



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

October 15, 2010

North Carolina Division of Water Quality
1650 Mail Service Center
Raleigh, NC 27604

Attention: Rob Ridings
NCDOT Coordinator, Division 5

Subject: **Information to comply with Section 401 conditions** for US 401 widening from SR 2044 (Ligon Mill Rd) to north of SR 2226 (Jonesville Rd), Wake County, Federal Aid No. STP-401(4), State Project No. 81403001, WBS 34506.1.1, Division 5, TIP R-2814 A.

Reference: Section 404 Individual Permit, issued July 14, 2009, USACE Action ID 2008-01316
Section 401 Individual Water Quality Certification, Isolated Wetlands Permit and Neuse Riparian Buffer Authorization issued June 16, 2009, NCDENR-DWQ Water Quality Certification Project No. 20090104 ver.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to construct a 18.5 mile long, widening and new location roadway in Wake and Franklin Counties known as the Rollesville Bypass. It is proposed as a four lane, median divided facility. NCDOT received the above stated permits for the entire project (Sections A, B, C and D) with final design approval for Section A. Section A is currently under construction. Sections C and D are still scheduled for post year.

Table 1. Description of Project Sections for Construction Purposes

Section	Project Termini	Let Date
R-2814A	Widen US 401 from SR 2044 to SR 2226	12/15/09 (under construction)
R-2814B	New Location from SR 2226 to NC 96	2/15/11
R-2814C	Widen US 401 from NC 96 to SR 1103	Post year
R-2814D	Widen US 401 from SR 1103 to SR 1700	Post year

The Section 401 Individual Water Quality Certification was issued June 16, 2009. Condition number 5 and 20 of this permit states that the permittee shall provide written verification that the final construction drawings comply with the permit drawings contained in the application dated and received February 2, 2009. There were discrepancies between the permit drawings and the

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

TELEPHONE: 919-431-2000
FAX: 919-431-2001 or
919-431-2002
WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 ATLANTIC AVE.
SUITE 116
RALEIGH NC 27604

constructions plans submitted in the February 2, 2009 application for Section A only and a change in design of the dry detention pond. Also, a design change in the area of the project on construction plan sheets 11 and 12 involved turning lanes. The information in this package is submitted to comply with this condition. **There are no changes to jurisdictional areas.** Enclosed are the revised drawings as stated below.

Issue 1

Issue: Stream permit drawings 8 and 9 depict a jurisdictional stream at the outlet of a 600 mm pipe structure at 15+90 Rt. However, a review of construction plan sheet 5 does not depict any stream or channel feature at this location.

Response: Revised construction plan 5 reflects the jurisdictional stream depicted on stream permit drawings 8 and 9.

Issue 2

Issue: Stream permit drawings 10 and 11 and buffer permit drawing 6 depict a jurisdictional stream at the inlet and outlet of a 600 mm pipe structure at 19+00 to 19+30 Lt/Rt. However, a review of construction plan sheet 6 does not depict any stream or channel feature at this location.

Response: Revised construction plan 6 reflects the jurisdictional stream depicted on stream permit drawings 8 and 9 and buffer permit drawing 6.

Issue 3

Issue: Stream permit drawings 10 and 11 and buffer permit drawing 6 depict a 400 mm pipe structure that conveys runoff from the dry detention pond to the level spreader device at 16+65 Rt. However, a review of construction plan sheet 6 indicates that this is a 450 mm pipe structure at this location.

Response: Revised stream permit drawings 10 and 11 and revised buffer permit drawing 6 reflect the 450 mm pipe structure that conveys runoff from the dry detention pond to the level spreader as depicted on construction plan 6.

Issue 4

Issue: Stream permit drawings 10 and 11 and buffer permit drawing 6 depict construction of a headwall in a 1200 mm pipe (conveying a jurisdictional stream) that is skewed to the toe of fill at 19+10 Lt. However, a review of construction plan sheet 6 indicates that the headwall at this location is parallel to the toe of fill.

Response: Revised stream permit drawings 10 and 11 and revised buffer permit drawing 6 reflect the headwall parallel to the toe of fill as depicted on construction plan 6.

Issue 5

Issue: Construction plan sheet 11 and buffer permit drawing 8 depict a ditch with no liner information at the high end of a pre-formed scour hole (PFSH) located at 33+15 Rt. Stream permit drawings 12 and 13 depict rip rap in the ditch at the high end of the PFSH.

Response: Revised construction plan sheet 11 and revised buffer permit drawing 8 reflect rip rap in the ditch at the high end of the PFSH as depicted on stream permit drawings 12 and 13.

Issue 6

Issue: Stream permit drawings 12 and 13 depict a rip rap blob in the stream at the outlet of a 1050 mm pipe structure at 35+95 Lt. Buffer permit drawing 8 depicts no rip rap blob in the stream at the outlet of this 1050 mm pipe structure. Construction plan sheet 11 depicts a rip rap blob in the

stream at the outlet of this 1050 mm pipe structure with a note directing that outlet protection be located on banks only at this location.

Response: Revised stream permit drawings 12 and 13 and revised buffer permit drawing 8 reflect a rip rap blob in the stream at the outlet of this 1050 mm pipe structure with a note directing that outlet protection be located on banks only at this location as depicted on construction plan sheet 11.

Issue 7

Issue: Construction plan sheet 12 depicts a ditch turnout with rip rap at the high end of a PFSH located at 36+80 Rt. Stream permit drawings 14 and 15 and buffer permit drawing 9 depict no ditch turnout with rip rap at the high end of the PFSH.

Response: Revised stream permit drawings 14 and 15 and revised buffer permit drawing 9 reflect the ditch turnout with rip rap at the high end of the PFSH as depicted on construction plan sheet 12.

Issue 8

Issue: The hydro drainage design is not consistent between the construction plan sheets, buffer permit drawings and stream permit drawings at the following locations: 33+40 to 35+15 Rt/Lt, 36+29 to 36+90 Rt/Lt and 37+50 to 39+40 Rt/Lt.

Response: Revised construction plan sheets 11 and 12, revised stream permit drawings 12, 13, 14 and 15, and revised buffer permit drawings 8 and 9 reflect the revised hydro design.

Issue 9

Issue: A headwall has been designed to be installed at the inlet of a 900 mm pipe structure at Station 33+45 Rt.

Response: This construction revision has been depicted on revised construction plan 11, revised stream permit drawings 12 and 13, and revised buffer permit drawing 8.

Issue 10

Issue: A headwall has been designed to be installed at the inlet of a 1050 mm pipe structure at Station 36+45 Rt.

Response: This construction revision has been depicted on revised construction plan 12, revised stream permit drawings 14 and 15, and revised buffer permit drawing 9

Dry Detention Pond Relocation

Due to a conflict with an existing sanitary sewer main, the dry detention pond at Sta. 16+80 +/- Rt was redesigned. The layout for the dry detention pond can be found on plan sheet 6 and the detail drawings can be found on plan sheet 2-L. The detention pond is also shown on buffer drawing 6.

There are two sewer manholes in conflict with the concrete level spreader located at the base of the detention pond outfall. We explored the option of extending the dry detention pond away from existing US 401 and towards the stream buffer to the southeast. We found that this could not be done without additional buffer impacts. Additionally, this would place the manholes within the limits of the detention pond and would conflict with grading activities necessary for pond construction.

The best alternative is to relocate the concrete level spreader towards US 401 and away from the stream buffer. This shift will reduce the width of the basin. This change in width has prompted the need to alter some of the plan contours of the basin in order to 1) Maintain basin capacity 2) Maintain plan elevations for bottom of basin and concrete spreader. Basin capacity or volume is critical to

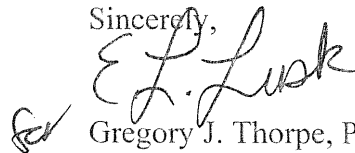
maintaining functionality based on the anticipated discharge into the basin. Maintaining the plan elevations is critical to ensuring that the pipe network draining into the basin can maintain positive flow at a minimum slope.

The attached drawing will show the proposed revised design. It includes the following changes:

- 1) The side slopes on the interior of the basin have been modified to 2:1 from the plan 3:1 depicted on plan sheet 2-L. All other dimensions shown on the basin typical section will be maintained. We feel that the 2:1 slopes will provide adequate stability within the basin.
- 2) In order to maintain plan volume within the basin, the south west side of the basin will be extended. Based on our design calculations, the revised volume in the pond will be slightly increased from the volume shown in the plans.
- 3) We propose installing PSRM at the outfall of the level spreader. We will cover all areas that are disturbed between the spreader and the stream buffer. This will ensure long term stability. We also propose replacing the existing soil in the area with topsoil that will promote ground cover.

A copy of this information will be posted on the NCDOT website at <http://www.ncdot.org/doh/preconstruct/pe/neu/Permit.html>. If you have any questions or need additional information, please call Rachelle Beauregard at 919-431-6764.

Sincerely,



Gregory J. Thorpe, Ph.D., Manager

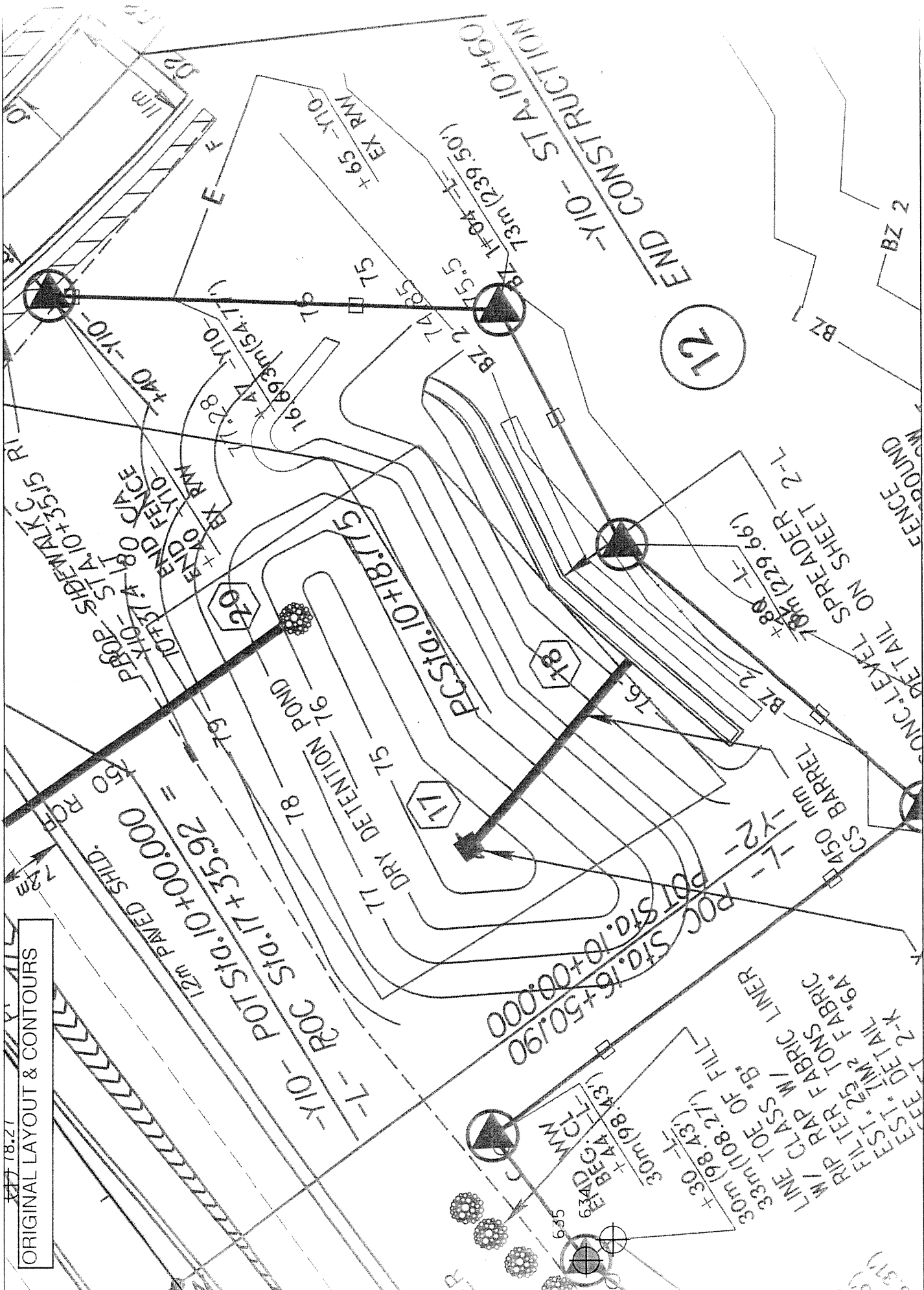
Project Development and Environmental Analysis Branch

w/attachment

- Mr. Brian Wrenn, NCDWQ (2 Copies)
- Mr. Eric Alsmeyer, USACE
- Ms. Jennifer Derby, USEPA
- Mr. J. Wally Bowman, PE., Division Engineer
- Mr. Chris Murray, DEO

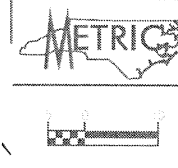
W/o attachment (see website for attachments)

- Dr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Dewayne Sykes, P.E., Utilities Unit
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Majed Alghandour, P. E., Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. Scott McLendon, USACE, Wilmington
- Mr. Gary Jordan, USFWS
- Mr. Travis Wilson, NCWRC
- Ms. Beverly Robinson, PDEA Project Planning Engineer
- Mr. Clarence W. Coleman, P.E., FHWA



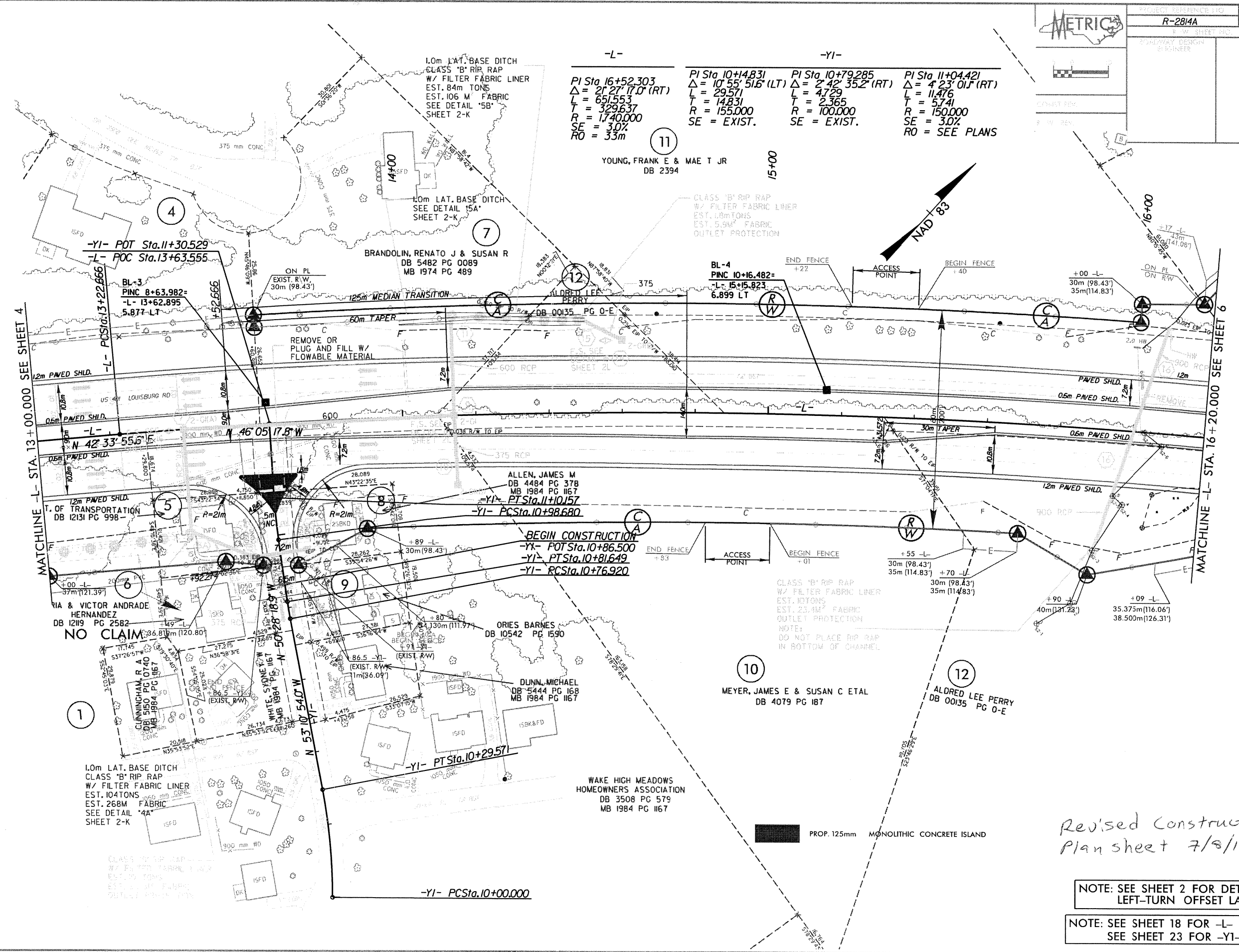
ORIGINAL LAYOUT & CONTOURS

Dry Retention Pond Design Revised 8/20/10



PROJECT REFERENCE NO.	R-2814A	SHEET NO.	5
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

-L-	-YI-	-YI-	-YI-
PI Sta 16+52.303	PI Sta 10+14.831	PI Sta 10+79.285	PI Sta 11+04.421
$\Delta = 27' 27.170$ (RT)	$\Delta = 10' 55' 51.6$ (LT)	$\Delta = 2' 42' 35.2$ (RT)	$\Delta = 4' 23' 01.6$ (RT)
L = 651.553	L = 29.571	L = 4.729	L = 11.476
T = 329.637	T = 14.831	T = 2.365	T = 5.741
R = 1,740.000	R = 155.000	R = 100.000	R = 150.000
SE = 3.0%	SE = EXIST.	SE = EXIST.	SE = 3.0%
RO = 33m			RO = SEE PLANS



REVISIONS

MATCHLINE -L- STA. 13 + 00.000 SEE SHEET 4

MATCHLINE -L- STA. 16 + 20.000 SEE SHEET 6

Revised Construction
Plan sheet 7/8/10

NOTE: SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE

NOTE: SEE SHEET 18 FOR -L- PROFILE
SEE SHEET 23 FOR -YI- PROFILE

PROP. 125mm MONOLITHIC CONCRETE ISLAND

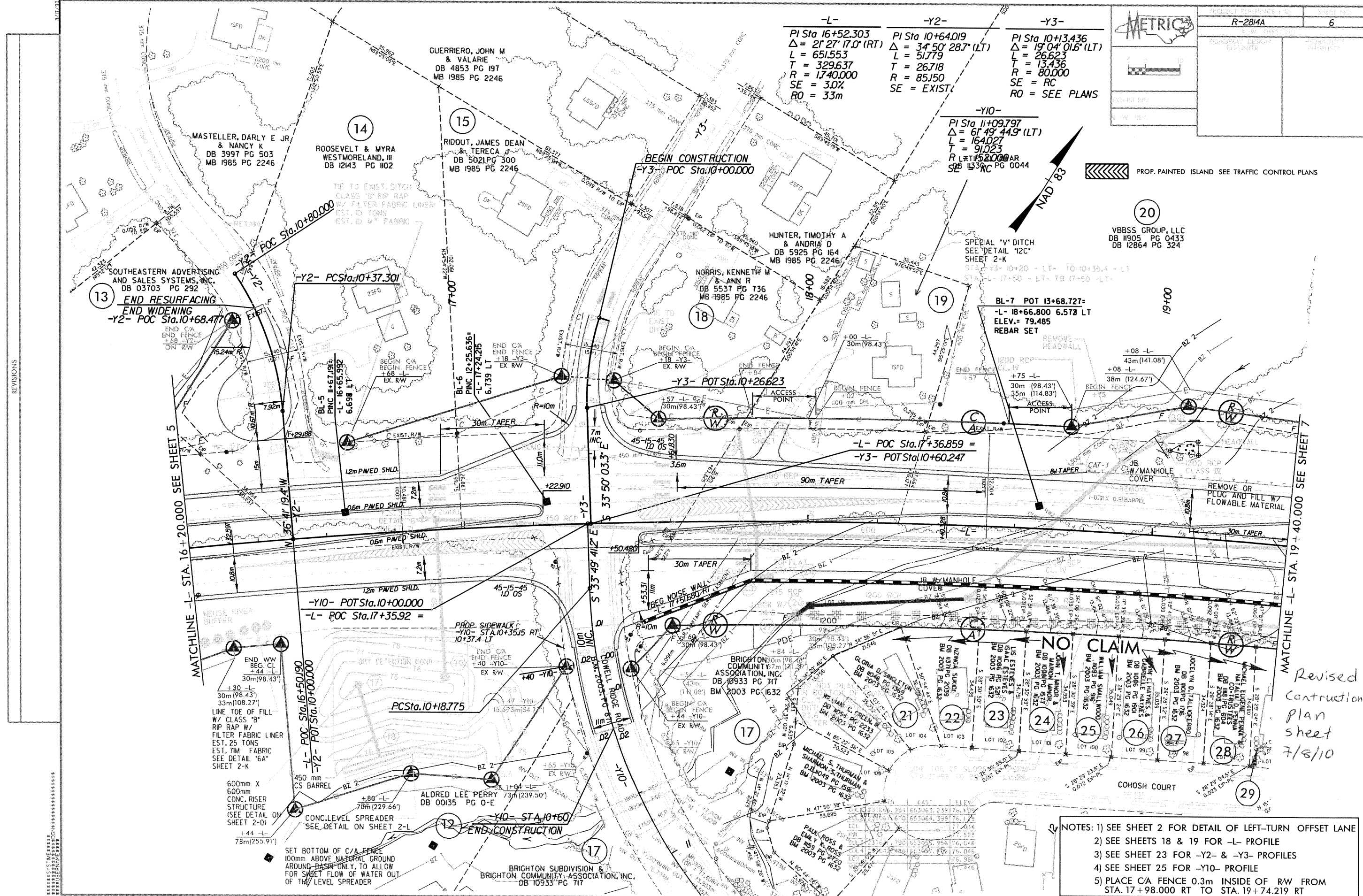
SYSTEMS
TIME
DATE
BY
CHECKED
DATE

-L-	-Y2-	-Y3-
PI Sta 16+52.303	PI Sta 10+64.019	PI Sta 10+13.436
$\Delta = 21^{\circ} 27' 17.0''$ (RT)	$\Delta = 34^{\circ} 50' 28.7''$ (LT)	$\Delta = 19^{\circ} 04' 01.6''$ (LT)
L = 651.553	L = 51.779	L = 26.623
T = 329.637	T = 26.718	T = 13.436
R = 1740.000	R = 85.150	R = 80.000
SE = 3.0%	SE = EXIST.	SE = RC
RO = 33m		RO = SEE PLANS

-Y10-
PI Sta 11+09.797
$\Delta = 61^{\circ} 49' 44.9''$ (LT)
L = 164.027
T = 91.023
R = 152.000
SE = 13.3%
RO = 133m

PROF. PAINTED ISLAND SEE TRAFFIC CONTROL PLANS

20
 VBBSS GROUP, LLC
 DB 11905 PG 0433
 DB 12864 PG 324

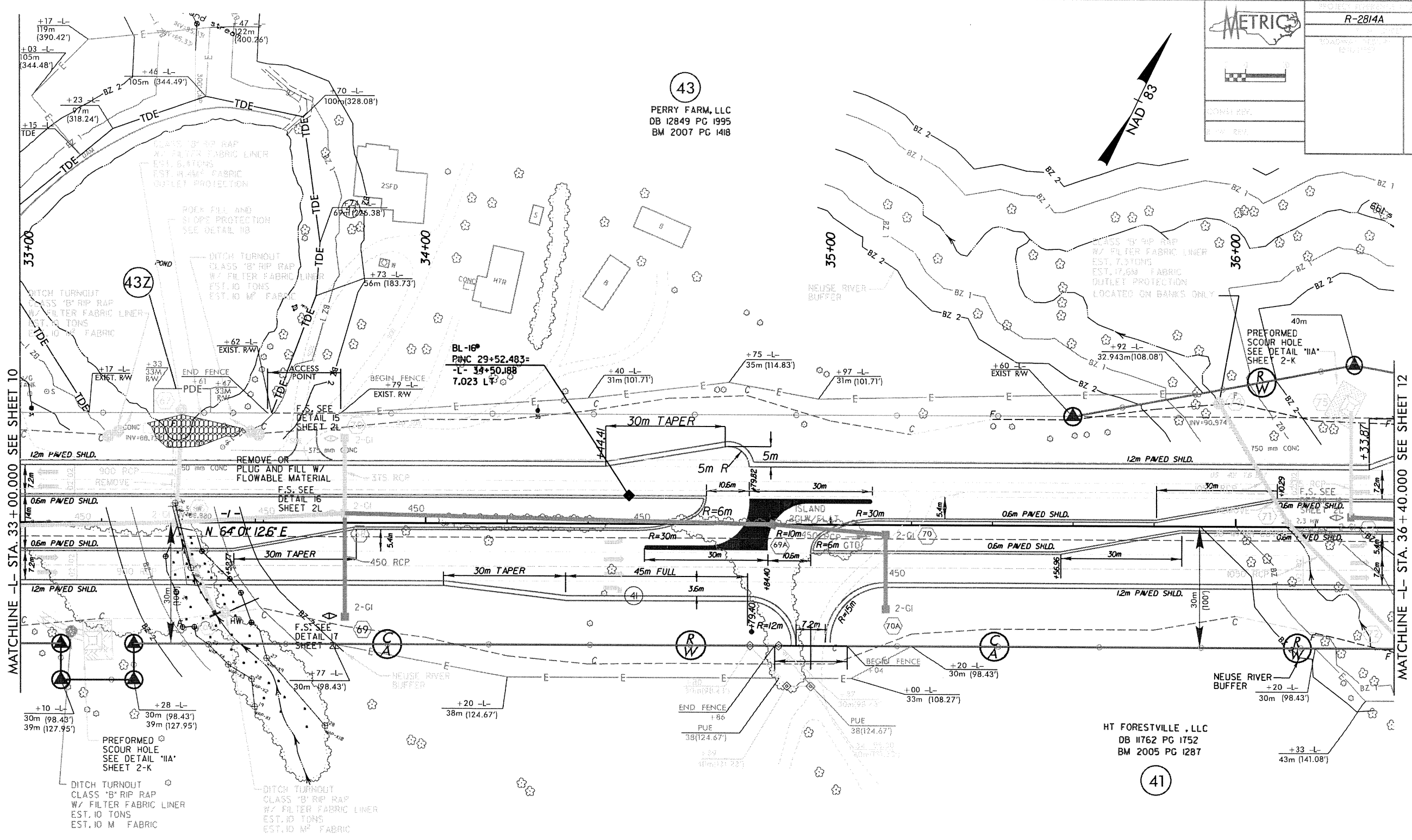
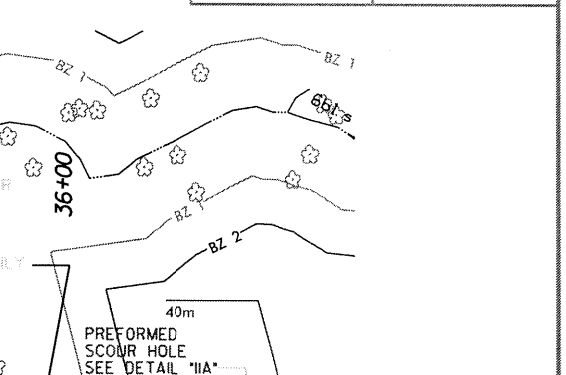


REVISIONS

- NOTES: 1) SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE
 2) SEE SHEETS 18 & 19 FOR -L- PROFILE
 3) SEE SHEET 23 FOR -Y2- & -Y3- PROFILES
 4) SEE SHEET 25 FOR -Y10- PROFILE
 5) PLACE C/A FENCE 0.3m INSIDE OF RW FROM STA. 17+98.000 RT TO STA. 19+74.219 RT

Revised
 Construction
 plan
 sheet
 7/8/10

PROJECT NUMBER		R-2814A	
DRAWN BY		II	
CHECKED BY			
DATE			



43
 PERRY FARM, LLC
 DB 12849 PG 1995
 BM 2007 PG 1418

41
 HT FORESTVILLE, LLC
 DB 11762 PG 1752
 BM 2005 PG 1287

HT FORESTVILLE, LLC
 DB 11762 PG 1752
 BM 2005 PG 1287

*Revised Construction Plan sheet
 7/8/10*

REVISIONS
 DESIGN REVISION - APRIL 6, 2010
 CONSTRUCTION REVISION - MAY 11, 2010
 CONSTRUCTION REVISION - JUNE 21, 2010 - ADDED ENDWALLS TO PIPES AT STRUCTURE NUMBERS 66 AND 72

NOTE: SEE SHEETS 20 & 21 FOR -L- PROFILE

NOTE: SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE



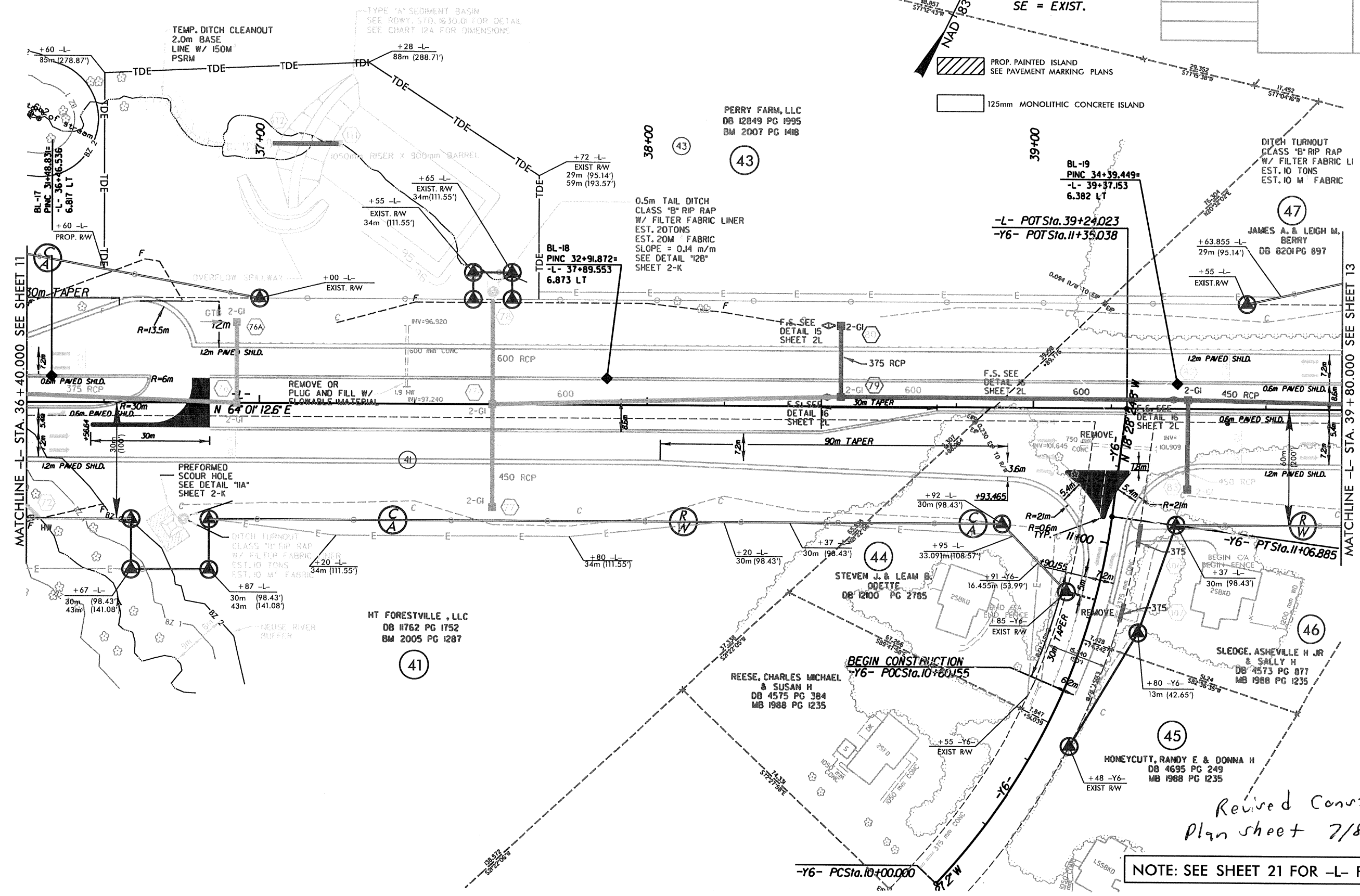
CHART 12A

BASIN APPROX. STA.	P	T	D	E	F	B	X	T	ST	YI	PERF. REC.	PER. AREA	PER. VOLUME
1	100	0.3	2.0	2.7	2.0	4.6	2.4	2.4	0.6	1.8	0.6	889	492

-Y6-
 PI Sta. 10+55.231
 $\Delta = 35' 35" 52.0" (LT)$
 $L = 106.884$
 $T = 55.230$
 $R = 172034$
 SE = EXIST.

PROP. PAINTED ISLAND
 SEE PAVEMENT MARKING PLANS

125mm MONOLITHIC CONCRETE ISLAND



REVISIONS

DESIGN REVISION - APRIL 6, 2010
 CONSTRUCTION REVISION - MAY 11, 2010
 CONSTRUCTION REVISION - JUNE 21, 2010 - ADDED ENDWALL TO PIPE AT STRUCTURE NUMBER 72

*Revised Construction
 Plan sheet 7/8/10*

NOTE: SEE SHEET 21 FOR -L- PROFILE

-L-
 PI Sta 16+52.303
 $\Delta = 21' 27" 17.0" (RT)$
 L = 651.553
 T = 329.637
 R = 1,740.000
 SE = 3.0%
 RO = 33m

-Y2-
 PI Sta 10+64.019
 $\Delta = 34' 50" 28.7" (LT)$
 L = 51.779
 T = 26.718
 R = 85.150
 SE = EXIST

-Y3-
 PI Sta 10+13.436
 $\Delta = 19' 04" 01.5" (LT)$
 L = 26.623
 T = 13.436
 R = 80.000
 SE = RC
 RO = SEE PLANS

-Y10-
 PI Sta 11+09.797
 $\Delta = 61' 49" 44.9" (LT)$
 L = 164.027
 T = 91.023
 R L = 52000 AR
 SE = 13.3% NC

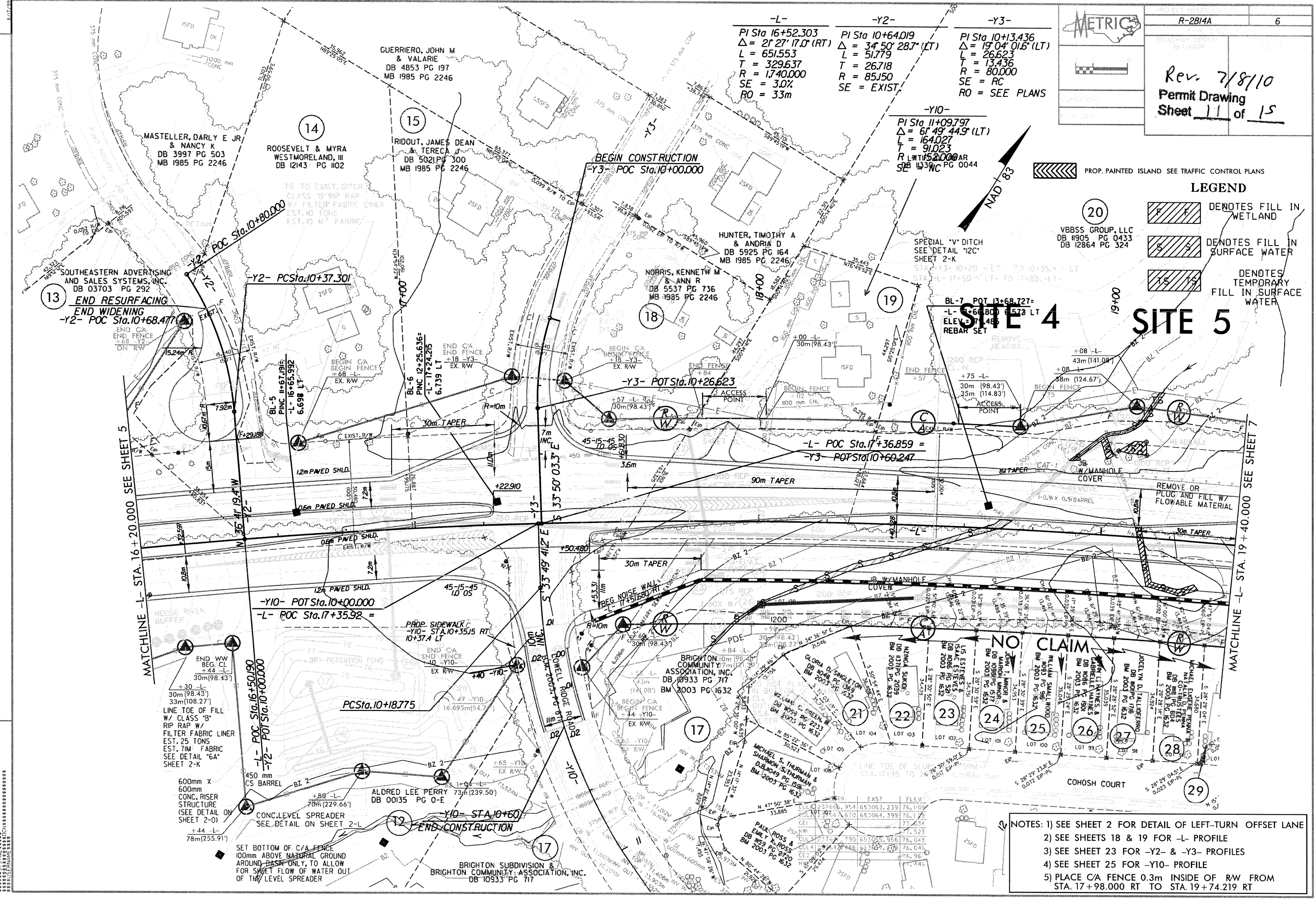
LEGEND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY FILL IN SURFACE WATER

PROP. PAINTED ISLAND SEE TRAFFIC CONTROL PLANS



REVISIONS

- NOTES:**
- 1) SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE
 - 2) SEE SHEETS 18 & 19 FOR -L- PROFILE
 - 3) SEE SHEET 23 FOR -Y2- & -Y3- PROFILES
 - 4) SEE SHEET 25 FOR -Y10- PROFILE
 - 5) PLACE C/A FENCE 0.3m INSIDE OF RW FROM STA. 17+98.000 RT TO STA. 19+74.219 RT

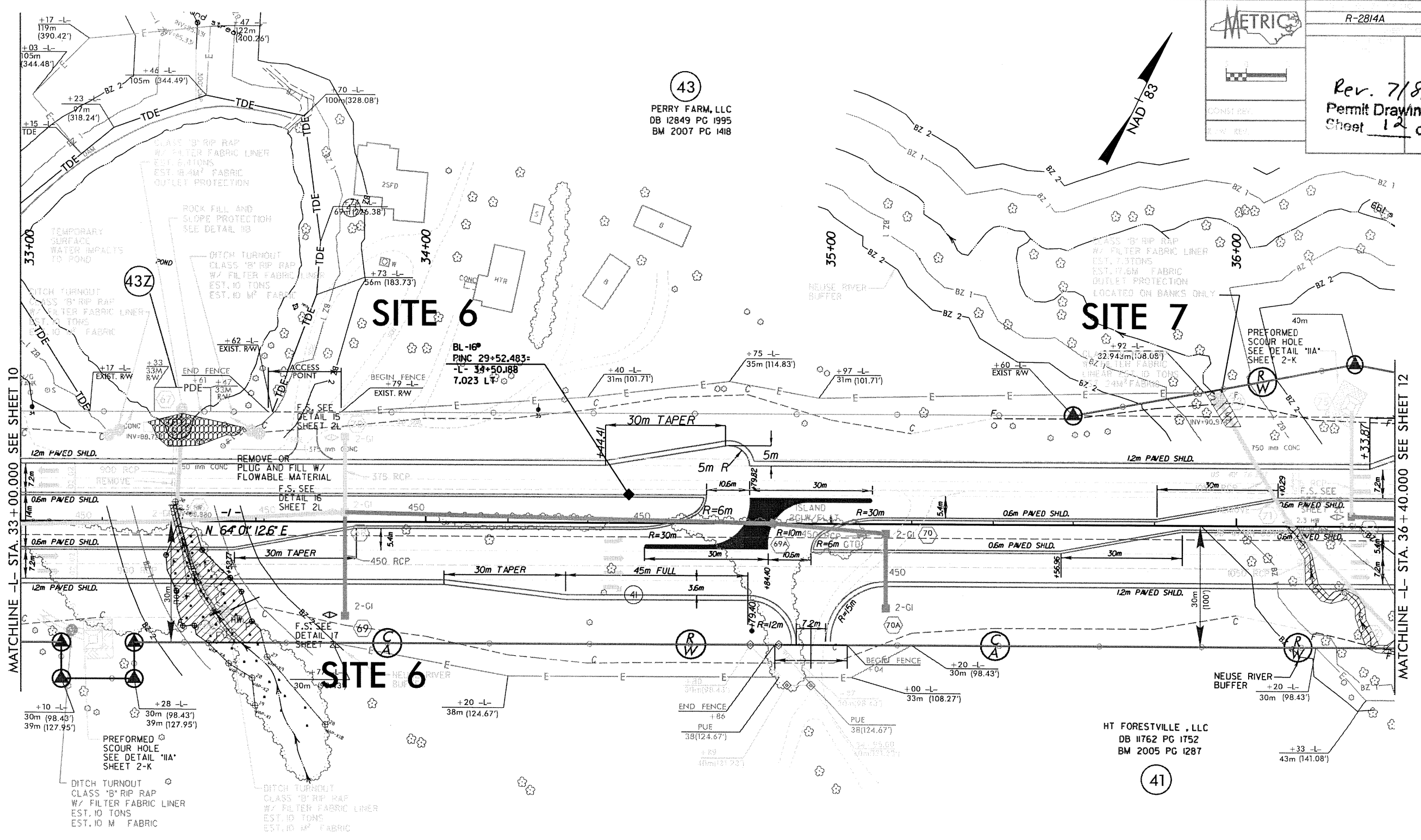
METRIC

R-2814A

Rev. 7/8/10
Permit Drawing
Sheet 12 of 15

43
PERRY FARM, LLC
DB 12849 PG 1995
BM 2007 PG 1418

41
HT FORESTVILLE, LLC
DB 11762 PG 1752
BM 2005 PG 1287



- LEGEND**
- DENOTES FILL IN TEMPORARY SURFACE WATER
 - DENOTES FILL IN SURFACE WATER
 - DENOTES FILL IN WETLAND

NOTE: SEE SHEETS 20 & 21 FOR -L- PROFILE

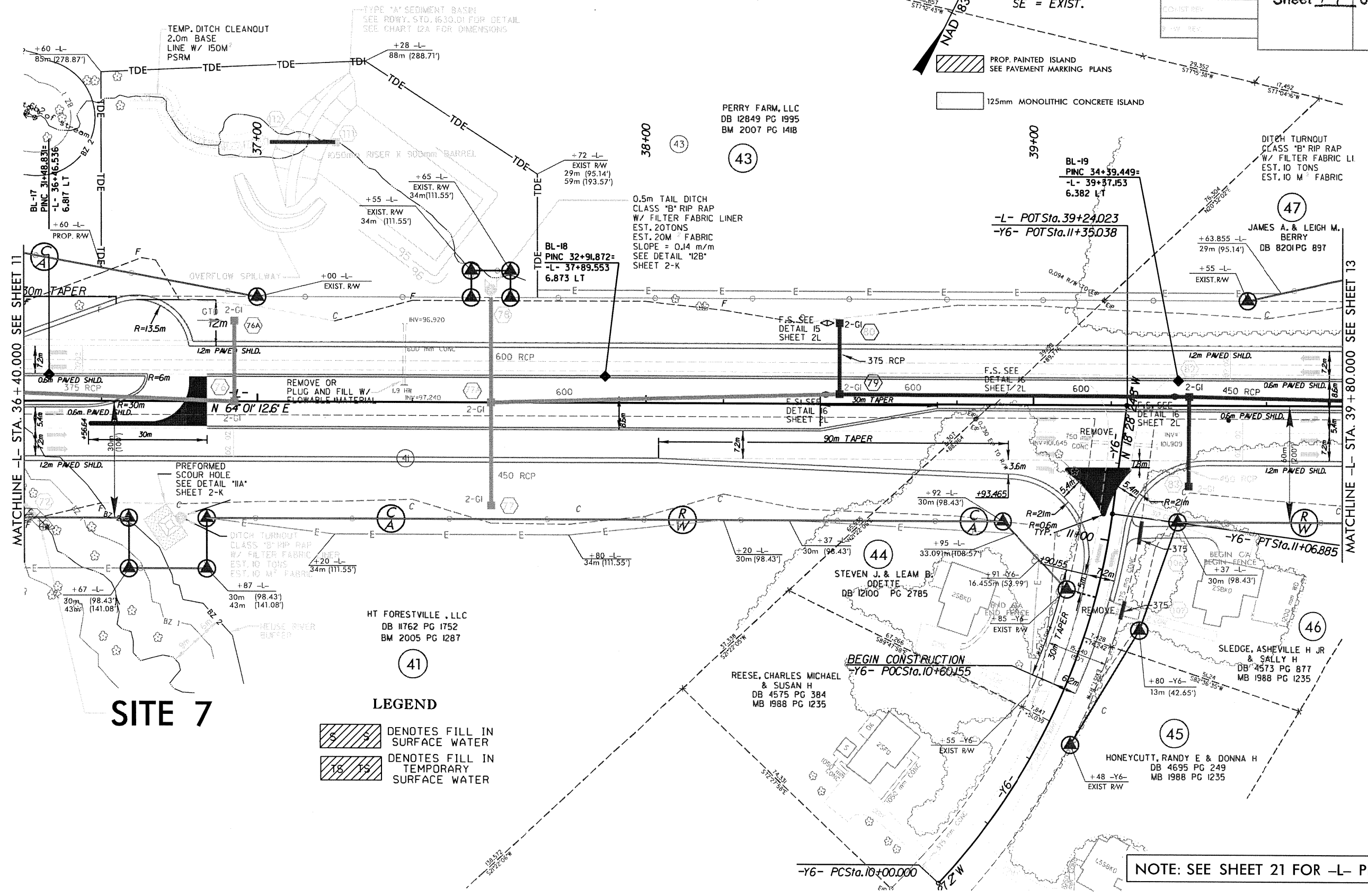
NOTE: SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE

REVISIONS
 DESIGN REVISION - APRIL 6, 2010
 CONSTRUCTION REVISION - MAY 11, 2010
 CONSTRUCTION REVISION - JUNE 21, 2010 - ADDED ENDWALLS TO PIPES AT STRUCTURE NUMBERS 66 AND 72

CHART 12A

STATION	DEPTH	VELOCITY	WET PERCENT	WET AREA	WET PERIMETER	WET VOLUME	WET AREA	WET PERIMETER	WET VOLUME
1	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
2	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
3	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
4	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
5	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
6	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
7	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
8	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
9	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
10	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
11	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
12	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
13	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
14	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8 <td 0.6	
15	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
16	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
17	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
18	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
19	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6
20	1.0	0.3	2.0	2.1	2.0	2.4	2.1	0.8	0.6

-Y6-
 PI Sta 10+55.231
 $\Delta = 35^\circ 35' 52.0''$ (LT)
 $L = 106.884$
 $T = 55.230$
 $R = 172.034$
 SE = EXIST.



REVISIONS
 DESIGN REVISION - APRIL 6, 2010
 CONSTRUCTION REVISION - MAY 11, 2010
 CONSTRUCTION REVISION - JUNE 21, 2010 - ADDED ENDWALL TO PIPE AT STRUCTURE NUMBER 72

SITE 7

MATCHLINE -L- STA. 36+40.000 SEE SHEET 11

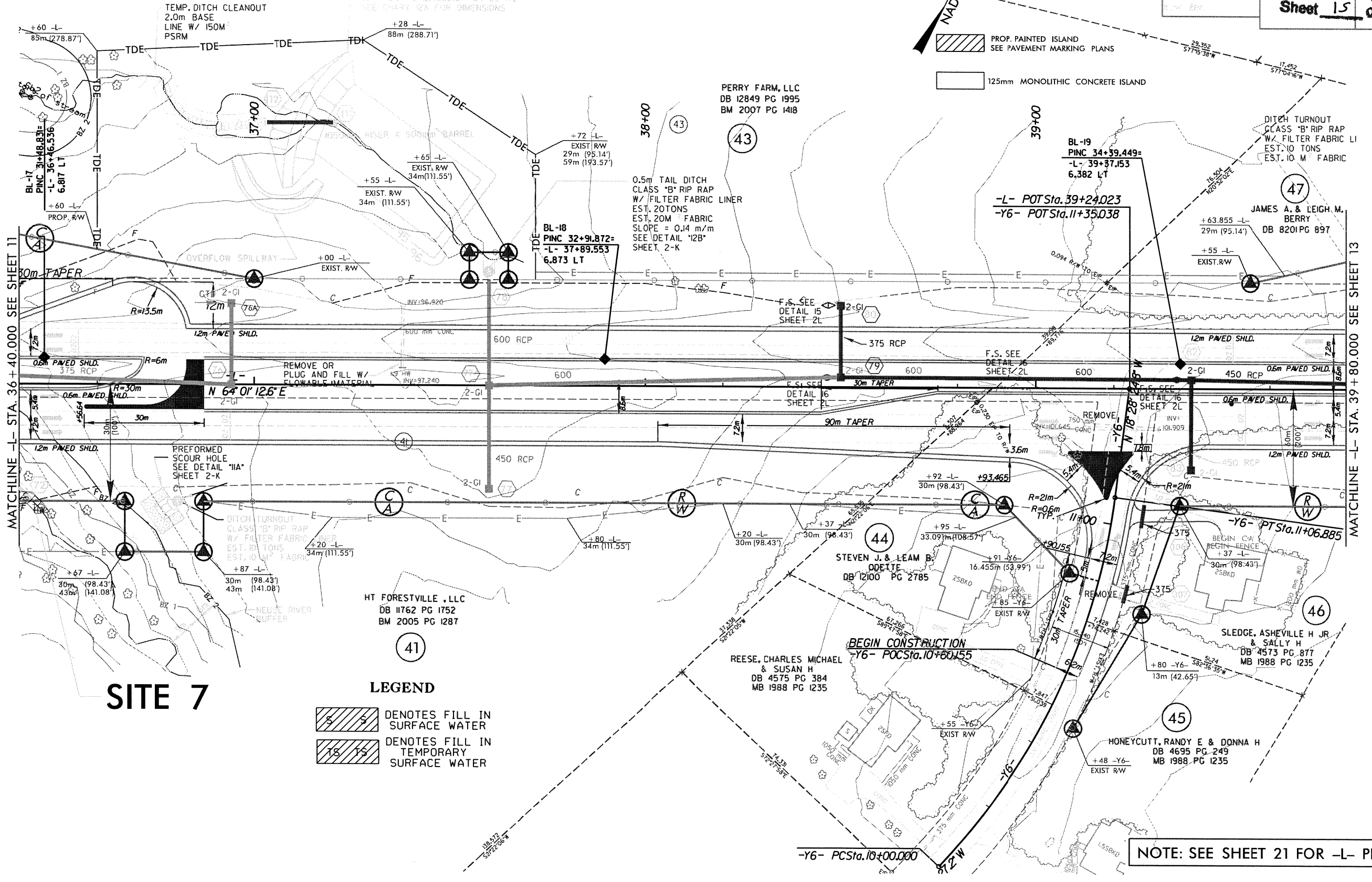
MATCHLINE -L- STA. 39+80.000 SEE SHEET 13

NO.	DATE	BY	DESCRIPTION
1	07/08/10
2

-Y6-
 PI Sta. 10+55.231
 $\Delta = 35^\circ 35' 52.0" (LT)$
 $L = 106.884$
 $T = 55.230$
 $R = 172034$
 SE = EXIST.

PROF. PAINTED ISLAND
 SEE PAVEMENT MARKING PLANS

125mm MONOLITHIC CONCRETE ISLAND



MATCHLINE -L- STA. 36 + 40.000 SEE SHEET 11

MATCHLINE -L- STA. 39 + 80.000 SEE SHEET 13

SITE 7

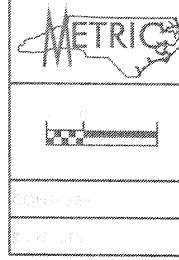
LEGEND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN TEMPORARY SURFACE WATER

DESIGN REVISION - APRIL 6, 2010
 CONSTRUCTION REVISION - MAY 11, 2010
 CONSTRUCTION REVISION - JUNE 21, 2010 - ADDED ENDWALL TO PIPE AT STRUCTURE NUMBER 72

NOTE: SEE SHEET 21 FOR -L- PROFILE

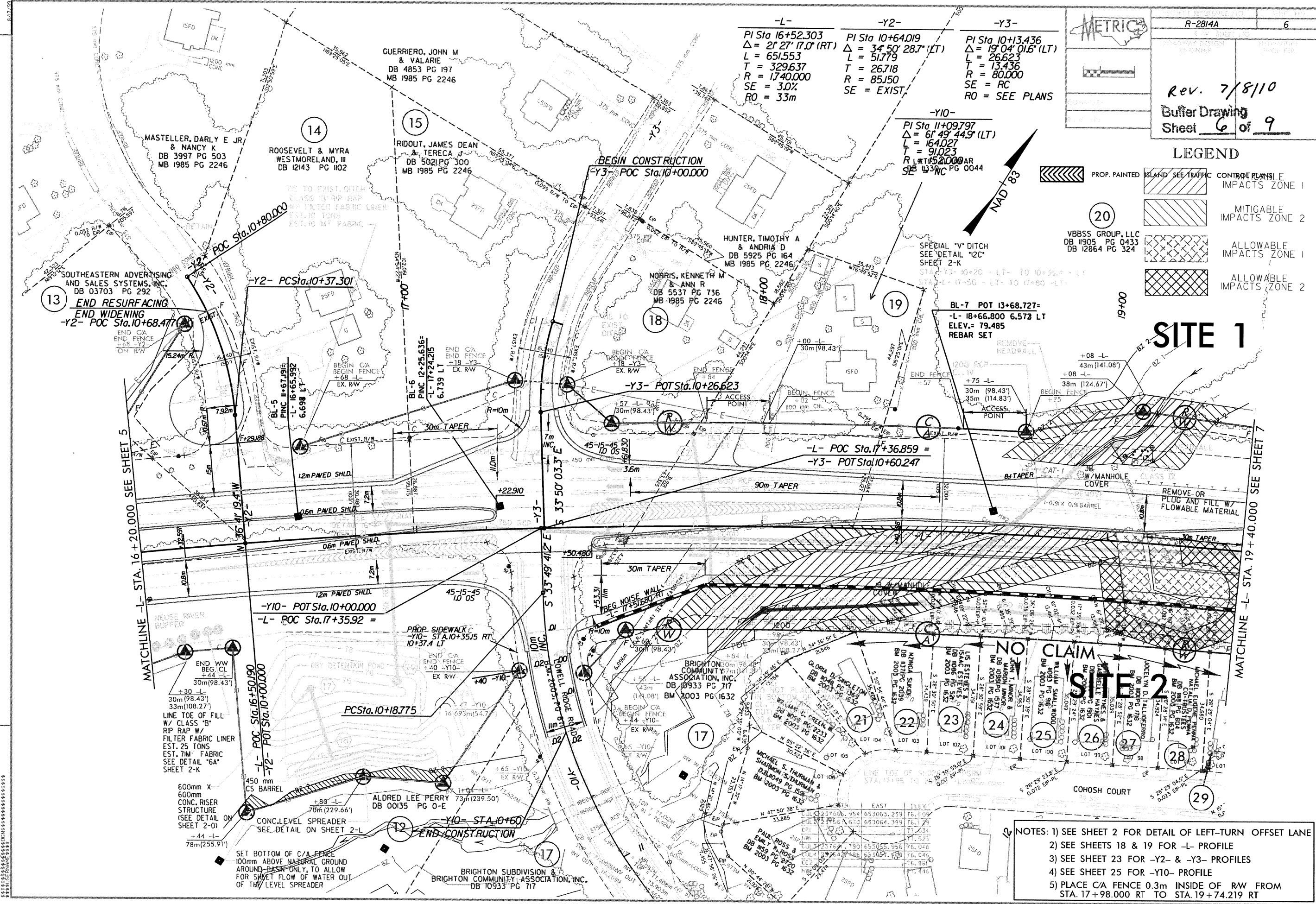


PROJECT REFERENCE NO.	R-2814A	SHEET NO.	6
DESIGNER	VBBSS GROUP, LLC		
DATE	REV. 7/8/10		
Buffer Drawing			
Sheet 6 of 9			

LEGEND

- PROP. PAINTED
- ISLAND SEE TRAFFIC CONTROL PLANS
- IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2

SITE 1

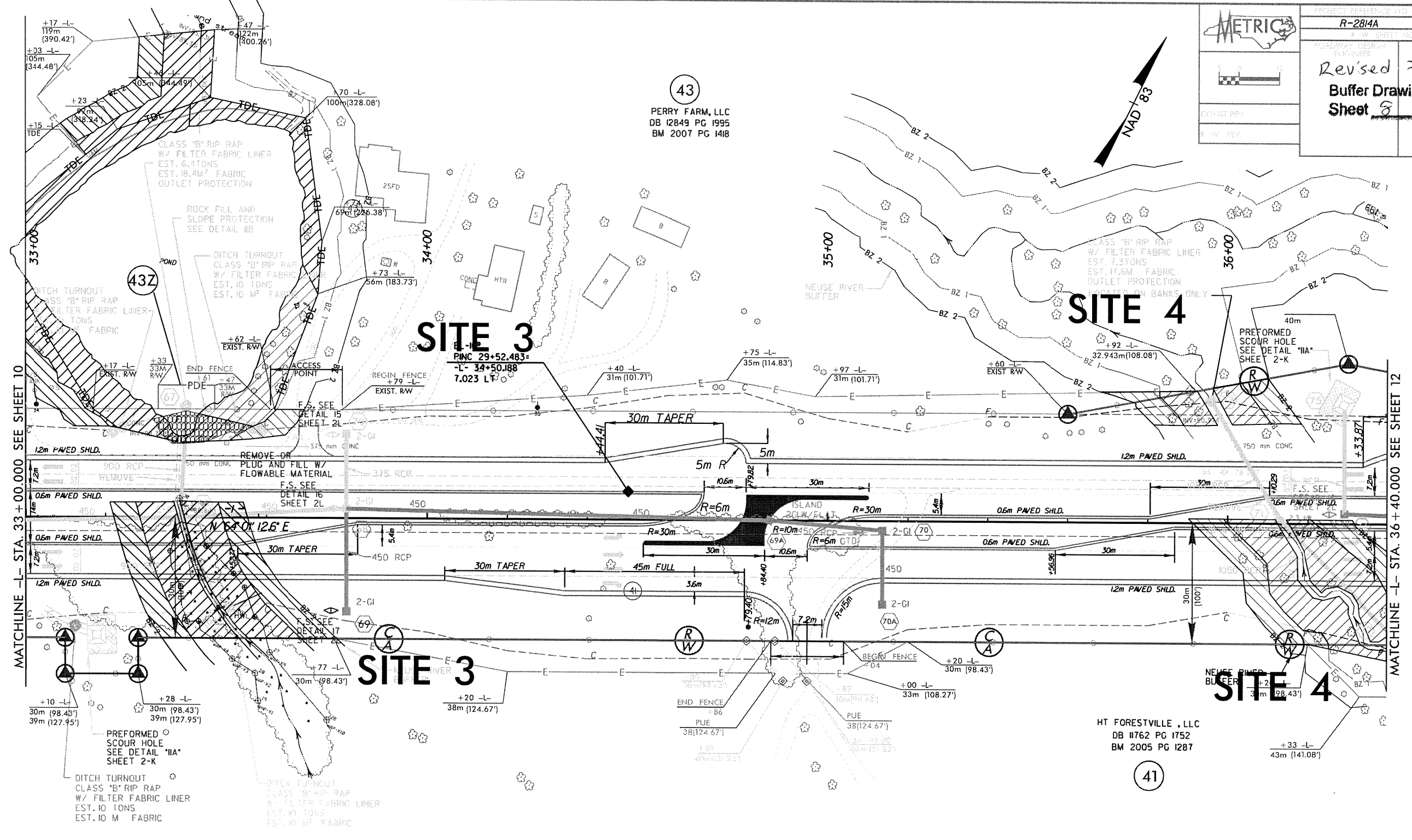


- NOTES:
- 1) SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE
 - 2) SEE SHEETS 18 & 19 FOR -L- PROFILE
 - 3) SEE SHEET 23 FOR -Y2- & -Y3- PROFILES
 - 4) SEE SHEET 25 FOR -Y10- PROFILE
 - 5) PLACE C/A FENCE 0.3m INSIDE OF RW FROM STA. 17+98.000 RT TO STA. 19+74.219 RT

REVISIONS

DATE: 7/8/10
 DRAWN BY: [unreadable]
 CHECKED BY: [unreadable]
 DESIGNED BY: [unreadable]

PROJECT: PERRY FARM, LLC		SHEET NO. II	
R-2814A		SHEET NO. II	
DESIGNER: METRIC		DATE: 7/6/10	
REVISION: Revised 7/6/10		SHEET 3 of 9	
TITLE: Buffer Drawing			



REVISIONS
 DESIGN REVISION - APRIL 6, 2010
 REVISION - APRIL 20, 2010
 CONSTRUCTION REVISION - MAY 11, 2010
 CONSTRUCTION REVISION - JUNE 21, 2010 - ADDED ENDWALLS TO PIPES AT STRUCTURE NUMBERS 66 AND 72

MATCHLINE -L- STA. 33+00.000 SEE SHEET 10

MATCHLINE -L- STA. 36+40.000 SEE SHEET 12

HT FORESTVILLE, LLC
 DB 11762 PG 1752
 BM 2005 PG 1287

HT FORESTVILLE, LLC
 DB 11762 PG 1752
 BM 2005 PG 1287

LEGEND

	MITIGABLE IMPACTS ZONE 1
	MITIGABLE IMPACTS ZONE 2

NOTE: SEE SHEETS 20 & 21 FOR -L- PROFILE

NOTE: SEE SHEET 2 FOR DETAIL OF LEFT-TURN OFFSET LANE

