



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: SF-530159 TIP No.: 17BP.2.R.73 County(ies): Lenoir Page 1 of 3

General Project Information

WBS Element:	SF-530159	TIP Number:	17BP.2.R.73	Project Type:	Bridge Replacement	Date:	5/3/2017
NCDOT Contact:	Hon Yeung		Contractor / Designer:	Richard A. Moore, PE, McKim & Creed			
Address:	105 Pactolus Highway PO Box 1587 Greenville, NC 27835-1587		Address:	243 North Front Street Wilmington, NC 28401			
	Phone:	252-439-2827		Phone:	910-343-1048		
	Email:	hfyung@ncdot.gov		Email:	ramoore@mckimcreed.com		
City/Town:	Kinston, NC		County(ies):	Lenoir			
River Basin(s):	Neuse		CAMA County?	No			
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	400 feet	Surrounding Land Use:	Residential, Agricultural, Undeveloped				
	Proposed Project		Existing Site				
Project Built-Upon Area (ac.)	0.2	ac.	0.2	ac.			
Typical Cross Section Description:	The bridge replacement is proposed to be a corrugated aluminum box culvert (CABC) with a span of 23'-0" and a rise of 6'-1". The replacement will be along the current existing roadway alignment in the same location. 28'-0" clear roadway from guardrail face to guardrail face.			The existing bridge has a concrete wearing surface on one (1) spans @ 18'-6", timber joists on timber caps and timber piles. The existing clear roadway width is approximately 24 feet.			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	N/A	Year:	Existing:	470	Year:	2012
General Project Narrative: (Description of Minimization of Water Quality Impacts)	This bridge replacement project is located to the northeast of Kinston, NC and is in the Neuse River Basin. The total project length is 400 feet along the existing SR1803 roadway alignment. The project is located within a 1.2 square mile unnamed tributary of Heath Branch drainage area which has a classification of C;Sw,NSW. The project crosses the UT of Heath Branch and several ditches outlet to swales located within the UT of Heath Branch drainage area. Ditches within the Heath Branch drainage area have been designed with 3:1 side back slopes and 4:1 side front slopes to the maximum extent practicable and longitudinal slopes as flat as practicable. In addition, rip rap is proposed at drainage pipe outlets to provide diffuse flow into UT to Heath Branch. Box culverts in jurisdictional streams will be buried 1'.						

Waterbody Information

Surface Water Body (1):	UT to Heath Branch		NCDWR Stream Index No.:	27-80-9				
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C					
	Supplemental Classification:		Swamp Waters (Sw) (NSW)					
Other Stream Classification:	None							
Impairments:	None							
Aquatic T&E Species?	No	Comments:						
NRTR Stream ID:						Buffer Rules in Effect:	Neuse	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?				No
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)								



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Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4-Redlines	14+40.00 RT 35.255157/-77.486434	(1)UT to Heath Branch	0.0	4.0	3.0	4.5	447	143	0.43%	3.9	1.6	5.0	1.7		
4-Redlines	15+07.00 RT 35.255157/-77.486434	(1)UT to Heath Branch	0.0	4.0	3.0	1.1	108	180	0.47%	1.6	1.3	2.1	1.4		
4-Redlines	14+94.00 LT 35.255157/-77.486434	(1)UT to Heath Branch	4.0	4.0	3.0	9.9	985	147	0.00%	6.9	0.4	8.9	0.5		

Additional Comments

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Bridge to Culvert Avoidance and Minimization

Proposed Structure Summary

Sheet No. & Station	Sheet No.:	Station:	Number of Barrels:	1
Drainage Area (ac or sq mi):		1.2 sq mi	Barrel Width/Diameter (ft):	23'-0"
Surface Water Body:	(1)UT to Heath Branch		Barrel Height (ft):	6'-1"
Culvert Type:	CABC		Culvert Length (ft)	50.5

Avoidance and Minimization Efforts:
(Bridge to Culvert)

Stream Slope

Existing Average Stream Slope (%):	0.10%
Proposed Culvert Slope (%):	0.30%

Fish and/or Aquatic Life Passage

Existing Low Flow Channel Dimensions in the Stream:	
Proposed Low Flow Dimensions Through the Culvert:	
Existing Low Flow Velocities in the Stream (ft/s):	
Proposed Low Flow Velocities Through the Culvert (ft/s):	
Alternating Low Flow Sills/Baffles:	

Culvert Burial

Proposed Culvert Burial Depth (ft):	1
Existing Streambed Material:	Bed material is sand and debris potential is moderate.

Proposed Sills/Baffles: 13' low flow channel centered and 5' long by 1' high sills on each side.

Culvert/Stream Alignment

Stream Patterns Upstream and Downstream of the Culvert that Could Affect Fish Passage and Bank Stability:	
Bed Forms Impacted by Culvert (riffles, pools, glides, etc.):	
Low Flow Floodplain Bench Required? (provide justification)	No
Bends at Inlet/Outlet? (describe culvert alignment with stream)	No
Stream Realignment Necessary? (provide justification)	No
Bank Stabilization:	

Outlet Velocities

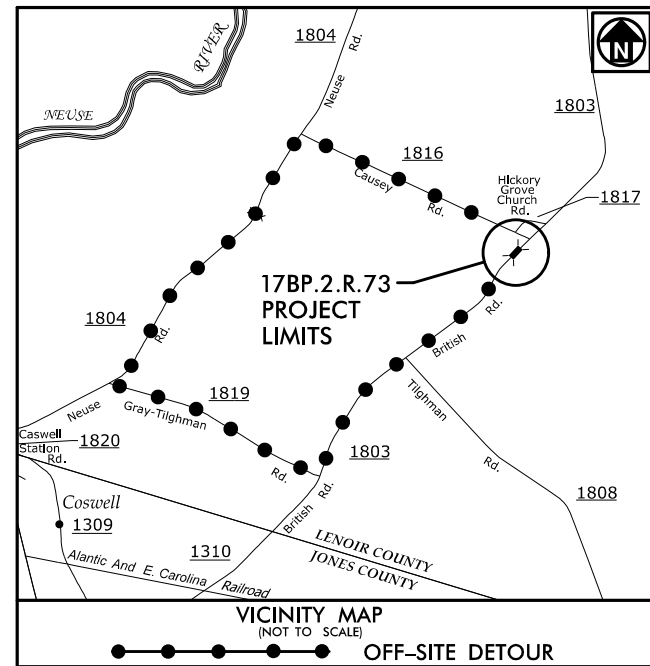
Natural Stream Channel 2-yr Velocity (ft/s):		Natural Stream Channel 10-yr Velocity (ft/s):	
Proposed Culvert 2-yr Outlet Velocity (ft/s):		Proposed Culvert 10-yr Outlet Velocity (ft/s):	

Roadway Geometric Considerations

Evaluate/Describe Roadway Geometric Constraints:

CONTRACT: TIP PROJECT: 17BP.2.R.73

CONTRACT:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
LENOIR COUNTY

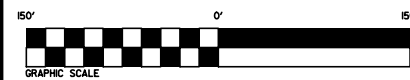
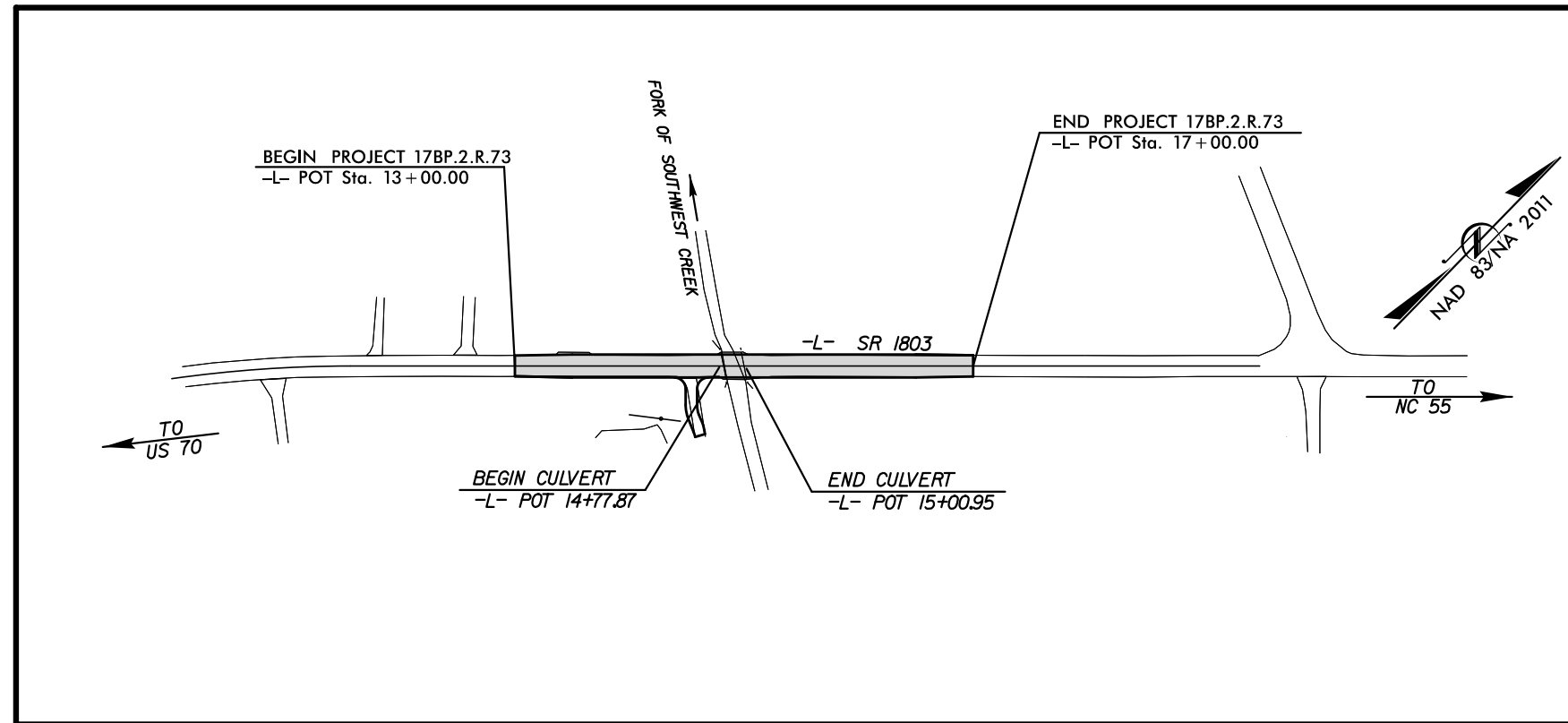
LOCATION: BRIDGE NO. 159 OVER FORK OF SOUTHWEST CREEK ON SR 1803 (BRITISH ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND CULVERT

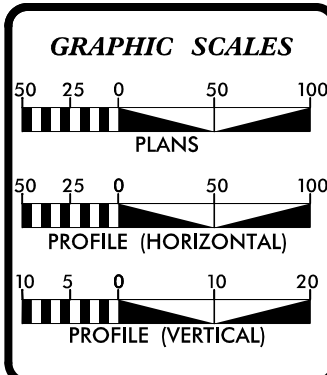
WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.2.R.73	1	
STATE PROJECT NO.		P.A. PROJ. NO.	DESCRIPTION
17BP.2.R.73			P.E.

**PERMIT DRAWING
SHEET 1 OF 7**



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2011 = 470
ADT 2025 = ?
T = 6%
V = 55 MPH

FUNC. CLASS. = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT = 0.076 MILES
LENGTH STRUCTURE TIP PROJECT = 0.0? MILES
TOTAL LENGTH TIP PROJECT = 0.076 MILES

Prepared In the Office of Mott MacDonald for
DIVISION 2
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 23, 2016

LETTING DATE:
MAY 24, 2017

DAVID C. WALLER, PE
PROJECT ENGINEER

RICHARD MOORE, PE
HYDRAULIC ENGINEER

HON YEUNG, PE
NCDOT BRIDGE PROGRAM MANAGER

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

PLANS PREPARED BY:

M M

MOTT
MACDONALD

PO Box 700
Fuquay-Varina, NC 27526
(919) 552-2253
(919) 552-2254 (Fax)
www.mottmac.com/americas

LICENSE NO. F-0669

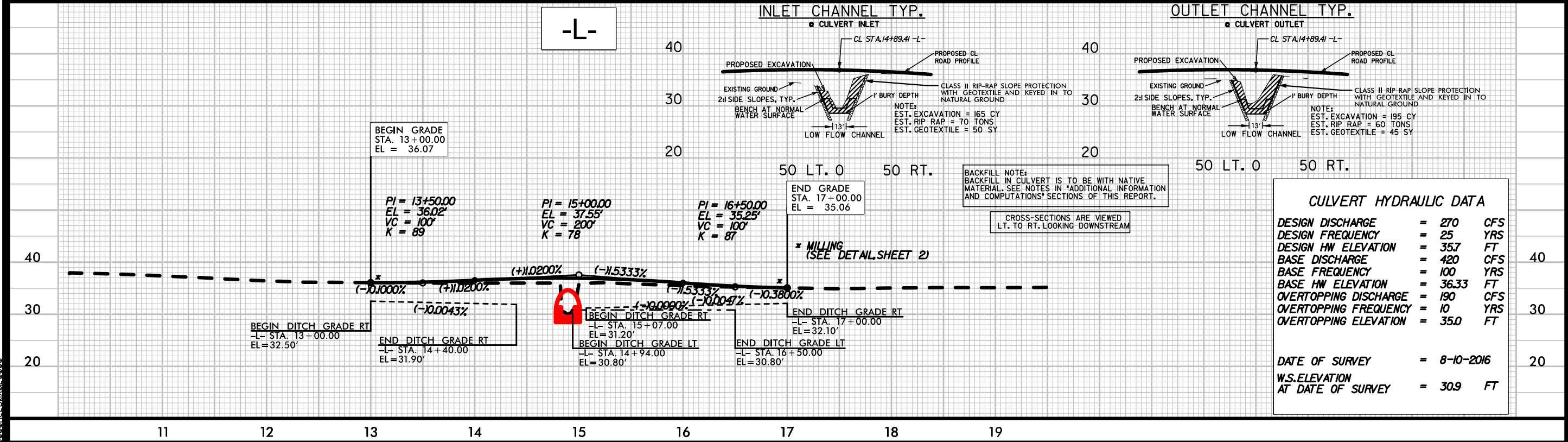
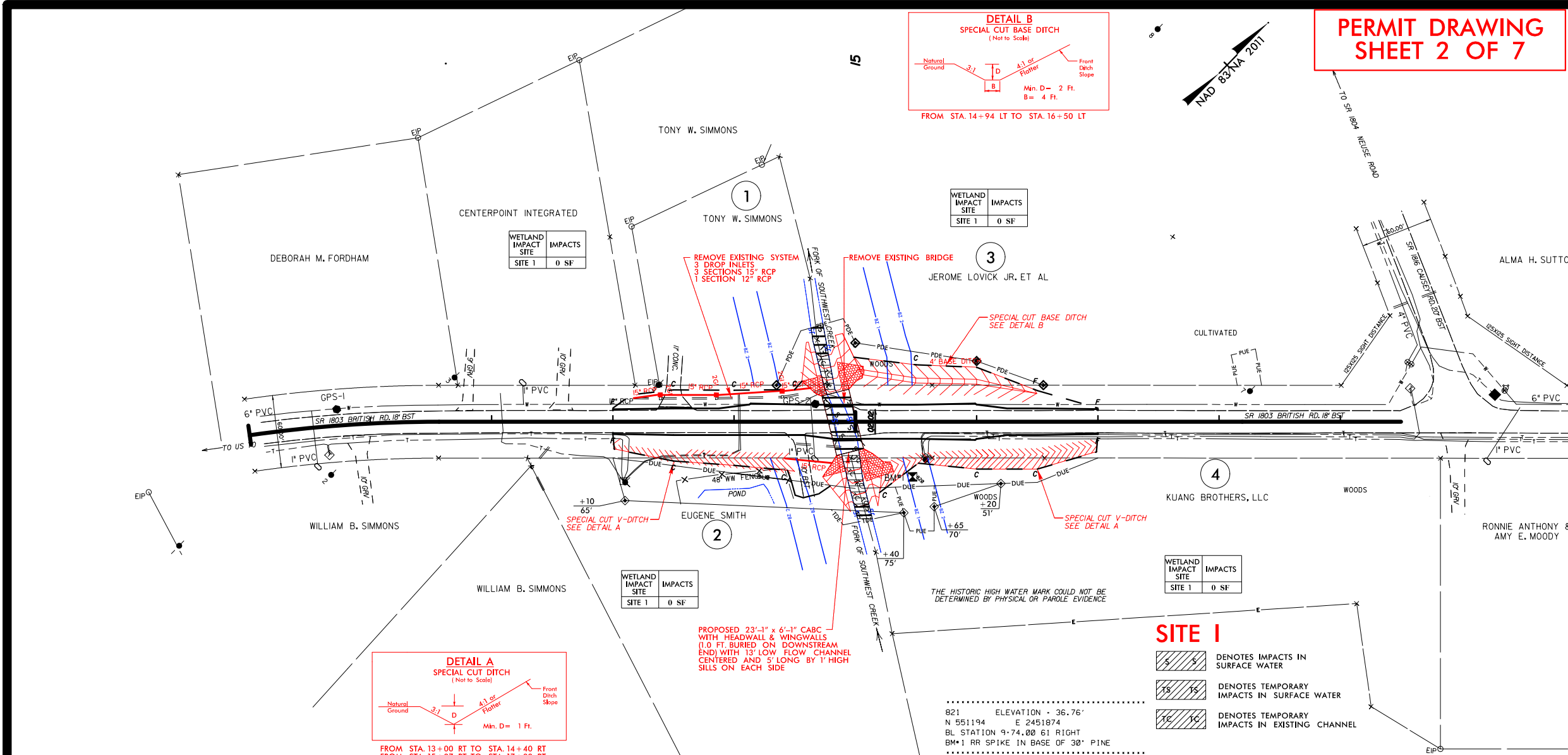
MCKIM & CREED

NC LICENSE #F-1222
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TEL. (910) 343-1048 FAX. (910) 790-6282

SDATES
SUSERNAME'S
SFILES
SDATE
SSYSTEM
SDGN
SUSERNAME

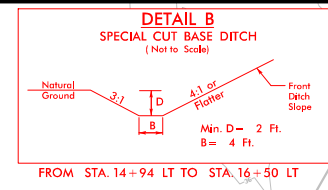
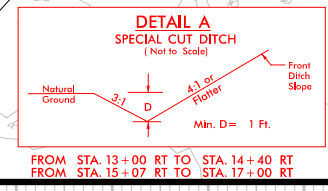
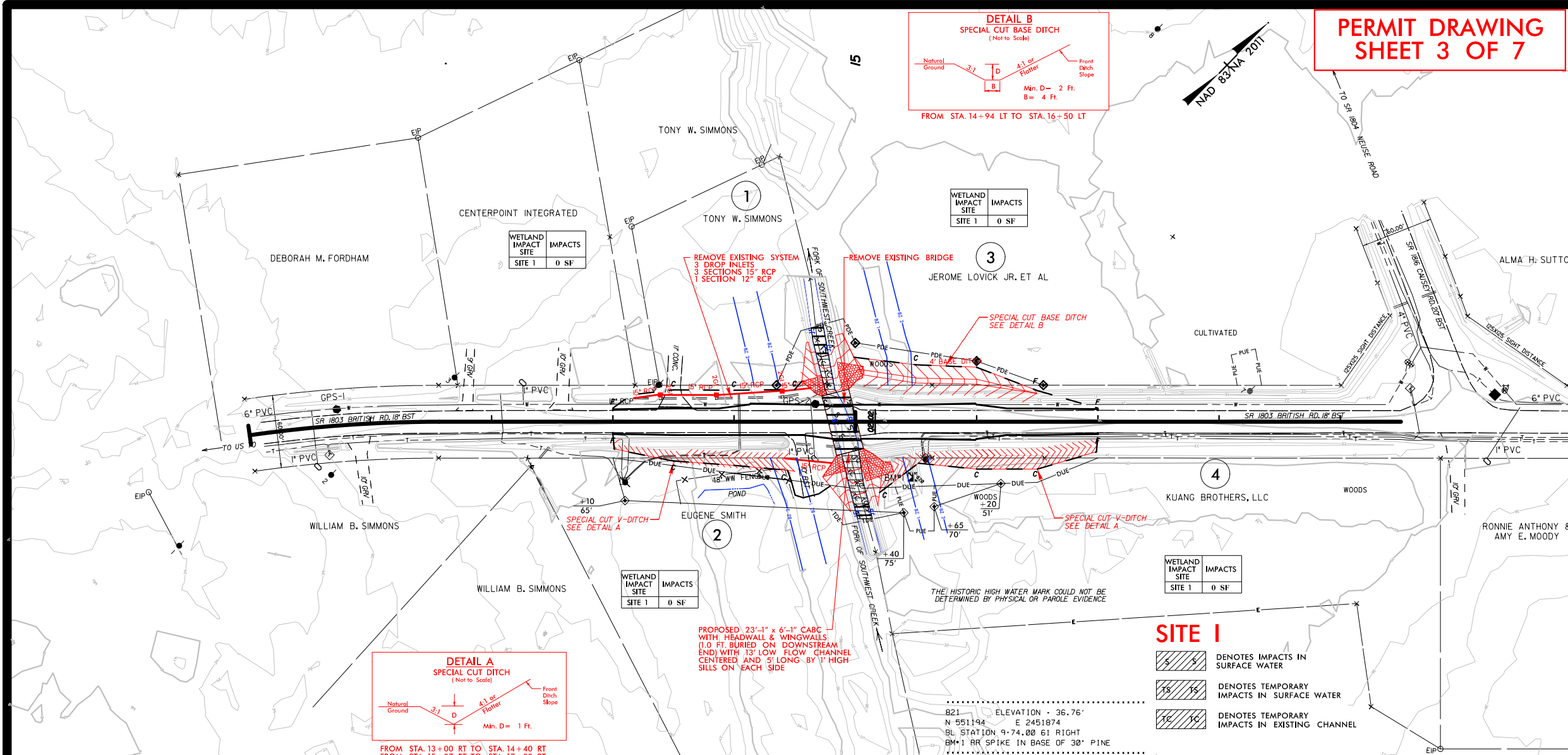
PERMIT DRAWING SHEET 2 OF 7

PROJECT REFERENCE 17BP.2.R.73 - LENOIR 159	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/merkos	
MCKIM & CREED 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 343-1048 FAX: (910) 343-2822	
VERTICAL SCALE 1" = 5'	HORIZONTAL SCALE 1" = 25'



PERMIT DRAWING SHEET 3 OF 7

PROJECT REFERENCE 17BP.2.R.73 - LENOIR 159	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/V ACQUISITION	
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Prepared in the Office of: M MOTT MACDONALD PO Box 700 Furqan-Yarino, NC 27526 www.mottmac.com/merkas	
M&C MOTT MACDONALD & CREED 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 345-1048 FAX: (910) 196-8282	
VERTICAL SCALE 0 5' 10'	HORIZONTAL SCALE 0 25' 50'



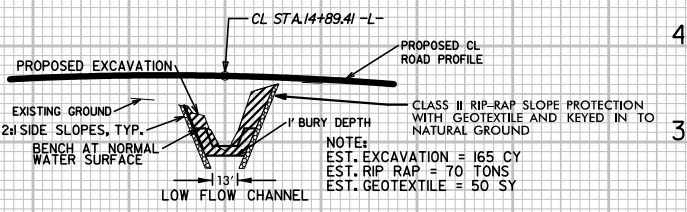
SITE I

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN EXISTING CHANNEL

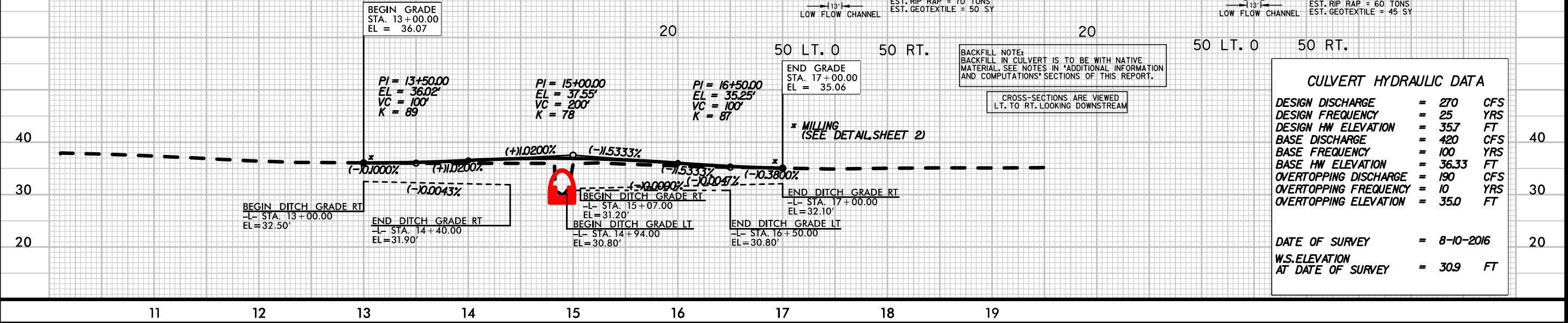
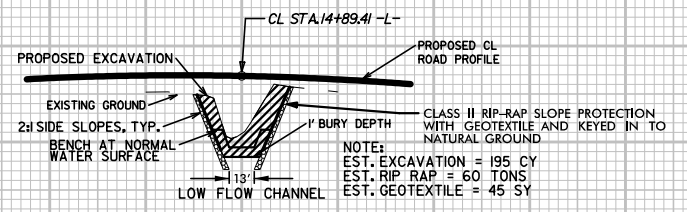
821 ELEVATION = 36.76'
N 551194 E 2451874
BL STATION 9+74.00 61 RIGHT
BM 1 RR SPIKE IN BASE OF 30' PINE

-L-

INLET CHANNEL TYP.
CULVERT INLET

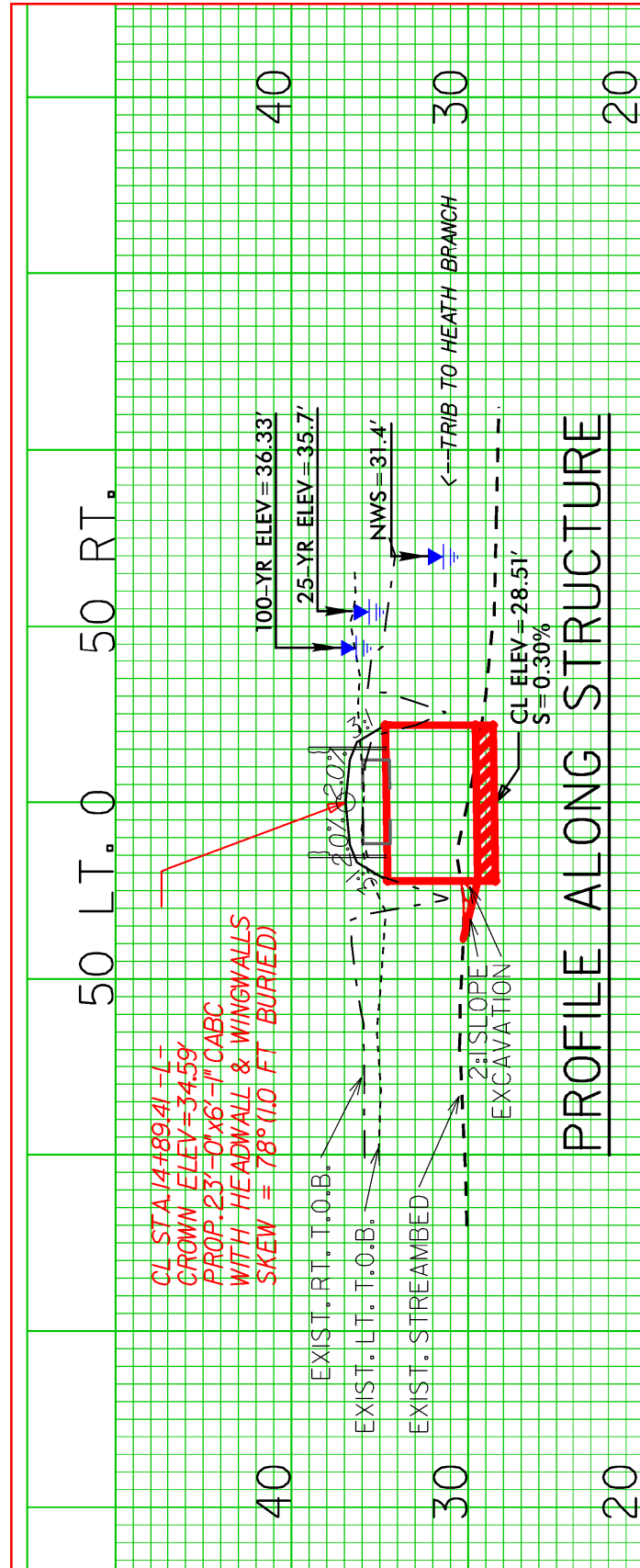


OUTLET CHANNEL TYP.
CULVERT OUTLET



DESIGN DISCHARGE	= 270	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 35.7	FT
BASE DISCHARGE	= 420	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 36.33	FT
OVERTOPPING DISCHARGE	= 190	CFS
OVERTOPPING FREQUENCY	= 10	YRS
OVERTOPPING ELEVATION	= 35.0	FT
DATE OF SURVEY	= 8-10-2016	
W.S. ELEVATION AT DATE OF SURVEY	= 30.9	FT

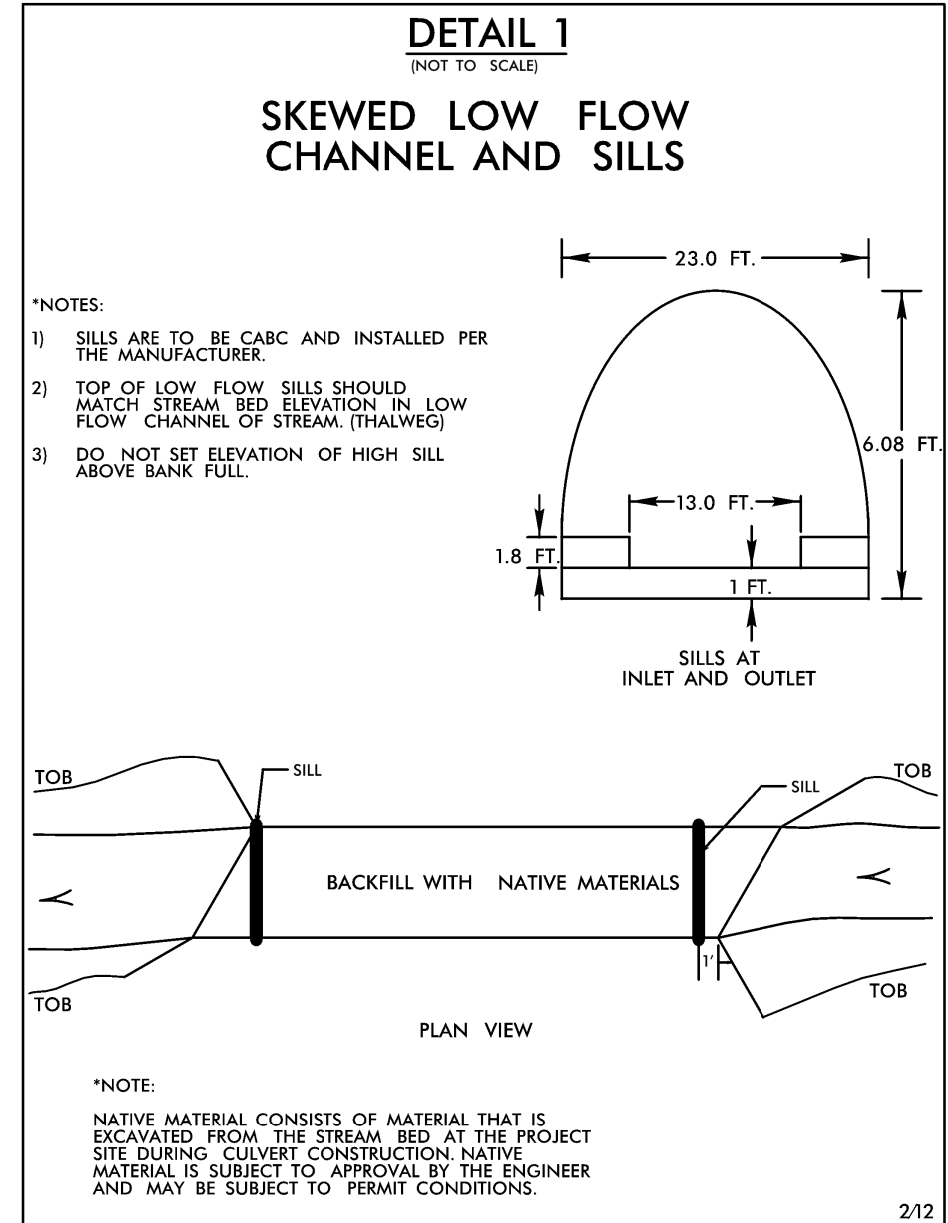
DATE: 9/25/2017 3:44:29 PM
SYSTEM: rdy
USER: psh3.dgn



PROFILE ALONG STRUCTURE

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 LENOIR COUNTY
 PROJECT: 17BP.2.R.73 (SF-530159)
 RERPLACE BRIDGE #159
 ON SR 1803 OVER
 UT TO HEATH BRANCH
 REF. CSR

SITE I



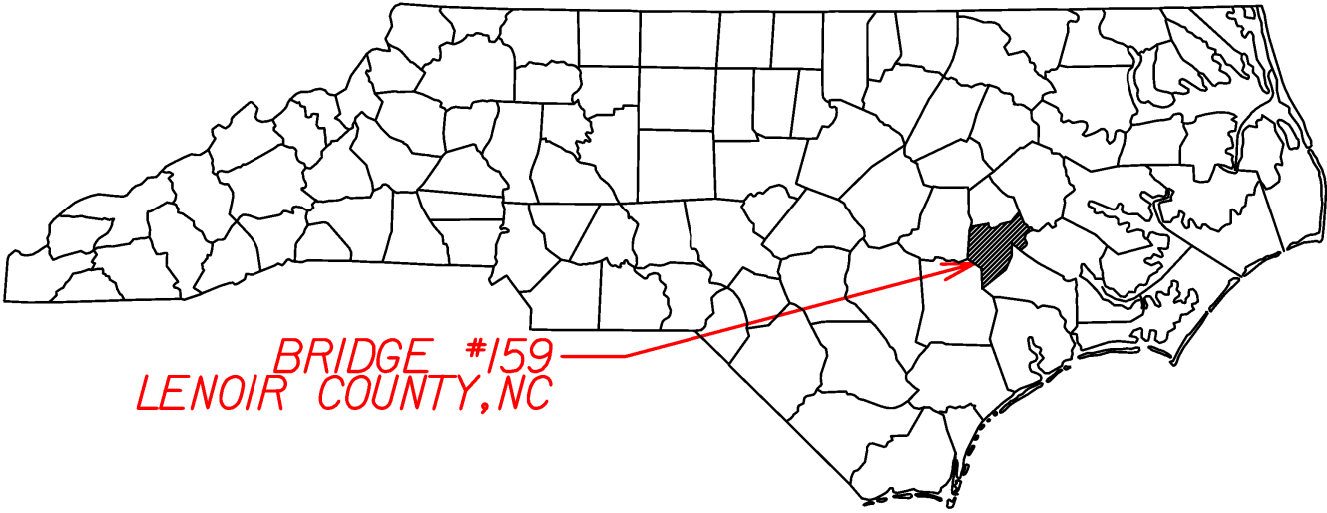
*NOTE:
 NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

PERMIT DRAWING
 SHEET 4 OF 7

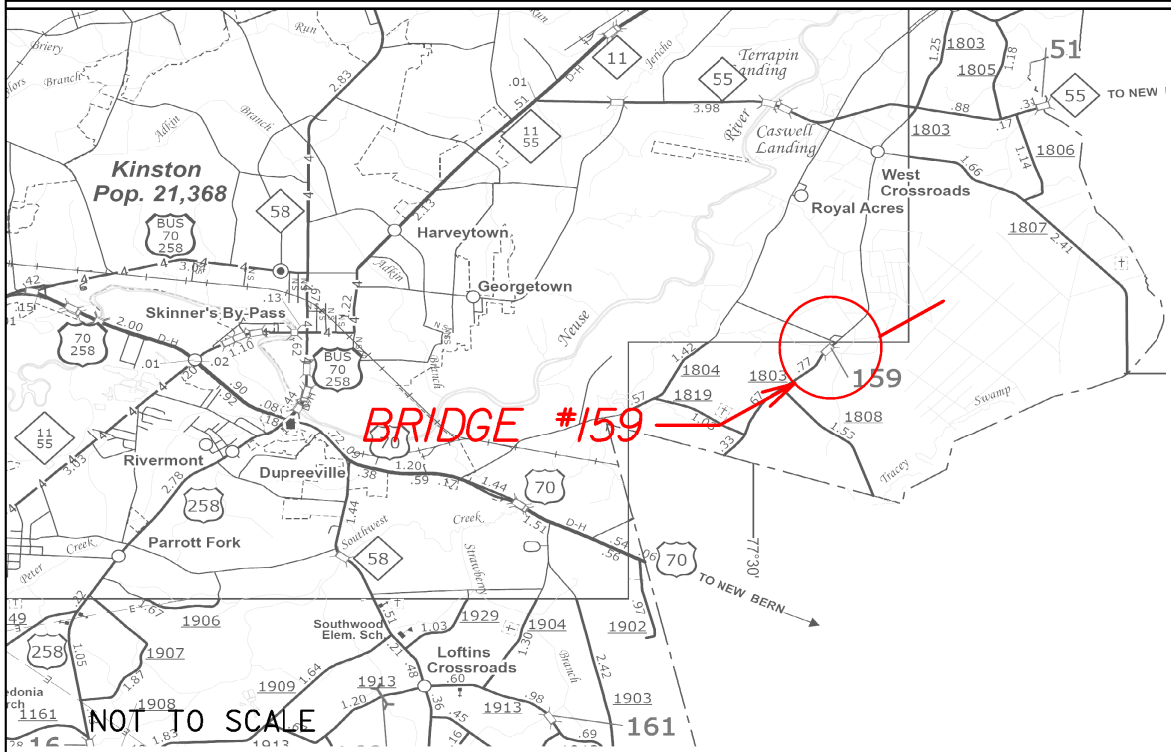
SITE I

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 LENOIR COUNTY
 PROJECT: 17BP.2.73 (SF-530159)
 REPLACE BRIDGE #159
 ON SR 1803 OVER
 UT TO HEATH BRANCH
 REF. CSR

NORTH CAROLINA



BRIDGE #159
LENOIR COUNTY, NC



BRIDGE #159

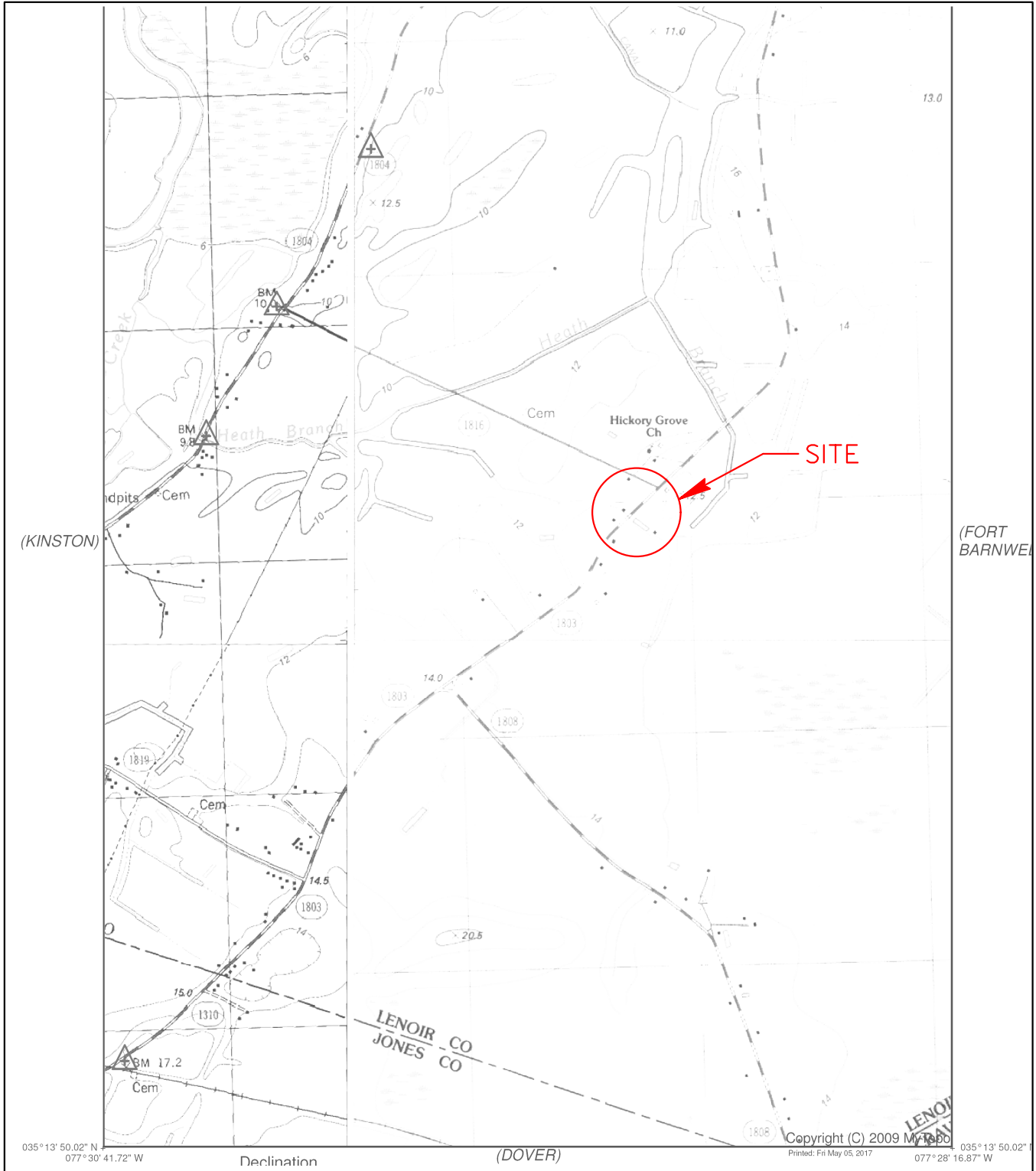
NOT TO SCALE

VICINITY
MAP

NOT TO SCALE

NCDOT
DIVISION OF HIGHWAYS
LENOIR COUNTY
PROJECT: 17BP.2.R.73 (SF-530159)
REPLACE BRIDGE #159
ON SR 1803 OVER
UT TO HEATH BRANCH

5/1/17



PERMIT DRAWING
SHEET 6 OF 7

USGS
MAP

NOT TO SCALE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
LENOIR COUNTY

PROJECT: 17BP.2.R.73 (SF-530159)

REPLACE BRIDGE #159
ON SR 1803 OVER
UT TO HEATH BRANCH

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	TONY W.SIMMONS	1536 BRITISH ROAD, KINSTON, NC 28501
2	EUGENE SMITH	1539 BRITISH ROAD, KINSTON, NC 28501
3	JEROME LOVICK JR. ETAL	9456 COMMON BROOK RD, APT 102, OWINGS MILLS, MD 21117
4	KUANG BROTHERS, LLC	1713 BRITISH ROAD, KINSTON, NC 28501

PERMIT DRAWING
SHEET 7 OF 7

NCDOT
DIVISION OF HIGHWAYS
LENOIR COUNTY
PROJECT: 17BP.2.R.73 (SF-530159)
REPLACE BRIDGE #159
ON SR 1803 OVER
UT TO HEATH BRANCH

6/1/17

WETLAND AND SURFACE WATER IMPACTS 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)
1	14+72 TO 15+07	CABC Span=23'-0" Rise=6'-1"						0.03	< 0.01		77.931	
TOTALS*:								0.03	< 0.01	0	78	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 6/1/17
 LENOIR
 17BP.2.R.73
 SF-530159
 SHEET 1 OF 1