



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

January 3, 2011

MEMORANDUM TO: Mr. J. Wally Bowman , PE
Division Five Engineer

FROM: Philip S. Harris, III, P.E., Unit Head *E. F. Fusk*
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Wake County, US 401 (Rolesville Bypass) from SR 2226 to NC 96; T.I.P.
Number R-2814B; Federal Aid Project No. STP-401(4); State Project 8.1403001

Attached are the modifications to the U.S. Army Corps of Engineers Section 404 Individual, N.C. Division of Water Quality Section 401 Individual Water Quality Certification, DWQ Isolated Wetlands Permit and Riparian Buffer Authorization for the above referenced project. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at:
<http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html>

PSH/gyb

Attachment

Cc: W/attachment
Mr. Randy Garris, P.E. State Contract Officer
Mr. Chris Murray, Division Environmental Officer

Cc: W/o attachment (see website for attachments)
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Art McMillan, P.E., Highway Design
Mr. Tom Koch, P.E., Structure Design
Mr. Dewayne Sykes, P.E., Utilities Unit
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction Engineer
Ms. Beth Harmon, EEP
Mr. Eric Midkiff, P.E., PDEA Central Region Unit Head

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-733-3141
FAX: 919-715-1501

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

PROJECT COMMITMENTS

US 401 (Rolesville Bypass) from SR 2226
To NC 96
Wake County
Federal-Aid Project STP-401(4)
State Project 8.1403001
WBS Element 34506.1.1
TIP Project R-2814B

Current status, changes or additions to the project commitments as shown in the environmental document for the project are printed in *italics*.

Commitments Developed Through Project Development and Design

No new commitments were developed for the Section B permit modification. See R-2814 permit greensheets dated August 2009 and September 2010. All these commitments still apply.

Commitments Developed Through Permitting

Only one new condition was added with this 401 Permit Modification (November 29, 2010). Original conditions from previous permits and commitments from greensheets dated August 2009 (original phased permit) and September 2010 (permit modification) still apply.

Natural Environment Unit

From 401 Modification dated November 29, 2010

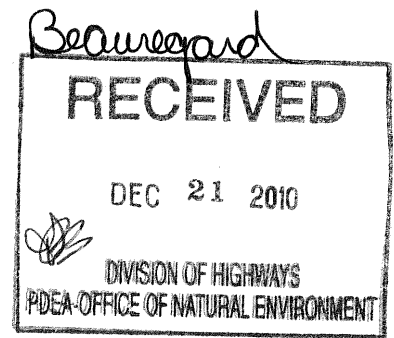
Compensatory mitigation for additional impacts to Neuse Riparian Buffers is required. The mitigation requirement includes 38 square feet of Zone 1 Buffers. We understand that you have chosen to debit mitigation from the Marks Creek Mitigation Bank. This certification gives approval to the debiting of 114 square feet of Neuse Buffer from the Marks Creek Mitigation Site in order to satisfy the new additional riparian buffer mitigation requirements of R-2814 B.

This has been completed.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343



December 20, 2010

Regulatory Division

SUBJECT: Action ID 2008-01316; TIP No. R-2814

Gregory J. Thorpe, Ph.D
North Carolina Department of Transportation
Division of Highways
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

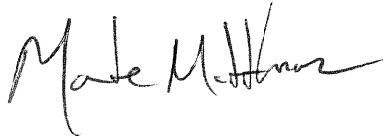
Reference the Department of the Army permit issued to the North Carolina Department of Transportation (NCDOT) on July 14, 2009, to authorize the discharge of fill material into waters of the United States, for construction of Sections A, B, C and D of the US 401 Widening and Rolesville Bypass (TIP R-2814). The project location is an 18.5 mile corridor along and to the east of existing US 401, from SR 2044 (Ligon Mill Road) southeast of Rolesville, in Wake County, to SR 1700 (Fox Park Road) southeast of Louisburg, in Franklin County, North Carolina. Authorization for Section B was based on preliminary design. Also, please reference the June 25, 2010 modification of the permit to reflect the final design for Section B of this project, and your November 1, 2010 letter requesting additional modification of the permit for an additional temporary impact to less than 0.05 acre of wetlands due to constructability issues with a sewer line. Additional wetland mitigation is not proposed because the non-forested wetland that will be impacted will be returned to natural grade.

We have reviewed the requested modification, and determined that it is appropriate and reasonable, and that no public notice is required for this modification. Therefore, the permit is hereby modified to include the changes listed and shown in the modified drawings in the November 1, 2010 modification request, for a net increase in temporary wetland impacts of less than 0.05 acre. Total impacts for all four sections will now be 5.96 acres of permanent impacts to 404 wetlands, 4,768 linear feet of permanent impact to streams, 0.07 acre of temporary impact to wetlands, and 204 linear feet of temporary impact to streams. There is a net increase of less than 0.05 acre of impacts to 404 wetlands.

All conditions of the previously modified permit, including the permit expiration date of December 31, 2014, remain applicable.

Should you have any questions, please call Mr. Eric Alsmeyer at (919) 554-4884, extension 23.

Sincerely,



*For New Bern
for*

Jefferson M. Ryscavage
Colonel, U.S. Army
District Commander

Copies Furnished:

Mr. Brian Wrenn
Division of Water Quality
North Carolina Department of
Environment and Natural Resources
1650 Mail Service Center
Raleigh, North Carolina 27699-1650

Mr. Clarence Coleman
Federal Highway Administration
310 New Bern Ave., Room 410
Raleigh, North Carolina 27601-1442



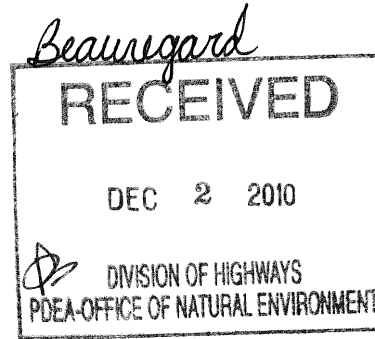
North Carolina Department of Environment and Natural Resources

Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

November 29, 2010



Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act, NEUSE BUFFER RULES, and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS for Proposed improvements to US 401 in Wake County, Federal Aid Project No. STP-401(4), State Project No. 81403001, TIP No. R-2814 (B).
NCDWQ Project No. 20090104 ver.3.

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3790 issued to The North Carolina Department of Transportation (NCDOT) originally dated June 16, 2009 and modified August 30, 2010.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Coleen H. Sullins
Director

Attachments

cc: Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Chris Murray, Division 5 Environmental Officer
Rachelle Beauregard, NCDOT NEU
File Copy

**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act,
NEUSE BUFFER RULES, and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with
ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B.0233 and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 . This certification authorized the NCDOT to impact 2.68 acres of jurisdictional wetlands, 1.58 acres of isolated wetlands, 3,824 linear feet of jurisdictional streams and 496,980 square feet of protected riparian buffers in Wake County. The project shall be constructed pursuant to the modification dated received May 19, 2010. The corrected revised authorized impacts are as described below:

Additional Section B Wetland Impacts in the Neuse River Basin

Site	Permanent Fill (ac)	Mechanized Clearing (ac)
7-Utility	0.01	0.04
Total	0.01	0.04

Total Additional Section B Wetland Impact: 0.05 acres.

Additional Section B Neuse Riparian Buffer Impacts

Site	Zone 1 Impact (sq ft)	minus Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)	Zone 2 Impact (sq ft)	minus Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
5	570	532	38	114	0	0	0	0
6	1180	0	1180	N/A	1149	0	1149	N/A
7	116	0	116	N/A	415	0	415	N/A
16	2447	0	2447	N/A	1887	0	1887	N/A
Totals	4313	532	3781	114	3451	0	3451	0

* n/a = Utility impact: no mitigation required

Total Additional Section B Buffer Impact: 7,764 square feet.

Note: *No changes have been made for Section A in this modification.*

The application provides adequate assurance that the discharge of fill material into the waters of the Neuse River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modification application dated received November 4, 2010. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated June 16, 2009 and modified August 30, 2010 still apply except where superceded by this certification. Should your project change, you are required to notify NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC.0242. For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

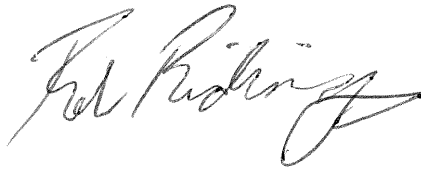
1. Compensatory mitigation for additional impacts to Neuse Riparian Buffers is required. The mitigation requirement includes 38 square feet of Zone 1 Buffers. We understand that you have chosen to debit mitigation from the Marks Creek Mitigation Bank. This certification gives approval to the debiting of 114 square feet of Neuse Buffer from the Marks Creek Mitigation Site in order to satisfy the new additional riparian buffer mitigation requirements of R-2814B.
2. All other conditions in previous versions of this Water Quality Certification for this project still apply.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

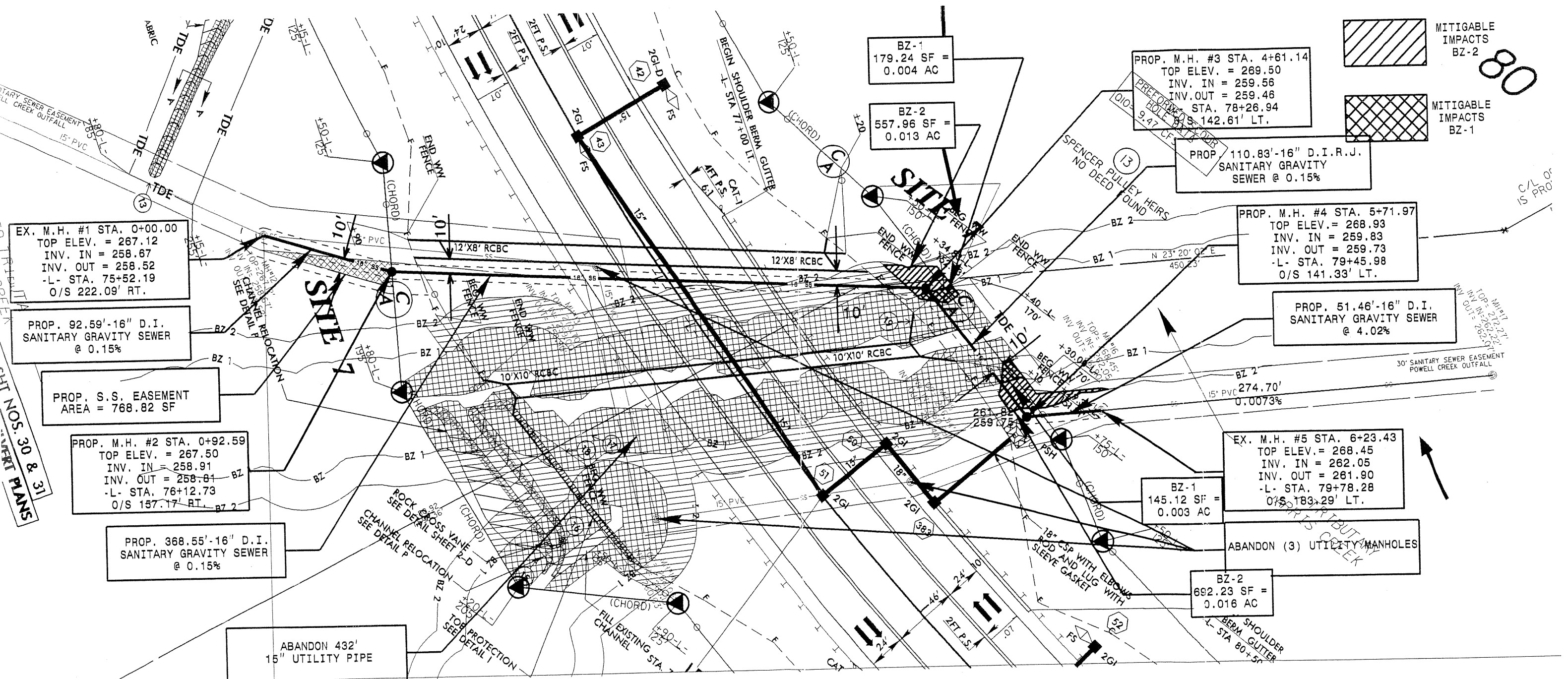
This the 29th day of November 2010

DIVISION OF WATER QUALITY



for Coleen H. Sullins
Director

Buffer Impacts - Utilities
 Site 7 Revised 10/21/10



EX. M.H. #1 STA. 0+00.00
 TOP ELEV. = 267.12
 INV. IN = 258.67
 INV. OUT = 258.52
 -L- STA. 75+52.19
 O/S 222.09' RT.

PROP. 92.59'-16" D.I.
 SANITARY GRAVITY SEWER
 @ 0.15%

PROP. S.S. EASEMENT
 AREA = 768.82 SF

PROP. M.H. #2 STA. 0+92.59
 TOP ELEV. = 267.50
 INV. IN = 258.91
 INV. OUT = 258.84
 -L- STA. 76+12.73
 O/S 137.17' RT.

PROP. 368.55'-16" D.I.
 SANITARY GRAVITY SEWER
 @ 0.15%

ABANDON 432'
 15" UTILITY PIPE

BZ-1
 179.24 SF =
 0.004 AC

BZ-2
 557.96 SF =
 0.013 AC

PROP. M.H. #3 STA. 4+61.14
 TOP ELEV. = 269.50
 INV. IN = 259.56
 INV. OUT = 259.46
 STA. 78+26.94
 O/S 142.61' LT.

PROP. 110.83'-16" D.I.R.J.
 SANITARY GRAVITY
 SEWER @ 0.15%

PROP. M.H. #4 STA. 5+71.97
 TOP ELEV. = 268.93
 INV. IN = 259.83
 INV. OUT = 259.73
 -L- STA. 79+45.98
 O/S 141.33' LT.

PROP. 51.46'-16" D.I.
 SANITARY GRAVITY SEWER
 @ 4.02%

EX. M.H. #5 STA. 6+23.43
 TOP ELEV. = 268.45
 INV. IN = 262.05
 INV. OUT = 261.90
 -L- STA. 79+78.28
 O/S 183.29' LT.

BZ-1
 145.12 SF =
 0.003 AC

BZ-2
 692.23 SF =
 0.016 AC

ABANDON (3) UTILITY MANHOLES

MITIGABLE
 IMPACTS
 BZ-2

MITIGABLE
 IMPACTS
 BZ-1

80

BZ-1
179.24 SF =
0.004 AC

BZ-2
557.96 SF =
0.013 AC

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O/S 142.61' LT.

PROP. 110.83'-16" D.I.
SANITARY GRAVITY
SEWER @ 0.15%

PROP. M.H. #4
TOP ELEV. =
INV. IN =
INV. OUT =
-L- STA. ;
O/S 141.1

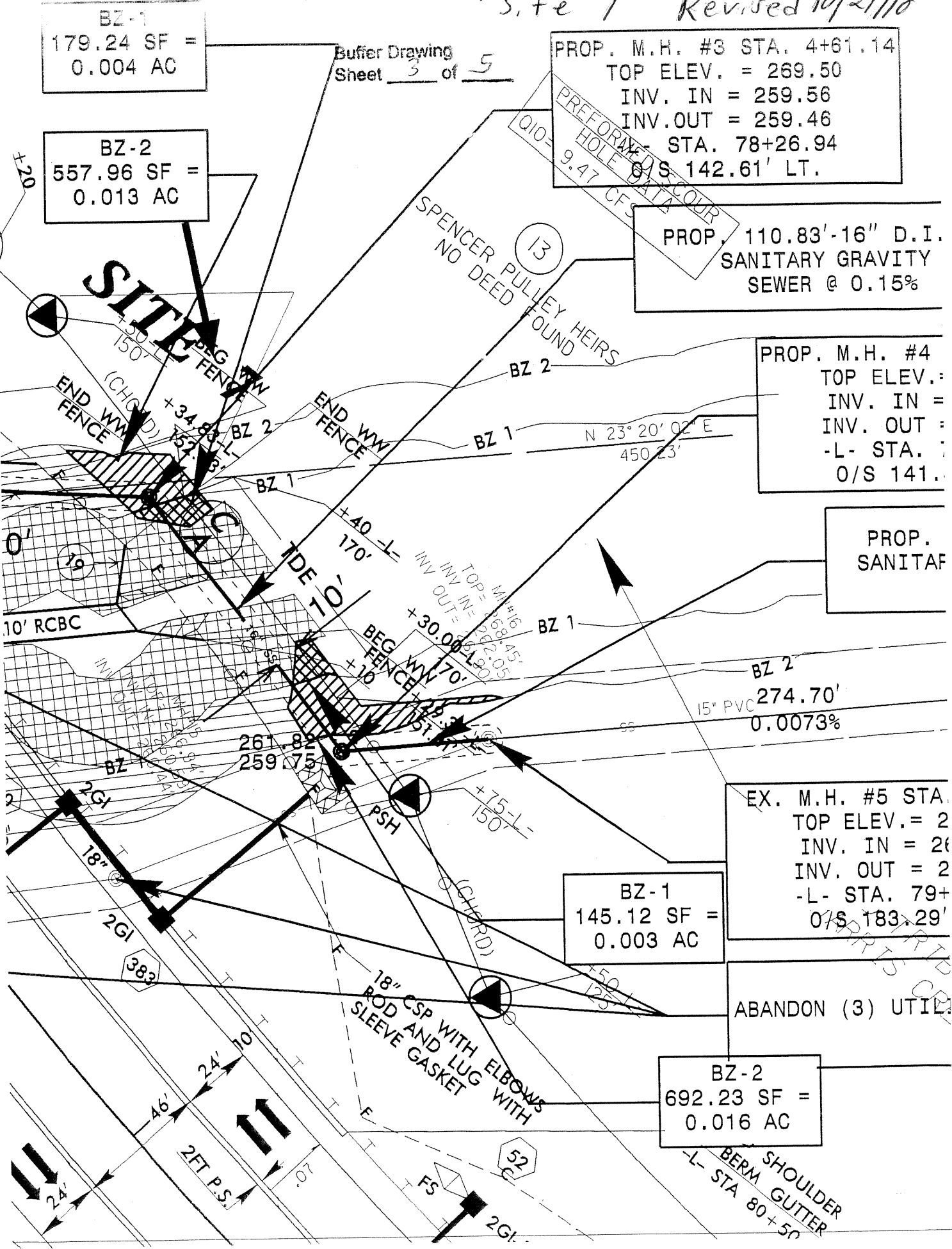
PROP. SANITARY

EX. M.H. #5 STA.
TOP ELEV. = 2
INV. IN = 2
INV. OUT = 2
-L- STA. 79+
O/S 183.29'

BZ-1
145.12 SF =
0.003 AC

BZ-2
692.23 SF =
0.016 AC

Buffer Drawing
Sheet 3 of 5



SITE

10' RCBC

IDE 10'

15" PVC
274.70'
0.0073%

18" CSP WITH ELBOWS
ROD AND LUG WITH
SLEEVE GASKET

ABANDON (3) UTIL

BERM SHOULDER
GUTTER
-L- STA 80+50

UTILITY BUFFER IMPACTS SUMMARY

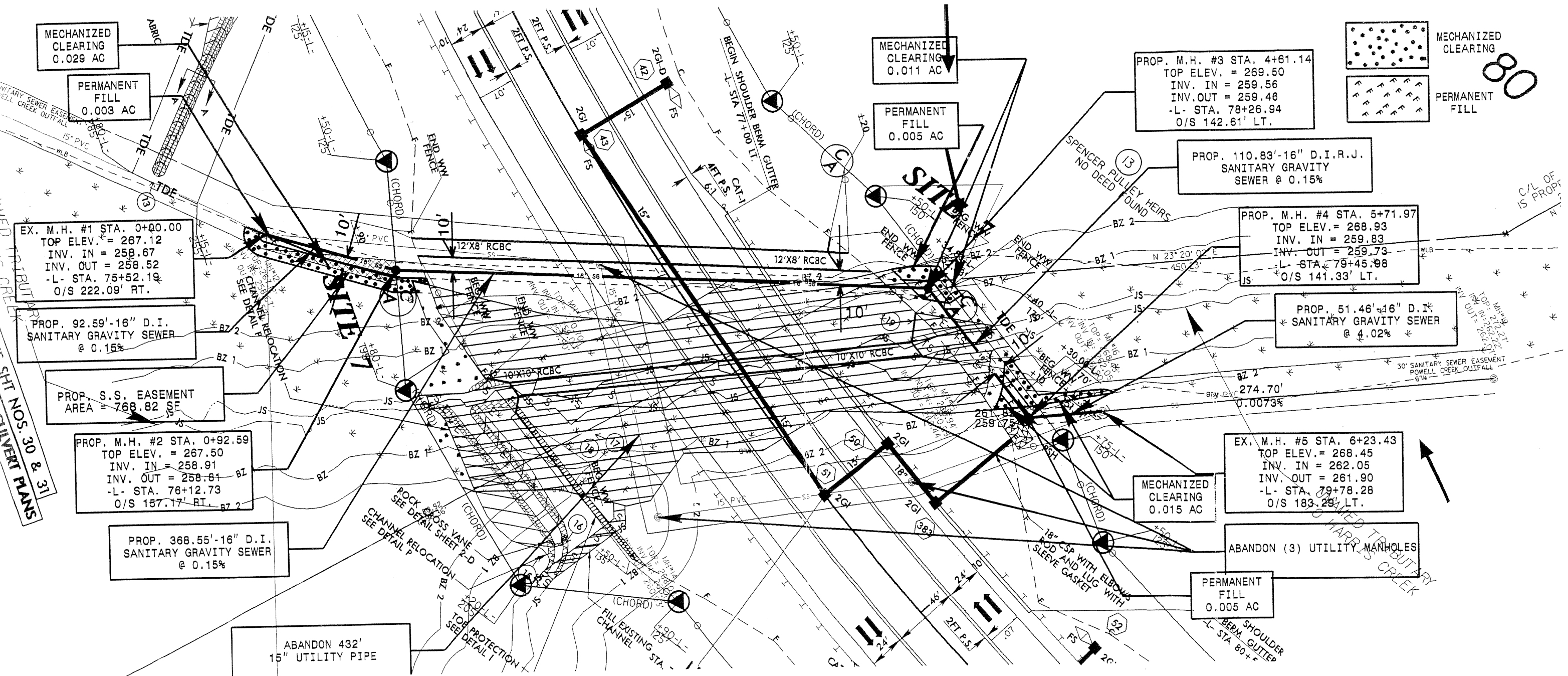
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT										BUFFER REPLACEMENT				
			TYPE			ALLOWABLE			MITIGABLE			TOTAL		ZONE 1	ZONE 2		
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)				
7	Sanitary Sewer	See Drawing				324	1250	1575									
TOTAL:						324	1250	1575	0.0	0.0	0.0	0.0					

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 WAKE COUNTY
 PROJECT: 34506.3.GV3 (R-2814B)

 10/21/2010
 SHEET 5 OF 5

Wetland + Stream Utility Impacts
 Site 7 revised 10/21/10



MECHANIZED CLEARING
 PERMANENT FILL

PROP. M.H. #3 STA. 4+61.14
 TOP ELEV. = 269.50
 INV. IN = 259.56
 INV. OUT = 259.46
 -L- STA. 78+26.94
 O/S 142.61' LT.

PROP. 110.83'-16" D.I.R.J.
 SANITARY GRAVITY
 SEWER @ 0.15%

PROP. M.H. #4 STA. 5+71.97
 TOP ELEV. = 268.93
 INV. IN = 259.83
 INV. OUT = 259.73
 -L- STA. 79+45.98
 O/S 141.33' LT.

PROP. 51.46'-16" D.I.
 SANITARY GRAVITY SEWER
 @ 4.02%

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 TOP ELEV. = 267.12
 INV. IN = 258.67
 INV. OUT = 258.52
 -L- STA. 75+52.19
 O/S 222.09' RT.

PROP. 92.59'-16" D.I.
 SANITARY GRAVITY SEWER
 @ 0.15%

PROP. S.S. EASEMENT
 AREA = 768.82 SF

PROP. M.H. #2 STA. 0+92.59
 TOP ELEV. = 267.50
 INV. IN = 258.91
 INV. OUT = 258.81
 -L- STA. 76+12.73
 O/S 157.17' RT.

PROP. 368.55'-16" D.I.
 SANITARY GRAVITY SEWER
 @ 0.15%

EX. M.H. #5 STA. 6+23.43
 TOP ELEV. = 268.45
 INV. IN = 262.05
 INV. OUT = 261.90
 -L- STA. 79+78.28
 O/S 183.29' LT.

ABANDON (3) UTILITY MANHOLES

PERMANENT FILL
 0.005 AC

ABANDON 432'
 15" UTILITY PIPE

Wetland & Stream Utility Impacts
 Site 7 revised 10/21/10

MECHANIZED
 CLEARING
 0.011 AC

PERMANENT
 FILL
 0.005 AC

PROP. M.H. #3 STA. 4+61.14
 TOP ELEV. = 269.50
 INV. IN = 259.56
 INV. OUT = 259.46
 -L- STA. 78+26.94
 O/S 142.61' LT.

PROP. 110.83'-16" D.I.R.J.
 SANITARY GRAVITY
 SEWER @ 0.15%

PROP. M.H. #4 STA. 5+7'
 TOP ELEV. = 268.93
 INV. IN = 259.83
 INV. OUT = 259.73
 -L- STA. 79+45.98
 O/S 141.33' LT.

PROP. 51.46'-16"
 SANITARY GRAVITY
 @ 4.02%

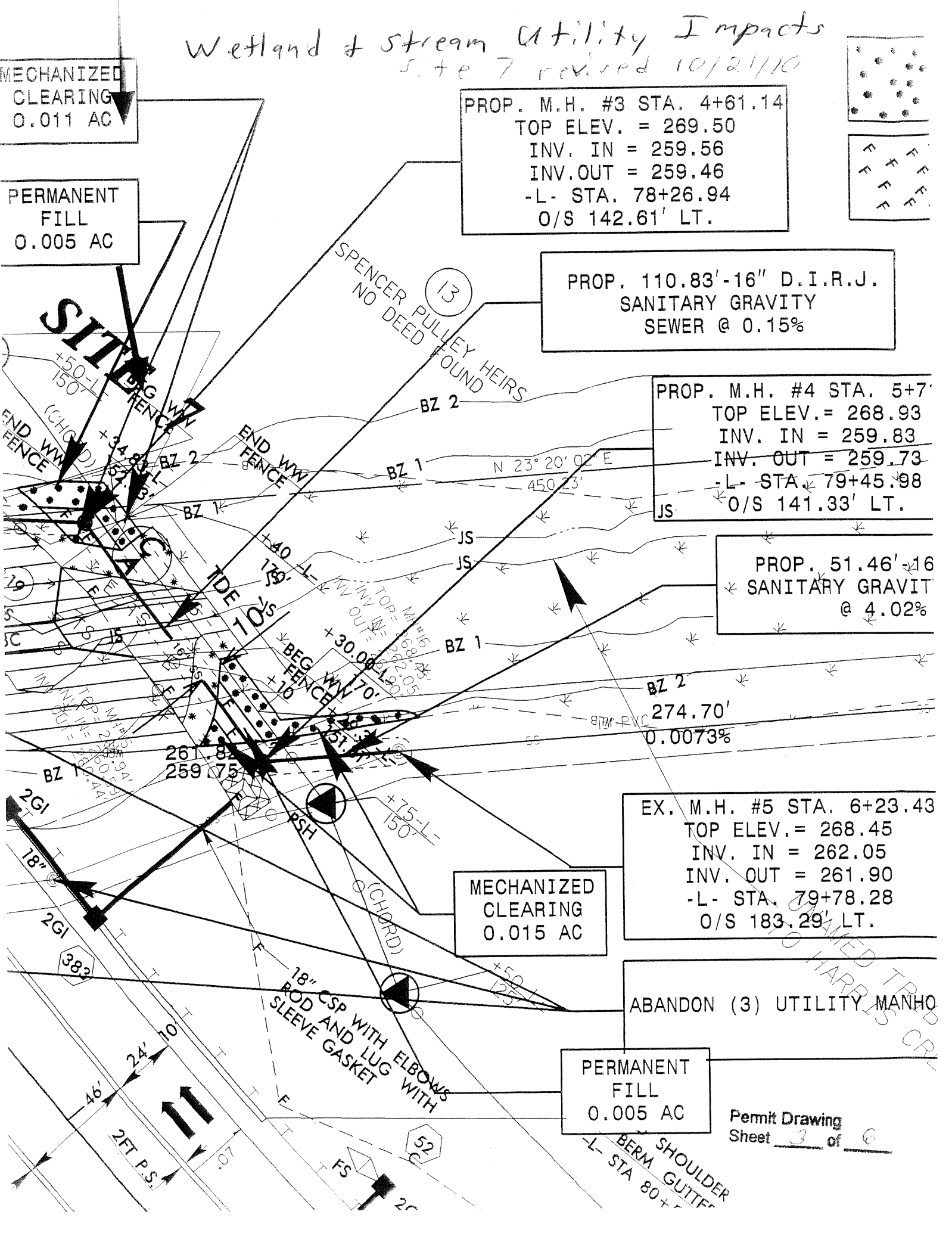
EX. M.H. #5 STA. 6+23.43
 TOP ELEV. = 268.45
 INV. IN = 262.05
 INV. OUT = 261.90
 -L- STA. 79+78.28
 O/S 183.29' LT.

MECHANIZED
 CLEARING
 0.015 AC

PERMANENT
 FILL
 0.005 AC

ABANDON (3) UTILITY MANHO

Permit Drawing
 Sheet 3 of 6



CLEARING
0.029 AC

PERMANENT
FILL
0.003 AC

Wetland & Stream
Utility Impacts
Site 7
revised 10/21/10

Permit Drawing
Sheet 39 of 6

EX. M.H. #1 STA. 0+00.00
TOP ELEV. = 267.12
INV. IN = 258.67
INV. OUT = 258.52
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O/S 222.09' RT.

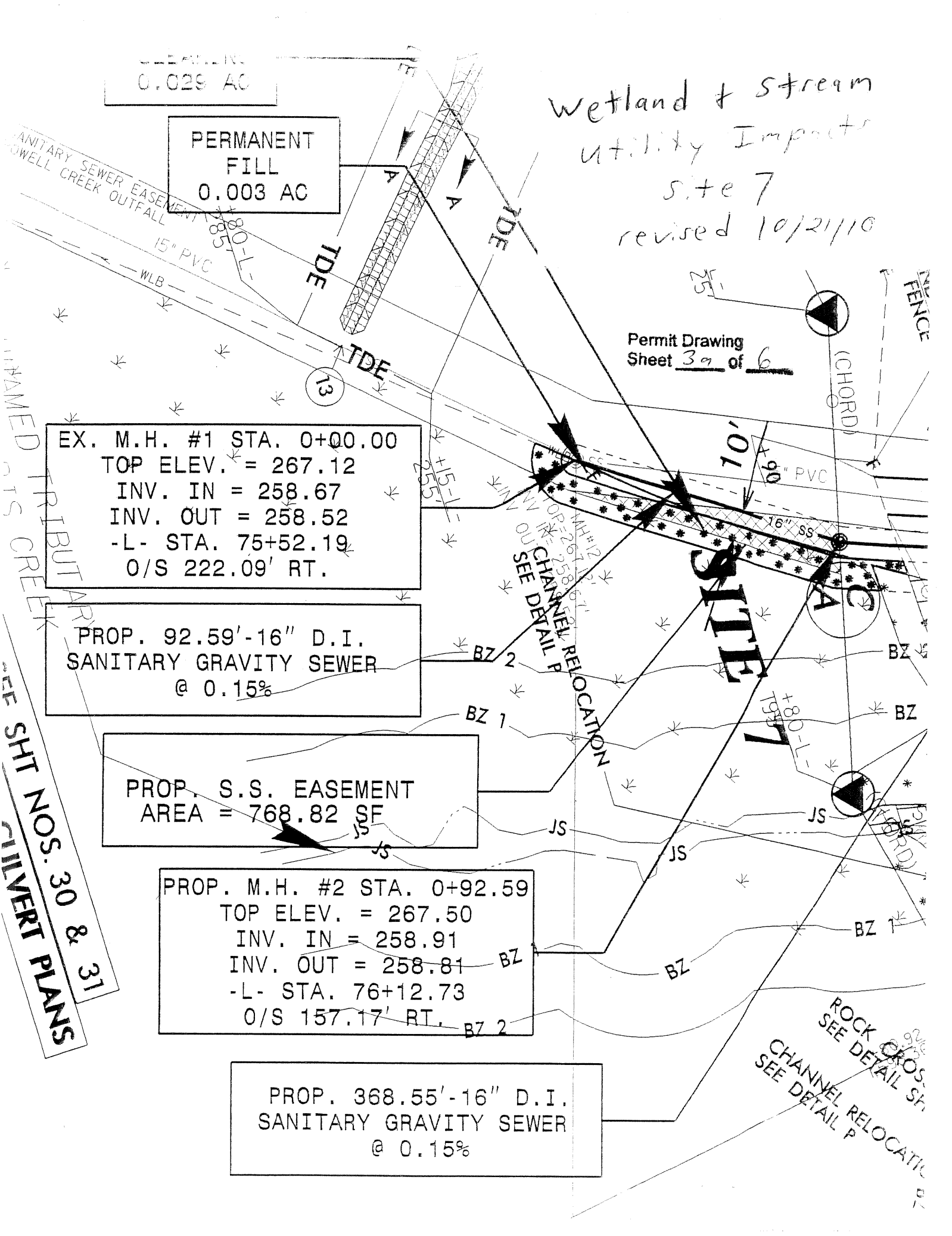
PROP. 92.59'-16" D.I.
SANITARY GRAVITY SEWER
@ 0.15%

PROP. S.S. EASEMENT
AREA = 768.82 SF

PROP. M.H. #2 STA. 0+92.59
TOP ELEV. = 267.50
INV. IN = 258.91
INV. OUT = 258.81
-L- STA. 76+12.73
O/S 157.17' RT.

PROP. 368.55'-16" D.I.
SANITARY GRAVITY SEWER
@ 0.15%

UNNAMED TRIBUTARY
CREEK
SEE SHEET NOS. 30 & 31
CONVERT PLANS



UTILITY WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS							
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)		
7	See Drawing	Sanitary Sewer	0.013			0.055						3		
			0.013			0.055						3		
TOTALS:														

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
WBS - 34506.3.GV3 (R-2814B)

10/21/2010
#####

SHT 1 OF 1

Permit Drawing
Sheet 6 of 6

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT						BUFFER REPLACEMENT		
			TYPE		ALLOWABLE		MITIGABLE		ZONE 1 (ft ²)	ZONE 2 (ft ²)	
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)			ZONE 1 (ft ²)
1	60" RCP	-L- 38+11	X				13743	9262	23005		
2	30" RCP	-L- 41+07 RT			X			6	6		
5	78" RCP	-L- 55+00	X				24665	16852	41517		
6	2@42" RCP	-Y2- 17+31	X			856					
7	10'X10' RCBC	-L- 77+89	X				31468	16885	48153		
8	10'X10' RCBC	-L- 115+74	X				28702	15200	43902		
9	72" RCP	-L- 147+00	X				53503	31621	85124		
10	N/A	-L- 187+00 RT			X		2133	4772	6905		
11	10'X9' RCBC	-L- 200+04	X				25288	14205	39493		
12	42" RCP	-L- 219+03	X				17088	15041	32129		
15	N/A	-L- 255+00	X				19154	15890	35044		
16	2@12'X12' RCBC	-L- 275+39	X				19724	10366	30090		
18	2@36" RCP	-Y6- 15+17	X			3475		1585	5060		
TOTAL:						4331	1585	5916	235468	149900	385368

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
PROJECT: 34506.1.1 (R-2814B)

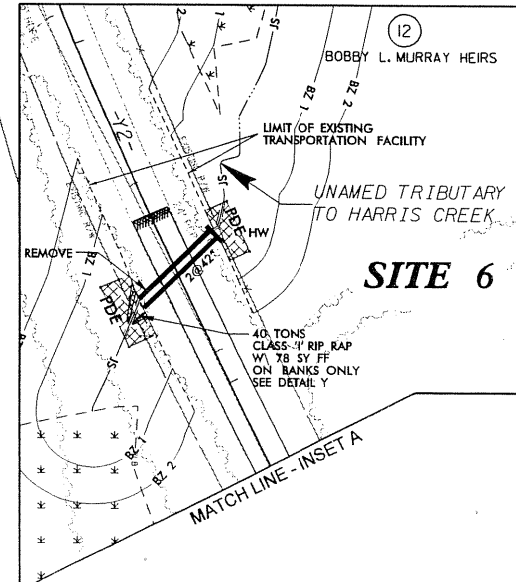
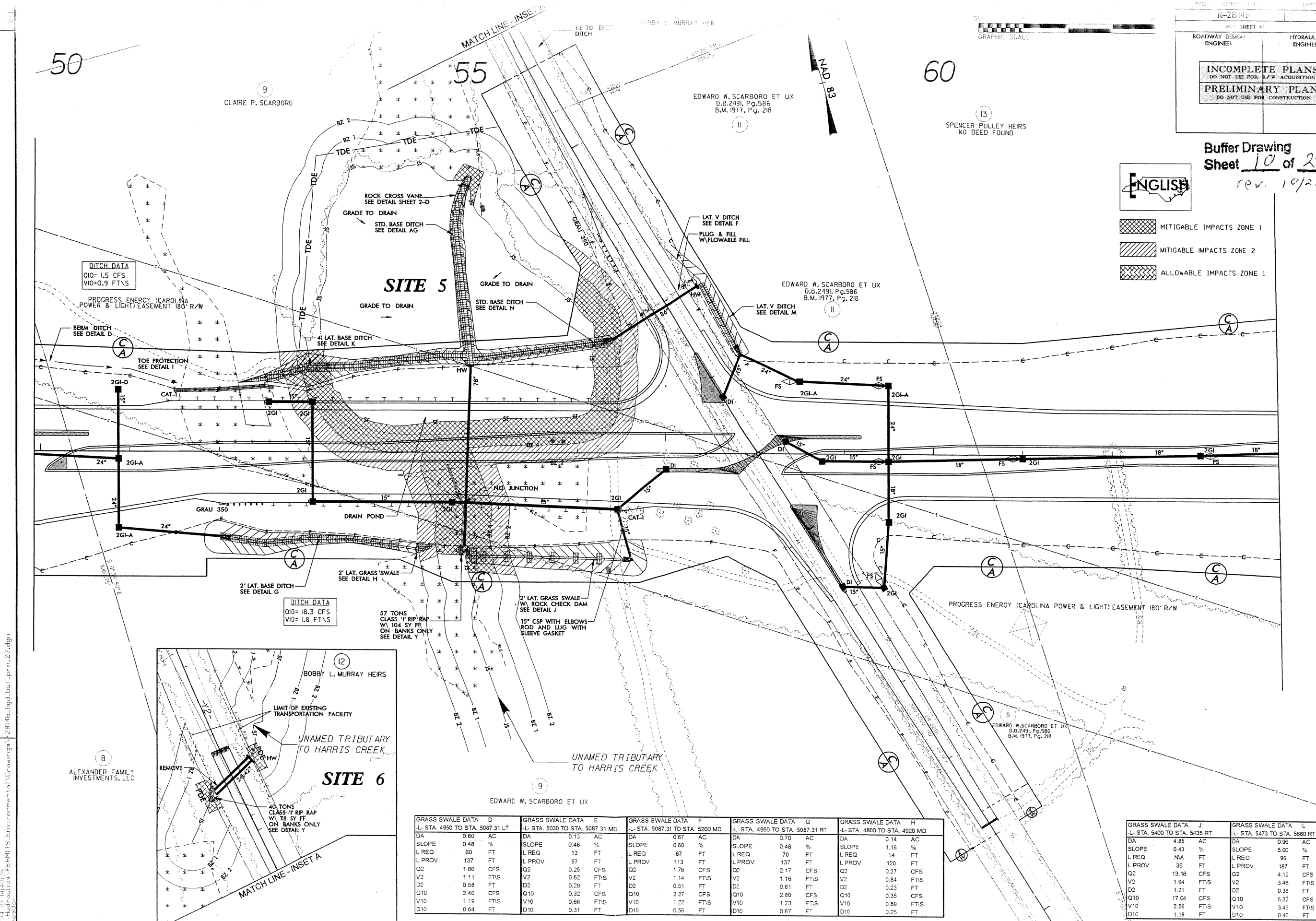
RCV
10/14/2010
SHEET 5 OF 20

INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

Buffer Drawing
 Sheet 10 of 20
 rev. 10/21/10



- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2
- ALLOWABLE IMPACTS ZONE 1



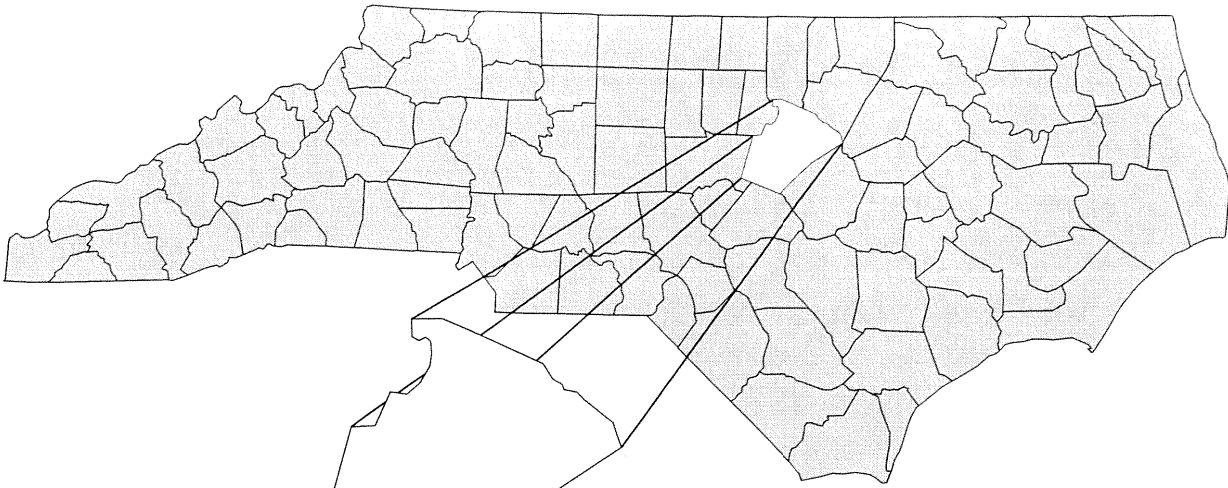
GRASS SWALE DATA D			GRASS SWALE DATA E			GRASS SWALE DATA F			GRASS SWALE DATA G			GRASS SWALE DATA H		
L- STA. 4950 TO STA. 5087.31 LT			L- STA. 5030 TO STA. 5087.31 MD			L- STA. 5087.31 TO STA. 5200 MD			L- STA. 4950 TO STA. 5087.31 RT			L- STA. 4800 TO STA. 4920 MD		
DA	0.60	AC	DA	0.13	AC	DA	0.67	AC	DA	0.70	AC	DA	0.14	AC
SLOPE	0.48	%	SLOPE	0.48	%	SLOPE	0.60	%	SLOPE	0.48	%	SLOPE	1.16	%
L REQ	60	FT	L REQ	13	FT	L REQ	67	FT	L REQ	70	FT	L REQ	14	FT
L PROV	137	FT	L PROV	57	FT	L PROV	113	FT	L PROV	137	FT	L PROV	120	FT
Q2	1.86	CFS	Q2	0.25	CFS	Q2	1.76	CFS	Q2	2.17	CFS	Q2	0.27	CFS
V2	1.11	FT/S	V2	0.62	FT/S	V2	1.14	FT/S	V2	1.16	FT/S	V2	0.84	FT/S
D2	0.58	FT	D2	0.28	FT	D2	0.51	FT	D2	0.61	FT	D2	0.23	FT
Q10	2.40	CFS	Q10	0.32	CFS	Q10	2.27	CFS	Q10	2.80	CFS	Q10	0.35	CFS
V10	1.19	FT/S	V10	0.66	FT/S	V10	1.22	FT/S	V10	1.23	FT/S	V10	0.89	FT/S
D10	0.64	FT	D10	0.31	FT	D10	0.56	FT	D10	0.67	FT	D10	0.25	FT

GRASS SWALE DATA A			GRASS SWALE DATA J			GRASS SWALE DATA L		
L- STA. 5400 TO STA. 5435 RT			L- STA. 5473 TO STA. 5660 RT			L- STA. 5473 TO STA. 5660 RT		
DA	4.85	AC	DA	0.96	AC	DA	0.96	AC
SLOPE	0.43	%	SLOPE	5.00	%	SLOPE	5.00	%
L REQ	N/A	FT	L REQ	96	FT	L REQ	96	FT
L PROV	35	FT	L PROV	187	FT	L PROV	187	FT
Q2	13.18	CFS	Q2	4.12	CFS	Q2	4.12	CFS
V2	1.94	FT/S	V2	3.48	FT/S	V2	3.48	FT/S
D2	1.21	FT	D2	0.38	FT	D2	0.38	FT
Q10	17.04	CFS	Q10	5.32	CFS	Q10	5.32	CFS
V10	2.56	FT/S	V10	3.43	FT/S	V10	3.43	FT/S
D10	1.19	FT	D10	0.46	FT	D10	0.46	FT

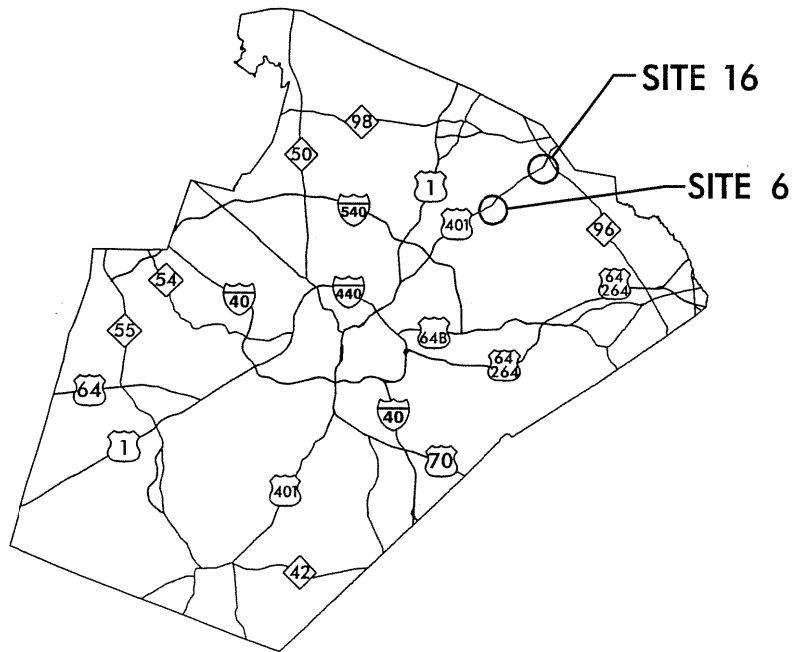
REVISIONS

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NORTH CAROLINA



WAKE COUNTY



POWER BUFFER VICINITY MAP

Buffer Drawing
Sheet 1 of 6

NCDOT
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 34506.1.1 (R-2814B)
US 401 ROLESVILLE BYPASS
FROM SR 2225, LOUISBURY ROAD
TO NC 96, ZEBULON ROAD

PROP. NO.	PROPERTY OWNER NAME	PROP. OWNER ADDRESS
<p>9 55 57</p>	<p>Scarboro , E. Walter and Claire P. Stell, Meith & Mary Sue Et. Al. Sylvania Frazier & Lula Barnes McGhee</p>	<p>9412 Louisburg Rd., Wake Forest, NC 27587 1132 Louisburg Rd., Wake Forest, NC 27587 2725 Wait Ave., Wake Forest, NC 27857</p>
<p>N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS</p> <p>WAKE COUNTY PROJECT: 34506.1.1 (R-2814B)</p> <p>9/28/2010</p>		

Buffer Drawing
Sheet 2 of 6

UTILITY BUFFER IMPACTS SUMMARY POWER

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE				ALLOWABLE			MITIGABLE			BUFFER REPLACEMENT		
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)		
6	Aerial Power	Y2: 16+66 - 18+28	X			1180	1419	2599							
16	Aerial Power	L: 274+36 - 275+56	X			2447	1887	4334							
TOTAL:						3627	3306	6933							

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
PROJECT: 34506.1.1 (R-2814B)

10/13/2010
SHEET 1 OF 1

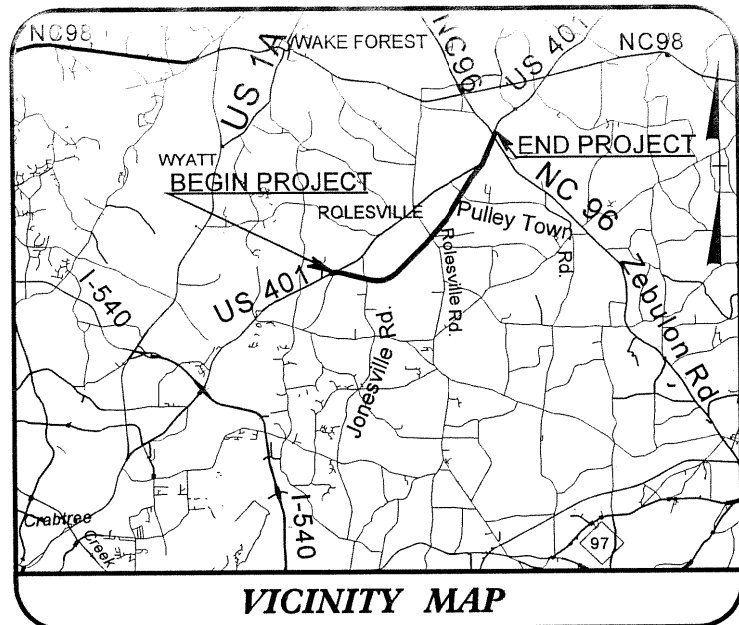
UTILITY BUFFER IMPACT PLAN WAKE COUNTY

PRELIMINARY PLANS

Buffer Drawing
Sheet 4 of 6

LOCATION: US 401 ROLESVILLE BYPASS FROM SR 2225,
LOUISBURY ROAD TO NC 96, ZEBULON ROAD

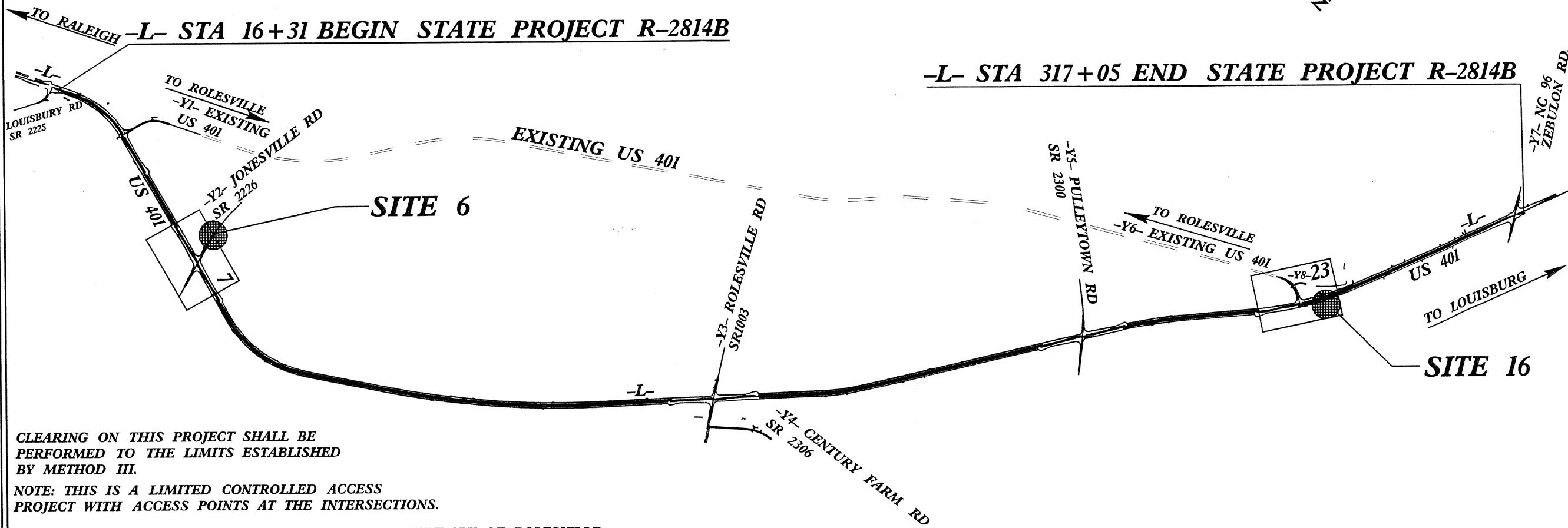
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS, AND SIGNALS



VICINITY MAP



TIP PROJECT: R-2814B

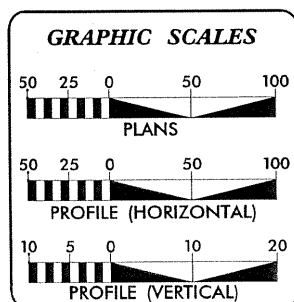


CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

NOTE: THIS IS A LIMITED CONTROLLED ACCESS PROJECT WITH ACCESS POINTS AT THE INTERSECTIONS.

NOTE: THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF ROLESVILLE.

CONTRACT:



UTILITY OWNERS ON PROJECT

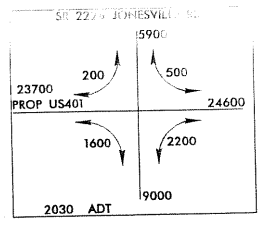
- (1) Progress Energy (Power Distribution /Transmission)
- (2) Wake EMC (Power Distribution /Transmission)
- (3) Century Link (Telecommunications)
- (4) AT&T (Telecommunications)
- (5) Windstream (Telecommunications)
- (6) Time Warner Cable (Cable Television)
- (7) PSNC (Distribution Gas)
- (8) City of Raleigh (Water, Sewer)



PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION

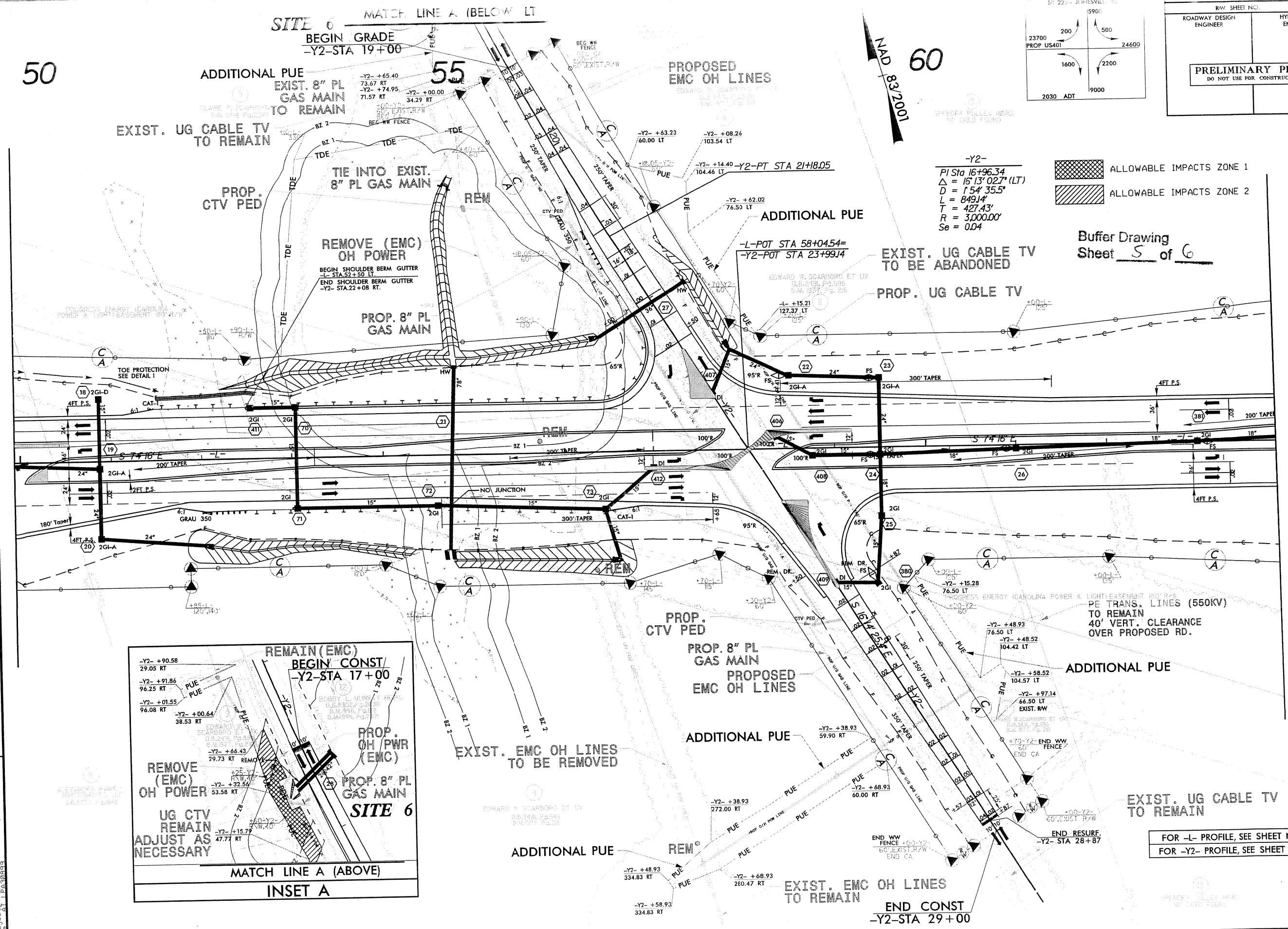
1591 MAIL SERVICES CENTER
RALEIGH, NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Steve McKee, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Brandy Creech UTILITIES COORDINATION CONSULTANT



50

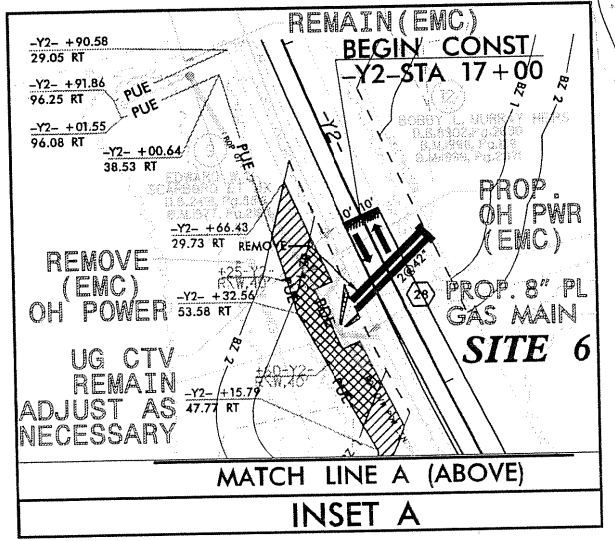
SITE 6 MATCH LINE A (BELOW LT)
 BEGIN GRADE
 -Y2- STA 19+00



-Y2-
 PI Sta 16+96.34
 $\Delta = 16^{\circ}13'02.7\"$ (LT)
 $D = 154^{\circ}35.5'$
 $L = 849.14'$
 $T = 427.43'$
 $R = 3,000.00'$
 $Se = 0.04$

ALLOWABLE IMPACTS ZONE 1
 ALLOWABLE IMPACTS ZONE 2

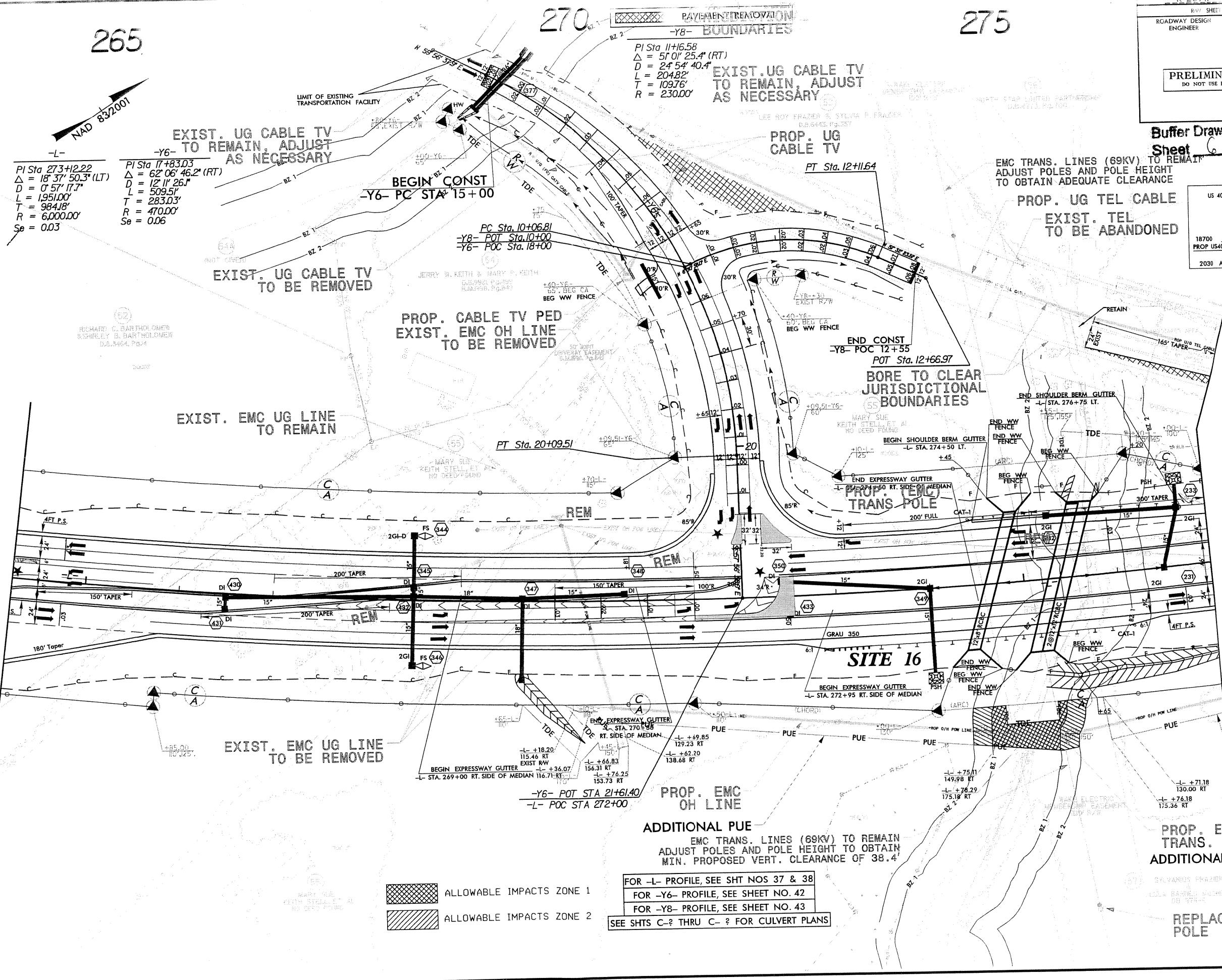
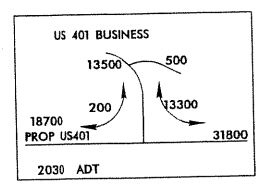
Buffer Drawing
 Sheet 5 of 6



FOR -L- PROFILE, SEE SHEET NO. 30
 FOR -Y2- PROFILE, SEE SHEET NO. 40

REVISIONS

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 13-OCT-2010 10:33:01 N:\Projects\2814B\2814B.dgn
 13-OCT-2010 10:33:01 N:\Projects\2814B\2814B.dgn



-L-
 PI Sta 273+12.22
 $\Delta = 18^\circ 37' 50.3''$ (LT)
 $D = 0' 57' 17.7''$
 $L = 1,951.00'$
 $T = 984.18'$
 $R = 6,000.00'$
 $Se = 0.03$

-Y6-
 PI Sta 17+83.03
 $\Delta = 62^\circ 06' 46.2''$ (RT)
 $D = 12' 11' 26.1''$
 $L = 509.51'$
 $T = 283.03'$
 $R = 470.00'$
 $Se = 0.06$

PAYMENT REMOVAL
 -Y8- BOUNDARIES
 PI Sta 11+16.58
 $\Delta = 51^\circ 01' 25.4''$ (RT)
 $D = 24' 54' 40.4''$
 $L = 204.82'$
 $T = 109.76'$
 $R = 230.00'$
 EXIST. UG CABLE TV TO REMAIN, ADJUST AS NECESSARY

EMC TRANS. LINES (69KV) TO REMAIN
 ADJUST POLES AND POLE HEIGHT TO OBTAIN ADEQUATE CLEARANCE
 PROP. UG TEL CABLE
 EXIST. TEL TO BE ABANDONED

END CONST
 -Y8- POC 12+55
 POT Sta. 12+66.97
 BORE TO CLEAR JURISDICTIONAL BOUNDARIES

SITE 16

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2

FOR -L- PROFILE, SEE SHT NOS 37 & 38
 FOR -Y6- PROFILE, SEE SHEET NO. 42
 FOR -Y8- PROFILE, SEE SHEET NO. 43
 SEE SHTS C-? THRU C-? FOR CULVERT PLANS

PROP. EMC TRANS. POLE
 ADDITIONAL PUE
 REPLACE POLE

REVISIONS

13-OCT-2010 12:38 Y:\Projects\2814B Wake County\Environmental\2814B_rdy_psh_u023_09_30_10.dgn