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0660DEL_P21o

T.I.P.: P-4405K

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING & PAVEMENT MARKING PLAN
ORANGE COUNTY

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

TIP NO.	SHEET NO.
P-4405K	SIGN-1

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...

DATE: 2/19/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	E SHEET
SIGN-3 THRU 5	SIGN/PM DETAIL SHEET

ROADWAY STANDARD DRAWING

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
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - 2-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1261.01	GUARDRAIL AND DELINEATOR SPACING
1261.02	GUARDRAIL AND DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	THERMOPLASTIC (4", 90 MILS)
TA	WHITE EDGELINE
	THERMOPLASTIC (4", 120 MILS)
TD	3 FT./9 FT. SP WHITE MINISKIP
TE	WHITE SOLID LANE LINE
TI	YELLOW DOUBLE CENTER
T8	2 FT./6 FT. SP WHITE MINISKIP
	THERMOPLASTIC (12", 90 MILS)
TV	YELLOW DIAGONAL
	THERMOPLASTIC (24", 120 MILS)
T2	WHITE STOPBAR
	THERMOPLASTIC SYMBOLS (90 MILS)
UA	LEFT TURN ARROW
UB	RIGHT TURN ARROW

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4025000000	901	CONTRACTOR FURNISHED, TYPE E SIGN	123	S.F.
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	246	L.F.
4102000000	904	SIGN ERECTION, TYPE E	16	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	1	EA.

GENERAL NOTES

SIGNING NOTES

- SIGNS FURNISHED BY CONTRACTOR
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

PAVEMENT MARKING NOTES

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.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
NC 86	THERMOPLASTIC	SNOWPLOWABLE RAISED

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

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

PLAN REVIEWED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

RENEE ROACH, P.E. SIGNING & DELINEATION REGIONAL ENGINEER

JAMES HAMBRIGHT SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PLAN PREPARED BY: ICA ENGINEERING

M. T. RZEPKA, P.E. PROJECT ENGINEER

A. C. PILZ, P.E. DESIGN ENGINEER

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

2/18/2016
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ICA Engineering

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TIP NO.	SHEET NO.
P-4405J	SIGN-2

APPROVED: DocuSigned by: Michael T. Rzepka 31BC3480C28049D...

DATE: 2/19/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

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401 QUANTITY REQ'D 1

36 X 36
R1-1

ONE "U" POST PER SIGN

402 QUANTITY REQ'D 1

30 X 30
W14-2

ONE "U" POST PER SIGN

403 QUANTITY REQ'D 1

24 X 30
R2-1

ONE "U" POST PER SIGN

404 QUANTITY REQ'D 1

30 X 30
W1-5L

ONE "U" POST PER SIGN

405 QUANTITY REQ'D 1

30 X 30
W1-5R

ONE "U" POST PER SIGN

406 QUANTITY REQ'D 1

30 X 30
W1-2L

ONE "U" POST PER SIGN

407 QUANTITY REQ'D 1

30 X 30
W1-2R

ONE "U" POST PER SIGN

408 QUANTITY REQ'D 2

18 x 18
W13-1

MOUNT BELOW SIGNS 404 & 405
IN 2 INSTALLATIONS

409 QUANTITY REQ'D 1

30 X 30
W2-2

ONE "U" POST PER SIGN

409 QUANTITY REQ'D 6

48 X 24
W1-6

TWO "U" POSTS PER SIGN

TYPE "E" SIGNS

2/18/2016
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5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
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TIP NO.	SHEET NO.
P-4405K	SIGN-3

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...

DATE: 2/19/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

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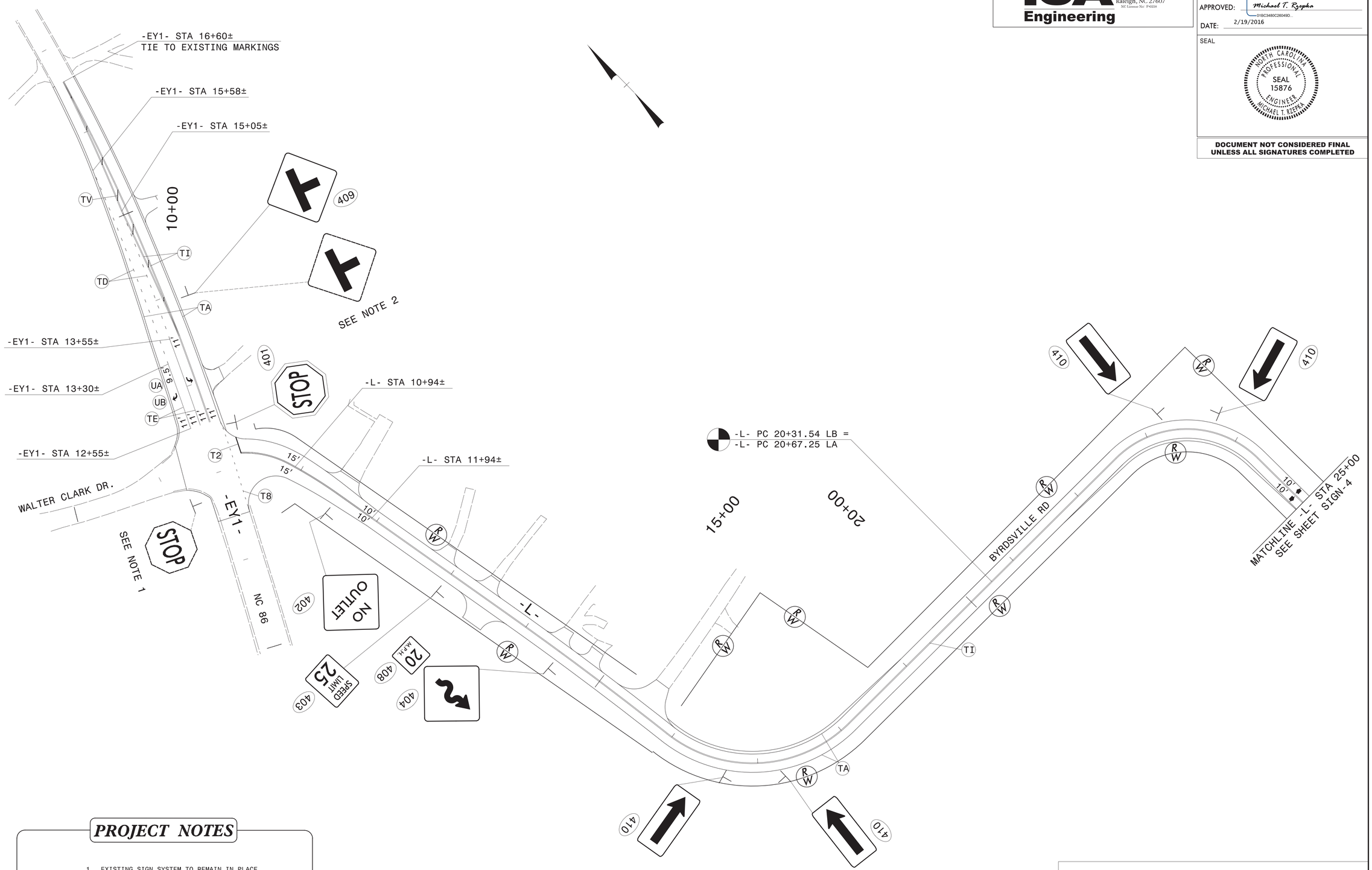

PROJECT NOTES

1 EXISTING SIGN SYSTEM TO REMAIN IN PLACE
2 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNS AND FINAL PAVEMENT MARKINGS

2/18/2016
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Suite 100
Raleigh, NC 27607
NC License No: P-0258

TIP NO.	SHEET NO.
P-4405K	SIGN-4

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C26049D...

DATE: 2/19/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

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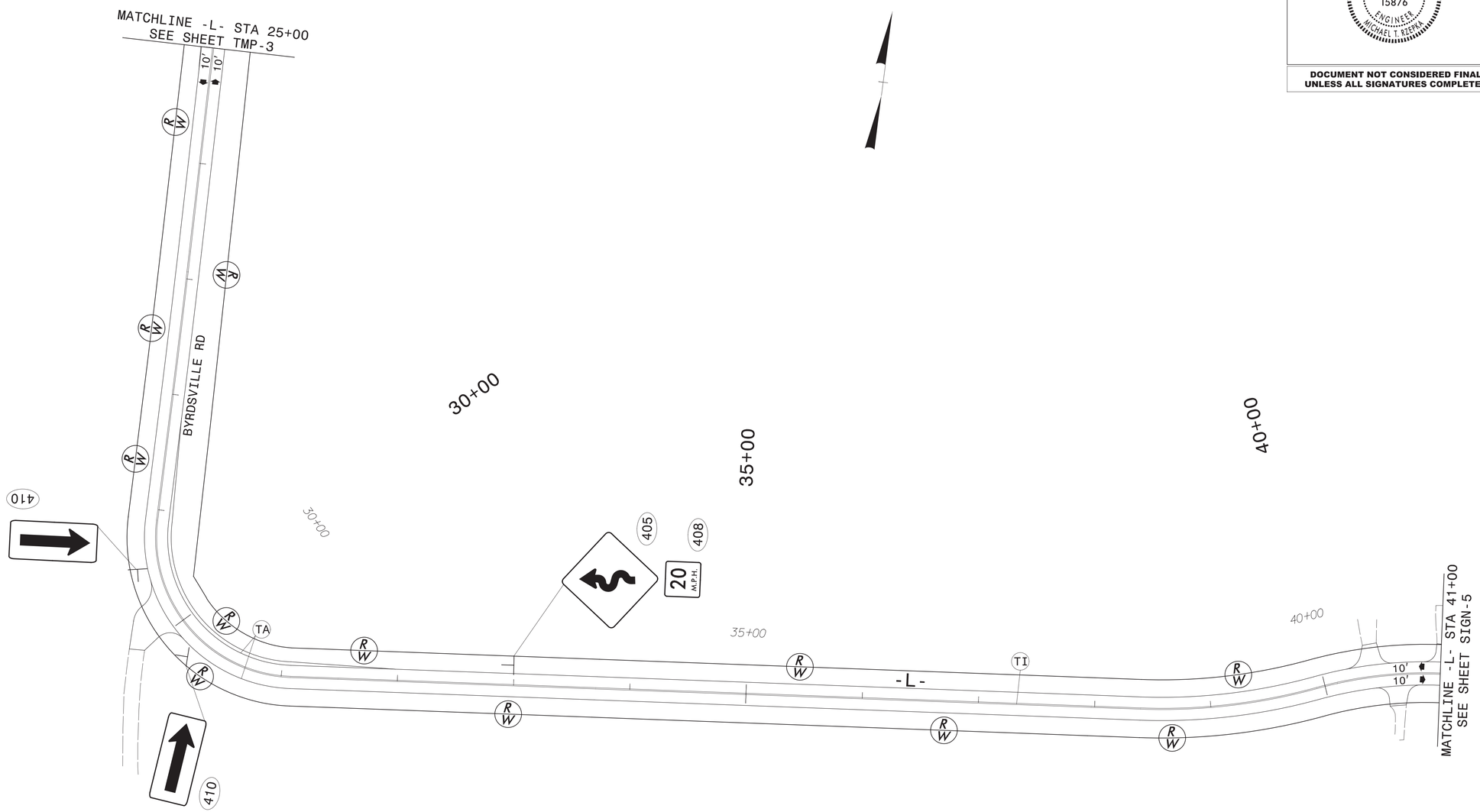

PROPOSED SIGNS & FINAL PAVEMENT MARKINGS

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TIP NO.	SHEET NO.
P-4405K	SIGN-5

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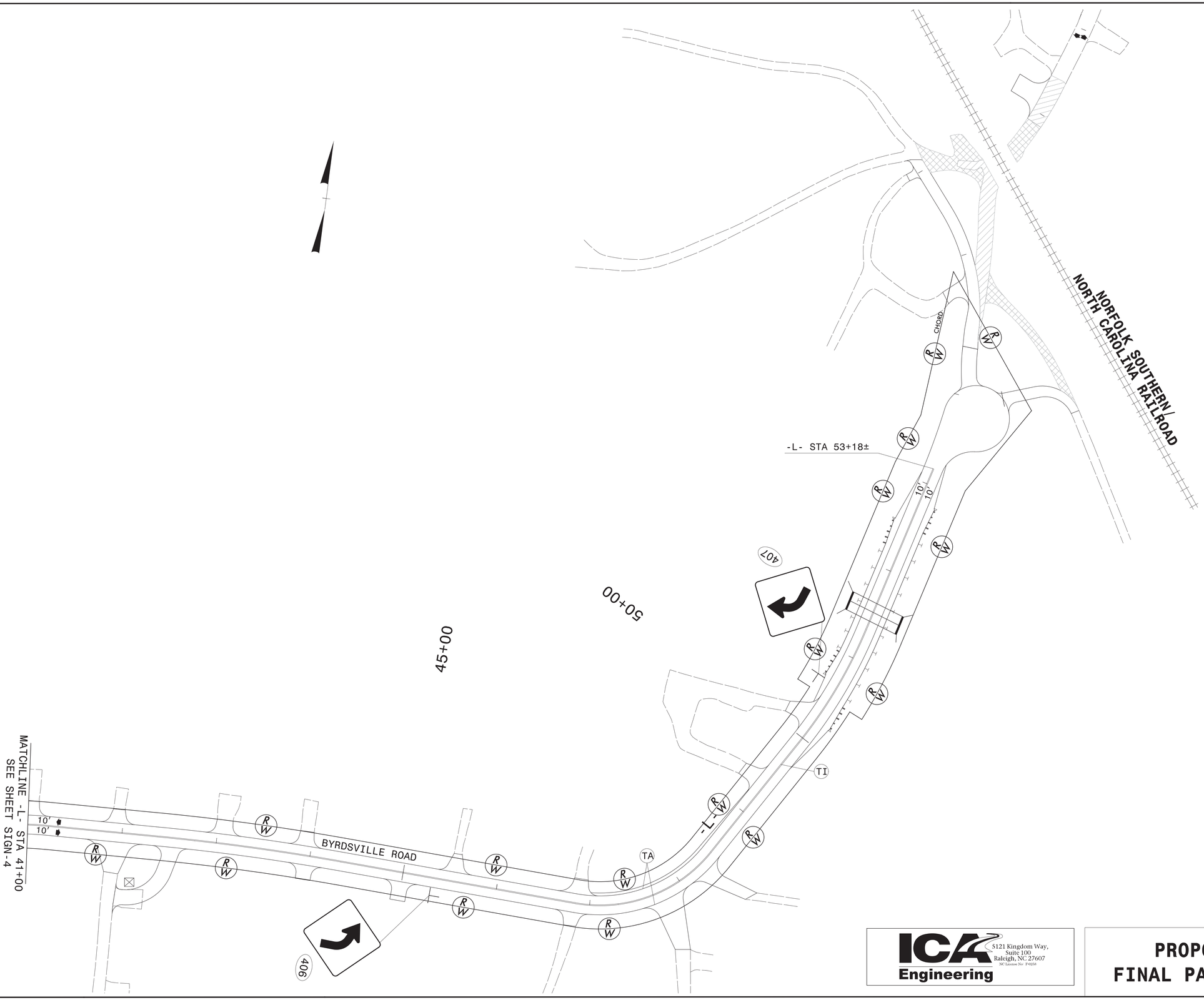
DATE: 2/19/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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PROPOSED SIGNS & FINAL PAVEMENT MARKINGS

2/18/2016
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TIP PROJECT: P–4405 K

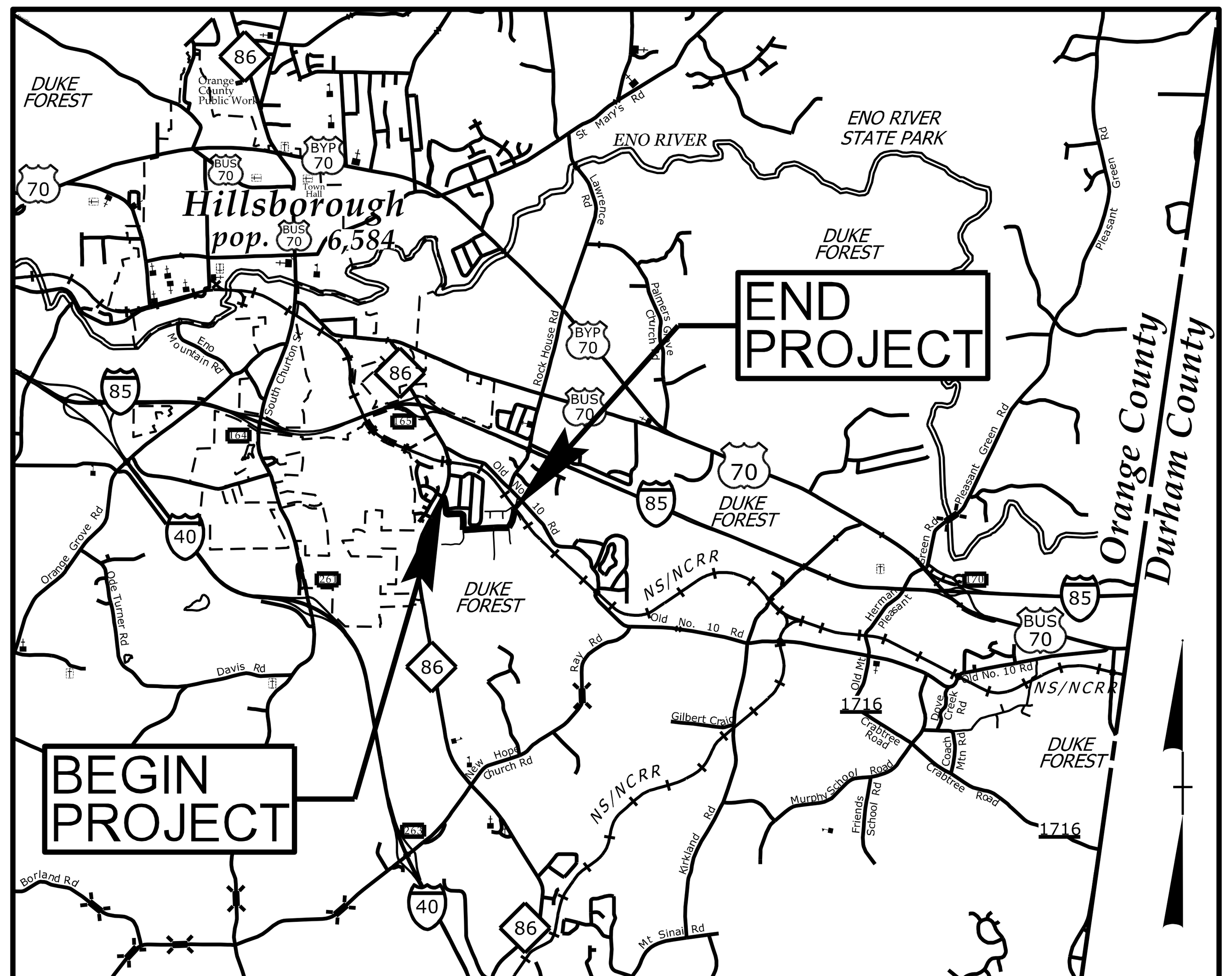
STATE OF NORTH CAROLINA
RAIL DIVISION

T.I.P. NO.	SHEET NO.
P–4405K	UC–1

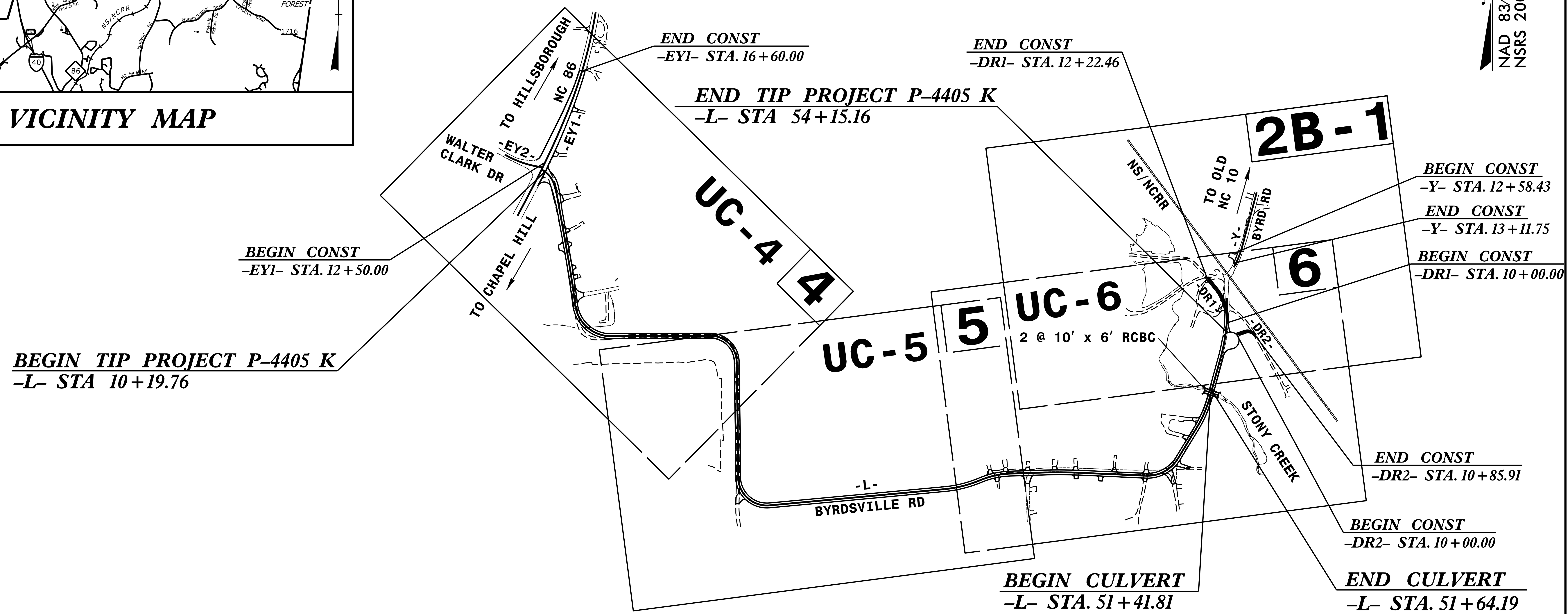
UTILITY CONSTRUCTION PLANS
ORANGE COUNTY

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

TYPE OF WORK: UTILITY CONSTRUCTION



VICINITY MAP



NCDOT CONTACT: DAN HAVENER, PE
PROJECT MANAGER

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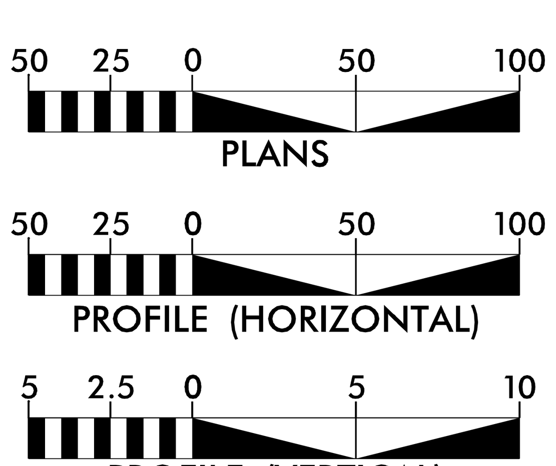
GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC–1	TITLE SHEET
UC–2	UTILITY SYMBOLOGY
UC–3	NOTES
UC–4 THRU UC–6	UTILITY CONSTRUCTION SHEETS

WATER AND SEWER OWNERS ON PROJECT

WATER – TOWN OF HILLSBOROUGH & BYRDSVILLE MOBILE HOME PARK

SEWER – N/A

PREPARED IN THE OFFICE OF:
DAVIS · MARTIN · POWELL
ENGINEERS & SURVEYORS
6415 OLD PLANK RD, HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

Randy McNeill, P.E.	UTILITIES PROJECT MANAGER
Andy Larrick, P.E.	UTILITIES PROJECT ENGINEER
Andy Larrick, P.E.	UTILITIES PROJECT DESIGNER

SEAL
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER RANDY L. McNEILL
DocuSigned by: Randy McNeill
3953F9845A2A40E...
3/8/2016

DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICE CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

Roger G. Worthington, Jr., P.E.	UTILITIES SECTION ENGINEER
	UTILITIES SQUAD LEADER PROJECT ENGINEER
	UTILITIES PROJECT DESIGN ENGINEER

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

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

DGN 0660DEL_P21o

REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Symbol	Label
Water Line (Sized as Shown)	12" WL
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	GV
Butterfly Valve	BV
Tapping Valve	TGV
Line Stop	LS
Line Stop with Bypass	LS/BP
Blow Off	BO
Fire Hydrant	PFH
Relocate Fire Hydrant	RFH
Remove Fire Hydrant	REM FH
Water Meter	PWM
Relocate Water Meter	RWM
Remove Water Meter	REM WM
Water Pump Station	PS(W)
RPZ Backflow Preventer	PRPZ
DCV Backflow Preventer	PBFP
Relocate RPZ Backflow Preventer	RRPZ
Relocate DCV Backflow Preventer	RBFP

PROPOSED SEWER SYMBOLS

Symbol	Label
Gravity Sewer Line (Sized as Shown)	12" SS
Force Main Sewer Line (Sized as Shown)	12" FSS
Manhole (Sized per Note)	
Sewer Pump Station	PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Symbol	Label
Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	TEL PED
Utility Line by Others (Type as Shown)	PROP O/H POW LINES
Trenchless Installation	12" TL INSTALL
Encasement by Open Cut	24" ENCAS BY OC
Encasement	24" ENCASEMENT
Thrust Block	
Air Release Valve	AR
Utility Vault	UV
Concrete Pier	CP
Steel Pier	SP
Plan Note	NOTE
Pay Item Note	PAY ITEM

EXISTING UTILITIES SYMBOLS

Symbol	Label
Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	W
Power Manhole	P
Telephone Manhole	T
Sanitary Sewer Manhole	
Hand Hole for Cable	H
Power Transformer	
Telephone Pedestal	T
CATV Pedestal	C
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.
*Underground Power Line	P
*Underground Telephone Cable	T
*Underground Telephone Conduit	TC
*Underground Fiber Optics Telephone Cable	T FO
*Underground TV Cable	TV
*Underground Fiber Optics TV Cable	TV FO
*Underground Gas Pipeline	G
Aboveground Gas Pipeline	A/G Gas
*Underground Water Line	W
Aboveground Water Line	A/G Water
*Underground Gravity Sanitary Sewer Line	SS
Aboveground Gravity Sanitary Sewer Line	A/G Sanitary Sewer
*Underground SS Forced Main Line	FSS
Underground Unknown Utility Line	?UTL
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

*For Existing Utilities

Symbol	Label
Utility Line Drawn from Record (Type as Shown)	W
Designated Utility Line (Type as Shown)	W

REV: 2/1/2012

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

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. THE EXISTING WATER UTILITIES BELONG TO THE TOWN OF HILLSBOROUGH AND BYRDSVILLE MOBILE HOME PARK.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL HEALTH. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DIVISION OF WATER QUALITY. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. FOR PROPOSED 1-1/2" AND 2" WATER LINES, USE PVC PIPE CONFORMING TO ASTM D2241 WITH A MINIMUM SDR OF 21 AND MINIMUM PRESSURE RATING OF 200 PSI.

LIST OF STANDARD DRAWINGS

N/A

PROJECT REFERENCE NO.	SHEET NO.
P-4405K	UC-3
DESIGNED BY: DMP	
DRAWN BY: DMP	
CHECKED BY: DMP	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER RANDY L. MCNEILL 8/8/2016

DocuSigned by: Randy McNeill 3B9C8B5A2A40E...

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

0660DEL_P21o

DGN

REVISIONS

SYSTEM FILE: $$$$
ENGINEER: $$$$
DATE: $$$$
TIME: $$$$

PROJECT REFERENCE NO.	SHEET NO.
P-4405K	UC-4

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER RANDY L. MCNEILL 3/8/2016
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Randy McNeill

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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0660DEL_P21o

DGN

REVISIONS

SYSTIME$$$$$$$$
CONN$$$$$$$$
FILENAME$$$$$$$$

25 0 50

NC GRID
NAD 83/NSRS 2007

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, 3:1 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
△ = 37° 05' 12.9" (RT)	△ = 7° 13' 02.0" (RT)	△ = 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
△ = 83° 10' 19.2" (LT)	△ = 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

DESIGN EXCEPTION REQUIRED

-EY1-

PI Sta 13+05.71	PI Sta 16+97.56
△ = 5° 32' 18.4" (LT)	△ = 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
△ = 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)

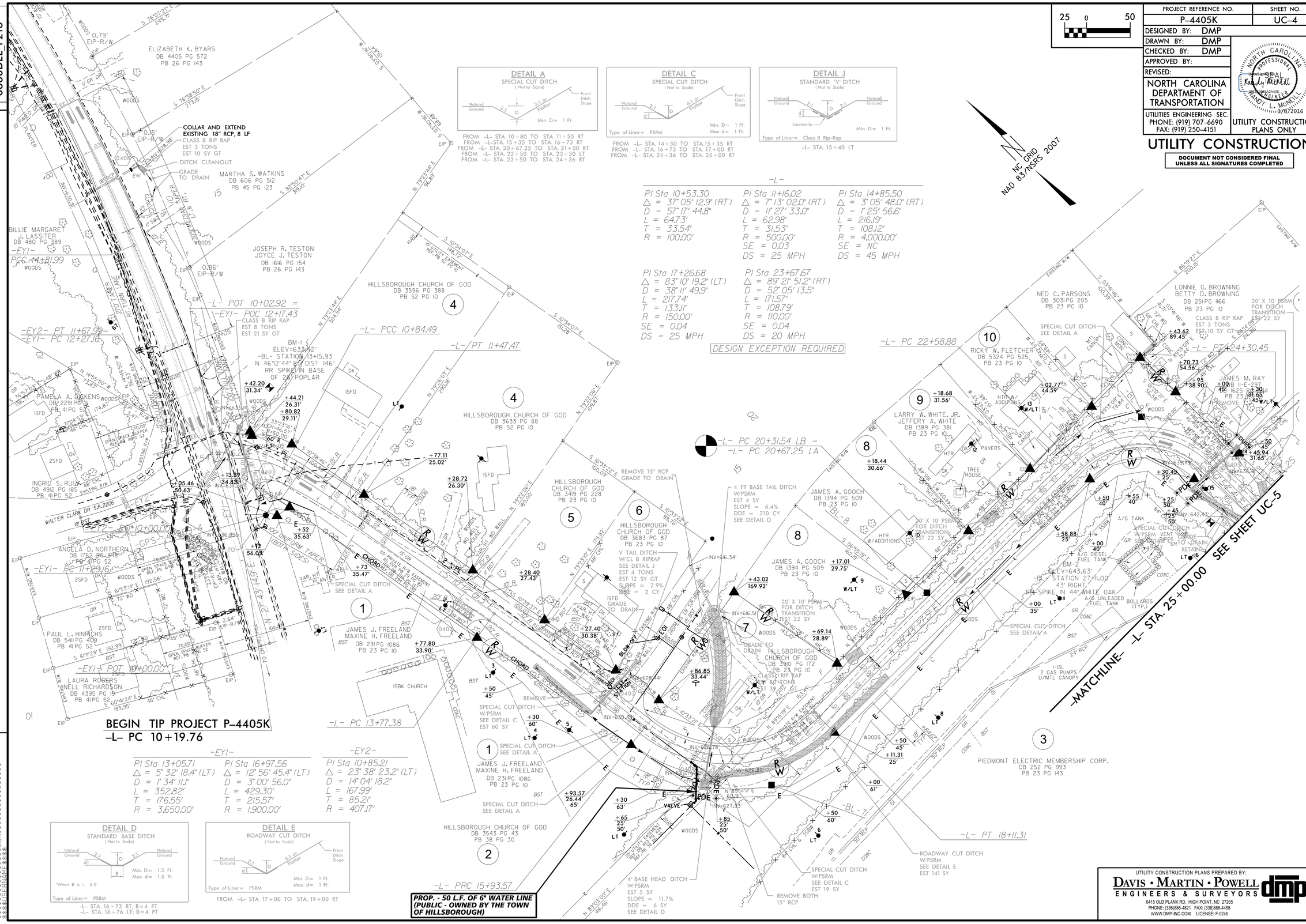
Natural Ground, 2:1, D, d, 3:1, Natural Ground, B
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
*When B is < 6.0'
Type of Liner= PSRM

-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, 3:1 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



UTILITY CONSTRUCTION PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

0660DEL_P21o

DGN

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
P-4405K	UC-5

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

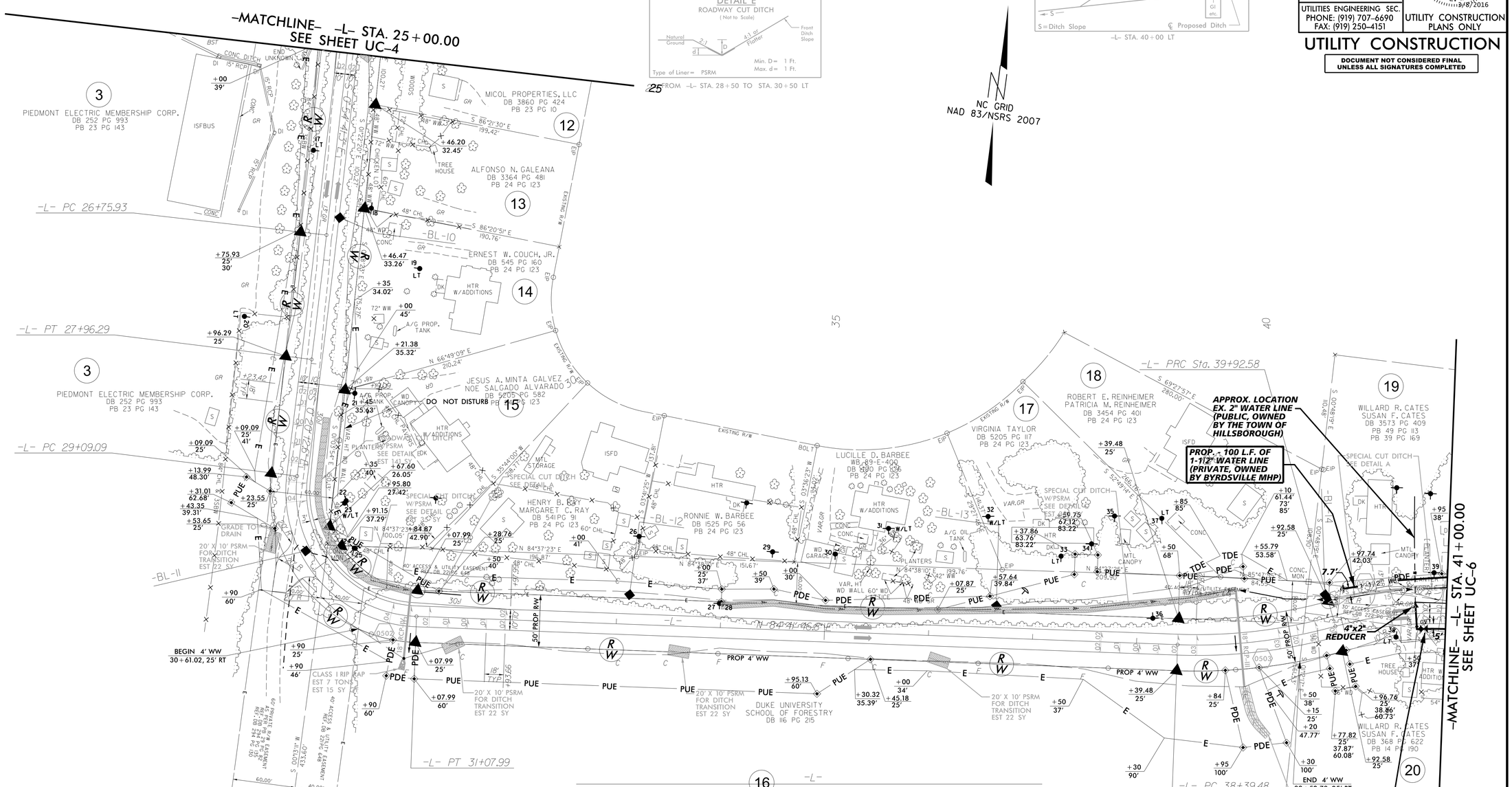
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER
Randy L. McNeill
Randy L. McNeill
3/8/2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25 0 50



PI Sta 27+36.11	PI Sta 30+39.98	PI Sta 39+16.63	PI Sta 40+57.15
Δ = 0° 34' 28.7" (RT)	Δ = 94° 58' 00.6" (LT)	Δ = 17° 32' 37.4" (LT)	Δ = 20° 54' 28.3" (RT)
D = 0° 28' 38.9"	D = 47° 44' 47.3"	D = 11° 27' 33.0"	D = 16° 22' 12.8"
L = 120.35'	L = 198.90'	L = 153.10'	L = 127.72'
T = 60.18'	T = 130.88'	T = 77.15'	T = 64.58'
R = 12,000.00'	R = 120.00'	R = 500.00'	R = 350.00'
SE = NC	SE = 0.04	SE = 0.03	SE = 0.04
DS = 65 MPH	DS = 20 MPH	DS = 25 MPH	DS = 35 MPH

DESIGN EXCEPTION REQUIRED

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D = 1 Ft.
FROM -L- STA. 31+00 TO STA. 31+50 LT
FROM -L- STA. 39+00 TO STA. 41+00 LT

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. 30+50 TO STA. 31+00 LT
FROM -L- STA. 34+00 TO STA. 39+00 LT

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. 28+50 TO STA. 30+50 LT

DETAIL I
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 10:1, 20:1, 1.0', 2.0', S, G1 etc
S = Ditch Slope
℄ Proposed Ditch
-L- STA. 40+00 LT

DETAIL H
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, 2:1, d, D, 2:1, Natural Ground, Geotextile, B
Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
*When B is < 6.0'
Type of Liner = Classs B Rip-Rap
-L- STA. 39+00 RT

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PROJECT REFERENCE NO.	SHEET NO.
P-4405K	UC-6
DESIGNED BY: DMP	
DRAWN BY: DMP	
CHECKED BY: DMP	
APPROVED BY:	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
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FAX: (919) 250-4151

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER RANDY L. MCNEILL 039 2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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0660DEL_P21o

REVISIONS

NC GRID NAD 83/NSRS 2007

REMOVE AT-GRADE RR CROSSING NUMBER 735189T AT MILEPOST H-43.90 BY OTHERS

OBLITERATE

REMOVE PAVEMENT

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

CENTER CUL-DE-SAC
-L- 53+81.29, 20.00 RT

-L- PC 53+08.67

END CULVERT
-L- POT 51+64.19

BEGIN CULVERT
-L- POT 51+41.81
-L- PT 51+33.32

-DRI- POT 12+22.46

-DRI- PT 11+51.23

-L- PT 55+54.48

-DRI- POC 10+00.00

-DR2- PC 10+36.68

-DR2- POT 10+00.00

-DR2- RT 10+86.91

NORFOLK SOUTHERN/NORTH CAROLINA RAILROAD

EARTHEN BERM

-DRI-

PI Sta 10+79.44	
△ = 43° 19' 28.8" (LT)	
D = 28° 38' 52.4"	
L = 151.23'	
T = 79.44'	
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 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 53+99.05
△ = 16° 02' 24.4" (LT)	△ = 13° 44' 31.3" (LT)
D = 11° 27' 33.0"	D = 7° 38' 22.0"
L = 139.98'	L = 179.88'
T = 70.45'	T = 90.37'
R = 500.00'	R = 750.00'
SE = 0.03	SE = 0.03
DS = 25 MPH	DS = 30 MPH

MATCHLINE INSET A

INSET A

-MATCHLINE- -L- STA. 41+00.00 SEE SHEET UC-5

PROP. - 7 - RECONNECT WATER METERS (SEE NOTE 3 AT RIGHT SIDE OF THIS PLAN SHEET)

PROP. - 802 L.F. OF 1-1/2" WATER LINE (PRIVATE, OWNED BY BYRDSVILLE MHP)

PROP. - 225 LF OF 2" WATER LINE, 1 - 2" VALVE (PRIVATE, OWNED BY BYRDSVILLE MHP)

PROP. 2" WATER METER & 2" BACKFLOW PREVENTER TO BE INSTALLED BY TOWN OF HILLSBOROUGH DURING MARCH, 2016

PROP. - 2 1-1/2" VALVES

PROP. - 50 L.F. OF 6" STEEL ENCASEMENT, MIN. W.T.=0.188" (PRIVATE, OWNED BY BYRDSVILLE MHP)

PROP. - 1 1-1/2" VALVE

PROP. - 1 - RELOCATE WATER METER

PROP. - 1 - RELOCATE WATER METER

PROP. - 1 - RELOCATE WATER METER

RECONNECT TO EX. LINE

PROP. - 1 - RECONNECT WATER METER

PROP. - 2 - 4" VALVES, 15 L.F. OF 4" WATER LINE, 20 L.F. OF 2" WATER LINE (PUBLIC, OWNED BY THE TOWN OF HILLSBOROUGH)

PROP. - 62 L.F. OF 1-1/2" WATER LINE, 50 L.F. OF 6" STEEL ENCASEMENT, MIN. W.T.=0.188" (PRIVATE, OWNED BY BYRDSVILLE MHP)

APPROX. LOCATION EX. 1" WATER LINE (PRIVATE, OWNED BY BYRDSVILLE MHP)

PROP. - 525 L.F. OF 4" WATER LINE (PUBLIC, OWNED BY THE TOWN OF HILLSBOROUGH)

PROP. - 85 L.F. OF 1-1/2" WATER LINE (PRIVATE, OWNED BY BYRDSVILLE MHP)

RECONNECT TO EX. WATER LINE

MATCHLINE INSET A

NOTES:

1. THE EXISTING WATER LINE SHOWN ALONG THE NORTH SIDE OF THE ROAD IS A TOWN OF HILLSBOROUGH LINE AND IT MAY BE 2" OR 2-1/2". ALSO, A 2" OR 2-1/2" LINE NOT SHOWN IS LOCATED ALONG THE SOUTH SIDE OF THE ROAD.

2. THE LOCATION AND ROUTE OF THE EXISTING 1" PRIVATE WATER LINE WAS PROVIDED BY THE OWNER OF THE SYSTEM. IT ALSO EXTENDS ALONG THE NORTH SIDE OF THE ROAD TO SERVE SEVEN (7) HOMES, BUT THE ROUTE OF THE EXISTING 1" WATER LINE AND THE LOCATION OF SERVICE CONNECTIONS ARE UNKNOWN.

3. A QUANTITY OF SEVEN (7) "RECONNECT WATER METERS" HAS BEEN INCLUDED IN THE CONTRACT TO RECONNECT THE EXISTING UN-METERED SERVICE CONNECTIONS ON THE PRIVATE WATER SYSTEM.

UTILITY CONSTRUCTION PLANS PREPARED BY:
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ENGINEERS & SURVEYORS
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WWW.DMP-INC.COM LICENSE: F-0245

DCN 0660DEL_P21o

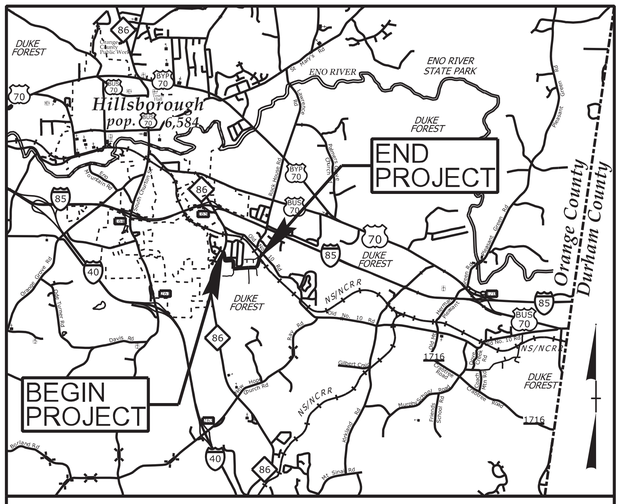
REVISIONS

5/26/2015 SHIFTED -DRI- WEST TO REDUCE IMPACT TO NS/NCRR EASEMENT
5/27/2015 CHANGED PUE TO DUE STA 24+30 TO 24+50 RT
10/13/2015 REVISED DUE ON PARCEL 11, REVISED ROW ON PARCELS 1 & 4 AND ADDED PUE ON PARCELS 3 AND 15-21
1/20/2016 REVISED EASEMENT ON PARCEL 21 AND CHANGED PDE TO TCE ON PARCEL 24

TIP PROJECT: P-4405 K

CONTRACT:

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



VICINITY MAP

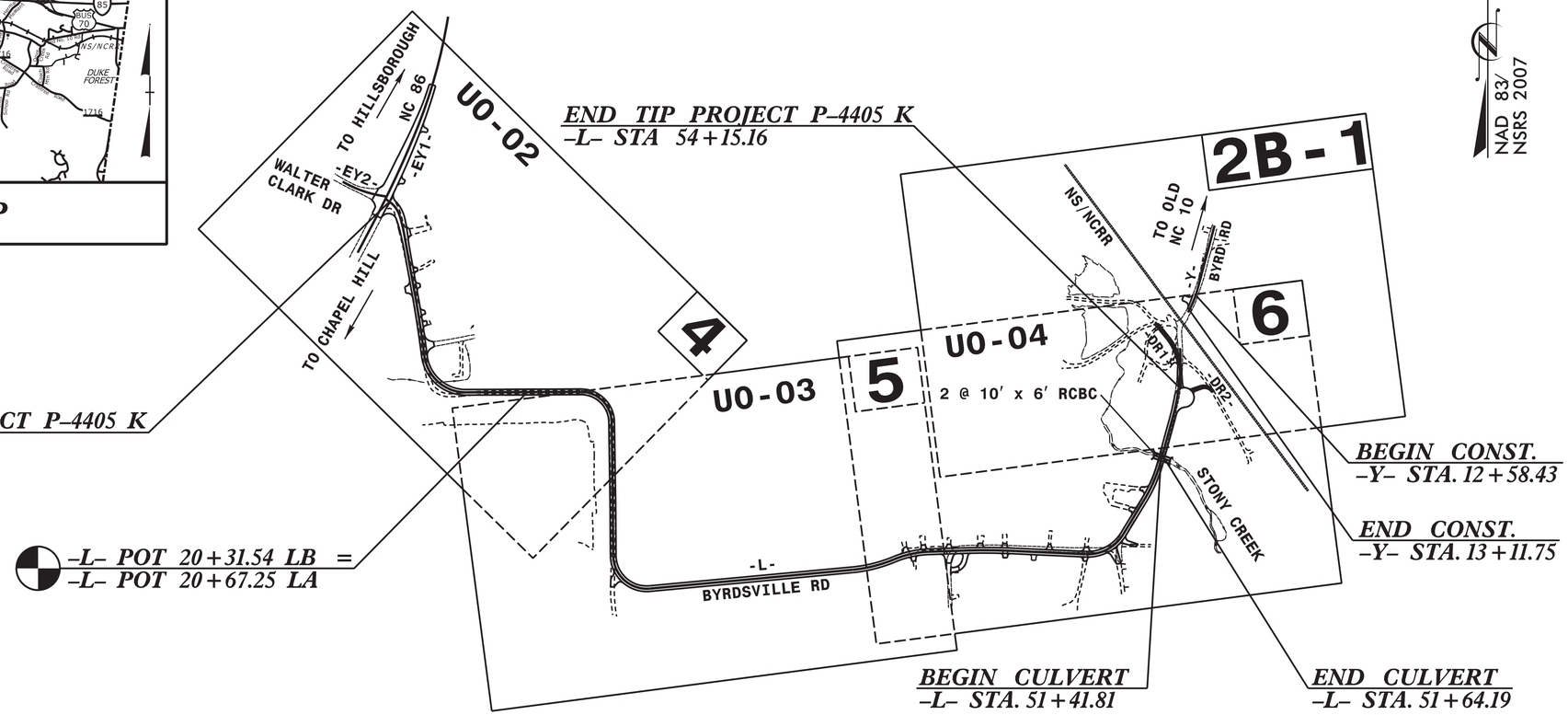
STATE OF NORTH CAROLINA
RAIL DIVISION

T.I.P. NO.	SHEET NO.
P-4405 K	UO-01

ORANGE COUNTY

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

UTILITIES BY OTHERS



SUBMITTAL: ROW REV
DATE: JANUARY 20, 2016

NCDOT CONTACT: DAN HAVENER, PE
PROJECT MANAGER

DESIGN EXCEPTION REQUIRED

SO-DEEP US, P.C. The Subsurface Utility Engineering Company
2800-154 Sumner Blvd., Raleigh, NC 27616 (919) 878-7466

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-01	TITLE SHEET
UO-02 THRU UO-04	UBO PLAN SHEETS

UTILITY OWNERS ON PROJECT

(A) PSNC – GAS (DISTRIBUTION)
(B) PIEDMONT EMC – POWER (DISTRIBUTION)
(C) DUKE ENERGY PROGRESS – POWER (DISTRIBUTION)
(D) CENTURYLINK – COMMUNICATIONS
(E) TIME WARNER CABLE – COMMUNICATIONS

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

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING COORDINATION AND SAFETY

ICA Engineering
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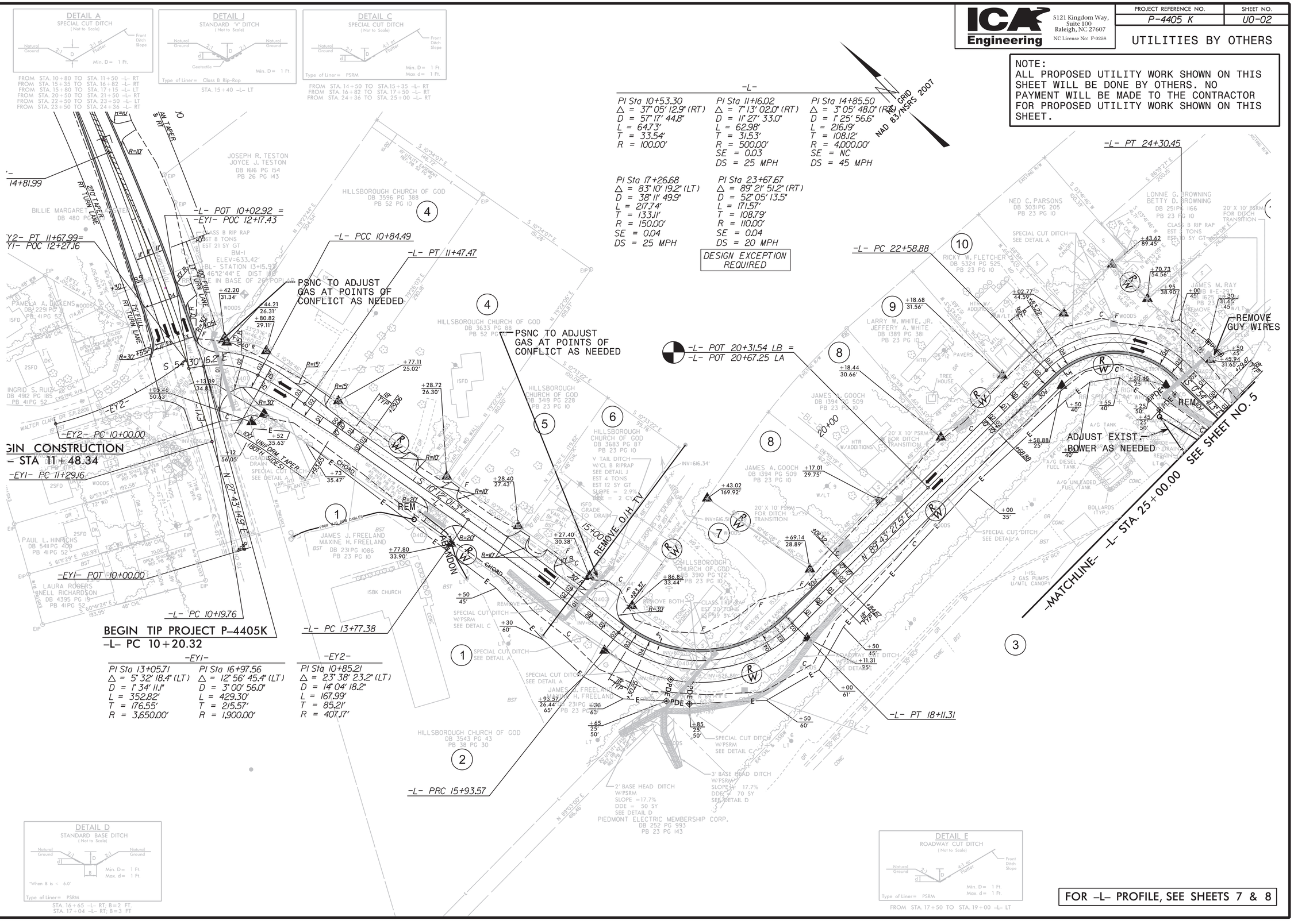
PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	U0-02

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



FOR -L- PROFILE, SEE SHEETS 7 & 8

REVISIONS

0660DEL_P210

0660DEL_P210

REVISIONS

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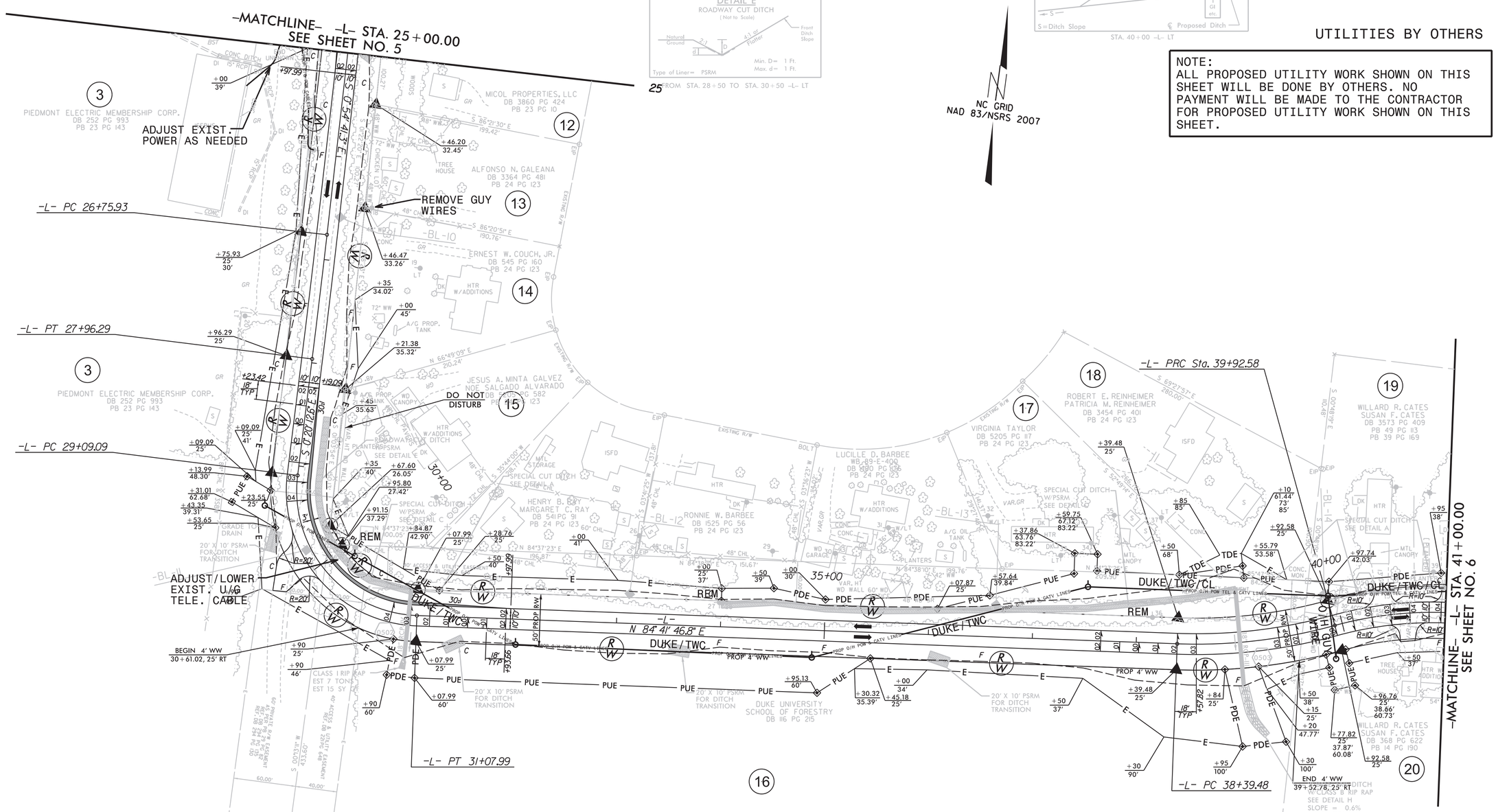
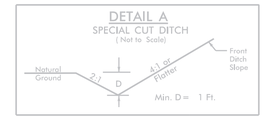
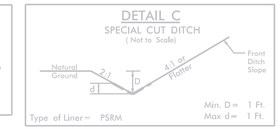
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	U0-03

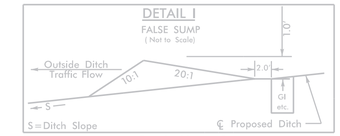




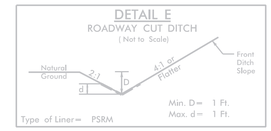
FROM STA. 31+00 TO STA. 31+50 -L- LT
FROM STA. 39+00 TO STA. 41+00 -L- LT



FROM STA. 30+50 TO STA. 31+00 -L- LT
FROM STA. 34+00 TO STA. 39+00 -L- LT



STA. 40+00 -L- LT



FROM STA. 28+50 TO STA. 30+50 -L- LT

UTILITIES BY OTHERS

NOTE:
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-L-

PI Sta 27+36.11	PI Sta 30+39.98	PI Sta 39+16.63	PI Sta 40+57.15
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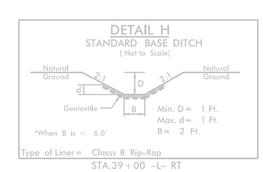
R = 12,000.00'	R = 120.00'	R = 500.00'	R = 350.00'
SE = NC	SE = 0.04	SE = 0.03	SE = 0.04
DS = 65 MPH	DS = 20 MPH	DS = 25 MPH	DS = 35 MPH

DESIGN EXCEPTION REQUIRED



STA.39+00 -L- RT

FOR -L- PROFILE, SEE SHEETS 8 & 9

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

DGN 0660DEL_P210

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
P-4405 K	U0-04

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NC License No: F-0258

UTILITIES BY OTHERS

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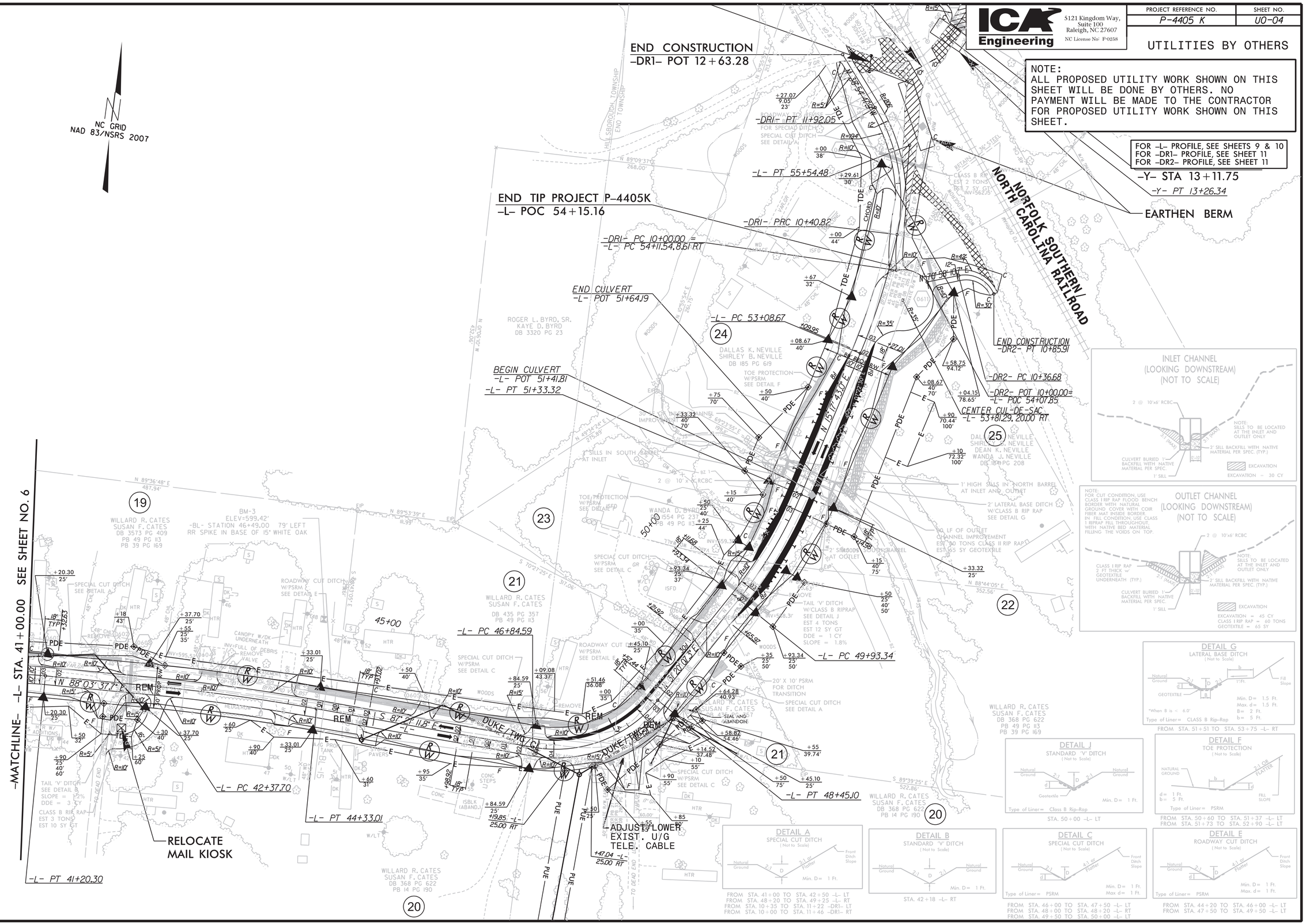
FOR -L- PROFILE, SEE SHEETS 9 & 10
FOR -DR1- PROFILE, SEE SHEET 11
FOR -DR2- PROFILE, SEE SHEET 11



SYSTIME
DGN
USERNAME