-L- 90'
+20 -L- 85'
+77.17-L- 60'
+40.00-L- 70'
+00-L- 65'
+45.41-L- 65'
+50.00-L- 70'
+83.62-L- 60'
+00-L- 70'
+60-L- 60',75'
+00-L- 75'
+85-L- 60',80'
+02.93-L- 60'
+00-L- 70'
179+45.78 72.82

DETAIL B
LATERAL BASE DITCH
(Not to Scale)




FROM STA.173+00 -L- TO STA.178+50 -L- RT.

FOR -L- PROFILE, SEE SHEET NOS. 40 & 41

11-AUG-2011 17:02
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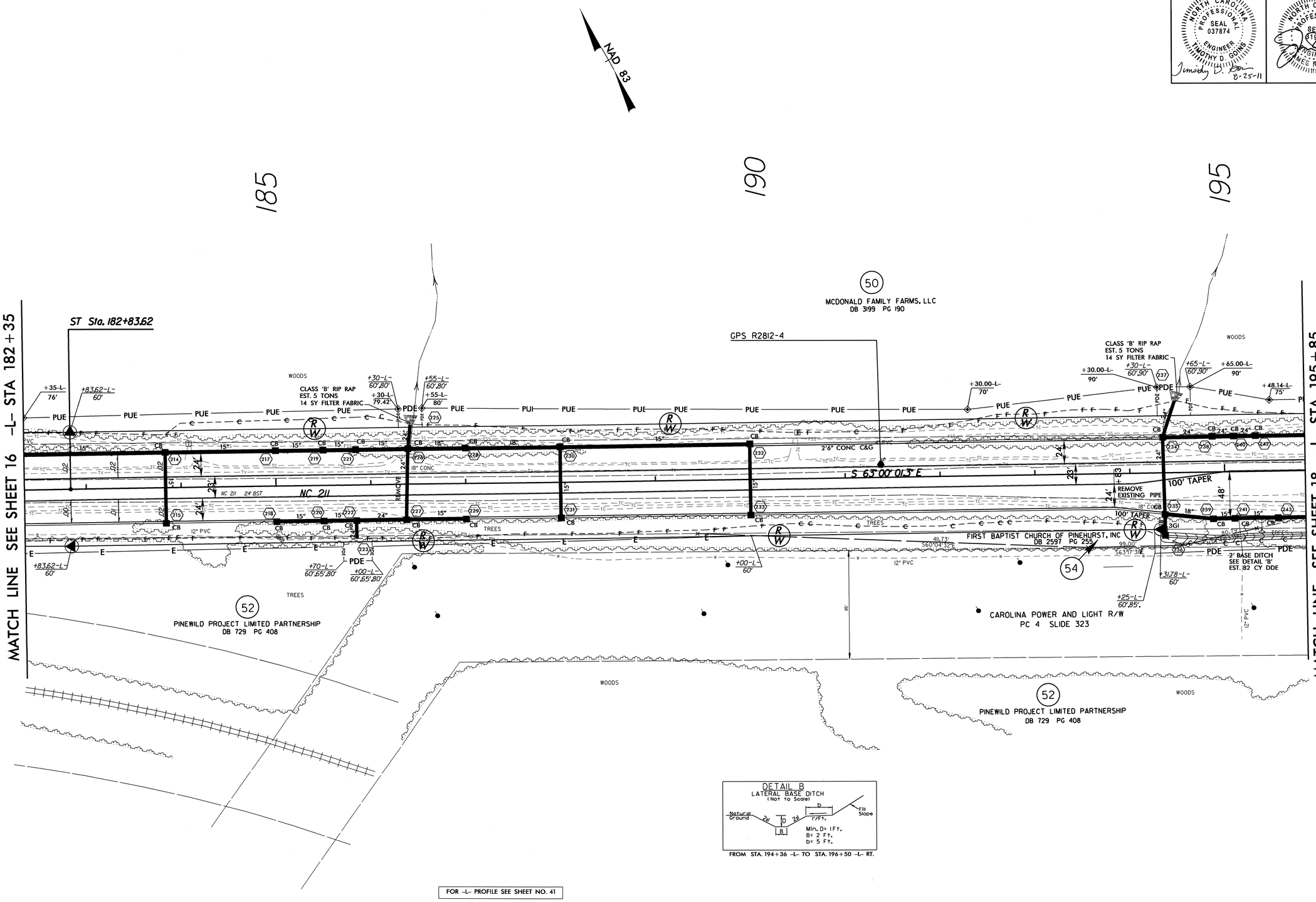
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 17 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-25-11

NORTH CAROLINA PROFESSIONAL SEAL 31966 ENGINEER JAMES R. RICE
9/26/11




FOR -L- PROFILE SEE SHEET NO. 41

REVISIONS

8/17/99

22-AUG-2011 11:26
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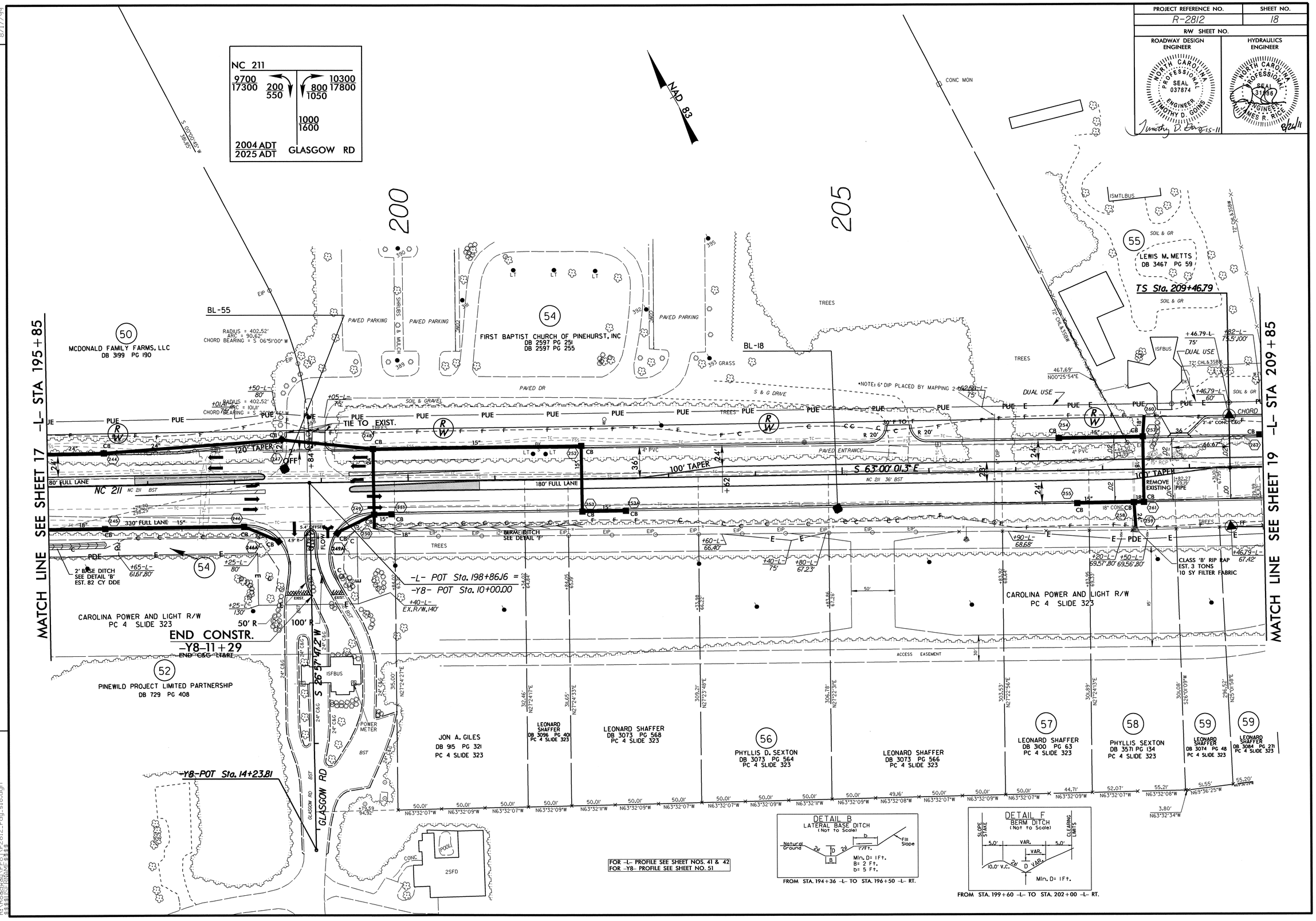
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 18 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 5-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31186 ENGINEER JAMES R. RICE
8/24/11




REVISIONS

8/17/99

11-AUG-2011/7:03
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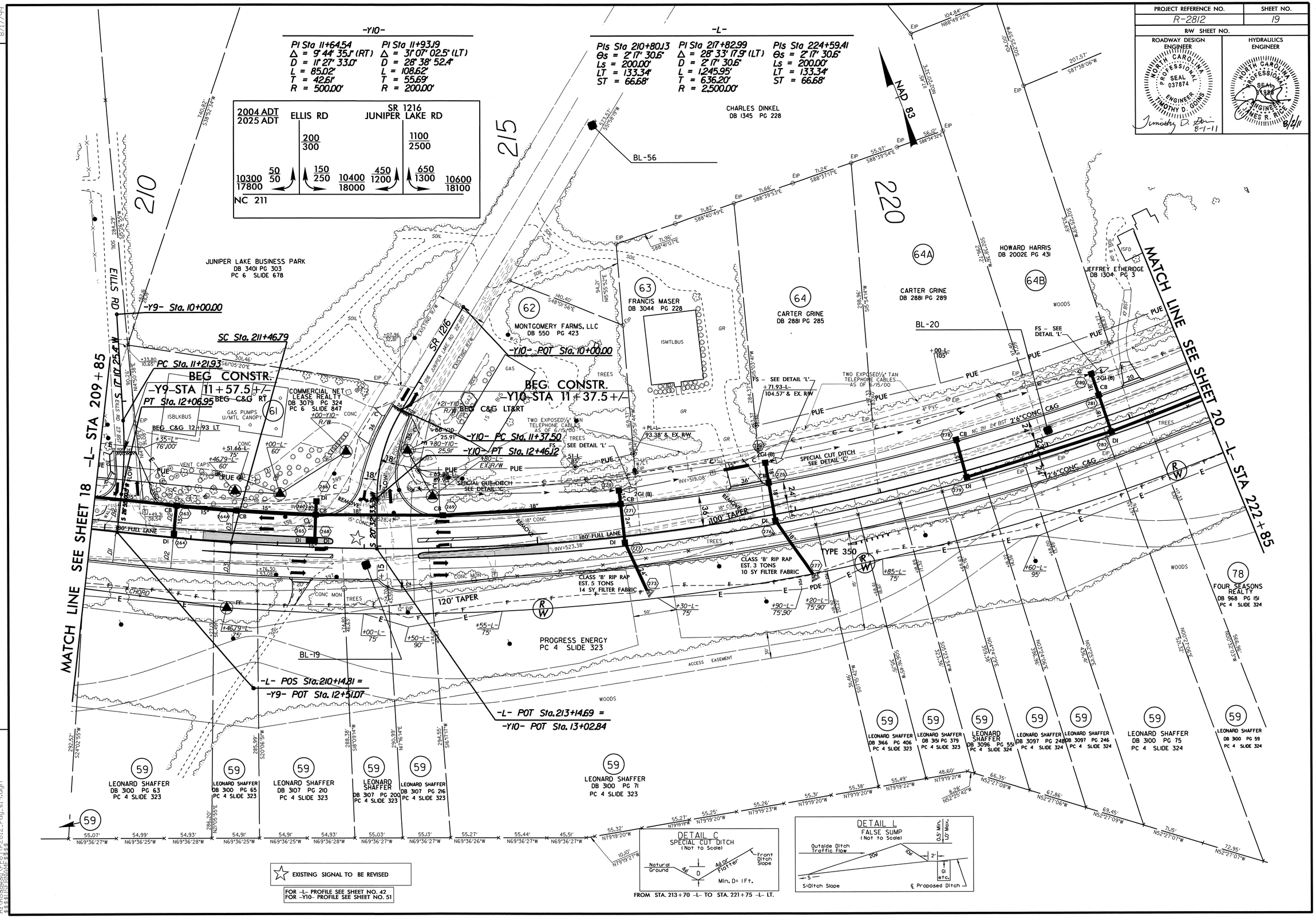
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 19 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

NORTH CAROLINA PROFESSIONAL SEAL 019382 ENGINEER JAMES R. RIGGS
8/2/11




REVISIONS

8/17/99

29-JUL-2011 11:47
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$$$$USER: TRIMMER $$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 20 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31936 ENGINEER JAMES R. RICE — 8/26/11

REVISIONS

8/17/99

-L-

PIs Sta 210+80.13
Θs = 2° 17' 30.6"
Ls = 200.00'
LT = 133.34'
ST = 66.68'

PI Sta 217+82.99
Δ = 28° 33' 17.9" (LT)
D = 2° 17' 30.6"
L = 1,245.95'
T = 636.20'
R = 2,500.00'

PIs Sta 224+59.41
Θs = 2° 17' 30.6"
Ls = 200.00'
LT = 133.34'
ST = 66.68'

-L-

PIs Sta 229+54.43
Θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 236+79.95
Δ = 24° 46' 23.8" (RT)
D = 1° 54' 35.5"
L = 1,297.13'
T = 658.86'
R = 3,000.00'

PIs Sta 243+84.89
Θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

NAD 83

225 230 235

MATCH LINE SEE SHEET 19 -L- STA 222+85

MATCH LINE SEE SHEET 21 -L- STA 235+85

64C JEFFREY ETHERIDGE DB 1304 PG 3

64D JANICE ARNETTE DB 564 PG 118

64E EDU-CARE DB 496 PG 183

93 JANICE ARNETTE DB 564 PG 116

94 DANIEL ADAMS DB 1789 PG 422

95 KENNETH KINTNER DB 1027 PG 52

96 JANET ANNE H. RHULE DB 2963 PG 500

78 FOUR SEASONS REALTY DB 968 PG 151 PC 4 SLIDE 324

79 LEONARD SHAFFER DB 307 PG 206 PC 4 SLIDE 324

79 LEONARD SHAFFER DB 307 PG 200 PC 4 SLIDE 324

79 LEONARD SHAFFER DB 307 PG 216 PC 4 SLIDE 324

79 LEONARD SHAFFER DB 300 PG 61 PC 4 SLIDE 324

79 LEONARD SHAFFER DB 3100 PG 63 PC 4 SLIDE 324

79 LEONARD SHAFFER DB 3100 PG 59 PC 4 PG 324

79 LEONARD SHAFFER DB 3107 PG 208 PC 4 PG 324

79 LEONARD SHAFFER DB 3100 PG 63 PC 4 PG 324

79 LEONARD SHAFFER DB 307 PG 212 PC 4 PG 324

79 LEONARD SHAFFER DB 300 PG 67 PC 4 PG 324

79 LEONARD SHAFFER DB 300 PG 73 PC 4 PG 324

79 LEONARD SHAFFER DB 300 PG 59 PC 4 PG 324

79 LEONARD SHAFFER DB 3089 PG 235 PC 4 PG 324

92 JANET ANNE H. DB 29 PG 4

CS Sta. 223+92.74

ST Sta. 225+92.74

TS Sta. 228+21.09

SC Sta. 230+21.09

N 83° 51' 39.6" E

SPECIAL CUT DITCH - SEE DETAIL 'C'

FS - SEE DETAIL 'L'

SPECIAL CUT DITCH SEE DETAIL 'C'

LATERAL 'V' DITCH SEE DETAIL D EST. 98 CY DDE

REMOVE EXISTING PIPE

EXISTING DITCH SPILLS OUT

CLASS 'B' RIP RAP EST. 2 TONS 14 SY FILTER FABRIC

2' BASE DITCH W/CLASS 'B' RIP RAP - SEE DETAIL 'A' EST. 96 TONS CL. B RIP RAP EST. 273 SY FF EST. 133 CY DDE

2' BASE DITCH SEE DETAIL 'B' EST. 85 CY DDE

CLASS 'B' RIP RAP EST. 2 TONS 7 SY FILTER FABRIC

15" CSP W/2 ELBOWS

PROGRESS ENERGY PC 4 SLIDE 323

ACCESS EASEMENT

BL-21

WOODS

TREES

CONC MON

ISFD

ISBLKBUS

ISMTLBUS

SOIL & GR

GR

48" CHL

48" CONC. WALL

18" CONC.

4" PVC

12" DIP

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground — 2H — D — 2H — b — 1'/Ft. — Fill Slope

d — B — Filter Fabric

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.

*When B Is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 232+50 -L- TO 234+65 -L- RT.

DETAIL B
LATERAL BASE DITCH
(Not to Scale)

Natural Ground — 2H — D — 2H — b — 1'/Ft. — Fill Slope — B

Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA.234+65 -L- TO STA.236+25 -L- RT.

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 4H — D — 4H or Flatter — Front Ditch Slope

Min. D= 1 Ft.

FROM STA. 225+50 -L- TO STA. 233+00 -L- LT.

DETAIL L
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow — 20H — 10H — 2' — 0.5' Min. 1.0' Max. — GI etc.

S=Ditch Slope

℄ Proposed Ditch

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 2H — D — 2H — b — 1'/Ft. — Fill Slope

Min. D= 1 Ft.
b= 5 Ft.

FROM STA. 235+60 -L- TO STA. 239+39 -L- LT.

FOR -L- PROFILE SEE SHEET NOS. 42 & 43

11-AUG-2011 17:03
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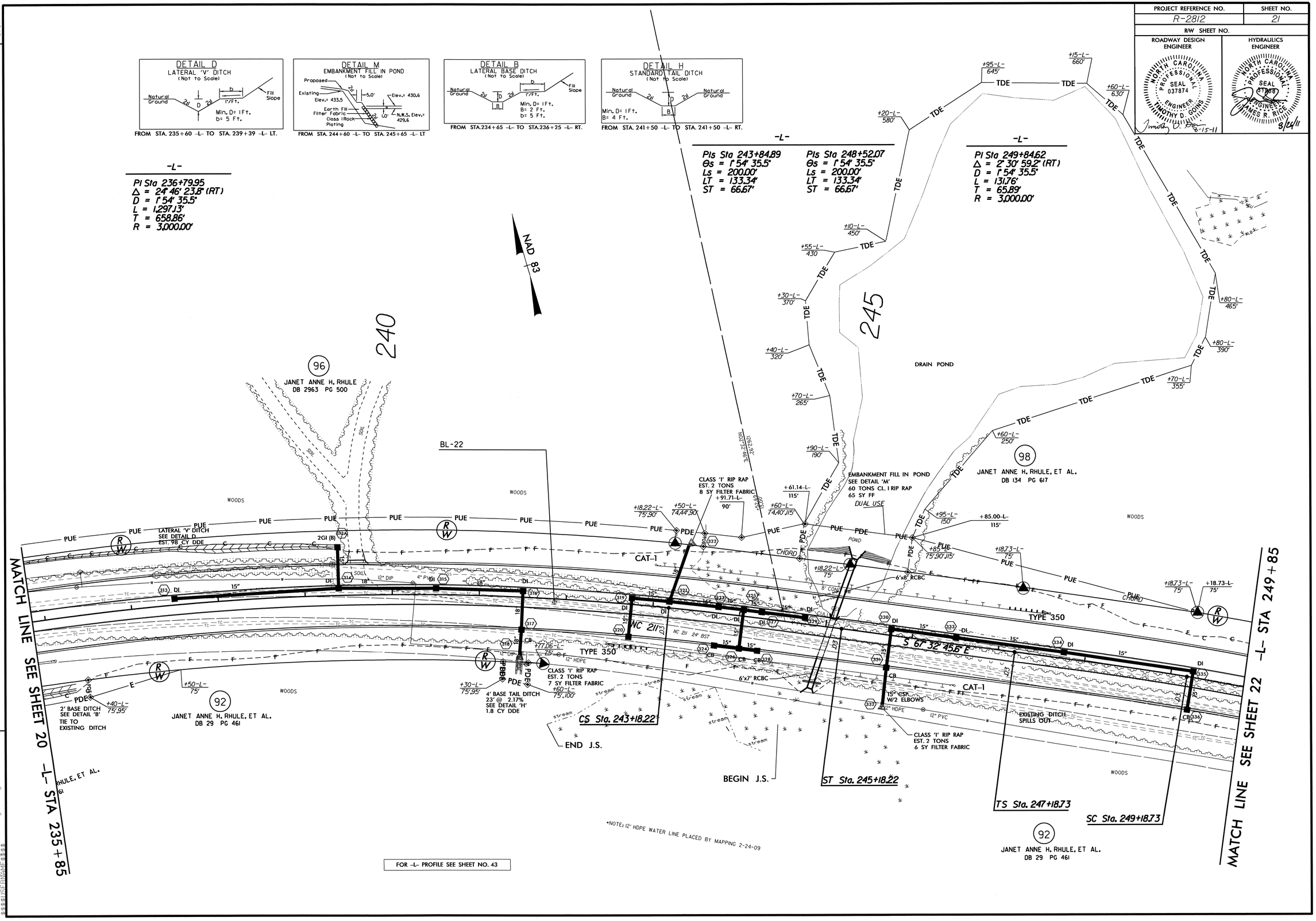
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 21 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31368 ENGINEER JAMES R. RICE 8/24/11

REVISIONS

8/17/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 22 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 038 ENGINEER JAMES R. RIDDLE — 8/24/11

REVISIONS

8/17/99

**-L-**

PIs Sta 251+17.17
Θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PIs Sta 254+68.12
Θs = 1° 08' 45.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

**-LREV3-**

PIs Sta 255+94.86
Θs = 1° 08' 45.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 259+73.44
Δ = 7° 08' 21.4" (LT)
D = 1° 08' 45.3"
L = 623.02'
T = 311.91'
R = 5,000.00'

PIs Sta 263+51.22
Θs = 1° 08' 45.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

**-L-**

PI Sta 259+88.29
Δ = 10° 21' 55.3" (LT)
D = 1° 08' 45.3"
L = 904.55'
T = 453.51'
R = 5,000.00'

NAD 83




FROM STA. 252+00 -L- TO STA. 254+00 -LREV3- RT
FROM STA. 258+50 -LREV3- TO STA. 265+50 -LREV3- RT
FROM STA. 259+00 -LREV3- TO STA. 265+00 -LREV3- LT




FROM STA.255+25 -LREV3- TO STA.256+83 -LREV3- LT.



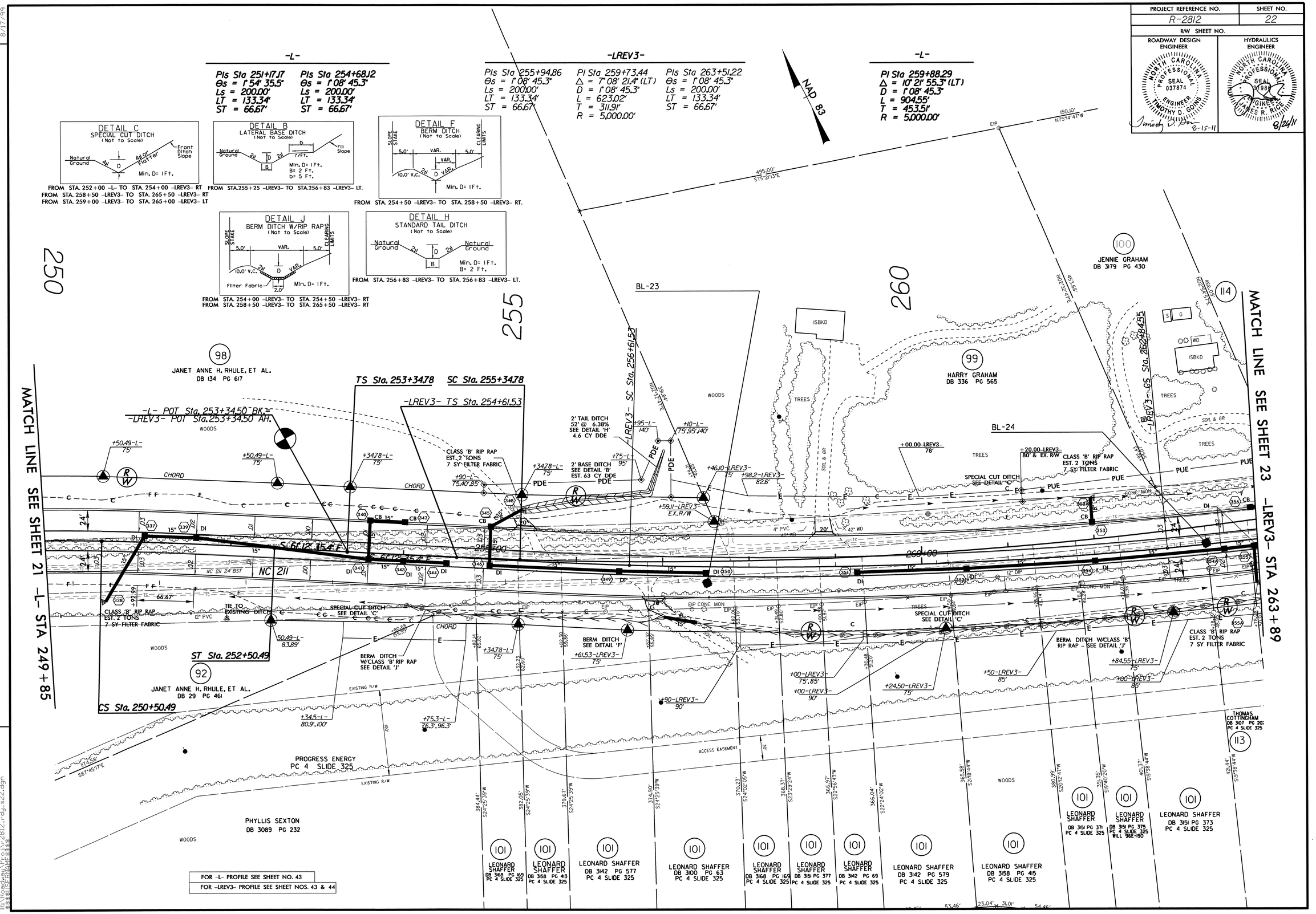

FROM STA. 254+50 -LREV3- TO STA. 258+50 -LREV3- RT.




FROM STA. 254+00 -LREV3- TO STA. 254+50 -LREV3- RT
FROM STA. 258+50 -LREV3- TO STA. 265+50 -LREV3- RT




FROM STA. 256+83 -LREV3- TO STA. 256+83 -LREV3- LT.




FOR -L- PROFILE SEE SHEET NO. 43
FOR -LREV3- PROFILE SEE SHEET NOS. 43 & 44

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 23 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOING — 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 31958 ENGINEER JAMES R. RIDDLE — 8/15/11

REVISIONS

8/17/99

-L-
Pls Sta 265+06.00
Θs = 1° 08' 45.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

-L-
Pls Sta 268+59.75
Θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 269+91.91
Δ = 2° 30' 04.7" (RT)
D = 1° 54' 35.5"
L = 130.97'
T = 65.49'
R = 3,000.00'

Pls Sta 271+24.06
Θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

-L-
Pls Sta 275+81.39
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

PI Sta 277+82.30
Δ = 15° 17' 55.9" (RT)
D = 5° 43' 46.5"
L = 267.02'
T = 134.31'
R = 1,000.00'

-LREV3-
Pls Sta 270+06.64
Θs = 1° 58' 32.6"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 276+10.32
Δ = 20° 58' 55.7" (RT)
D = 1° 58' 32.6"
L = 1,062.00'
T = 537.02'
R = 2,900.00'

Pls Sta 282+01.98
Θs = 1° 58' 32.6"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

NAD 83

MATCH LINE SEE SHEET 22 -LREV3- STA 263+89

MATCH LINE SEE SHEET 24 -LREV3- STA 277+70

CS Sta. 264+39.33

ST Sta. 266+39.33

TS Sta. 267+26.41

SC Sta. 269+26.41

CS Sta. 270+57.38

ST Sta. 272+57.38

-L- POC Sta. 273+42.35 = -Y11- POT Sta. 10+00.00

TS Sta. 274+47.99

SC Sta. 276+47.99

-Y11- PC Sta. 12+00.06

END CONSTR. -Y11-STA 11+75+/-

-Y11- PT Sta. 13+52.07

-Y11-POT Sta. 13+60.52

-Y-
PI Sta 12+77.73
Δ = 29° 01' 49.2" (RT)
D = 19° 05' 54.9"
L = 152.00'
T = 77.67'
R = 300.00'

S 73° 52' 01.3" E

S 70° 38' 27.4" E

S 67° 32' 45.6" E

S 57° 23' 03.5" W

N 53° 24' 00" W

STONEYKIRK DR

TAYLORTOWN DR

DENINGTON DR

EXISTING R/W

ACCESS EASEMENT

WOODS

TREES

CONC MON

CAT-1

GRAU TYPE 350

BAPTIST CHILDRENS HOME DB 2005E PG 123 (114)

RAS PROPERTIES, LLC DB 2470 PG 434 (115)

PINEWILD PROPERTY OWNERS ASSOCIATION DB 1867 PG 222 (52)

PROGRESS ENERGY PC 3 SLIDE 390

STEVEN TUCHTEN DB 915 PG 349 PC 4 SLIDE 325 (128)

LEONARD SHAFFER DB 358 PG 417 PC 4 SLIDE 325 (116)

LEONARD SHAFFER DB 358 PG 417 PC 4 SLIDE 325 (116)

LEONARD SHAFFER DB 359 PG 369 PC 4 SLIDE 325 (116)

LEONARD SHAFFER DB 3220 PG 953 PC 4 SLIDE 325 (116)

PHYLLIS SEXTON DB 3279 PG 537 PC 4 SLIDE 325 (120)

LEONARD SHAFFER DB 323 PG 529 PC 4 SLIDE 325 (117)

LEONARD SHAFFER DB 323 PG 529 PC 4 SLIDE 325 (117)

DELORES CATHERMAN DB 966 PG 268 PC 4 SLIDE 325 (123)

FRANK MCSHANE DB 904 PG 149 PC 4 SLIDE 325 (124)

KENNETH W. DOTSON DB 904 PG 149 PC 4 SLIDE 325 (125)

NEW COVENANT FELLOWSHIP DB 2469 PG 477 DB 2797 PG 274 PC 4 SLIDE 325 (126)

NEW COVENANT FELLOWSHIP DB 2445 PG 510 PC 4 SLIDE 325 (126A)

CLASS 'B' RIP RAP EST. 2 TONS 7 SY FILTER FABRIC

SPECIAL CUT DITCH SEE DETAIL 'C'

2' BASE DITCH W/CLASS 'B' RIP RAP – SEE DETAIL 'A' EST. 45 TONS CL. B RIP RAP EST. 127 SY FF EST. 33 CY DDE

2' BASE DITCH SEE DETAIL 'B' EST. 143 CY DDE

EMBANKMENT FILL IN POND SEE DETAIL 'M' 36 TONS CL. I RIP RAP 40 SY FF

LATERAL 'V' DITCH SEE DETAIL 'D' EST. 219 CY DDE

2' BASE DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'A' EST. 56 TONS CL. B RIP RAP EST. 159 SY FF EST. 22 CY DDE

BERM DITCH W/CLASS 'B' RIP RAP – SEE DETAIL 'J'

2' BASE DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'A' EST. 90 TONS CL. B RIP RAP EST. 254 SY FF EST. 61 CY DDE

FALSE SUMP SEE DETAIL 'L'

TIE TO EXIST. CB

REMOVE

FOR -LREV3- PROFILE SEE SHEET NO. 44
FOR -Y11- PROFILE SEE SHEET NO. 51

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2H, D, 2H, b, Fill Slope, Filter Fabric, B, 1'/Ft.
Min. D= 1Ft. Max. d= 1Ft. B= 2 Ft. b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 268+00 -LREV3- TO 269+00 -L-REV3 RT.
FROM STA. 274+75 -LREV3- TO 276+00 -LREV3- RT.
FROM STA. 267+00 -LREV3- TO 269+00 -LREV3- LT.

DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2H, D, 2H, b, Fill Slope, B, 1'/Ft.
Min. D= 1Ft. B= 2 Ft. b= 5 Ft.
FROM STA. 269+00 -LREV3- TO STA. 272+75 -LREV3- RT.

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 4H, D, 4H or Flatter, Front Ditch Slope
Min. D= 1Ft.
FROM STA. 258+00 -LREV3- TO STA. 268+00 -LREV3- RT
FROM STA. 263+00 -LREV3- TO STA. 267+00 -LREV3- LT

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 2H, D, 2H, b, Fill Slope, 1'/Ft.
Min. D= 1Ft. b= 5 Ft.
FROM STA. 273+50 -LREV3- TO STA. 278+55 -LREV3- LT.

DETAIL J
BERM DITCH W/RIP RAP
(Not to Scale)
SLOPE STAKE, 5.0', VAR., 5.0', CLEARING LIMITS, 10.0' V.C., 2H, D, 2H, VAR., 2.0', Filter Fabric
Min. D= 1Ft.
FROM STA. 258+50 -LREV3- TO STA. 268+00 -LREV3- RT

DETAIL M
EMBANKMENT FILL IN POND
(Not to Scale)
Proposed, Existing, Elev.= 425.6, 3:1, 5.0', Elev.= 422.6, Earth Fill, Class I Rock Plating, 1.0', N.W.S. Elev.= 426.6
FROM STA. 244+60 -LREV3- TO STA. 245+65 -LREV3- LT

DETAIL L
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 20', 10', 2', 0.5' Min. 1.0' Max., GI etc., S=Ditch Slope, ℄ Proposed Ditch

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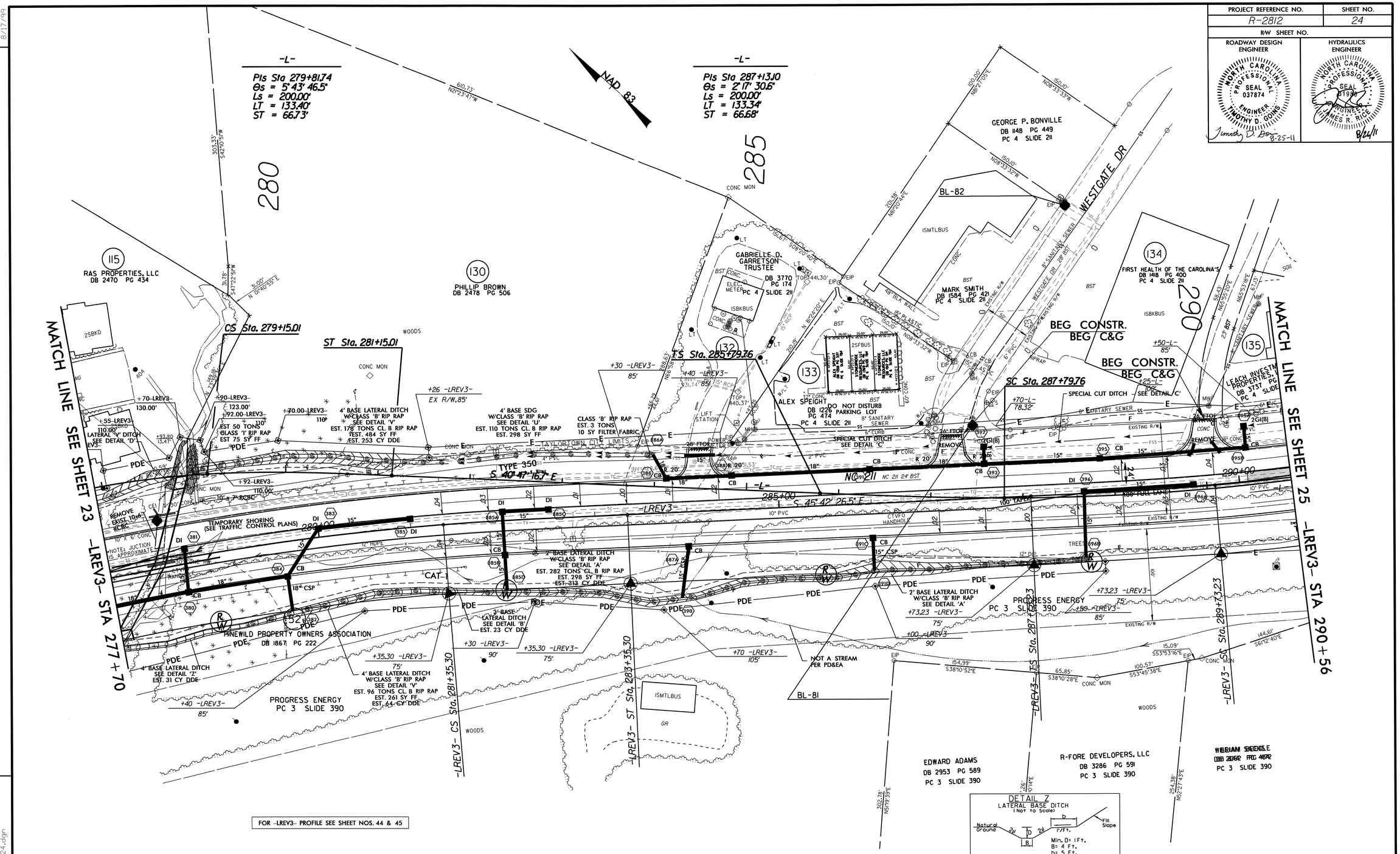
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 24 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-25-11

NORTH CAROLINA PROFESSIONAL SEAL 019198 ENGINEER JAMES R. RICE — 8/24/11




FOR -LREV3- PROFILE SEE SHEET NOS. 44 & 45

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, b, 1'/Ft., Fill Slope, d1, Filter Fabric, B
Min. D= 1Ft.
Max. d= 1Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 282+00 -LREV3- TO 288+30 -LREV3- RT.

DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, b, 1'/Ft., Fill Slope, B
Min. D= 1Ft.
B= 2 Ft.
b= 5 Ft.
FROM STA. 281+25 -LREV3- TO STA. 282+00 -LREV3- RT.

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 4d, D, 4d or Flatter, Front Ditch Slope
Min. D= 1Ft.
FROM STA. 284+00 -LREV3- TO STA. 287+50 -LREV3- LT.
FROM STA. 287+50 -LREV3- TO STA. 292+00 -LREV3- LT.

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, b, 1'/Ft., Fill Slope
Min. D= 1Ft.
b= 5 Ft.
FROM STA. 273+50 -LREV3- TO STA. 278+55 -LREV3- LT.

DETAIL Z
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, b, 1'/Ft., Fill Slope, B
Min. D= 1Ft.
B= 4 Ft.
b= 5 Ft.
FROM STA. 277+87 -LREV3- TO STA. 279+50 -LREV3- LT

DETAIL U
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 4d, D, 4d or Flatter, Front Ditch Slope, d1, Filter Fabric, B
Min. D = 1Ft.
Max. d= 1Ft.
B= 4 Ft.
Type of Liner= Class B Rip-Rap
FROM STA. 282+00 -LREV3- TO STA.284+00 -LREV3- LT

DETAIL V
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, D, 2d, b, 1'/Ft., Fill Slope, d1, Filter Fabric, B
Min. D= 1Ft.
Max. d= 1Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 279+50 -LREV3- TO 281+25 -LREV3- RT.
FROM STA. 278+75 -LREV3- TO 282+00 -LREV3- LT.

REVISIONS

8/17/99

23-AUG-2011 16:13
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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 25 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 11980 ENGINEER JAMES R. RICE — 8/24/11

REVISIONS

8/17/99

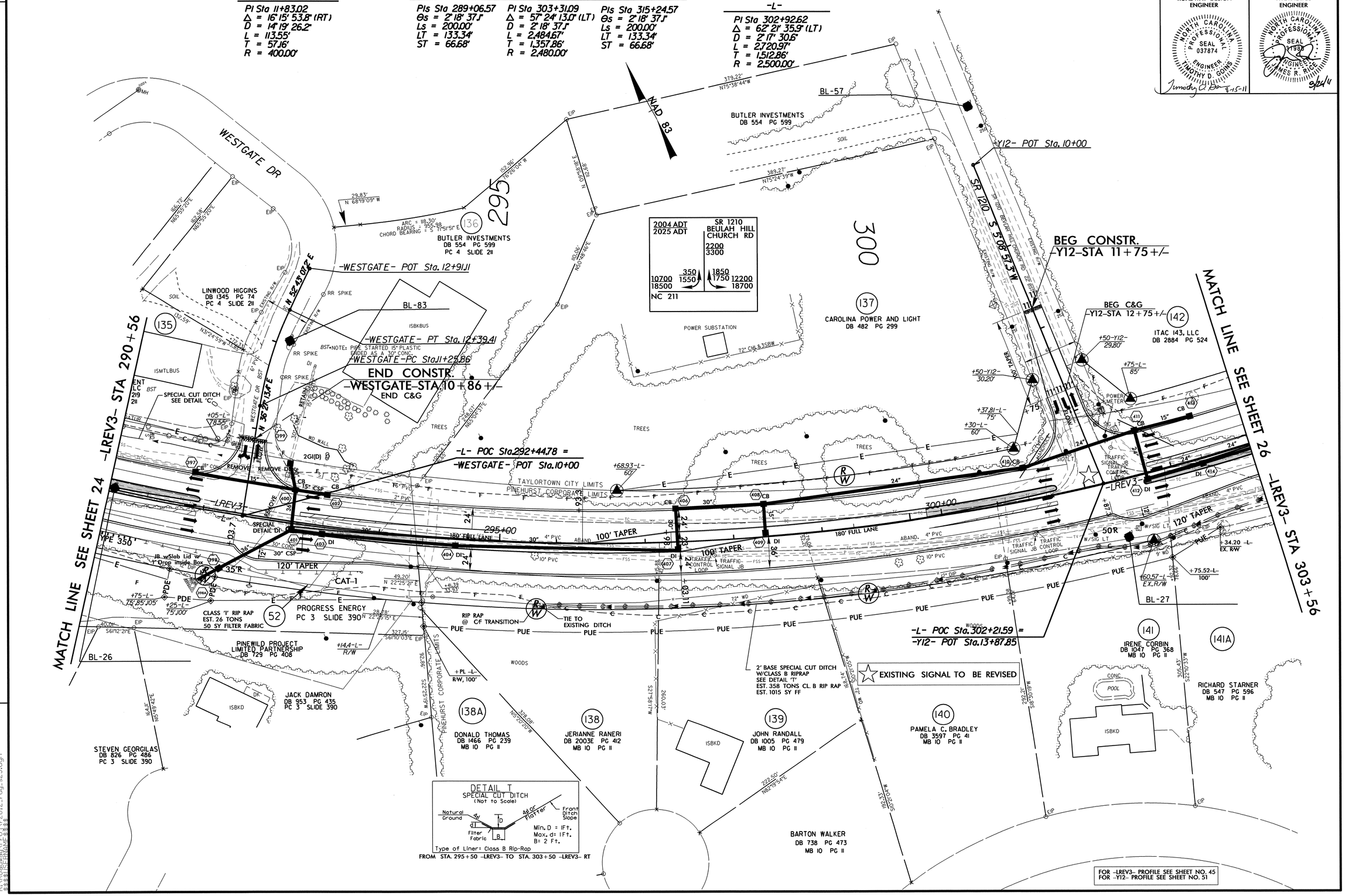
-WESTGATE-
PI Sta 11+83.02
Δ = 16° 15' 53.8" (RT)
D = 14° 19' 26.2"
L = 113.55'
T = 57.16'
R = 400.00'

-LREV3-
PIs Sta 289+06.57
Θs = 2° 18' 37.1"
Ls = 200.00'
LT = 133.34'
ST = 66.68'

PI Sta 303+31.09
Δ = 57° 24' 13.0" (LT)
D = 2° 18' 37.1"
L = 2,484.67'
T = 1,357.86'
R = 2,480.00'

PIs Sta 315+24.57
Θs = 2° 18' 37.1"
Ls = 200.00'
LT = 133.34'
ST = 66.68'

-L-
PI Sta 302+92.62
Δ = 62° 21' 35.9" (LT)
D = 2° 17' 30.6"
L = 2,720.97'
T = 1,512.86'
R = 2,500.00'

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 26 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

NORTH CAROLINA PROFESSIONAL SEAL 19681 ENGINEER JAMES R. RIDDLE
8/2/11

REVISIONS

8/17/99

CENTRAL PARK AVE

4380 / 8000

NC 211: 1810 / 2670 ; 1300 / 3190

12200 / 18700 ; 3410 / 5090 ; 820 / 2770 ; 9100 / 16900

5500 / 10000

2004 ADT / 2025 ADT NC 5

-Y13-

PI Sta 12+69.75
Δ = 13° 42' 10.2" (LT)
D = 7° 09' 43.1"
L = 191.33'
T = 96.12'
R = 800.00'

PI Sta 15+04.21
Δ = 18° 54' 59.9" (LT)
D = 28° 38' 52.4"
L = 66.03'
T = 33.32'
R = 200.00'

-L-

PIs Sta 315+67.40
Θs = 2° 17' 30.6"
Ls = 200.00'
LT = 133.34'
ST = 66.68'

NAD 83

EXISTING SIGNAL TO BE REVISED

MATCH LINE SEE SHEET 25 -LREV3- STA 303+56

MATCH LINE SEE SHEET 27 -L- STA 317+92

-Y13- POT Sta. 10+00.00

-LREV3- POT Sta. 316+48.3 BK =
-Y13- POT Sta. 317+10.00 AH.

-Y13- PC Sta. 11+73.63

CS Sta. 315+00.72

BEG CONSTR.
-Y13-STA.13+36.5
BEG C&G ST Sta. 317+00.72
BEGIN SIDEWALK

-Y13-PT Sta. 13+64.95

END CONSTR.
-Y13-STA.15+60
END SW (LT)
END C&G (LT&RT)

-LREV3- ST Sta. 316+57.89
-Y13-PC Sta. 14+70.89
-Y13-PT Sta. 15+36.92

-LREV3- CS Sta. 314+57.89

-LREV3- POS Sta. 314+82.33 =
-Y13- POT Sta. 14+35.86

-Y13- POT Sta. 18+33.92

BL-58

BL-28

BL-59

148 OLMSTED VILLAGE WEST LIMITED PARTNERSHIP DB 981 PG 411

149 DELTA WELLS, LLC DB 3825 PG 271

159

142 ITAC 143, LLC DB 2884 PG 524

150 LENA GORDON DB 2004E PG 197 MB 10 PG 11

151 MOORE COUNTY DB 1556 PG 98 MB 10 PG 12

FRANK A. MCNEILL DB 1257 PG 187

ACCESS EASEMENT DB 1257 PG 187

RICHARD STARNER DB 547 PG 596 MB 10 PG 11

HAZEL ELMORE DB 1104 PG 270 MB 10 PG 11

VINCENT & CHERYAL KORFMAN DB 2410 PG 312 MB 10 PG 11

VINCENT & CHERYAL KORFMAN DB 2410 PG 312 MB 10 PG 11

LOUIS DISTEFANO DB 1338 PG 24 MB 10 PG 11

JOSEPH PESEK DB 3455 PG 142 MB 10 PG 11

CHRISTOPHER MARTIN DB 1837 PG 269 MB 10 PG 11

WAYNE J. PENSENSTADLER DB 1086 PG 454 MB 10 PG 11

TAYLORTOWN CITY LIMITS
PINEHURST CORPORATE LIMITS

EXISTING DITCH SPILLS OUT

2' BASE SPECIAL CUT DITCH – SEE DETAIL 'X'

SPECIAL CUT DITCH SEE DETAIL 'C'

EXISTING CROSS PIPE IS NOT FUNCTIONAL – OUTLET END IS BURIED ON NORTH SIDE

CLASS 'B' RIP RAP EST. 2 TONS 7 SY FILTER FABRIC

100' TAPER

180' FULL LANE

120' TAPER

50' TAPER

FLOW NC 5

S 35° 25' 53.8" E

N 72° 16' 06.3" E

S 16° 30' 55.5" E

S 2° 48' 41.7" E

CENTRAL PARK AVE

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground; 4:1; D; 4:1 or Flatter; Front Ditch Slope
Min. D= 1Ft.

FROM STA. 309+00 -LREV3- TO STA. 314+50 -LREV3- RT.

DETAIL X
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground; 4:1; D; B; 4:1 or Flatter; Front Ditch Slope
Max. d= 1Ft.
B= 2 Ft.

FROM STA. 303+50 -LREV3- TO STA. 309+00 -LREV3- RT

FOR -LREV3- PROFILE SEE SHEET NO. 45
FOR -L- PROFILE SEE SHEET NO. 45
FOR -Y13- PROFILE SEE SHEET NO. 52

33
PG 11

23-JUL-2011 11:43
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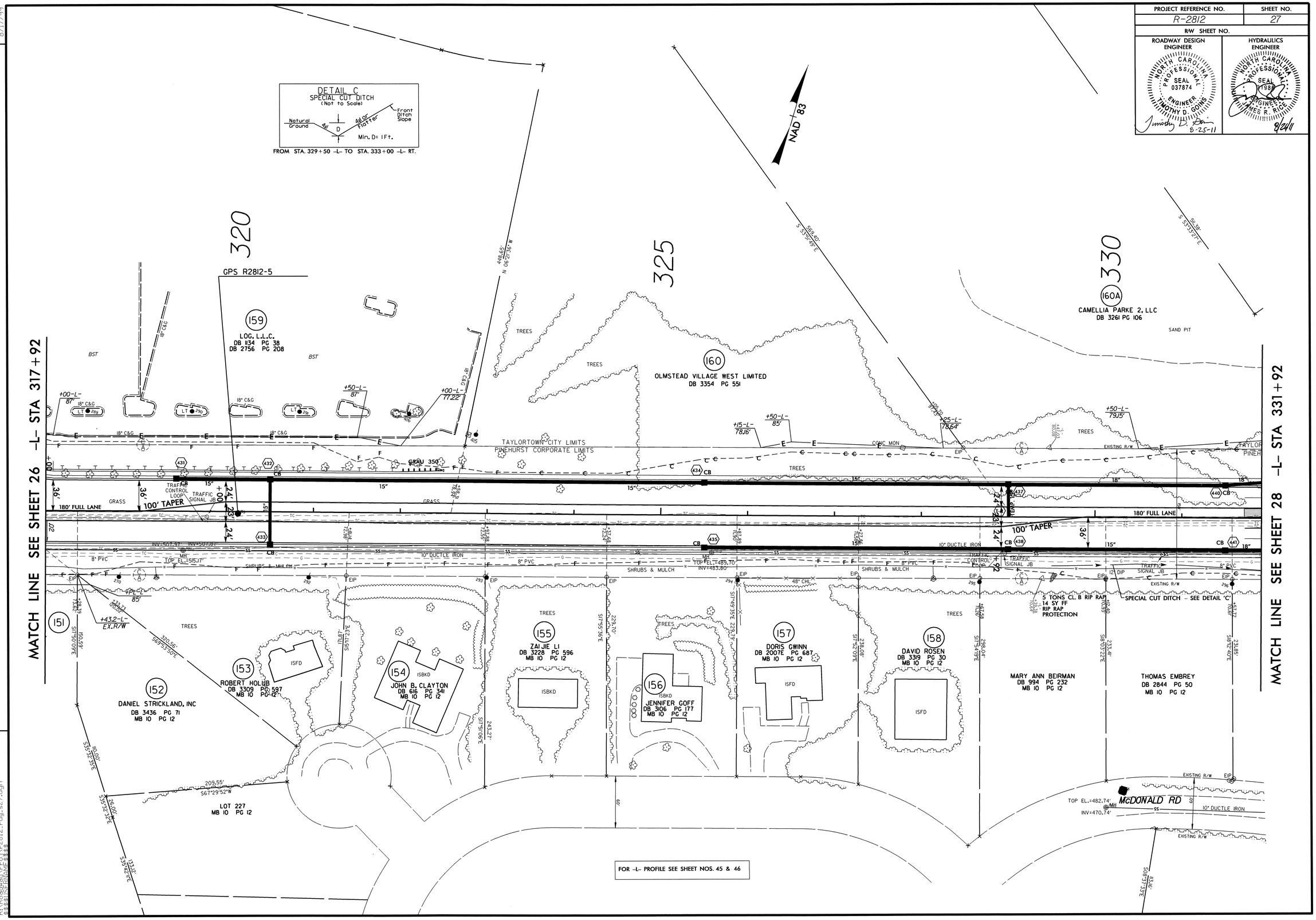
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 27 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-25-11

NORTH CAROLINA PROFESSIONAL SEAL 19882 ENGINEER JAMES R. RICE
8/24/11

REVISIONS

8/17/99

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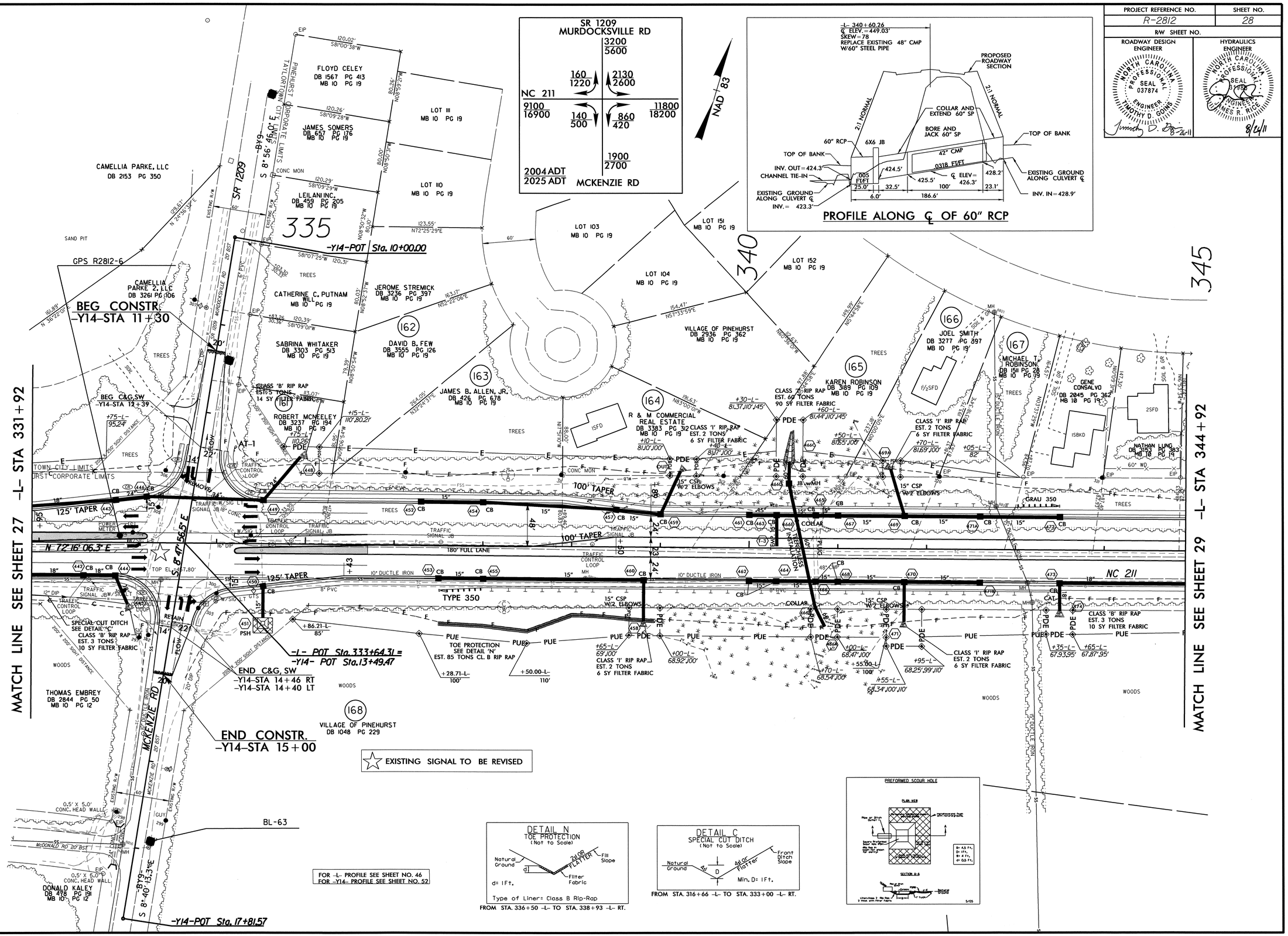
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 28 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |




REVISIONS

8/17/99

25-AUG-2011 15:59
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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 29 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

NORTH CAROLINA PROFESSIONAL SEAL 31996 ENGINEER JAMES R. RICE
8/8/11

REVISIONS

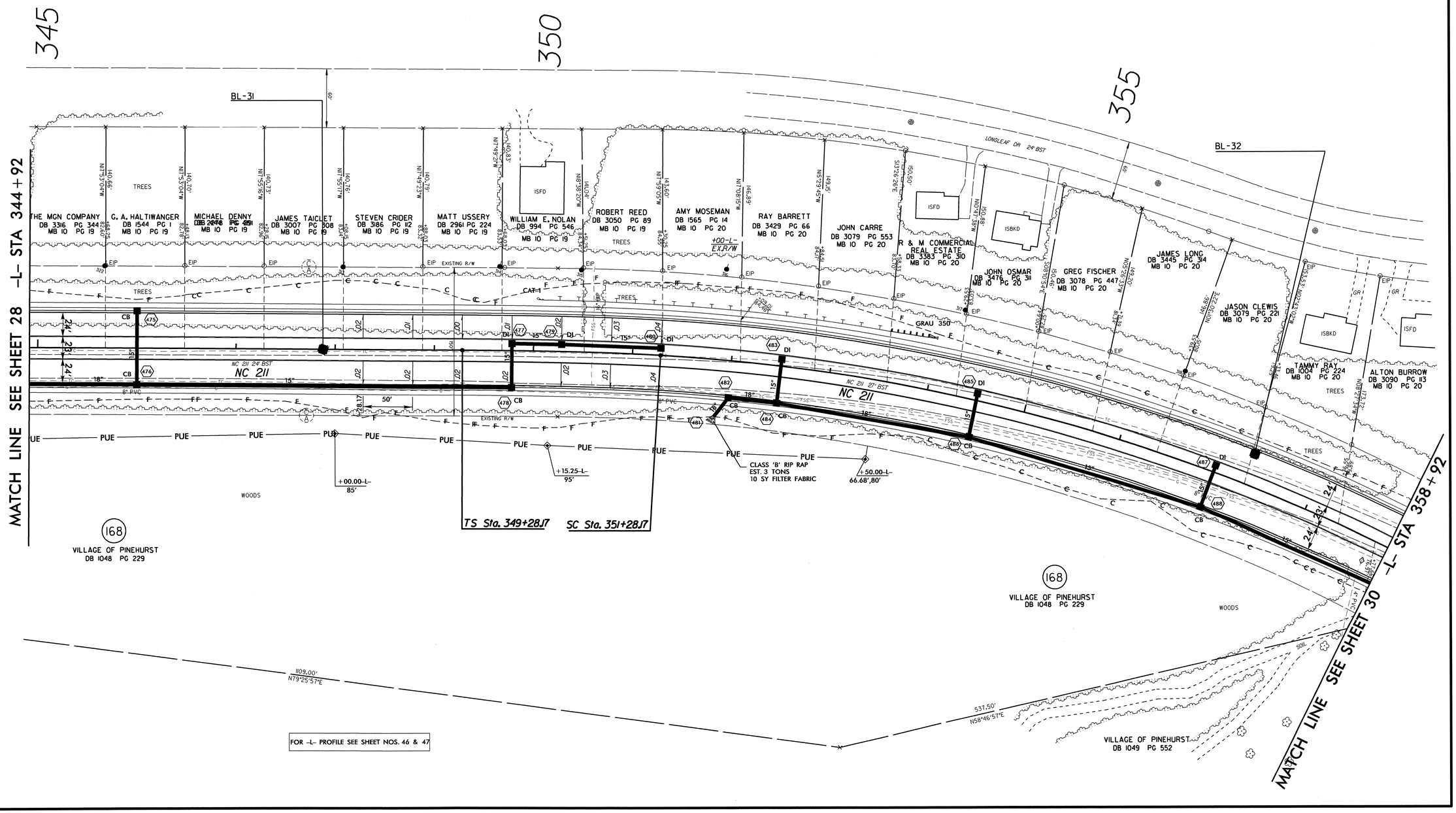
8/17/99

-L-

PIs Sta 350+61.52
Θs = 3° 00' 00.0"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

PI Sta 356+41.93
Δ = 30° 06' 46.9" (RT)
D = 3° 00' 00.0"
L = 1,003.77'
T = 513.76'
R = 1,909.86'

NAD 83

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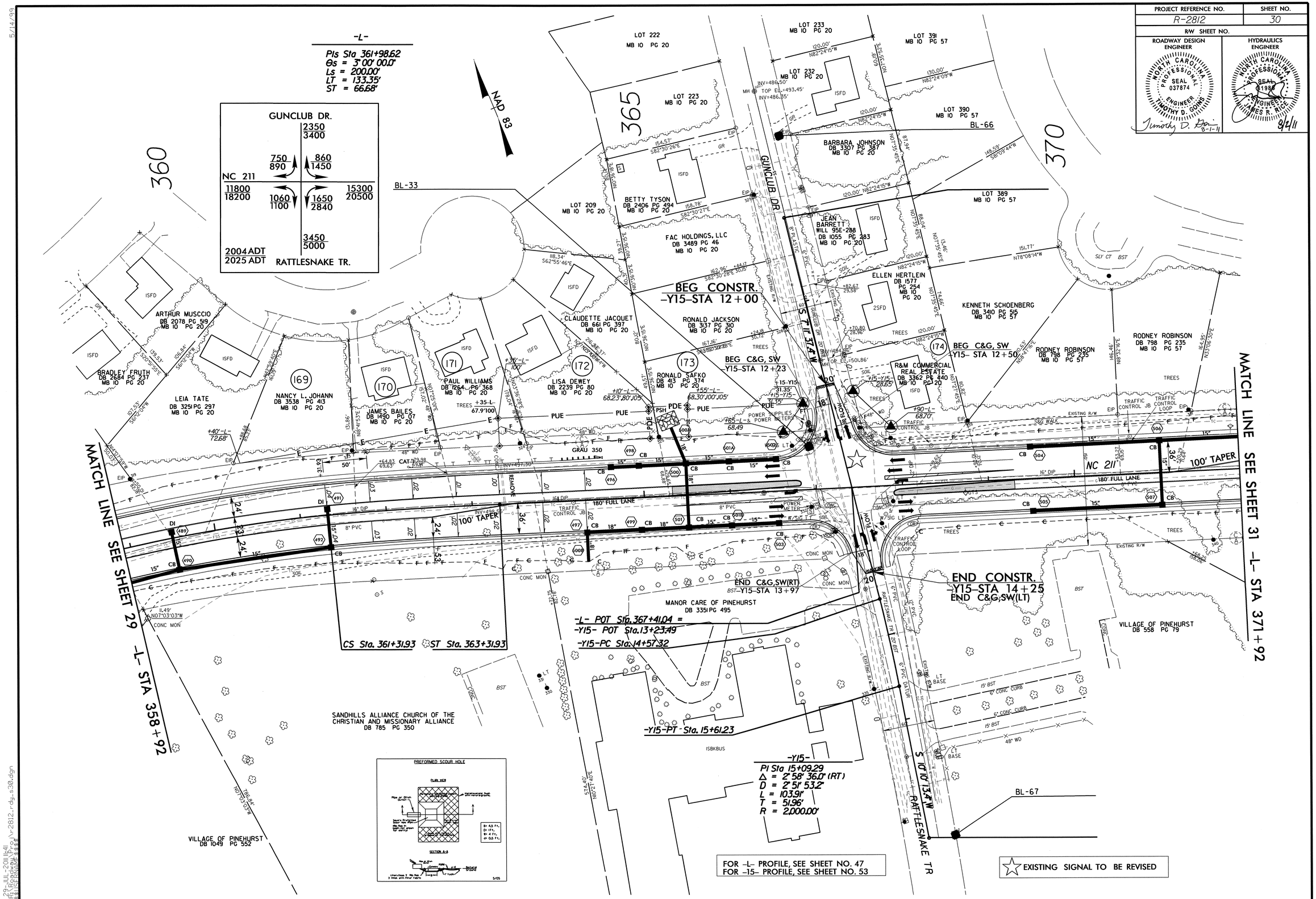
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 30 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOING — Timothy D. Going 8-1-11

NORTH CAROLINA PROFESSIONAL SEAL 31988 ENGINEER JAMES R. RICE — 8/4/11




5/14/99

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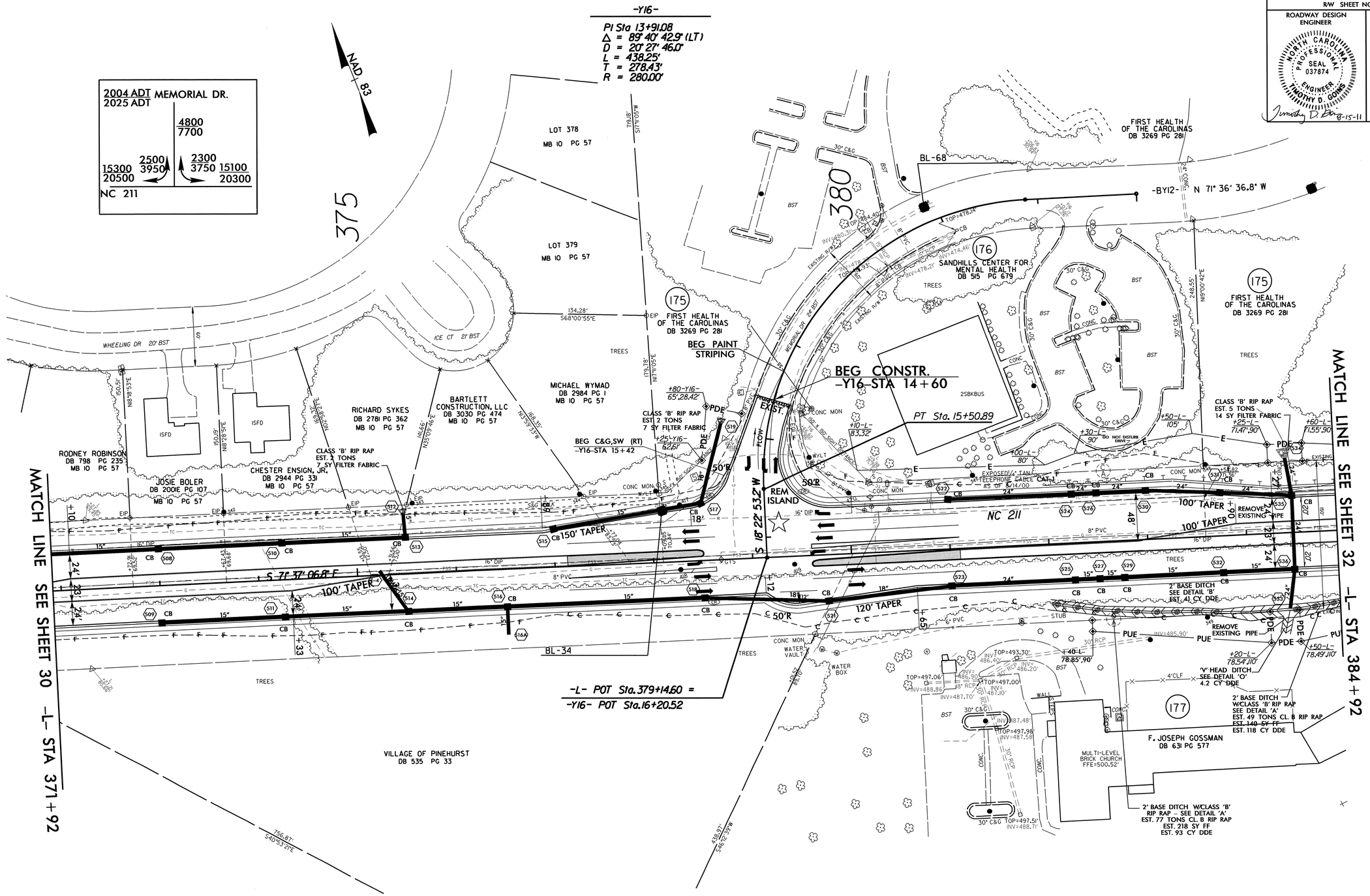
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 31 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — Timothy D. Goins 8-15-11

NORTH CAROLINA PROFESSIONAL SEAL 19946 ENGINEER JAMES R. RICH — 8/24/11

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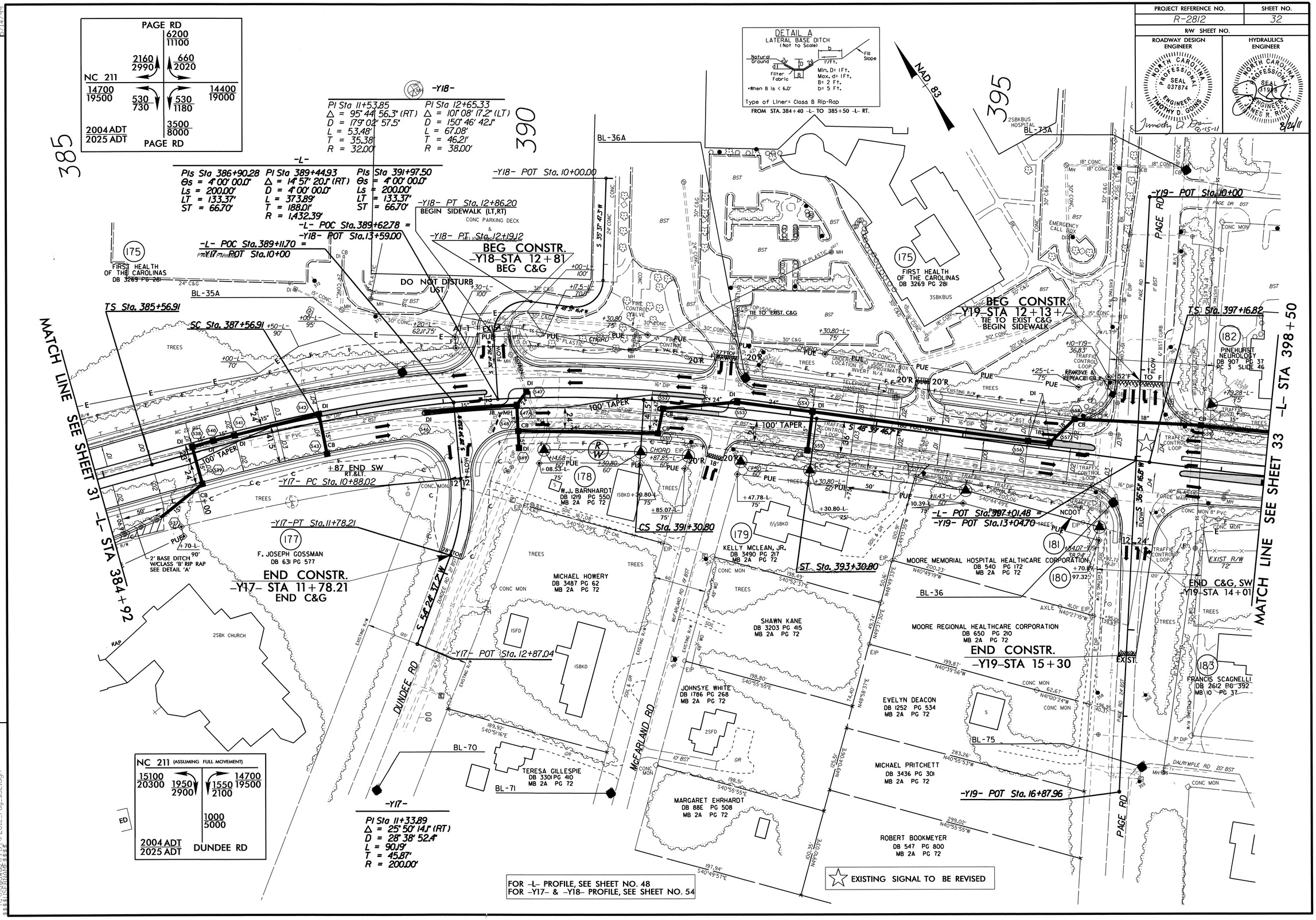
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 32 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-15-11

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 031918 ENGINEER JAMES R. RICE — 8/24/11




FOR -L- PROFILE, SEE SHEET NO. 48
FOR -Y17- & -Y18- PROFILE, SEE SHEET NO. 54

REVISIONS

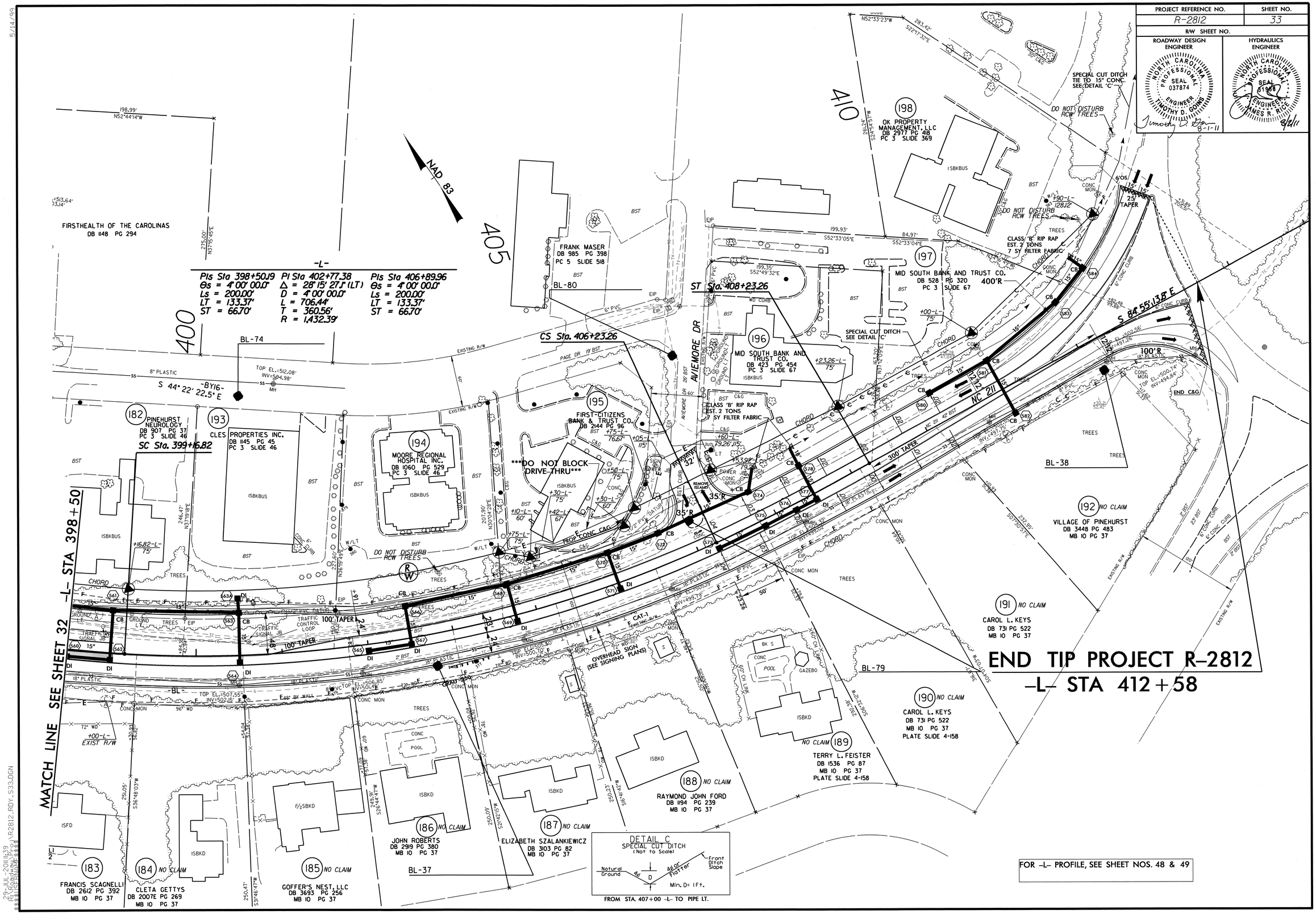
5/14/99

R-2812_rdy_s32.dgn
12-AUG-2011 08:41

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 33 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — 8-1-11

NORTH CAROLINA PROFESSIONAL SEAL 019068 ENGINEER JAMES R. RICE — 8/8/11




5/14/99

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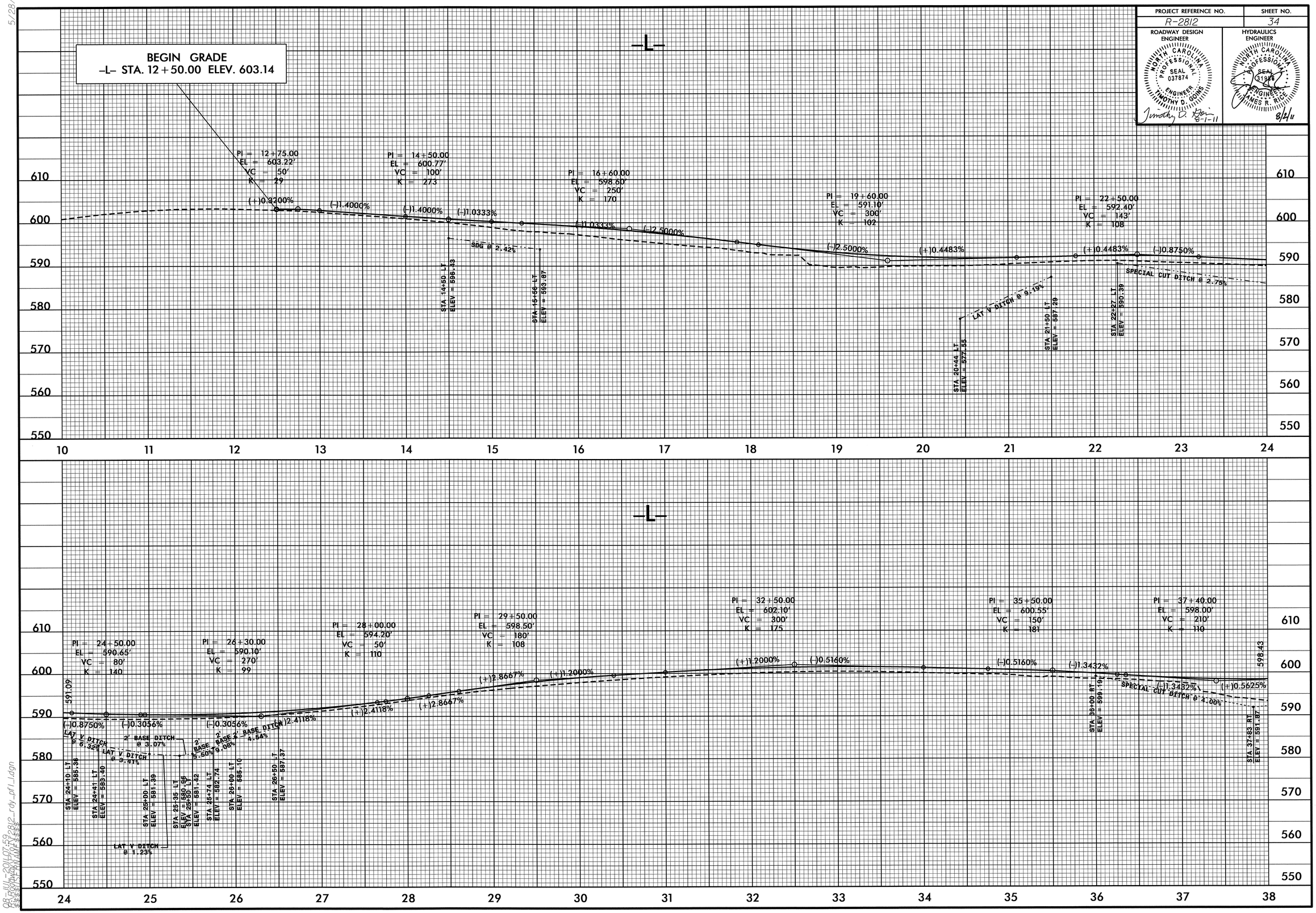
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 34 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 31976 ENGINEER JAMES R. RICE
8/2/11

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 35 |

ROADWAY DESIGN ENGINEER

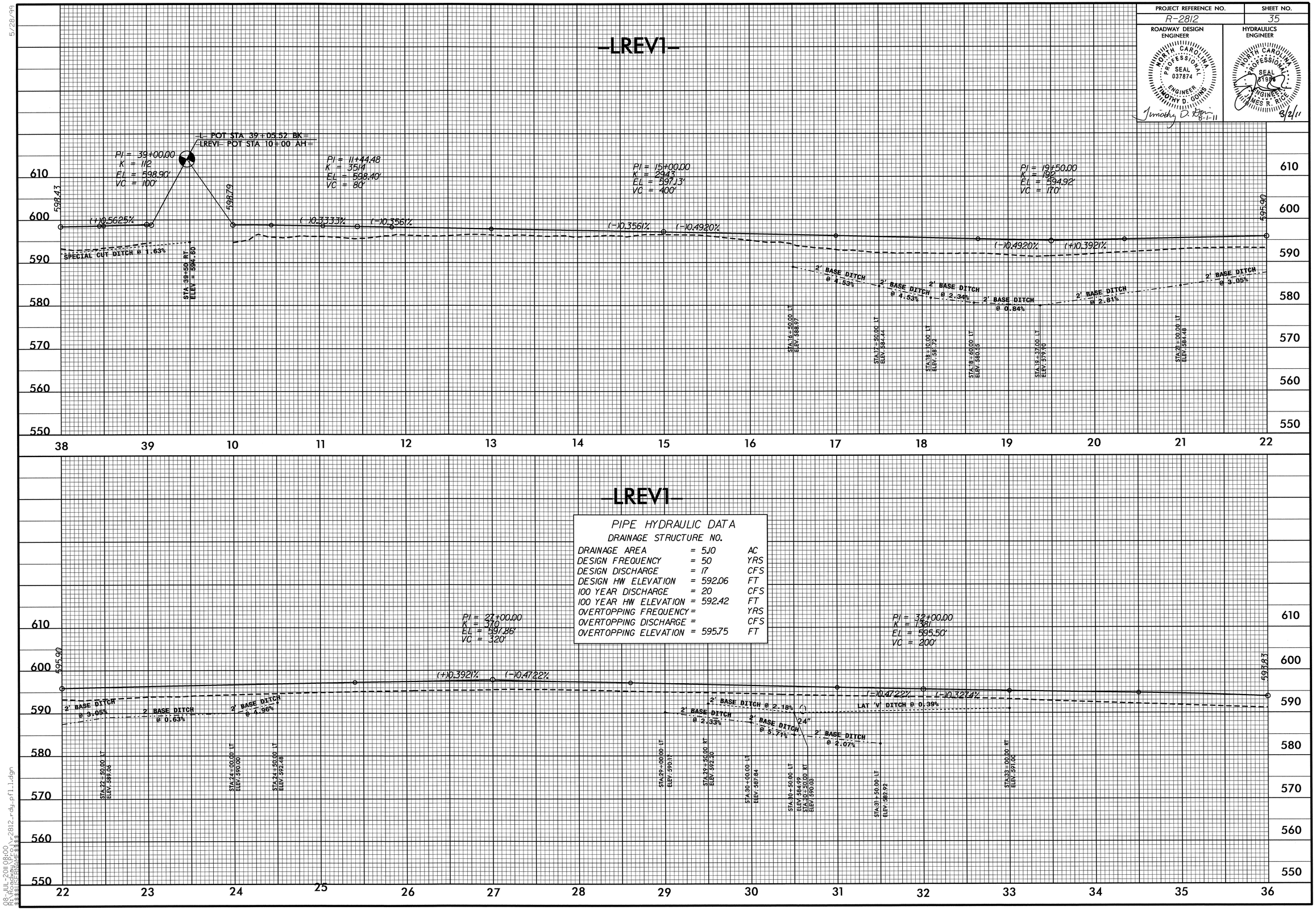
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31986 ENGINEER JAMES R. RICE

3/2/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 5.10 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 17 | CFS |
| DESIGN HW ELEVATION | = 592.06 | FT |
| 100 YEAR DISCHARGE | = 20 | CFS |
| 100 YEAR HW ELEVATION | = 592.42 | FT |
| OVERTOPPING FREQUENCY | = | YRS |
| OVERTOPPING DISCHARGE | = | CFS |
| OVERTOPPING ELEVATION | = 595.75 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 36 |

ROADWAY DESIGN ENGINEER

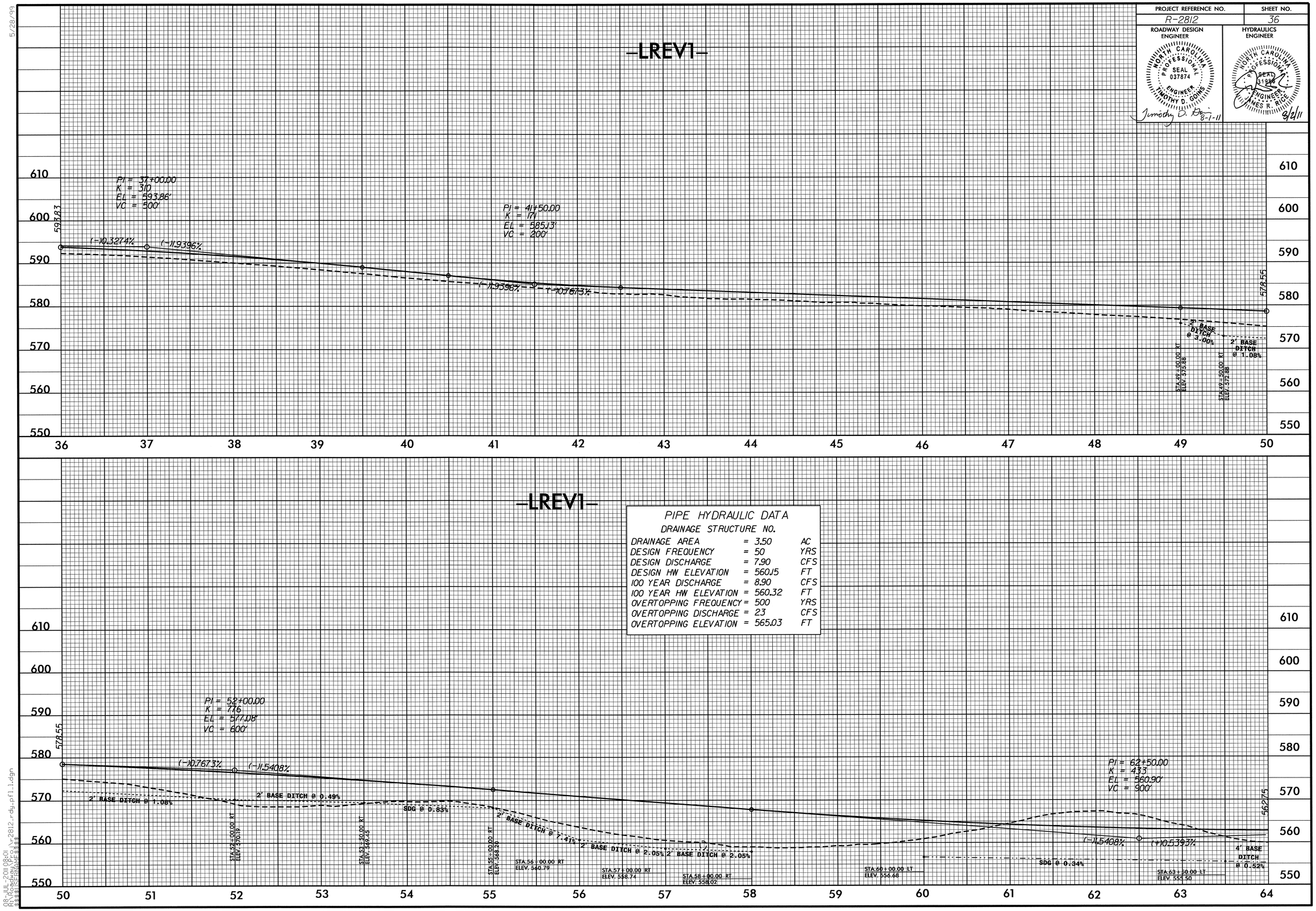
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31986 ENGINEER JAMES R. RICE

8/2/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 3.50 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 7.90 | CFS |
| DESIGN HW ELEVATION | = 560.15 | FT |
| 100 YEAR DISCHARGE | = 8.90 | CFS |
| 100 YEAR HW ELEVATION | = 560.32 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 23 | CFS |
| OVERTOPPING ELEVATION | = 565.03 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 37 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

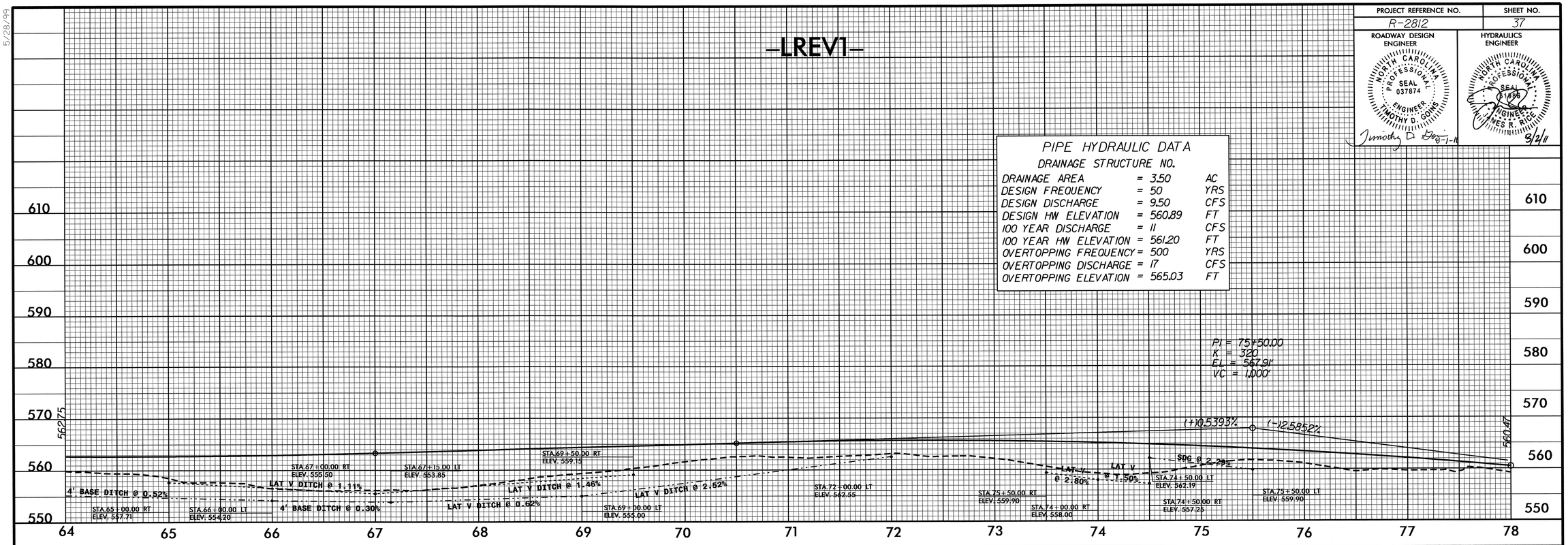
NORTH CAROLINA PROFESSIONAL SEAL 31886 ENGINEER JAMES R. RICE

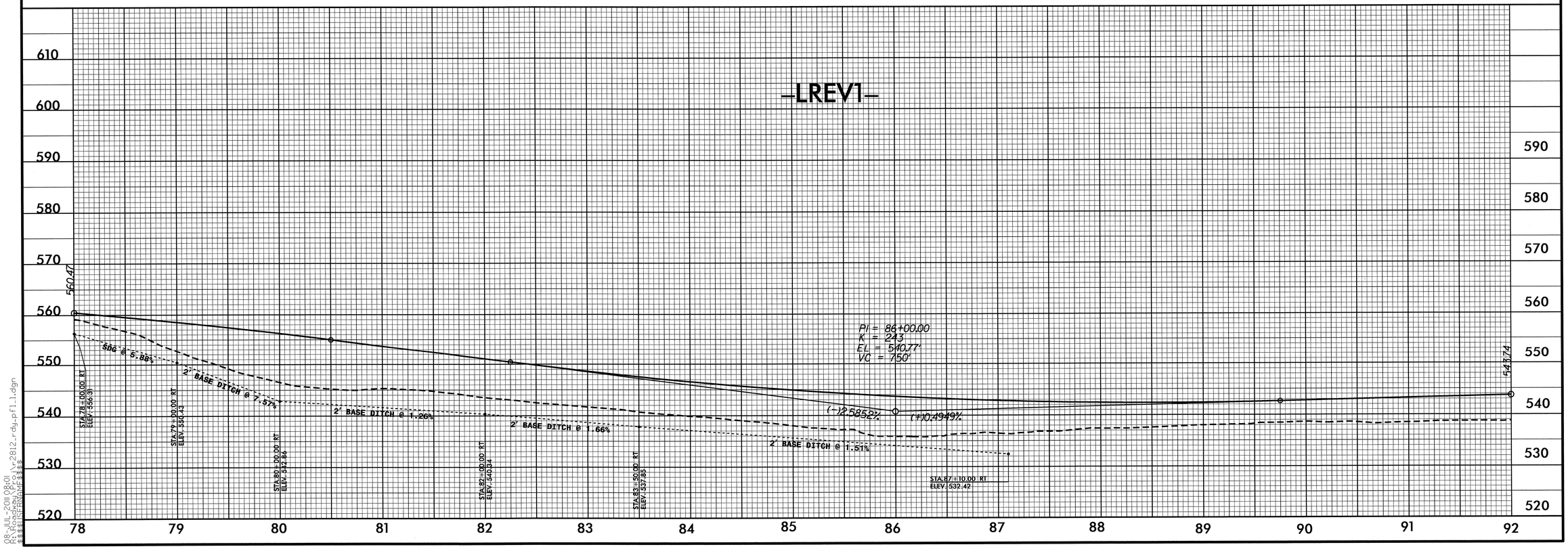
3/2/11

## PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 3.50 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 9.50 | CFS |
| DESIGN HW ELEVATION | = 560.89 | FT |
| 100 YEAR DISCHARGE | = 11 | CFS |
| 100 YEAR HW ELEVATION | = 561.20 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 17 | CFS |
| OVERTOPPING ELEVATION | = 565.03 | FT |

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 38 |

ROADWAY DESIGN ENGINEER

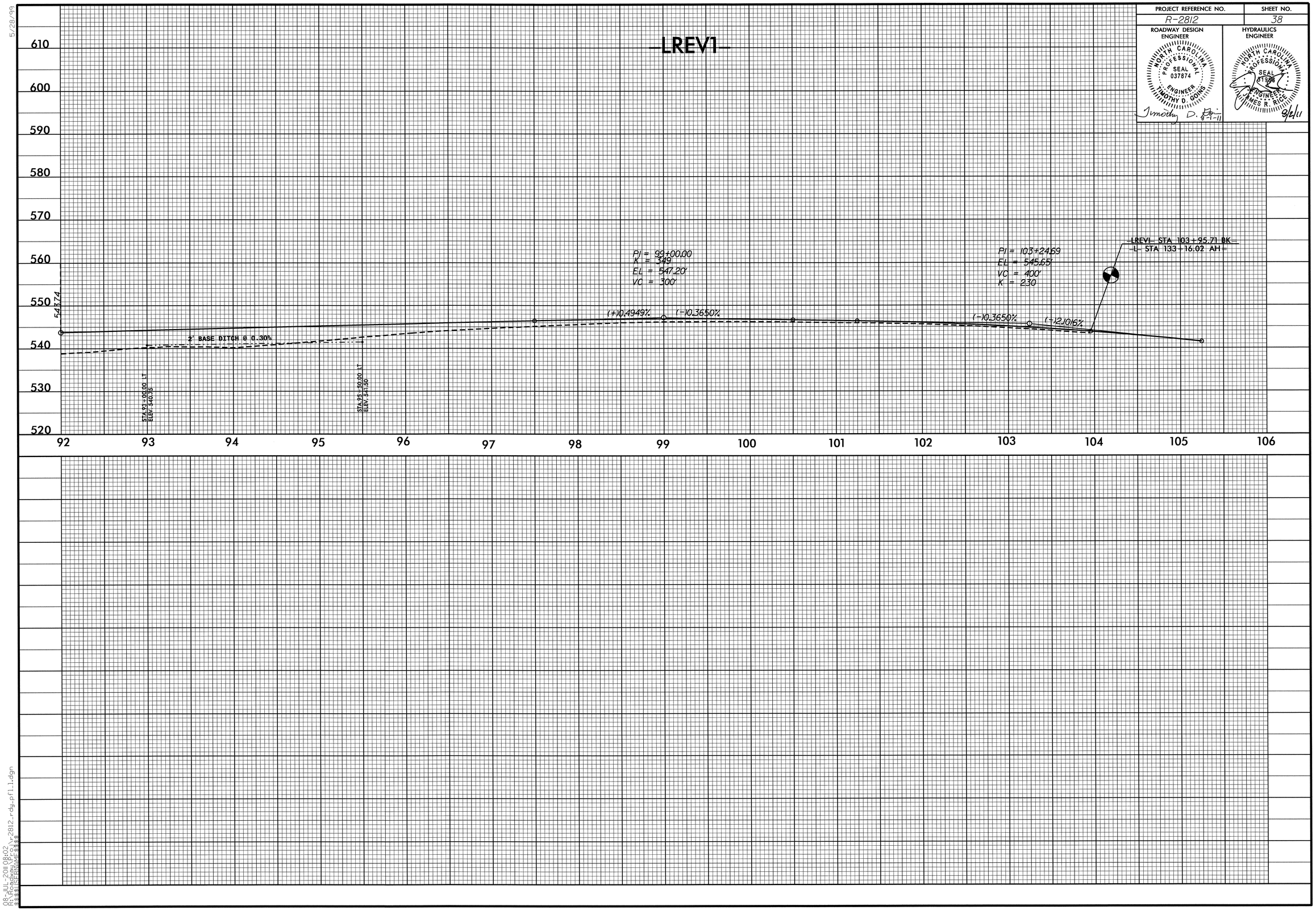
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019906 ENGINEER JAMES R. RICE

8/2/11

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 39 |

ROADWAY DESIGN ENGINEER

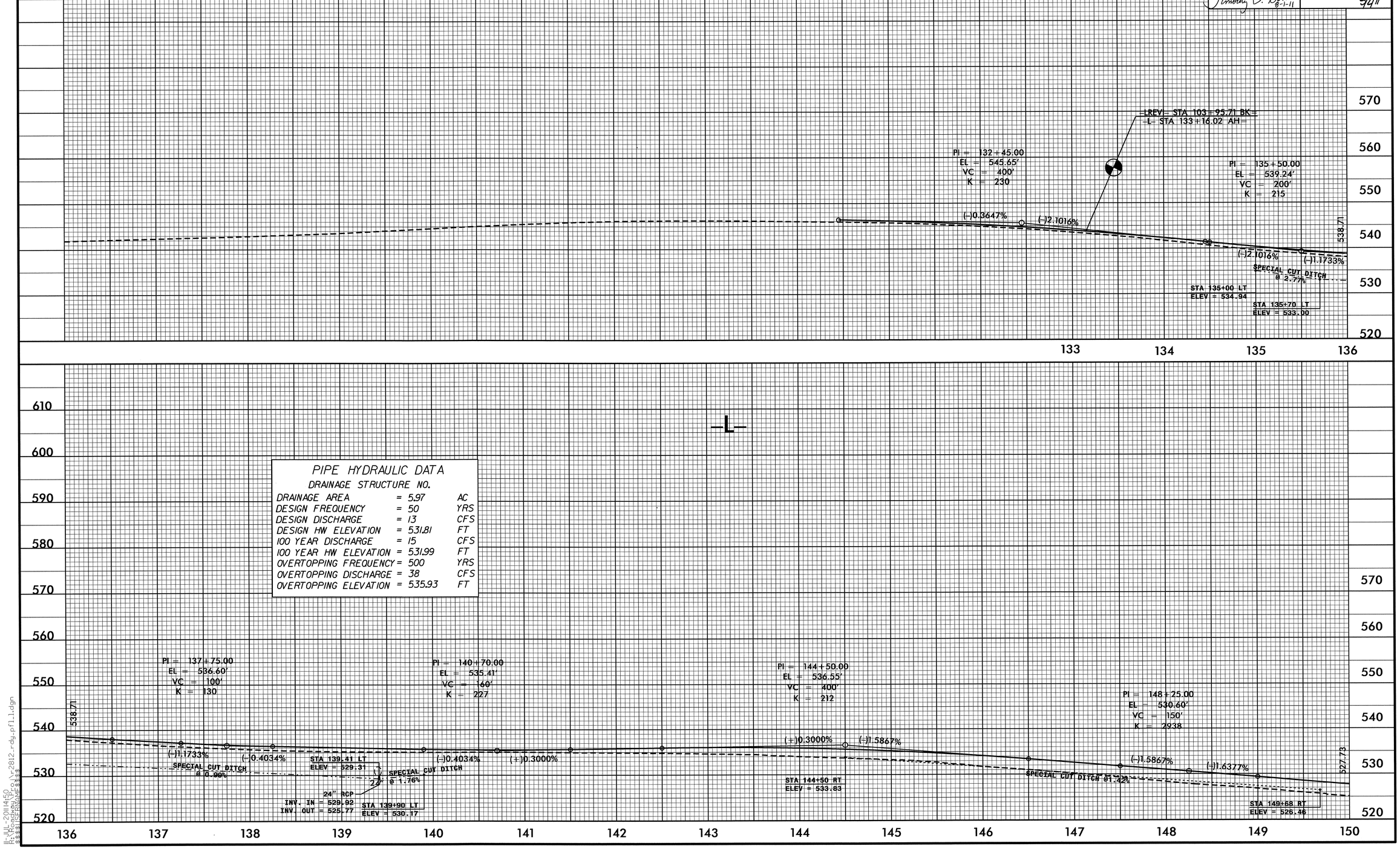
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31980 ENGINEER JAMES R. RICE

8/2/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 5.97 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 13 | CFS |
| DESIGN HW ELEVATION | = 531.81 | FT |
| 100 YEAR DISCHARGE | = 15 | CFS |
| 100 YEAR HW ELEVATION | = 531.99 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 38 | CFS |
| OVERTOPPING ELEVATION | = 535.93 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 40 |

ROADWAY DESIGN ENGINEER

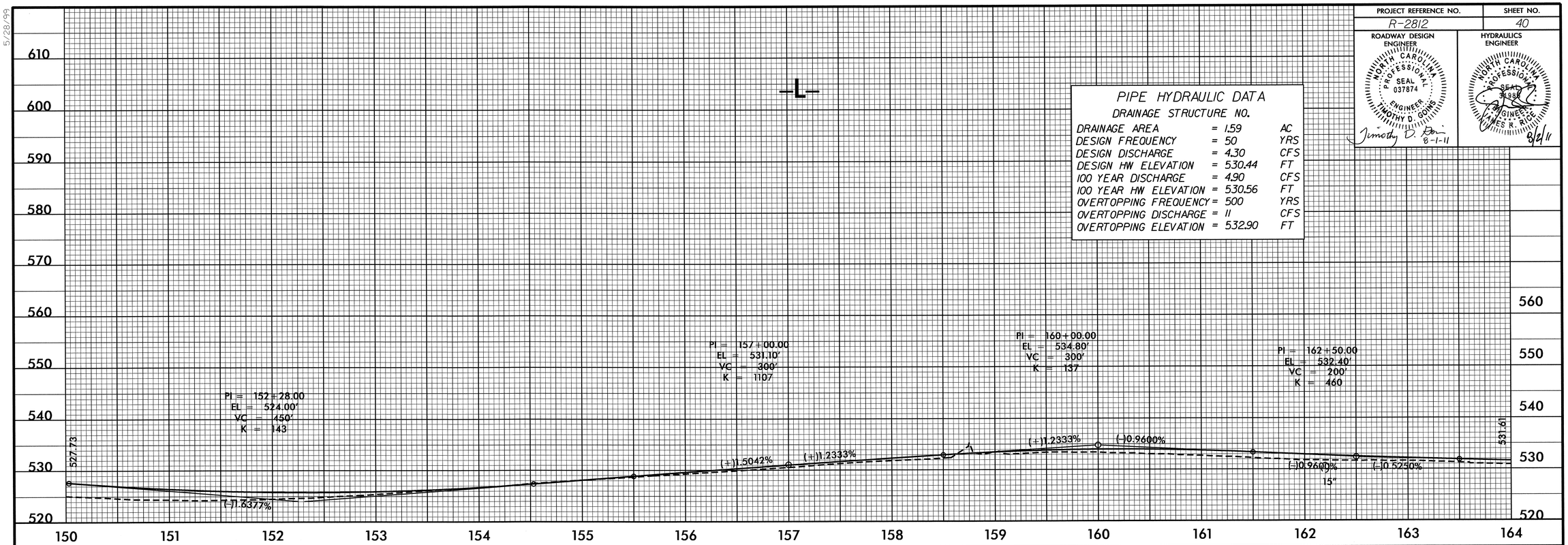
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31988 ENGINEER JAMES R. RICE

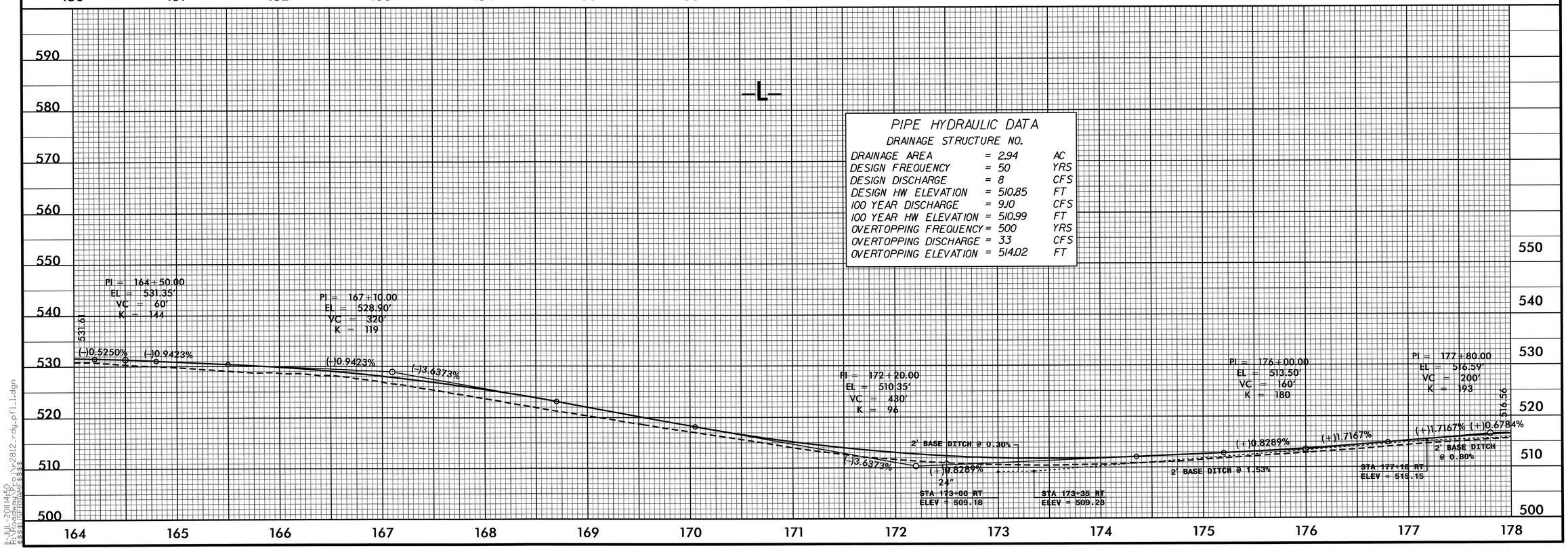
8/2/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 1.59 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 4.30 | CFS |
| DESIGN HW ELEVATION | = 530.44 | FT |
| 100 YEAR DISCHARGE | = 4.90 | CFS |
| 100 YEAR HW ELEVATION | = 530.56 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 11 | CFS |
| OVERTOPPING ELEVATION | = 532.90 | FT |




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 2.94 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 8 | CFS |
| DESIGN HW ELEVATION | = 510.85 | FT |
| 100 YEAR DISCHARGE | = 9.10 | CFS |
| 100 YEAR HW ELEVATION | = 510.99 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 33 | CFS |
| OVERTOPPING ELEVATION | = 514.02 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 41 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

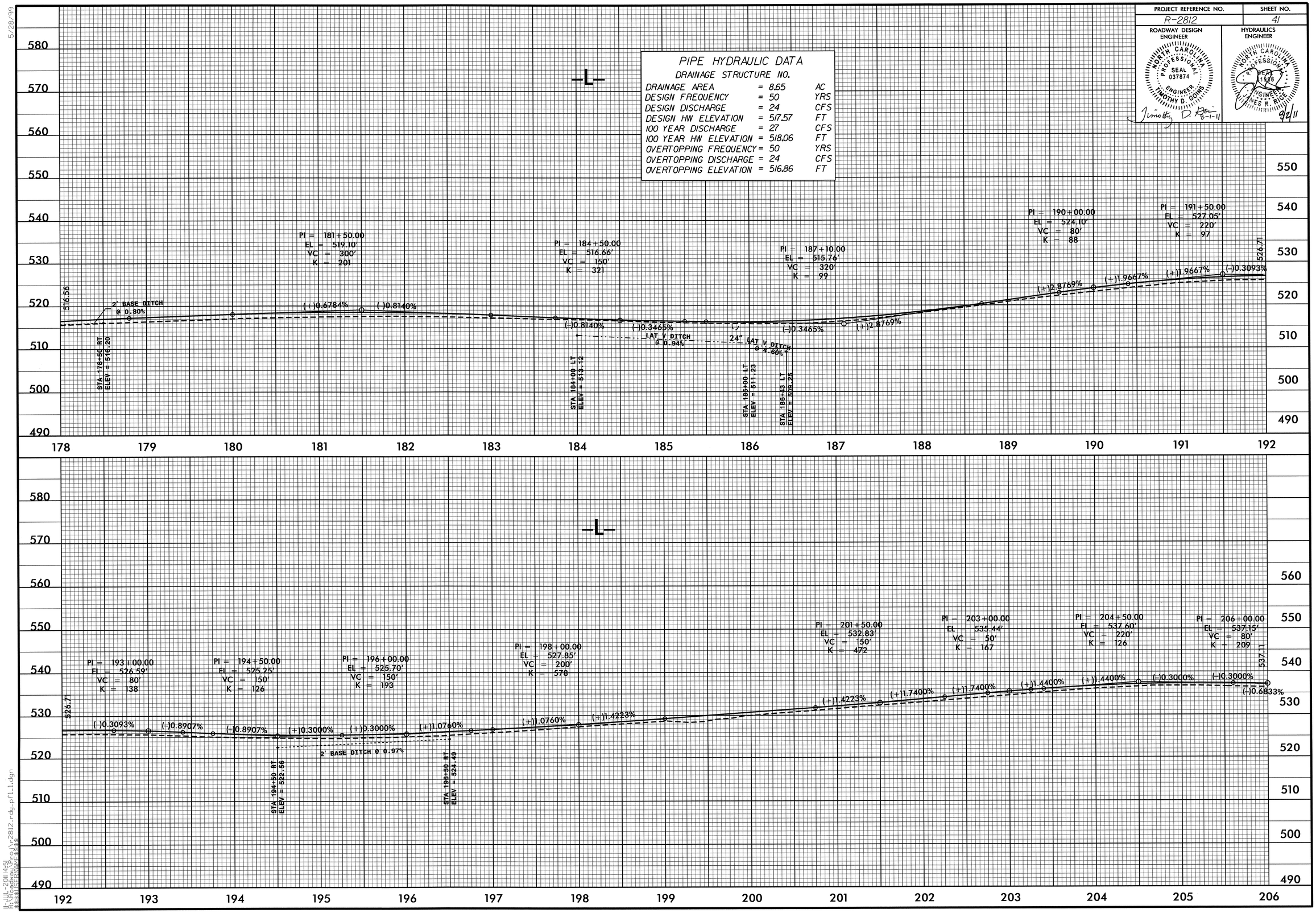
NORTH CAROLINA PROFESSIONAL SEAL 11986 ENGINEER JAMES R. RICE

8/2/11

## PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 8.65 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 24 | CFS |
| DESIGN HW ELEVATION | = 517.57 | FT |
| 100 YEAR DISCHARGE | = 27 | CFS |
| 100 YEAR HW ELEVATION | = 518.06 | FT |
| OVERTOPPING FREQUENCY | = 50 | YRS |
| OVERTOPPING DISCHARGE | = 24 | CFS |
| OVERTOPPING ELEVATION | = 516.86 | FT |

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 42 |

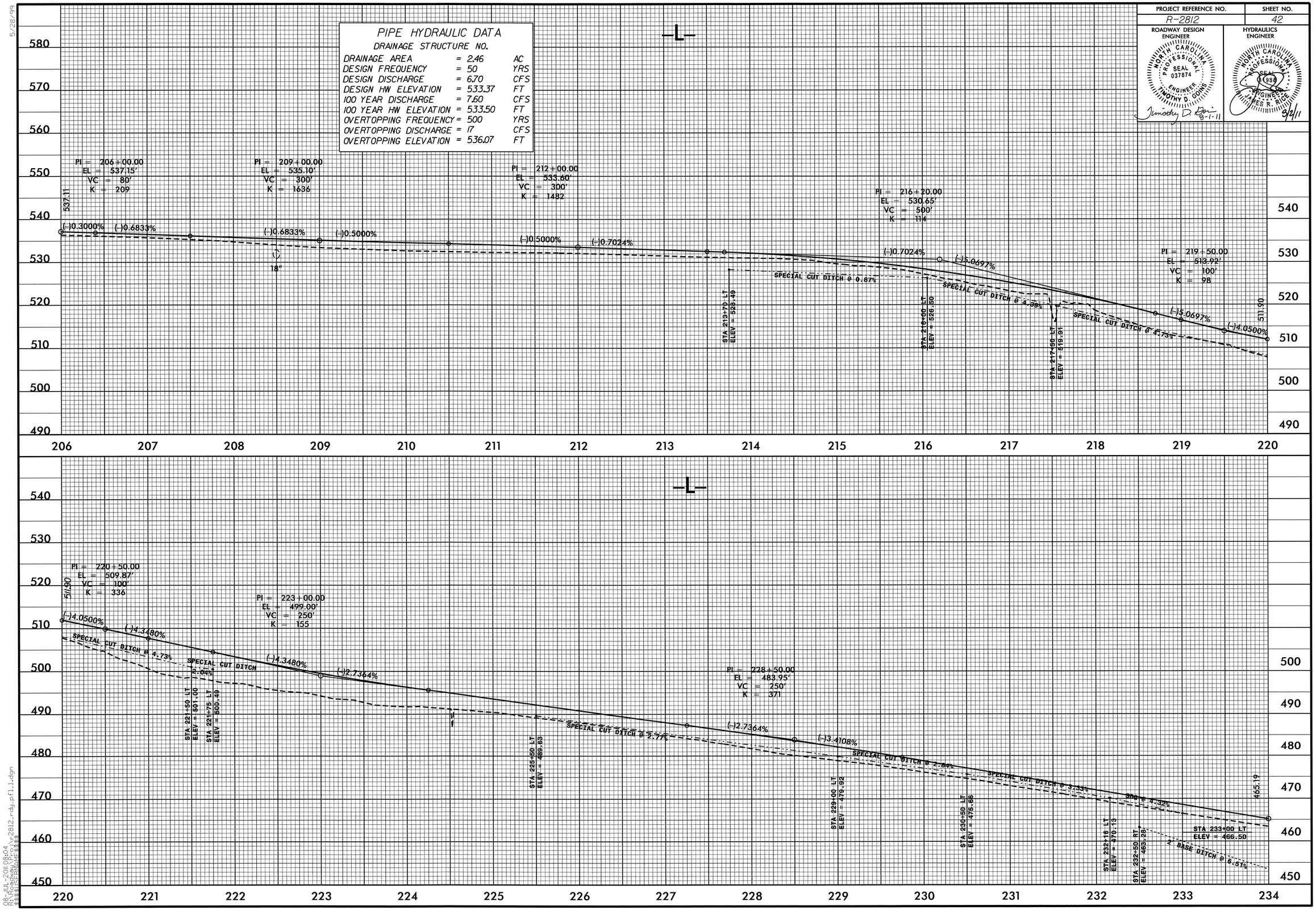
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS — Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 8988 ENGINEER JAMES R. RICE — 3/2/11

## PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 2.46 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 6.70 | CFS |
| DESIGN HW ELEVATION | = 533.37 | FT |
| 100 YEAR DISCHARGE | = 7.60 | CFS |
| 100 YEAR HW ELEVATION | = 533.50 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 17 | CFS |
| OVERTOPPING ELEVATION | = 536.07 | FT |

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 43 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019198 ENGINEER JAMES R. RICE
9/2/11

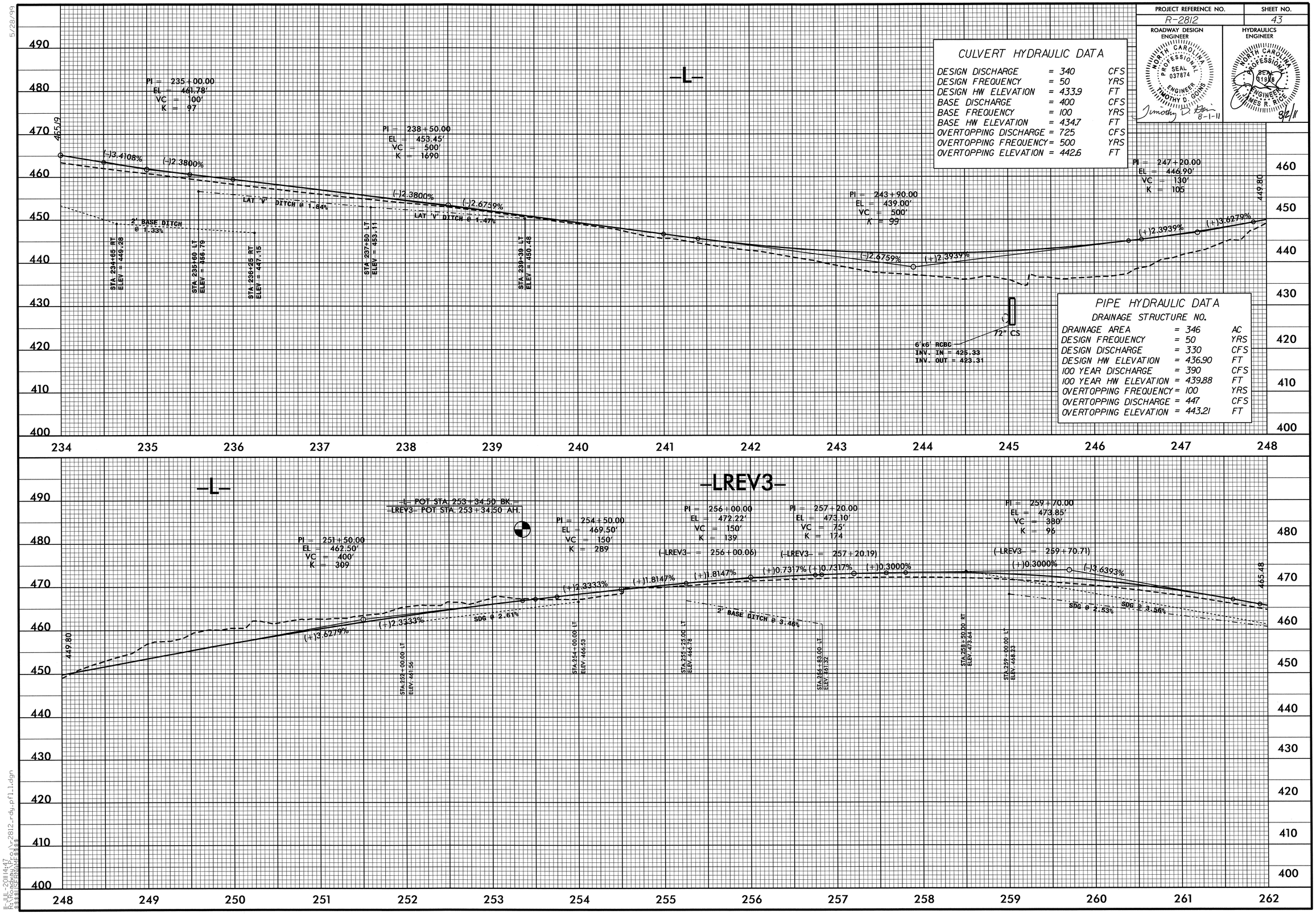
## CULVERT HYDRAULIC DATA

| | | |
|---|---|---|
| DESIGN DISCHARGE | = 340 | CFS |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN HW ELEVATION | = 433.9 | FT |
| BASE DISCHARGE | = 400 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 434.7 | FT |
| OVERTOPPING DISCHARGE | = 725 | CFS |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING ELEVATION | = 442.6 | FT |

## PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 346 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 330 | CFS |
| DESIGN HW ELEVATION | = 436.90 | FT |
| 100 YEAR DISCHARGE | = 390 | CFS |
| 100 YEAR HW ELEVATION | = 439.88 | FT |
| OVERTOPPING FREQUENCY | = 100 | YRS |
| OVERTOPPING DISCHARGE | = 447 | CFS |
| OVERTOPPING ELEVATION | = 443.21 | FT |

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 44 |

ROADWAY DESIGN ENGINEER

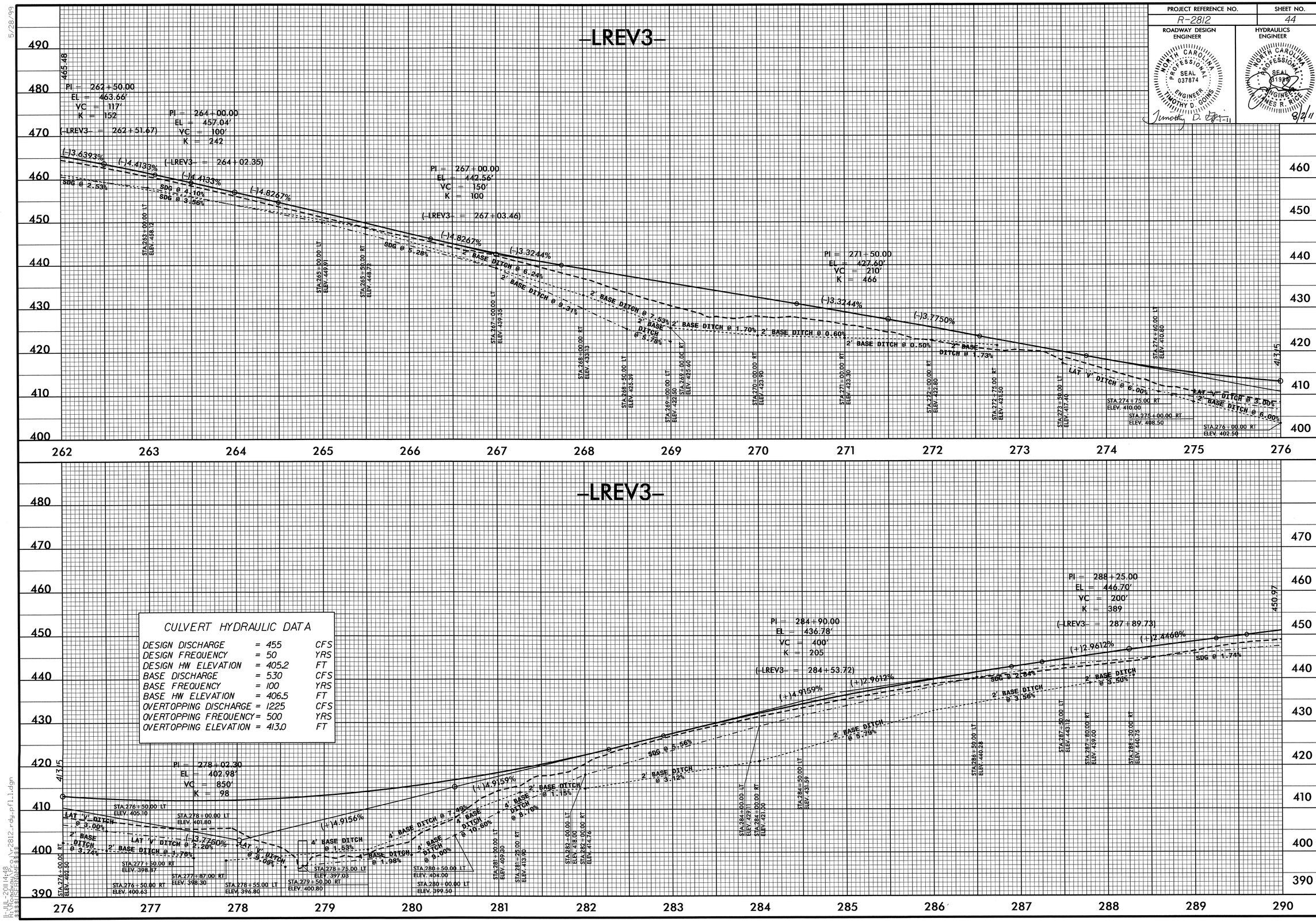
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOING

Timothy D. Going 7-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31989 ENGINEER JAMES R. RICE

8/2/11

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 45 |

ROADWAY DESIGN ENGINEER

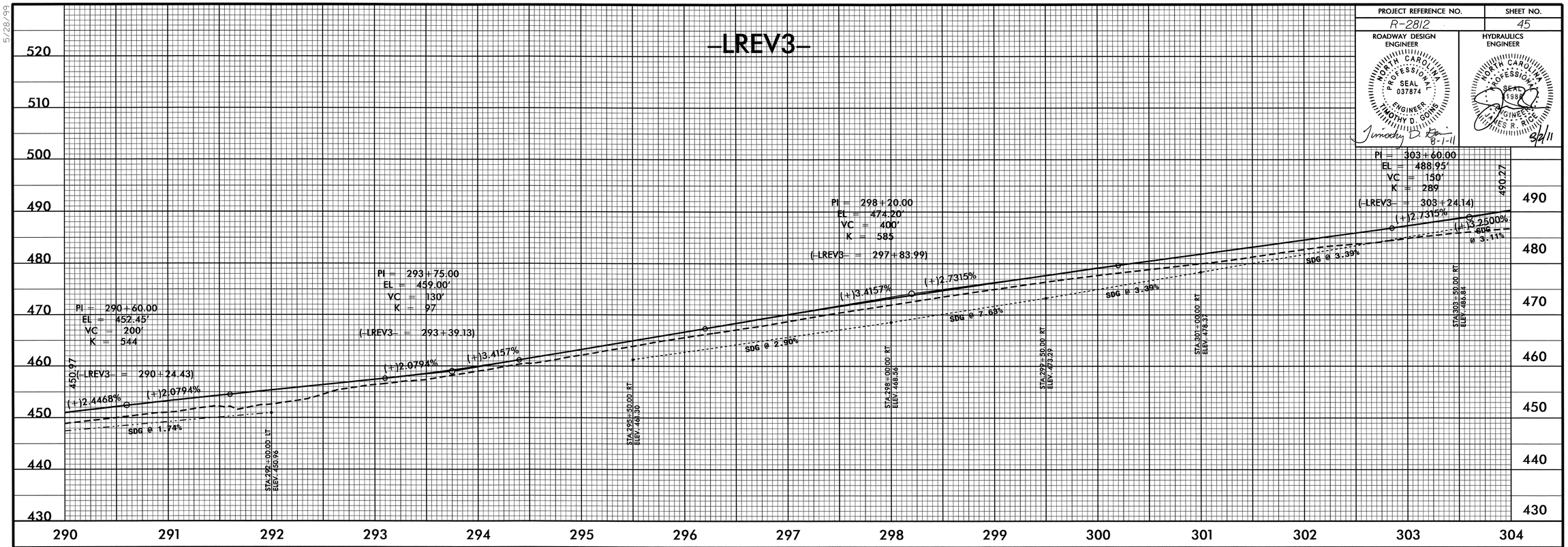
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 1988 ENGINEER JAMES R. RICE

8/2/11

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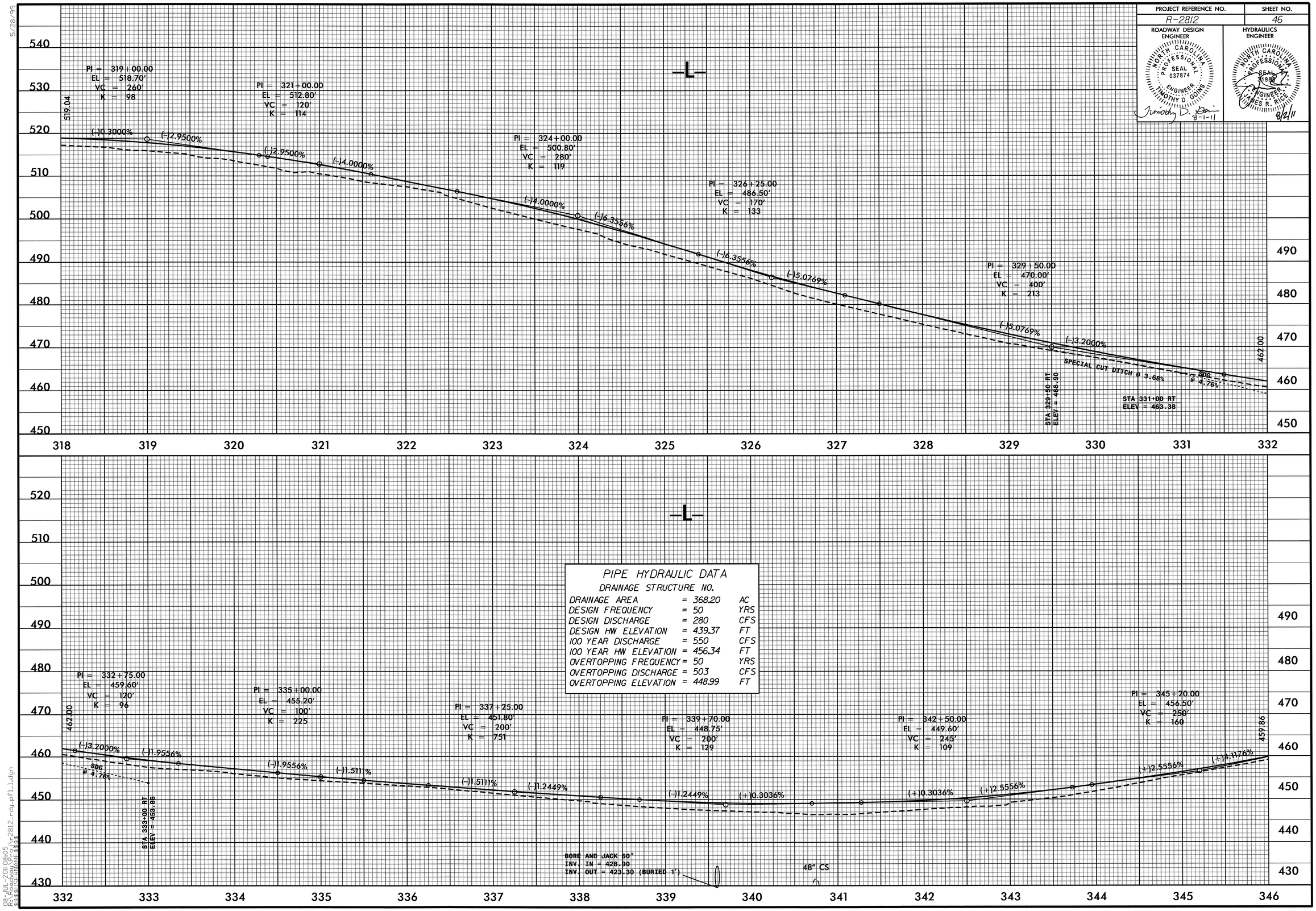
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 46 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 31988 ENGINEER JAMES R. RUCC
8/2/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 368.20 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 280 | CFS |
| DESIGN HW ELEVATION | = 439.37 | FT |
| 100 YEAR DISCHARGE | = 550 | CFS |
| 100 YEAR HW ELEVATION | = 456.34 | FT |
| OVERTOPPING FREQUENCY | = 50 | YRS |
| OVERTOPPING DISCHARGE | = 503 | CFS |
| OVERTOPPING ELEVATION | = 448.99 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 47 |

ROADWAY DESIGN ENGINEER

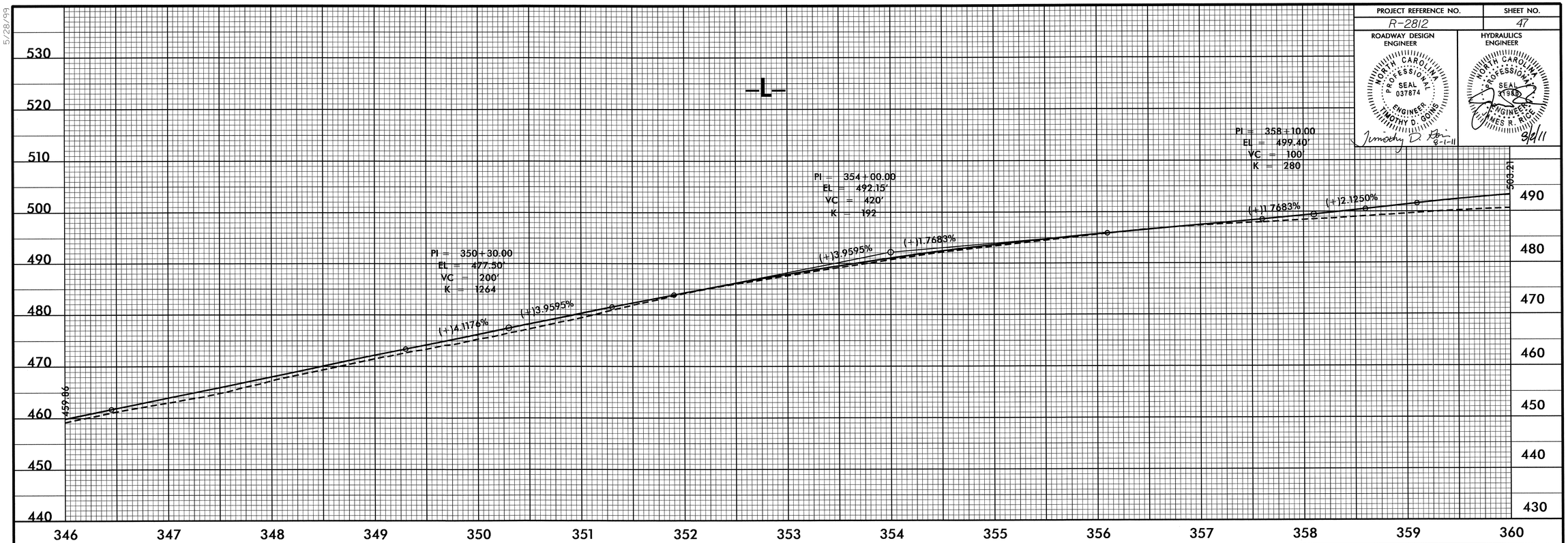
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. DOANS

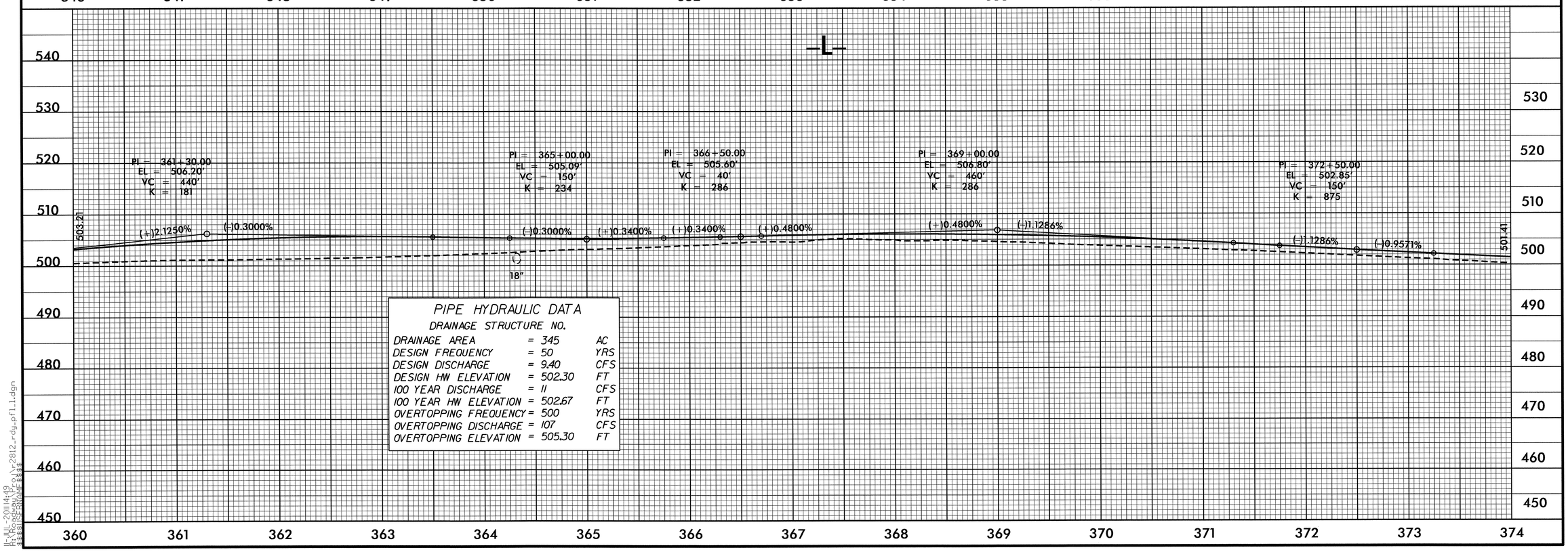
Timothy D. Doans 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21983 ENGINEER JAMES R. PRICE

8/9/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 345 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 9.40 | CFS |
| DESIGN HW ELEVATION | = 502.30 | FT |
| 100 YEAR DISCHARGE | = 11 | CFS |
| 100 YEAR HW ELEVATION | = 502.67 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 107 | CFS |
| OVERTOPPING ELEVATION | = 505.30 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 48 |

ROADWAY DESIGN ENGINEER

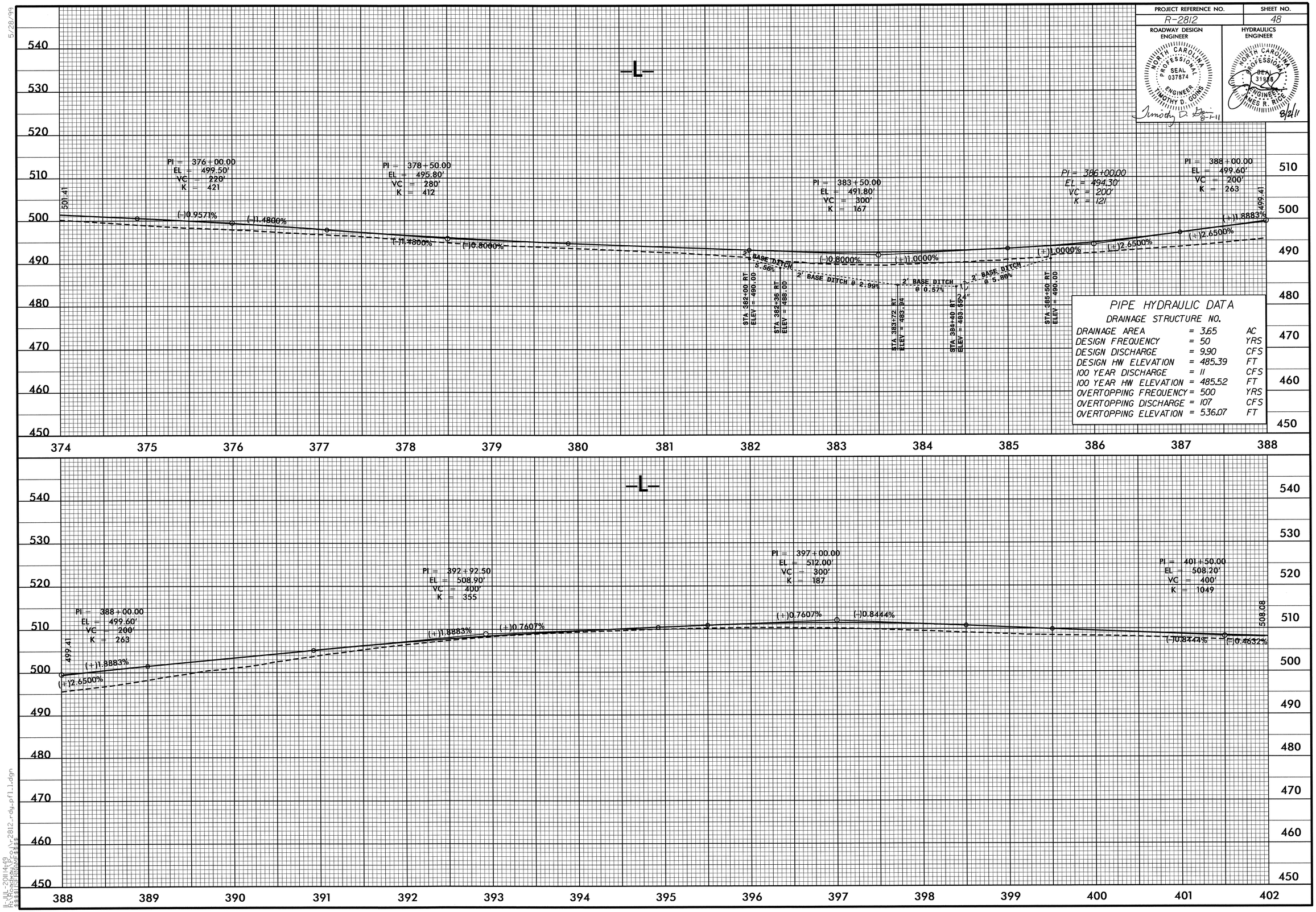
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31946 ENGINEER JAMES R. RICE

8/2/11

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 49 |

ROADWAY DESIGN ENGINEER

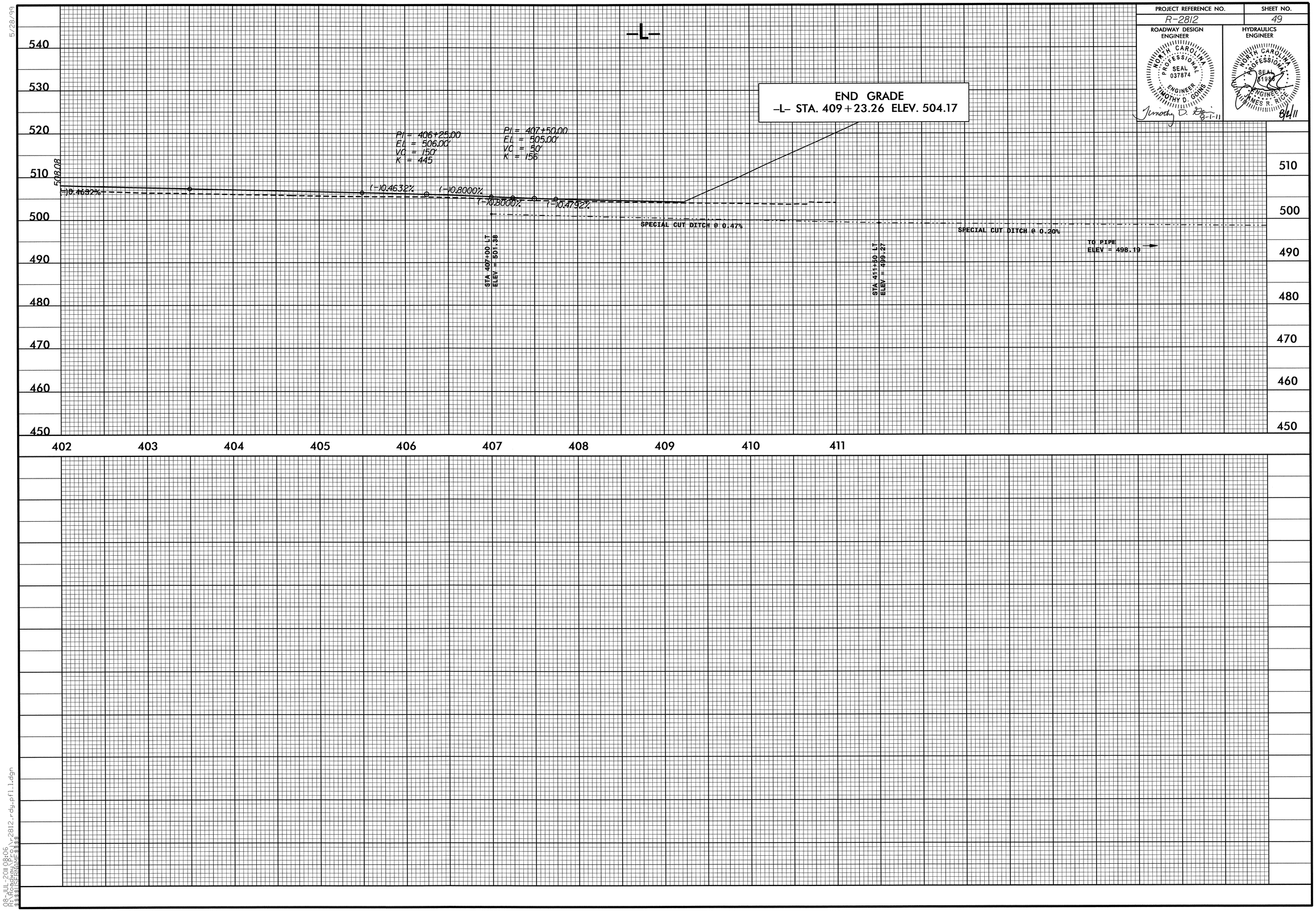
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019864 ENGINEER JAMES R. RICE

8/2/11

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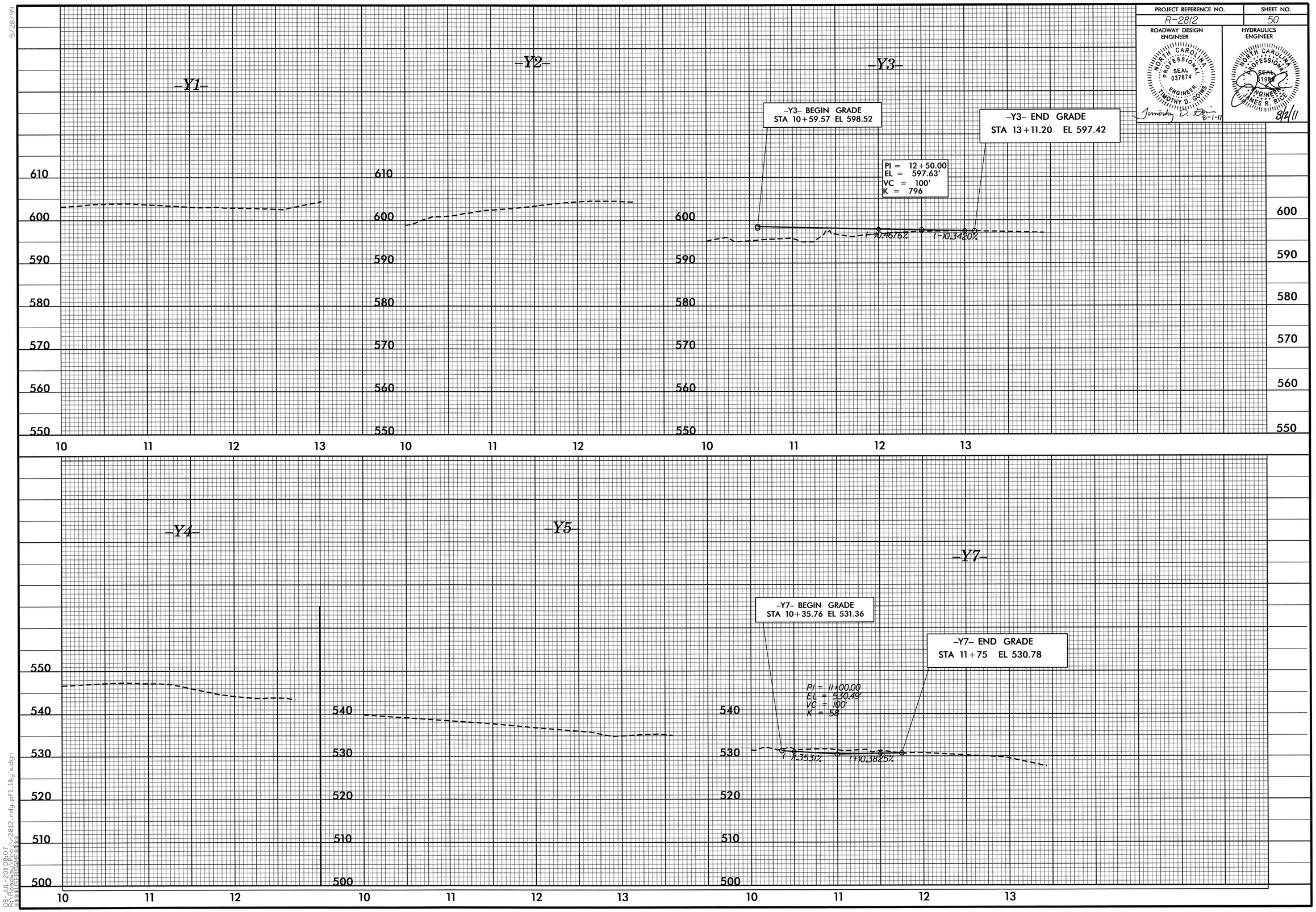
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 50 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINES
Timothy D. Goines 8-1-11

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19861 ENGINEER JAMES R. RICE
8/2/11

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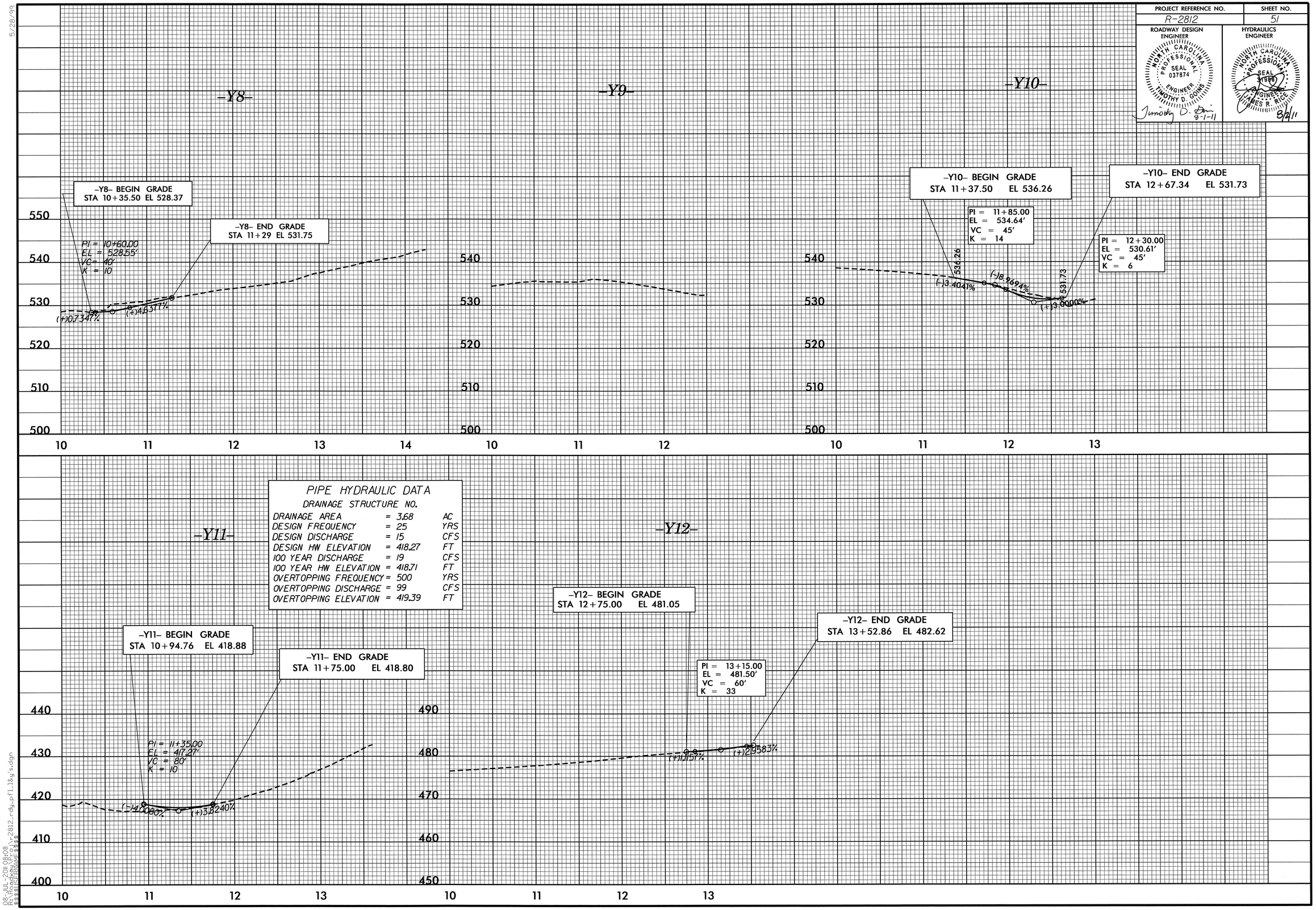
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 51 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS
Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 31980 ENGINEER JAMES R. RICE
8/2/11

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 52 |

ROADWAY DESIGN ENGINEER

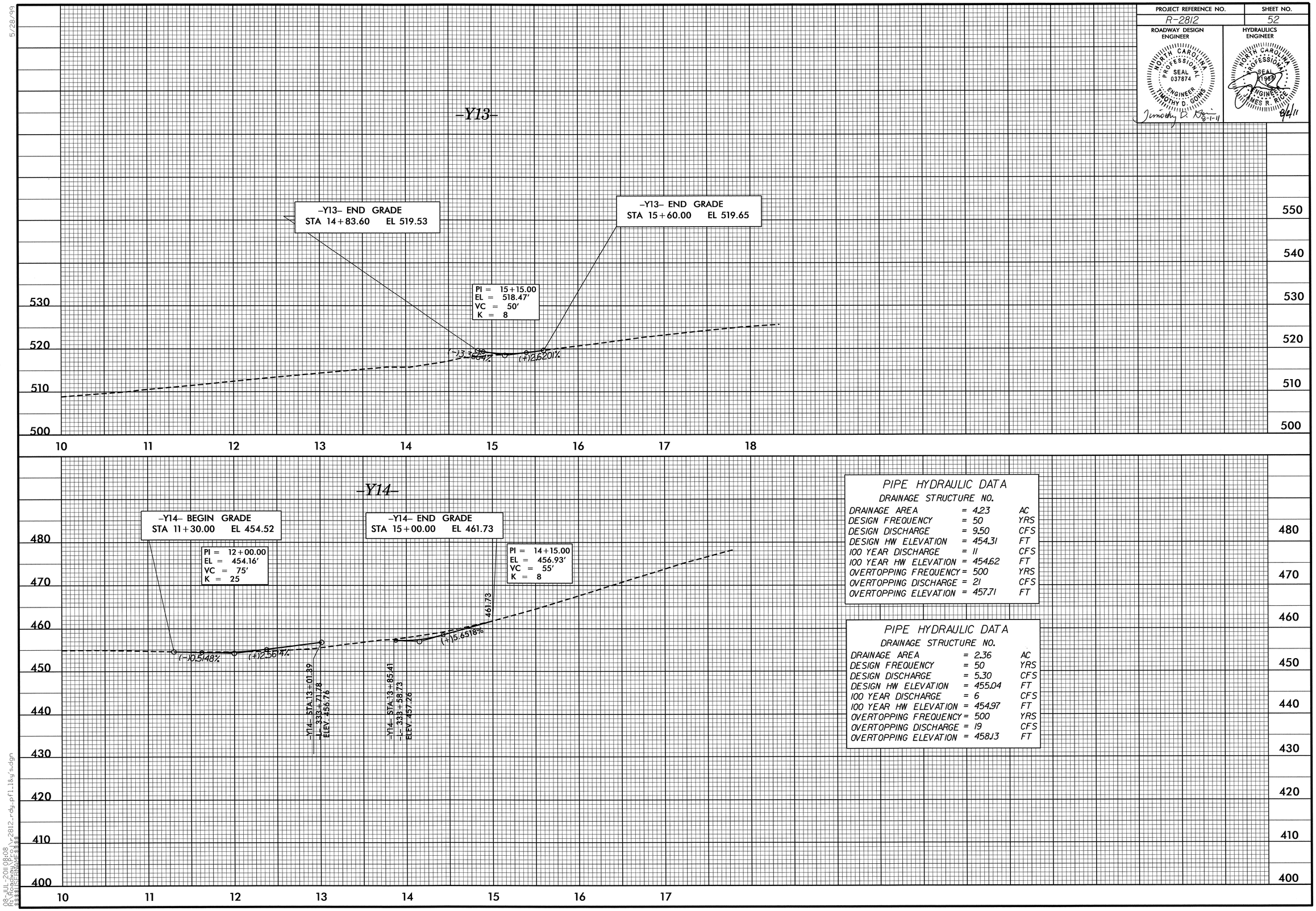
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOING

Timothy D. Going 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19680 ENGINEER JAMES R. RICE

8/1/11




PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 4.23 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 9.50 | CFS |
| DESIGN HW ELEVATION | = 454.31 | FT |
| 100 YEAR DISCHARGE | = 11 | CFS |
| 100 YEAR HW ELEVATION | = 454.62 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 21 | CFS |
| OVERTOPPING ELEVATION | = 457.71 | FT |

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

| | | |
|---|---|---|
| DRAINAGE AREA | = 2.36 | AC |
| DESIGN FREQUENCY | = 50 | YRS |
| DESIGN DISCHARGE | = 5.30 | CFS |
| DESIGN HW ELEVATION | = 455.04 | FT |
| 100 YEAR DISCHARGE | = 6 | CFS |
| 100 YEAR HW ELEVATION | = 454.97 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 19 | CFS |
| OVERTOPPING ELEVATION | = 458.13 | FT |

5/28/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 53 |

ROADWAY DESIGN ENGINEER

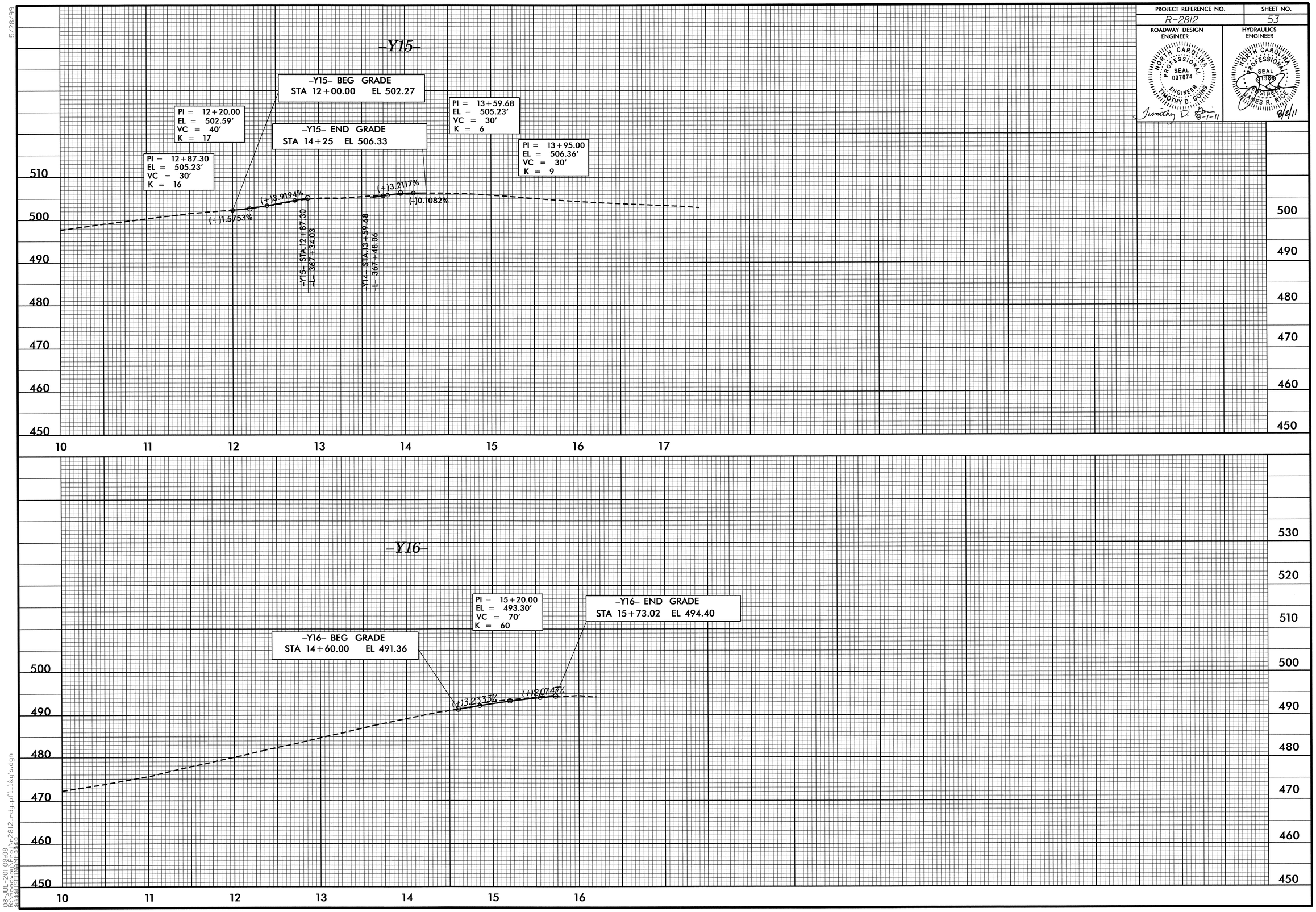
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19976 ENGINEER JAMES R. RICE

8/2/11

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2812 | 54 |

ROADWAY DESIGN ENGINEER

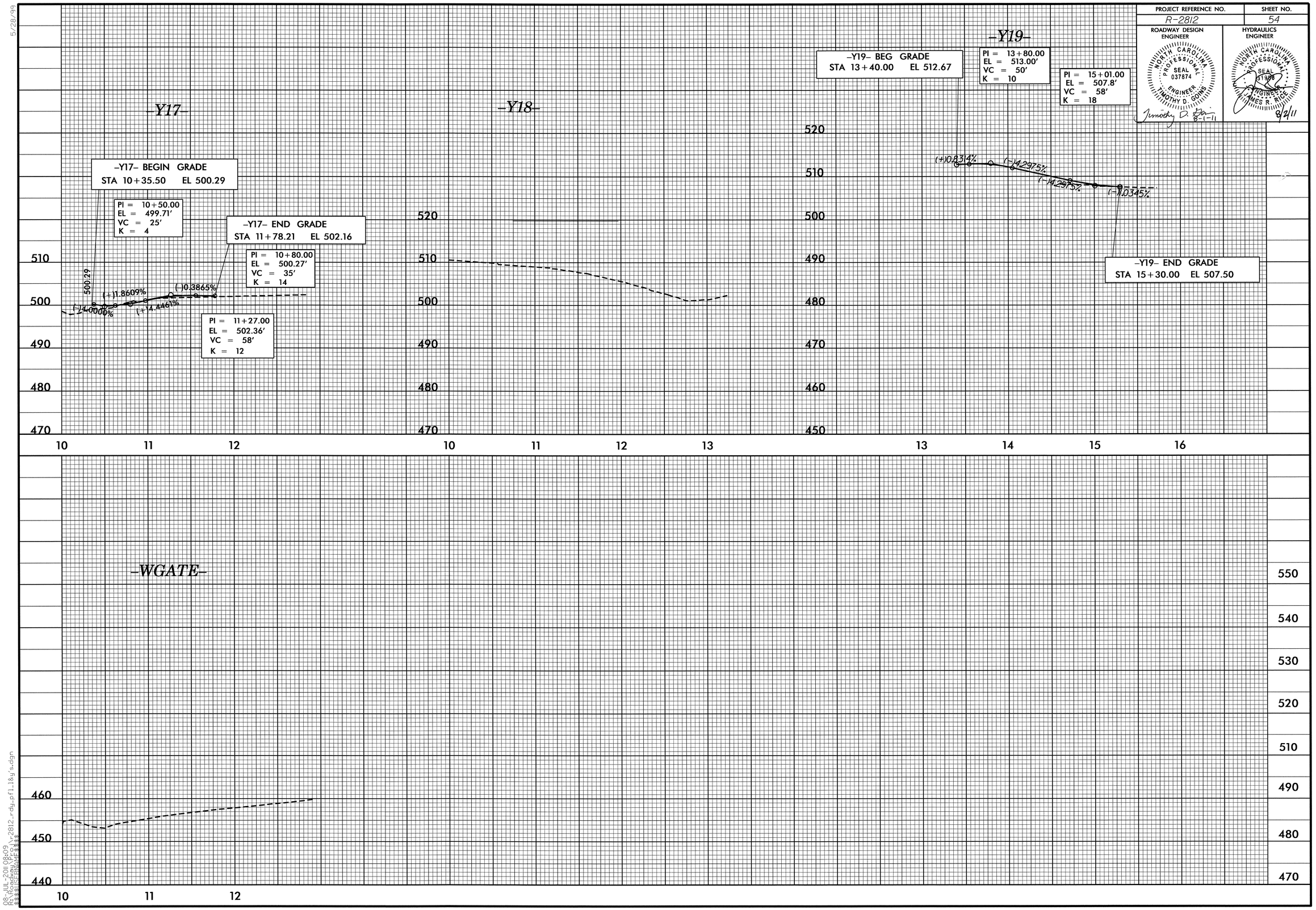
NORTH CAROLINA PROFESSIONAL SEAL 037874 ENGINEER TIMOTHY D. GOINS

Timothy D. Goins 8-1-11

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019906 ENGINEER JAMES R. RICE

8/2/11

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