STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

October 9, 2019

MEMORANDUM TO: Hilary Thornton
Remedial Project Manager & NARPM Co-Chair:
Restoration & Investigation Section
US EPA Region 4: Superfund Division

FROM: Ashley B Cox, Jr, LG
GeoEnvironmental Project Manager
GeoEnvironmental Section
Geotechnical Engineering Unit

DocuSigned by:
Ashley B Cox, Jr
3781983D4D7F429...

DESCRIPTION: I-40 and SR 3015 (Airport Blvd), Revise Interchange and Construct Auxiliary Lane on I-40 Westbound From SR 3015 (Airport Blvd) to I-540.

SUBJECT: **Materials Management Work Plan Along Brier Creek Downstream of the former Ward Transformer Company (NCD003202603)**

Purpose

The GeoEnvironmental Section of the Geotechnical Engineering Unit is submitting this workplan for the excavation, stockpiling, sampling, and fate of soil potentially exceeding the established limits for Poly Chlorinated Biphenyls (PCBs) within the construction limits of NCDOT TIP # I-5700 in Wake County, North Carolina. Because any contamination encountered is believed to be associated with the Ward Transformer Company Superfund Site, a copy of this plan is also being provided to Ms. Beth Hartzell of the North Carolina Department of Environmental Quality (NCDEQ) Hazardous Waste Section. A site location map is included as Figure 1.

Site History

The Ward Transformer facility operated from 1964 through 2006. During its operation electrical equipment including PCB containing transformers, switchgears, etc. were built, reconditioned/repaired, stored, and sold. Releases from the facility lead to the gross contamination of the property and adjacent parcels. The United States Environmental Protection Agency (USEPA) conducted a Remedial Investigation (RI) from 2003 to 2007, investigating the Ward facility, nearby properties, and more than thirty (30) miles of waterways.

In 2008 a Record of Decision was issued by USEPA for the site. In that document Remediation Goals for downstream portions (OU1 being Reaches B, C, and D; Brier Creek Reservoir; Lower Brier Creek (LBC); Lake Crabtree; and Crabtree Creek) of the watershed were established based on two (2) distinct risks to human health from PCBs. The first exposure was through direct

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Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

contact with sediments and flood plain soils. The second risk was through consumption of fish from local streams and impoundments downstream of the site. The sediment PCB cleanup goal established was 1 mg/kg (parts per million).

Construction Activities Within OU1

To correlate the construction area with reaches established within the RI, all construction activities will take place in Reach D: Subreaches LBC-3, LBC-4, and LBC-5. Currently, there are no excavation activities planned in LBC-5. The current design for interchange improvements and auxiliary lane construction propose the construction of a 176 linear feet (LF) 12'x 10' reinforced concrete box culvert (RCBC), associated drainage and bank stabilization, the re-enforcement of an existing scour hole, and the extension of a triple-barrel 12' x 12' RCBC with associated earthwork for bank stabilization and constructability. These activities pose the greatest threat of encountering PCB contaminated sediments (in the stream, natural bank, and floodplains), corresponding plan sheets have been included for reference.

Approximately 340 cubic yards of soil will be excavated during the construction of a 12' x 10' box culvert, through which Brier Creek will flow under a realigned roadway. This volume reflects earthwork required to construct and install the culvert, bank stabilization at both ends of the culvert, and drainage at the base of the fill slope. These activities occur in Subreach LBC-3, at approximate Sta 29+90 -Y3- on plan sheet 7 (see Details 3, 10 and 14).

An existing scour hole, Sta. 55+00 -L-, will be reinforced to prevent further erosion of the bank of Brier Creek and combat future perching of the existing 36" drainage pipe in that location. Detail 22 further demonstrates the construction activities involved with this reinforcement. Minimum excavation (approximately 25 cubic yards) will occur with the countersinking of rip rap and subsequent plating to stabilize the bank.

At Sta. 53+40 -L- on plan sheet 7, the existing triple barrel RCBC will be extended to the south of SR 3015 (Airport Blvd / John Brantley Blvd), the construction of the culvert extension and the channel improvements will require excavation of native soils. Approximately 175 cubic yards of soil will be excavated to accommodate these activities, this will take place in the lower limits of Subreach LBC-4, please refer to Detail 2 for additional construction information and methods.

Sampling, Handling, Fate Determination

All, natural soils and sediment excavated within a 100' buffer of Brier Creek will be stockpiled on site, composite samples will be collected, then samples will be submitted to a laboratory for PCB analysis using USEPA Method 8082A. An estimated 540 cubic yards of soil will be excavated for construction activities and stockpiled on-site.

If the results indicate the soil contamination is below the regulatory action level of 1 mg/kg (parts per million), the soil shall be left on-site to be used by the Contractor as deemed necessary. If the results indicate the contamination is above regulatory action levels, between 1 mg/kg and 50 mg/kg, the soil shall be properly disposed of at a subtitle D landfill by the Contractor. If the results indicate PCB concentrations exceed 50 mg/kg, the soil falls under Toxic Substance Control Act (TSCA) bulk remediation waste and shall be managed in accordance with 40 CFR 761.61 (shall be disposed of at a subtitle D facility that accepts TSCA level waste). If the Contractor encounters such soil the Engineer shall be notified immediately. The Engineer will in turn consult the GeoEnvironmental Section of the Geotechnical Engineering Unit for handling and disposal.

If there are questions regarding the workplan, sampling/handling, or disposal issues, please contact me, at 919-707-6872.

cc:
John Pilipchuk, LG, PE, State Geotechnical Engineer
Cyrus Parker, LG, PE, GeoEnvironmental Engineering Supervisor
Pam Williams, PE, Project Management Unit Team Lead
Allison White, Project Management Unit, Senior Project Manager
Boyd Tharrington, PE, Division 5 Construction Engineer
Cameron Richards, PE, Division 5 Resident Engineer
Beth Hartzell, DEQ, Division of Waste Management, Environmental Engineer

Figure 1. Site Location

Project: 50118.1.FS1 (I-5700)
I-40 and SR 3015 (Airport Blvd), Revise Interchange and Construct Auxiliary Lane on I-40 Westbound From SR 3015 (Airport Blvd) to I-540.
Wake County

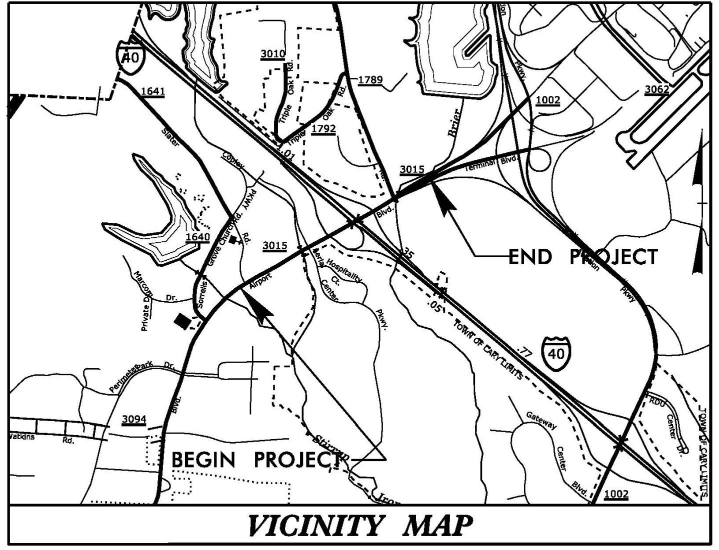
NC Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section

09/08/99

TIP PROJECT: I-5700

CONTRACT: C204351

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

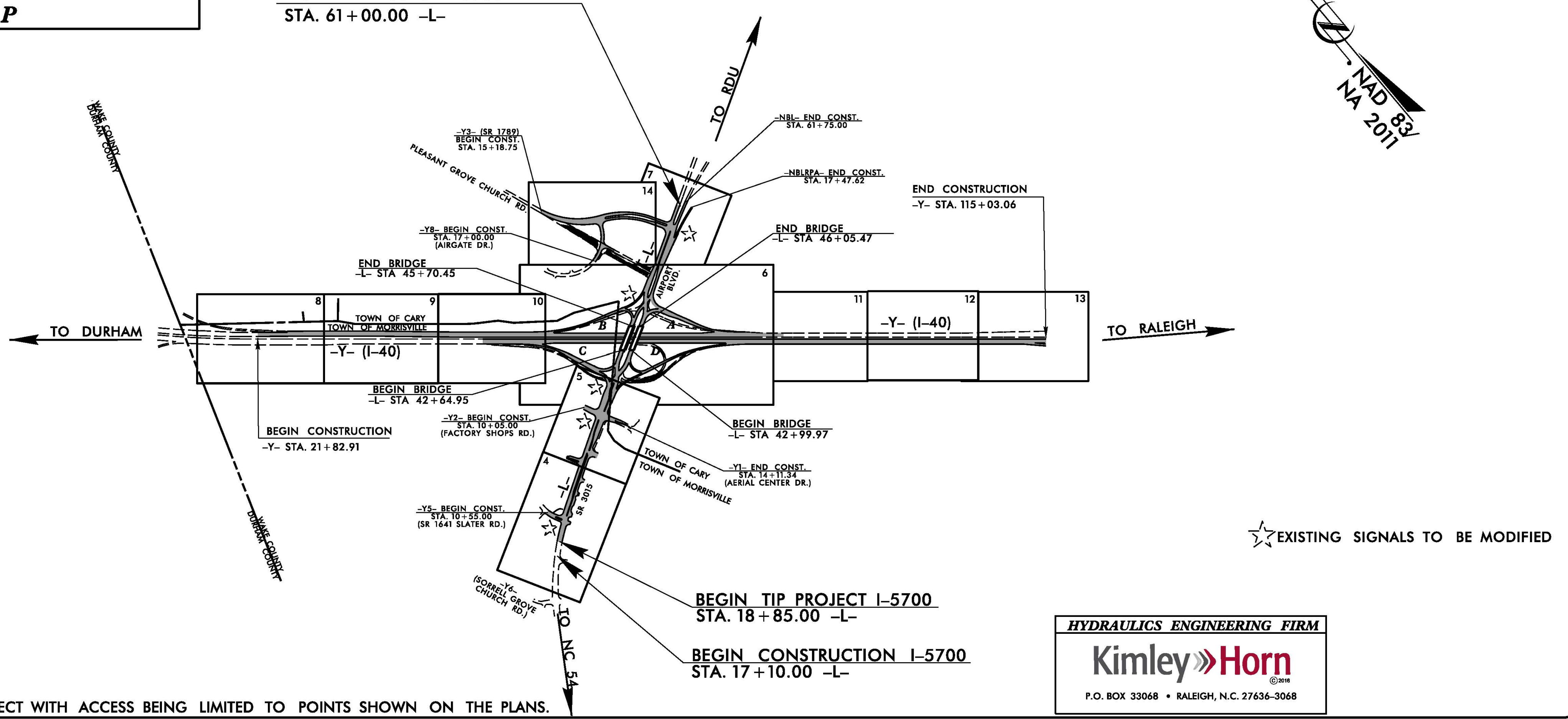
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5700	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50118.1.FS1	NHPP-040-1(259)286	PE
50118.2.1	NHPP-040-1(259)286	UTIL., ROW
50118.3.GV1	NHPP-040-1(259)286	CONST.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: I-40 AND SR 3015 (AIRPORT BLVD.), REVISE INTERCHANGE AND CONSTRUCT AUXILIARY LANE ON I-40 WESTBOUND FROM SR 3015 (AIRPORT BLVD.) TO I-540.

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



HYDRAULICS ENGINEERING FIRM

Kimley»Horn ©2016
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

THIS IS A PARTIAL CONTROLLED- ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.

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 2019 = 33,660
ADT 2040 = 46,500
K = 9 %
D = 65 %
T = 6 % *
V = 50 MPH
* TTST = 2% DUAL = 4%
FUNC CLASS = ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5700	=	0.740 MILES
LENGTH STRUCTURE TIP PROJECT I-5700	=	0.058 MILES
TOTAL LENGTH OF TIP PROJECT I-5700	=	0.798 MILES

WETHERILL ENGINEERING

Prepared for the North Carolina Department of Transportation in the Office of:

1223 JONES FRANKLIN ROAD
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 24, 2018

LETTING DATE:
NOVEMBER 19, 2019

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
PAMELA R. WILLIAMS, PE
PROJECT MANAGEMENT TEAM LEAD

HYDRAULICS ENGINEER
10/2/2019
SEAL 026480 LARRY D. ROBINSON, JR.
DocuSigned by:
Larry D. Robinson
SIGNATURE:
P.E.

ROADWAY DESIGN ENGINEER
10/1/2019
SEAL 21116 BOB A. MAY
DocuSigned by:
Bob A. May
SIGNATURE:
P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

/6/2019
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SER:ROdell

WETHERILL ENGINEERING
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Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN • GIS/GPS • CONSTRUCTION OBSERVATION

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

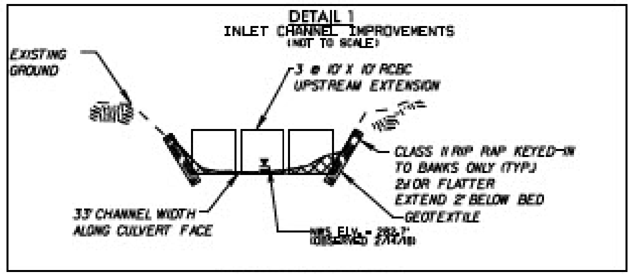
PROJECT REFERENCE NO.	SHEET NO.
I-5700	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER 10/8/2019

SEAL 026480 LARRY D. ROBINSON, JR.

Larry D. Robinson

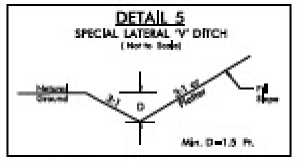
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DETAIL 1
INLET CHANNEL IMPROVEMENTS
(NOT TO SCALE)



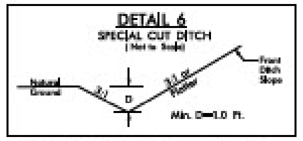
STA. 33+31 -L- (LT)

DETAIL 5
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



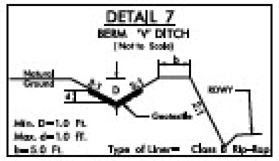
FROM STA. 19+00 TO STA. 20+25 -Y8- (LT)
FROM STA. 20+65 TO STA. 21+20 -Y8- (LT)
FROM STA. 20+50 TO STA. 21+20 -Y8- (RT)
FROM STA. 14+08 TO STA. 14+50 -RPB- (LT)
FROM STA. 14+30 TO STA. 18+50 -RPC- (LT)
FROM STA. 20+50 TO STA. 22+50 -RPC- (LT)
FROM STA. 22+50 TO STA. 24+80 -RPD- (RT)
FROM STA. 24+80 TO STA. 27+00 -RPD- (RT)
FROM STA. 50+50 TO STA. 51+50 -L- (LT)

DETAIL 6
SPECIAL CUT DITCH
(Not to Scale)



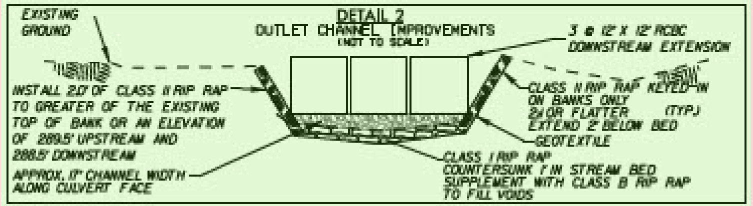
FROM STA. 22+25 TO STA. 23+00 -L- (LT)
FROM STA. 34+50 TO STA. 36+50 -Y- (LT)
FROM STA. 15+50 TO STA. 18+50 -Y3- (RT)
FROM STA. 26+50 TO STA. 28+25 -Y3- (RT)

DETAIL 7
BERM 'V' DITCH
(Not to Scale)



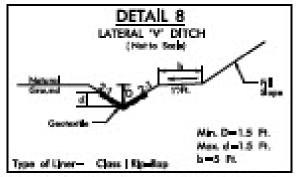
FROM STA. 23+00 TO STA. 24+50 -L- (LT)
FROM STA. 14+20 TO STA. 16+50 -RPB- (LT)

DETAIL 2
OUTLET CHANNEL IMPROVEMENTS
(NOT TO SCALE)



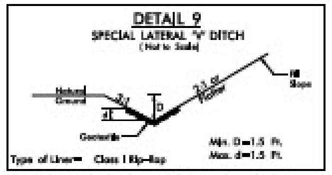
STA. 52+40 -L- (RT)

DETAIL 8
LATERAL 'V' DITCH
(Not to Scale)



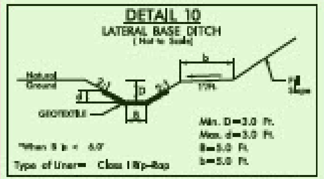
FROM STA. 99+65 TO STA. 100+37 -Y- (RT)

DETAIL 9
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



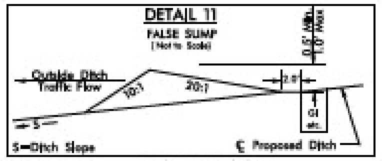
FROM STA. 20+10 TO STA. 20+50 -Y8- (RT)
FROM STA. 16+16 TO STA. 18+07 -RPD- (LT)
FROM STA. 49+97 TO STA. 50+50 -L- (LT)
FROM STA. 13+00 TO STA. 14+00 -RPB- (LT)

DETAIL 10
LATERAL BASE DITCH
(Not to Scale)



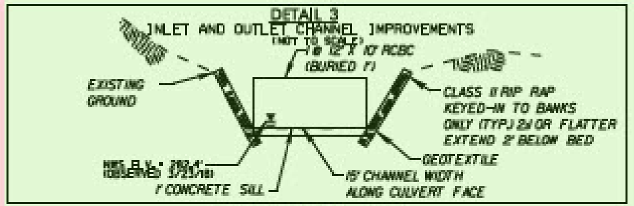
FROM STA. 29+00 TO STA. 29+75 -Y3- (LT)

DETAIL 11
FALSE SUMP
(Not to Scale)



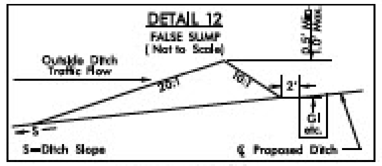
STA. 61+40 -Y- (RT)
STA. 67+70 -Y- (RT)
STA. 21+40 -Y3- (RT)
STA. 28+37 -Y3- (RT)
STA. 17+87 -RPB- (RT)
STA. 18+30 -RPB- (LT)
STA. 15+75 -RPC- (RT)

DETAIL 3
INLET AND OUTLET CHANNEL IMPROVEMENTS
(NOT TO SCALE)



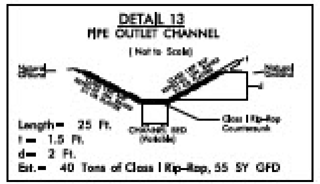
STA. 29+90 -Y3- (LT)
STA. 29+90 -Y3- (RT)

DETAIL 12
FALSE SUMP
(Not to Scale)



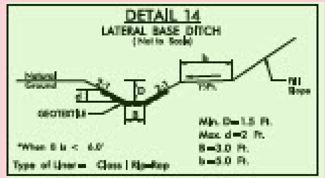
STA. 47+35 -Y- (LT)
STA. 59+75 -Y- (LT)
STA. 61+65 -Y- (LT)
STA. 68+64 -Y- (LT)
STA. 70+93 -Y- (LT)
STA. 102+37 -Y- (RT)
STA. 105+81 -Y- (RT)
STA. 21+65 -Y3- (LT)
STA. 23+62 -Y3- (LT)
STA. 16+96 -RPA- (RT)

DETAIL 13
PIPE OUTLET CHANNEL
(Not to Scale)



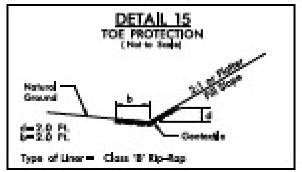
FROM STA. 51+25 TO STA. 51+43 -L- (RT)

DETAIL 14
LATERAL BASE DITCH
(Not to Scale)



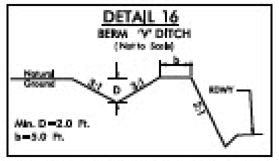
FROM STA. 29+10 TO STA. 29+75 -Y3- (RT)

DETAIL 15
TOE PROTECTION
(Not to Scale)



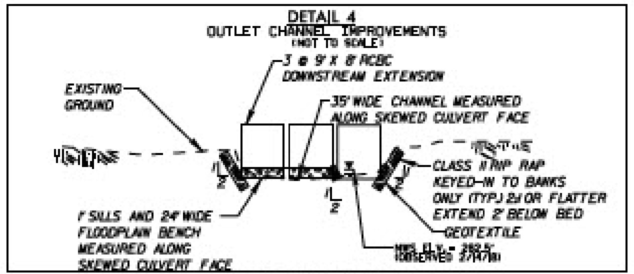
FROM STA. 49+60 TO STA. 49+95 -L- (LT)
FROM STA. 41+00 TO STA. 42+00 -Y- (LT)
FROM STA. 43+50 TO STA. 44+00 -Y- (LT)
FROM STA. 100+38 TO STA. 102+00 -Y- (RT)
FROM STA. 25+25 TO STA. 29+69 -Y3- (LT)
FROM STA. 25+00 TO STA. 25+85 -Y3- (RT)
FROM STA. 25+85 TO STA. 26+50 -Y3- (RT)
FROM STA. 28+50 TO STA. 29+10 -Y3- (RT)
FROM STA. 17+49 TO STA. 18+05 -Y8- (RT)

DETAIL 16
BERM 'V' DITCH
(Not to Scale)



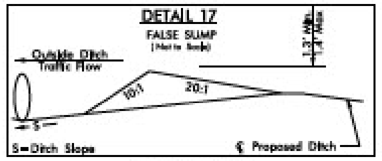
FROM STA. 16+50 TO STA. 17+50 -RPB- (LT)
FROM STA. 17+50 TO STA. 18+45 -RPB- (LT)
FROM STA. 18+45 TO STA. 21+45 -RPB- (LT)

DETAIL 4
OUTLET CHANNEL IMPROVEMENTS
(NOT TO SCALE)



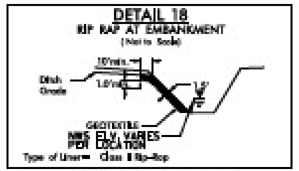
STA. 86+76 -Y- (RT)

DETAIL 17
FALSE SUMP
(Not to Scale)



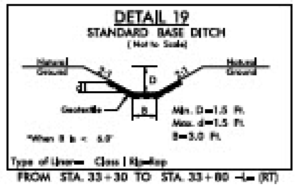
14+50 -RPB- (LT)

DETAIL 18
RIP RAP AT EMBANKMENT
(Not to Scale)



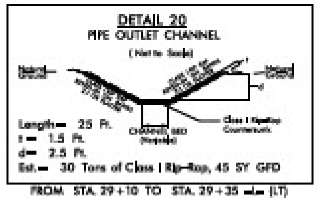
FROM STA. 33+40 -L- (RT)
FROM STA. 14+65 -RPA- (RT)

DETAIL 19
STANDARD BASE DITCH
(Not to Scale)



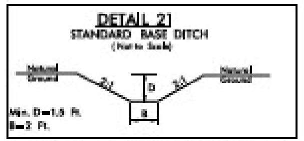
FROM STA. 33+30 TO STA. 33+80 -L- (RT)

DETAIL 20
PIPE OUTLET CHANNEL
(Not to Scale)

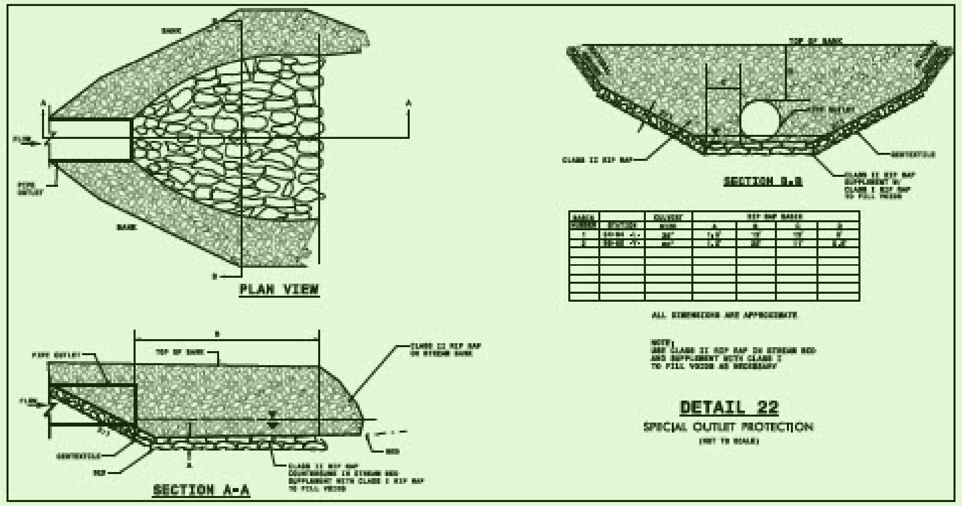


FROM STA. 29+10 TO STA. 29+35 -L- (LT)

DETAIL 21
STANDARD BASE DITCH
(Not to Scale)

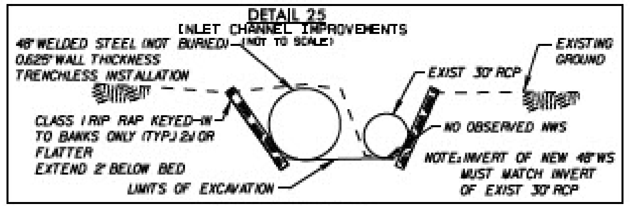


FROM STA. 14+30 TO STA. 14+80 -RPC- (RT)



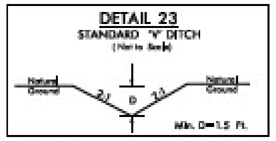
DETAIL 22
SPECIAL OUTLET PROTECTION
(NOT TO SCALE)

DETAIL 25
INLET CHANNEL IMPROVEMENTS
(NOT TO SCALE)



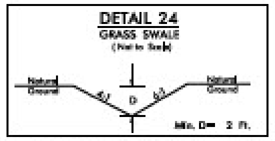
STA. 63+40 -Y- (LT)

DETAIL 23
STANDARD 'V' DITCH
(Not to Scale)



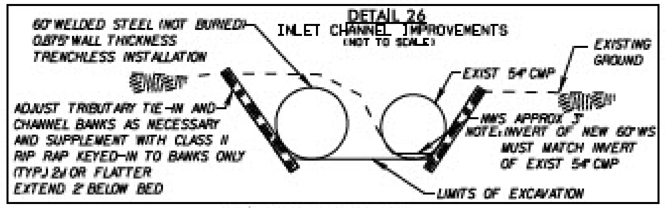
FROM STA. 69+25 TO STA. 70+50 -Y- (RT)

DETAIL 24
GRASS SWALE
(Not to Scale)



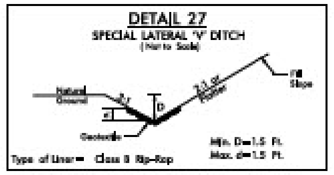
FROM STA. 19+50 TO STA. 15+95 -RPA- (LT)

DETAIL 26
INLET CHANNEL IMPROVEMENTS
(NOT TO SCALE)



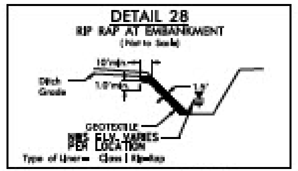
STA. 101+13 -Y- (LT)

DETAIL 27
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

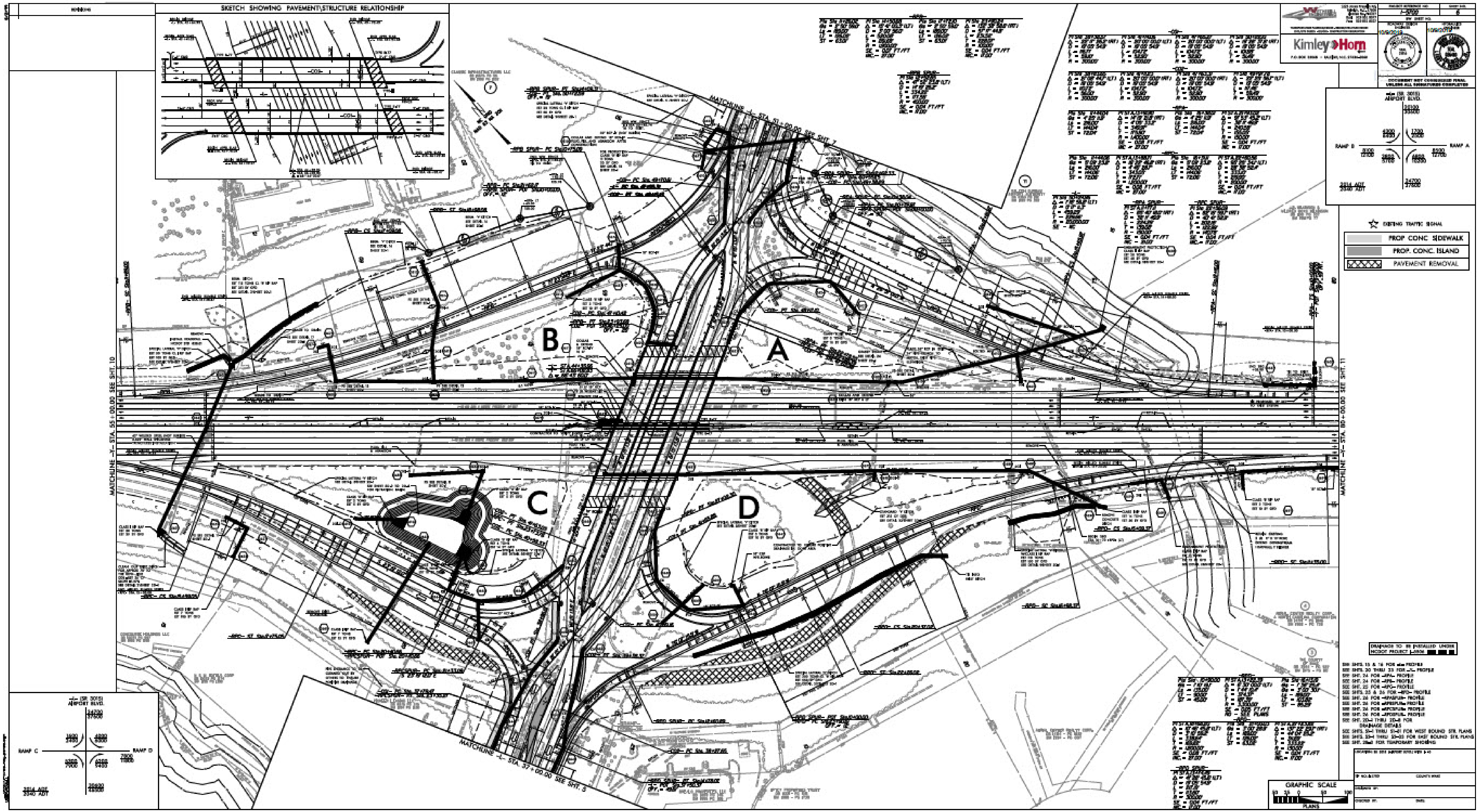


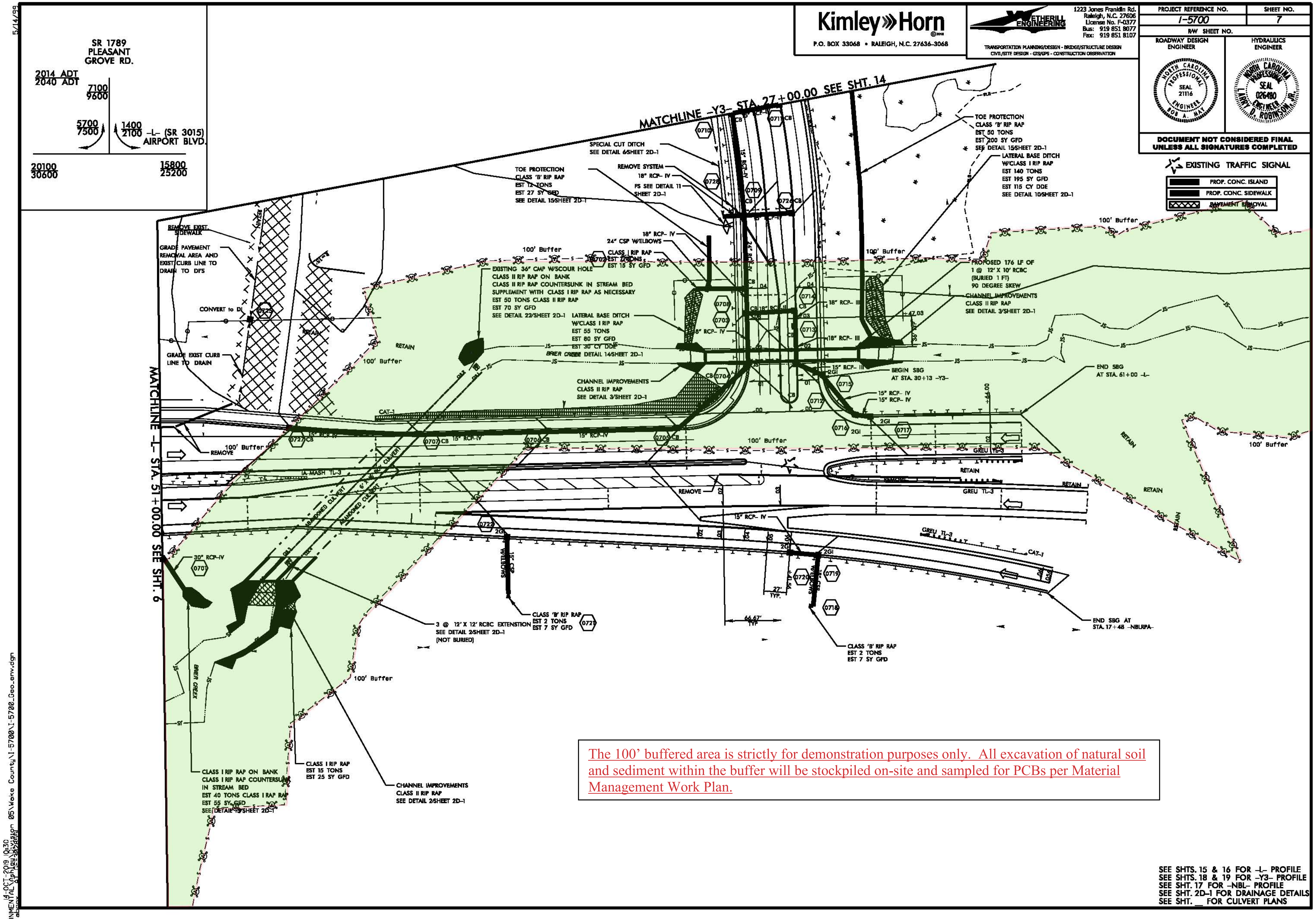
FROM STA. 19+50 TO STA. 25+00 -RPD- (LT)
FROM STA. 20+25 TO STA. 20+65 -Y8- (LT)

DETAIL 28
RIP RAP AT EMBANKMENT
(Not to Scale)



FROM STA. 14+52 -RPD- (LT)


SKETCH SHOWING PAVEMENT\STRUCTURE RELATIONSHIP
Kimley»Horn
A
B
C
D
MATCHLINE -Y- STA. 55+00.00 SEE SHT. 10
MATCHLINE -Y- STA. 80+00.00 SEE SHT. 11
MATCHLINE -L- STA. 51+00.00 SEE SHT. 7
MATCHLINE -L- STA. 37+00.00 SEE SHT. 5
-L- (SR 3015) AIRPORT BLVD.
RAMP B
RAMP A
RAMP C
RAMP D
2014 ADT
2040 ADT
EXISTING TRAFFIC SIGNAL
PROP CONC SIDEWALK
PROP. CONC. ISLAND
PAVEMENT REMOVAL
DRAINAGE TO BE INSTALLED UNDER NCDOT PROJECT
GRAPHIC SCALE
PLANS



The 100' buffered area is strictly for demonstration purposes only. All excavation of natural soil and sediment within the buffer will be stockpiled on-site and sampled for PCBs per Material Management Work Plan.

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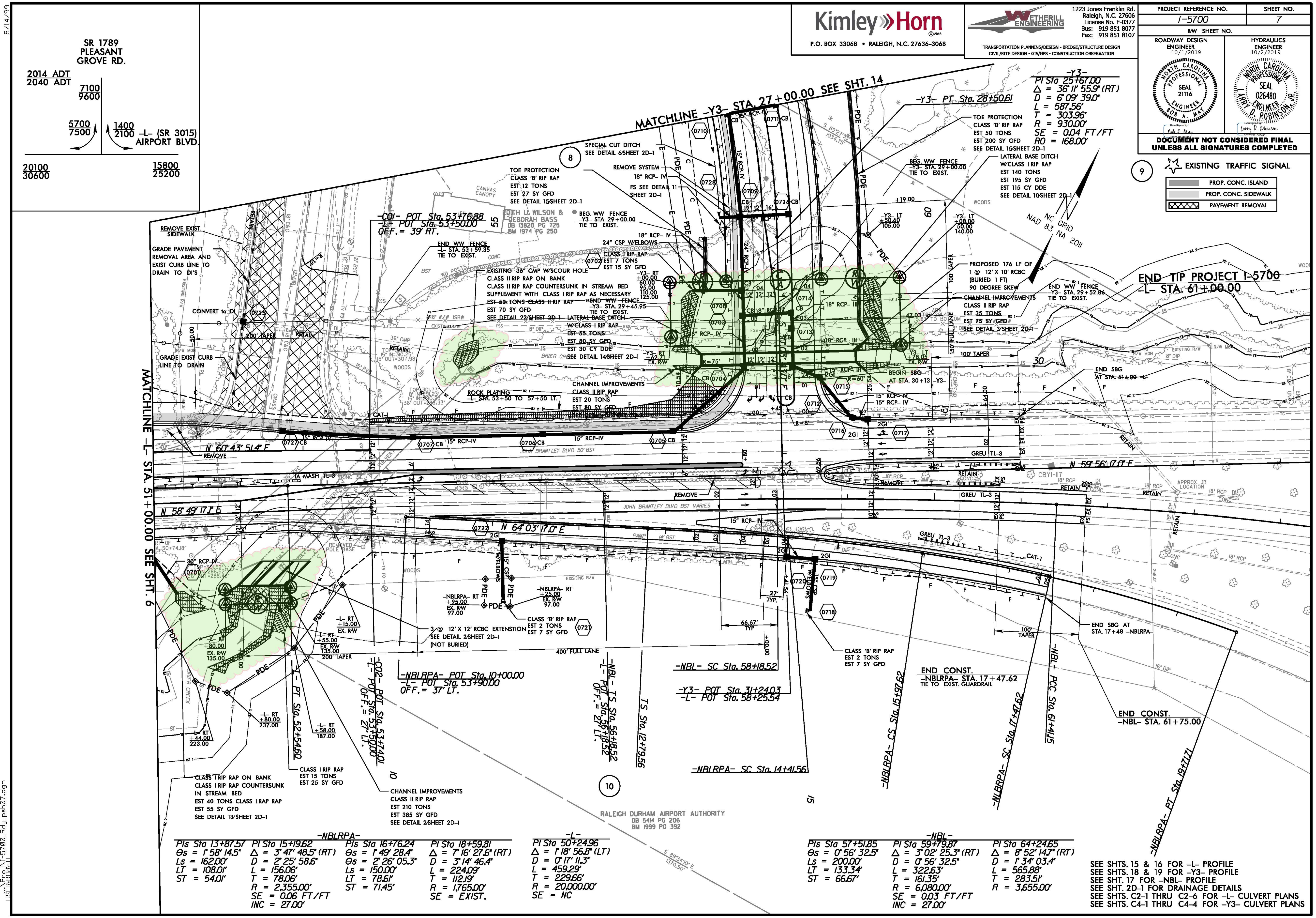
WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
I-5700	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
10/1/2019
SEAL 21116
BOB A. MAY
DocuSigned by: Bob A. May

HYDRAULICS ENGINEER
10/2/2019
SEAL 026480
LARRY D. ROBINSON, JR.
DocuSigned by: Larry D. Robinson

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-Y3-
PI Sta 25+67.00
Δ = 36° 11' 55.9" (RT)
D = 6° 09' 39.0"
L = 587.56'
T = 303.96'
R = 930.00'
SE = 0.04 FT/FT
RO = 168.00'

-NBLRPA-

PIs Sta 13+87.57
Θs = 1° 58' 14.5"
Ls = 162.00'
LT = 108.01'
ST = 54.01'

PI Sta 15+19.62
Δ = 3° 47' 48.5" (RT)
D = 2° 25' 58.6"
L = 156.06'
T = 78.06'
R = 2,355.00'
SE = 0.06 FT/FT
INC = 27.00'

PIs Sta 16+76.24
Θs = 1° 49' 28.4"
Θs = 2° 26' 05.3"
Ls = 150.00'
LT = 78.61'
ST = 71.45'

PI Sta 18+59.81
Δ = 7° 16' 27.6" (RT)
D = 3° 14' 46.4"
L = 224.09'
T = 112.19'
R = 1,765.00'
SE = EXIST.

-L-

PI Sta 50+24.96
Δ = 1° 18' 56.8" (LT)
D = 0° 17' 11.3"
L = 459.29'
T = 229.66'
R = 20,000.00'
SE = NC

-NBL-

PIs Sta 57+51.85
Θs = 0° 56' 32.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 59+79.87
Δ = 3° 02' 25.3" (RT)
D = 0° 56' 32.5"
L = 322.63'
T = 161.35'
R = 6,080.00'
SE = 0.03 FT/FT
INC = 27.00'

PI Sta 64+24.65
Δ = 8° 52' 14.7" (RT)
D = 1° 34' 03.4"
L = 565.88'
T = 283.51'
R = 3,655.00'

SEE SHTS. 15 & 16 FOR -L- PROFILE
SEE SHTS. 18 & 19 FOR -Y3- PROFILE
SEE SHT. 17 FOR -NBL- PROFILE
SEE SHT. 2D-1 FOR DRAINAGE DETAILS
SEE SHTS. C2-1 THRU C2-6 FOR -L- CULVERT PLANS
SEE SHTS. C4-1 THRU C4-4 FOR -Y3- CULVERT PLANS

PROJECT REFERENCE NO.	SHEET NO.
I-5700	14
R/W SHEET NO.	

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Larry D. Robinson

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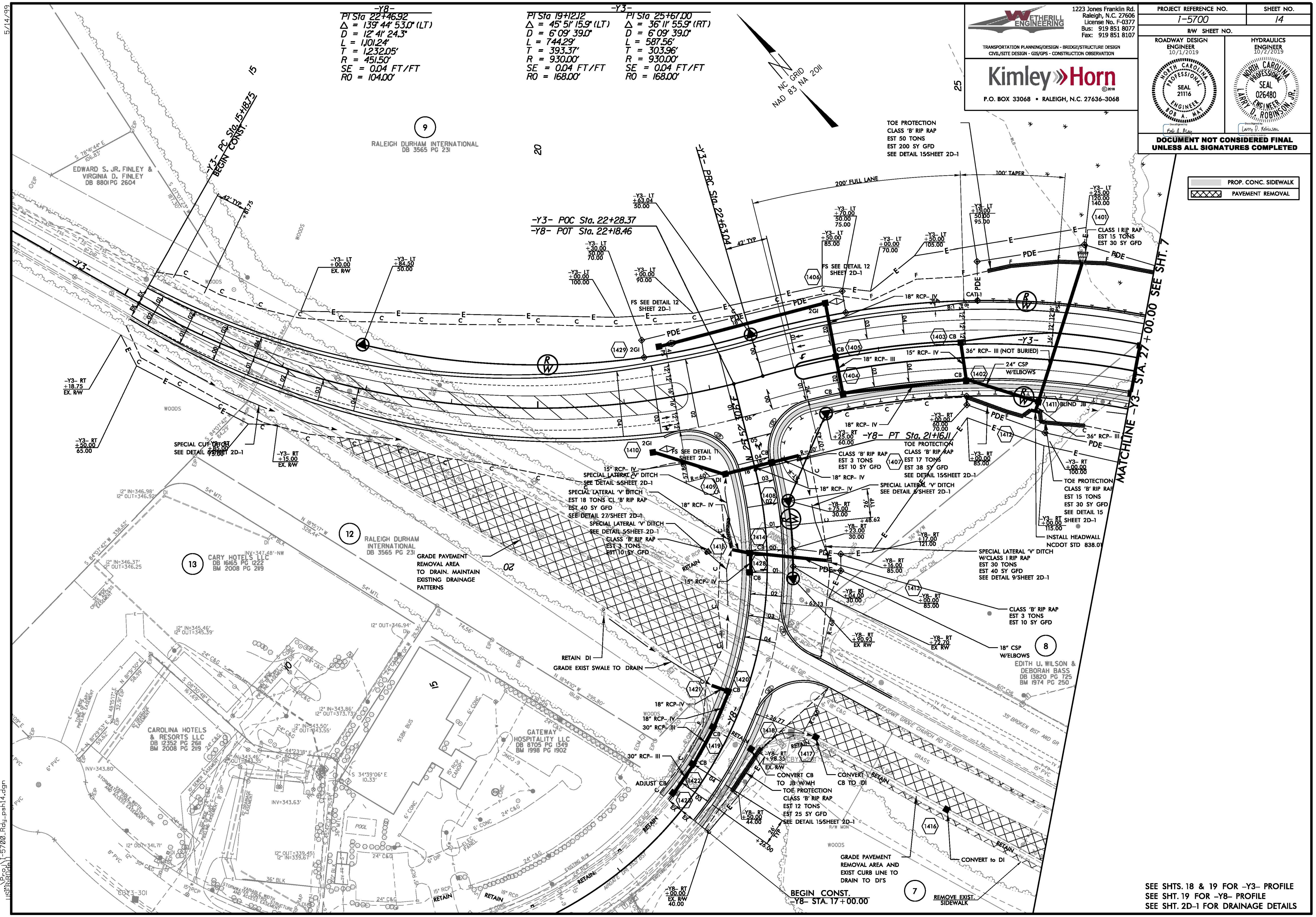
-Y8-
PI Sta 22+46.92
Δ = 139° 44′ 53.0″ (LT)
D = 12° 41′ 24.3″
L = 1,101.24′
T = 1,232.05′
R = 451.50′
SE = 0.04 FT/FT
RO = 104.00′

-Y3-
PI Sta 19+12.12
Δ = 45° 51′ 15.9″ (LT)
D = 6° 09′ 39.0″
L = 744.29′
T = 393.37′
R = 930.00′
SE = 0.04 FT/FT
RO = 168.00′

PI Sta 25+67.00
Δ = 36° 11′ 55.9″ (RT)
D = 6° 09′ 39.0″
L = 587.56′
T = 303.96′
R = 930.00′
SE = 0.04 FT/FT
RO = 168.00′



SEE SHTS. 18 & 19 FOR -Y3- PROFILE
SEE SHT. 19 FOR -Y8- PROFILE
SEE SHT. 2D-1 FOR DRAINAGE DETAILS