STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2612B	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34483.1.1	CMNHS-0421(41)	PE
34483.2.3	CMNHF-0421(41)	R/W & UTILITIES
34483.3.FR2	CMNHF-0421(52)	CONSTR.

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

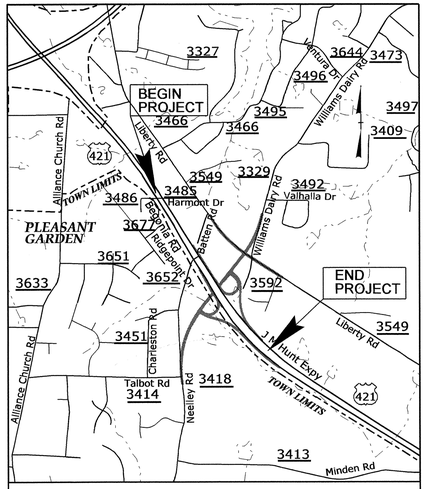
LOCATION: US 421 AT SR 3418 (NEELLEY ROAD) SOUTH OF GREENSBORO

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

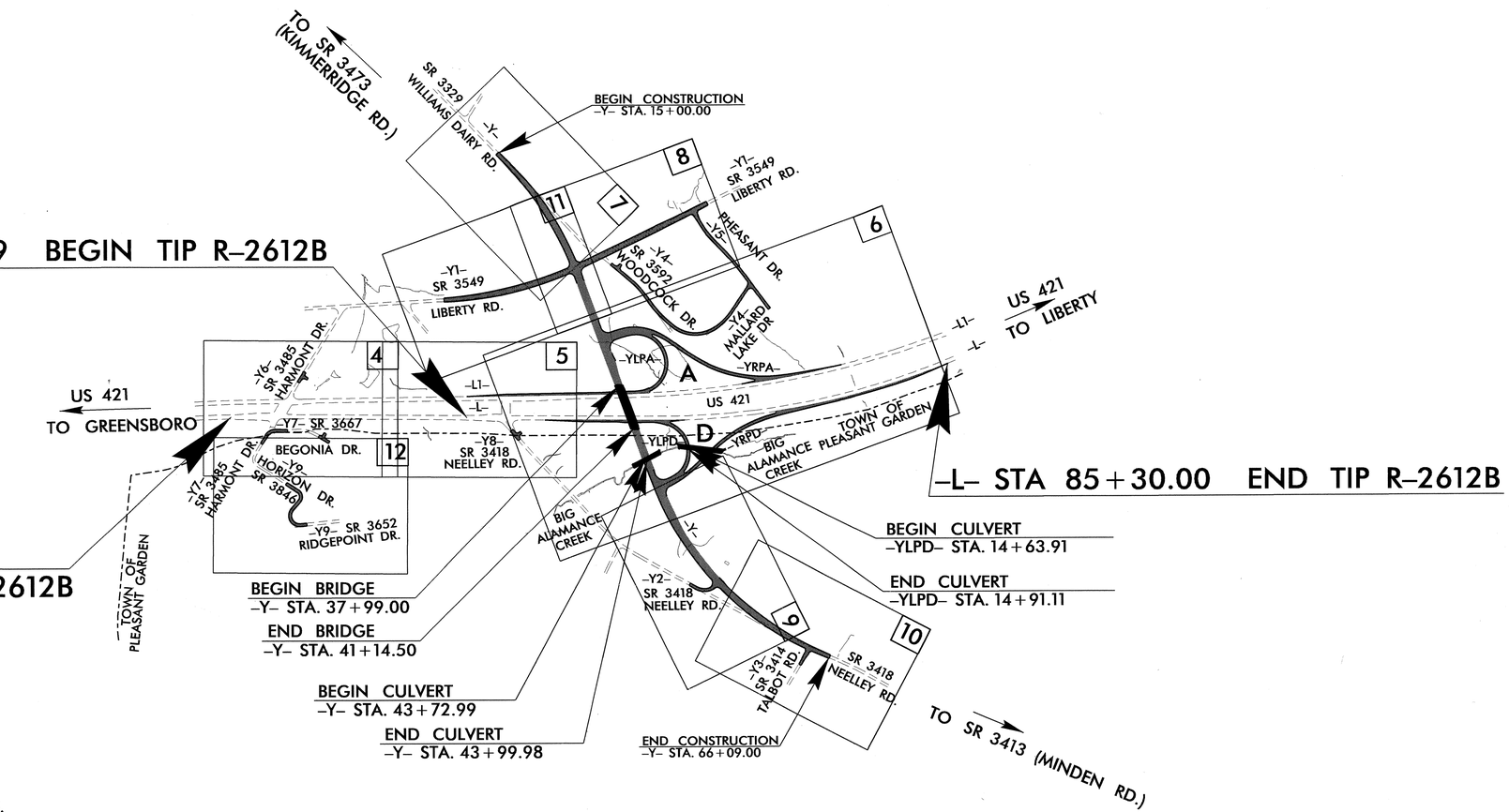
NAD 83/NSRS 2007

TIP PROJECT: R-2612B

CONTRACT: C203412



VICINITY MAP



THIS PROJECT HAS FULL AND NO CONTROLLED ACCESS.

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 2014 = 34,070
ADT 2034 = 51,740
DHV = 11 %
D = 70 %
T = 17 % *
V = 70 MPH
* (TTST 12 + DUAL 5)
FUNC. CLASS = FREEWAY

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2612B = 0.713 MI
TOTAL LENGTH TIP PROJECT R-2612B = 0.713 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 30, 2012

LETTING DATE: JUNE 17, 2014

BRENDA MOORE, PE
PROJECT ENGINEER

TATIA L. WHITE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13060 ENGINEER PAUL E. ATKINSON
SIGNATURE: 3/24/14

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
SIGNATURE: 3/25/14

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

24-MAR-2014 10:45
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TANIA L. WHITE

3/30/14

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES & LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THROUGH 1-E	SURVEY CONTROL SHEET
1-F	CENTERLINE COORDINATE LIST
2 THROUGH 2-D	PAVEMENT SCHEDULE, TYPICAL SECTIONS & WEDGING DETAILS
2-E	DRAINAGE DETAILS
2-F	SHEAR POINT DIAGRAM/INTERCHANGE DETAIL
2-G	STRUCTURE ANCHOR UNIT TYPE III DETAIL
3-A THROUGH 3-C	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)
3-D	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)
3-E	SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION, SUMMARY OF SHOULDER DRAIN, SHOULDER DRAIN PIPE & CONCRETE OUTLET PADS, SUMMARY OF SUBSURFACE DRAINAGE, SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION, SUMMARY OF PAVEMENT REMOVAL, SUMMARY OF 2'-6" CURB & GUTTER AND SUMMARY OF SHOULDER BERM GUTTER
3-F	GUARDRAIL SUMMARY AND SUMMARY OF WOVEN WIRE FENCE
3-G	SUMMARY OF EARTHWORK
3-H	PARCEL INDEX SHEET
4 THROUGH 12	PLAN SHEETS
13 THROUGH 25	PROFILE SHEETS
TMP-1 THROUGH TMP-24	TRAFFIC MANAGEMENT PLANS
PMP-1 THROUGH PMP-10	PAVEMENT MARKING PLANS
EC-1 THROUGH EC-23	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THROUGH SIGN-21	SIGNING PLANS
UC-1 THROUGH UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THROUGH UO-7	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX
X-1A THROUGH X-1C	CROSS-SECTION SUMMARY
X-2 THROUGH X-109	CROSS-SECTION SHEETS
S-1 THROUGH S-38	STRUCTURE PLANS
C-1 THROUGH C-14	CULVERT PLANS

2012 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 January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.01	Guide for Grading Subgrade – Interstate and Freeway
225.02	Guide for Grading Subgrade – Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation – Two Lane Pavement
225.05	Method of Obtaining Superelevation – Divided Highways
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 – MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
560.02	Method of Shoulder Construction – High Side of Superelevated Curve – Method II (Sheet 2 of 3 is no longer applicable)
DIVISION 6 – ASPHALT BASES AND PAVEMENTS	
610.03	Guide for Paving Shoulders Under Bridges – Method III
654.01	Pavement Repairs
665.01	Asphalt Shoulders – Milled Rumble Strips
DIVISION 8 – INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
816.01	Concrete Pads – for Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
816.04	Markers for Drainage Structure and Concrete Pad
838.01	Concrete Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew
838.27	Reinforced Concrete Endwall – for Single 60" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall – Std. Dwg 838.21 thru 838.40
838.57	Reinforced Brick Endwall – for Single 60" Pipe 90 Skew
838.80	Precast Endwalls – 12" thru 72" Pipe 90 Skew
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
840.04	Concrete Open Throat Catch Basin – 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin – 12" thru 48" Pipe
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
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' – 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.31	Concrete Junction Box – 12" thru 66" Pipe
840.32	Brick Junction Box – 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box – for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing 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
846.04	Drop Inlet Installation in Shoulder Berm Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
866.02	Woven Wire Fence – with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 OR 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. OR STD. NO. 560.02.

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.

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.03 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY DISTRIBUTION, AT&T,

VERIZON(FORMERLY MCI), LEVEL 3(FORMERLY WILTEL), PIEDMONT NATURAL GAS,

TIME WARNER CABLE AND GREENSBORO WATER.

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

RIGHT-OF-WAY MARKERS:

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

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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1-B

12/05/11

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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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 R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- 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 Aerial Utility Easement — AUE
- 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
- 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:

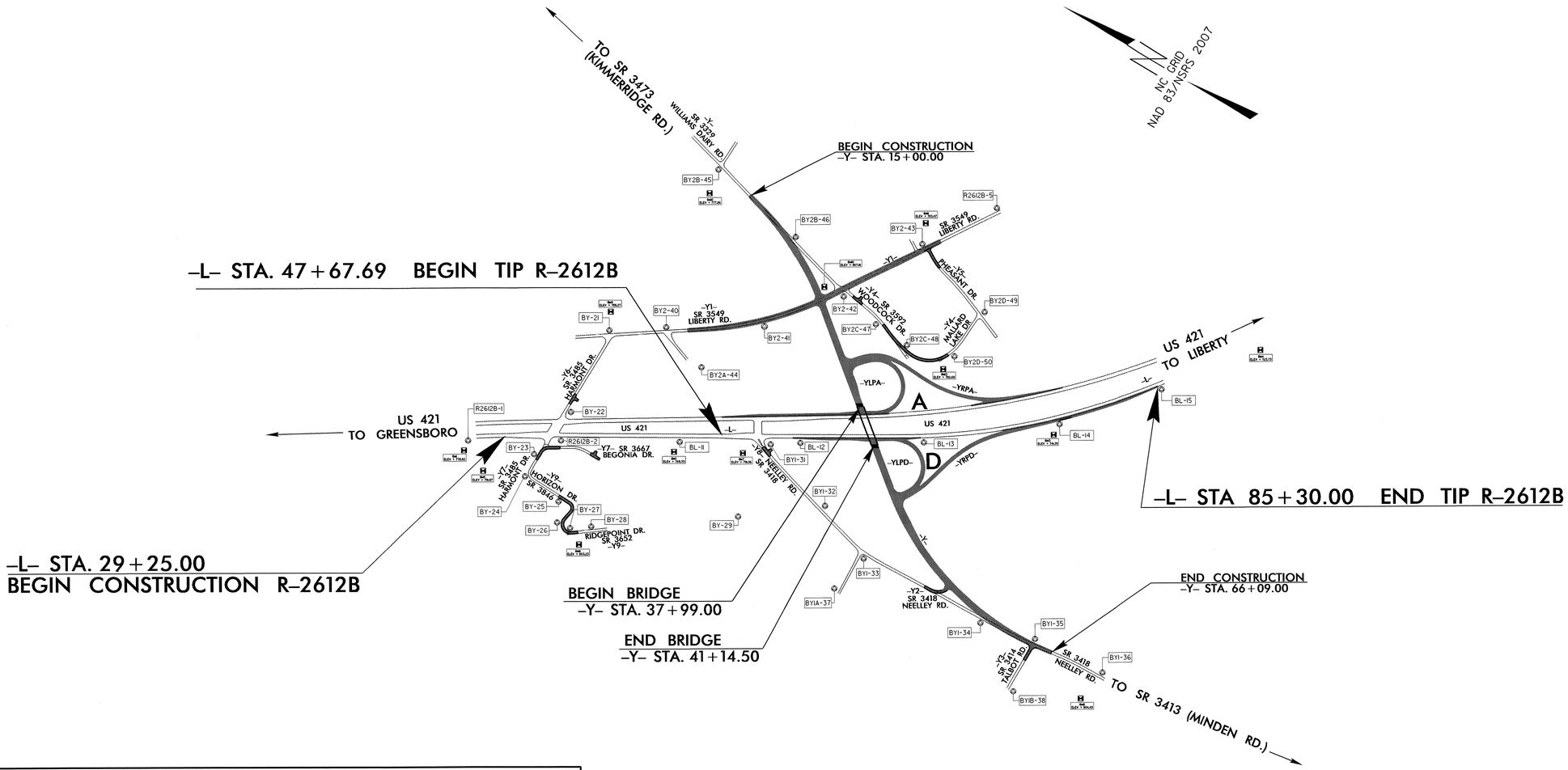
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- 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-2612B	1C
Location and Surveys	

R-2612B SURVEY CONTROL SHEET



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:

   R2612B_LS_CONTROL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GARDEN RESET"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 814371.7640(ft) EASTING: 1782615.8080(ft)
ELEVATION: 807.16'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999206900
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GARDEN RESET" TO -L- STATION 29+25.00 IS
N 55° 33' 59" W 2,942.52'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

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R-2612B SURVEY CONTROL SHEET

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

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VERTICAL DATUM USED IS NAVD 88

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	R2612B-1	816318.3980	1779965.5190	785.03	25+65.34	28.77 RT
2	R2612B-2	815611.2200	1780422.2540	790.43	34+09.04	24.66 RT
11	BL-11	814754.2536	1780941.4800	790.34	44+11.03	20.96 RT
12	BL-12	813877.9181	1781461.9268	780.27	54+30.24	26.20 RT
13	BL-13	812980.0077	1782012.4952	769.89	64+82.65	22.00 RT
14	BL-14	812082.1597	1782741.8245	756.76	76+36.96	21.62 RT
15	BL-15	811498.0129	1783417.8925	746.53	85+27.82	23.53 RT
3	R2612B-3	810992.0650	1784194.5650	734.38	94+53.37	21.68 RT
4	R2612B-4	810051.7900	1785678.6350	723.99	112+10.23	22.94 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	STATION	OFFSET
21	BY-21	815732.0338	1781395.6300	770.31	OUTSIDE PROJECT LIMITS	
22	BY-22	815690.7698	1780638.7938	785.34	Y6 13+54.07	19.27 LT
A2	R2612B-2	815611.2200	1780422.2540	790.43	L 34+09.04	24.66 RT
23	BY-23	815720.8539	1780179.5270	797.21	Y7 11+30.67	15.59 LT
24	BY-24	815714.4236	1779990.1388	803.16	Y7 OUTSIDE PROJECT LIMITS	
25	BY-25	815357.1589	1779963.7754	808.21	Y9 11+24.27	15.99 RT
26	BY-26	815275.2512	1779779.0826	807.01	Y9 14+16.63	43.99 RT
27	BY-27	815152.8263	1779757.7476	805.21	Y9 15+17.98	4.88 LT
28	BY-28	814997.8691	1779882.2721	801.68	Y9 17+20.15	16.55 LT
29	BY-29	813987.4279	1780623.9931	785.52	Y8 14+14.72	549.29 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	STATION	OFFSET
A12	BL-12	813877.9181	1781461.9268	780.27	L 54+30.24	26.20 RT
31	BY1-31	814076.5938	1781263.0450	781.87	Y8 11+47.16	30.99 LT
32	BY1-32	813414.2675	1781052.1253	762.76	L 56+16.61	616.27 RT
33	BY1-33	812903.9571	1780895.3959	784.39	Y 49+08.77	449.10 RT
34	BY1-34	811752.1484	1780978.1689	804.50	Y 58+92.17	11.59 RT
35	BY1-35	811284.5145	1781012.3732	811.71	Y 63+61.65	20.91 LT
36	BY1-36	810640.8241	1781067.4625	804.27	Y OUTSIDE PROJECT LIMITS	

BY1A

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
A33	BY1-33	812903.9571	1780895.3959	784.39	49+08.77	449.10 RT
37	BY1A-37	812915.6431	1780523.4726	787.05	50+39.28	782.76 RT

BY1B

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
A35	BY1-35	811284.5145	1781012.3732	811.71	63+61.65	20.91 LT
38	BY1B-38	811250.1697	1780555.6332	832.89	63+50.29	436.96 RT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
A21	BY-21	815732.0338	1781395.6300	770.31	OUTSIDE PROJECT LIMITS	
40	BY2-40	815332.4092	1781669.8843	767.23	10+20.89	16.23 LT
41	BY2-41	814662.2868	1782151.7008	792.72	18+45.95	16.35 RT
42	BY2-42	814206.7160	1782717.1924	804.81	25+69.21	27.06 RT
43	BY2-43	813825.0632	1783396.9493	791.85	33+47.50	17.59 LT
5	R2612B-5	813455.8940	1783973.7690	788.59	OUTSIDE PROJECT LIMITS	
6	R2612B-6	813076.0050	1784566.3470	786.84	OUTSIDE PROJECT LIMITS	

BY2A

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
A40	BY2-40	815332.4092	1781669.8843	767.23	10+20.89	16.23 LT
44	BY2A-44	814903.7372	1781511.5013	780.28	12+82.51	358.47 RT

BY2B

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
45	BY2B-45	815656.2285	1783076.7043	783.16	13+85.69	24.62 RT
46	BY2B-46	814817.5628	1782862.9792	802.11	22+50.42	13.85 LT
A42	BY2-42	814206.7160	1782717.1924	804.81	28+25.64	203.45 LT

BY2C

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
B42	BY2-42	814206.7160	1782717.1924	804.81	10+16.38	30.07 RT
47	BY2C-47	813821.2293	1782664.1784	796.58	14+07.97	14.00 RT
48	BY2C-48	813518.3372	1782573.6454	787.17	17+24.25	4.69 RT

BY2D

POINT	DESC.	NORTH	EAST	ELEVATION	STATION	OFFSET
A43	BY2-43	813825.0632	1783396.9493	791.85	Y1 33+47.50	17.59 LT
49	BY2D-49	813102.8718	1783171.1390	796.20	Y4 OUTSIDE PROJECT LIMITS	
50	BY2D-50	813142.4753	1782775.8865	788.73	Y4 21+85.59	14.32 RT

BENCHMARK DATA

BM1 ELEVATION = 778.62
N 816273 E 1779894
L STATION 25+62.38 113.18 RIGHT
RR SPIKE IN ROOT OF 18 INCH DOUBLE MAPLE

BM2 ELEVATION = 769.70
N 814722 E 1780858
L STATION 43+95.61 109.41 RIGHT
RR SPIKE IN ROOT OF 18 INCH MAPLE

BM3 ELEVATION = 741.39
N 812047 E 1782665
L STATION 76+08.37 100.51 RIGHT
RR SPIKE IN ROOT OF 14 INCH ELM

BM4 ELEVATION = 723.73
N 810918 E 1784142
L STATION 94+48.68 112.10 RIGHT
RR SPIKE IN ROOT OF 15 INCH SWEETGUM

BM5 ELEVATION = 791.97
N 816044 E 1779830
L STATION 27+17.74 295.08 RIGHT
RR SPIKE IN ROOT OF 16 INCH SWEETGUM

BM6 ELEVATION = 803.23
N 815021 E 1779714
BY STATION 27+05.00 117 RIGHT
RR SPIKE IN ROOT OF 15 INCH PINE

BM7 ELEVATION = 791.36
N 814232 E 1781109
BY1 STATION 7+81.00 219 RIGHT
RR SPIKE IN ROOT OF 15 INCH OAK

BM8 ELEVATION = 804.49
N 810688 E 1780808
BY1 STATION 42+11.00 255 RIGHT
RR SPIKE IN ROOT OF 12 INCH SWEETGUM

BM9 ELEVATION = 755.27
N 815818 E 1781554
L STATION 38+14.87 1051.86 LEFT
RR SPIKE IN ROOT OF 15 INCH RED OAK

BM10 ELEVATION = 807.16
N 814372 E 1782616
Y STATION 27+57.05 23.21 LEFT
GARDEN RESET - BRASS DISK IN CONC

BM11 ELEVATION = 783.47
N 813911 E 1783585
Y1 STATION 34+59.71 192 LEFT
RR SPIKE IN BASE OF 13 INCH PINE

BM12 ELEVATION = 777.86
N 815621 E 1782887
Y STATION 14+69.00 198.63 RIGHT
RR SPIKE IN ROOT OF 24 INCH SWEETGUM

BM13 ELEVATION = 782.68
N 813132 E 1782612
Y4 STATION 20+65.06 99.14 RIGHT
RR SPIKE IN ROOT OF 24 INCH WILLOW OAK

NOTE: DRAWING NOT TO SCALE

12/01/2005
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1E
Location and Surveys	

R-2612B SURVEY CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
TS	9+33.09	817608.3498	1778970.4206
SC	12+33.09	817384.6506	1779170.3137
CS	31+39.76	815854.0605	1780303.5800
ST	34+39.76	815597.5889	1780459.2107
TS	61+02.98	813314.7614	1781830.8719
SC	64+02.98	813058.9771	1781987.6167
CS	87+71.32	811377.2141	1783631.1698
ST	90+71.32	811214.6333	1783883.2848
POT	165+96.92	807191.4601	1790243.2188

L1

TYPE	STATION	NORTH	EAST
TS	10+33.60	817575.5797	1779123.9794
SC	13+33.60	817351.8805	1779323.8726
CS	29+96.93	816026.8344	1780326.9062
ST	32+96.93	815773.7252	1780487.9477
TS	57+81.18	813671.9581	1781812.3550
SC	60+81.18	813419.2032	1781973.9467
CS	91+03.40	811284.0691	1784084.9949
ST	94+03.40	811119.6204	1784335.9004
POT	168+26.92	807090.9816	1790571.1789

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	816022.5450	1783199.8823
TS	17+88.90	815260.2910	1782996.5961
SC	19+88.90	815067.8180	1782942.3044
CS	27+41.96	814397.6857	1782605.9823
ST	29+41.96	814239.1330	1782484.1033
TS	44+57.24	813051.1080	1781543.5302
SC	46+57.24	812892.5554	1781421.6511
CS	63+35.51	811308.3485	1780988.9950
ST	65+35.51	811109.8550	1781013.3627
POT	66+27.47	811018.7563	1781025.8716

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	815340.3045	1781644.6370
PC	13+31.42	815068.1568	1781833.7785
PT	24+75.55	814279.9711	1782652.8688
POT	38+15.79	813557.9661	1783782.0080

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	812133.1360	1781059.3073
PC	10+34.03	812142.3371	1781026.5427
PT	11+90.33	812256.8585	1780935.4740
POT	17+09.07	812775.0266	1780911.3082

Y3

TYPE	STATION	NORTH	EAST
POT	10+00.00	811271.6594	1780992.7120
POT	13+51.33	811265.8035	1780641.4264

Y4

TYPE	STATION	NORTH	EAST
POT	10+00.00	814218.2124	1782749.4530
PC	12+95.61	813926.2106	1782703.3788
PRC	14+96.32	813734.6047	1782645.7340
PCC	17+87.22	813455.1782	1782569.4934
PCC	21+27.66	813177.3371	1782726.4519
PT	23+11.03	813133.7505	1782903.3621
POT	25+70.18	813121.9538	1783162.2391

Y6

TYPE	STATION	NORTH	EAST
POT	10+00.00	815708.3328	1780992.9543
POT	14+65.22	815710.5784	1780527.7390

Y7

TYPE	STATION	NORTH	EAST
POT	10+00.00	815704.9524	1780248.8972
PC	11+75.73	815705.3668	1780224.6275
PT	12+51.20	815670.6456	1780288.0707
PC	14+36.28	815514.5194	1780387.4688
PT	15+94.27	815364.7807	1780430.6642
POT	17+10.00	815249.0526	1780430.0579

YRPA

TYPE	STATION	NORTH	EAST
TS	10+00.00	812489.8538	1782782.7757
SC	13+00.00	812646.7090	1782599.1463
CS	17+66.89	813084.9968	1782450.9625
SRS	20+66.89	813384.6886	1782453.1871
SC	22+66.89	813583.9588	1782446.9235
CS	24+29.28	813730.6995	1782380.3738
ST	26+29.28	813866.6939	1782234.5885
POT	26+64.84	813888.5456	1782206.5391

YRPD

TYPE	STATION	NORTH	EAST
POT	10+00.00	812080.1699	1782758.3589
TS	13+75.00	812345.4730	1782493.3319
SC	16+75.00	812546.1744	1782270.7924
CS	18+81.63	812649.0150	1782092.0271
SRS	21+81.63	812740.5038	1781806.6595
SC	23+73.63	812797.2537	1781623.3805
PT	25+64.79	812890.3669	1781457.0140
POT	25+94.64	812908.0973	1781433.0007

-L- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	32+16.02	104.64	815734.5483	1780254.2086
L	32+30.00	82.00	815734.4757	1780280.7769
L	35+33.39	84.75	815473.6880	1780434.7910
L	37+87.79	125.58	815234.5895	1780530.8138
L	50+58.95	125.55	814145.0141	1781185.5361
L	51+35.53	63.00	814111.5801	1781278.5970
L	52+15.73	94.64	814026.5413	1781292.7785
L	37+45.01	185.00	815240.6558	1780457.8394

-L1- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L1	34+25.08	-136.12	815737.8784	1780671.4278
L1	34+90.09	-130.24	815679.7411	1780701.1171

-Y- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	65+35.51	-30.00	811113.9360	1781043.0838
Y	29+41.96	75.00	814285.6873	1782425.3011
Y	29+41.96	-100.00	814177.0605	1782562.5061
Y	31+50.00	110.00	814144.3053	1782268.7261
Y	32+25.00	-100.00	813955.1510	1782386.8177
Y	36+93.88	110.00	813717.8839	1781931.1233
Y	44+57.24	140.69	813138.4394	1781433.2311
Y	46+57.24	110.00	812957.0761	1781332.5608
Y	47+40.09	-75.00	812782.8075	1781436.5367
Y	55+25.00	-45.00	812100.8571	1781097.3077
Y	53+40.00	-75.00	812264.6260	1781178.2168
Y	51+75.00	100.00	812482.4060	1781074.9459
Y	63+35.51	-30.00	811311.1506	1781018.8639
Y	42+00.00	135.00	813336.5933	1781597.3645
Y	43+73.00	135.00	813200.9563	1781489.9792
Y	43+73.00	200.00	813241.3034	1781439.0173
Y	44+31.00	200.00	813195.8297	1781403.0153
Y	44+31.00	145.00	813161.6899	1781446.1369
Y	20+31.30	35.00	815038.5419	1782896.0596
Y	56+25.00	-30.00	812008.5901	1781060.0127
Y	28+56.88	-100.00	814244.5159	1782615.6265
Y	28+66.99	75.00	814344.2031	1782471.4382
Y	41+25.00	155.27	813407.9759	1781628.0287
Y	54+18.02	75.00	812237.2482	1781011.3934

-Y1- NEW R/W MONUMENT

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	23+33.78	-50.33	814400.2609	1782564.5009

-Y4- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	15+81.47	-30.00	813645.7653	1782642.4580
Y4	15+79.85	30.00	813666.9764	1782586.3091
Y4	17+87.22	30.00	813458.3149	1782539.6579
Y4	17+87.22	-30.00	813452.0415	1782599.3290
Y4	21+27.41	-30.00	813204.6059	1782738.9606
Y4	21+27.42	30.00	813150.2776	1782713.4962
Y4	12+00.00	-70.00	814009.7463	1782787.4257
Y4	11+30.00	-70.00	814078.6909	1782798.3359
Y4	11+30.00	-30.00	814085.1253	1782758.8247
Y4	12+00.00	-30.00	814015.9807	1782747.9145

-Y6- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	13+21.67	27.99	815737.8784	1780671.4278
Y6	12+91.70	-30.00	815679.7411	1780701.1171
Y6	12+55.00	-30.00	815679.5640	1780737.8125
Y6	12+55.00	-65.00	815644.5644	1780737.6435
Y6	11+95.00	-65.00	815644.2748	1780797.6428
Y6	11+95.00	-30.00	815679.2744	1780797.8118

-YRPA- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
YRPA	24+29.28	75.00	813775.6274	1782440.4279
YRPA	17+66.89	75.00	813091.9309	1782525.6413
YRPA	22+66.89	75.00	813599.5386	1782520.2875
YRPA	20+66.89	75.00	813380.3862	1782528.0636
YRPA	13+94.53	75.00	812762.7065	1782619.8713

-YRPD- NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
YRPD	16+17.79	-75.00	812453.0640	1782268.6984
YRPD	16+75.00	-75.00	812485.5577	1782226.6266
YRPD	18+81.63	-75.00	812580.3622	1782061.8312
YRPD	19+76.00	-80.00	812607.5248	1781978.0439
YRPD	19+76.00	-140.00	812550.7932	1781958.5113
YRPD	20+40.00	-140.00	812568.7237	1781902.7278
YRPD	20+40.00	-102.00	812605.1041	1781913.7032
YRPD	21+81.63	-100.00	812643.8169	1781781.1323
YRPD	23+73.63	-100.00	812704.5548	1781585.8718

-Y- PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	15+79.00	30.00	815470.8289	1783021.6961
Y	15+84.00	58.00	815473.2129	1782993.3532
Y	15+95.00	58.00	815462.5844	1782990.5187
Y	15+95.00	40.00	815457.9461	1783007.9108
Y	17+56.00	-30.00	815284.3453	1783034.0597
Y	18+06.00	-54.00	815229.8335	1783044.3588
Y	18+18.00	-56.00	815217.6924	1783043.1835
Y	18+18.00	-45.00	815220.5366	1783032.5576
Y	60+44.00	59.00	811601.3961	1780920.9999
Y	18+06.00	-44.00	815232.4133	1783034.6974
Y	25+67.00	-161.00	814458.7325	1782840.3026
Y	60+31.00	-30.00	811611.4114	1781010.3964
Y	60+31.00	-76.00	811609.7028	1781056.3647
Y	60+44.00	-76.00	811597.1342	1781055.9326
Y	60+44.00	-30.00	811598.5864	1781009.9555
Y	58+50.09	83.07	811802.3874	1780911.6247
Y	58+48.19	68.19	811802.6185	1780926.6258
Y	56+59.42	108.49	812002.3782	1780917.3096
Y	62+38.73	34.50	811403.0791	1780947.5036
Y	62+37.61	64.14	811402.6870	1780917.8462

-Y1- PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	14+19.00	89.00	814944.0290	1781813.3231
Y1	24+97.00	50.00	814226.2919	1782644.0036
Y1	24+97.00	75.00	814205.2297	1782630.5358
Y1	25+08.00	75.00	814199.3038	1782639.8032
Y1	25+08.00	50.00	814220.3661	1782653.2710
Y1	27+26.00	50.00	814102.9267	1782836.9337
Y1	27+26.00	63.00	814091.9743	1782829.9304
Y1	31+44.00	65.00	813865.1074	1783181.0136
Y1	31+44.00	75.00	813856.6825	1783175.6265
Y1	31+58.00	75.00	813849.1405	1783187.4214
Y1	31+58.00	65.00	813857.5654	1783192.8085
Y1	15+32.00	80.00	814857.4500	1781891.4724
Y1	20+00.00	65.00	814519.4754	1782231.4868
Y1	20+00.00	49.26	814531.1703	1782242.0139
Y1	33+53.76	66.00	813751.2653	1783357.1943

-Y2- PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	13+37.00	-30.00	812401.9670	1780898.6740
Y2	13+37.00	-45.00	812401.2682	1780883.6903

-Y3- PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	11+68.00	-30.00	811238.8634	1780825.2354
Y3	11+62.00	-52.00	811216.9665	1780831.6013
Y3	11+52.00	-52.00	811217.1331	1780841.5999
Y3	11+39.00	-30.00	811239.3468	1780854.2314
Y3	10+76.00	30.00	811300.3885	1780916.2226

-Y7- PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	12+09.88	25.83	815674.5829	1780246.3218
Y7	12+72.00	60.00	815620.8746	1780248.6297
Y7	12+77.00	51.00	815621.4903	1780258.9069
Y7	12+77.00	32.45	815631.4542	1780274.5574

-Y1- PERMANENT DRAINAGE EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	13+36.00	-50.02	815093.0100	1781877.4264
Y1	13+98.00	-68.00	815054.0040	1781927.3335
Y1	16+50.00	-67.00	814861.0928	1782080.0761
Y1	17+40.00	-50.70	814784.6465	1782126.9347
Y1	13+20.00	50.00	815048.9989	1781786.2035
Y1	14+03.00	65.00	814971.4864	1781822.9074
Y1	14+03.00	49.82	814980.4573	1781835.1586

-Y- DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	66+09.00	-30.00	811041.1341	1781053.0804
Y	66+09.00	-54.00	811044.3989	1781076.8573
Y	65+86.00	-54.00	811067.1851	1781073.7285
Y	65+86.00	-30.00	811063.9202	1781049.9516
Y	63+26.00	32.19	811314.9479	1780956.0654
Y	63+26.00	55.00	811312.9101	1780933.3456

-Y1- DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	15+00.00	49.62	814901.9642	1781894.9276
Y1	14+74.00	67.00	814912.2281	1781864.9224
Y1	14+03.00	65.00	814971.4864	1781822.9074
Y1	14+03.00	49.82	814980.4573	1781835.1586

-Y3- DRAINAGE UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+58.00	30.00	811300.6885	1780934.2201

-Y- AERIAL UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
Y	58+50.09	83.07	811802.3874	1780911.6247
Y	58+48.19	68.19	811802.6185	1780926.6258
Y	56+59.42	108.49	812002.3782	1780917.3096
Y	56+62.40	123.16	812002.1599	1780902.3065
Y	65+15.93	30.00	811125.1917	1780980.9753
Y	62+38.73	34.50	811403.0791	1780947.5036
Y	62+37.61	64.14	811402.6870	1780917.8462

-Y3- AERIAL UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+78.00	-30.00	811240.3635	1780915.2229
Y3	10+76.00	30.00	811300.3885	1780916.2226

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "GARDEN RESET"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 814371.7640(ft) EASTING: 1782615.8080(ft)
ELEVATION: 807.16'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9999206900
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"GARDEN RESET" TO -L- STATION 29+25.00 IS
N 55° 33' 59.3" W 2,942.52'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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:

   R2612B_LS_CONTROL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJ. REFERENCE NO.	SHEET NO.
R-2612B	1-F

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	Y	17+00.00	815346.1846	1783019.5031
2	Y	17+50.00	815297.8732	1783006.6189
3	Y	18+00.00	815249.5618	1782993.7342
4	Y	18+50.00	815201.2714	1782980.7716
5	Y	19+00.00	815153.0671	1782967.4928
6	Y	19+50.00	815105.0248	1782953.6403
7	Y	20+00.00	815057.2293	1782938.9601
8	Y	20+50.00	815009.7533	1782923.2777
9	Y	21+00.00	814962.6248	1782906.5801
10	Y	21+50.00	814915.8654	1782888.8752
11	Y	22+00.00	814869.4967	1782870.1710
12	Y	22+50.00	814823.5400	1782850.4762
13	Y	23+00.00	814778.0165	1782829.7997
14	Y	23+50.00	814732.9472	1782808.1512
15	Y	24+00.00	814688.3527	1782785.5406
16	Y	24+50.00	814644.2537	1782761.9783
17	Y	25+00.00	814600.6705	1782737.4752
18	Y	25+50.00	814557.6230	1782712.0426
19	Y	26+00.00	814515.1312	1782685.6921
20	Y	26+50.00	814473.2146	1782658.4359
21	Y	27+00.00	814431.8924	1782630.2865
22	Y	27+50.00	814391.1837	1782601.2571
23	Y	28+00.00	814351.0655	1782571.4165
24	Y	28+50.00	814311.4062	1782540.9680
25	Y	29+00.00	814272.0491	1782510.1296
26	Y	29+50.00	814232.8313	1782479.1141
27	Y	30+00.00	814193.6299	1782448.0779
28	Y	30+50.00	814154.4284	1782417.0417
29	Y	31+00.00	814115.2270	1782386.0055
30	Y	31+50.00	814076.0256	1782354.9692
31	Y	32+00.00	814036.8241	1782323.9330
32	Y	32+50.00	813997.6227	1782292.8968
33	Y	33+00.00	813958.4213	1782261.8605
34	Y	33+50.00	813919.2198	1782230.8243
35	Y	34+00.00	813880.0184	1782199.7881
36	Y	34+50.00	813840.8170	1782168.7518
37	Y	35+00.00	813801.6155	1782137.7156
38	Y	35+50.00	813762.4141	1782106.6794
39	Y	36+00.00	813723.2127	1782075.6432
40	Y	36+50.00	813684.0112	1782044.6069
41	Y	37+00.00	813644.8098	1782013.5707
42	Y	37+50.00	813605.6083	1781982.5345
43	Y	38+00.00	813566.4069	1781951.4982
44	Y	38+50.00	813527.2055	1781920.4620
45	Y	39+00.00	813488.0040	1781889.4258
46	Y	39+50.00	813448.8026	1781858.3895
47	Y	40+00.00	813409.6012	1781827.3533
48	Y	40+50.00	813370.3997	1781796.3171
49	Y	41+00.00	813331.1983	1781765.2809
50	Y	41+50.00	813291.9969	1781734.2446
51	Y	42+00.00	813252.7954	1781703.2084
52	Y	42+50.00	813213.5940	1781672.1722
53	Y	43+00.00	813174.3926	1781641.1359
54	Y	43+50.00	813135.1911	1781610.0997
55	Y	44+00.00	813095.9897	1781579.0635
56	Y	44+50.00	813056.7883	1781548.0273
57	Y	45+00.00	813017.5695	1781517.0130
58	Y	45+50.00	812978.2089	1781486.1791
59	Y	46+00.00	812938.5435	1781455.7385
60	Y	46+50.00	812898.4168	1781425.9093
61	Y	47+00.00	812857.6982	1781396.8938
62	Y	47+50.00	812816.3666	1781368.7585
63	Y	48+00.00	812774.4407	1781341.5165
64	Y	48+50.00	812731.9399	1781315.1805
65	Y	49+00.00	812688.8838	1781289.7625
66	Y	49+50.00	812645.2922	1781265.2742
67	Y	50+00.00	812601.1851	1781241.7269
68	Y	50+50.00	812556.5830	1781219.1315
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70	Y	51+50.00	812465.9758	1781176.8373
71	Y	52+00.00	812420.0124	1781157.1581
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73	Y	53+00.00	812326.8719	1781120.7807
74	Y	53+50.00	812279.7377	1781104.0992
75	Y	54+00.00	812232.2564	1781088.4330
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82	Y	57+50.00	811892.0230	1781007.7418
83	Y	58+00.00	811842.5634	1781000.4172
84	Y	58+50.00	811792.9580	1780994.1555
85	Y	59+00.00	811743.2297	1780988.9597
86	Y	59+50.00	811693.4013	1780984.8321
87	Y	60+00.00	811643.4958	1780981.7747
88	Y	60+50.00	811593.5362	1780979.7888
89	Y	61+00.00	811543.5455	1780978.8754
90	Y	61+50.00	811493.5467	1780979.0348
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92	Y	62+50.00	811393.6170	1780982.5717
93	Y	63+00.00	811343.7320	1780985.9474
94	Y	63+50.00	811293.9309	1780990.3917
95	Y	64+00.00	811244.2260	1780995.8105
96	Y	64+50.00	811194.6049	1781001.9514
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117	YLPA	19+00.00	813732.5253	1782334.9542
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182	YRPD	14+00.00	812363.1535	1782475.6571
183	YRPD	14+50.00	812398.3606	1782440.1543
184	YRPD	15+00.00	812433.1021	1782404.1965
185	YRPD	15+50.00	812467.0546	1782367.4939
186	YRPD	16+00.00	812499.8758	1782329.7776
187	YRPD	16+50.00	812531.1982	1782290.8095
188	YRPD	17+00.00	812560.6315	1782250.3975
189	YRPD	17+50.00	812587.9286	1782208.5130
190	YRPD	18+00.00	812613.0081	1782165.2643
191	YRPD	18+50.00	812635.8022	1782120.7686
192	YRPD	19+00.00	812656.2521	1782075.1480
193	YRPD	19+50.00	812674.4655	1782028.5877
194	YRPD	20+00.00	812690.7928	1781981.3315
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196	YRPD	21+00.00	812719.3571	1781885.5070
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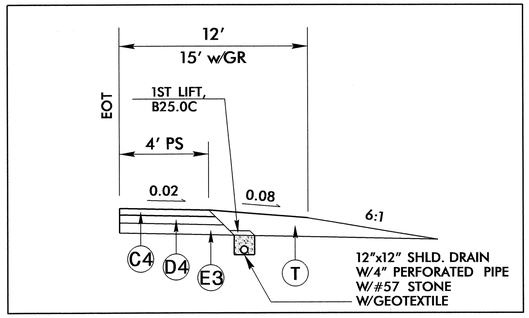
205	YRPD	25+50.00	812881.6986	1781468.9962

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/28/14

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER JOHN CHI CHEN
4/9/14



DETAIL OF SHOULDER DRAIN

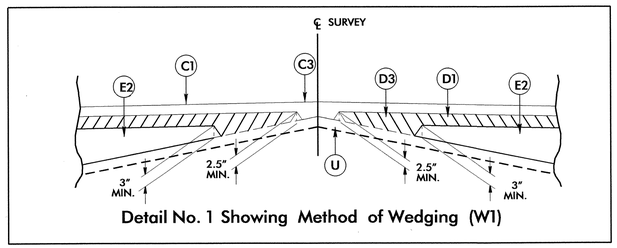
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1 AS FOLLOWS:

-L- STA. 61+00.00 TO STA. 65+00.00
-L- STA. 71+50.00 TO STA. 76+50.00
-L1- STA. 59+71.37 TO STA. 63+71.37
-L1- STA. 68+77.09 TO STA. 73+77.09

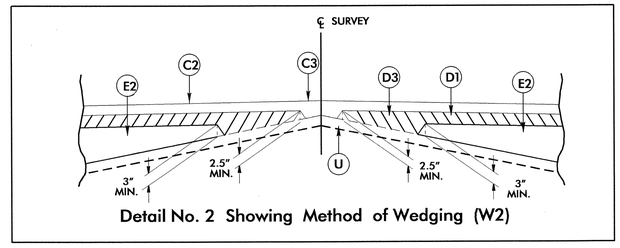
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	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.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D4	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
E3	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
J	PROP. 6" AGGREGATE BASE COURSE.
N	GEOTEXTILE FOR PAVEMENT STABILIZATION.
R1	2'-6" CONCRETE CURB AND GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 2)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 3)

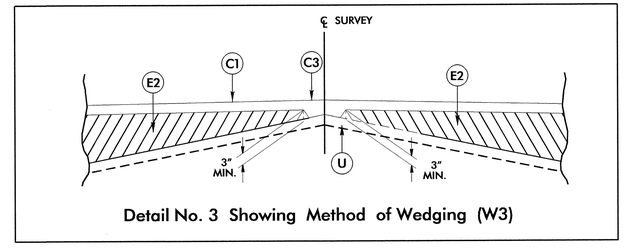
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED



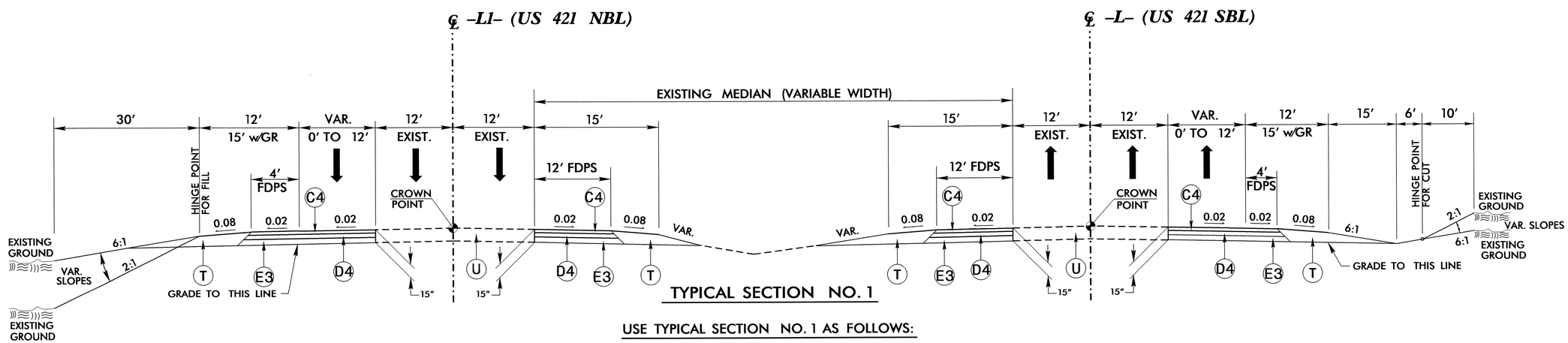
Detail No. 1 Showing Method of Wedging (W1)



Detail No. 2 Showing Method of Wedging (W2)



Detail No. 3 Showing Method of Wedging (W3)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

MILLED RUMBLE STRIPS INCLUDED
-L1- STA. 47+61.37 TO STA. 59+71.37 LT.
-L- STA. 53+70.00 TO STA. 85+30.00 RT.
-L1- STA. 73+77.09 TO STA. 76+77.16 LT.

MEDIAN WIDENING ONLY
-L- STA. 56+25.50 TO STA. 61+50.75 LT.
-L1- STA. 58+49.25 TO STA. 63+74.50 RT.
-L1- STA. 72+59.25 TO STA. 76+34.50 RT.

NOTE: PAVE TO THE FACE OF GUARDRAIL ON ALL TYPICAL SECTIONS

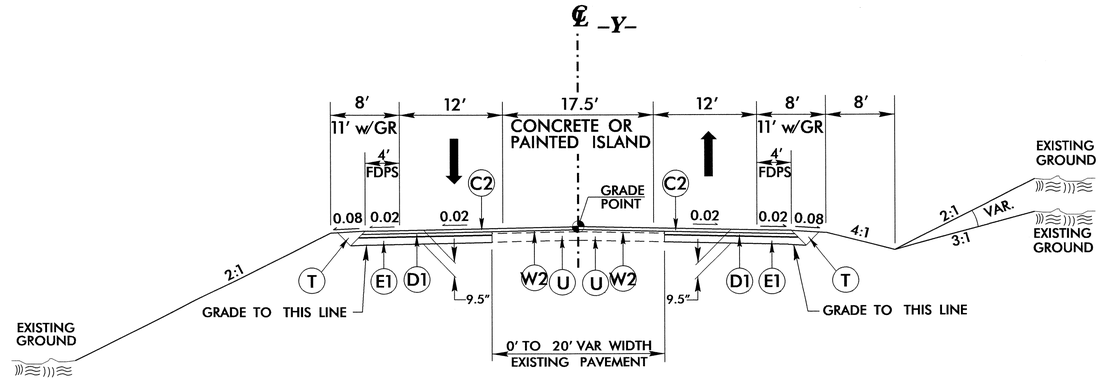
62299
28-MAR-2014 16:19
R:\Roadway\Proj\R2612B_Rdy_typ.dgn
$$$$USERNAME$$$$

C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
J	6" ABC
N	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/28/14

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DON-CHI CHEN
4/9/14



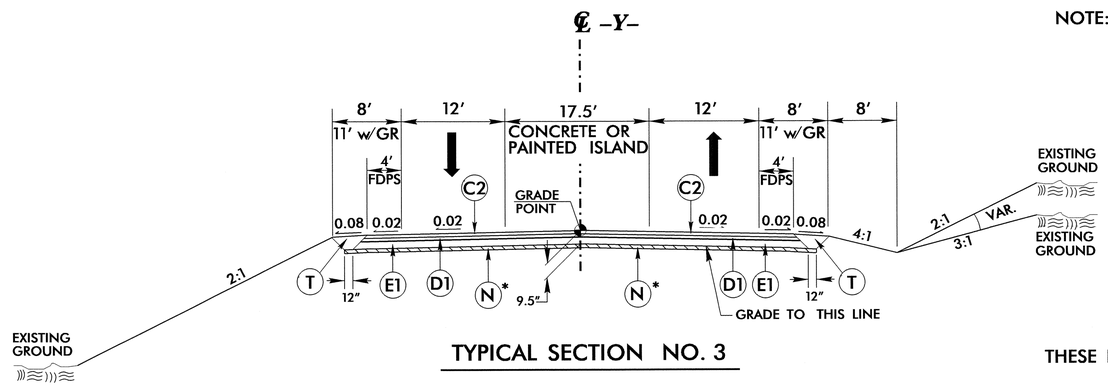
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

TRANSITION FROM EXISTING AT -Y- STA. 17+35.00 TO TYPICAL NO. 2 AT -Y- STA. 21+03.53

TRANSITION FROM TYPICAL NO. 2 AT -Y- STA. 60+85.01 TO EXISTING AT -Y- STA. 65+40.00

NOTE: PAVE TO THE FACE OF GUARDRAIL ON ALL TYPICAL SECTIONS



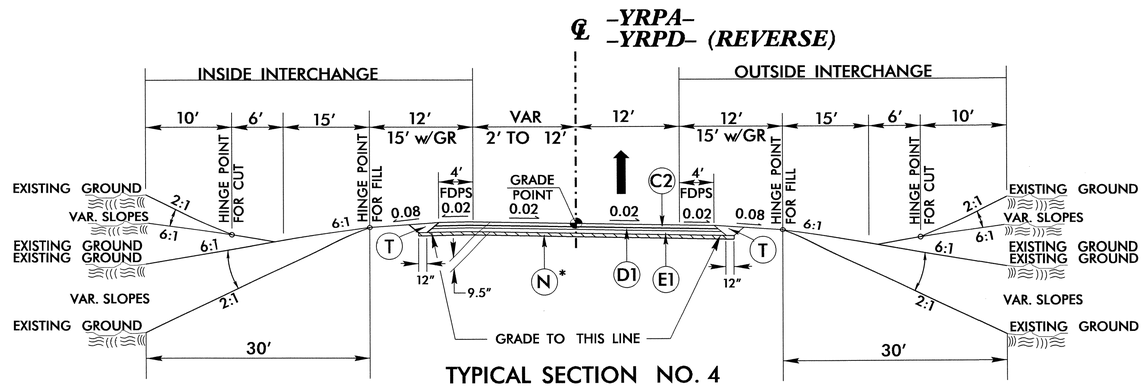
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

-Y- STA. 21+03.53 TO STA. 27+96.03
-Y- STA. 28+32.07 TO STA. 37+99.00 (BEGIN BRIDGE)
-Y- STA. 41+14.50 (END BRIDGE) TO STA. 60+85.01

THESE LOCATIONS TO BE INVESTIGATED DURING CONSTRUCTION:
*-Y- STA. 29+00.00 TO STA. 37+80.00
*-Y- STA. 41+25.00 TO STA. 53+00.00

NOTE: PAVE TO THE FACE OF GUARDRAIL ON ALL TYPICAL SECTIONS



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:

-YRPA- STA. 10+00.00 TO STA. 26+32.09
-YRPD- STA. 10+00.00 TO STA. 25+73.89 (REVERSE)

THESE LOCATIONS TO BE INVESTIGATED DURING CONSTRUCTION:
*-YRPA- STA. 20+00.00 TO STA. 26+32.00
*-YRPD- STA. 16+50.00 TO STA. 25+73.00

NOTE: PAVE TO THE FACE OF GUARDRAIL ON ALL TYPICAL SECTIONS

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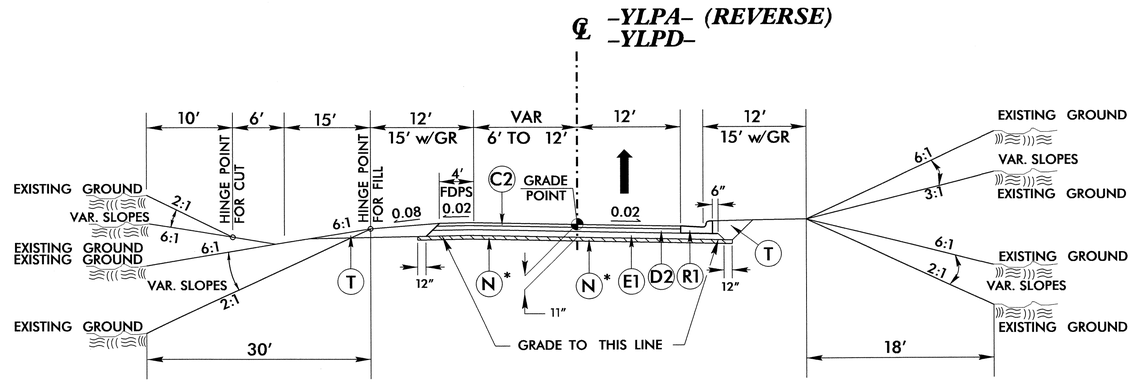
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
J	6" ABC
N	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE 3/28/14

NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER PONG-CHI CHEN 4/9/14



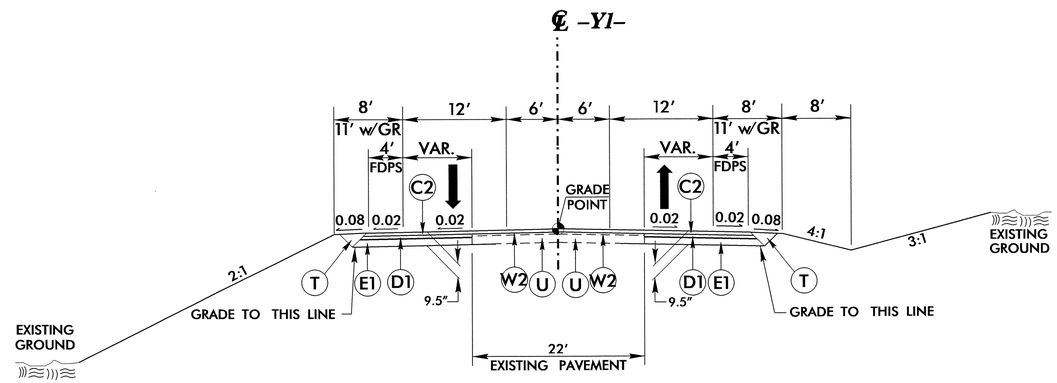
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS:

-YLPA- STA. 10+00.00 TO STA. 20+65.01 (REVERSE)
-YLPD- STA. 10+00.00 TO STA. 18+79.71

THESE LOCATIONS TO BE INVESTIGATED DURING CONSTRUCTION:

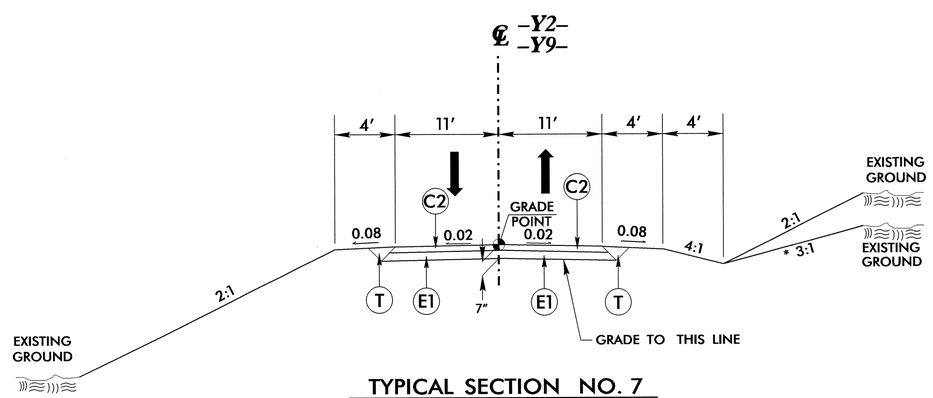
*-YLPA- STA. 12+50.00 TO STA. 20+65.00
*-YLPD- STA. 12+25.00 TO STA. 18+79.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS:

TRANSITION FROM EXISTING AT -Y1- STA. 13+20.00
TO TYPICAL NO. 6 AT -Y1- STA. 17+55.00
-Y1- STA. 17+55.00 TO STA. 30+65.00
TRANSITION FROM TYPICAL NO. 6 AT -Y1- STA. 30+65.00
TO EXISTING AT -Y1- STA. 35+00.00



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS:

-Y2- STA. 10+20.75 TO STA. 11+37.10
* -Y9- STA. 11+50.00 TO STA. 15+25.00

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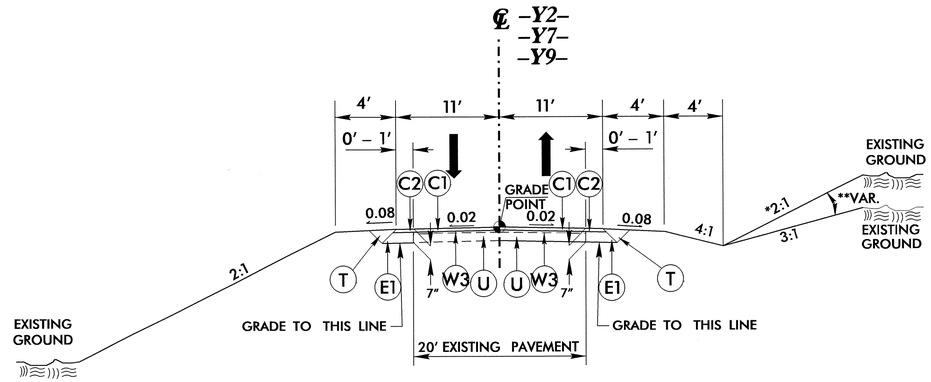
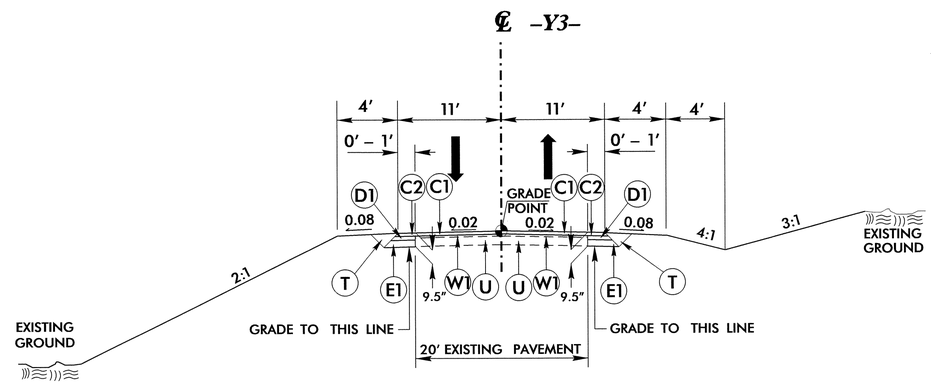
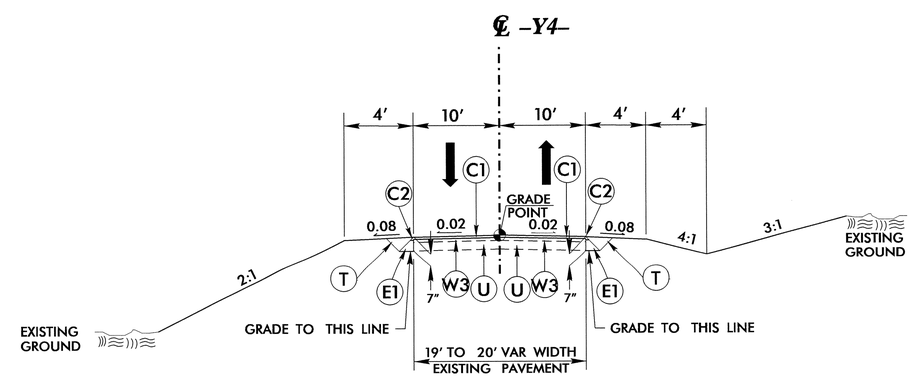
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
J	6" ABC
N	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3



TYPICAL SECTION NO. 8



TYPICAL SECTION NO. 9



TYPICAL SECTION NO. 10

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-C

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DUANCHI CHEN
4/9/14

USE TYPICAL SECTION NO. 8 AS FOLLOWS:

*-Y2- STA. 11+37.10 TO STA. 12+00.00
TRANSITION FROM TYPICAL NO. 8 AT -Y2- STA. 12+00.00 TO EXISTING AT -Y2- STA. 12+50.00

TRANSITION FROM EXISTING AT -Y7- STA. 11+00.00 TO TYPICAL NO. 8 AT -Y7- STA. 11+50.00
**-Y7- STA. 11+50.00 TO STA. 13+00.00
TRANSITION FROM TYPICAL NO. 8 AT -Y7- STA. 13+00.00 TO EXISTING AT -Y7- STA. 13+50.00

TRANSITION FROM EXISTING AT -Y9- STA. 11+00.00 TO TYPICAL NO. 8 AT -Y9- STA. 11+50.00
TRANSITION FROM TYPICAL NO. 8 AT -Y9- STA. 15+25.00 TO EXISTING AT -Y9- STA. 16+00.00

USE TYPICAL SECTION NO. 9 AS FOLLOWS:

-Y3- STA. 10+13.09 TO STA. 11+00.00
TRANSITION FROM TYPICAL NO. 9 AT -Y3- STA. 11+00.00 TO EXISTING AT -Y3- STA. 11+50.00

USE TYPICAL SECTION NO. 10 AS FOLLOWS:

TRANSITION FROM EXISTING AT -Y4- STA. 14+50.00 TO TYPICAL NO. 10 AT -Y4- STA. 15+00.00
-Y4- STA. 15+00.00 TO STA. 16+06.83
-Y4- STA. 20+42.45 TO STA. 20+85.00
TRANSITION FROM TYPICAL NO. 10 AT -Y4- STA. 20+85.00 TO EXISTING AT -Y4- STA. 21+35.00

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6/2/99
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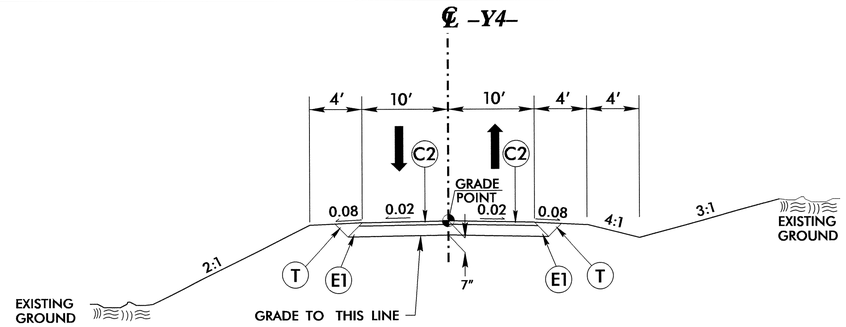
SSSSUSERNAMESSSS

C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
J	6" ABC
N	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-D

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

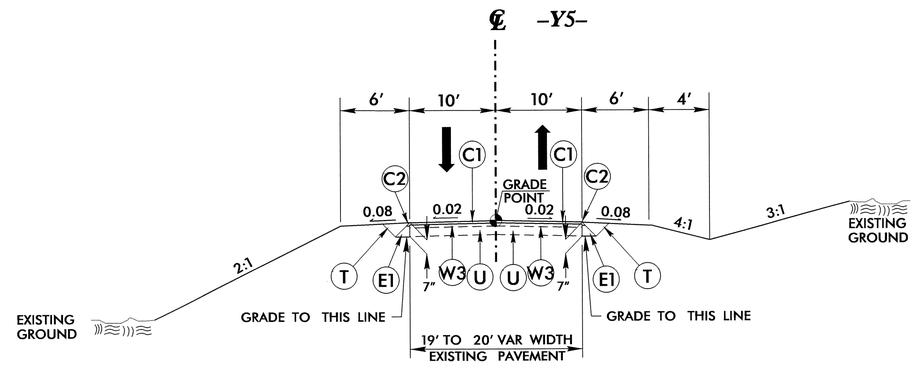
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DON-CHI CHEN
4/9/14



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AS FOLLOWS:

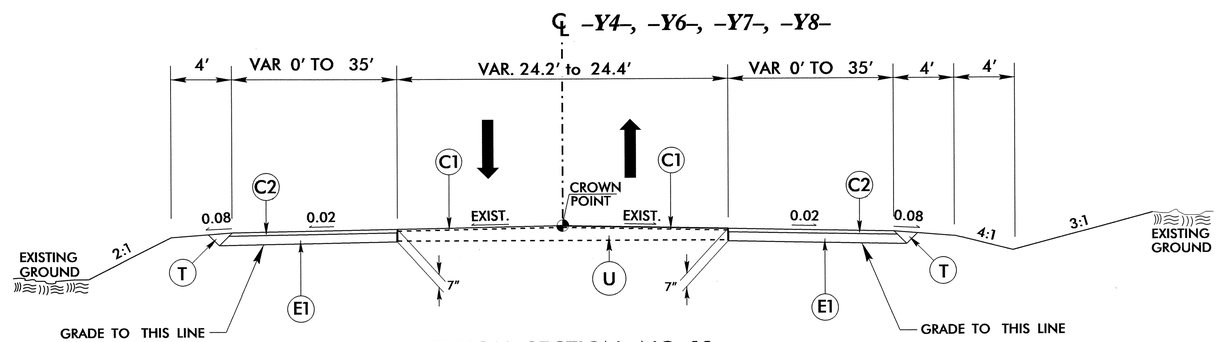
-Y4- STA. 16+06.83 TO STA. 20+42.45



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AS FOLLOWS:

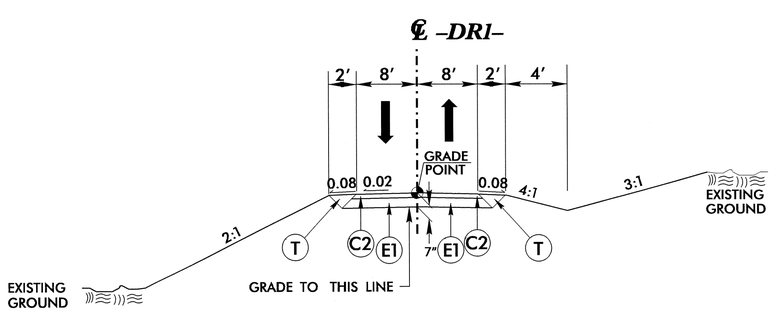
-Y5- STA. 10+12.69 TO 11+50.00
TRANSITION FROM TYPICAL NO. 12 AT -Y5- STA. 11+50.00 TO EXISTING AT -Y5- STA. 12+00.00



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AS FOLLOWS:

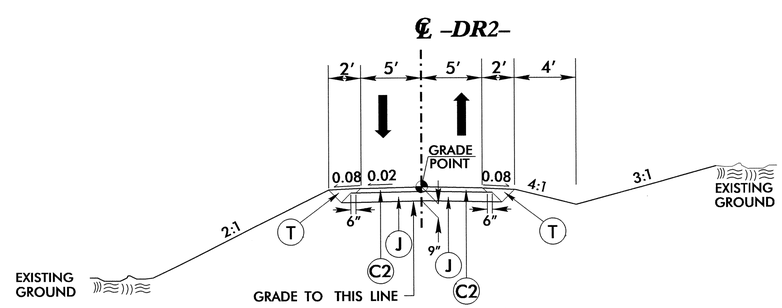
-Y4- STA. 11+00.00 TO STA. 12+00.00
-Y6- STA. 11+95.00 TO STA. 12+90.00
-Y7- STA. 16+00.00 TO STA. 16+92.51
-Y8- STA. 11+20.00 TO STA. 12+15.00



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AS FOLLOWS:

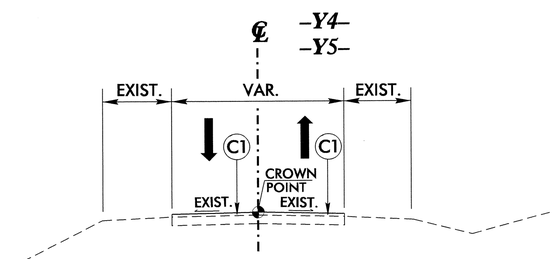
-DR1- STA. 10+27.00 TO STA. 11+35.46



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 AS FOLLOWS:

-DR2- STA. 10+11.01 TO STA. 11+00.00



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16 AS FOLLOWS:

-Y4- STA. 12+00.00 TO STA. 14+50.00
-Y4- STA. 21+35.00 TO STA. 25+59.90
-Y5- STA. 12+00.00 TO STA. 19+60.94

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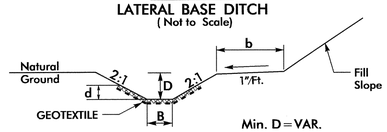
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-E
R/W SHEET NO.	

HYDRAULICS ENGINEER
RICHARD L. CARLSON
SEAL 19080
ENGINEER
PAUL ATKINSON JR.
3/24/14

DRAINAGE DETAILS

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



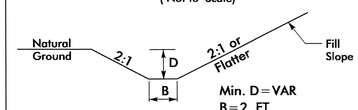
Min. D=VAR.
Max. d=1.5 FT.
B=2 FT.
b=5 FT.

*When B is < 6.0'

Type of Liner= CLASS B RIP RAP

–Y– STA 29+00 TO 33+10 RT.
–YRPD– STA 20+78 TO 25+20 LT.

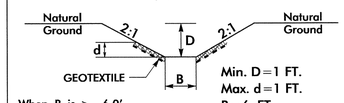
DETAIL C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=VAR
B=2 FT.

–Y– STA 34+73 TO 37+00 RT.

DETAIL D
STANDARD BASE DITCH
(Not to Scale)



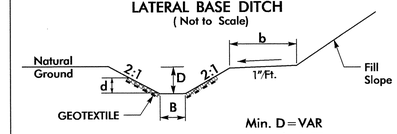
Min. D=1 FT.
Max. d=1 FT.
B=6 FT.

When B is > 6.0'
Std. No. 876.01

Type of Liner= CLASS I RIP RAP

–Y– STA 40+89 TO 41+50 RT.

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



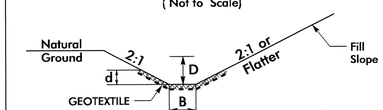
Min. D=VAR
Max. d=1 FT.
B=6 FT.
b=5 FT.

*When B is > 6.0'
Std. No. 876.01

Type of Liner= CLASS I RIP RAP

–Y– STA 41+50 TO 41+93 RT.

DETAIL F
SPECIAL LATERAL BASE DITCH
(Not to Scale)

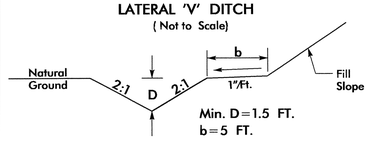


Min. D=2.5 FT.
Max. d=1 FT.
B=2 FT.

Type of Liner= CLASS I RIP RAP

–Y– STA. 44+15 TO 50+00 RT.

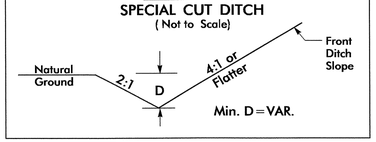
DETAIL G
LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 FT.
b=5 FT.

–YRPA– STA 20+00 TO 23+00 RT.

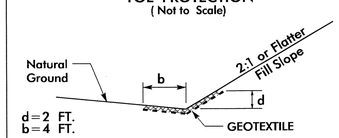
DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



Min. D=VAR.

–Y4– STA 17+50 TO 18+50 LT.

DETAIL I
TOE PROTECTION
(Not to Scale)

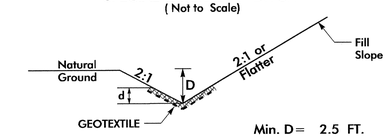


d=2 FT.
b=4 FT.

Type of Liner= CLASS I RIP RAP

–Y– STA 33+10 TO 34+72 RT.
–Y– STA 41+90 TO 43+82 RT.
–YLPD– STA 13+62 TO 14+50 LT.
–YRPD– STA 18+49 TO 20+79 RT.

DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

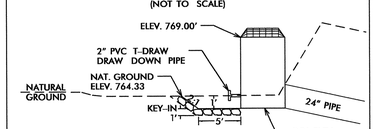


Min. D= 2.5 FT.
Max. d= 1.5 FT.

Type of Liner= CLASS I RIP RAP

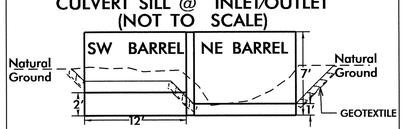
–YLPA– STA 10+50 TO 13+35 LT.

DETAIL K
OTCB W/TRASH RACK
(NOT TO SCALE)



USE CLASS I RIP RAP
EST. 10 SY GEOTEXTILE
EST. 4 TONS RIP RAP

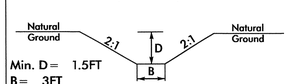
DETAIL L
CULVERT SILL @ INLET/OUTLET
(NOT TO SCALE)



ALL SLOPES 2:1
CLASS I RIP RAP KEYED IN 1FT
SEE DETAILS O AND N FOR RIP RAP AND GEOTEXTILE QUANTITIES

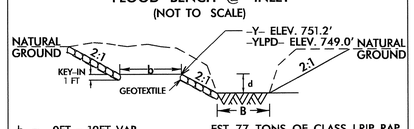
SW BARREL SILL HEIGHT=2 FT.
NE BARREL SILL HEIGHT=1 FT.

DETAIL M
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.5FT
B= 3FT
DDE = APPROX. 28 CY

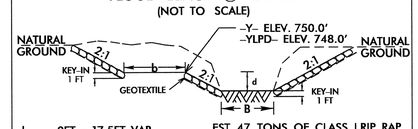
DETAIL O
FLOOD BENCH @ INLET
(NOT TO SCALE)



b = 0FT – 19FT VAR.
B = 7.5FT – 12FT VAR.
d = MIN. 2 FT.

EST. 77 TONS OF CLASS I RIP RAP
EST. 122 SY GEOTEXTILE
DDE = APPROX. 117 CY
FLOOD BENCH SLOPE=0.86%

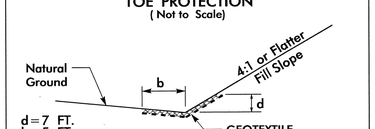
DETAIL N
FLOOD BENCH @ OUTLET
(NOT TO SCALE)



b = 0FT – 17.5FT VAR.
B = 5.5FT – 12FT VAR.
d = MIN. 2.00 FT.

EST. 47 TONS OF CLASS I RIP RAP
EST. 158 SY GEOTEXTILE
DDE = APPROX. 63 CY
FLOOD BENCH SLOPE=0.86%

DETAIL X
TOE PROTECTION
(Not to Scale)

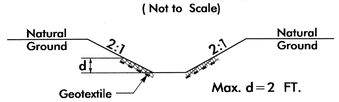


d=7 FT.
b=5 FT.

Type of Liner= CLASS I RIP RAP

–YLPA– STA 14+00 TO 15+00 RT.
–YRPA– STA 19+50 TO 20+00 LT.

DETAIL Y
BANK STABILIZATION
(Not to Scale)



Max. d=2 FT.

Type of Liner= CLASS I RIP RAP
EST. 20 TONS RIP RAP
EST. 30 SY GEOTEXTILE

REVISIONS

8/17/99

20-MAR-2014 15:42
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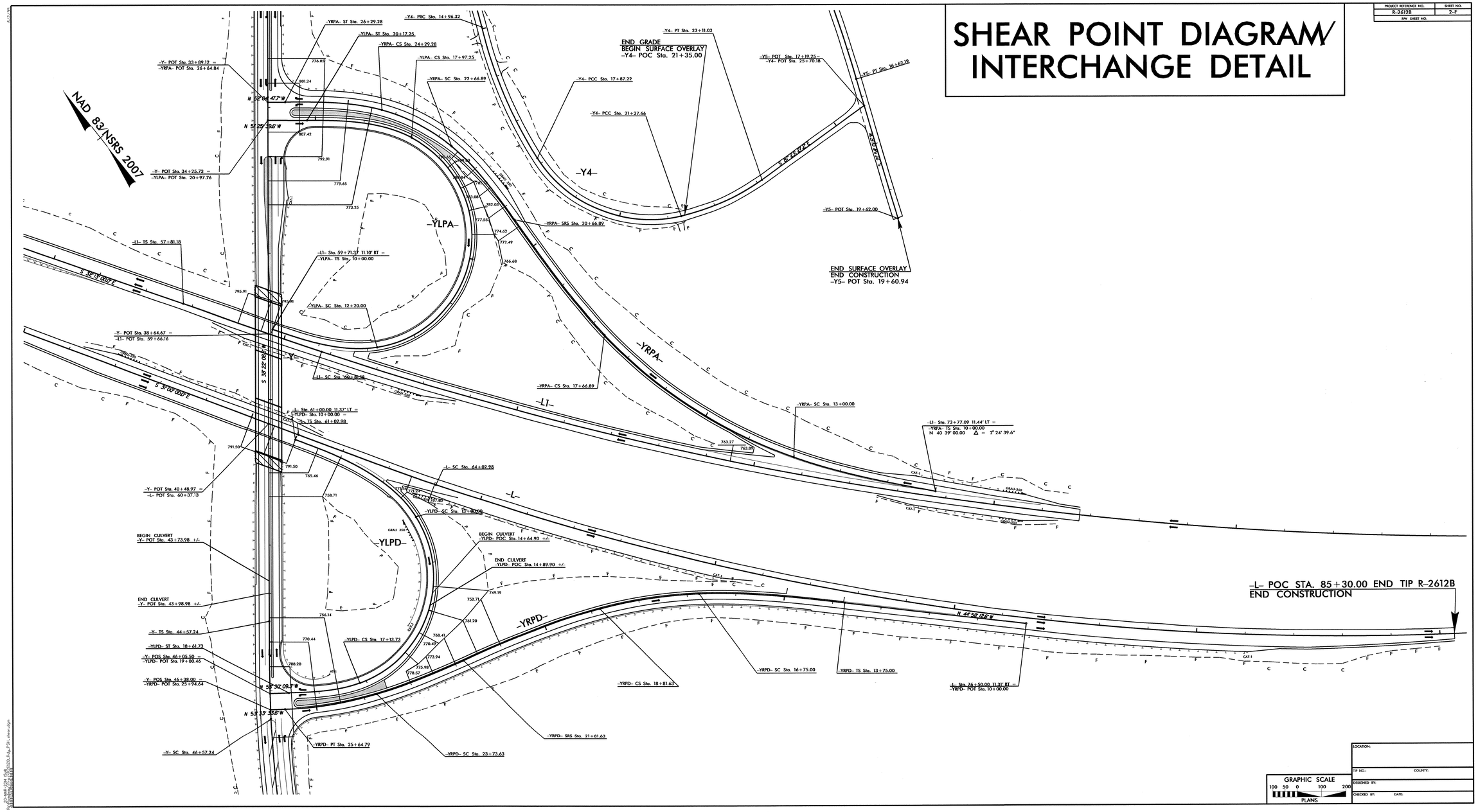
$$$$USERNAME$$$$

SHEAR POINT DIAGRAM
INTERCHANGE DETAIL

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-F
R/W SHEET NO.	



LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

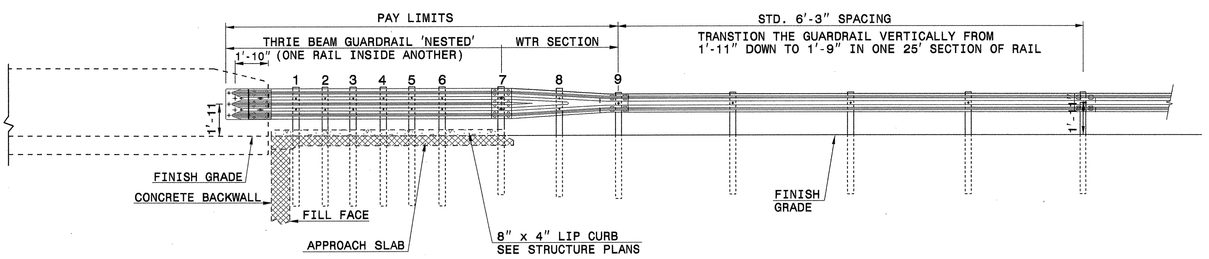
GRAPHIC SCALE
100 50 0 100 200
PLANS

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

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

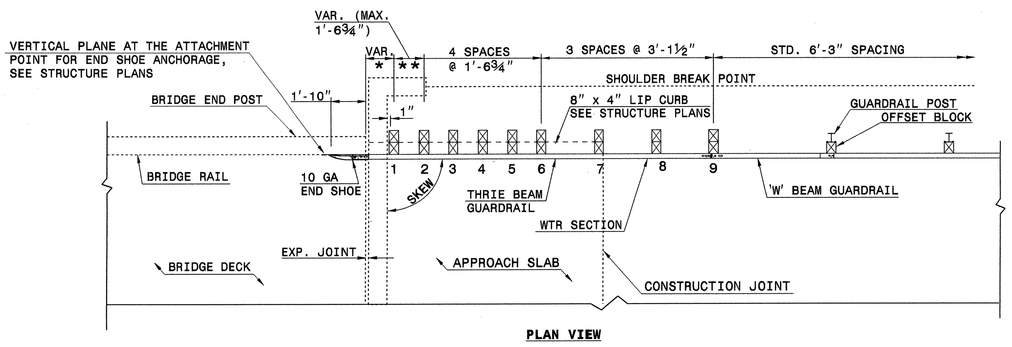
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

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

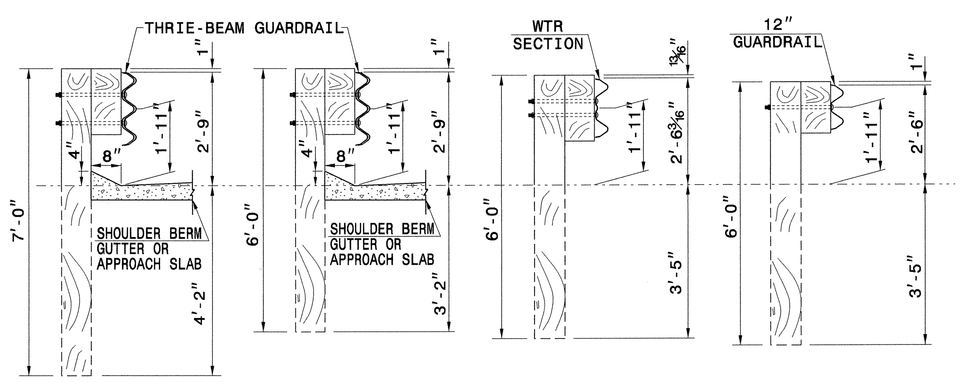
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

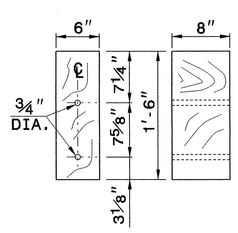
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

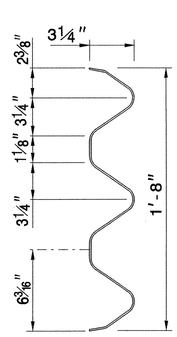
SHEET 3 OF 7
862d03



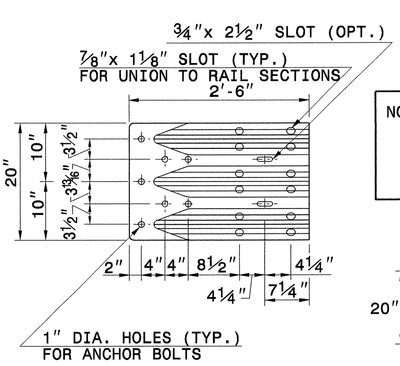
SECTION OF THRIE BEAM POSTS 1 THRU 6 | **SECTION OF THRIE BEAM POST 7** | **SECTION OF WTR BEAM POST 8** | **SECTION OF 'W' BEAM POST 9**



THRIE BEAM OFFSET BLOCK

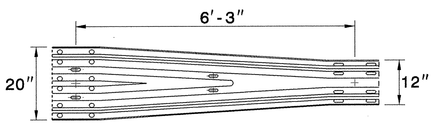


THRIE-BEAM SECTION

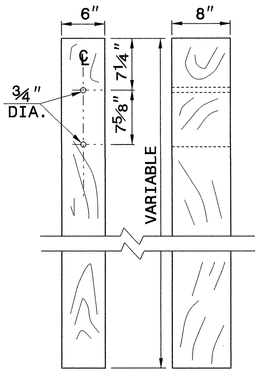


END SHOE

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

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

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
4/4/14

PROJECT REFERENCE NO. R-2612B
SHEET NO. 2-6

COMPUTED BY: TEM DATE: 12/20/2013

CHECKED BY: PJS DATE: 2/11/2014

PROJECT NO.	SHEET NO.
R-2612B	3-A

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CSD265813

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	WELDED STEEL PIPE 12" .250	15" .250	18" .250	24" .250	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	30" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)
-Y7- STA. 12+64	RT.	401		793.3																																									
		401	402		790.6	788.9			32								X	X	X																										
-Y7- STA. 12+30	RT.	402		794.5																																									
-L1- STA. 51+87	LT.	501		782.4																																									
		501	502		778.9	778.7																																	16						
-L1- STA. 51+90	LT.	502		-																																									
-Y8- STA. 11+80	LT.	503		-					52																																				
-Y- STA. 37+24	RT.	601		804.8																																									
		601	602		801.6	801.5																															12								
-Y- STA. 37+36	RT.	602		804.6																																									
		602	603		801.5	801.3																															56								
-Y- STA. 37+49	LT.	603		804.5																																									
		603	604		801.3	770.9			108										X																										
-Y- STA. 41+51	RT.	605		799.2																																									
		605	606		796	795.8																															60								
-Y- STA. 41+67	LT.	606		798.9																																									
		606	607		795.8	752			120										X																										
-Y- STA. 43+77	LT.	608		796.2																																									
		608	611		793	792.9	X																														24								
-Y- STA. 43+65	RT.	609		796.3																																									
		609	610		793.1	793																															12								
-Y- STA. 43+77	RT.	610		796.2																																									
		610	611		793	792.9	X																														36								
-Y- STA. 43+77	LT.	611		796.6																																									
		611	612		792.9	791.4																															188								
-Y- STA. 45+63	LT.	612		794.1																																									
		613	612		790	789.9	X																														36								
-Y- STA. 45+63	LT.	613		793																																									
		612	614		789.9	760.1															108																								
-YLPA- STA. 12+90	LT.	615		771.3																																									
		615	616		768.3	761.3			48										X																										
		657	615		768.4	768.3																															20								
-YLPA- STA. 13+10	LT.	657		771.4																																									
-YLPA- STA. 13+36	LT.	617																																											
		617	618		760.5	756.4																																					112			
		620	618		756.5	756.4	X					36					X	X	X																										
-YLPA- STA. 14+06	RT.	619		769																																									
		619	620		763.3	757					88						X	X	X																										
-YLPA- STA. 13+42	RT.	620		760.7																																									
-YRPA- STA. 20+00	RT.	621		772.8																																									
		621	622		769.3	767																																	104						
		636	621		779	769.3																																	108						
-YRPA- STA. 22+67	LT.	623		791.5																																									
		623	624		788.8	782.8																															68								
-YRPA- STA. 25+60	RT.	625		-																																									
		625	627		777.3	769.2																																								220	
-Y- STA. 34+25	RT.	626		-																																									
		626	627		776.3	769.2																																									216
-Y- STA. 34+93	LT.	627		776																																									
		627	628		769.2	766									148			X	X	X																									
-YRPD- STA. 23+60	RT.	629		783.8																																									
SHEET TOTALS									**360**		**88**	**36**		**148**							**108**																**512**		**228**			**112**		**220**	**216**

STATION	STRUCTURE NO. FROM	STRUCTURE NO. TO	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	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 STD. 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE 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. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	OPEN THROAT CATCH BASIN STD. 840.04 OR STD. 840.05	TRASH RACK	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	SIDE DRAIN PIPE ELBOWS NO. & SIZE	RCP ELBOWS NO. & SIZE	CSP ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-Y7- STA. 12+64	401				1												1						1													
	401	402																																		
-Y7- STA. 12+30	402				1	0.60																			1	1										REMOVE EXIST. 2GI
-L1- STA. 51+87	501				1												1			1																
	501	502																																		
-L1- STA. 51+90	502																																	0.5526		
-Y8- STA. 11+80	503																																			
-Y- STA. 37+24	601				1												1			1																
	601	602																																		
-Y- STA. 37+36	602				1												1			1																
	602	603																																		
-Y- STA. 37+49	603				1												1			1																
	603	604																												2@15"						
-Y- STA. 41+51	605				1												1			1																
	605	606																																		
-Y- STA. 41+67	606				1												1			1																
	606	607																												2@15"						
-Y- STA. 43+77	608				1												1			1																
	608	611																																		
-Y- STA. 43+65	609				1												1			1																
	609	610																																		
-Y- STA. 43+77	610				1												1			1																
	610	611																																		
-Y- STA. 43+77	611				1								1		1	1																				
	611	612																																		
-Y- STA. 45+63	612				1								1		1	1																				
	613	612																																		
-Y- STA. 45+63	613				1			1			1																									
	612	614																														2@15"				
-YLPA- STA. 12+90	615				1			1	1																											
	615	616																												2@15"						
	657	615																																		
-YLPA- STA. 13+10	657				1			1	1																											
-YLPA- STA. 13+36	617		4.5																																	
	617	618																																		
	620	618																																		
-YLPA- STA. 14+06	619				1	0.67																					1	1								NO TOP SLAB
	619	620																																		
-YLPA- STA. 13+42	620				1												1			1	1															
-YRPA- STA. 20+00	621				1													1				1														
	621	622																																		
	636	621																																		
-YRPA- STA. 22+67	623				1								1		1	1																				
	623	624																																		
-YRPA- STA. 25+60	625		2.3																																	
	625	627																																		
-Y- STA. 34+25	626		4.5																																	
	626	627																																		
-Y- STA. 34+93	627				1	1.79																			1											WITH SLAB LID
	627	628																																		
-YRPD- STA. 23+60	629				1								1		1	1																				
SHEET TOTALS			**11.3**		**22**	**3.06**		**3**	**2**		**1**	**4**		**4**	**4**	**1**	**11**		**1**	**10**	**1**		**1**	**1**	**1**	**1**	**1**	**1**		**6@15"**		**2@15"**		**0.5526**		

ABBREVIATIONS

C.B.	CATCH BASIN
O.T.C.B.	OPEN THROAT 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:	TEM	DATE:	12/20/2013
CHECKED BY:	PJS	DATE:	2/11/2014

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2612B	3-B

RD266409

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12"	15"	18"	24"	WELDED STEEL PIPE 12"	15"	18"	24"	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	30" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	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 STD. 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE 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. 840.20	G.D.I. FRAMES WITH TWO GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	OPEN THROAT CATCH BASIN STD. 840.04 OR STD. 840.05	TRASH RACK	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	SIDE DRAIN PIPE ELBOWS NO. & SIZE	RCP ELBOWS NO. & SIZE	CSP ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
THICKNESS OR GAUGE																				.064	.064	.064	.064	.250	.250	.250	.250																																																				
		629	630		781.1	768.5															72																																																						2@15"				
-YRPD- STA. 19+65	CL.	631	632		747.9	746.7																																240																																									
-YLPD- STA. 12+98	RT.	633		769.6																																												1			1	1																											
		633	634		766.6	753.5			44										X																																																						2@15"						
		658	633		766.7	766.6	X																														20																																										
-Y4- STA. 19+03	LT.	636		782.5																																												1											1						1	1													
-YRPA- STA. 14+06	RT.	639		759.2																																												1												1			1																
		639	653		755.7	753.6																					140																																																				
-YRPD- STA. 15+50	CL.	654	660		751.6	745																					108																																																				
-YRPD- STA. 16+62	LT.	641		-																																																																										0.5526		
		641	642		752.7	751.2																																	48																																									
-L1- STA. 58+50	LT.	643		775.4																																												1												1			1																
		643	656		772.4	769.6																				100																																																					
-Y4- STA. 15+87	LT.	644		-					28																																																																					17	REMOVE 12" RCP
-L1- STA. 73+85	LT.	645		-																																										1.5																																			REMOVE HEADWALL
		645	646		755.6	755.4																																	8																																							4	REMOVE 24" RCP
-L1- STA. 73+87	LT.	646		-																																																																										0.5526		
-L- STA. 77+97	LT.	647		-																																										3.4																																			REMOVE HEADWALL
		647	648		742.9	742.8																																			8																																					4	REMOVE 36" RCP
-L- STA. 77+98	LT.	648		-																																																																										0.764		
-L- STA. 78+20	RT.	649		745.3																																												1	3.55																		1		1										
		649	650		736.8	736.5							28				X	X	X																																																											12	REMOVE 36" RCP
-L1- STA. 77+06	LT.	651		-																																										3.4																																			
		651	652		747.3	747.3																																			8																																					4	REMOVE 36" RCP
-L1- STA. 77+07	LT.	652		-																																																																											0.764		
-L1- STA. 70+14	RT.	653		-																																																																										0.5526		
		653	654		753.6	751.6					140						X	X	X																																																											
-L- STA. 70+83	LT.	654		-																																																																										0.5526		
-YRPA- STA. 14+25	LT.	655		762.6																																												1												1			1															47	REMOVE 15" RCP
-L1- STA. 58+51	RT.	656		-																																																																										0.4465		
		656	699		769.6	766.6				84							X	X	X																																																											
-YLPA- STA. 13+10	LT.	657		771.4																																												1			1	1																											
-YLPD- STA. 13+18	RT.	658		769.7																																												1			1	1																											
-YRPD- 15+63	LT.	659		762.4																																												1												1			1																
		659	660		759.7	759.6																															16																																										
-YRPD- 15+47	LT.	660		762.4																																												1												1			1																
		660	640		750	749.5					32						X	X	X																																																												
-YRPD- 14+50	LT.	661		762.2																																												1												1			1																
		661	662		759.4	748.7			32										X																																																						2@15"						
-Y- STA. 17+60	LT.	701		-					24																																																																							236	REMOVE 12" HDPE
-Y- STA. 18+20	RT.	702		-					32																																																																							21	REMOVE 15" RCP
-Y- STA. 18+96	LT.	703		-					20																																																																							98	REMOVE 12" HDPE
-Y- STA. 19+91	LT.	704		-					20																																																																							21	REMOVE 12" RCP
-Y- STA. 21+93	LT.	705		-					28																																																																							27	REMOVE 12" RCP
-Y- STA. 22+77	RT.	706		-					32																																																																							31	REMOVE 15" CMP
-Y- STA. 23+91	LT.	707		-					28																																																																						30	REMOVE 12" RCP
-Y- STA. 15+47	LT.	708		-					36																																																																							32	REMOVE 12" CMP
-Y1- STA. 21+55	RT.	801		-					28																																																																								
-Y1- STA. 22+60	LT.	802		-						40																																																																						
-Y- STA. 29+47	LT.	803		807.4																																												1												1			1																
		803	804		804.3	804																															12																																										
-Y- STA. 29+35	LT.	804		807.2																																												1												1			1																
		804	806		804	803.7																															56																																										
-Y- STA. 29+47	RT.	805		807.1																																												1												1			1																
		805	806		804	803.7																															12																																										
SHEET TOTALS									**352**	**124**	**172**		**28**								**72**					**100**	**248**										**116**	**240**	**56**		**16**					**8.3**		**14**	**3.55**		**3**	**3**							**1**	**9**			**9**		**1**	**1**	**1**		**1**				**4@15"**		**2@15"**		**4.1849**	**584**	

ABBREVIATIONS

C.B.	CATCH BASIN
O.T.C.B.	OPEN THROAT 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

RD266409

COMPUTED BY:	TEM	DATE:	12/20/2013
CHECKED BY:	PJS	DATE:	2/11/2014

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2612B	3-C

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-Y- STA. 29+35	RT.	806		806.9															
		806	807		803.7	797.1			28								X	X	X
-Y- STA. 27+67	CL.	808		-															
-Y1- STA. 22+94	LT.	809		-															
-Y1- STA. 27+14	RT.	810		-					32										
-Y1- STA. 28+55	LT.	811		-					28										
-Y1- STA. 29+09	LT.	812		-					24										
-Y1- STA. 29+75	RT.	813		-					24										
-Y4- STA. 11+60	LT.	814		-					56										
-Y- STA. 51+83	CL.	901	902		774.4	771.3													
-Y2- STA. 10+48	CL.	903	904		789.4	785													
-Y- STA. 55+53	LT.	905		-					28										
-Y- STA. 56+79	LT.	906		-					24										
-Y- STA. 57+14	LT.	907		-					28										
-Y- STA. 57+27	RT.	908		-						24									
-Y- STA. 58+06	RT.	909		-						28									
-Y- STA. 51+56	LT.	910		786.2															
		910	911		783.1	772.7			32										X
-Y- STA. 58+54	LT.	1001		-					32										
-Y- STA. 59+27	RT.	1002		-					24										
-Y- STA. 59+65	RT.	1003		-					24										
-Y- STA. 60+17	LT.	1004		-					24										
-Y- STA. 61+15	RT.	1005		-					24										
-Y- STA. 61+35	LT.	1006		-					24										
-Y- STA. 61+76	LT.	1007		-					24										
-Y- STA. 62+16	RT.	1008		-					24										
-Y- STA. 63+24	LT.	1009		-					24										
-Y3- STA. 10+32	RT.	1010	1011		811	810.1													
-Y- STA. 64+59	LT.	1012		-					24										
-Y- STA. 65+99	CL.	1013	1014		802.3	802													
-Y1- STA. 17+47	LT.	1101		-							32								
-Y1- STA. 17+72	RT.	1102		-					36										
-Y1- STA. 19+27	RT.	1103		-					28										
-Y1- STA. 19+84	RT.	1104		-					32										
-Y1- STA. 20+88	RT.	1105		-					28										
-Y1- STA. 15+50	RT.	1106		780.8															
		1106	1107		777.3	772.2					80						X	X	X
-DR1- STA. 10+37	CL.																		
-Y4- STA. 10+22	CL.																		
-Y4- STA. 15+18	RT.																		
-Y4- STA. 17+52	RT.																		
-Y2- STA. 11+49	RT.																		
-Y- STA. 56+09	RT.																		
-DR2- STA. 10+84	CL.																		
SHEET TOTALS									676	52	112								
SHEET 3-A TOTALS									360		88	36		148					
SHEET 3-B TOTALS									352	124	172		28						
SHEET 3-D TOTALS																			
PROJECT TOTALS									1388	176	372	36	28	148					
SAY																			

SIZE / THICKNESS OR GAUGE: C.S. PIPE .064; WELDED STEEL PIPE .250

STATION	FROM	TO	C.S. PIPE 12"	C.S. 15"	C.S. 18"	C.S. 24"	WELDED STEEL PIPE 12"	W.S. 15"	W.S. 18"	W.S. 24"	R.C. PIPE CLASS III 12"	III 15"	III 18"	III 24"	III 30"	III 36"	III 42"	III 48"	R.C. PIPE CLASS IV 12"	IV 15"	IV 18"	IV 24"	IV 30"	IV 36"	IV 42"	IV 48"	30" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
-Y- STA. 29+35	806																													
	806	807																												
-Y- STA. 27+67	808																				128									
-Y1- STA. 22+94	809																													
-Y1- STA. 27+14	810																													
-Y1- STA. 28+55	811																													
-Y1- STA. 29+09	812																													
-Y1- STA. 29+75	813																													
-Y4- STA. 11+60	814																													
-Y- STA. 51+83	901	902																				116								
-Y2- STA. 10+48	903	904																				104								
-Y- STA. 55+53	905																													
-Y- STA. 56+79	906																													
-Y- STA. 57+14	907																													
-Y- STA. 57+27	908																													
-Y- STA. 58+06	909																													
-Y- STA. 51+56	910																													
	910	911																												
-Y- STA. 58+54	1001																													
-Y- STA. 59+27	1002																													
-Y- STA. 59+65	1003																													
-Y- STA. 60+17	1004																													
-Y- STA. 61+15	1005																													
-Y- STA. 61+35	1006																													
-Y- STA. 61+76	1007																													
-Y- STA. 62+16	1008																													
-Y- STA. 63+24	1009																													
-Y3- STA. 10+32	1010	1011																			60									
-Y- STA. 64+59	1012																													
-Y- STA. 65+99	1013	1014																			40									
-Y1- STA. 17+47	1101																													
-Y1- STA. 17+72	1102																													
-Y1- STA. 19+27	1103																													
-Y1- STA. 19+84	1104																													
-Y1- STA. 20+88	1105																													
-Y1- STA. 15+50	1106																													
	1106	1107																												
-DR1- STA. 10+37																														
-Y4- STA. 10+22																														
-Y4- STA. 15+18																														
-Y4- STA. 17+52																														
-Y2- STA. 11+49																														
-Y- STA. 56+09																														
-DR2- STA. 10+84																														
SHEET TOTALS																					228	220								
SHEET 3-A TOTALS				108																512		228			112		220	216	11.3	
SHEET 3-B TOTALS				72					100	248										116	240	56		16					8.3	
SHEET 3-D TOTALS																														
PROJECT TOTALS				180					100	248										628	468	504		16	112		220	216	19.6	
SAY																													20	

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 STD. 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE 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. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	OPEN THROAT CATCH BASIN STD. 840.04 OR STD. 840.05	TRASH RACK	*** RC PIPE CULVERTS, CONTRACTOR DESIGN
-Y- STA. 29+35	806		1												1			1									
	806	807																									
-Y- STA. 27+67	808																										
-Y1- STA. 22+94	809																										
-Y1- STA. 27+14	810																										
-Y1- STA. 28+55	811																										
-Y1- STA. 29+09	812																										
-Y1- STA. 29+75	813																										
-Y4- STA. 11+60	814																										
-Y- STA. 51+83	901	902																									
-Y2- STA. 10+48	903	904																									
-Y- STA. 55+53	905																										
-Y- STA. 56+79	906																										
-Y- STA. 57+14	907																										
-Y- STA. 57+27	908																										
-Y- STA. 58+06	909																										
-Y- STA. 51+56	910		1												1			1									
	910	911																									
-Y- STA. 58+54	1001																										
-Y- STA. 59+27	1002																										
-Y- STA. 59+65	1003																										
-Y- STA. 60+17	1004																										
-Y- STA. 61+15	1005																										
-Y- STA. 61+35	1006																										
-Y- STA. 61+76	1007																										
-Y- STA. 62+16	1008																										
-Y- STA. 63+24	1009																										
-Y3- STA. 10+32	1010	1011																									
-Y- STA. 64+59	1012																										
-Y- STA. 65+99	1013	1014																									
-Y1- STA. 17+47	1101																										
-Y1- STA. 17+72	1102																										
-Y1- STA. 19+27	1103																										
-Y1- STA. 19+84	1104																										
-Y1- STA. 20+88	1105																										
-Y1- STA. 15+50	1106		1											1						1	1						
	1106	1107																									
-DR1- STA. 10+37																											
-Y4- STA. 10+22																											
-Y4- STA. 15+18																											
-Y4- STA. 17+52																											
-Y2- STA. 11+49																											
-Y- STA. 56+09																											
-DR2- STA. 10+84																											
SHEET TOTALS			3											1	2			2		1	1						
SHEET 3-A TOTALS			22	3.06		3	2		1	4		4	4	1	11		1	10	1		1	1	1	1	1	1	
SHEET 3-B TOTALS			14	3.55		3	3							1	9			9		1	1	1		1			
SHEET 3-D TOTALS																						2		1			
PROJECT TOTALS			39	6.61		6	5		1	4		4	4	3	22		1	21	1	2	3	4	1	3	1	1	
SAY				7																							

STATION	FROM	TO	SIDE DRAIN PIPE ELBOWS NO. & SIZE	RCP ELBOWS NO. & SIZE	CSP ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-Y- STA. 29+35	806								
	806	807	2@15"						
-Y- STA. 27+67	808								
-Y1- STA. 22+94	809							162	REMOVE 18" RCP
-Y1- STA. 27+14	810							24	REMOVE 12" RCP
-Y1- STA. 28+55	811							25	REMOVE 15 " RCP
-Y1- STA. 29+09	812							33	REMOVE 15" RCP
-Y1- STA. 29+75	813							19	REMOVE 12" RCP
-Y4- STA. 11+60	814								
-Y- STA. 51+83	901	902							
-Y2- STA. 10+48	903	904						12	REMOVE 15" RCP
-Y- STA. 55+53	905								
-Y- STA. 56+79	906								
-Y- STA. 57+14	907								
-Y- STA. 57+27	908							101	REMOVE 12" HDPE, 12" CMP, 15" CMP
-Y- STA. 58+06	909							31	REMOVE 12" RCP
-Y- STA. 51+56	910								
	910	911	2@15"						
-Y- STA. 58+54	1001							21	REMOVE 12" RCP
-Y- STA. 59+27	1002							20	REMOVE 12 " RCP
-Y- STA. 59+65	1003							20	REMOVE 15" RCP
-Y- STA. 60+17	1004							20	REMOVE 12" RCP
-Y- STA. 61+15	1005							20	REMOVE 12" RCP
-Y- STA. 61+35	1006							24	REMOVE 12" RCP
-Y- STA. 61+76	1007							20	REMOVE 12" RCP
-Y- STA. 62+16	1008								
-Y- STA. 63+24	1009							17	REMOVE 12" RCP
-Y3- STA. 10+32	1010	1011						56	REMOVE 15" RCP
-Y- STA. 64+59	1012							19	REMOVE 12" RCP
-Y- STA. 65+99	1013	1014							
-Y1- STA. 17+47	1101							21	REMOVE 18" RCP
-Y1- STA. 17+72	1102							33	REMOVE 15" RCP
-Y1- STA. 19+27	1103							33	REMOVE 12" RCP
-Y1- STA. 19+84	1104							20	REMOVE 12" RCP
-Y1- STA. 20+88	1105							26	REMOVE 12" RCP
-Y1- STA. 15+50	1106								
	1106	1107						49	REMOVE 15" RCP & DI
-DR1- STA. 10+37								21	REMOVE 12" RCP
-Y4- STA. 10+22								70	REMOVE 15" RCP
-Y4- STA. 15+18								17	REMOVE 12" RCP
-Y4- STA. 17+52								16	REMOVE 12" RCP
-Y2- STA. 11+49								20	REMOVE 12" RCP
-Y- STA. 56+09								38	
-DR2- STA. 10+84								31	REMOVE 12" RCP
SHEET TOTALS			4@15"					1039	
SHEET 3-A TOTALS			6@15"		2@15"		0.5526		
SHEET 3-B TOTALS			4@15"		2@15"		4.1849	584	
SHEET 3-D TOTALS						1.048			
PROJECT TOTALS			14@15"		4@15"		4.7375	1623	
SAY						2	5		

ABBREVIATIONS

C.B.	CATCH BASIN
O.T.C.B.	OPEN THROAT 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:	TEM	DATE:	12/20/2013
CHECKED BY:	PJS	DATE:	2/11/2014

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2612B	3-D

HY261519

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

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) 54"	60"	66"	72"	78"	84"		C.S. PIPE 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	WELDED STEEL PIPE 54" 12	54" 10	54" 3/4"	60" 12	60" 10	66" 7/8"	66" 12	66" 10		72" 12	72" 10	REINFORCED ENDWALLS WITH R.C. - C.Y.	REINFORCED ENDWALLS WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN		J.B. STD. 840.31 OR 840.32	M.H. FRAME AND COVER STD. 840.54											REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & Size	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
-YLPA- STA. 13+21	RT.	618		764.2																								176											3.651							1	1														0.262		
		618	637		756.4	755.8																																																								
-YLPD- STA. 12+54	RT.	634		760.9																																			4.333							1															0.262		WITH SLAB LID
		638	634		755.8	753.5																								160																																
		634	635		753.5	751.2			80																																																					
-L1- STA. 63+10	RT.	637		-																																																								0.262		
-L- STA. 63+24	LT.	638		-																																		5.9																					0.262		
SHEET TOTALS									80																			176		160								5.9	7.984						2	1														1.048		
SAY																																						6	8																							

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:	TEM	DATE:	10/16/13
CHECKED BY:	PJS	DATE:	02/21/14

PROJECT NO.	SHEET NO.
R-2612B	3-E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SHOULDER DRAIN, SHOULDER DRAIN PIPE & CONCRETE OUTLET PADS

STATION	STATION	LOCATION	OUTLET LOCATION	SHOULDER DRAIN PIPE (FT)	SHOULDER DRAIN (FT)	OUTLET PIPE (FT)	CONCRETE PAD FOR OUTLET	REMARKS
-L1- 59+71.37	-L1- 63+71.37	LT		400	400	25	1	CONTINGENCY PER DIVISION
-L1- 68+77.09	-L1- 73+77.09	LT		500	500	25	1	CONTINGENCY PER DIVISION
-L- 61+00.00	-L- 65+00.00	RT		400	400	25	1	CONTINGENCY PER DIVISION
-L- 71+50.00	-L- 76+50.00	RT		500	500	25	1	CONTINGENCY PER DIVISION
		TOTAL		1,800	1,800	100	4	

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION
(IN SQUARE YARDS / CUBIC YARDS / TONS)

LINE	Station	Station	Aggregate Type* (ASU/AST)	Aggregate Thickness (INCHES)	Shallow Undercut (CY)	Class IV Subgrade Stabilization (TONS)	Geotextile for Soil Stabilization (SY)	Stabilizer Aggregate (TONS)	Class IV Aggregate Stabilization (TONS)
-Y-	19+50.00	23+00.00	ASU	12	1,000	2,000	3,000		
-Y-	58+50.00	64+00.00							
CONTINGENCY			ASU		300	600	3,500		
CONTINGENCY			AST	3				500	
EROSION CONTROL PLANS							3,400		
				TOTALS:	1,300	2,600	9,900	500	

*ASU = Aggregate Subgrade
*AST = Aggregate Stabilization

SUMMARY OF PAVEMENT REMOVAL
(IN SQUARE YARDS)

Line	Station	Station	Location LT/RT/CL	Asphalt Removal
-L-	29+34	36+03	LT	1,357.78
-L-	29+34	33+41	RT	704.78
-L-	46+85	51+92	RT	826.48
-L-	48+25	56+23	LT	1,535.71
-L-	53+70	85+30	RT	1,404.44
-L-	56+26	61+51	LT	233.44
-L1-	58+49	63+75	RT	233.44
-L1-	47+61	61+76	LT	628.70
-L1-	68+88	76+77	LT	350.85
-Y-	23+38	23+81	LT	19.35
-Y-	23+93	25+42	LT	345.25
-Y-	25+72	27+08	LT	301.24
-Y-	54+76	55+37	RT	110.95
-Y-	55+51	57+18	RT	400.25
-Y-	57+52	57+95	RT	89.28
-Y-	58+21	58+85	RT	31.31
-Y4-	10+36	11+00	CL	129.78
-Y6-	12+90	14+65	CL	498.75
			TOTAL:	9,201.78
			SAY:	9,210

SUMMARY OF SUBSURFACE DRAINAGE
(IN FEET)

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-YRPA-	14+00	17+00	LT	UD	300
-YRPA-	14+00	17+00	RT	UD	300
CONTINGENCY				UD	200
				TOTAL LF:	800

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF SHOULDER BERM GUTTER
(IN FEET)

Line	Station	Station	Length
-Y-	29+30.00	32+35.41	305.41
-Y-	29+30.00	37+65.97	835.97
-Y-	41+47.53	44+96.82	349.29
-Y-	41+29.68	43+81.75	252.07
-Y-	46+57.90	47+19.68	90.44
-Y-	47+19.68	54+75.00	755.32
-YRPD-	14+42.25	25+02.04	1,059.79
		TOTAL:	3,648.29
		SAY:	3,660

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION
(IN SQUARE YARDS)

LINE	Station	Station	Offset	SY
-Y-	29+00.00	37+80.00	CL	4,889
-Y-	41+25.00	53+00.00	CL	6,528
-YRPA-	20+00.00	26+32.00	CL	1,404
-YLPA-	12+50.00	20+65.00	CL	1,811
-YRPD-	16+50.00	25+73.00	CL	2,051
-YLPD-	12+25.00	18+79.00	CL	1,453
		CONTINGENCY		0
			TOTAL:	18,136
			SAY:	18,200

SUMMARY OF 2'-6" CURB & GUTTER
(IN FEET)

Line	Station	Station	Side	Gross Length	Deductions		Net Length
					Drives	Others	
-YLPA-	12+07.74	20+58.66	LT	873.33			873.33
-YLPD-	12+28.12	18+71.32	RT	681.17			681.17
						TOTAL:	1,554.50
						SAY:	1,560

COMPUTED BY:	TEM	DATE:	02/14/14
CHECKED BY:	PJS	DATE:	02/19/14

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	3-F

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

"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

GUARDRAIL SUMMARY

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	TYPE-III	AT-1	G	NG				
-L-	56+97.50	60+78.75	LT	381.25			59+93.61	60+50.54	12	15	50		1				1			1									
-L-	57+16.79	79+48.87	RT																								2,232.08		
-L-	63+62.50	70+18.75	RT	656.25			64+00.00	66+00.00	12	15	50		1				1			1									
-L-	76+50.00	81+06.25	RT	456.25			76+50.00	79+50.00	12	15										1									
-L1-	59+21.25	63+02.50	RT	381.25			60+08.32	59+51.59	12	15	50		1				1			1									
-L1-	73+31.25	75+62.50	LT	231.25			73+59.46		12	15	50		1				1			1									
-L1-	73+31.25	75+62.50	RT	231.25			73+59.46		12	15	50		1				1			1									
-YRPD-	10+00.00	25+02.04	LT	1,502.04			25+02.04	10+00.00	12	15																			
-YRPD- / -Y-	25+02.04	47+19.68	LT / LT		86.88		-Y- 47+19.68	-YRPD- 25+02.04	8 / 12	11 / 15	86.88			4															
-Y-	47+19.68	55+24.69	LT	805.01			54+50.00	47+19.68	8	11	50		1				1												
-YLPD-	12+95.87	15+49.21	RT	253.34			13+50.00	15+50.00	14	17	50		1				1			1									
-YRPA-	21+24.26	25+71.98	RT	447.72			20+50.00	25+71.98	12	15	50		1				1												
-YRPA- / -Y-	25+71.98	32+99.80	RT / LT		101.55		-YRPA- 25+71.98	-Y- 32+99.80	12 / 8	15 / 11	101.55		4																
-Y-	28+72.50	32+99.80	LT	427.30			32+99.80	29+00.00	8	11		50		1			1												
-Y-	28+80.35	36+70.51	RT	790.16			29+50.00	36+70.51	8	11	50		1				1												
-Y-	36+70.51	37+89.26	RT	118.75			36+70.51	37+89.26	8 / 6	11 / 9	100		2									1							
-Y-	35+83.57	36+90.00	LT	106.43					8	11										1									
-Y-	36+90.00	38+08.74	LT	118.74			38+08.74	37+50.00	6 / 8	9 / 11		100		2								1							
-Y-	41+04.76	42+23.52	RT	118.76			41+04.76	42+23.52	6 / 8	9 / 11		100		2								1							
-Y-	42+23.52	54+50.00	RT	1,226.48			42+23.52	54+00.00	8	11		50		1			1												
-Y-	41+24.24	42+42.99	LT	118.75			42+42.99	41+24.24	8 / 6	11 / 9	100		2									1							
-Y-	42+42.99	45+14.28	LT	271.29			45+14.28	42+42.99	8	11																			
-Y- / -YLPD-	45+14.28	17+71.51	LT / RT		133.54		-Y- 45+50.00	-Y- 45+14.28	18 / 8	21 / 11													1						
			PROJECT TOTALS:	8,642.27	321.97												11			8		4	1				2232.08		
																										SAY:	2,250		
			ANCHOR UNIT DEDUCTIONS:																										
			(11) GRAU-350 @ 50'	550.00																									
			(8) CAT-1 @ 6.25'	50.00																									
			(4) TYPE-III @ 18.75'	75.00																									
			(1) AT-1 @ 6.25'		6.25																								
			GRAND TOTALS:	7,967.27	315.72																								
			SAY:	8,025	337.50																								

ADDITIONAL GUARDRAIL POSTS: 10 EA.

SUMMARY OF WOVEN WIRE FENCE

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-Y- 28+56.88 TO -YRPA- 13+94.53	LT/RT	1,603.31	2	2	4	103	22
-YRPD- 16+17.79 TO 19+86.09	LT	347.14	2	1	1	19	10
-YRPD- 20+38.99 TO -Y- 55+25.00	LT/LT	1,305.35	2	2	3	83	19
-Y- 28+66.99 TO 36+93.88	RT	829.36	2		2	54	10
-Y- 41+25.00 TO 43+83.24	RT	270.42	2	2		14	10
-Y- 44+19.20 TO 54+18.02	RT	1,058.02	2	1	3	67	16
-Y8- 11+08.95 TO 11+84.88	RT/LT	185.10	2	1		9	7
-Y7- 11+96.54 TO 17+10.00	LT	587.10	2	1	1	37	10
-Y6- 12+91.70 TO 13+21.67	LT/RT	65.28	2			3	4
Additional Barbed Wire		100 LF					
TOTAL		6,251.08				388	108
SAY		6,260				400	115

COMPUTED BY:	TEM	DATE:	10/16/13
CHECKED BY:	PJS	DATE:	02/26/14

PROJECT:	SHEET NO.
R-2612B	3-G

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
(IN CUBIC YARDS)

Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
LEFT						
-L1- 47+61.37	-L1- 64+00.00	2,412		1,766		646
-L1- 68+87.68	-L1- 69+93.30	52				52
-L1- 72+50.00	-L1- 76+77.16	556		16		540
-YLPA- 10+00.00	-YLPA- 17+07.03	215		18,404	18,189	
-YRPA- 10+00.00	-YRPA- 26+32.09	22,500		68,141	45,641	
-Y- 17+35.00	-Y- 28+02.31	11,720	2,688	3,553		10,855
-Y- 28+23.92	-Y- 37+99.00 (BEG. BRIDGE)	184		143,573	143,389	
-Y1- 13+20.00	-Y1- 35+00.00	4,467		2,256		2,211
-Y4- 11+00.00	-Y4- 11+70.00	152		1		151
-Y4- 14+50.00	-Y4- 21+35.00	420	368	990	821	619
-Y5- 10+12.69	-Y5- 12+00.00	7		55	48	
-Y6- 11+95.00	-Y6- 12+90.00	2		114	112	
-DR1- 10+27.00	-DR1- 11+35.46	641				641
	SUBTOTALS:	43,328	3,056	238,869	208,200	15,715
RIGHT						
-L- 53+70.00	-L- 61+50.00	719		2,260	1,541	
-L- 63+04.75	-L- 71+00.00	410		8		402
-L- 76+50.00	-L- 85+30.00	321		1,121	800	
-YLPD- 10+00.00	-YLPD- 16+66.97	86		48,275	48,189	
-YRPD- 10+00.00	-YRPD- 25+73.89	178		91,529	91,351	
-Y- 41+14.50 (END BRIDGE)	-Y- 65+40.00	4,313	1,204	173,498	172,049	4,068
-Y2- 10+20.75	-Y2- 12+50.00	116		745	629	
-Y3- 10+13.09	-Y3- 11+50.00	97		34		63
-Y7- 11+00.00	-Y7- 13+50.00	201		71		130
-Y7- 16+00.00	-Y7- 16+92.51	5		168	163	
-Y8- 11+50.00	-Y8- 12+15.00	9		19	10	
-Y9- 11+00.00	-Y9- 16+00.00	281	761	1,292	1,234	984
-DR2- 10+11.01	-DR2- 11+00.00	14		110	96	
	SUBTOTALS:	6,750	1,965	319,130	316,062	5,647
	TOTALS:	50,078	5,021	557,999	524,262	21,362
	LOSS DUE TO CLEARING AND GRUBBING:	-2,000			2,000	
	EARTH WASTE TO REPLACE BORROW:				-11,664	-11,664
	ADDITIONAL UNDERCUT:		2,000	2,400	2,400	2,000
	GRADE POINT UNDERCUT:		150	180	180	150
	MATERIAL FOR SHOULDER CONSTRUCTION:			2,808	2,808	
	PROJECT TOTALS:	48,078	7,171	563,387	519,986	11,848
	EST. 5% TO REPLACE TOP SOIL ON BORROW PITS:				25,999	
	GRAND TOTALS:	48,078	7,171	563,387	545,985	11,848
	SAY:	**48,200**	**7,250**		**546,100**	

SHALLOW UNDERCUT BY STATIONS:	1,000 CY	PER GEOTECH RECOMMENDATIONS DATED NOVEMBER 20, 2013
SHALLOW UNDERCUT CONTINGENCY:	300 CY	
TOTAL SHALLOW UNDERCUT:	1,300 CY	
CLASS IV SUBGRADE STABILIZATION:	2,600 TON	
SELECT GRANULAR MATERIAL:	2,500 CY	
DDE:	2,060 CY	
PAVEMENT STRUCTURE VOLUME:	5,056 CY	

NOTES: 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.

PROJ. REFERENCE NO.	SHEET NO.
R-2612B	3-H

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

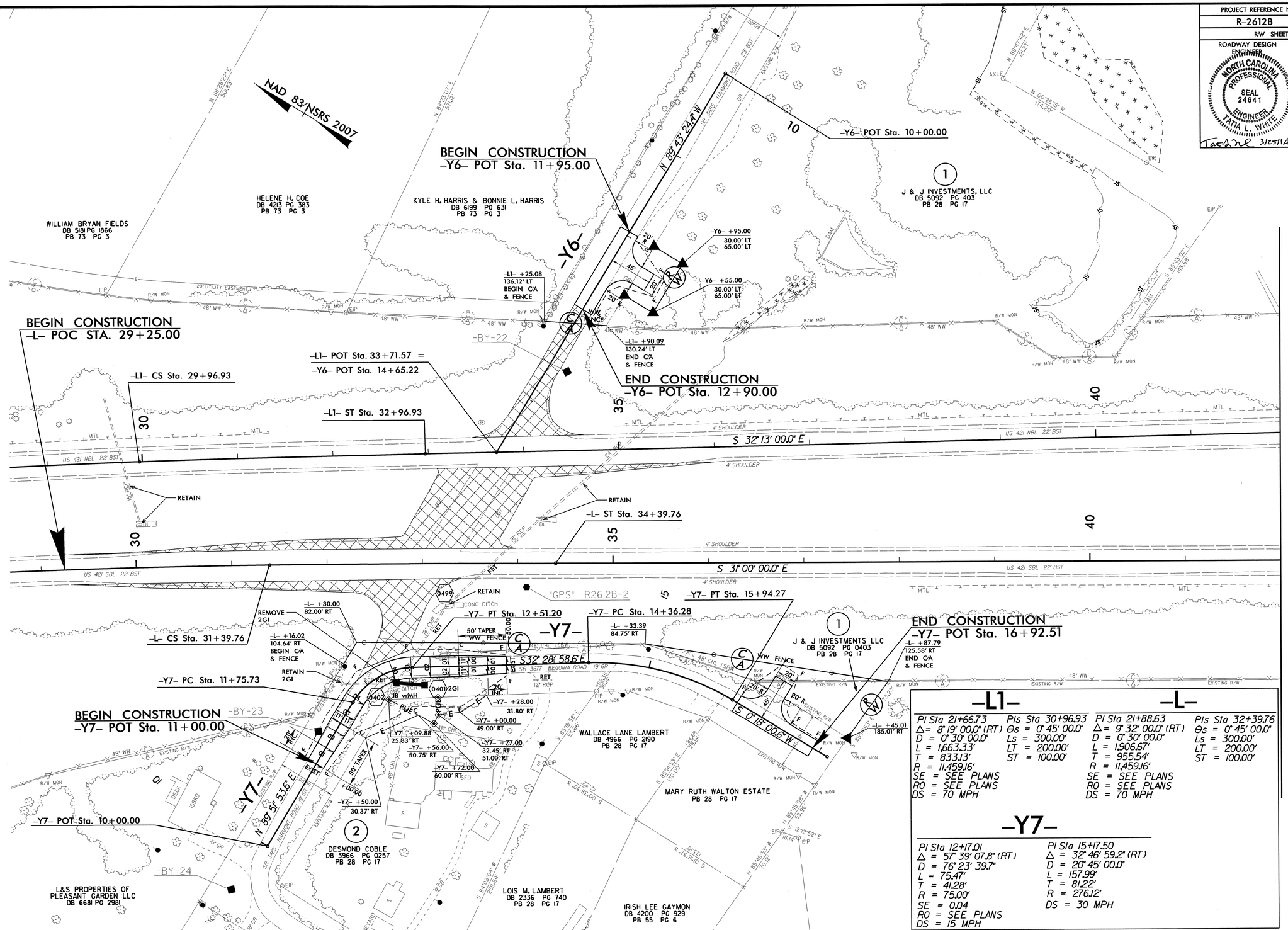
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
01	4	J & J INVESTMENTS, LLC
02	4	DESMOND COBLE
03	6, 8, & 11	RIVER OF LIFE CHURCH
04	6	GLENDON T. BURRELL & PATRICIA M. BURRELL
05	6	NCDOT
06	6	DANIEL GLENN JONES & DENISE MARIE JONES
07	6	GLADDEN, PATRICIA F.
08	6	WILLIE S. MARSH & CATHY D. MARSH
09	6	GRADY L. BARE & JEANETTE C. BARE
10	6	ROBERT CARROLL & NORMA CARROLL
11	6	CAROLYN H. RITCHIE
12	6 & 9	EDGAR G. PHILLIPS & JANICE B. PHILLIPS
13	6	CLIFTON G. SMITH
14 & 15	7	TONY L. BARNHILL & SHARON J. BARNHILL
16	7	PATRICK J. RYAN & MIA K. RYAN
17	7	EUGENE N. CLARK & MARY B. CLARK
18	7	MARK ANTHONY SAMSEL
19	7	RAMON R. STOUT, JR. & NINA P. STOUT
20	7	STEPHEN E. ALLISON & MICHELLE L. ALLISON
21	7 & 8	MICHAEL W. RAY & SHERRY P. RAY
22	7	BILLY S. MARLEY & BETTY JEAN MARLEY
23	7	RANDALL E. JOBE & RUTH H. JOBE
24	7	LARRY W. UNDERWOOD
25	7 & 8	TIMOTHY HARRELL JOBE
26	8 & 11	CLYDE C. BAILEY, JR. & BRENDA C. BAILEY
27	8	ALLISON BETH KING & BILL DONNELLY JORDAN
28	8	JEROME G. NIXON & BARBARA F. NIXON
29	8	SOUTHEAST BAPTIST CHURCH, INC.
30	8	FREDERICK PRESTON BEVERLY & KATHY G. BEVERLY
31	8	HUMBLE, KELLY E.
32	8	JERRY D. STALEY & DORETHA P. STALEY
33	8	CAROLYN C. HEDRICK
34	8	ANTHONY DAVID CLAY & KAREN T. CLAY
35	9	CINDY H. POE
36	9	NCDOT
37	9	JAMES H. TOMLINSON II
38	9	RALEIGH AUTRY
39	9	RAYMOND J. MCELHINNY JR. & JANET S. MCELHINNY
40	9	MARY D. NEAL
41	9	JOHN HALL & ALESIA N. HALL
42	9	ARCHIE STEPP
43	9	EDWARD G.COVINGTON JR.
44	10	VIRGIL E. THOMAS & JEANETTE C. THOMAS
45	10	RAY I. MOWERY &SHIRLEA C. MOWERY L/T
46	10	JAMES E. MORGAN JR & MAUDE D. MORGAN
47	10	JAMES M. PARSONS
48	10	HENRY F. SWEENEY & TAMMY T. SWEENEY
49	10	KENNETH F. MCADAMS
50	10	DANIEL C. & KARON H. WALLER
51	10	OTIS LAMAR TAYLOR
52	10	CATHERINE W. SMITH
53	10	HERBERT C. JONES & SANDRA H. JONES
54	10	JOSEPH R. BARNES
55	10	GEORGIA W. MONTGOMERY
56 & 57	11	CLYDE C. BAILEY, JR. & BRENDA C. BAILEY
58	11	WILLIAM H. RAYLE & ESTELENE P. RAYLE
59	11	ALBERT T. LOVELACE & ROBIN C. LOVELACE
60	11	JOHN R. BOXMAN & EMMALEE R. BOXMAN
61	12	LARRY D. RING

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19080 ENGINEER PAUL ATKINSON
3/24/14



-L1-

PI Sta 21+66.73	PIs Sta 30+96.93
Δ = 8° 19' 00.0" (RT)	Θs = 0° 45' 00.0"
D = 0° 30' 00.0"	Ls = 300.00'
L = 1,663.33'	LT = 200.00'
T = 833.13'	ST = 100.00'
R = 11,459.16'	
SE = SEE PLANS	
RO = SEE PLANS	
DS = 70 MPH	

-L-

PI Sta 21+88.63	PIs Sta 32+39.76
Δ = 9° 32' 00.0" (RT)	Θs = 0° 45' 00.0"
D = 0° 30' 00.0"	Ls = 300.00'
L = 1,906.67'	LT = 200.00'
T = 955.54'	ST = 100.00'
R = 11,459.16'	
SE = SEE PLANS	
RO = SEE PLANS	
DS = 70 MPH	

-Y7-

PI Sta 12+17.01	PI Sta 15+17.50
Δ = 57° 39' 07.8" (RT)	Δ = 32° 46' 59.2" (RT)
D = 76° 23' 39.7"	D = 20° 45' 00.0"
L = 75.47'	L = 157.99'
T = 41.28'	T = 81.22'
R = 75.00'	R = 276.12'
SE = 0.04	DS = 30 MPH
RO = SEE PLANS	
DS = 15 MPH	

NOTES

1) SEE SHEET 13 FOR -L- PROFILE
2) SEE SHEET 15 FOR -L1- PROFILE
3) SEE SHEET 24 FOR -Y6- PROFILE
4) SEE SHEET 25 FOR -Y7- PROFILE

REVISIONS

8/17/99

11-MAR-2014 12:09
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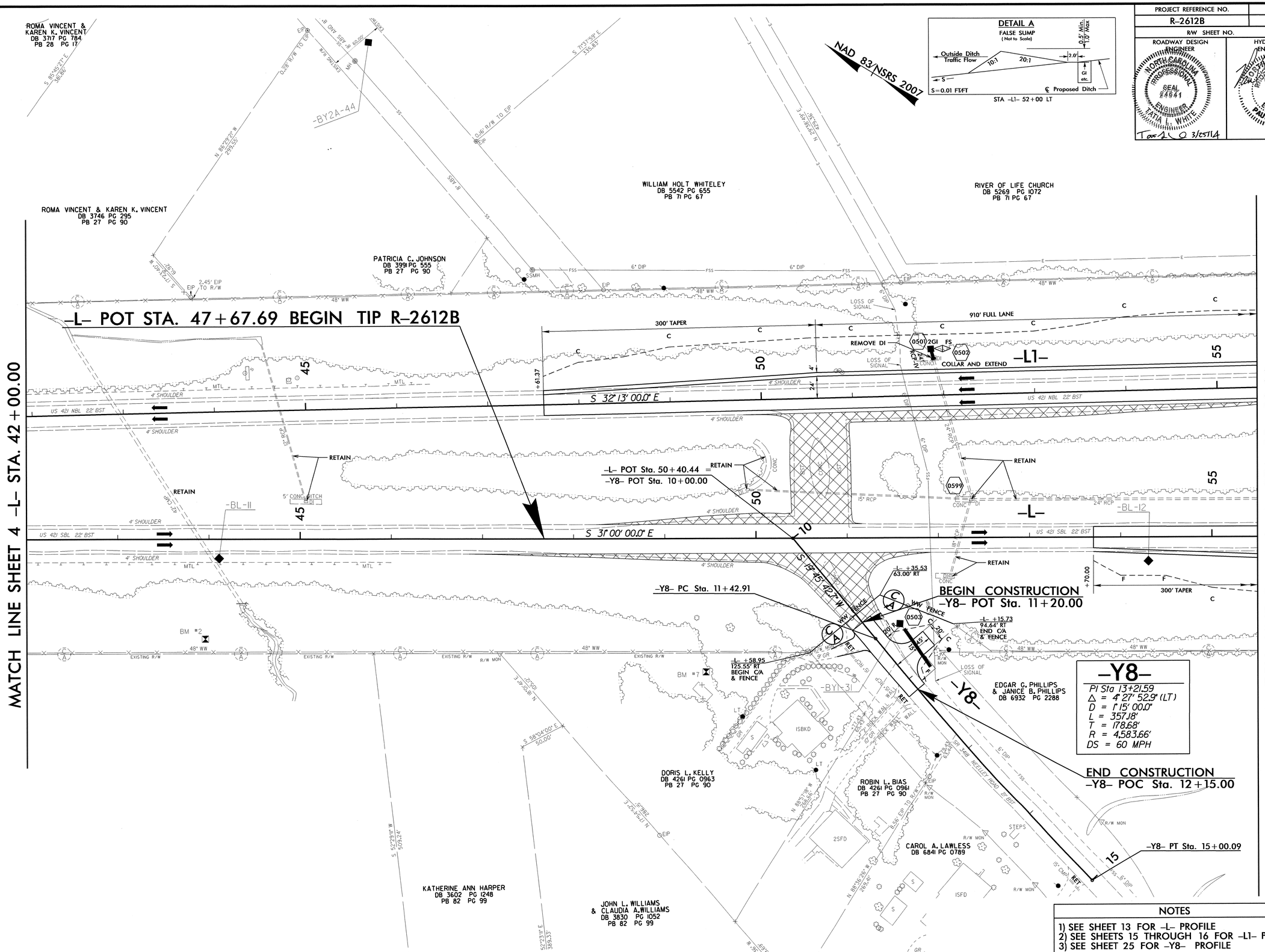
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TANIA L. WHITE — 3/25/14

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON — 3/24/14



NOTES

1) SEE SHEET 13 FOR -L- PROFILE
2) SEE SHEETS 15 THROUGH 16 FOR -L1- PROFILE
3) SEE SHEET 25 FOR -Y8- PROFILE

REVISIONS

8/17/99

26-FEB-2014 11:04
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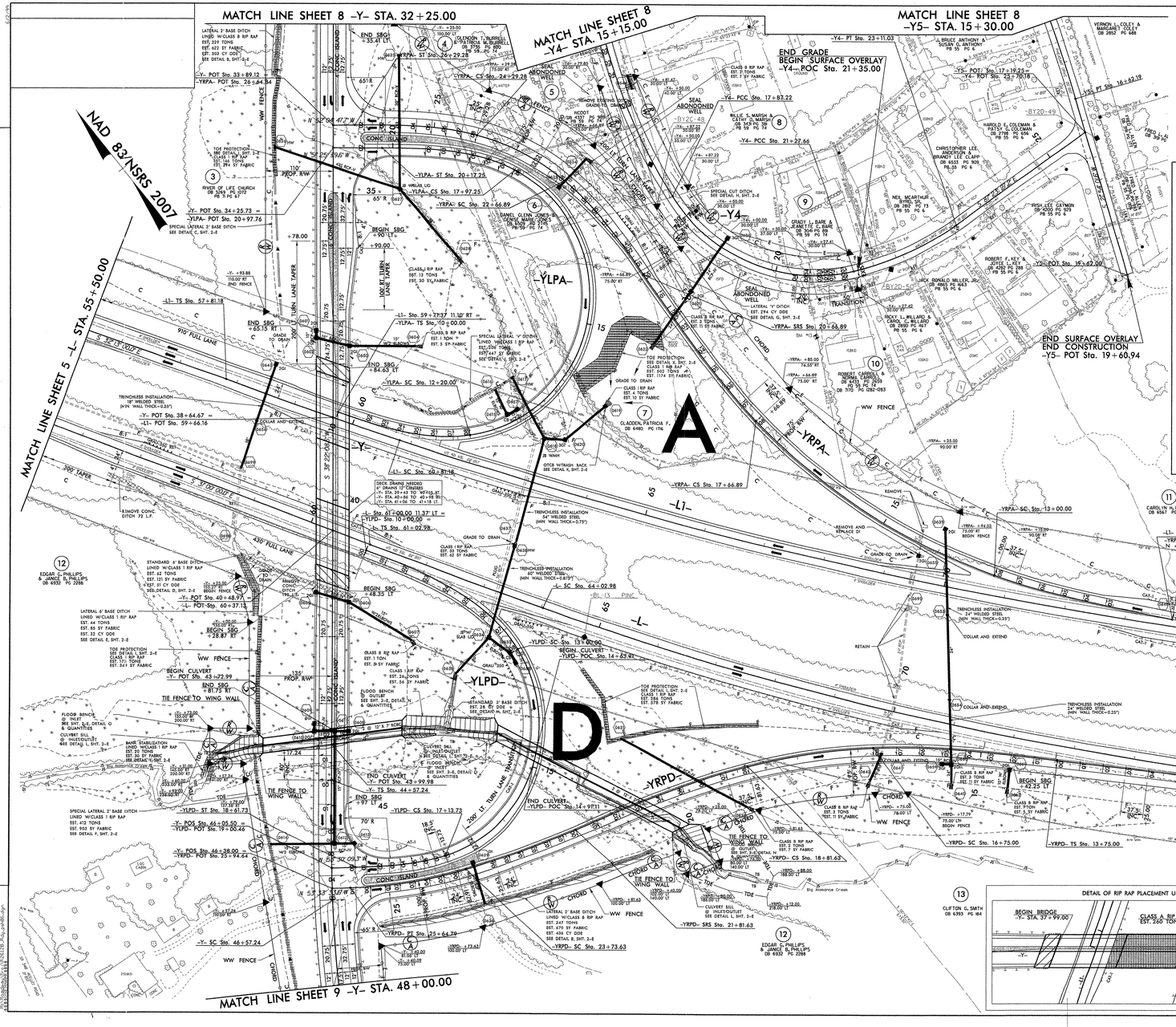
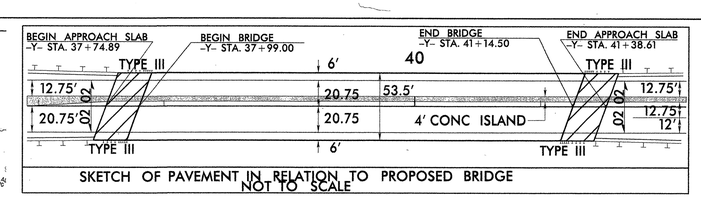
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER





SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE
NOT TO SCALE

-L-

Pls Sta 63+02.99 Gs = 1°30'00.0" Ls = 300.00' LT = 200.02' ST = 100.01'	Pl Sta 76+04.30 Δ = 23°41'00.0" (LT) D = 1°00'00.0" L = 2,368.13' T = 1,201.32' R = 5,729.58' DS = 60 MPH

-L1-

Pls Sta 59+81.18 Gs = 1°07'30.0" Ls = 300.00' LT = 200.00' ST = 100.00'	Pl Sta 76+12.31 Δ = 22°40'00.0" (LT) D = 1°45'00.0" L = 1,302.63' T = 659.13' R = 3,270.36' DS = 60 MPH

-Y4-

Pl Sta 16+43.05 Δ = 18°31'10.6" (LT) D = 6°27'58.3" L = 290.91' T = 146.73' R = 900.00' SE = 0.04 R0 = SEE PLANS DS = 45 MPH	Pl Sta 19+83.13 Δ = 70°55'45.9" (LT) D = 27°50'05.4" L = 340.44' T = 195.90' R = 275.00' SE = 0.04 R0 = SEE PLANS DS = 30 MPH	Pl Sta 22+20.54 Δ = 52°21'47.3" (LT) D = 12°15'00.0" L = 183.57' T = 97.88' R = 467.72' SE = SEE PLANS R0 = SEE PLANS DS = 35 MPH

-YRPA-

Pls Sta 12+00.24 Gs = 8°35'39.7" Ls = 300.00' LT = 200.24' ST = 100.21'	Pl Sta 15+37.78 Δ = 26°45'02.9" (RT) D = 5°43'46.5" L = 466.89' T = 237.78' R = 1,000.00' SE = 0.08 R0 = SEE PLANS DS = 55 MPH

Pls Sta 18+67.10 Gs = 8°35'39.7" Ls = 300.00' LT = 200.64' ST = 100.21'	Pls Sta 22+00.72 Gs = 15°16'43.9" Ls = 200.00' LT = 133.83' ST = 67.12'

-YRPD-

Pls Sta 15+75.26 Gs = 8°57'08.9" Ls = 300.00' LT = 200.25' ST = 100.23'	Pl Sta 17+78.72 Δ = 16°19'57.3" (LT) D = 5°58'05.9" L = 536.63' T = 103.72' R = 960.00' SE = 0.08 R0 = SEE PLANS DS = 55 MPH	Pls Sta 19+18.87 Gs = 8°57'08.9" Ls = 300.00' LT = 200.25' ST = 100.23'

Pls Sta 23+09.74 Gs = 7°14'14.5" Ls = 192.00' LT = 128.11' ST = 64.10'	Pl Sta 24+69.72 Δ = 14°24'39.2" (RT) D = 7°52'20.7" L = 184.15' T = 96.08' R = 730.00' SE = 0.06 R0 = SEE PLANS DS = 50 MPH

-Y-

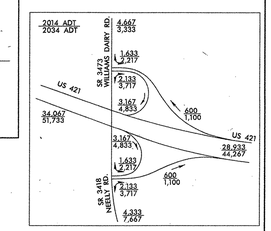
Pls Sta 45+90.59 Gs = 2°27'32.6" Ls = 200.00' LT = 133.35' ST = 66.68'

-YLPA-

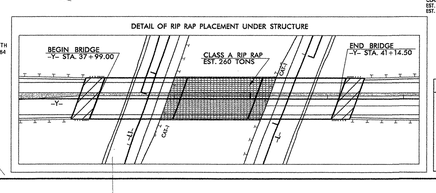
Pls Sta 11+48.46 Gs = 27°24'08.4" Ls = 220.00' LT = 148.46' ST = 74.97'	Pl Sta 19+23.68 Δ = 14°31'47"56.8" (LT) D = 24°54'40.4" L = 517.23' T = 703.68' R = 230.00' SE = 0.08 R0 = SEE PLANS DS = 30 MPH	Pls Sta 18+72.22 Gs = 27°24'08.4" Ls = 220.00' LT = 148.46' ST = 74.97'

-YLPD-

Pls Sta 12+04.56 Gs = 37°05'40.9" Ls = 300.00' LT = 204.56' ST = 104.85'	Pl Sta 15+87.40 Δ = 43°10'38.4" (RT) D = 24°41'47.2" L = 463.73' T = 287.40' R = 232.00' SE = 0.08 R0 = SEE PLANS DS = 30 MPH	Pls Sta 17+83.55 Gs = 18°16'31.4" Ls = 148.00' LT = 99.20' ST = 49.82'



-L- POC STA. 85+30.00 END TIP R-2612B END CONSTRUCTION



NOTES

1) SEE SHEETS 14 THROUGH 15 FOR -L- PROFILE
2) SEE SHEETS 16 THROUGH 17 FOR -L1- PROFILE
3) SEE SHEETS 18 THROUGH 19 FOR -Y- PROFILE
4) SEE SHEET 20 FOR -YRPA- AND -YLPA- PROFILE
5) SEE SHEET 21 FOR -YRPD- AND -YLPD- PROFILE
6) SEE SHEET 23 FOR -Y4- PROFILE
7) SEE SHEET 24 FOR -Y5- PROFILE
8) SEE SHEET 2-F FOR SHEAR POINT DIAGRAM / INTERCHANGE DETAIL
9) SEE SHEETS S-1 THROUGH S-38 FOR STRUCTURE PLANS
10) SEE SHEETS C-1 THROUGH C-14 FOR CULVERT PLANS
11) STOCKPILE MATERIAL EXCAVATED FROM WETLANDS FOR TEMPORARY DIVERSION CHANNEL

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

REVISIONS

RD261645 3/24/2014 R2612B_Rdy_pshl06 pssujila RD-Oct60-34

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE — 3/25/14

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON — 3/24/14

-Y-

PIs Sta 19+22.24	PI Sta 23+68.74
Θs = 2° 27' 32.6"	Δ = 18° 31' 05.7" (RT)
Ls = 200.00'	D = 2° 27' 32.6"
LT = 133.35'	L = 753.07'
ST = 66.68'	T = 379.85'
	R = 2,330.00'
	SE = 0.05
	RO = SEE PLANS
	DS = 60 MPH

BEGIN CONSTRUCTION -Y- POT Sta. 15+00.00

-Y- TS Sta. 17+88.90

-Y- SC Sta. 19+88.90

NAD 83/NSRS 2007

MATCH LINE SHEET 8 -Y- STA. 25+00.00

14 TONY L. BARNHILL & SHARON J. BARNHILL DB 6893 PG 1460

15 TONY L. BARNHILL & SHARON J. BARNHILL DB 6765 PG 597

16 PATRICK J. RYAN & MIA K. RYAN DB 6416 PG 2820

17 EUGENE N. CLARK & MARY B. CLARK DB 4621 PG 271

18 MARK ANTHONY SAMSEL DB 4385 PG 1024

19 RAMON R. STOUT, JR. & NINA P. STOUT DB 4839 PG 1255

20 STEPHEN E. ALLISON & MICHELLE L. ALLISON DB 5009 PG 1527

21 MICHAEL W. RAY & SHERRY P. RAY DB 4435 PG 389

MICHAEL L. WALKER & LINDA WALKER & GERALDINE NUNN DB 5884 PG 3048 PB 66 PG 139

22 BILLY S. MARLEY & BETTY JEAN MARLEY DB 1978 PG 610

23 RANDALL E. JOBE & RUTH H. JOBE DB 5927 PG 889 PB 151 PG 34

24 LARRY W. UNDERWOOD DB 6975 PG 2764 PB 151 PG 34

25 TIMOTHY HARRELL JOBE DB 5927 PG 892 PB 151 PG 34

-BY2B-45

-BY2B-46

BM #12

S 14° 55' 57.7" W

SR 3329 WILLIAMS DAIRY ROAD 20' BST

STANDARD 'V' DITCH SEE DETAIL Q

SPECIAL CUT DITCH SEE DETAIL H

SPECIAL LATERAL 'V' DITCH SEE DETAIL P

GRADE TO DRAIN

645' TRANSITION LT. & RT.

200' LT. TURN LANE TAPER

40' INC.

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 2:1 OR FLATTER — D — 4:1 or Flatter — Front Ditch Slope

Min. D = VAR.

-Y- STA 17+00 TO 18+50 RT.
-Y- STA 20+50 TO 25+50 RT.
-Y- STA 21+50 TO 25+25 LT.

DETAIL P
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 2:1 OR FLATTER — D — 3:1 OR FLATTER — Fill Slope

Min. D = VAR.

-Y- STA 20+00 TO 21+50 LT.

DETAIL Q
STANDARD 'V' DITCH
(Not to Scale)

Natural Ground — 2:1 OR FLATTER — D — 3:1 — Natural Ground

Min. D = 1 FT.

-Y- STA 15+00 TO 17+50 LT.

NOTES
1) SEE SHEET 18 FOR -Y- PROFILE
2) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

REVISIONS

8/17/99

26-FEB-2014 11:04
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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE 3/25/14

NORTH CAROLINA PROFESSIONAL SEAL 19860 ENGINEER PAUL ATKINSON 3/24/14

NAD 83/NSRS 2007

-Y-

PI Sta 23+68.74
Δ = 18° 31' 05.7" (RT)
D = 2° 27' 32.6"
L = 753.07'
T = 379.85'
R = 2,330.00'
SE = 0.05
R0 = SEE PLANS
DS = 60 MPH

PIs Sta 28+08.64
Θs = 2° 27' 32.6"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

-Y1-

PI Sta 19+11.02
Δ = 22° 36' 17.3" (LT)
D = 1° 58' 32.6"
L = 1,144.13'
T = 579.60'
R = 2,900.00'
SE = 0.05
R0 = SEE PLANS
DS = 60 MPH

-DR1-

PI Sta 10+69.47
Δ = 16° 06' 53.6" (RT)
D = 19° 05' 54.9"
L = 84.38'
T = 42.47'
R = 300.00'

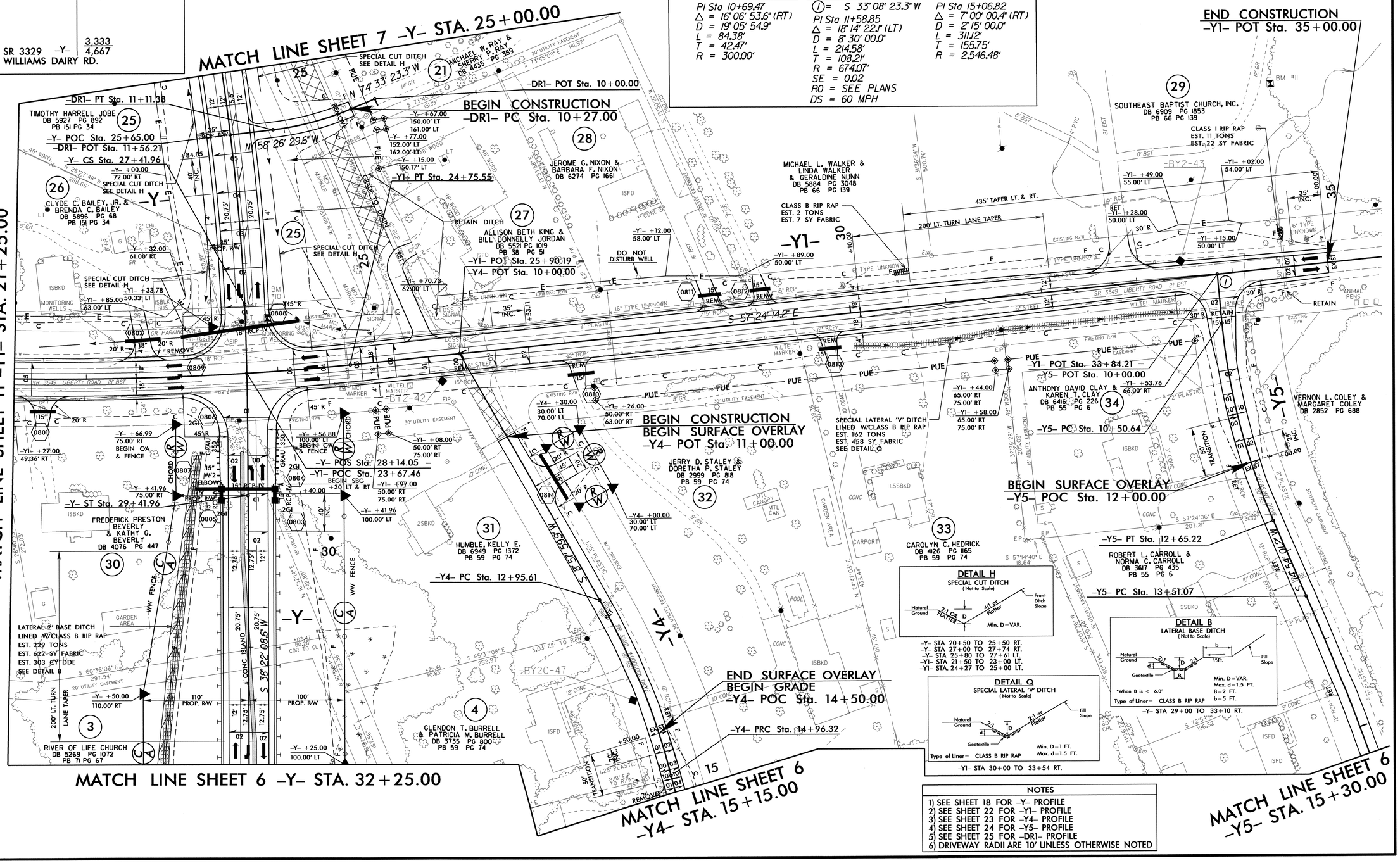
-Y5-

① = S 33° 08' 23.3" W

PI Sta 11+58.85
Δ = 18° 14' 22.1" (LT)
D = 8° 30' 00.0"
L = 214.58'
T = 108.21'
R = 674.07'
SE = 0.02
R0 = SEE PLANS
DS = 60 MPH

PI Sta 15+06.82
Δ = 7° 00' 00.4" (RT)
D = 2° 15' 00.0"
L = 311.12'
T = 155.75'
R = 2,546.48'

SR 3329 -Y- WILLIAMS DAIRY RD.		2014 ADT / 2034 ADT
	2,667 / 3,833	
-Y1- SR 3549 LIBERTY RD.	1,533 / 2,117	600 / 850 -Y1- SR 3549 LIBERTY RD.
5,967 / 8,883	1,000 / 1,250	1,800 / 2,550 — 5,833 / 8,917
	3,333 / 4,667	
SR 3329 -Y- WILLIAMS DAIRY RD.		



DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 3:1 or FLATTER — D — 4:1 or Flatter — Front Ditch Slope
Min. D = VAR.

-Y- STA 20+50 TO 25+50 RT.
-Y- STA 27+00 TO 27+74 RT.
-Y- STA 25+80 TO 27+61 LT.
-Y1- STA 21+50 TO 23+00 LT.
-Y1- STA. 24+27 TO 25+00 LT.

DETAIL B
LATERAL BASE DITCH
(Not to Scale)

Natural Ground — 2:1 — d — D — 2:1 — b — 1'-Ft. — Fill Slope — Geotextile — B
*When B is < 6.0'
Min. D = VAR.
Max. d = 1.5 FT.
B = 2 FT.
b = 5 FT.
Type of Liner = CLASS B RIP RAP

-Y- STA 29+00 TO 33+10 RT.

DETAIL Q
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 2:1 — D — 2:1 or Flatter — Fill Slope — Geotextile
Min. D = 1 FT.
Max. d = 1.5 FT.
Type of Liner = CLASS B RIP RAP

-Y1- STA 30+00 TO 33+54 RT.

NOTES
1) SEE SHEET 18 FOR -Y- PROFILE
2) SEE SHEET 22 FOR -Y1- PROFILE
3) SEE SHEET 23 FOR -Y4- PROFILE
4) SEE SHEET 24 FOR -Y5- PROFILE
5) SEE SHEET 25 FOR -DR1- PROFILE
6) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

11-MAR-2014 08:38
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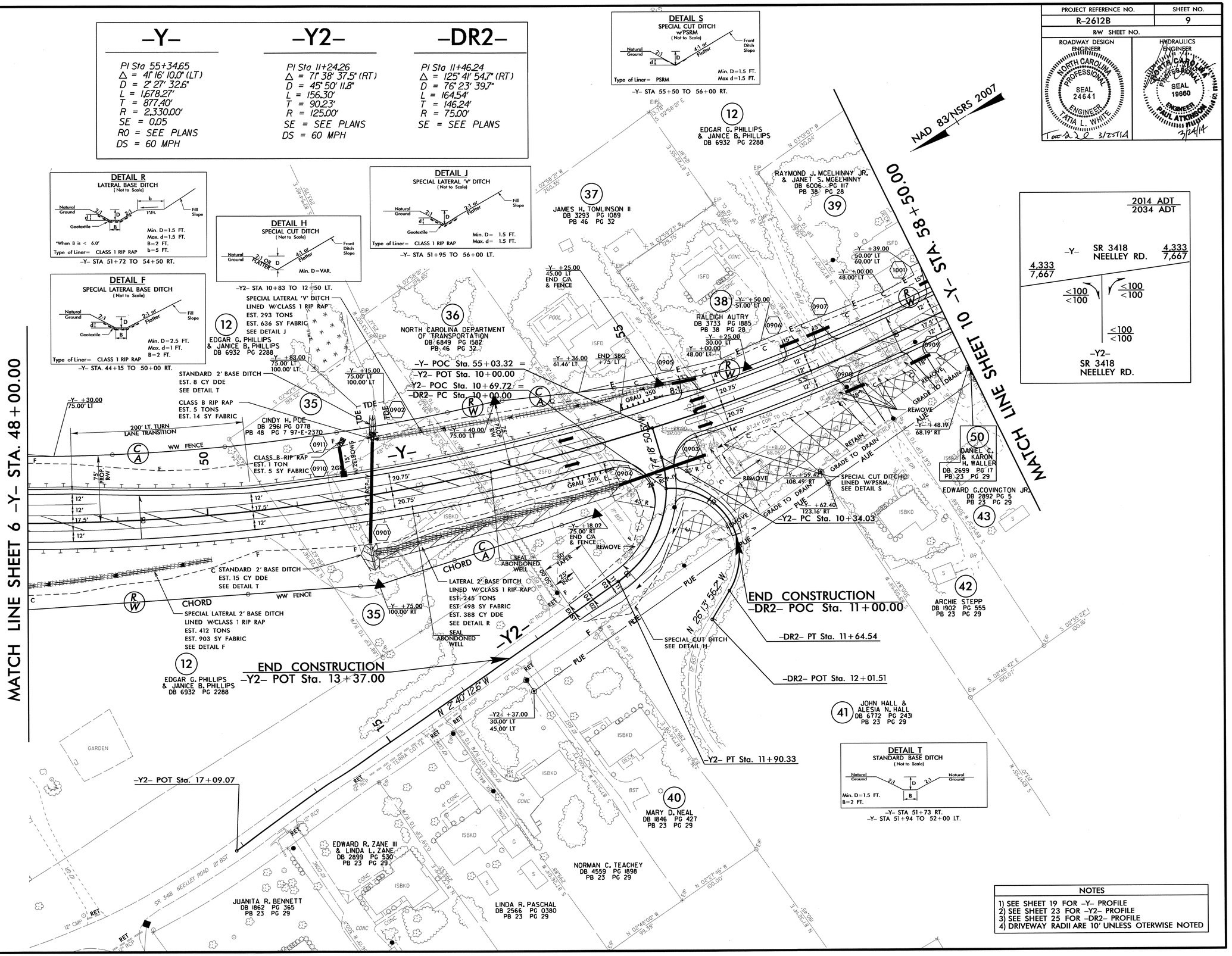
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE 3/25/14

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON 3/24/14

-Y-	-Y2-	-DR2-
PI Sta 55+34.65	PI Sta 11+24.26	PI Sta 11+46.24
Δ = 41° 16' 10.0" (LT)	Δ = 71° 38' 37.5" (RT)	Δ = 125° 41' 54.7" (RT)
D = 2° 27' 32.6"	D = 45° 50' 11.8"	D = 76° 23' 39.7"
L = 1,678.27'	L = 156.30'	L = 164.54'
T = 877.40'	T = 90.23'	T = 146.24'
R = 2,330.00'	R = 125.00'	R = 75.00'
SE = 0.05	SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	DS = 60 MPH	
DS = 60 MPH		



NOTES
1) SEE SHEET 19 FOR -Y- PROFILE
2) SEE SHEET 23 FOR -Y2- PROFILE
3) SEE SHEET 25 FOR -DR2- PROFILE
4) DRIVEWAY RADII ARE 10' UNLESS OTERWISE NOTED

REVISIONS

8/17/99

11-MAR-2014 12:12
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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE — 3/25/14

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON — 3/24/14

REVISIONS

8/17/99

2014 ADT
2034 ADT

4,067 / 7,233 -Y- SR 3418 NEELLEY RD. 2,767 / 5,183

1,567 / 2,483 | 267 / 433

1,833 / 2,917

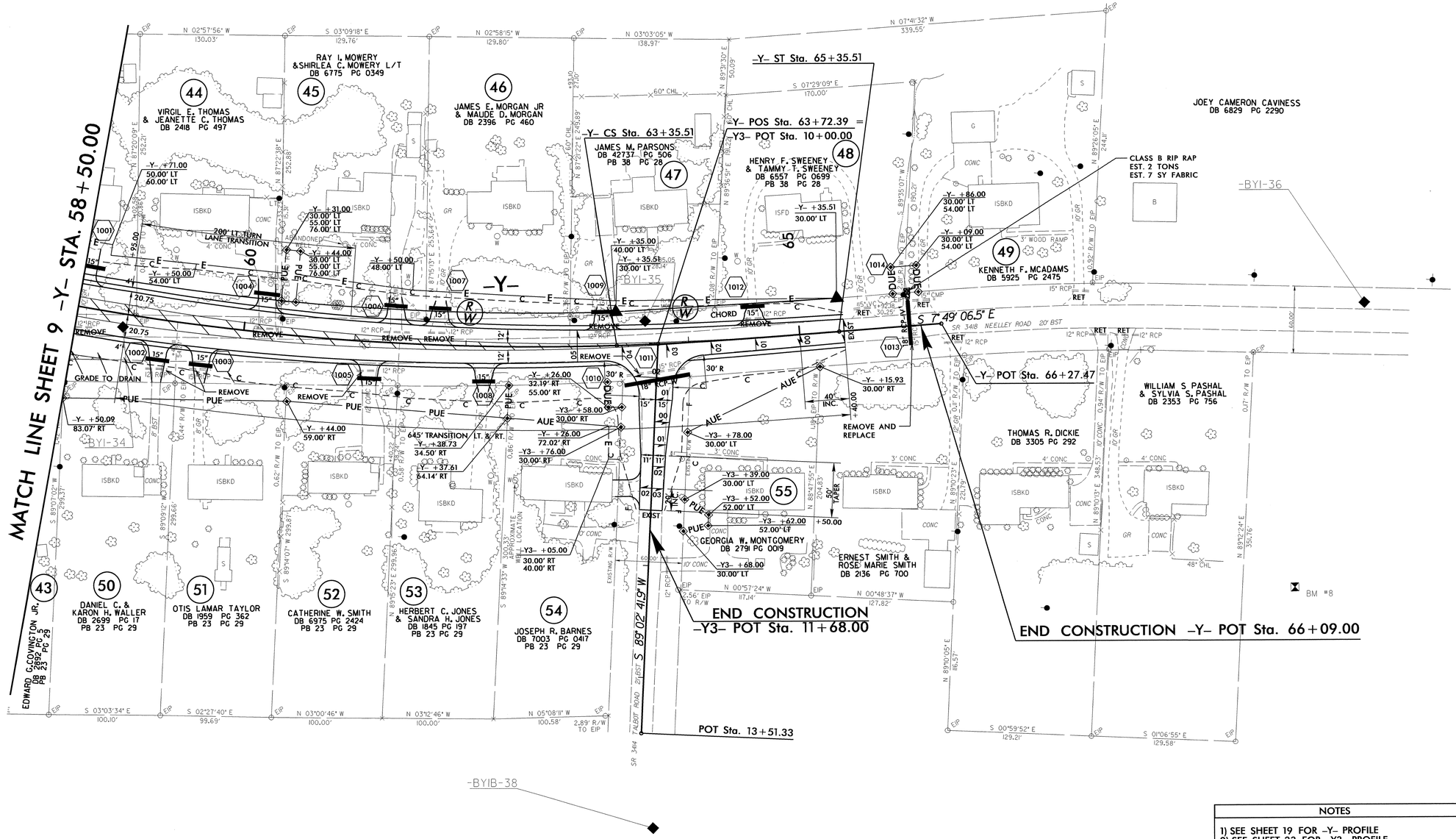
-Y3-
SR 3414
TALBOT RD.

-Y-

PI Sta 55+34.65
Δ = 41° 16' 10.0" (LT)
D = 2° 27' 32.6"
L = 1,678.27'
T = 877.40'
R = 2,330.00'
SE = 0.05
RO = SEE PLANS
DS = 60 MPH

PIs Sta 64+02.19
Θs = 2° 27' 32.6"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

NAD 83/NSRS 2007



NOTES

1) SEE SHEET 19 FOR -Y- PROFILE
2) SEE SHEET 23 FOR -Y3- PROFILE
3) DRIVEWAY RADII ARE 10' UNLESS OTERWISE NOTED

11-MAR-2014 08:42
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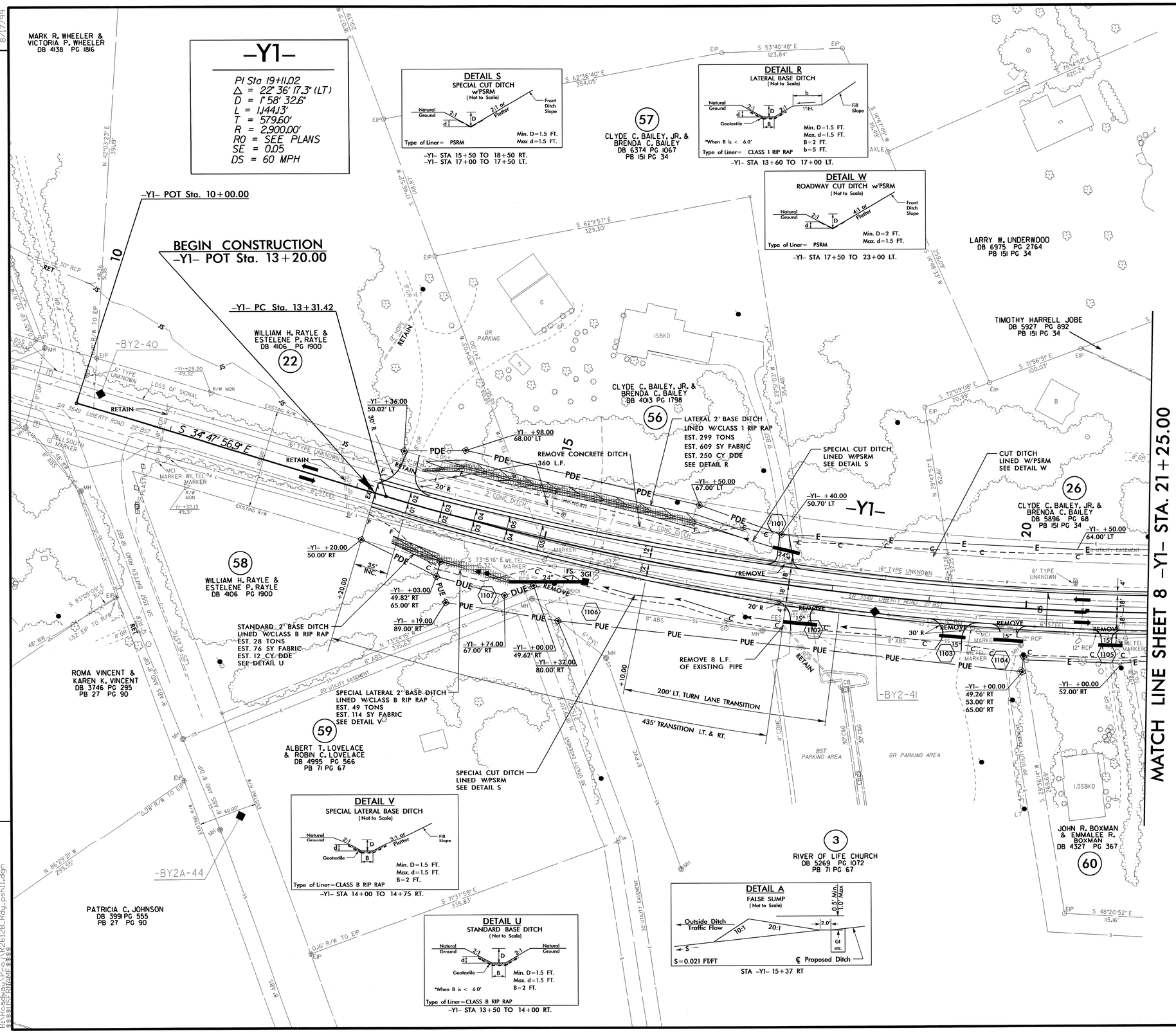
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TANYA L. WHITE — 3/25/14

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 19680 ENGINEER PAUL ATKINSON — 3/24/14



DETAIL S
SPECIAL CUT DITCH w/PSRM (Not to Scale)
Natural Ground, 2:1, d, D, 2:1 or Flatter, Front Ditch Slope
Type of Liner= PSRM
Min. D=1.5 FT. Max d=1.5 FT.
-Y1- STA 15+50 TO 18+50 RT.
-Y1- STA 17+00 TO 17+50 LT.

DETAIL R
LATERAL BASE DITCH (Not to Scale)
Natural Ground, 2:1, d, D, 2:1, B, b, 1½:1, Fill Slope, Geotextile
*When B is < 6.0'
Min. D=1.5 FT. Max. d=1.5 FT. B=2 FT. b=5 FT.
Type of Liner= CLASS 1 RIP RAP
-Y1- STA 13+60 TO 17+00 LT.

DETAIL W
ROADWAY CUT DITCH w/PSRM (Not to Scale)
Natural Ground, 2:1, d, D, 4:1 or Flatter, Front Ditch Slope
Type of Liner= PSRM
Min. D=2 FT. Max. d=1.5 FT.
-Y1- STA 17+50 TO 23+00 LT.

DETAIL V
SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground, 2:1, d, D, 2:1 or Flatter, Fill Slope, Geotextile, B
Min. D=1.5 FT. Max. d=1.5 FT. B=2 FT.
Type of Liner=CLASS B RIP RAP
-Y1- STA 14+00 TO 14+75 RT.

DETAIL U
STANDARD BASE DITCH (Not to Scale)
Natural Ground, 2:1, d, D, 2:1, Natural Ground, Geotextile, B
*When B is < 6.0'
Min. D=1.5 FT. Max. d=1.5 FT. B=2 FT.
Type of Liner=CLASS B RIP RAP
-Y1- STA 13+50 TO 14+00 RT.

DETAIL A
FALSE SUMP (Not to Scale)
Outside Ditch Traffic Flow, 10:1, 20:1, 2.0', 0.5' Min. 1.0' Max, GI etc., S, ℄ Proposed Ditch
S=0.021 FT/FT
STA -Y1- 15+37 RT

NOTES
1) SEE SHEET 22 FOR -Y1- PROFILE
2) DRIVEWAY RADII ARE 10' UNLESS OTERWISE NOTED

24-MAR-2014 14:33
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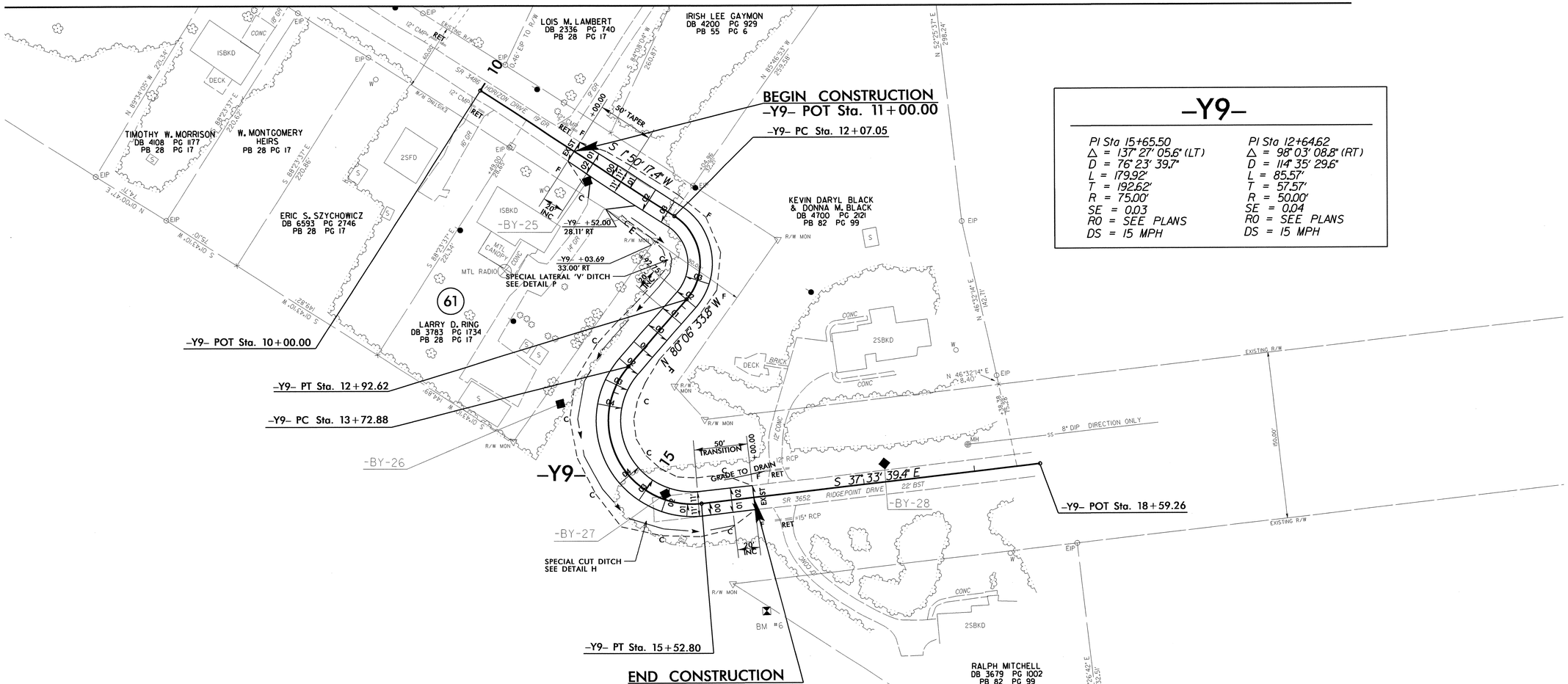
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TANIA L. WHITE 3/25/14

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON 3/24/14

NAD 83/NSRS 2007

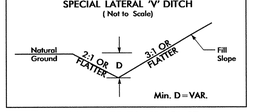
MATCH LINE SHEET 4



-Y9-

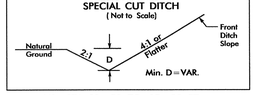
PI Sta 15+65.50	PI Sta 12+64.62
Δ = 137° 27' 05.6" (LT)	Δ = 98° 03' 08.8" (RT)
D = 76° 23' 39.7"	D = 114° 35' 29.6"
L = 179.92'	L = 85.57'
T = 192.62'	T = 57.57'
R = 75.00'	R = 50.00'
SE = 0.03	SE = 0.04
RO = SEE PLANS	RO = SEE PLANS
DS = 15 MPH	DS = 15 MPH

DETAIL P
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



-Y9- STA 11+75 TO 13+50 RT.

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



-Y9- STA 13+50 TO 15+80 RT.

NOTES
1) SEE SHEET 25 FOR -Y9- PROFILE

REVISIONS

8/17/99

26-FEB-2014 11:03
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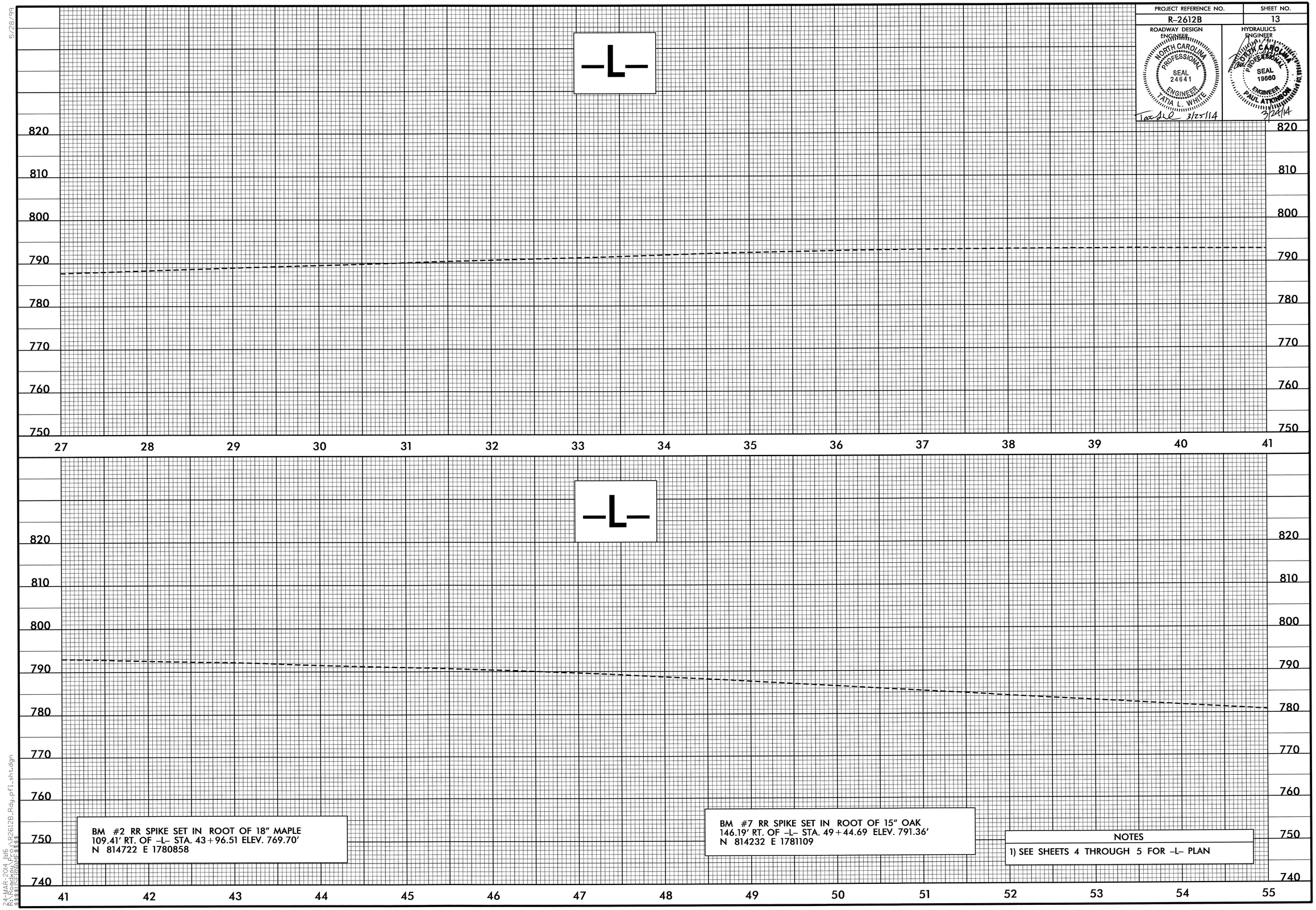
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
Tatia L. White 3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON
3/24/14



BM #2 RR SPIKE SET IN ROOT OF 18" MAPLE
109.41' RT. OF -L- STA. 43+96.51 ELEV. 769.70'
N 814722 E 1780858

BM #7 RR SPIKE SET IN ROOT OF 15" OAK
146.19' RT. OF -L- STA. 49+44.69 ELEV. 791.36'
N 814232 E 1781109

NOTES

1) SEE SHEETS 4 THROUGH 5 FOR -L- PLAN

5/28/99

24-MAR-2014 jlg16
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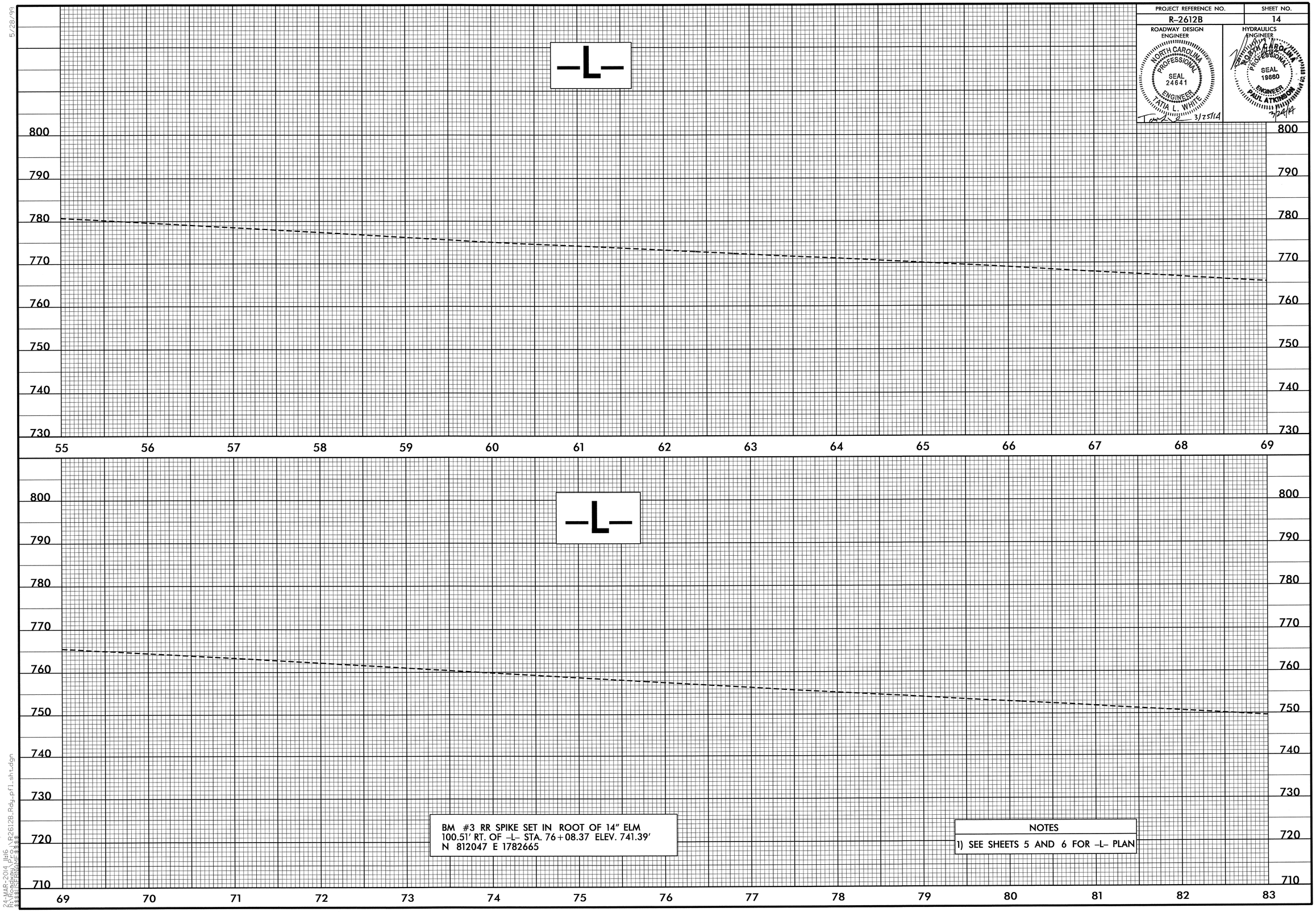
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	14

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON
3/24/14



BM #3 RR SPIKE SET IN ROOT OF 14" ELM
100.51' RT. OF -L- STA. 76+08.37 ELEV. 741.39'
N 812047 E 1782665

NOTES
1) SEE SHEETS 5 AND 6 FOR -L- PLAN

5/28/99

24-MAR-2014 11:16
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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	15

ROADWAY DESIGN ENGINEER

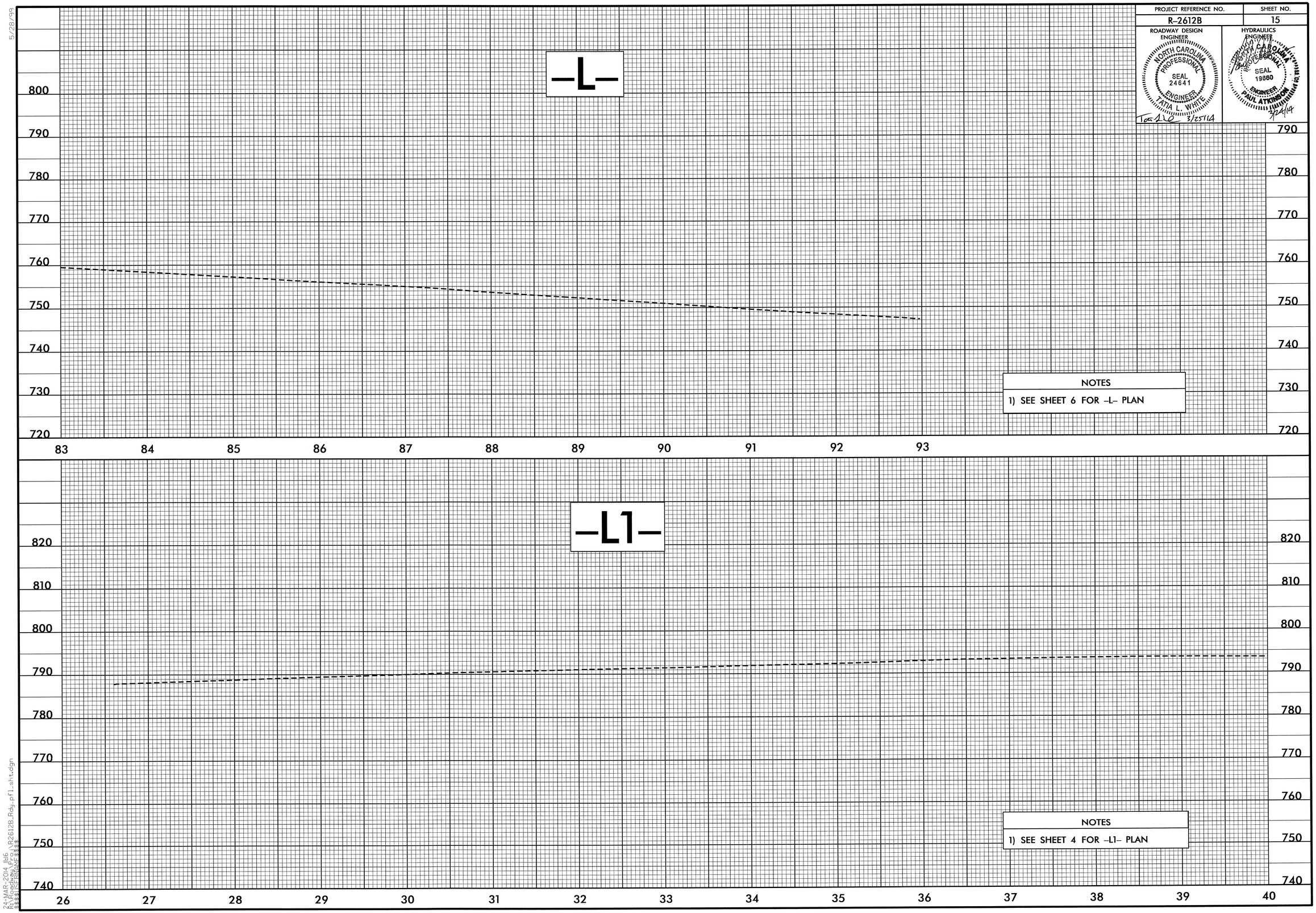
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TAJA L. WHITE

Taja L. White 3/25/14

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19860 ENGINEER PAUL ATKINSON

3/24/14



NOTES

1) SEE SHEET 6 FOR -L- PLAN

NOTES

1) SEE SHEET 4 FOR -L1- PLAN

5/28/99

24-MAR-2014 JH:6
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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	16

ROADWAY DESIGN ENGINEER

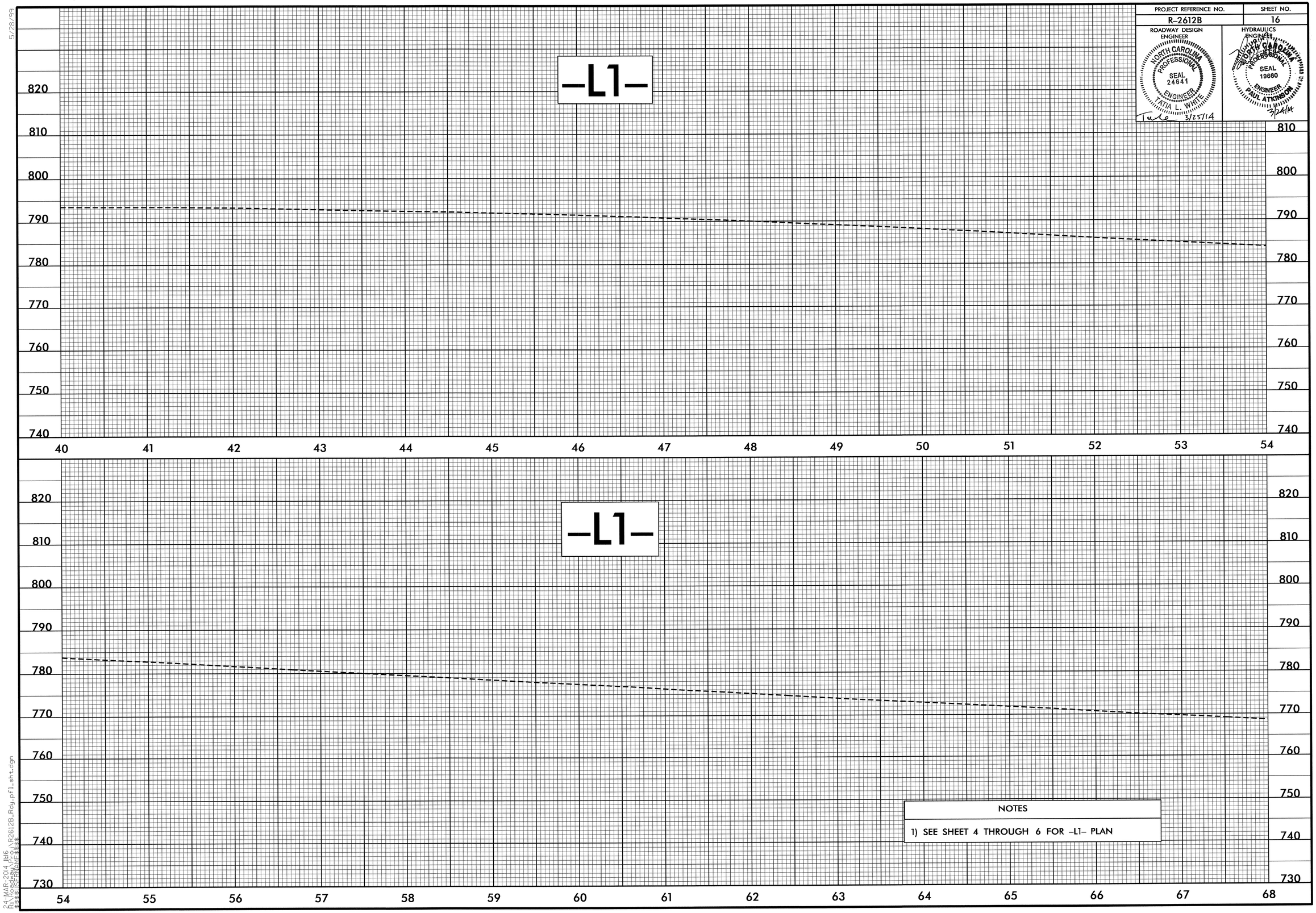
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE

Tatia 3/25/14

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON

3/24/14



NOTES

1) SEE SHEET 4 THROUGH 6 FOR -L1- PLAN

5/28/99

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	17

ROADWAY DESIGN ENGINEER

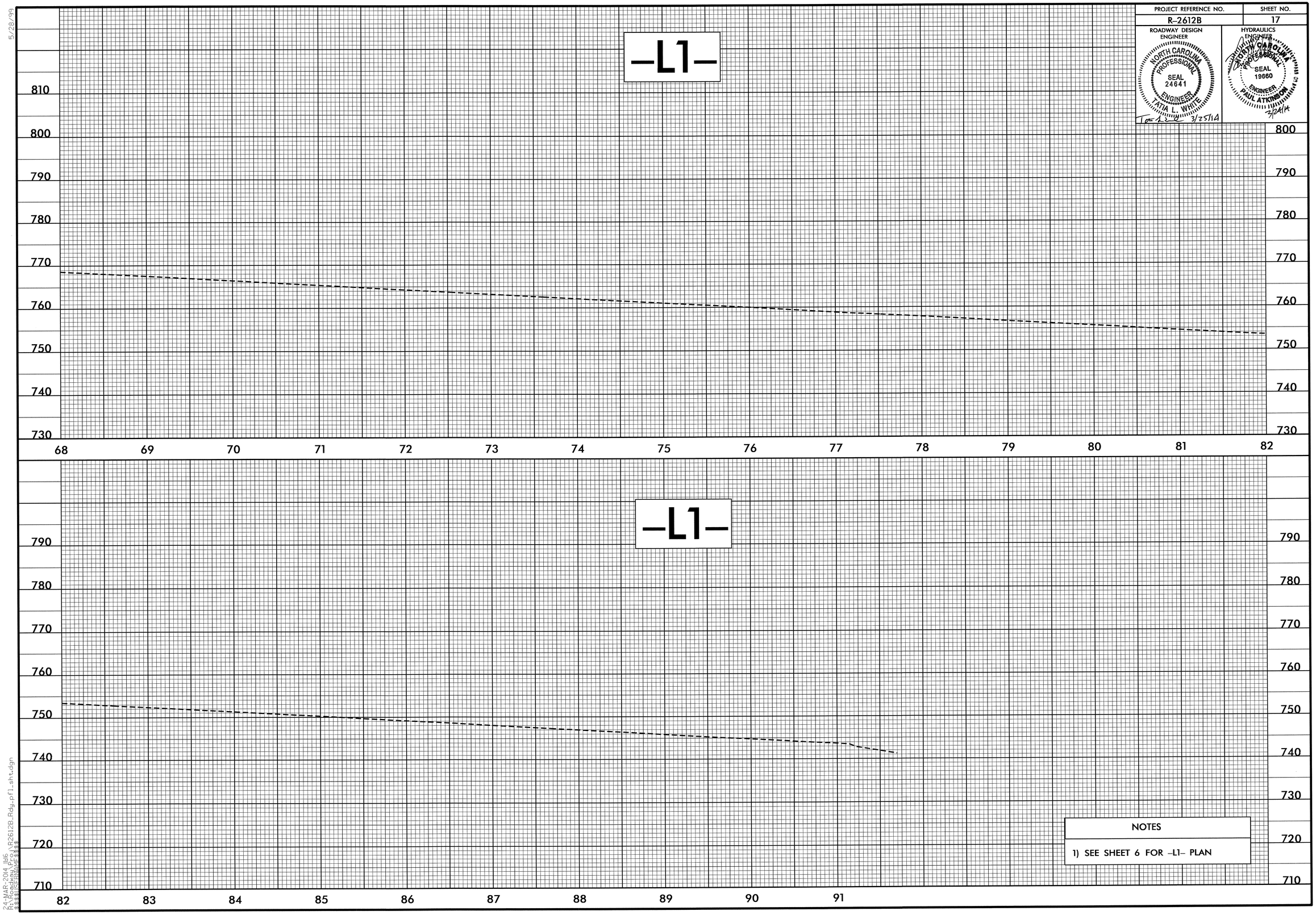
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE

Tatia L. White 3/25/14

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON

3/24/14



NOTES

1) SEE SHEET 6 FOR -L1- PLAN

5/28/99

24-MAR-2014 JH6
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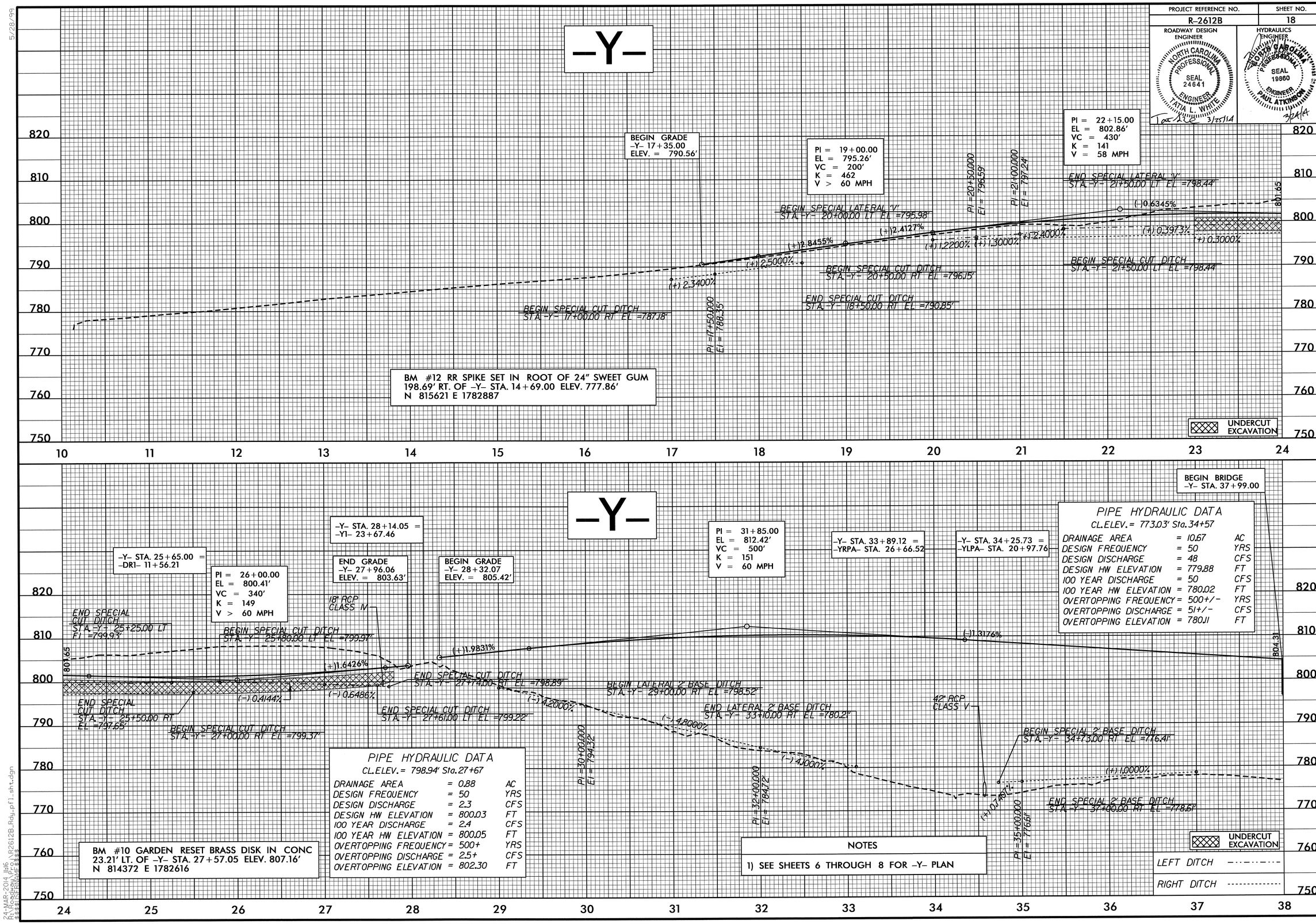
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	18

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19860 ENGINEER PAUL ATKINSON
3/24/14



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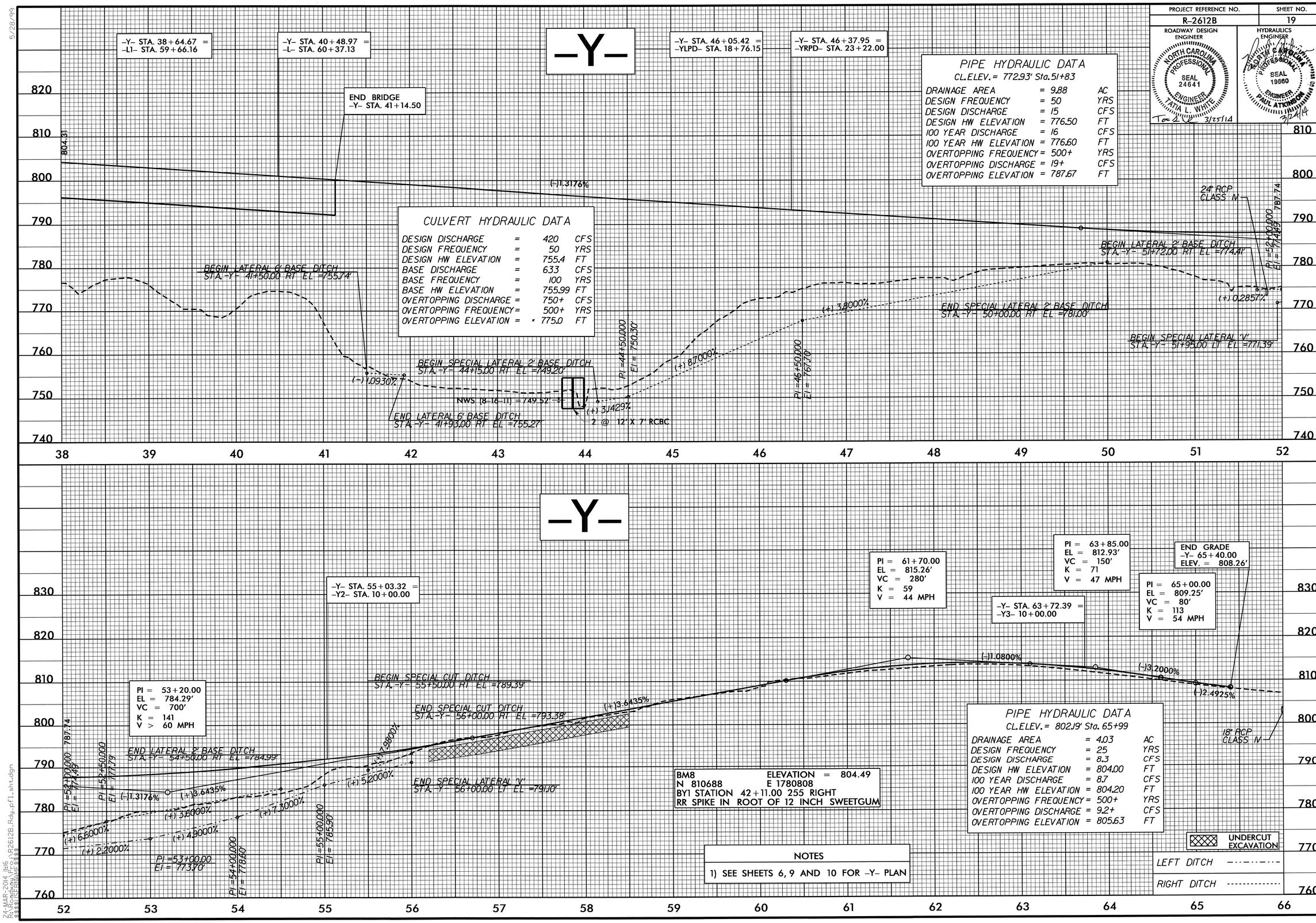
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	19

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE — 3/25/14

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON — 3/24/14



PIPE HYDRAULIC DATA

CL.ELEV.= 772.93' Sta. 51+83

DRAINAGE AREA	=	9.88	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	15	CFS
DESIGN HW ELEVATION	=	776.50	FT
100 YEAR DISCHARGE	=	16	CFS
100 YEAR HW ELEVATION	=	776.60	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	19+	CFS
OVERTOPPING ELEVATION	=	787.67	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	420	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	755.4	FT
BASE DISCHARGE	=	633	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	755.99	FT
OVERTOPPING DISCHARGE	=	750+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	* 775.0	FT

PIPE HYDRAULIC DATA

CL.ELEV.= 802.19' Sta. 65+99

DRAINAGE AREA	=	4.03	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	8.3	CFS
DESIGN HW ELEVATION	=	804.00	FT
100 YEAR DISCHARGE	=	8.7	CFS
100 YEAR HW ELEVATION	=	804.20	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	9.2+	CFS
OVERTOPPING ELEVATION	=	805.63	FT

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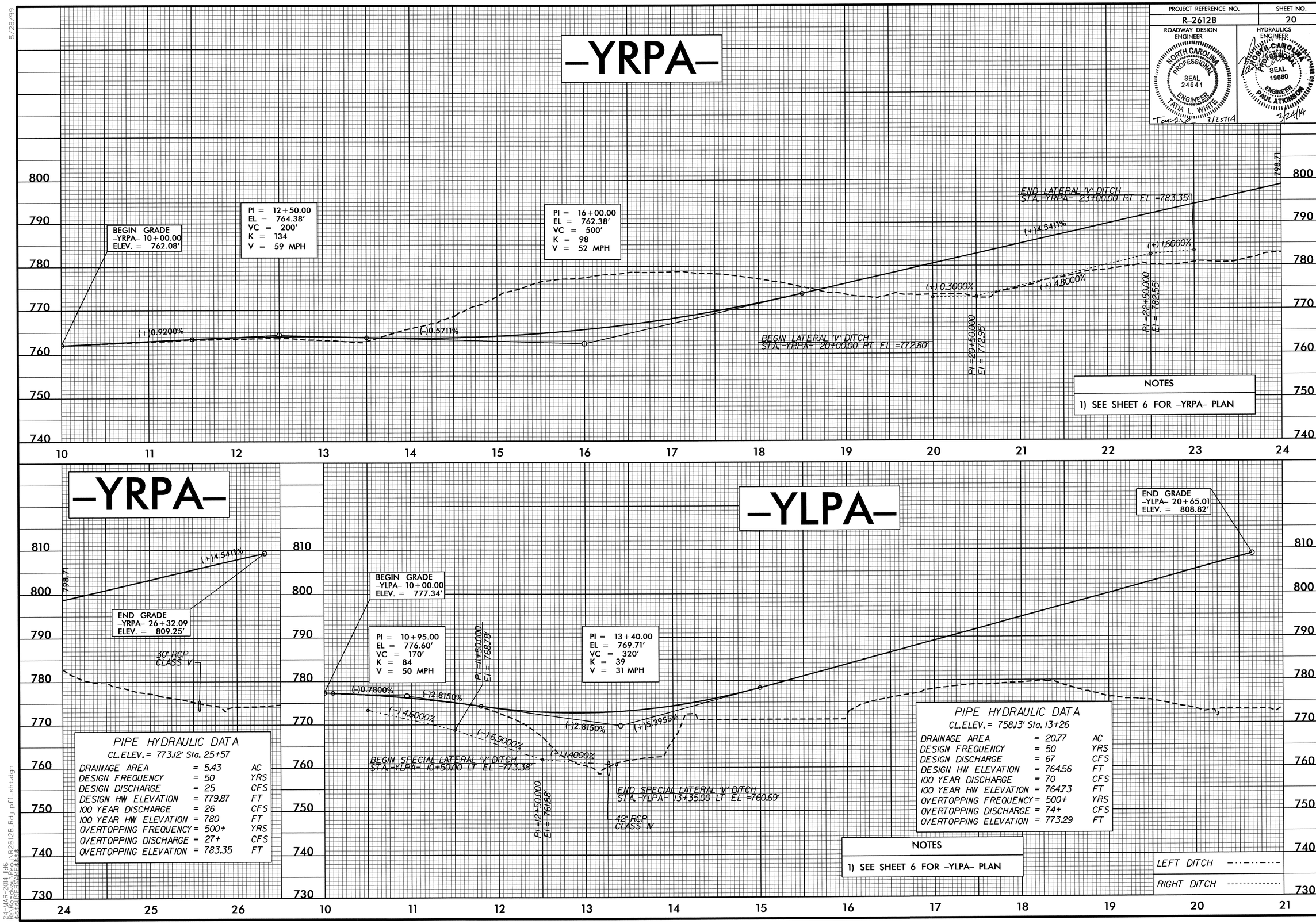
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	20

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON
3/24/14



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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	21

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON
3/24/14

-YRPD-

BEGIN GRADE
-YRPD- 10+00.00
ELEV. = 757.48'

PI = 11+00.00
EL = 758.53'
VC = 200'
K = 713
V > 60 MPH

PI = 14+50.00
EL = 763.17'
VC = 500'
K = 613
V > 60 MPH

PI = 18+60.00
EL = 765.27'
VC = 320'
K = 98
V = 52 MPH

(+)1.0460%
(+)1.3266%
(+)1.3266%
(+)0.5115%
(+)0.5115%
(+)3.7911%
785.74
18" RCP
CLASS IV
(+)0.409%
(+)1.3600%
(+)8.6000%
PI =21+00.000
El = 747.27'
PI =21+50.000
El = 750.95'
PI =23+50.000
El = 768.15'
BEGIN LATERAL 2' BASE DITCH
STA. -YRPD- 20+78.00 LT EL =747.18'

PIPE HYDRAULIC DATA
CL.ELEV. = 747.12' Sta. 19+65

DRAINAGE AREA	=	2.78	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	7.2	CFS
DESIGN HW ELEVATION	=	750.02	FT
100 YEAR DISCHARGE	=	7.5	CFS
100 YEAR HW ELEVATION	=	750.12	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	8.0+	CFS
OVERTOPPING ELEVATION	=	764.92	FT

NOTES

1) SEE SHEET 6 FOR -YRPD- PLAN

-YRPD-

END GRADE
-YRPD- 25+73.89
ELEV. = 792.33'

(+)3.791%
785.74
(+)2.8000%
END LATERAL 2'
BASE DITCH
STA. -YRPD- 25+20.00 LT
EL =772.91'

-YLPD-

END GRADE
-YLPD- 18+79.71
ELEV. = 792.93'

BEGIN GRADE
-YLPD- 10+00.00
ELEV. = 774.03'

PI = 11+00.00
EL = 773.43'
VC = 200'
K = 190
V > 60 MPH

PI = 14+00.00
EL = 768.46'
VC = 400'
K = 59
V = 38 MPH

(-)0.6000%
(-)1.6553%
(-)1.6553%
(+)5.1010%

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	480	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	752.4	FT
BASE DISCHARGE	=	633	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	753.27	FT
OVERTOPPING DISCHARGE	=	850+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	* 771.0	FT

NWS (8-16-11) = 747.29'
2 @ 12' X 7' RCBC

NOTES

1) SEE SHEET 6 FOR -YLPD- PLAN

LEFT DITCH
RIGHT DITCH

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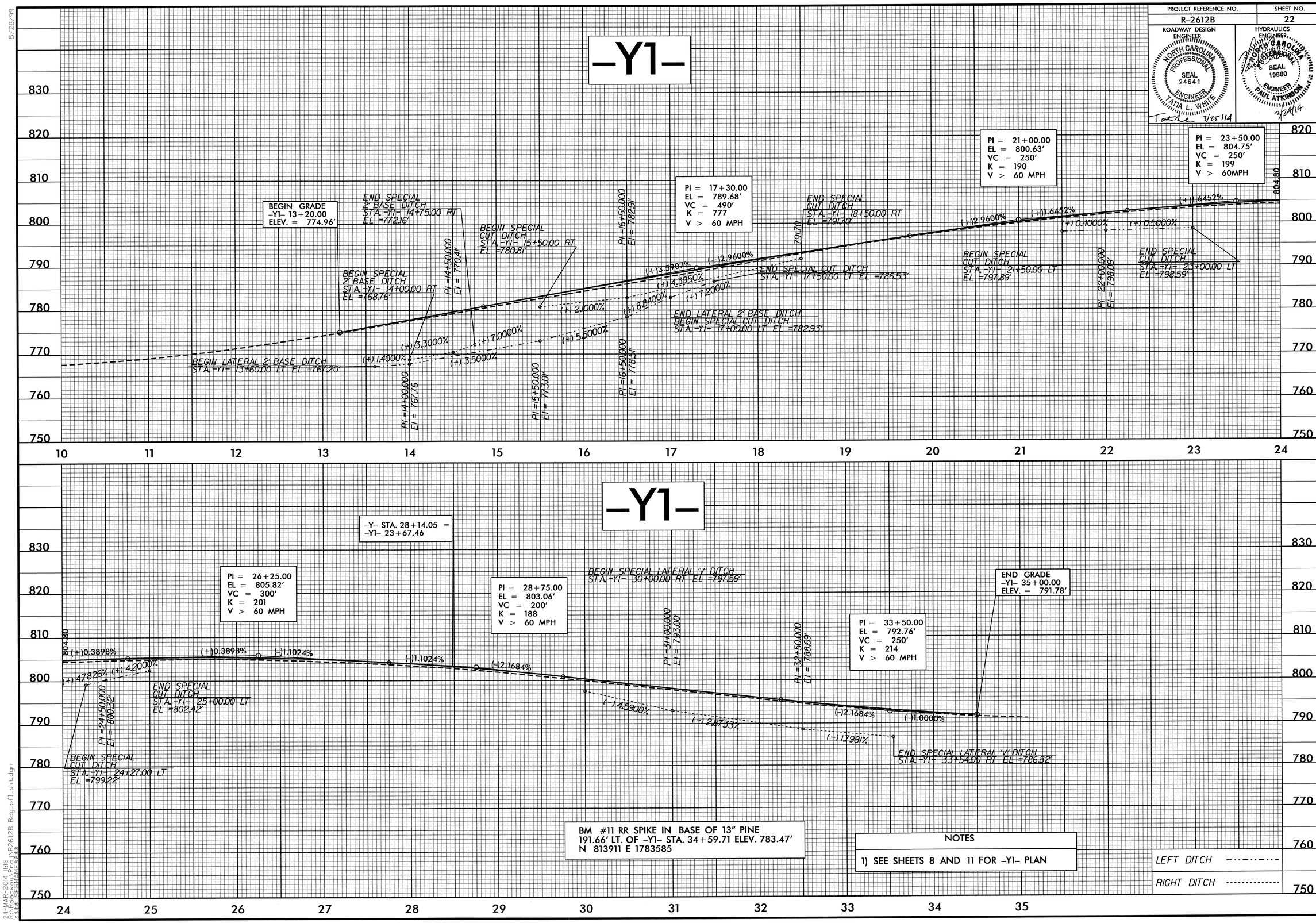
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	22

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
Tatia L. White 3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19860 ENGINEER PAUL ATKINSON
3/24/14



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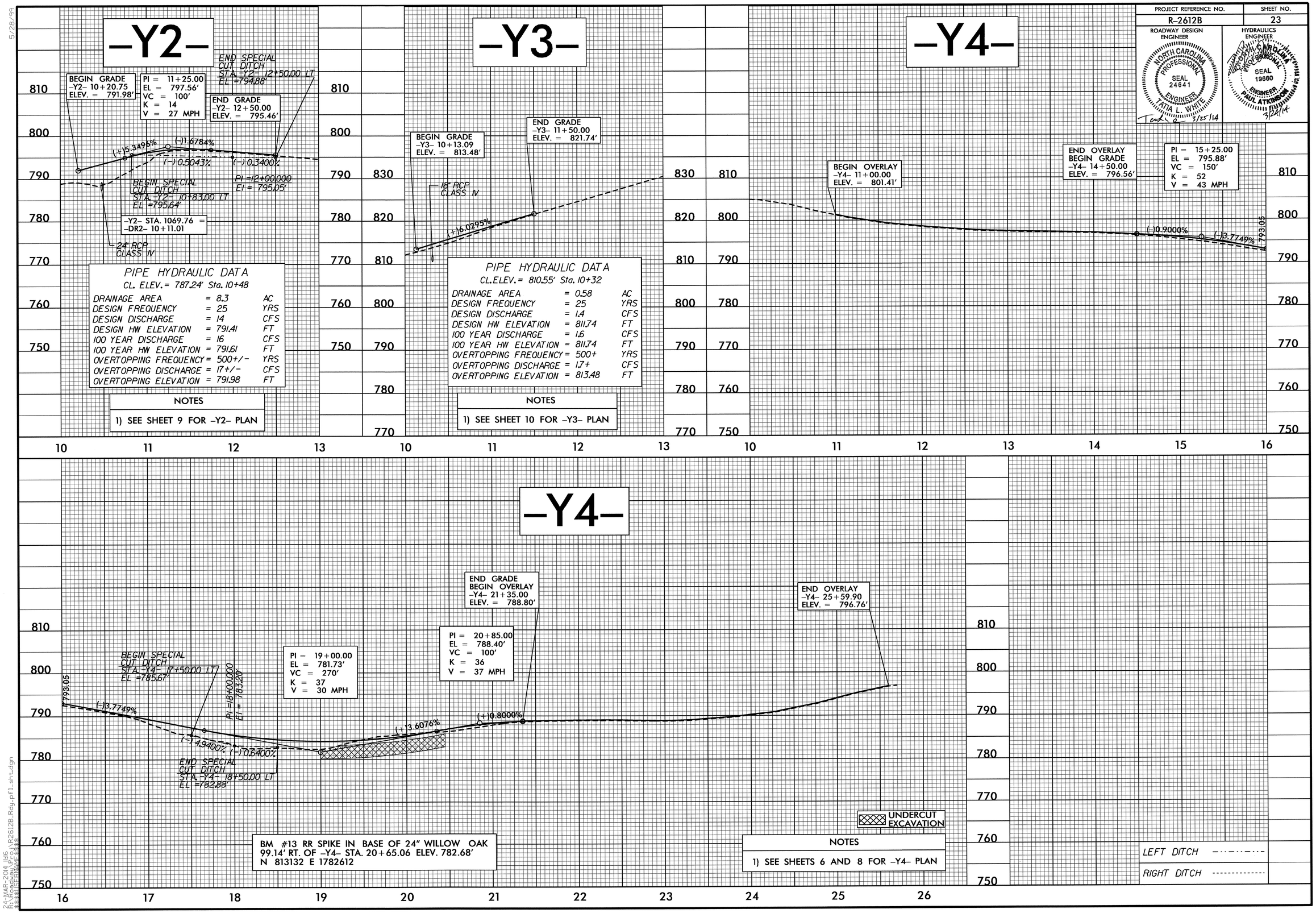
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	23

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON
3/24/14



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PROJECT REFERENCE NO.	SHEET NO.
R-2612B	24

ROADWAY DESIGN ENGINEER

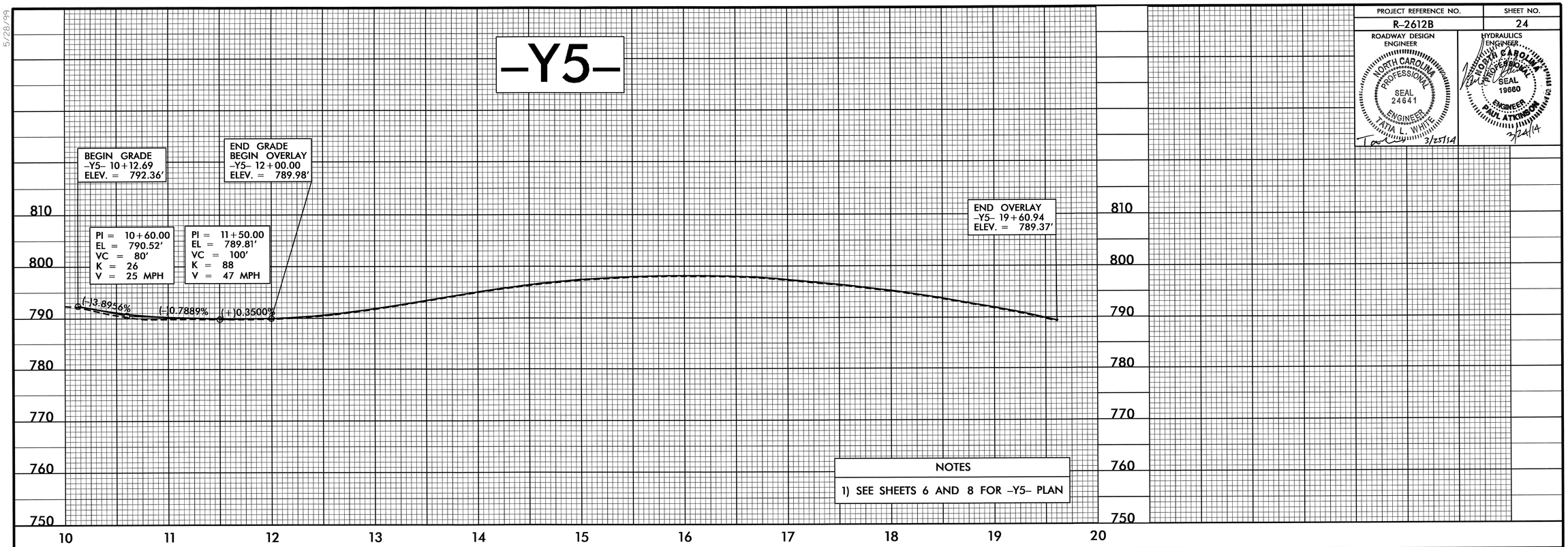
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE

Tatia L. White 3/25/14

HYDRAULICS ENGINEER

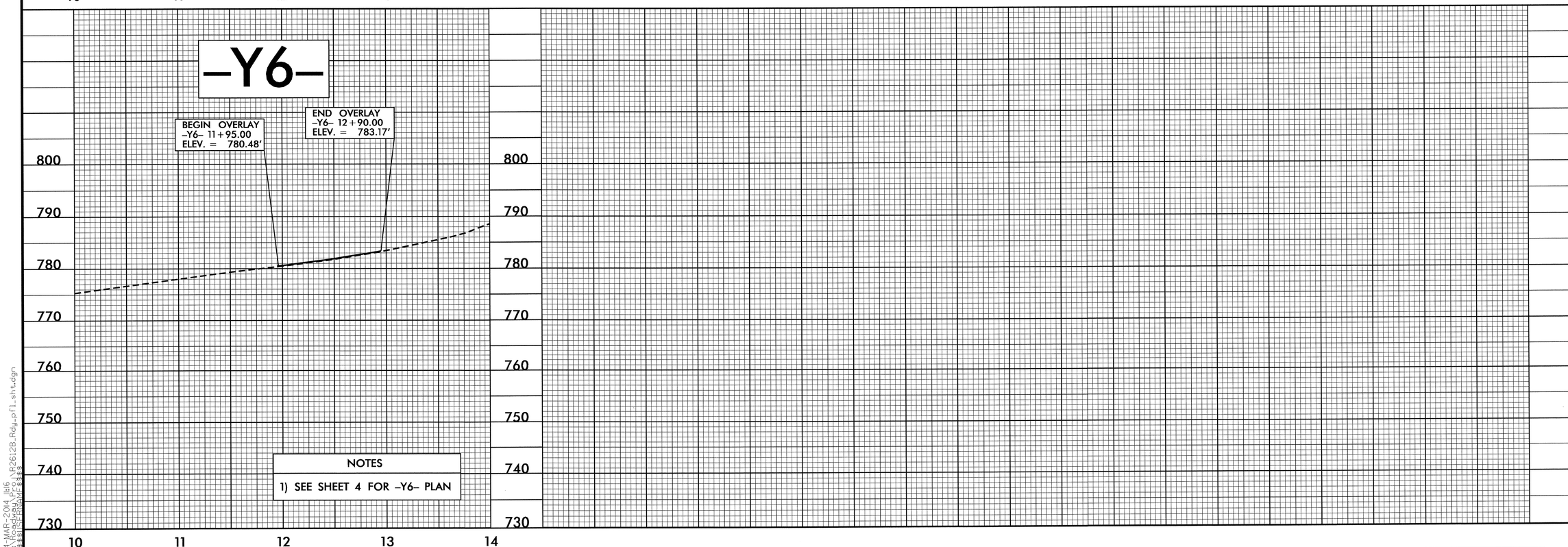
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON

3/24/14



NOTES

1) SEE SHEETS 6 AND 8 FOR -Y5- PLAN



NOTES

1) SEE SHEET 4 FOR -Y6- PLAN

5/28/99

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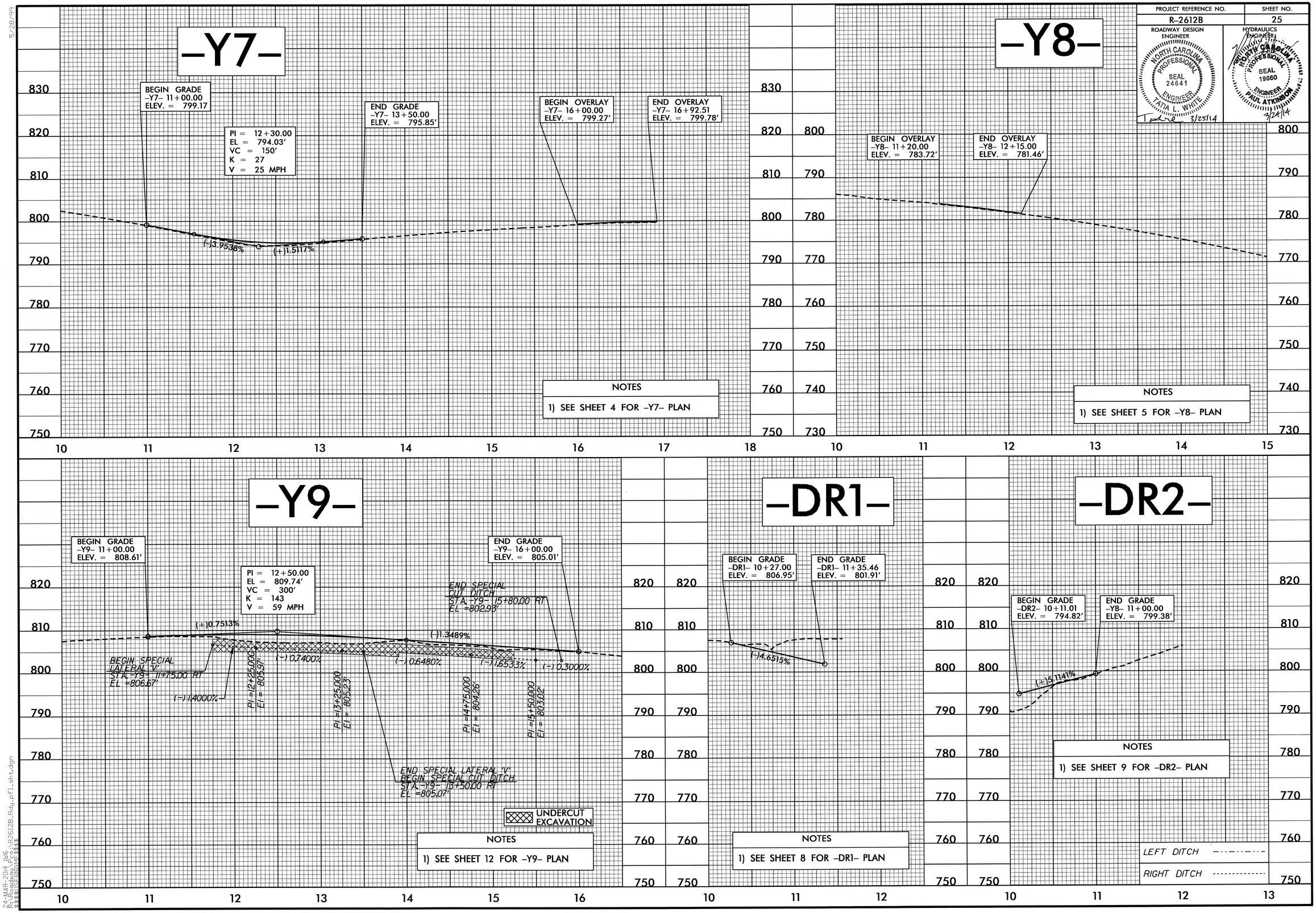
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	25

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24641 ENGINEER TATIA L. WHITE
3/25/14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON
3/24/14



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