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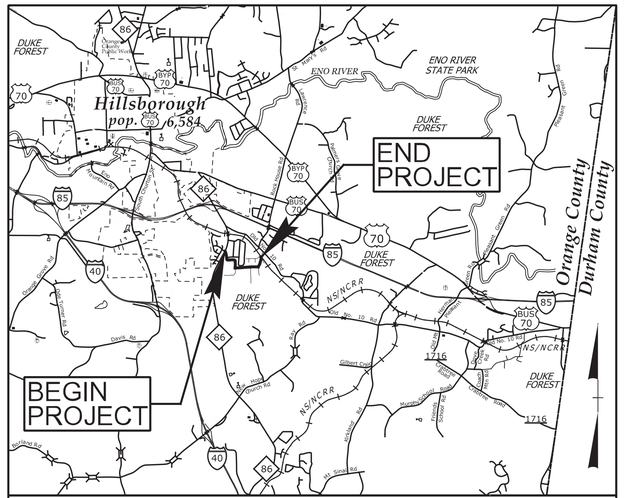
0660DEL_P210

DCN

TIP PROJECT: P–4405 K

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
RAIL DIVISION

ORANGE COUNTY

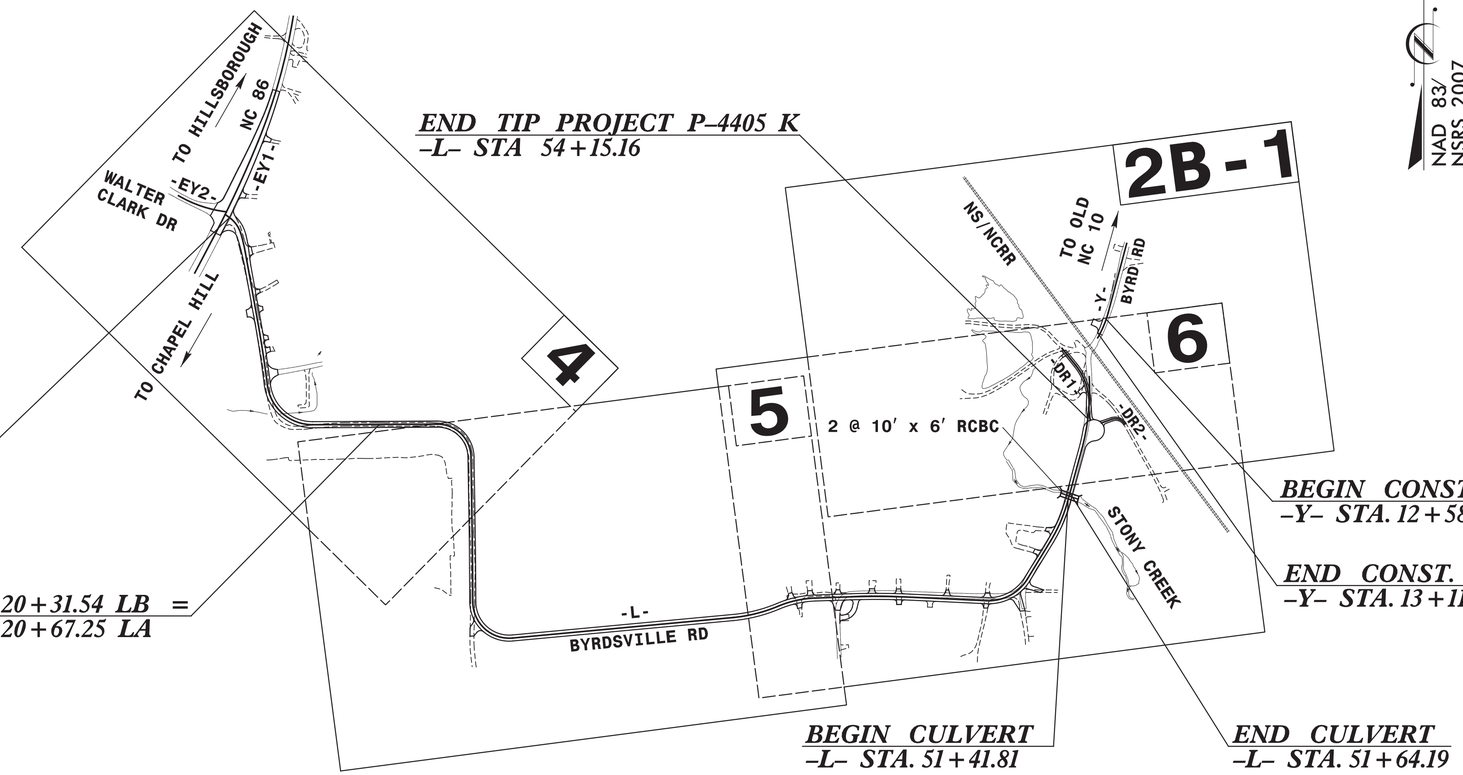
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	P–4405 K	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
62000.7.STR28T1B		PE
43219.2.STR01P4405K		ROW
62000.7.STR30T4		CONST

LOCATION: BYRDSVILLE ROAD – EXTENSION FROM NS/NCRR TO NC 86 AND CROSSING CLOSURE

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND CULVERT

NAD 83/
NSRS 2007



END TIP PROJECT P–4405 K
–L– STA 54+15.16

BEGIN TIP PROJECT P–4405 K
–L– STA 10+20.32

–L– POT 20+31.54 LB =
–L– POT 20+67.25 LA

BEGIN CONST.
–Y– STA. 12+58.43

END CONST.
–Y– STA. 13+11.75

BEGIN CULVERT
–L– STA. 51+41.81

END CULVERT
–L– STA. 51+64.19

SUBMITTAL: FINAL PLANS
DATE: FEBRUARY 19, 2016

NCDOT CONTACT: DAN HAVENER, PE
PROJECT MANAGER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

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 (2015) = 400
ADT =
DHV = %
D = %
T = % *
V = 30 MPH
* TTST =
* DUAL =
FUNC CLASS = SUBDIVISION
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT P–4405 K = 0.822 MILE
LENGTH STRUCTURE TIP PROJECT P–4405 K = 0.004 MILE
TOTAL LENGTH TIP PROJECT P–4405 K = 0.826 MILE

Prepared In the Office of:
ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 11, 2015

LETTING DATE:
MARCH 22, 2016

DAVID C. WALLER, PE
PROJECT ENGINEER

ALEXANDER D. SNIDER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
STACEY H. BAILEY
DocuSigned by: 2/19/2016
Stacey H. Bailey P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY

ROADWAY DESIGN ENGINEER
ALEXANDER D. SNIDER
DocuSigned by: 2/19/2016
Alexander D. Snider P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING COORDINATION AND SAFETY

2/18/2016
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ICA ENGINEERING, INC.

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PROJECT REFERENCE NO.	SHEET NO.
P-4405 I	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER

DocuSigned by: 4/4/2016
Alexander D. Snider

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-3	SURVEY CONTROL SHEETS
1D-1	CENTERLINE COORDINATE LIST
2A-1 THRU 2A-3	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	CROSSING CLOSURE DETAIL
2B-2	LIMITS OF SIGHT DISTANCE CLEARING DETAIL
3B-1	EARTHWORK, GUARDRAIL, AND PAVEMENT REMOVAL SUMMARIES
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECH SUMMARY
3P-1	PARCEL INDEX SHEET
4 THRU 11	PLAN AND PROFILE SHEETS
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-11	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-5	SIGNING AND PAVEMENT MARKING PLANS
UC-1 THRU UC-6	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-4	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-35	CROSS-SECTIONS
C-1 THRU C-5	CULVERT PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

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 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy Progress.

Time Warner Cable. Century Link

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

EFF. 01-17-2012
REV. 10-30-2012

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
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
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
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.72	Pipe Collar
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

3/29/2016
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ft1EWINTERRUN, NW4,

0660DEL_P21o

DCN

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	1B

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 Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed 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
- 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:

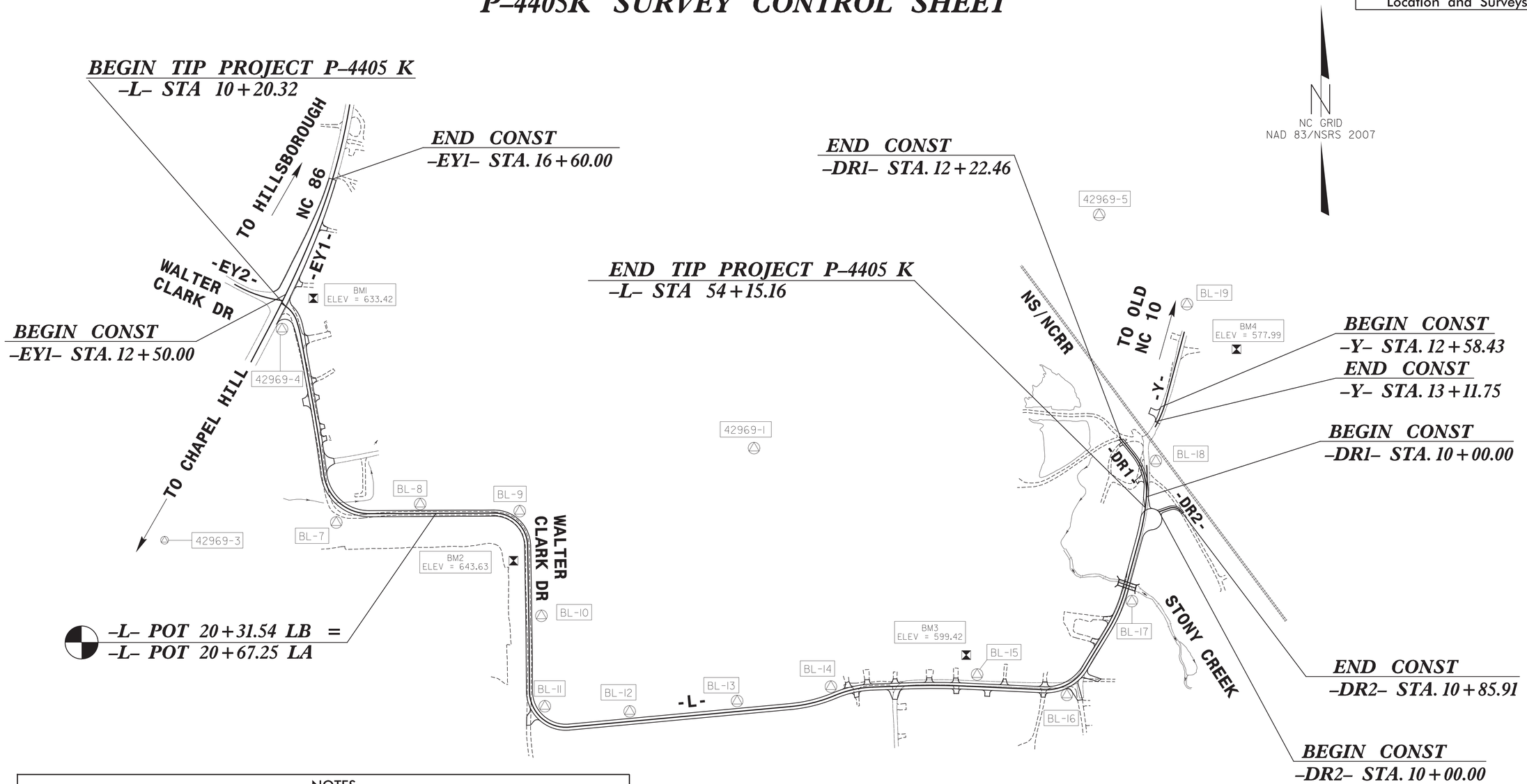
- Sanitary Sewer Manhole — SS
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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.
62000.7.STR29T3	1C-1
Location and Surveys	

P-4405K 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:
p4405k_ls_control.txt

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.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "42969-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 836,240.833(ft) EASTING: 1,978,081.536(ft)
ELEVATION: 620.28'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999441360
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "42969-1" TO -L- STATION 10+19.76 IS
N 73°08'19" W 1,612.93'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

0660DEL_P21o 12/01/2005
2/18/2016 R:\Location&Surveys\p4405k_ls_1c-1.dgn ITA ENGINEERING INC.

PROJECT REFERENCE NO.	SHEET NO.
62000.7.STR29T3	1C–2
Location and Surveys	

P–4405K SURVEY CONTROL SHEET

NC GRID
NAD 83/NSRS 2007

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	42969-3	835920.7230	1976125.8930	649.46	16+28.11	581.96 RT
4	42969-4	836633.2430	1976523.4580	642.52	10+92.76	56.57 RT
7	BL-7	836007.2145	1976719.7088	633.47	17+34.75	41.37 RT
8	BL-8	836039.5168	1977001.0356	641.19	19+99.30	13.97 LT
9	BL-9	836010.9877	1977317.3111	643.23	23+44.29	21.65 LT
10	BL-10	835691.0602	1977349.8591	652.10	26+57.97	10.75 LT
11	BL-11	835369.5577	1977358.9695	649.72	29+81.08	4.56 RT
12	BL-12	835368.1124	1977672.6737	653.54	33+11.70	28.41 LT
13	BL-13	835403.1695	1978023.3165	626.76	36+64.08	30.91 LT
14	BL-14	835454.4594	1978334.9612	603.63	39+90.95	31.86 LT
15	BL-15	835479.6417	1978793.7745	598.50	44+40.29	24.28 LT
16	BL-16	835439.2049	1979127.4165	573.37	47+65.97	25.97 RT
17	BL-17	835771.6778	1979316.6524	549.26	51+37.60	11.89 RT
18	BL-18	836206.6711	1979387.4624	571.85	24+17.53	2071.32 LT
19	BL-19	836697.4990	1979521.1209	577.66	23+96.13	2314.79 LT
5	42969-5	837010.1120	1979218.8330	586.57	23+77.01	2163.56 LT
6	42969-6	838074.6420	1978117.8570	609.54	10+42.51	2085.83 LT

BENCHMARK DATA

```
****************************************
BM1       ELEVATION = 633.42
N 836735      E 1976629
L STATION 10+53.00 84 LEFT
RR SPIKE IN BASE OF 26" POPLAR
****************************************
****************************************
BM2       ELEVATION = 643.63
N 835869      E 1977289
L STATION 24+79.00 47 RIGHT
RR SPIKE IN BASE OF 44" WHITE OAK
****************************************
****************************************
BM3       ELEVATION = 599.42
N 835558      E 1978781
L STATION 44+24.00 102 LEFT
RR SPIKE IN BASE OF 15" WHITE OAK
****************************************
****************************************
BM4       ELEVATION = 577.99
N 836567      E 1979671
L STATION 24+04.00 2421 LEFT
RR SPIKE IN BASE OF 24" SWEET GUM
****************************************
```

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:
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PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
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VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
62000.7.STR29T3	1C–3
Location and Surveys	

P–4405K SURVEY CONTROL SHEET

-L- FINAL NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	42+37.70	25.00	835431.9406	1978590.9757
L	44+33.01	25.00	835430.7479	1978784.2288
L	46+84.59	25.00	835419.1306	1979035.5401
L	48+45.10	25.00	835502.9358	1979193.0954
L	49+93.34	25.00	835629.5490	1979270.1845
L	51+33.32	40.00	835760.1250	1979342.6349
L	53+08.67	40.00	835929.2700	1979388.8927
L	38+39.48	25.00	835363.7119	1978203.1281
L	50+50.00	25.00	835682.0079	1979298.1819
L	50+50.00	40.00	835675.7060	1979311.7939
L	18+43.02	-169.92	836194.7117	1976844.0058
L	18+69.14	-28.89	836053.8128	1976870.8046
L	22+58.88	25.00	836001.6244	1977225.0985
L	11+77.11	-25.02	836571.3318	1976620.1913
L	10+80.82	-29.11	836670.3986	1976601.5690
L	11+13.39	34.83	836620.8951	1976549.3622
L	11+05.46	50.63	836623.9389	1976532.2500
L	13+28.72	-26.30	836422.3474	1976648.3020
L	13+77.38	33.90	836363.7896	1976597.6728
L	14+28.40	-27.43	836324.0428	1976666.8065
L	15+27.40	-30.37	836225.9406	1976684.9023
L	15+93.65	26.44	836152.7335	1976637.3307
L	15+86.84	-33.44	836166.9560	1976695.8941
L	18+11.31	25.00	835999.6426	1976813.2434
L	19+81.30	-29.75	836055.2090	1976982.9643
L	21+18.44	-30.66	836056.6084	1977084.3847
L	22+18.68	-31.56	836057.9913	1977184.6199
L	23+02.77	-44.59	836059.3576	1977284.8806
L	23+43.62	-89.45	836060.4319	1977363.7126
L	23+70.73	-54.56	836003.8674	1977365.0348
L	24+30.45	25.00	835917.9775	1977310.4968
L	24+45.94	-31.65	835903.3940	1977367.3835
L	25+46.20	-32.45	835803.1528	1977369.7845
L	26+46.47	-33.26	835702.9143	1977372.1855
L	26+75.93	25.00	835672.5253	1977314.4018
L	27+96.29	25.00	835552.4292	1977315.7101
L	28+21.38	-35.32	835527.6924	1977376.1815
L	29+09.49	25.00	835439.1520	1977316.3761
L	29+67.60	-26.05	835395.9753	1977378.6303
L	29+96.23	-27.28	835378.5083	1977392.3992
L	31+07.99	-25.00	835345.8836	1977470.1520
L	31+07.99	25.00	835296.0976	1977474.7737
L	38+39.48	-25.00	835413.4979	1978198.5063
L	39+92.58	-25.00	835448.7316	1978339.0320
L	39+92.58	25.00	835402.6545	1978358.4459
L	41+20.30	25.00	835427.9670	1978473.6367
L	41+20.30	-25.00	835477.9384	1978471.9445
L	42+37.70	-25.00	835481.9119	1978589.2835
L	44+33.01	-25.00	835480.6946	1978786.5377
L	46+84.59	-25.00	835469.0772	1979037.8490
L	48+45.10	-25.00	835528.9381	1979150.3885
L	49+93.34	-25.00	835655.5513	1979227.4776
L	50+50.00	-25.00	835703.0141	1979252.8086
L	50+50.00	-40.00	835709.3160	1979239.1966
L	51+33.32	-40.00	835781.2284	1979265.4685
L	53+08.67	-40.00	835950.3735	1979311.7264
L	53+67.00	-32.00	836002.6434	1979332.0650
L	54+04.15	78.65	836022.3263	1979447.4581
L	55+29.61	-30.00	836157.5621	1979346.6002
L	10+44.21	-26.31	836709.2837	1976575.9409
L	10+42.20	-31.34	836714.5376	1976578.0269

-L- FINAL NEW PERMANENT DRAINAGE EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	24+45.00	50.00	835903.0319	1977285.7314
L	24+45.00	25.00	835903.4296	1977310.7282
L	41+90.00	40.00	835415.3347	1978543.8090
L	41+90.00	25.00	835430.3262	1978543.3014
L	42+30.00	40.00	835416.6885	1978583.7861
L	47+55.00	55.00	835407.0291	1979127.8107
L	47+50.00	25.00	835432.0759	1979110.1326
L	49+35.00	50.00	835566.7185	1979261.1991
L	49+35.00	25.00	835579.7197	1979239.8456
L	49+93.34	50.00	835616.5489	1979291.5386
L	50+50.00	50.00	835671.5047	1979320.8686
L	51+15.00	40.00	835741.1452	1979337.0687
L	51+15.00	75.00	835730.6822	1979370.4682
L	48+14.52	37.48	835466.0411	1979180.6964
L	16+65.00	25.00	836075.8025	1976667.9852
L	16+65.00	50.00	836061.6828	1976647.3544
L	16+85.00	50.00	836040.7442	1976663.8357
L	16+85.00	25.00	836057.4813	1976682.4064
L	24+25.00	50.00	835920.5499	1977285.3790
L	30+90.00	25.00	835295.7154	1977453.0561
L	30+90.00	60.00	835260.7730	1977451.0492
L	31+07.99	60.00	835261.2480	1977478.0089
L	34+00.00	-25.00	835372.8750	1977760.9091
L	34+00.00	-37.00	835384.8236	1977759.7999
L	34+50.00	-39.00	835391.4368	1977809.4009
L	35+00.00	-30.00	835387.0970	1977860.0188
L	36+57.64	-39.84	835411.4667	1978016.0748
L	38+39.01	-66.38	835454.6564	1978194.2125
L	39+10.00	-73.00	835471.0628	1978253.4462
L	39+10.00	-61.44	835459.8190	1978256.1217
L	38+84.00	25.00	835370.0982	1978249.4215
L	38+95.00	100.00	835298.8584	1978275.9230
L	39+30.00	100.00	835308.7831	1978316.7247
L	39+15.00	25.00	835376.9655	1978281.2335
L	39+97.74	-42.03	835466.6274	1978337.7678
L	40+95.00	-38.00	835488.9704	1978443.5375
L	42+18.00	-43.00	835499.2348	1978568.9839
L	42+55.00	-25.00	835482.4415	1978606.7510
L	51+15.00	-40.00	835765.0605	1979260.7270
L	51+33.32	-70.00	835789.1422	1979236.5311
L	51+75.00	-70.00	835829.3507	1979247.5274
L	52+50.00	-40.00	835893.7803	1979296.2493
L	53+08.67	70.00	835921.3549	1979417.8297
L	53+58.75	94.12	835969.8132	1979454.1368

-L- FINAL NEW PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	48+14.52	37.48	835466.0411	1979180.6964
L	47+00.45	25.00	835419.2539	1979054.0326
L	47+26.34	25.00	835423.6364	1979083.8751
L	47+09.95	259.12	835187.9105	1979093.7680
L	47+16.02	262.83	835186.6128	1979110.7489
L	47+14.37	282.28	835166.6709	1979109.2249
L	46+98.90	274.37	835170.0896	1979064.4895
L	48+58.82	54.46	835499.3309	1979225.3914
L	35+45.18	25.00	835336.5087	1977910.0892
L	34+95.13	60.00	835297.0324	1977863.4910
L	29+23.55	25.00	835422.2064	1977317.5265
L	29+13.99	48.30	835432.6247	1977293.2541
L	29+31.01	62.68	835406.2442	1977281.9269
L	29+53.65	25.00	835387.0743	1977326.5629
L	31+28.76	-25.00	835347.8036	1977490.8352
L	36+07.87	-25.00	835392.0896	1977967.8919
L	37+37.86	-63.76	835442.7012	1978093.7420
L	37+37.86	-83.22	835462.0766	1978091.9433
L	37+59.75	-83.22	835464.1001	1978113.7399
L	37+59.75	-67.12	835448.0699	1978115.2280
L	39+77.82	25.00	835396.8500	1978344.0805
L	39+77.82	37.87	835384.8430	1978348.7260
L	39+77.82	60.08	835364.1377	1978356.7369
L	39+96.76	60.73	835371.0560	1978375.5146
L	39+96.76	38.66	835391.4896	1978367.1845
L	48+64.28	40.93	835511.0307	1979216.6744

-L- FINAL NEW PERMANENT DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	24+30.00	-31.65	835919.4584	1977367.1292
L	24+30.00	-45.00	835919.7254	1977380.4765
L	24+50.00	-45.00	835899.5438	1977380.7989

L

TYPE	STATION	NORTH	EAST
POT	10+02.92	836718.4540	1976524.2376
PC	10+19.76	836708.6781	1976537.9452
PCC	10+84.49	836657.1953	1976575.2961
PT	11+47.47	836596.0739	1976590.3191
PC	13+77.38	836369.7926	1976631.0350
PRC	15+93.57	836156.0908	1976663.5528
PT	18+11.31	836024.6423	1976813.1232
EQB	20+31.54	836025.7020	1977033.3471
EQA	20+67.25	836025.7020	1977033.3471
PC	22+58.88	836026.6241	1977224.9782
PT	24+30.45	835918.3752	1977335.4936
PC	26+75.93	835672.9230	1977339.3986
PT	27+96.29	835552.5762	1977340.7097
PC	29+09.09	835439.7714	1977341.3729
PT	31+07.99	835320.9906	1977472.4629
PC	38+39.48	835388.6049	1978200.8172
PRC	39+92.58	835425.6931	1978348.7389
PT	41+20.30	835452.9527	1978472.7906
PC	42+37.70	835456.9263	1978590.1296
PT	44+33.01	835455.7212	1978785.3832
PC	46+84.59	835444.1039	1979036.6946
PT	48+45.10	835515.9369	1979171.7419
PC	49+93.34	835642.5502	1979248.8311
PT	51+33.32	835770.6767	1979304.0517
PC	53+08.67	835939.8218	1979350.3095
PT	55+54.48	836183.2359	1979375.4895

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "42969-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 836,240.833(ft) EASTING: 1,978,081.536(ft)
ELEVATION: 620.28'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9999441360
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"42969-1" TO -L- STATION 10+19.76 IS
N 73°08'19" W 1,612.93'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

PROJ. REFERENCE NO.	SHEET NO.
P-4405 K	1D-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+02.9200	836718.4540	1976524.2376
2	L	11+00.0000	836642.3223	1976579.7098
3	L	12+00.0000	836544.3717	1976599.6221
4	L	13+00.0000	836445.9523	1976617.3312
5	L	14+00.0000	836347.5216	1976634.9773
6	L	15+00.0000	836248.7995	1976650.8964
7	L	16+00.0000	836149.7299	1976664.4843
8	L	17+00.0000	836063.5961	1976711.5593
9	L	18+00.0000	836025.0145	1976801.8174
10	L	19+00.0000	836025.0691	1976901.8076
11	L	20+00.0000	836025.5502	1977001.8064
12	L	20+31.5400	836025.7020	1977033.3471
13	L	20+67.2500 R 2	836025.7020	1977033.3471
14	L	21+00.0000 R 2	836025.8596	1977066.0967
15	L	22+00.0000 R 2	836026.3407	1977166.0956
16	L	23+00.0000 R 2	836019.2220	1977265.1802
17	L	24+00.0000 R 2	835948.3677	1977330.8281
18	L	25+00.0000 R 2	835848.8343	1977336.6000
19	L	26+00.0000 R 2	835748.8469	1977338.1907
20	L	27+00.0000 R2	835648.8592	1977339.7574
21	L	28+00.0000 R 2	835548.8643	1977340.7315
22	L	29+00.0000 R 2	835448.8660	1977341.3194
23	L	30+00.0000 R 2	835357.5091	1977374.6739
24	L	31+00.0000 R 2	835320.5173	1977464.4856
25	L	32+00.0000 R 2	835329.4952	1977564.0762
26	L	33+00.0000 R 2	835338.7386	1977663.6480
27	L	34+00.0000 R 2	835347.9820	1977763.2199
28	L	35+00.0000 R 2	835357.2255	1977862.7918
29	L	36+00.0000 R 2	835366.4689	1977962.3637
30	L	37+00.0000 R 2	835375.7123	1978061.9356
31	L	38+00.0000 R 2	835384.9557	1978161.5074
32	L	39+00.0000 R 2	835397.8282	1978260.5941
33	L	40+00.0000 R 2	835428.5027	1978355.6100
34	L	41+00.0000 R 2	835451.6783	1978452.5381
35	L	42+00.0000 R 2	835455.6503	1978552.4495
36	L	43+00.0000 R 2	835458.2397	1978652.4124
37	L	44+00.0000 R 2	835457.0225	1978752.3980
38	L	45+00.0000 R 2	835452.6279	1978852.3006
39	L	46+00.0000 R 2	835448.0101	1978952.1939
40	L	47+00.0000 R 2	835444.1835	1979052.0967
41	L	48+00.0000 R 2	835481.4901	1979142.8893
42	L	49+00.0000 R 2	835562.8260	1979200.2906
43	L	50+00.0000 R 2	835648.2627	1979252.2572
44	L	51+00.0000 R 2	835738.8582	1979294.1997
45	L	52+00.0000 R 2	835834.9996	1979321.6427
46	L	53+00.0000 R 2	835931.4575	1979348.0221
47	L	54+00.0000 R 2	836029.1630	1979368.9849
48	L	55+00.0000 R 2	836128.7811	1979376.8225
49	L	55+54.4800 R 2	836183.2359	1979375.4895
50	DR1	10+00.00	836079.9795	1979374.6533
51	DR1	11+00.00	836177.4638	1979357.6175
52	DR1	12+00.00	836258.9381	1979300.2317
53	DR1	12+22.46	836276.4137	1979286.1240
54	DR2	10+00.00	836030.7297	1979415.8965
55	DR2	10+85.91	836027.0210	1979493.2714
56	EY1	10+00.00	836525.4950	1976424.0479
57	EY1	11+00.00	836614.0174	1976470.5643
58	EY1	12+00.00	836702.8557	1976516.4701
59	EY1	13+00.00	836792.8665	1976560.0295
60	EY1	14+00.00	836884.0369	1976601.1069
61	EY1	15+00.00	836976.3135	1976639.6333
62	EY1	16+00.00	837070.1933	1976674.0467
63	EY1	17+00.00	837165.7534	1976703.4738
64	EY1	18+00.00	837262.7293	1976727.8329
65	EY1	19+00.00	837360.8524	1976747.0567
66	EY1	19+11.29	837371.9928	1976748.9023
67	Y	10+00.00	836622.6509	1979499.1846
68	Y	11+00.00	836526.0484	1979473.3397
69	Y	12+00.00	836429.4459	1979447.4949
70	Y	13+00.00	836334.7200	1979416.0385
71	Y	13+26.34	836311.3946	1979403.8054

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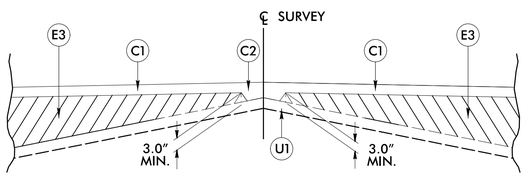
0660DEL_P21o

DGN

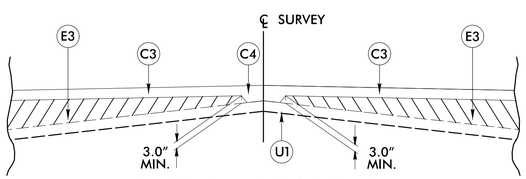
FINAL PAVEMENT DESIGN

C1	PROP. APPROX 2.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5″IN DEPTH.
C3	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.
C4	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.
E1	PROP. APPROX 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX 9″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. SQ. YD. IN EACH OF TWO LAYERS.
E3	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 TO EXCEED 5.5″ OR LESS THAN 3″IN DEPTH.
J1	8″ AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YARD
T	EARTH MATERIAL
U	EXISTING ABC PAVEMENT
U1	EXISTING ASPALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL 1 ON THIS PAGE.)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL 2 ON THIS PAGE.)

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

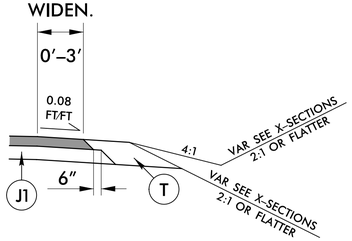


Detail Showing Method of Wedging 1
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 3

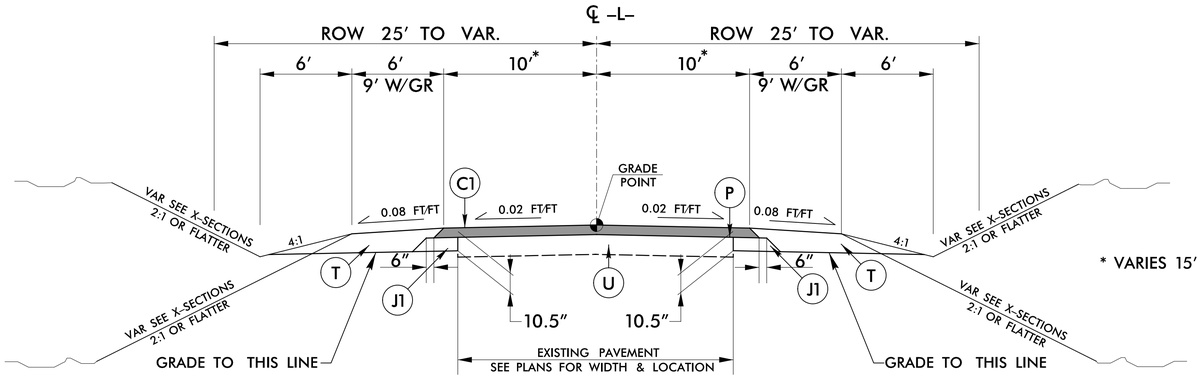


Detail Showing Method of Wedging 2
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 5

CURVE WIDEN.



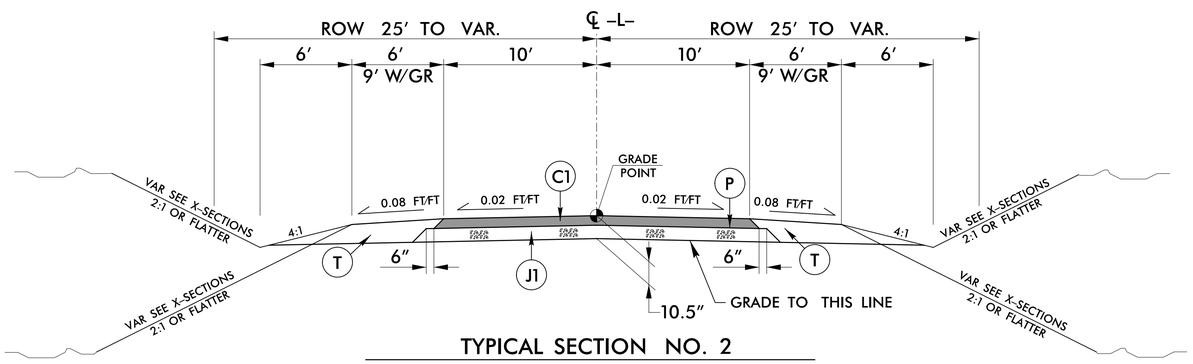
NOTE: SEE PLANS FOR CURVE WIDENING
–L– STA 15+83.67 LT TO –L– STA 19+01.32 LT
–L– STA 21+68.88 RT TO –L– STA 25+20.45 RT
–L– STA 28+19.11 LT TO –L– STA 31+97.99 LT
–L– STA 47+00.54 LT TO –L– STA 49+21.92 LT



TYPICAL SECTION NO. 1
–L– BYRDSVILLE ROAD

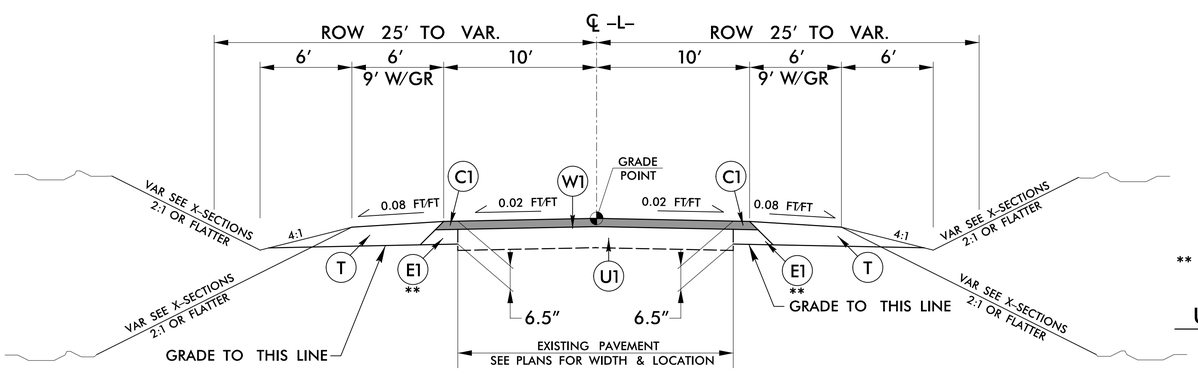
* VARIES 15′ TO 10′ FROM –L– STA 10+93.65 TO –L– STA 11+93.65

USE TYPICAL SECTION NO. 1 FROM:
–L– STA 10+20.30 TO –L– STA 20+31.54 LB
–L– STA 20+67.25 LA TO –L– STA 29+66.66



TYPICAL SECTION NO. 2
–L– BYRDSVILLE ROAD

USE TYPICAL SECTION NO. 2 FROM:
–L– STA 29+66.66 TO –L– STA 42+00.00
–L– STA 46+00.00 TO –L– STA 53+17.17



TYPICAL SECTION NO. 3
–L– BYRDSVILLE ROAD

** FOR WIDENING GREATER THAN 6′ USE J1

USE TYPICAL SECTION NO. 3 FROM:
–L– STA 42+00.00 TO –L– STA 46+00.00

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F–0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	2A-1

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: 2/22/2016
Alexander D. Snider
FD61A6

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: 2/23/2016
Clark S Morrison

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

2/22/2016
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$$$$USERNAME$$$$

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DGN

C1	2.5″ SF9.5A
C2	VAR. SF9.5A
C3	3″ S9.5B
C4	VAR S9.5B
E1	4″ B25.0B
E2	9″ B25.0B
E3	VAR B25.0B
J1	8″ ABC
P	PRIME COAT
T	EARTH MATERIAL
U	EX. ABC PAVEMENT
U1	EX. PAVEMENT
W1	VAR WEDGING
W2	VAR WEDGING

ICA Engineering
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

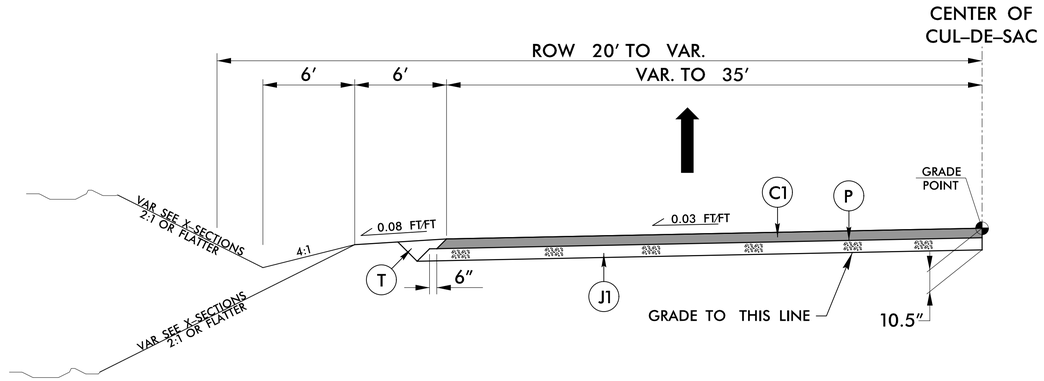
PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	2A-2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: 2/22/2016
Alexander D. Snider

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: 2/23/2016
Clark S Morrison

FD61A6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

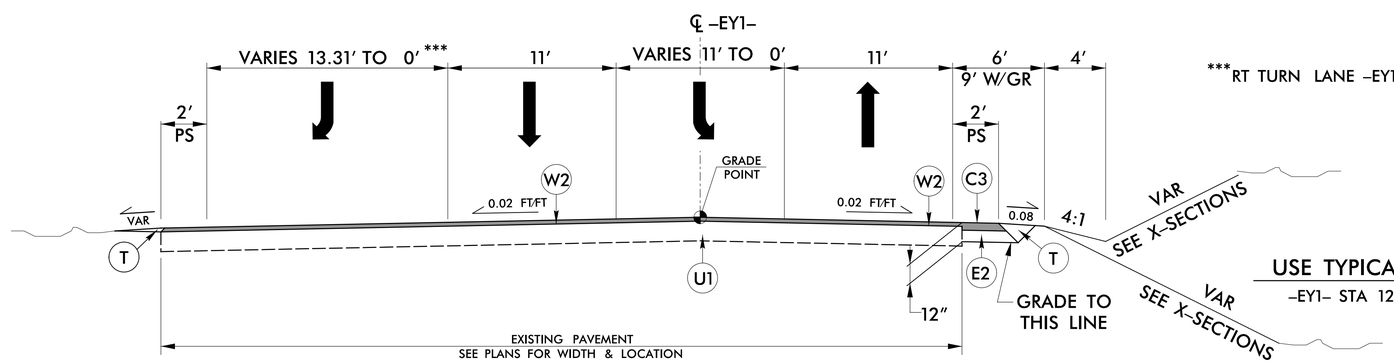


TYPICAL SECTION NO. 4

–L– BYRDSVILLE ROAD

USE TYPICAL SECTION NO. 4 AT:

–L– STA 53+17.17 TO –L– STA 53+81.29
–L– STA 53+81.29, 25′ OFFSET FROM CL



***RT TURN LANE –EY1– STA 12+55.00 TO –EY1– STA 16+00.00

USE TYPICAL SECTION NO. 5 FROM:

–EY1– STA 12+50.00 TO –EY1– STA 16+60.00

TYPICAL SECTION NO. 5

–EY1– NC 86

2/22/2016
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0660DEL_P21o

DGN

C1	2.5″ SF9.5A
C2	VAR. SF9.5A
C3	3″ S9.5B
C4	VAR S9.5B
E1	4″ B25.0B
E2	9″ B25.0B
E3	VAR B25.0B
J1	8″ ABC
P	PRIME COAT
T	EARTH MATERIAL
U	EX. ABC PAVEMENT
U1	EX. PAVEMENT
W1	VAR WEDGING
W2	VAR WEDGING

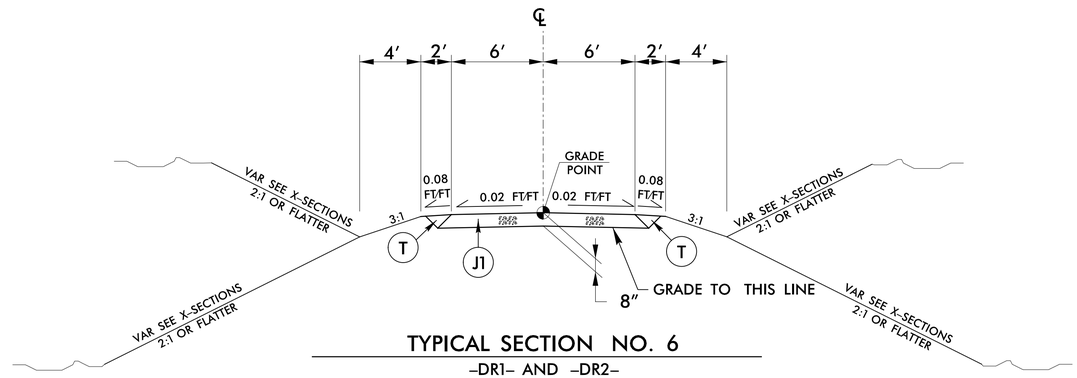
ICA Engineering
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	2A-3

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/22/2016
FD61A6

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: Clark S Morrison 2/23/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

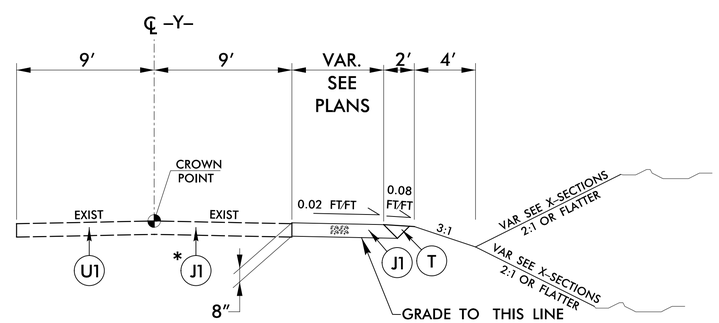


TYPICAL SECTION NO. 6

–DR1– AND –DR2–

USE TYPICAL SECTION NO. 6 FROM:

–DR1– STA 10+00.00 TO –DR1– STA 12+22.46
–DR2– STA 10+00.00 TO –DR2– STA 10+85.91



TYPICAL SECTION NO. 7

–Y– BYRD ROAD

* REMOVE EXIST PAVEMENT AND BUILD TURN AROUND WITH ABC

USE TYPICAL SECTION NO. 7 FROM:

–Y– STA 12+58.43 TO –Y– STA 13+11.75

2/22/2016
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ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 3/17/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 3/17/2016

FD614A0

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CROSSING CLOSURE DETAIL

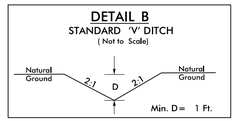
BYRD RD

NOTES:

1. CONTACT THE NCDOT RESIDENT ENGINEER TO SCHEDULE THE CLOSURE OF BYRD ROAD.
2. THE EXISTING PAVEMENT WITHIN 10' OF THE CENTERLINE OF THE TRACK, WILL BE REMOVED BY OTHERS. THE TIMBER SURFACE AND RAIL SEAL FLANGES WILL ALSO BE REMOVED BY OTHERS. THE EXISTING CROSSBUCKS WILL BE REMOVED BY OTHERS. CROSSING SIGNAL WILL BE REMOVED BY OTHERS.
3. CONTRACTOR SHALL SEED AND MULCH THE DISTURBED AREA OUTSIDE THE RAILROAD BALLAST LINE.
4. CONTRACTOR SHALL CONTACT NORTH CAROLINA 811 TO LOCATE ALL UNDERGROUND UTILITIES IN THE WORK AREA. CONTRACTOR SHALL CONTACT NSR TO LOCATE ALL UNDERGROUND RAILROAD UTILITIES PRIOR TO COMMENCEMENT OF WORK WITHIN THE RAILROAD RIGHT OF WAY.
5. CONTRACTOR SHALL REMOVE EXISTING HIGHWAY ROADBED AND GRADE AREA TO MATCH ADJACENT TOPOGRAPHY. ANY EXISTING CULVERTS IN THE RAILROAD DITCHES SHALL BE REMOVED AND GRADE EXISTING DITCHES TO DRAIN. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER ON HAULING AWAY ANY ASPHALT LEFT BY THE REMOVAL OF OTHERS.
6. ENSURE ALL NECESSARY TRAFFIC CONTORL DEVICES ARE IN PLACE PRIOR TO CLOSING THE CROSSING AND ALTERING THE TRAFFIC PATTERN. SEE THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

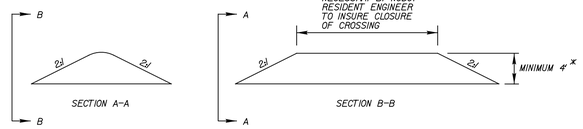
NOTE: ALL WORK WITHIN NCRR RIGHT OF WAY TO BE COORDINATED WITH NCDOT, NCRR, AND NS

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



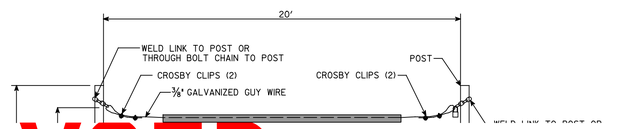
-Y- STA. 13+07 RT

EARTHEN BERM DETAIL

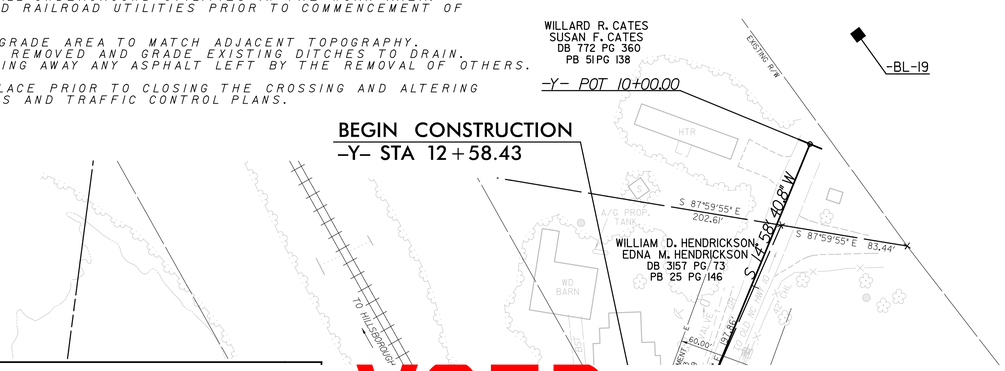


* EXCESS MATERIAL FROM CROSSING REMOVAL SHOULD BE USED TO INCREASE HEIGHT OF BERM

RIGHT OF WAY GATE DETAIL



POSTS TO BE PAINTED SILVER



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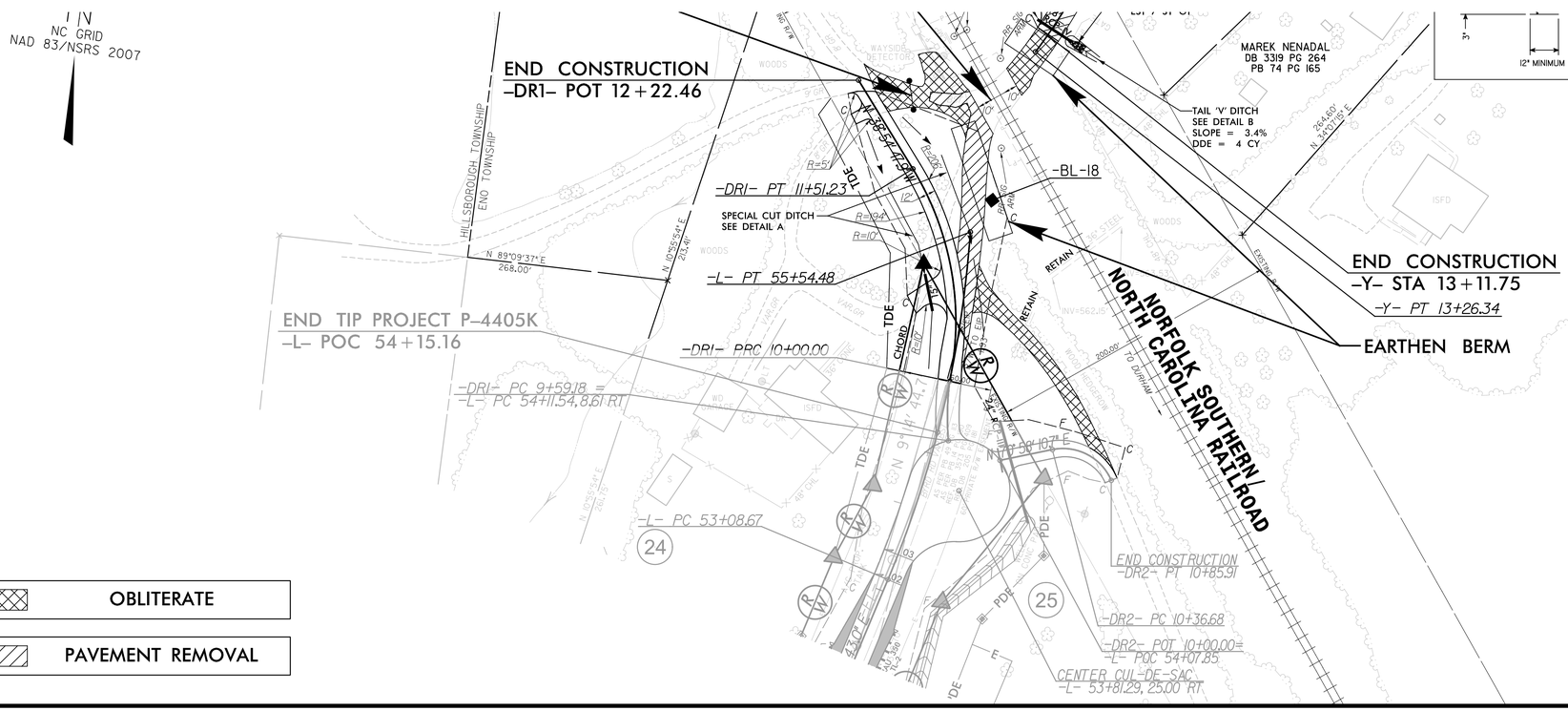

OBLITERATE

PAVEMENT REMOVAL

-Y-
PI Sta 12+83.28
Δ = 15° 30' 36.5" (RT)
D = 16° 22' 12.8"
L = 94.75'
T = 47.66'
R = 350.00'

-DR1-

PI Sta 9+79.66	PI Sta 10+79.43
Δ = 11° 41' 34.4" (RT)	Δ = 43° 19' 28.8" (LT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 40.82'	L = 151.23'
T = 20.48'	T = 79.44'
R = 200.00'	R = 200.00'

-DR2-
PI Sta 10+66.02
Δ = 78° 21' 30.2" (RT)
D = 159° 09' 17.8"
L = 49.23'
T = 29.34'
R = 36.00'

-L-
PI Sta 54+32.69
Δ = 18° 46' 43.1" (LT)
D = 7° 38' 22.0"
L = 245.81'
T = 124.02'
R = 750.00'
SE = 0.03
DS = 30 MPH

FOR -L- PROFILE, SEE SHEET 10
FOR -DR1- PROFILE, SEE SHEET 11
FOR -DR2- PROFILE, SEE SHEET 11

3/17/2016
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CROSSING CLOSURE DETAIL

BYRD RD

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 5/18/2016
FD614A0

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 5/18/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

1. CONTACT THE NCDOT RESIDENT ENGINEER TO SCHEDULE THE CLOSURE OF BYRD ROAD.
2. THE EXISTING PAVEMENT WITHIN 10' OF THE CENTERLINE OF THE TRACK, WILL BE REMOVED BY OTHERS. THE TIMBER SURFACE AND RAIL SEAL FLANGES WILL ALSO BE REMOVED BY OTHERS. THE EXISTING CROSSBUCKS WILL BE REMOVED BY OTHERS. CROSSING SIGNAL WILL BE REMOVED BY OTHERS.
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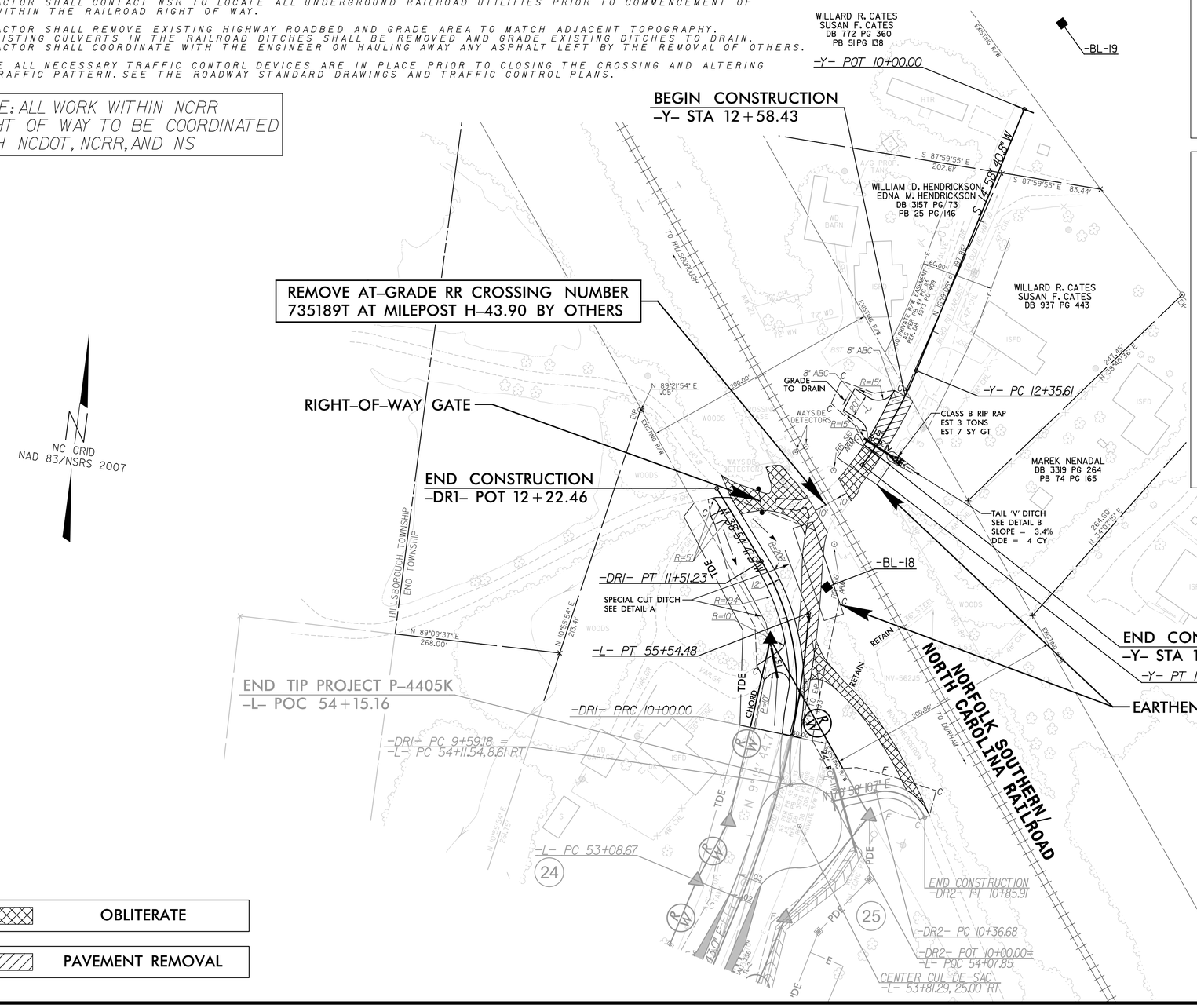
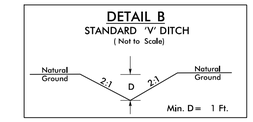
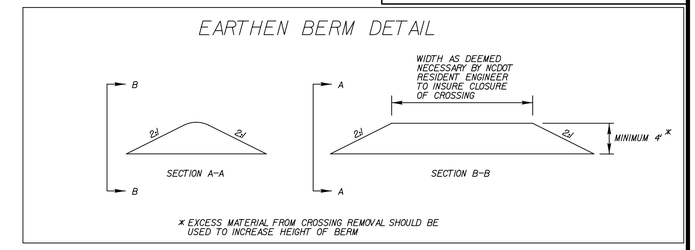
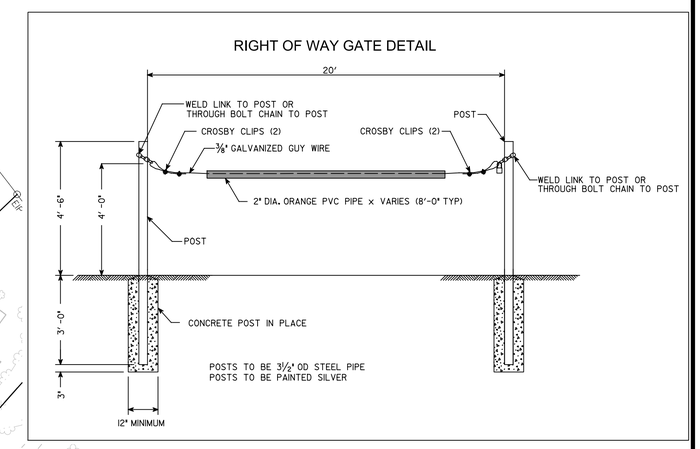
NOTE: ALL WORK WITHIN NCRR RIGHT OF WAY TO BE COORDINATED WITH NCDOT, NCRR, AND NS









-Y-
PI Sta 12+81.23
△ = 14° 51' 11.7" (RT)
D = 16° 22' 12.8"
L = 90.73'
T = 45.62'
R = 350.00'

-DR1-

PI Sta 9+79.66	PI Sta 10+79.43
△ = 11° 41' 34.4" (RT)	△ = 43° 19' 28.8" (LT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 40.82'	L = 151.23'
T = 20.48'	T = 79.44'
R = 200.00'	R = 200.00'

-DR2-
PI Sta 10+66.02
△ = 78° 21' 30.2" (RT)
D = 159° 09' 17.8"
L = 49.23'
T = 29.34'
R = 36.00'

-L-
PI Sta 54+32.69
△ = 18° 46' 43.1" (LT)
D = 7° 38' 22.0"
L = 245.81'
T = 124.02'
R = 750.00'
SE = 0.03
DS = 30 MPH

FOR -L- PROFILE, SEE SHEET 10
FOR -DR1- PROFILE, SEE SHEET 11
FOR -DR2- PROFILE, SEE SHEET 11

OBLITERATE

PAVEMENT REMOVAL

5/18/2016
ICA ENGINEERING, INC.
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DGN

LIMITS OF SIGHT DISTNACE CLEARING

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

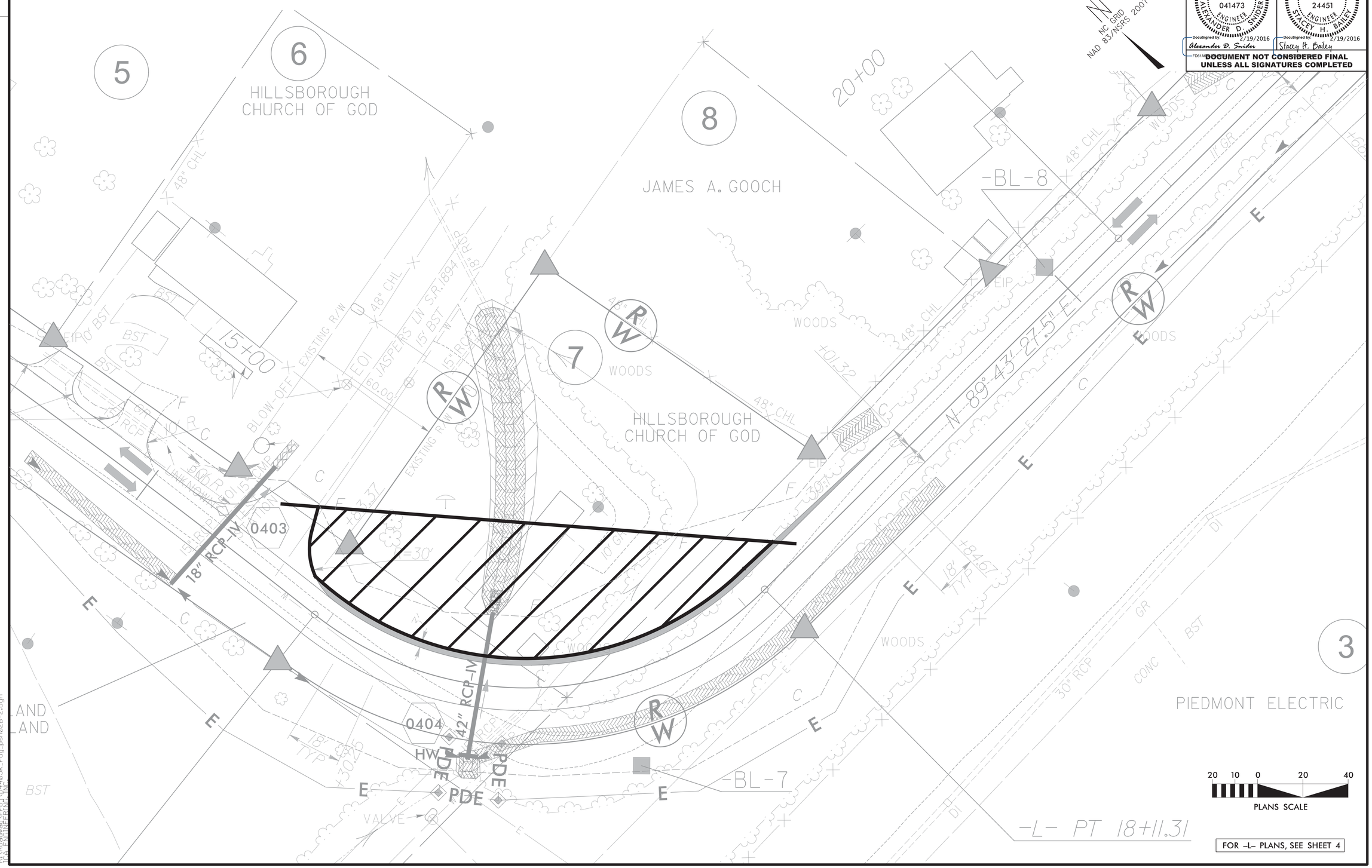
PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016
FD61A0

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/NSRS 2007



FOR -L- PLANS, SEE SHEET 4

2/18/2016
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ICA ENGINEERING, INC.

SUMMARY OF EARTHWORK
IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–L– 10+20.32	–L– 20+67.25	1690	1031		659
–L– 20+67.25	–L– 31+00.00	805	1055	250	
–L– 31+00.00	–L– 51+50.00	2439	4429	1990	
–L– 51+50.00	–L– 54+00.00	294	2730	2436	
2 @ 10' x 6' RCBC				–342	
SUBTOTALS:		5228	9245	4334	659
–DR1– 9+72.87	–DR1– 12+00.00	989	212		777
–DR2– 10+00.00	–DR2– 10+85.91	30	338	308	
SUBTOTALS:		1019	550	308	777
–Y– 12+58.43	–Y– 13+11.75	126			126
SUBTOTALS:		126			126
–EY1– 12+50.00	–EY1– 16+50.00	9	401	391	
SUBTOTALS:		9	338	391	
PROJECT TOTALS:		6382		5033	1562
MATERIAL FOR SHOULDER CONSTRUCTION				1576	
WASTE IN LIEU OF BORROW				–1562	–1562
MATERIAL FOR BERM CONSTRUCTION				2196	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				362	
GRAND TOTALS:		6382		7605	
SAY:		6400		7700	

DDE (CY) = 440

UNDERCUT EXCAVATION (CY) = 450

SELECT GRANULAR MATERIAL (CY) = 300

GEOTEXTILE FOR SOIL STABILIZATION (SY) = 750

SHALLOW UNDERCUT (CY) = 150

CLASS IV SUBGRADE STABILIZATION (TONS) = 300

PAVEMENT STRUCUTRE VOLUME (CY) = 910

Note: Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Borrow Excavation, Fine Grading, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–DR1–	10+00.00	11+89.71	RT	261
–Y–	12+58.43	13+11.75	CL	103
			TOTAL:	364
			SAY:	364

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON–GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

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 GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	TL–2 GRAU 350	M–350	XIII	CAT–1	VI MOD	BIC	AT–1	EA	G	NG				
–L–	50+25.00	52+75.00	RT	250			51+00.00	52+00.00	6	9	25	25	1	1			2													
–L–	50+75.00	52+37.50	LT	162.5			51+50.00	51+50.00	6	9	25	25	1	1			2													
	TOTAL			412.5													4													
	DEDUCTIONS FOR ANCHOR UNITS			100																										
	SAY			312.5													4													NOTE: 5 EACH ADDITIONAL GUARDRAIL POSTS

0660DEL_P21o

NC10481

COMPUTED BY: ADS	DATE: 1/9/2016	PROJECT NO.	SHEET NO.
CHECKED BY: SHB	DATE: 1/9/2016	P-4405 K	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE 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
-L- 10+39	CL	401			635.7	633.1													
-L- 13+46	RT	402																	
-L- 15+37	CL	403			629.4	628.4													
-L- 16+74	CL	404			627.5	625.0													
-L- 24+38	CL	405			638.4	638.0													
-L- 31+00	CL	502			645.5	640.0													
-L- 39+00	CL	503			601.8	601.3													
-L- 40+40	LT	504																	
-L- 41+03	LT	601																	
-L- 41+93	LT	602																	
-L- 42+17	CL	603			594.4	594.2													
-L- 43+07	LT	604																	
-L- 45+53	LT	605																	
-L- 46+87	LT	606																	
-L- 47+79	RT	607																	
-L- 48+30	RT	608																	
-L- 49+37	LT	609																	
-L- 50+00	CL	610			558.0	557.8													
-DR2- 10+07	CL	611			556.6	553.5													
-DR1- 10+62	LT	612																	
-Y- 13+07	CL	201			573.0	572.9													
-EY1- 15+59	CL	406			629.0	629.0													
PROJECT TOTALS																			
SAY																			

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"
-L- 10+39																
-L- 13+46																
-L- 15+37																
-L- 16+74																
-L- 24+38																
-L- 31+00																
-L- 39+00											96					
-L- 40+40																
-L- 41+03																
-L- 41+93																
-L- 42+17																
-L- 43+07																
-L- 45+53																
-L- 46+87																
-L- 47+79																
-L- 48+30																
-L- 49+37																
-L- 50+00																
-DR2- 10+07												72				
-DR1- 10+62																
-Y- 13+07																
-EY1- 15+59											8					
PROJECT TOTALS											104	72				
SAY											104	72				

STATION	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
-L- 10+39			84												
-L- 13+46												36			
-L- 15+37			68												
-L- 16+74							64							4.5	
-L- 24+38			64												
-L- 31+00			68												
-L- 39+00															
-L- 40+40												24			
-L- 41+03												24			
-L- 41+93												24			
-L- 42+17			52												
-L- 43+07												28			
-L- 45+53												24			
-L- 46+87												24			
-L- 47+79												48			
-L- 48+30												32			
-L- 49+37												28			
-L- 50+00			52												
-DR2- 10+07															
-DR1- 10+62												24			
-Y- 13+07			28												
-EY1- 15+59														1	
PROJECT TOTALS			416				64					316		5.5	
SAY			416				64					316		5.5	

STATION	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION		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. 840.22	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				
-L- 10+39																							
-L- 13+46																							
-L- 15+37																							
-L- 16+74																							
-L- 24+38																							
-L- 31+00																							
-L- 39+00																							
-L- 40+40																							
-L- 41+03																							
-L- 41+93																							
-L- 42+17																							
-L- 43+07																							
-L- 45+53																							
-L- 46+87																							
-L- 47+79																							
-L- 48+30																							
-L- 49+37																							
-L- 50+00																							
-DR2- 10+07																							
-DR1- 10+62																							
-Y- 13+07																							
-EY1- 15+59																							
PROJECT TOTALS																							
SAY																							

STATION	DRAINAGE PIPE 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
-L- 10+39				44	
-L- 13+46				29	
-L- 15+37				67	REMOVE 15" RCP
-L- 16+74				64	
-L- 24+38				32	
-L- 31+00					
-L- 39+00					
-L- 40+40					
-L- 41+03					
-L- 41+93				25	
-L- 42+17				34	
-L- 43+07				21	REMOVE EXIST DI
-L- 45+53					
-L- 46+87				23	
-L- 47+79					
-L- 48+30				16	
-L- 49+37				20	
-L- 50+00				28	
-DR2- 10+07					
-DR1- 10+62					
-Y- 13+07					
-EY1- 15+59			0.4465		
PROJECT TOTALS			0.4465	403	
SAY			0.5	403	

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.)	(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

0660DEL_P21o

COMPUTED BY: GEOTECH DATE: 4/30/2015
CHECKED BY: ADS DATE: 11/6/2015

PROJECT NO.	SHEET NO.
P-4405 K	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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
CONTINGENCY			ASU		150	300	750		
			TOTAL CY/TONS/SY:		150	300	750**		

***ASU = Aggregate Subgrade**
***AST = Aggregate Stabilization**
****Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.**

0660DEL_P21o

PROJ. REFERENCE NO.	SHEET NO.
P-4405 K	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	JAMES J. FREELAND & MAXINE H. FREELAND
2	4	HILLSBOROUGH CHURCH OF GOD
3	4, 5	PIEDMONT ELECTRIC MEMBERSHIP CORP.
4	4	HILLSBOROUGH CHURCH OF GOD
5	4	HILLSBOROUGH CHURCH OF GOD
6	4	HILLSBOROUGH CHURCH OF GOD
7	4	HILLSBOROUGH CHURCH OF GOD
8	4	JAMES A. GOOCH
9	4	LARRY W. WHITE JR. & JEFFERY A. WHITE
10	4	RICKY W. FLETCHER
11	4	JAMES M. RAY
12	4, 5	MICOL PROPERTIES, LLC
13	5	ALFONSO N. GALEANA
14	5	ERNEST W. COUCH JR.
15	5	JESUS A. MINTA GALVEZ & NOE SALGADO ALVARADO
16	5,	DUKE UNIVERSITY SCHOOL OF FORESTRY
17	5	VIRGINIA TAYLOR
18	5	ROBERT E. REINHEIMER & PATRICIA M. REINHEIMER
19	5, 6	WILLARD R. CATES & SUSAN F. CATES
20	5, 6	WILLARD R. CATES & SUSAN F. CATES
21	6	WILLARD R. CATES & SUSAN F. CATES
22	6	WILLARD R. CATES & SUSAN F. CATES
23	6	WANDA D. BYRD
24	2B-1, 6	DALLAS K. NEVILLE & SHIRLEY B. NEVILLE
25	2B-1, 6	DALLAS K. NEVILLE, SHIRLEY B. NEVILLE, DEAN K NEVILLE, & WANDA J. NEVILLE

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

DocuSign Envelope ID: C48B6076-4A22-405E-A14E-02F70CC1EF63

0660DEL_P210

DCN

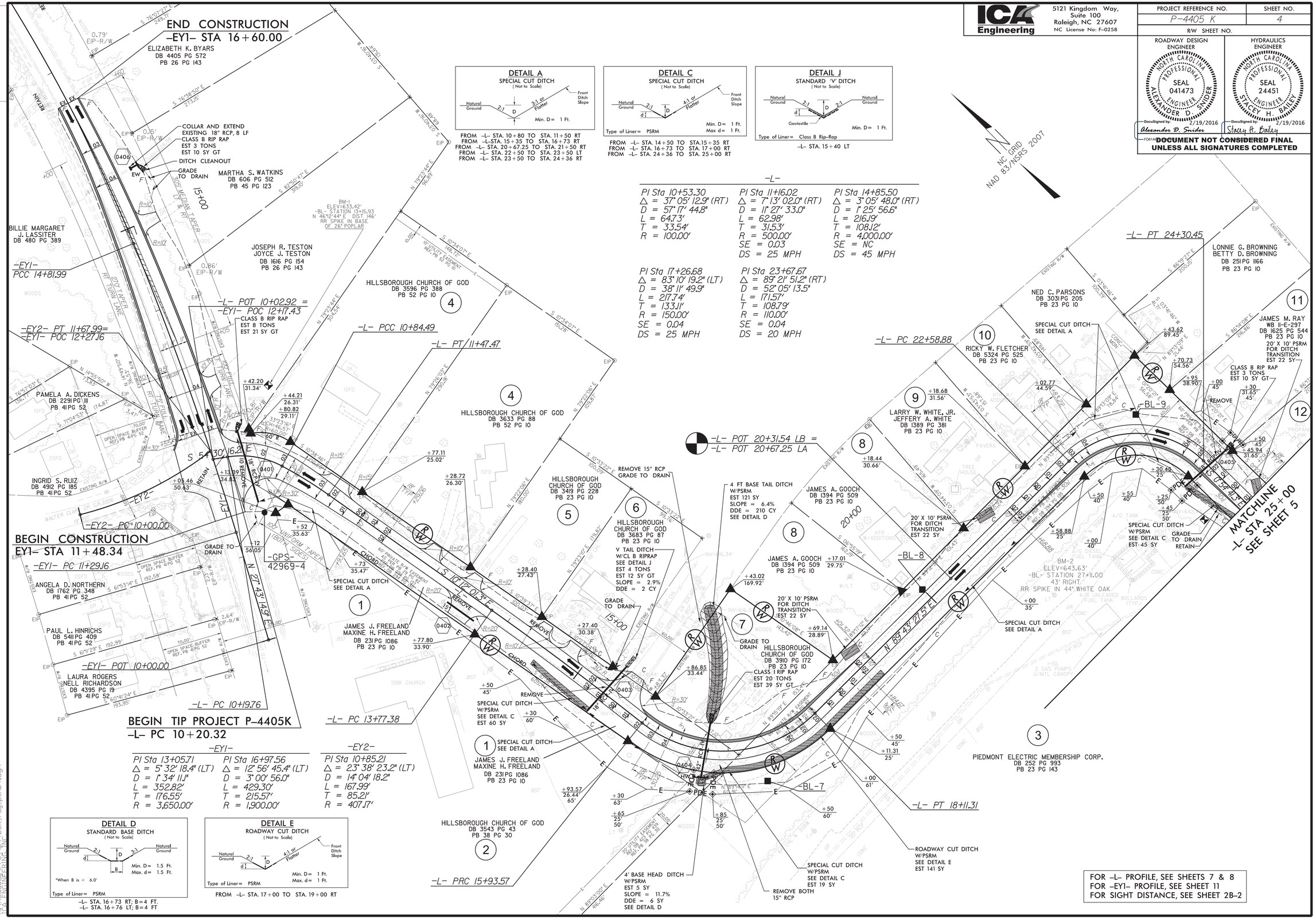
ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016
FD61A6

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 2:1, D, 3:1 or Flatter, Front Ditch Slope
Min. D= 1 Ft.

FROM -L- STA. 10+80 TO STA. 11+50 RT
FROM -L-STA. 15+35 TO STA. 16+73 RT
FROM -L- STA. 20+67.25 TO STA. 21+50 RT
FROM -L- STA. 22+50 TO STA. 23+50 LT
FROM -L- STA. 23+50 TO STA. 24+36 RT

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 2:1, D, d, 4:1 or Flatter, Front Ditch Slope
Min. D= 1 Ft.
Max. d= 1 Ft.
Type of Liner= PSRM

FROM -L- STA. 14+50 TO STA.15+35 RT
FROM -L- STA. 16+73 TO STA. 17+00 RT
FROM -L- STA. 24+36 TO STA. 25+00 RT

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

Natural Ground, 2:1, D, d, 2:1, Natural Ground, Geotextile
Min. D= 1 Ft.
Type of Liner= Class B Rip-Rap

-L- STA. 15+40 LT

-L-

PI Sta 10+53.30	PI Sta 11+16.02	PI Sta 14+85.50
Δ = 37° 05' 12.9" (RT)	Δ = 7° 13' 02.0" (RT)	Δ = 3° 05' 48.0" (RT)
D = 57° 17' 44.8"	D = 11° 27' 33.0"	D = 1° 25' 56.6"
L = 64.73'	L = 62.98'	L = 216.19'
T = 33.54'	T = 31.53'	T = 108.12'
R = 100.00'	R = 500.00'	R = 4,000.00'
	SE = 0.03	SE = NC
	DS = 25 MPH	DS = 45 MPH

PI Sta 17+26.68	PI Sta 23+67.67
Δ = 83° 10' 19.2" (LT)	Δ = 89° 21' 51.2" (RT)
D = 38° 11' 49.9"	D = 52° 05' 13.5"
L = 217.74'	L = 171.57'
T = 133.11'	T = 108.79'
R = 150.00'	R = 110.00'
SE = 0.04	SE = 0.04
DS = 25 MPH	DS = 20 MPH

-EY1-

PI Sta 13+05.71	PI Sta 16+97.56
Δ = 5° 32' 18.4" (LT)	Δ = 12° 56' 45.4" (LT)
D = 1° 34' 11.1"	D = 3° 00' 56.0"
L = 352.82'	L = 429.30'
T = 176.55'	T = 215.57'
R = 3,650.00'	R = 1,900.00'

-EY2-

PI Sta 10+85.21
Δ = 23° 38' 23.2" (LT)
D = 14° 04' 18.2"
L = 167.99'
T = 85.21'
R = 407.17'

DETAIL D
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 2:1, D, d, 3:1, Natural Ground, B
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
*When B is < 6.0'
Type of Liner= PSRM

-L- STA. 16+73 RT; B=4 FT.
-L- STA. 16+76 LT; B=4 FT

DETAIL E
ROADWAY CUT DITCH
(Not to Scale)

Natural Ground, 2:1, D, d, 4:1 or Flatter, Front Ditch Slope
Min. D= 1 Ft.
Max. d= 1 Ft.
Type of Liner= PSRM

FROM -L- STA. 17+00 TO STA. 19+00 RT

FOR -L- PROFILE, SEE SHEETS 7 & 8
FOR -EY1- PROFILE, SEE SHEET 11
FOR SIGHT DISTANCE, SEE SHEET 2B-2

2/18/2016
ICA ENGINEERING INC

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DGN

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

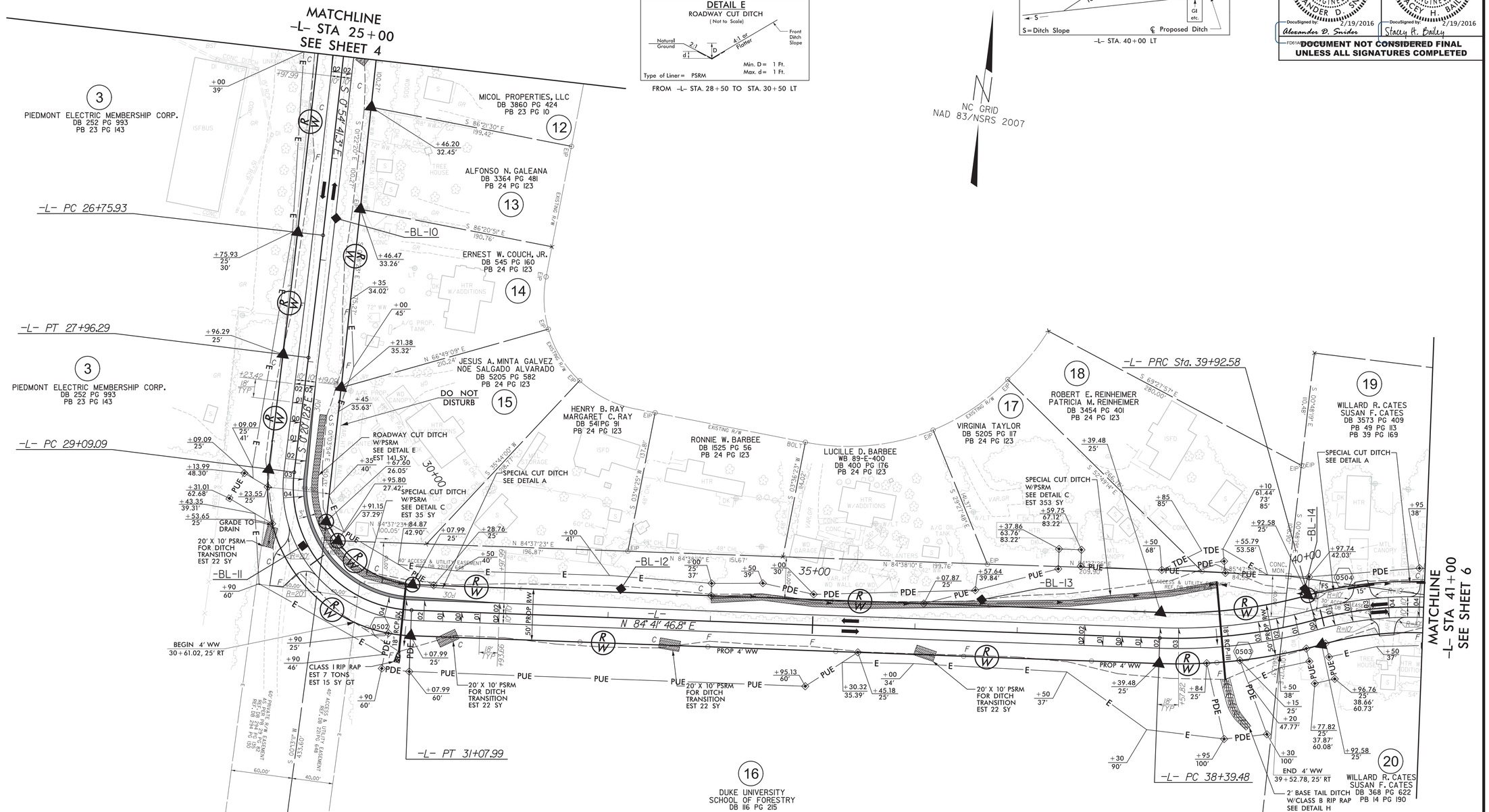
PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

FD61A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


MATCHLINE -L- STA 25+00 SEE SHEET 4
MATCHLINE -L- STA 41+00 SEE SHEET 6
NC GRID NAD 83/NSRS 2007
3 PIEDMONT ELECTRIC MEMBERSHIP CORP. DB 252 PG 993 PB 23 PG 143
12 MICOL PROPERTIES, LLC DB 3860 PG 424 PB 23 PG 10
13 ALFONSO N. GALEANA DB 3364 PG 481 PB 24 PG 123
14 ERNEST W. COUCH, JR. DB 545 PG 160 PB 24 PG 123
15 JESUS A. MINTA GALVEZ NOE SALGADO ALVARADO DB 5205 PG 582 PB 24 PG 123
16 DUKE UNIVERSITY SCHOOL OF FORESTRY DB 116 PG 215
17 VIRGINIA TAYLOR DB 5205 PG 117 PB 24 PG 123
18 ROBERT E. REINHEIMER PATRICIA M. REINHEIMER DB 3454 PG 401 PB 24 PG 123
19 WILLARD R. CATES SUSAN F. CATES DB 3573 PG 409 PB 49 PG 113 PB 39 PG 169
20 WILLARD R. CATES SUSAN F. CATES DB 368 PG 622 PB 14 PG 190
HENRY B. RAY MARGARET C. RAY DB 541PG 91 PB 24 PG 123
RONNIE W. BARBEE DB 1525 PG 56 PB 24 PG 123
LUCILLE D. BARBEE WB 89-E-400 DB 400 PG 176 PB 24 PG 123
-L- PC 26+75.93
-L- PT 27+96.29
-L- PC 29+09.09
-L- PT 31+07.99
-L- PC 38+39.48
-L- PRC Sta. 39+92.58
-BL-10
-BL-11
-BL-12
-BL-13
-BL-14
30+00
35+00
40+00
ROADWAY CUT DITCH W/PSRM SEE DETAIL E EST 141 SY
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL CUT DITCH W/PSRM SEE DETAIL C EST 35 SY
SPECIAL CUT DITCH W/PSRM SEE DETAIL C EST 353 SY
SPECIAL CUT DITCH SEE DETAIL A
DO NOT DISTURB
GRADE TO DRAIN
20' X 10' PSRM FOR DITCH TRANSITION EST 22 SY
BEGIN 4' WW 30+61.02, 25' RT
CLASS I RIP RAP EST 7 TONS EST 15 SY GT
END 4' WW 39+52.78, 25' RT
2' BASE TAIL DITCH W/CLASS B RIP RAP SEE DETAIL H SLOPE = 0.6% EST 18 TONS EST 40 SY GT DDE = 15 CY
-L- N 84° 41' 46.8" E
PROP 4' WW
EXISTING R/W
60' PRIVATE R/W EASEMENT REF. DB 252 PG 993 REF. DB 252 PG 100 REF. DB 224 PG 62
40' ACCESS & UTILITY EASEMENT REF. DB 1525 PG 56
S 0°54'41.3" E
S 0°20'12.5" E
S 0°34'19.9" E
S 86°21'30" E 199.42'
S 86°20'51" E 190.76'
N 66°49'09" E 210.24'
S 69°27'57" E 280.00'
N 84°37'23" E 196.87'
N 84°38'10" E 199.76'
S 86°41'46" E 84.93'
S 32°21'48" E 141.77'
S 03°41'25" W 137.81'
S 03°36'23" W 184.02'
S 95°44'00" W 117.76'
S 32°21'48" E 265.25'
S 0°54'41.3" E 433.95'
S 0°20'12.5" E 433.95'
R=1200'
R=201'
R=102'
R=500'
R=350'
R=120'
R=1000'
R=1000'
R=1000

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5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 3/17/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 3/17/2016

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OBLITERATE

PAVEMENT REMOVAL

-L-

PI Sta 43+35.41	PI Sta 47+73.50
△ = 4° 35' 10.4" (RT)	△ = 61° 18' 40.9" (LT)
D = 2° 20' 53.5"	D = 38° 11' 49.9"
L = 195.31'	L = 160.51'
T = 97.71'	T = 88.91'
R = 2,440.00'	R = 150.00'
SE = RC	SE = 0.04
DS = 35 MPH	DS = 25 MPH
PI Sta 50+63.79	PI Sta 54+32.69
△ = 16° 02' 24.4" (LT)	△ = 18° 46' 43.1" (LT)
D = 11° 27' 33.0"	D = 7° 38' 22.0"
L = 139.98'	L = 245.81'
T = 70.45'	T = 124.02'
R = 500.00'	R = 750.00'
SE = 0.03	SE = 0.03
DS = 25 MPH	DS = 30 MPH

-DRI-

PI Sta 9+79.66	PI Sta 10+79.43
△ = 11° 41' 34.4" (RT)	△ = 43° 19' 28.8" (LT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 40.82'	L = 151.23'
T = 20.48'	T = 79.44'
R = 200.00'	R = 200.00'

-DR2-

PI Sta 10+66.02
△ = 78° 21' 30.2" (RT)
D = 159° 09' 17.8"
L = 49.23'
T = 29.34'
R = 36.00'

NC GRID NAD 83/NSRS 2007

END CONSTRUCTION
-DR1- POT 12+22.46

END CONSTRUCTION
-Y- STA 13+11.75
-Y- PT 13+26.34

END TIP PROJECT P-4405K
-L- POC 54+15.16

FOR CROSSING CLOSURE DETAIL SEE SHEET 2B-1

FOR -L- PROFILE, SEE SHEETS 9 & 10
FOR -DR1- PROFILE, SEE SHEET 11
FOR -DR2- PROFILE, SEE SHEET 11
FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-5

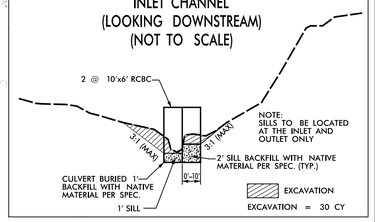
MATCHLINE INSET A

INSET A

MATCHLINE -L- STA 41+00.00 SEE SHEET 5

MATCHLINE INSET A

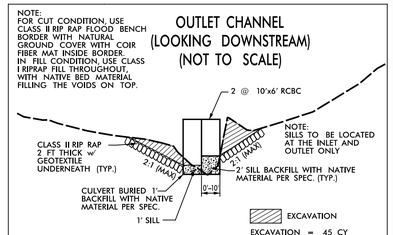
INLET CHANNEL (LOOKING DOWNSTREAM) (NOT TO SCALE)



NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET ONLY

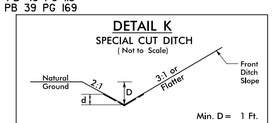
OUTLET CHANNEL (LOOKING DOWNSTREAM) (NOT TO SCALE)

NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOOD BENCH BORDER WITH NATURAL GROUND COVER WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS I RIPRAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.



NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET ONLY

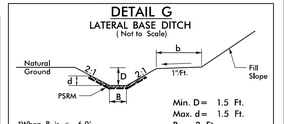
DETAIL K
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.
Max d = 1 Ft.
Type of Liner = PSRM

FROM -DR1- STA. 10+00 TO STA. 10+50 LT
FROM -DR1- STA. 10+76 TO STA. 11+00 LT
FROM -DR1- STA. 10+35 TO STA. 11+00 RT

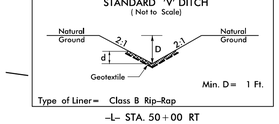
DETAIL G
LATERAL BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
Type of Liner = PSRM

FROM -L- STA. 51+51 TO STA. 53+75 RT

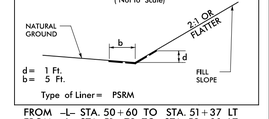
DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1 Ft.
Type of Liner = Class B Rip-Rap

-L- STA. 50+00 RT

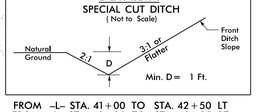
DETAIL F
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
b = 5 Ft.
Type of Liner = PSRM

FROM -L- STA. 50+60 TO STA. 51+37 LT
FROM -L- STA. 51+73 TO STA. 52+90 LT

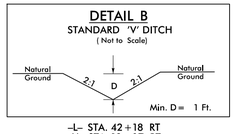
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.

FROM -L- STA. 41+00 TO STA. 42+50 LT
FROM -L- STA. 48+20 TO STA. 49+25 RT
FROM -DR1- STA. 11+00 TO STA. 11+90 LT
FROM -DR1- STA. 11+00 TO STA. 11+85 RT

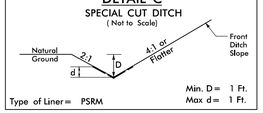
DETAIL B
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1 Ft.

-L- STA. 42+18 RT
-Y- STA. 13+07 RT

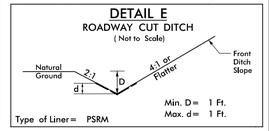
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.
Max d = 1 Ft.
Type of Liner = PSRM

FROM -L- STA. 46+00 TO STA. 47+50 LT
FROM -L- STA. 48+00 TO STA. 48+20 RT
FROM -L- STA. 49+50 TO STA. 50+00 LT

DETAIL E
ROADWAY CUT DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = PSRM

FROM -L- STA. 44+20 TO STA. 46+00 LT
FROM -L- STA. 47+50 TO STA. 49+50 LT
FROM -L- STA. 52+90 TO STA. 54+50 LT

RELOCATE MAIL KIOSK

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Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	7

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016
FD614A

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

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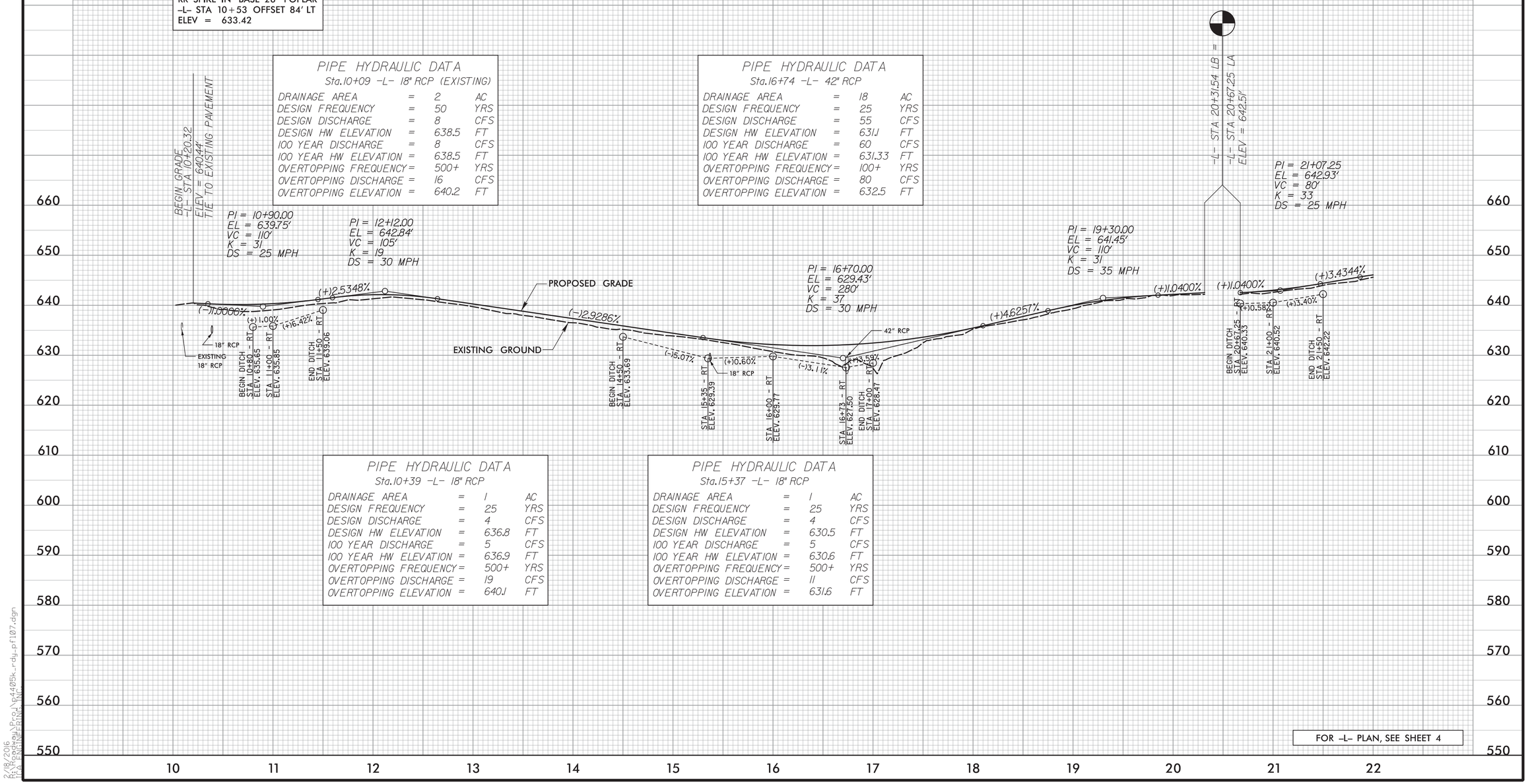
-L-

BM #1
RR SPIKE IN BASE 26" POPLAR
-L- STA 10+53 OFFSET 84' LT
ELEV = 633.42



PIPE HYDRAULIC DATA
Sta.10+09 -L- 18" RCP (EXISTING)

DRAINAGE AREA	=	2	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	8	CFS
DESIGN HW ELEVATION	=	638.5	FT
100 YEAR DISCHARGE	=	8	CFS
100 YEAR HW ELEVATION	=	638.5	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	16	CFS
OVERTOPPING ELEVATION	=	640.2	FT

PIPE HYDRAULIC DATA
Sta.16+74 -L- 42" RCP

DRAINAGE AREA	=	18	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	55	CFS
DESIGN HW ELEVATION	=	631.1	FT
100 YEAR DISCHARGE	=	60	CFS
100 YEAR HW ELEVATION	=	631.33	FT
OVERTOPPING FREQUENCY	=	100+	YRS
OVERTOPPING DISCHARGE	=	80	CFS
OVERTOPPING ELEVATION	=	632.5	FT

PIPE HYDRAULIC DATA
Sta.10+39 -L- 18" RCP

DRAINAGE AREA	=	1	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	4	CFS
DESIGN HW ELEVATION	=	636.8	FT
100 YEAR DISCHARGE	=	5	CFS
100 YEAR HW ELEVATION	=	636.9	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	19	CFS
OVERTOPPING ELEVATION	=	640.1	FT

PIPE HYDRAULIC DATA
Sta.15+37 -L- 18" RCP

DRAINAGE AREA	=	1	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	4	CFS
DESIGN HW ELEVATION	=	630.5	FT
100 YEAR DISCHARGE	=	5	CFS
100 YEAR HW ELEVATION	=	630.6	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	11	CFS
OVERTOPPING ELEVATION	=	631.6	FT

FOR -L- PLAN, SEE SHEET 4

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PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	8

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider FD61A4 2/19/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

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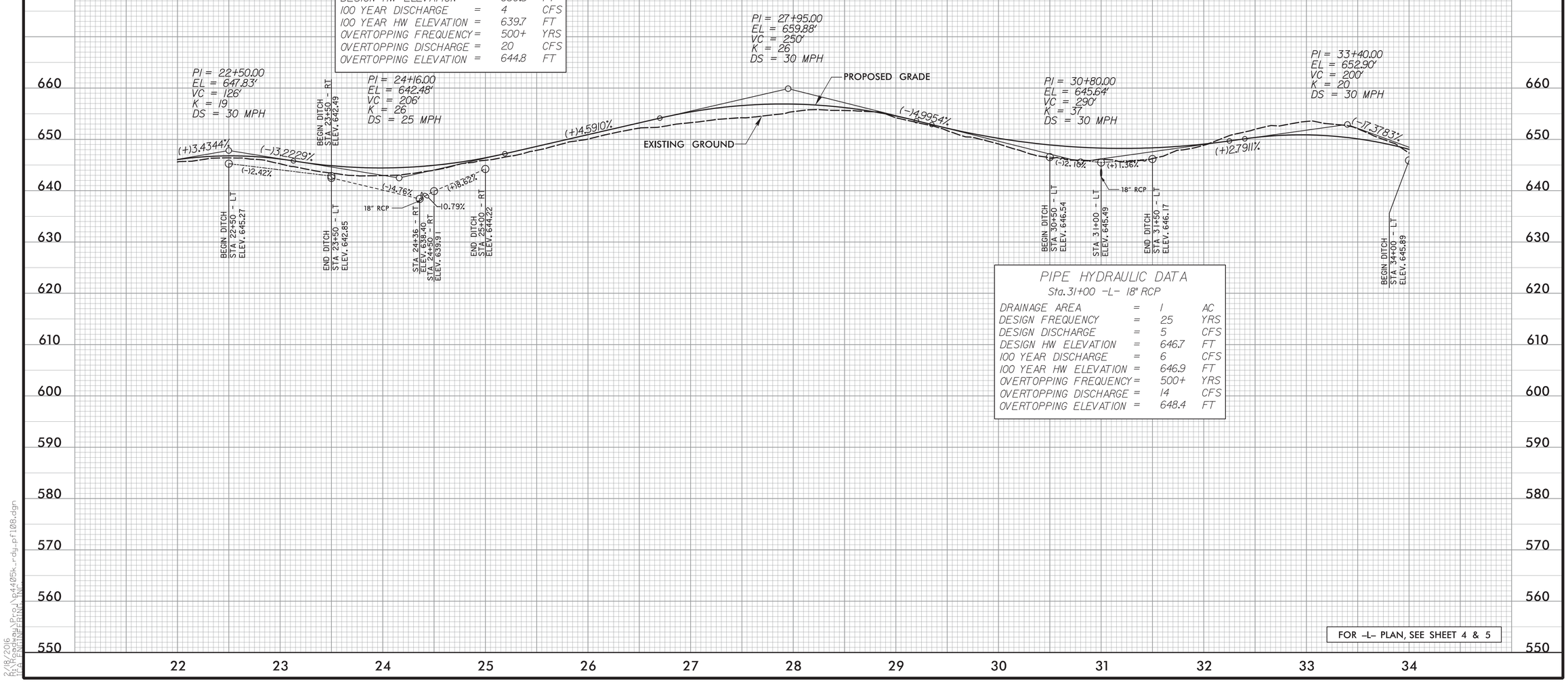
–L–

BM #2
RR SPIKE IN BASE 44" WHITE OAK
–L– STA 24+79 OFFSET 47' RT
ELEV = 643.63

PIPE HYDRAULIC DATA
Sta. 24+38 –L– 18" RCP

DRAINAGE AREA	=	1	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	4	CFS
DESIGN HW ELEVATION	=	639.5	FT
100 YEAR DISCHARGE	=	4	CFS
100 YEAR HW ELEVATION	=	639.7	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	20	CFS
OVERTOPPING ELEVATION	=	644.8	FT



PIPE HYDRAULIC DATA
Sta. 31+00 –L– 18" RCP

DRAINAGE AREA	=	1	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	5	CFS
DESIGN HW ELEVATION	=	646.7	FT
100 YEAR DISCHARGE	=	6	CFS
100 YEAR HW ELEVATION	=	646.9	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	14	CFS
OVERTOPPING ELEVATION	=	648.4	FT

FOR –L– PLAN, SEE SHEET 4 & 5

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PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	9

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

FD61A

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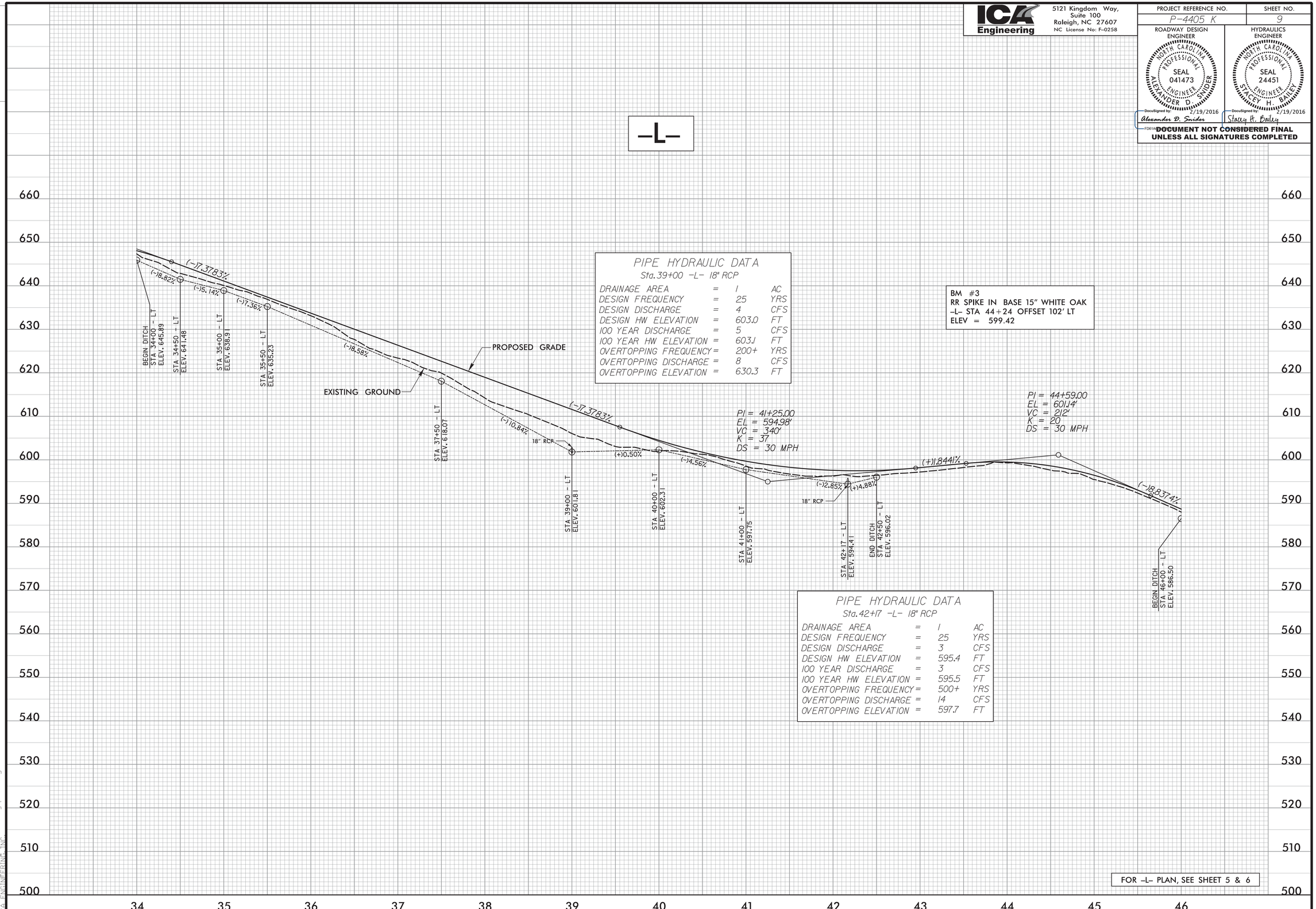

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PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	10

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016
FD61A

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

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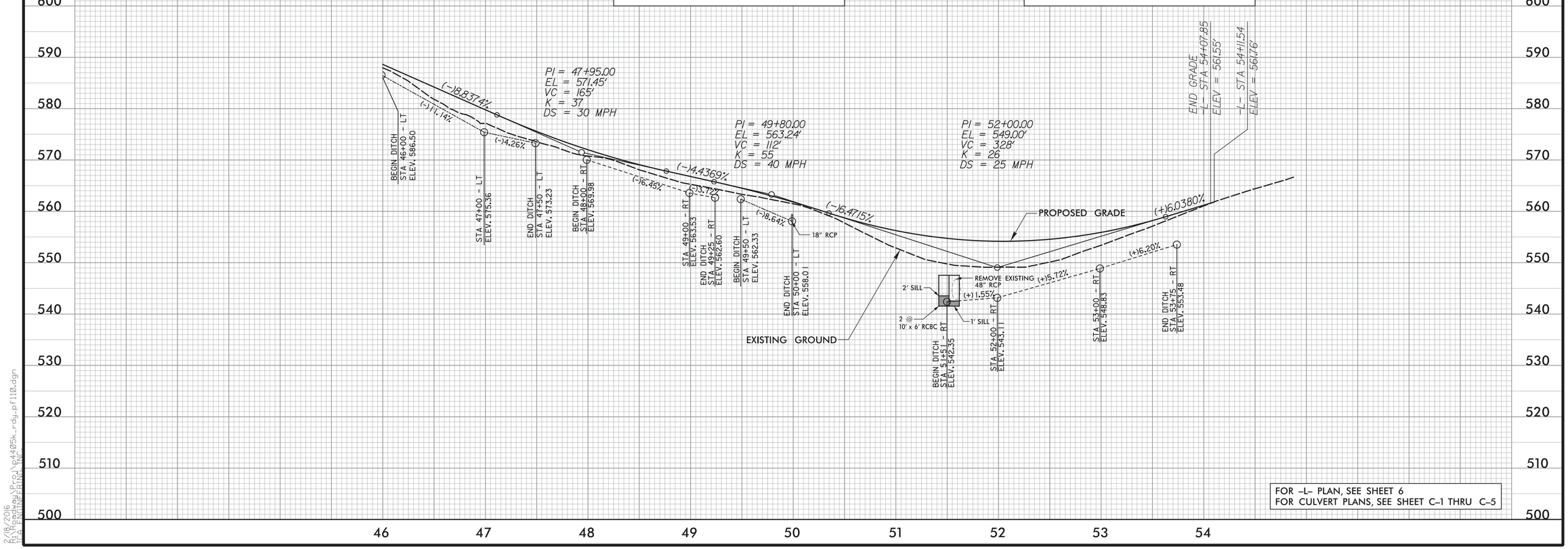
-L-

PIPE HYDRAULIC DATA
Sta.50+00 -L- 18" RCP

DRAINAGE AREA	=	2	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	7	CFS
DESIGN HW ELEVATION	=	559.7	FT
100 YEAR DISCHARGE	=	8	CFS
100 YEAR HW ELEVATION	=	559.9	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	16	CFS
OVERTOPPING ELEVATION	=	562.1	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	700	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	550.7	FT
BASE DISCHARGE	=	950	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	550.93	FT
OVERTOPPING DISCHARGE	=	1266	CFS
OVERTOPPING FREQUENCY	=	500-	YRS
OVERTOPPING ELEVATION	=	554.3	FT



FOR -L- PLAN, SEE SHEET 6
FOR CULVERT PLANS, SEE SHEET C-1 THRU C-5

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PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	11

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER
DocuSigned by: Alexander D. Snider 2/19/2016
FD61A

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY
DocuSigned by: Stacey H. Bailey 2/19/2016

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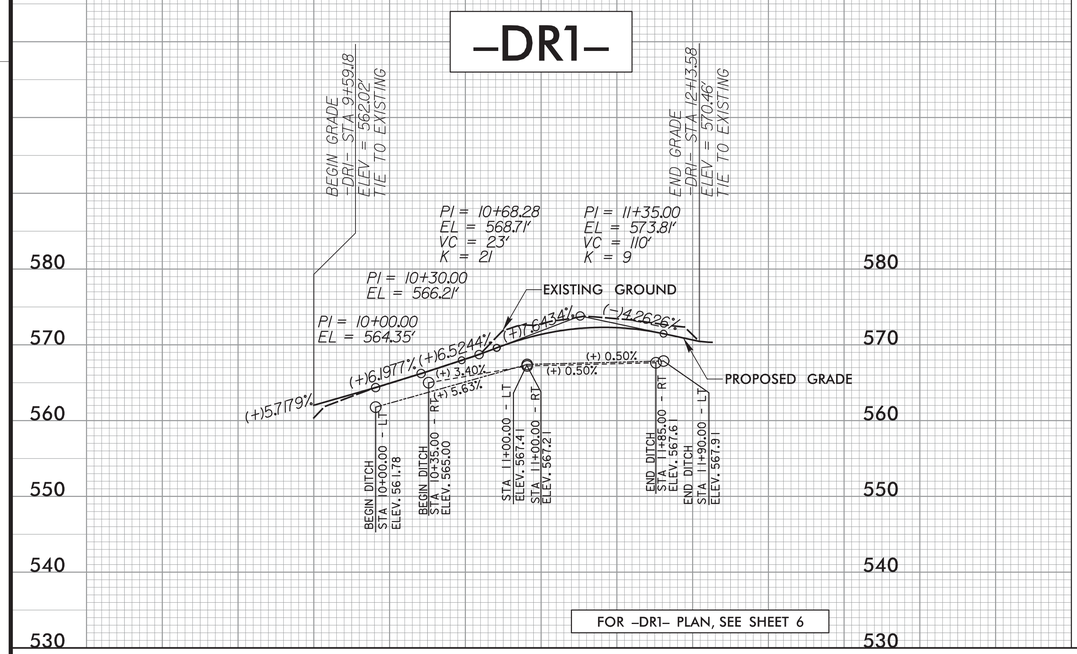
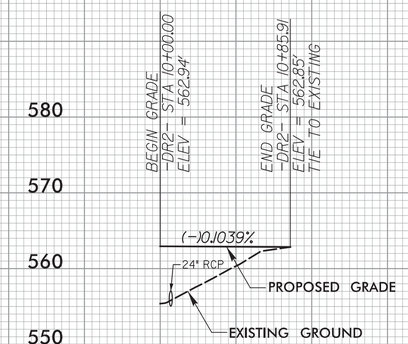
-DR1-



FOR -DR1- PLAN, SEE SHEET 6

-DR2-

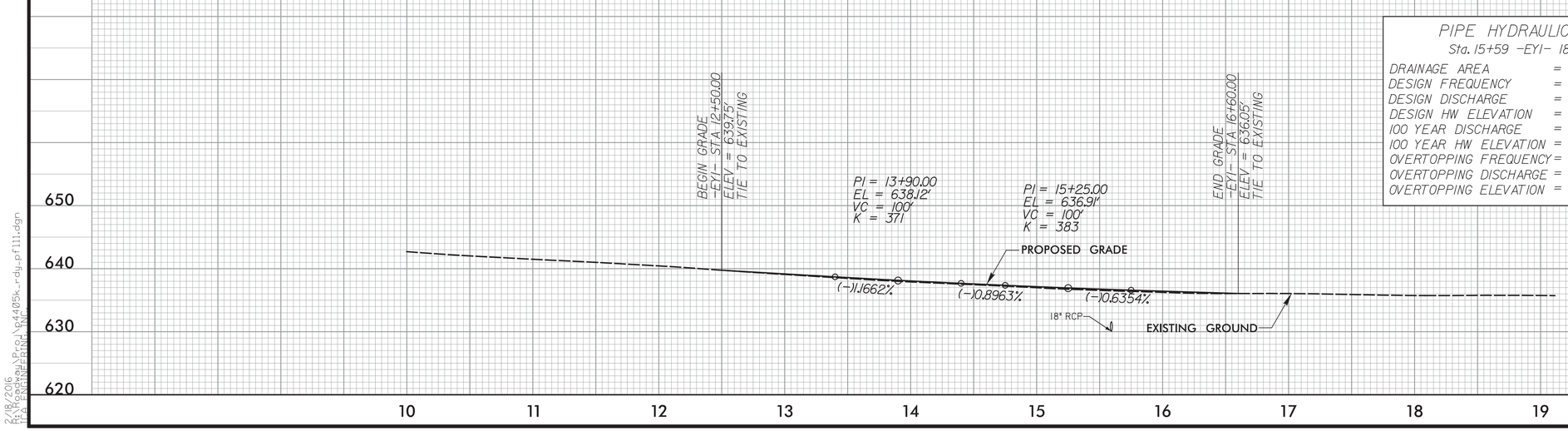


PIPE HYDRAULIC DATA
Sta.10+07 -DR2- 24" RCP

DRAINAGE AREA	=	5	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	18	CFS
DESIGN HW ELEVATION	=	559.0	FT
100 YEAR DISCHARGE	=	22	CFS
100 YEAR HW ELEVATION	=	559.5	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	40	CFS
OVERTOPPING ELEVATION	=	562.9	FT

FOR -DR2- PLAN, SEE SHEET 6

-EY1-



PIPE HYDRAULIC DATA
Sta. 15+59 -EY1- 18" RCP

DRAINAGE AREA	=	4.7	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	13	CFS
DESIGN HW ELEVATION	=	633.58	FT
100 YEAR DISCHARGE	=	13	CFS
100 YEAR HW ELEVATION	=	633.58	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	19	CFS
OVERTOPPING ELEVATION	=	635.37	FT

FOR -EY1- PLAN, SEE SHEET 4

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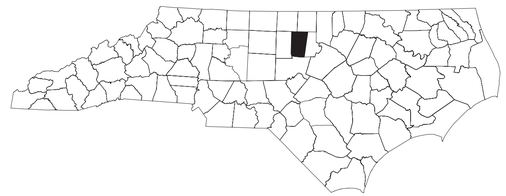
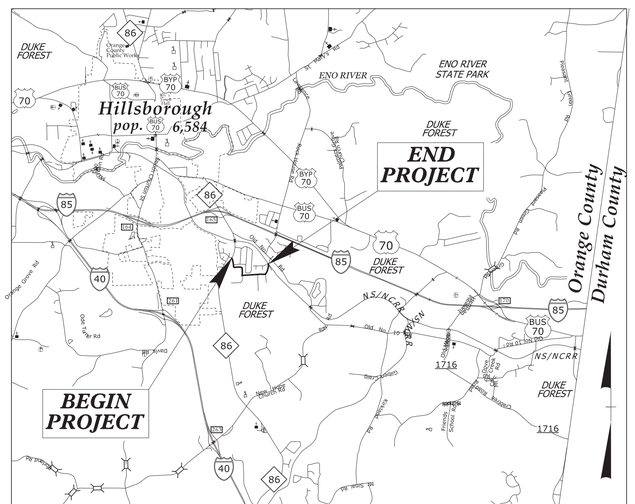
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ORANGE COUNTY





SKETCH MAP SHOWING THE VICINITY OF STATE PROJECT P–4405K

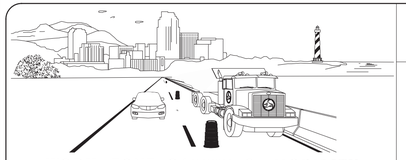
INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE
TMP-2	TRANSPORTATION OPERATION PLAN: (GENERAL NOTES)
TMP-3	PHASING
TMP-4 THRU TMP-6	PHASE I DETAIL

SHEET NO.
TMP–1

P–4405K

TIP PROJECT:



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699–1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773–2800 FAX: (919) 771–2745

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
D. BISSETTE, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
TRAFFIC CONTROL PROJECT DESIGN ENGINEER
TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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M. RZEPKA, P.E. — PROJ. ENGR.
A. PILZ, P.E. — PROJ. DESIGN ENGR.

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...
DATE: 2/19/2016

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 MICHAEL T. RZEPKA

2/18/2016
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P-4405K	TMP-1A

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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL/OBLITERATION

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM — SKINNY DRUM — TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	PAINT (4")
PA	WHITE EDGELINE
PI	DOUBLE YELLOW CENTERLINE
	PAINT (12")
PV	YELLOW DIAGONAL
	PAINT (24")
P2	WHITE STOP BAR
	PAINT SYMBOLS
QA	LEFT TURN ARROW
QB	RIGHT TURN ARROW
	TEMPORARY RAISED MARKERS
MH	YELLOW & YELLOW

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NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE

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GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
NC 86	7:00 AM - 9:00 AM 4:00 PM - 6:00 PM MONDAY THRU FRIDAY

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

J) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

M) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L-	PAINT	NONE
NC 86	PAINT	TEMPORARY RAISED

O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

R) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

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NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

2/18/2016
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PROJ. REFERENCE NO.	SHEET NO.
P-4405K	TMP-3

PHASING

PHASE I

STEP 1

USING RSD 1101.01 (SHEET 3 OF 3), INSTALL ALL ADVANCE WORK ZONE WARNING SIGNS.

STEP 2

BEGIN INSTALLATION OF PROPOSED DRAINAGE EXCEPT FOR CULVERT.

AWAY FROM TRAFFIC AND USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:

-L- STA 29+50± TO -L- STA 40+50±

AWAY FROM TRAFFIC AND USING RSD 1101.02 (SHEET 1 OF 15), BEGIN CONSTRUCTION OF THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE SHEETS TMP-4 THRU TMP-6):

-L- STA 10+15± TO -L- STA 29+50±
-L- STA 40+50± TO -L- STA 54+51±
-Y- TURNAROUND
-DR1- STA 10+00± TO -DR1- STA 12+22±
-DR2- STA 10+00± TO -DR2- STA 10+85±
-EY1- STA 12+50± TO -EY1- STA 16+60± (WIDENING)

STEP 3

PLACE TEMPORARY PAVEMENT MARKINGS AND OPEN -L- STA 29+50 TO -L- STA 40+50 TO TRAFFIC. EXISTING BYRD ROAD RAILROAD CROSSING TO REMAIN OPEN.

CLOSE BYRD ROAD AT PROPOSED CULVERT SITE WITH R11-2 SIGNS MOUNTED ON TYPE III BARRICADES. AWAY FROM TRAFFIC, CONSTRUCT PROPOSED CULVERT AT -L- STA 51+50± (SEE SHEET TMP-6).

COMPLETE CONSTRUCTION AND DRAINAGE BEGUN IN STEP 2.

STEP 4

USING RSD 1101.02 (SHEET 1 OF 15) AND FLAGGING, PERFORM THE FOLLOWING:

- REMOVE CONFLICTING PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS ON -EY1- (NC 86) IN FINAL CONFIGURATION (SEE FINAL PAVEMENT MARKING PLAN). PLACE TRAFFIC IN FINAL PATTERN.
- PLACE TEMPORARY PAVEMENT MARKINGS ON -L- IN FINAL CONFIGURATION FROM STA 10+15± TO STA 29+50± AND FROM STA 40+50± TO STA 54+51± (SEE FINAL PAVEMENT MARKING PLAN).
- OPEN -L- TO PROPOSED TRAFFIC PATTERN.
- UPON OPENING OF -L-, CLOSE EXISTING BYRD ROAD AT THE RAILROAD CROSSING USING TYPE III BARRICADES UNITL PHASE II WORK IS COMPLETED.

PHASE II

STEP 1

PERFORM PAVEMENT REMOVAL/OBLITERATION AND CONSTRUCT EARTHEN BERMS (REFER TO ROADWAY PLANS).

STEP 2

USING RSD 1101.02 (SHEET 1 OF 15), PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS ON -L- (BYRDSVILLE ROAD). PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND MARKERS ON -EY1- (NC 86)

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

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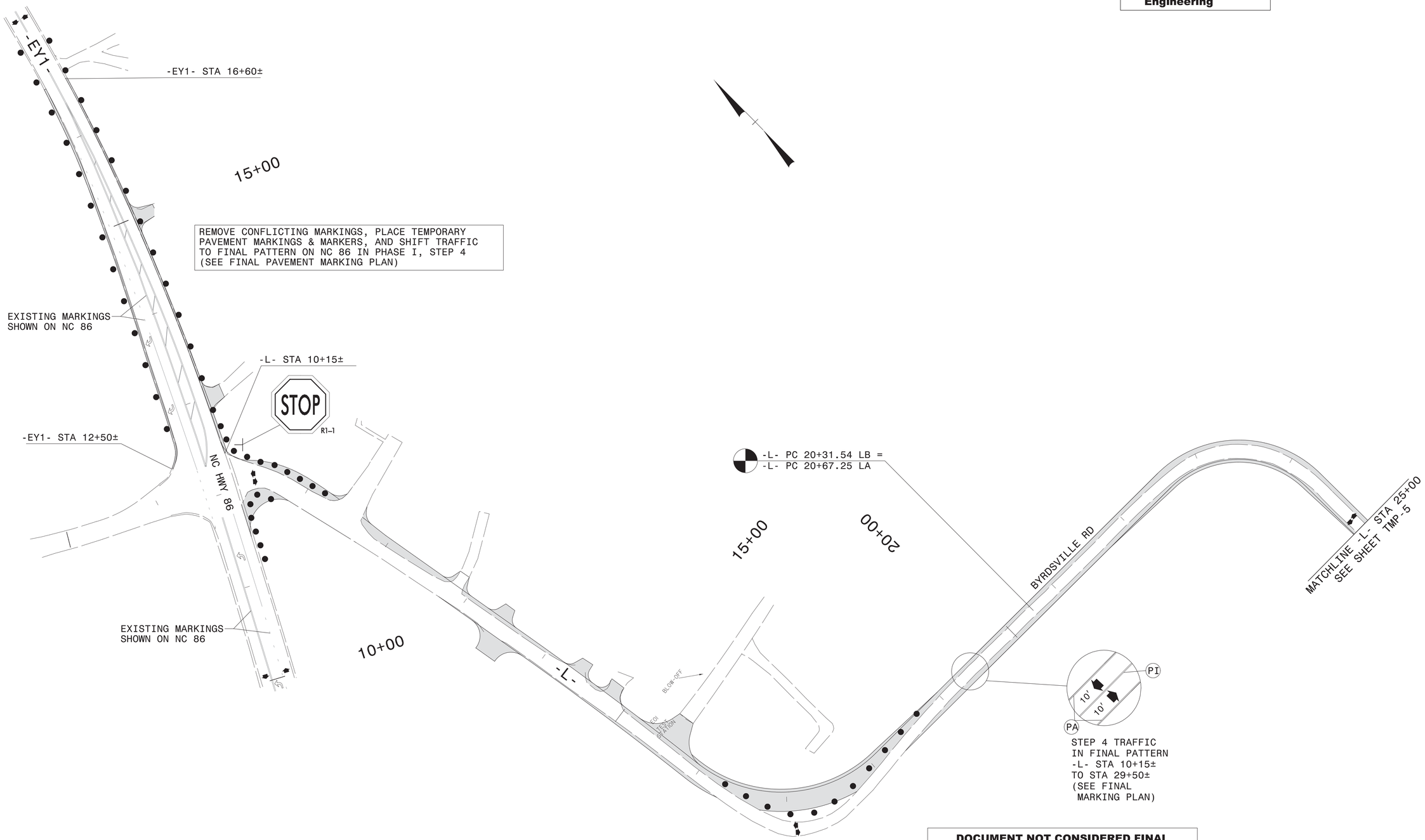

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PHASE I DETAIL

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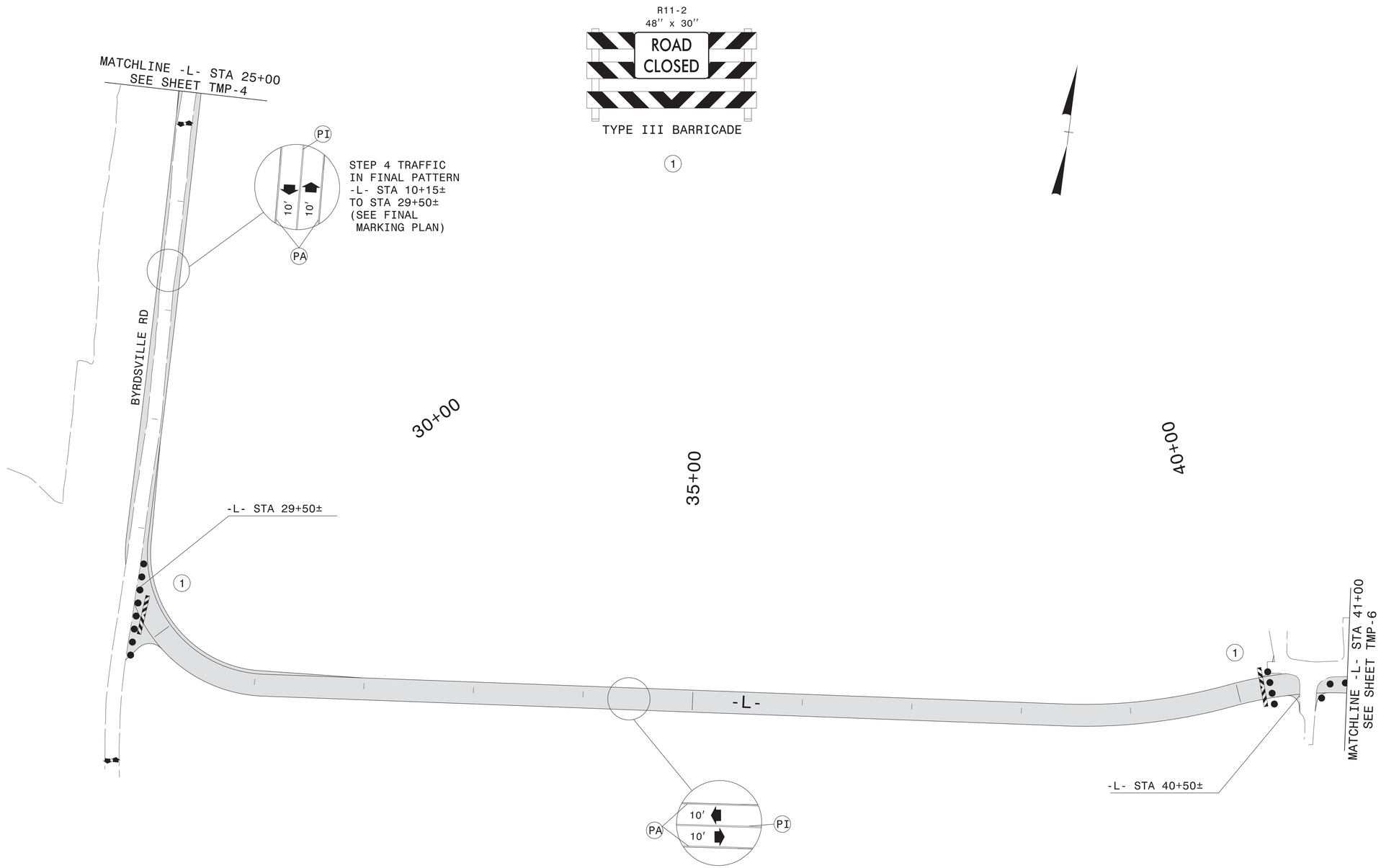
PROJ. REFERENCE NO.	SHEET NO.
P-4405K	TMP-5



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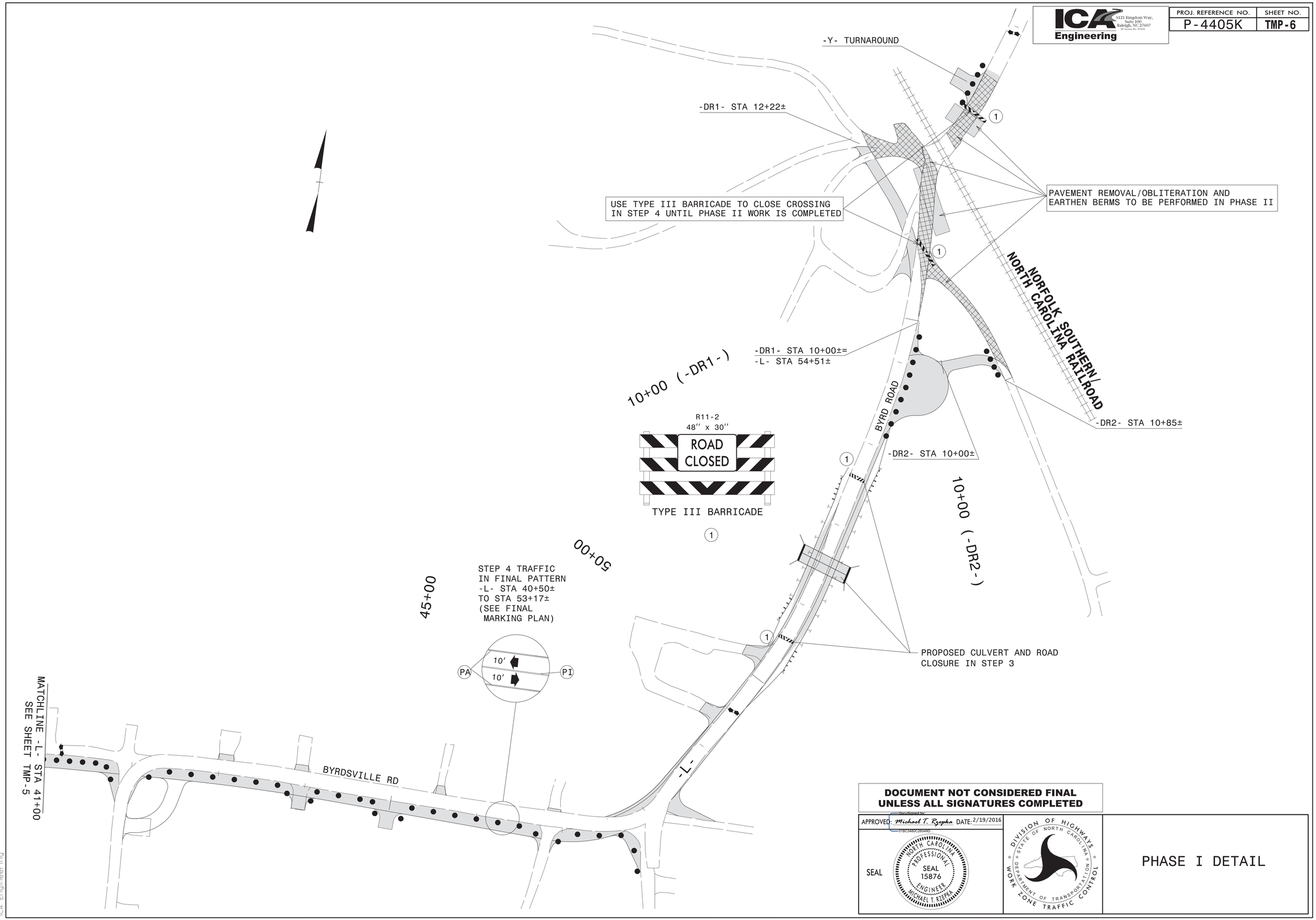
PROJ. REFERENCE NO.	SHEET NO.
P-4405K	TMP-6



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