



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: SF-530072 TIP No.: 17.BP.2.R.72 County(ies): Lenoir Page 1 of 2

General Project Information

WBS Element:	SF-530072	TIP Number:	17.BP.2.R.72	Project Type:	Bridge Replacement	Date:	1/30/2018
NCDOT Contact:	Hon Yeung		Contractor / Designer:		Richard A. Moore, PE, McKim & Creed		
Address:	1020 Birch Ridge Drive Raleigh, NC 27610		Address:	243 North Front Street Wilmington, NC 28401			
	Phone:	252-439-2800		Phone:	910-343-1048		
	Email:	hfyung@ncdot.gov		Email:	ramoore@mckimcreed.com		
City/Town:	La Grange, NC		County(ies):	Lenoir			
River Basin(s):	Neuse		CAMA County?	No			
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	650 feet	Surrounding Land Use:	Residential, Agricultural, Undeveloped				
Project Built-Up Area (ac.)		Proposed Project			Existing Site		
0.4 ac.					0.4 ac.		
Typical Cross Section Description:	The bridge replacement is proposed to be a two (2) span 21" cored slab bridge: 1 @ 50' and 1 @ 25'. The replacement will be along the current existing roadway alignment in the same location. 30'-0" bridge width with 27'-10" clear roadway. 2-10' lanes 0.5% slope with 3'-11" shoulder.			The existing bridge has an asphalt wearing surface on a reinforced concrete deck with three (3) spans: 1 @ 18'-7", 1 @ 18'-3" and 1 @ 18'-7". The bridge deck is supported by I-beams on end bents and interior bents made of reinforced concrete caps on timber piles.			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	N/A	Year:	Existing:	Year:		
General Project Narrative: (Description of Minimization of Water Quality Impacts)	This bridge replacement project is located northwest of La Grange, NC and is in the Neuse River Basin. The total project length is 650 feet along the existing SR1502 roadway alignment. The project is located within a 16.2 square mile Bear Creek drainage area which has a classification of C;Sw,NSW. The project's drainage system consists of four (4) proposed catch basins that direct runoff to the creek through a pipe network to an outfall. A rip rap pad is proposed at the pipe outlet to provide diffuse flow before runoff enters Buffer Zone 2. The outfall and rip rap pad are located on the upstream side of the bridge and outside of the buffer zones.						

Waterbody Information

Surface Water Body (1):	Bear Creek		NCDWR Stream Index No.:	27-72-(0.1)a			
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:	N/A			Buffer Rules in Effect:	Neuse		
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?			
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?
	-L- 11+50 LT	(1)Bear Creek	0.0	3.0	3.0	0.8	82	312	0.30%	1.7	1.7	2.2	1.2	No	No
	-L- 14+62 LT	(1)Bear Creek	4.0	3.0	3.0	12.4	1242	312	0.67%	12.6	3.6	17.6	3.9	No	No
	-L- 14+88 LT	(1)Bear Creek	4.0	3.0	3.0	7.8	783	362	0.30%	9.9	2.5	12.8	1.8	No	No
	-L- 18+00 LT	(1)Bear Creek	0.0	3.0	3.0	2.2	216	104	1.50%	3.3	3.7	4.3	4.0	No	No
	-L- 11+00 RT	(1)Bear Creek	0.0	3.0	3.0	1.9	190	200	0.30%	3.1	2.0	4.0	3.2	No	No
	-L- 14+62 RT														
	-L- 14+96 RT														
	-L- 16+00 RT														
	-L- 16+00 RT														
	-L- 18+00 RT														

Additional Comments

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+48 to 15+23	21" CORED SLAB BRIDGE						0.04	< 0.01		31	
2	14+88 to 18+00	LT DRAINAGE DITCH							0.04		312	
TOTALS*:								0.04	0.05	0	343	0

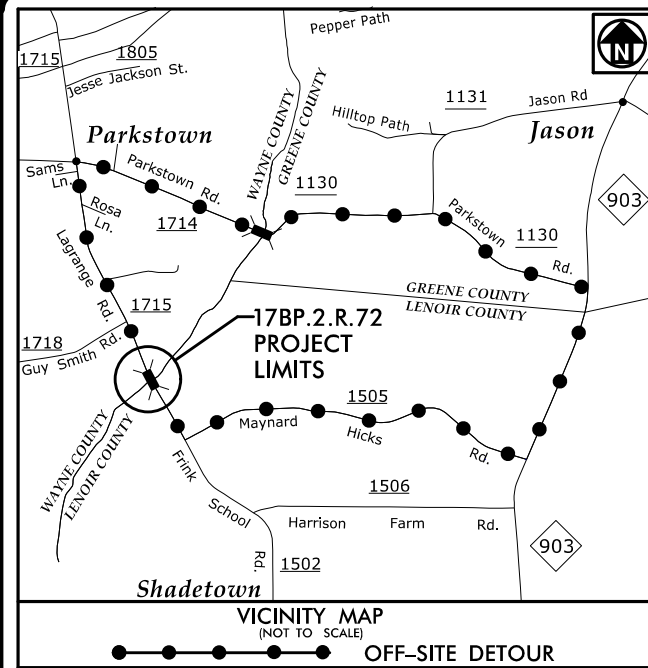
*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 08/18/2017
 LENOIR
 SF-530072
 17BP.2.R.72
 SHEET 1 OF 1

CONTRACT: TIP PROJECT: 17BP.2.R.72

CONTRACT:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
LENOIR-WAYNE COUNTIES

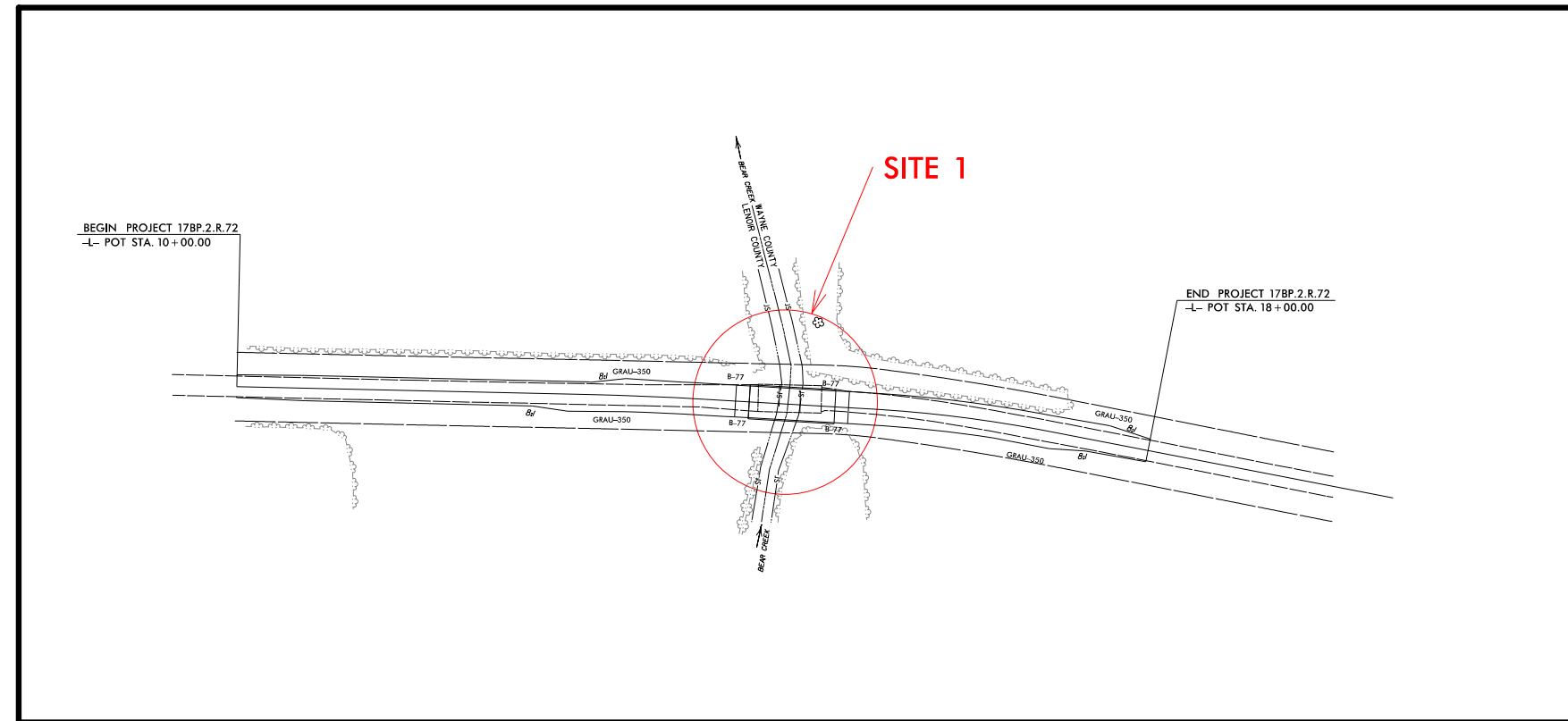
LOCATION: BRIDGE NO. 72 OVER BEAR CREEK ON SR 1502 (FRINK SCHOOL ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

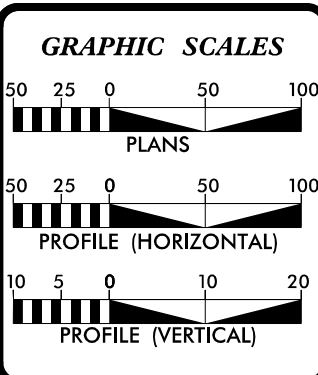
WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.2.R.72	1	
STATE PROJECT NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.2.R.72		P.E.	

**PERMIT DRAWING
SHEET 1 OF 7**



**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



DESIGN DATA

ADT 2011 = 390
ADT 2025 = ?
T = 6%
V = 55 MPH

FUNCTIONAL CLASS. =
LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT = 0.138 MILES
LENGTH STRUCTURE TIP PROJECT = 0.014 MILES
TOTAL LENGTH TIP PROJECT = 0.152 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 23, 2017

LETTING DATE:
DECEMBER 20, 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

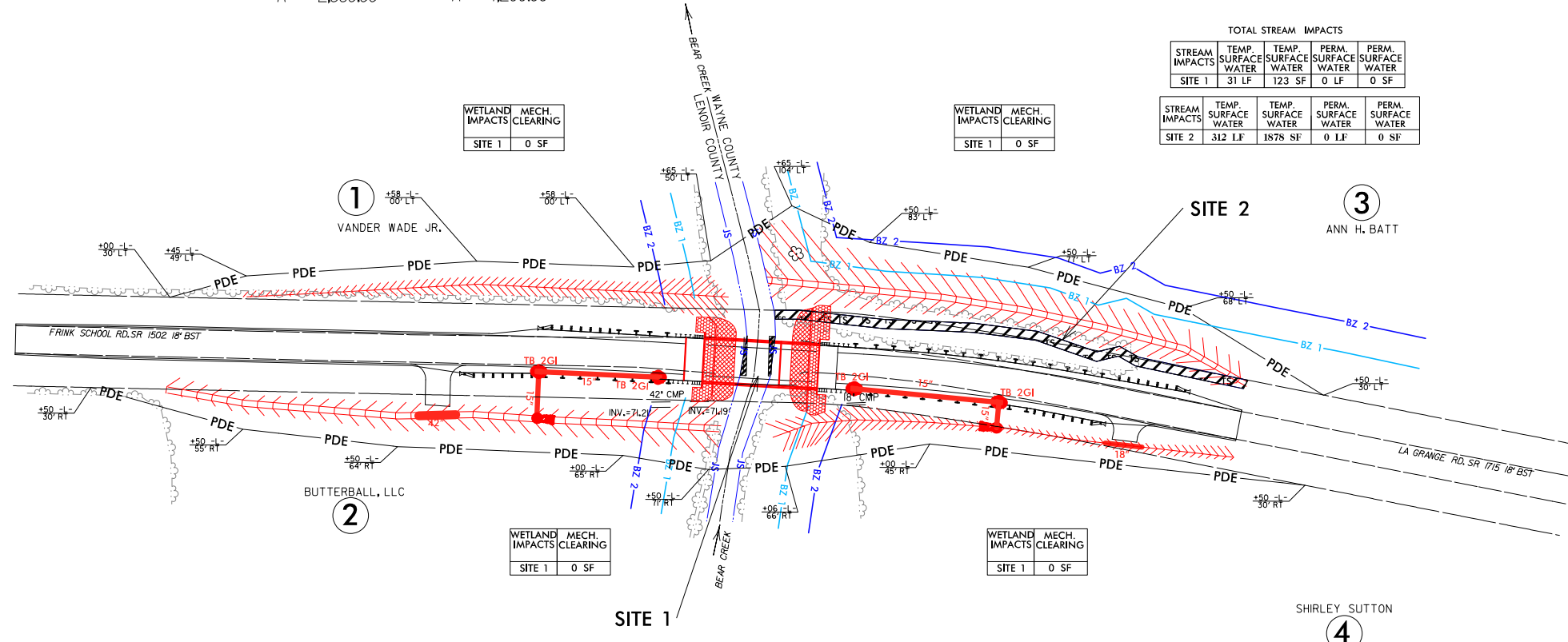
MCKIM & CREED
NC LICENSE #F-1222
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TEL: (910) 343-1048 FAX: (910) 790-6262

DATE: 8/18/2017 2:39:13 PM
SYSTEM: DGN
USER: MOTT
FILE: 17BP.2.R.72

**PERMIT DRAWING
SHEET 2 OF 7**

PROJECT REFERENCE 17BP.2.R.72 - LENOIR 72	SHEET NO. 2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
MOTT MACDONALD 1 & E, LLC LICENSE NO. P-06697	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M MOTT MACDONALD PO Box 700 Furqay-Vaiano, NC 27526 www.mottmac.com/marcom	
MCKIM & CREED INCORPORATED 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 343-1048 FAX: (910) 796-8282	
VERTICAL SCALE 1" = 5'	HORIZONTAL SCALE 1" = 25'

-L-
 PI Sta 13+58.75 PI Sta 16+32.39
 $\Delta = 2^\circ 01' 35.6" (RT)$ $\Delta = 7^\circ 37' 46.2" (RT)$
 $D = 2^\circ 00' 12.1"$ $D = 4^\circ 46' 28.7"$
 $L = 101.16'$ $L = 159.79'$
 $T = 50.58'$ $T = 80.01'$
 $R = 2,860.00'$ $R = 1,200.00'$



TOTAL STREAM IMPACTS

STREAM IMPACTS	TEMP SURFACE WATER	TEMP SURFACE WATER	PERM SURFACE WATER	PERM SURFACE WATER
SITE 1	31 LF	123 SF	0 LF	0 SF
SITE 2	312 LF	1878 SF	0 LF	0 SF

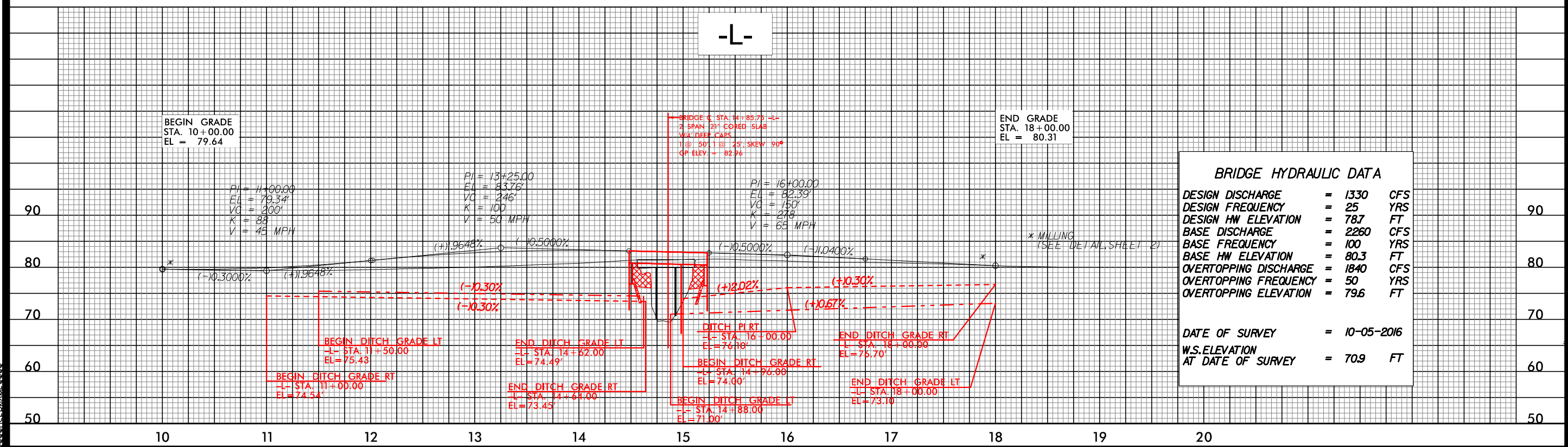
WETLAND IMPACTS	MECH. CLEARING
SITE 1	0 SF

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DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN SURFACE WATER



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1330 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 78.7 FT
BASE DISCHARGE	= 2260 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 80.3 FT
OVERTOPPING DISCHARGE	= 1840 CFS
OVERTOPPING FREQUENCY	= 50 YRS
OVERTOPPING ELEVATION	= 79.6 FT

DATE OF SURVEY = 10-05-2016
 W.S. ELEVATION AT DATE OF SURVEY = 70.9 FT

DATE: 10/30/2018
 SYSTEM: 17BP.2.R.72
 DGN: 17BP.2.R.72.DGN
 PLOT: 17BP.2.R.72.PLOT

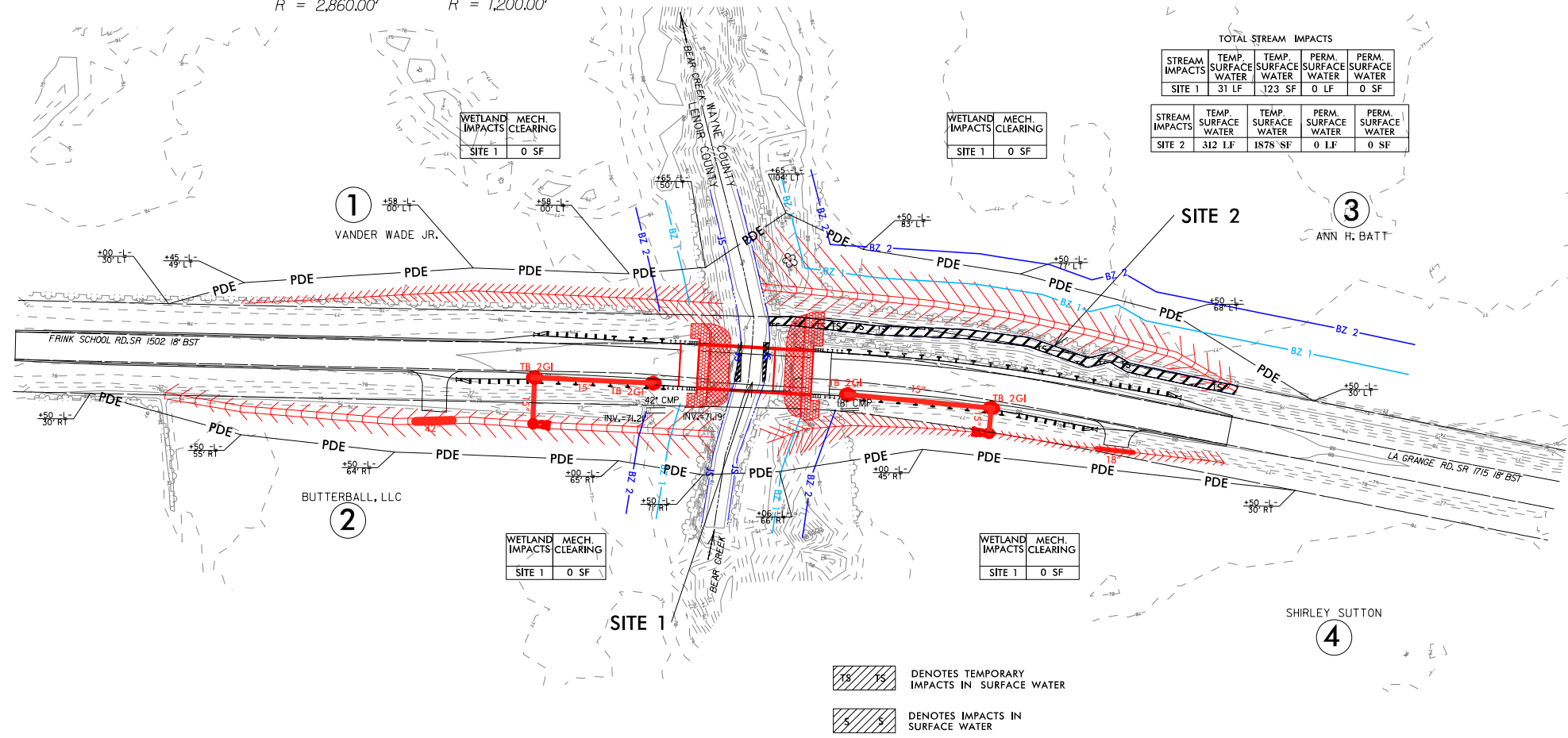
**PERMIT DRAWING
SHEET 3 OF 7**

PROJECT REFERENCE 17BP.2.R.72 - LENOIR 72	SHEET NO. 2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
MOTT MACDONALD 1 & E, LLC LICENSE NO. P-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M MOTT MACDONALD	
M KIM & CREED INCORPORATED 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 343-0448 FAX: (910) 796-8282	
VERTICAL SCALE 0 5' 10'	HORIZONTAL SCALE 0 25' 50'

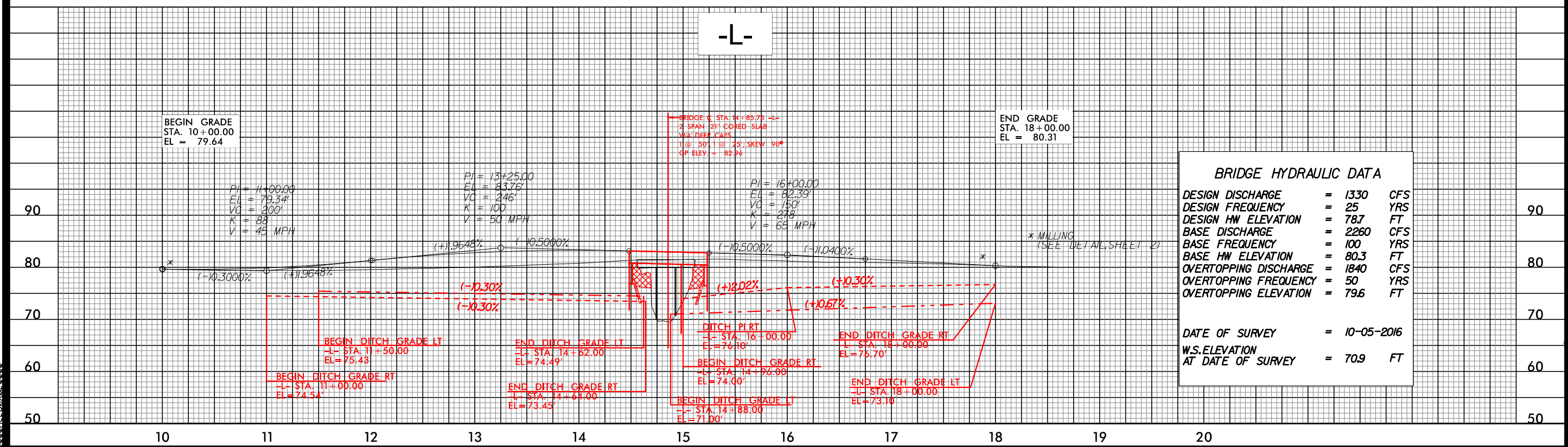
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TOTAL STREAM IMPACTS

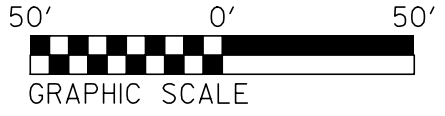
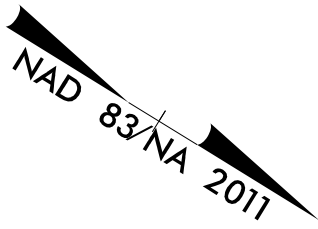
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DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN SURFACE WATER



**PERMIT DRAWING
SHEET 4 OF 7**



WETLAND IMPACTS	MECH. CLEARING
SITE 1	0 SF

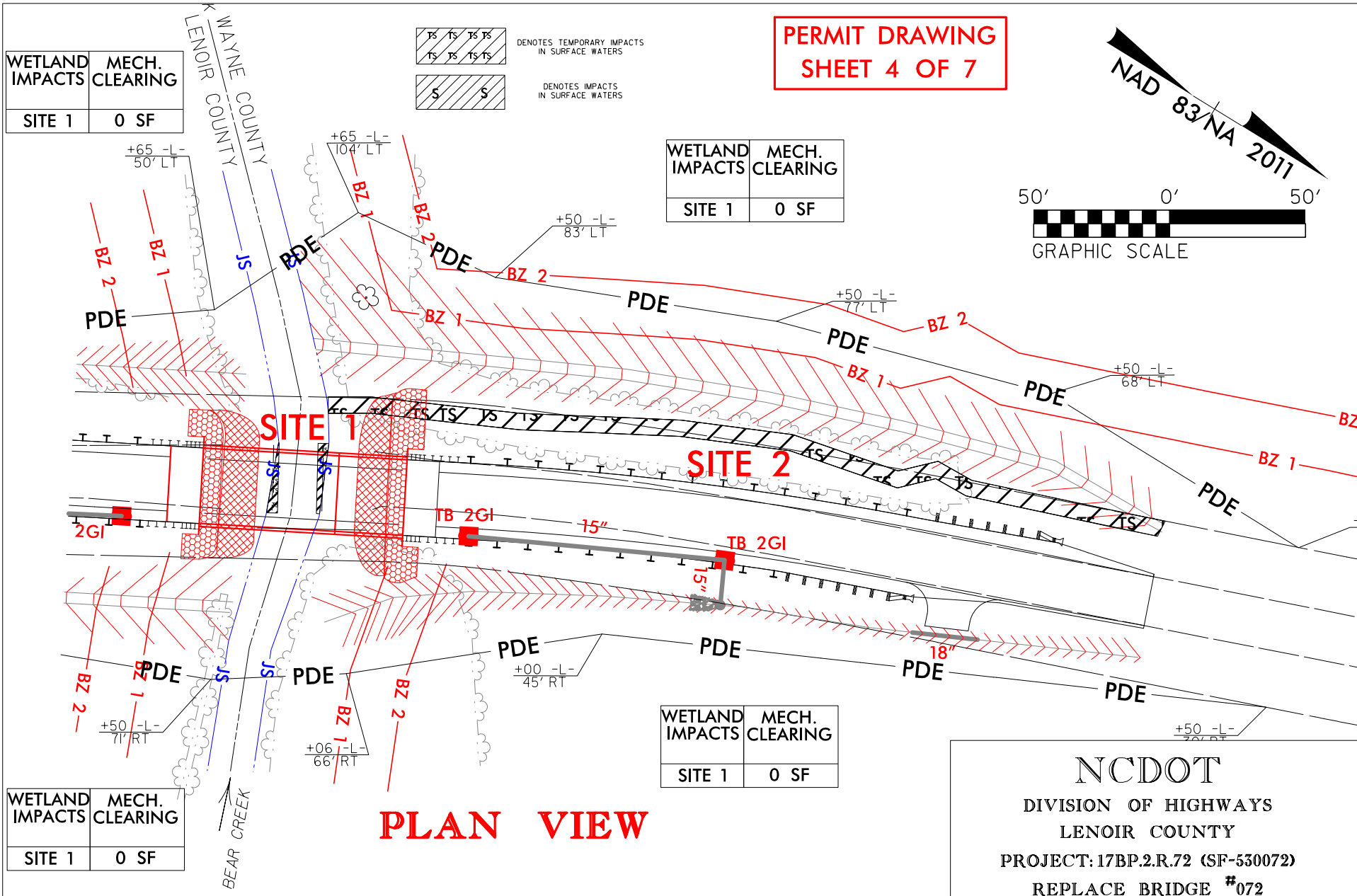
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WETLAND IMPACTS	MECH. CLEARING
SITE 1	0 SF

WETLAND IMPACTS	MECH. CLEARING
SITE 1	0 SF

NCDOT
 DIVISION OF HIGHWAYS
 LENOIR COUNTY
 PROJECT: 17BP.2.R.72 (SF-530072)
 REPLACE BRIDGE #072
 ON SR 1502 OVER
 BEAR CREEK

PLAN VIEW

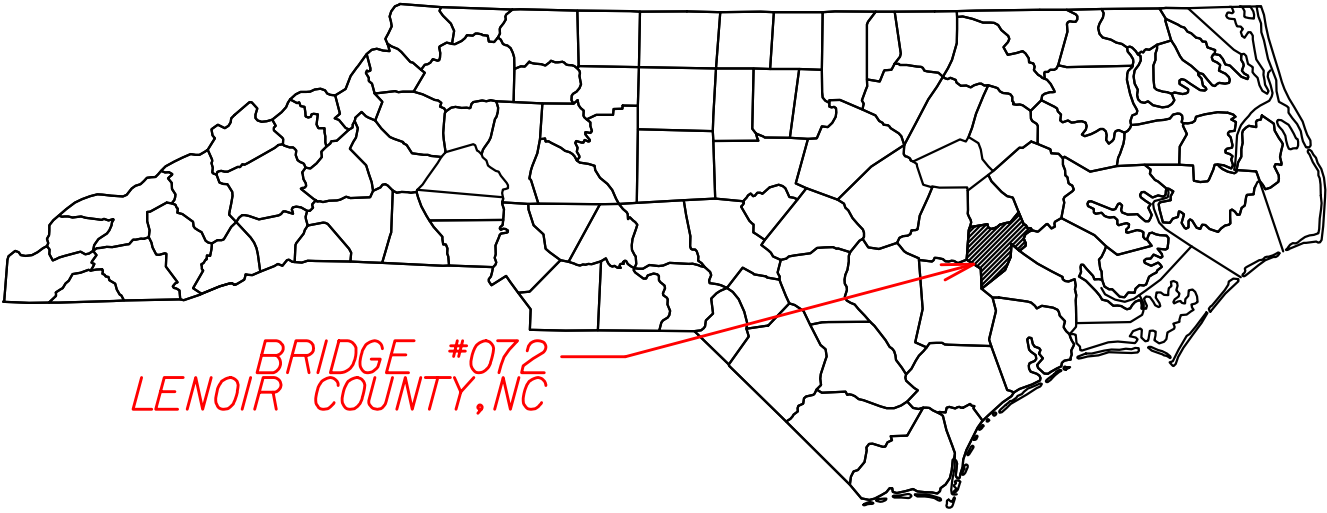


TOTAL STREAM IMPACTS

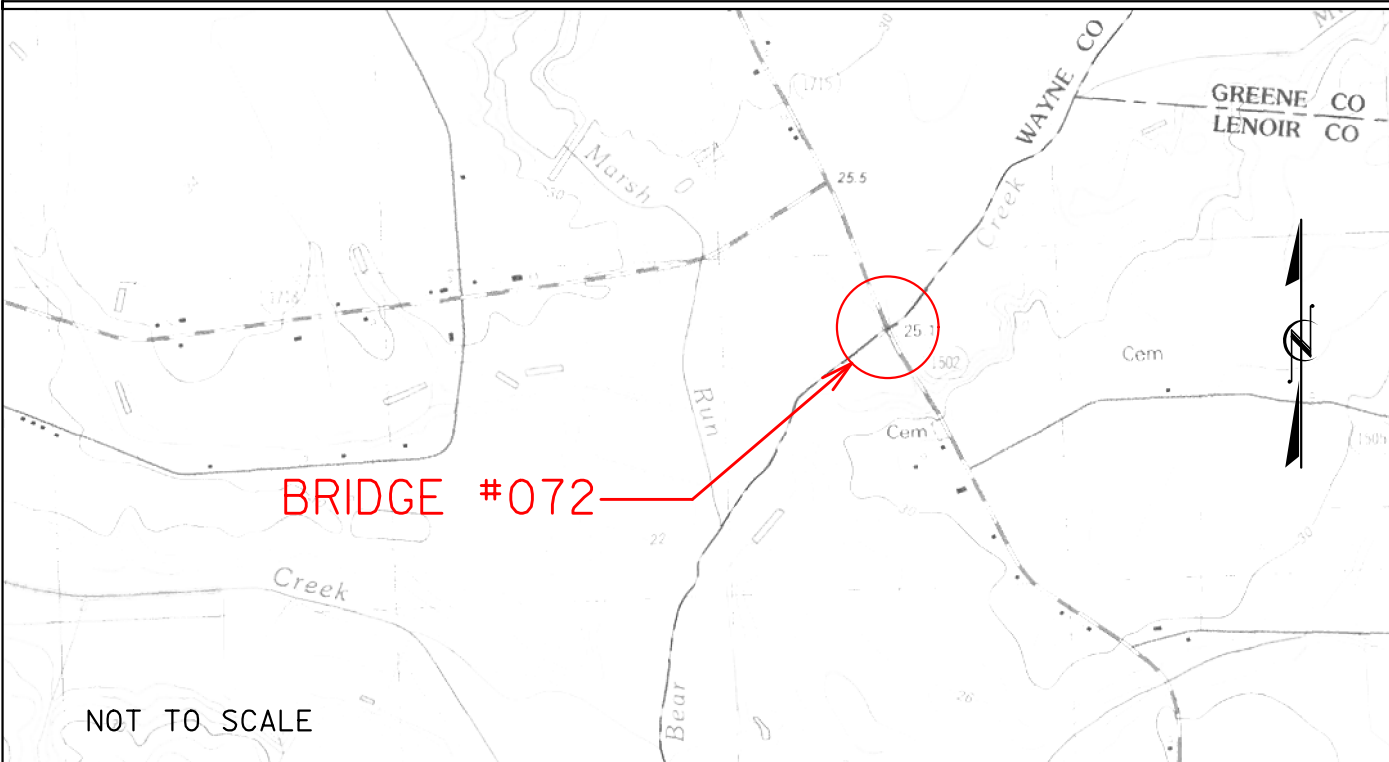
STREAM IMPACTS	TEMP. SURFACE WATER	TEMP. SURFACE WATER	PERM. SURFACE WATER	PERM. SURFACE WATER
SITE 1	31 LF	123 SF	0 LF	0 SF

STREAM IMPACTS	TEMP. SURFACE WATER	TEMP. SURFACE WATER	PERM. SURFACE WATER	PERM. SURFACE WATER
SITE 2	312 LF	1878 SF	0 LF	0 SF

NORTH CAROLINA



BRIDGE #072
LENOIR COUNTY, NC



BRIDGE #072

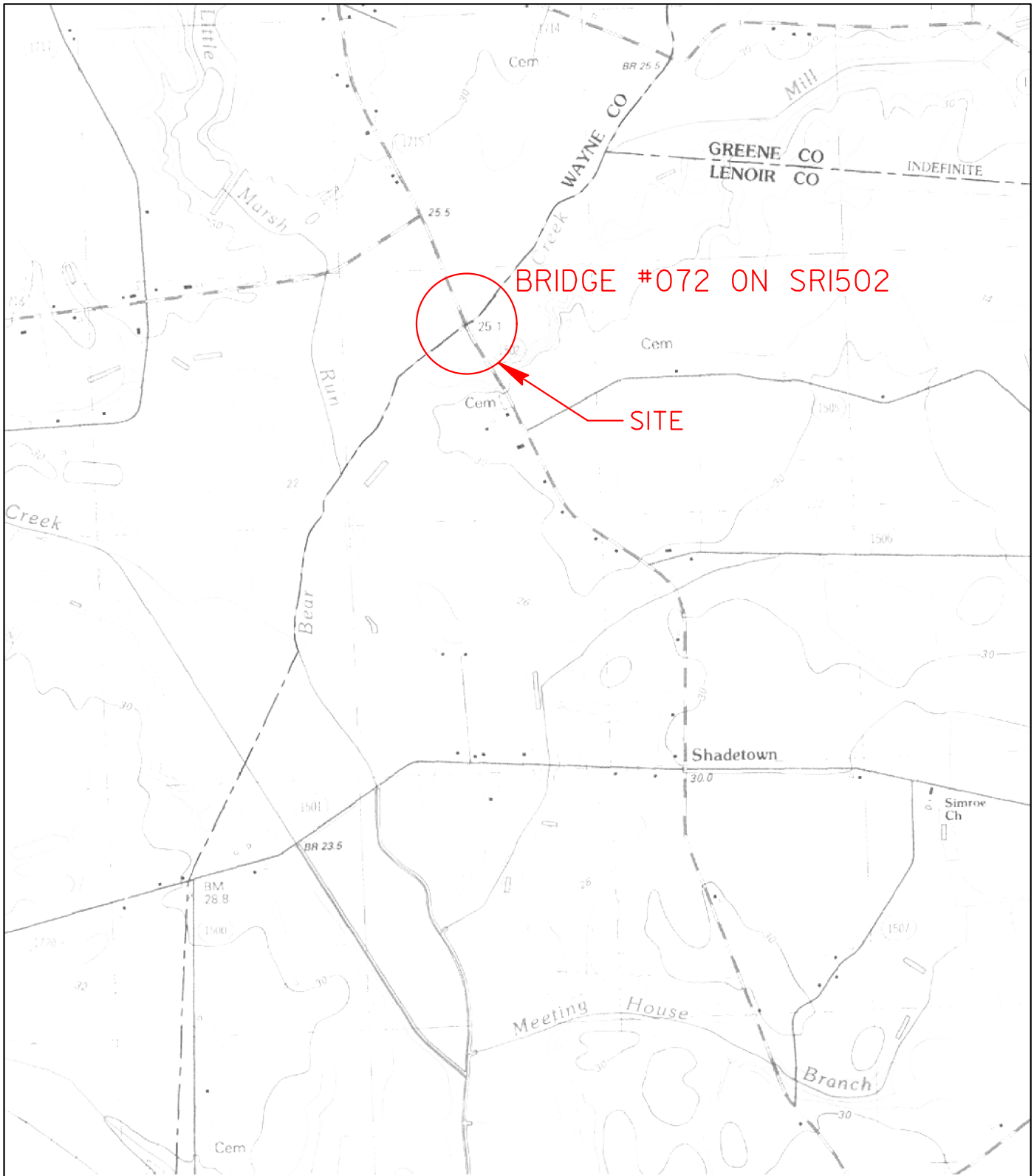
NOT TO SCALE

VICINITY
MAP

NOT TO SCALE

NCDOT
DIVISION OF HIGHWAYS
LENOIR COUNTY
PROJECT: 17BP.2.R.72 (SF-530072)
REPLACE BRIDGE #072
ON SR 1502 OVER
BEAR CREEK

8/18/17



BRIDGE #072 ON SR1502

SITE

**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.72 (SF-530072)

**REPLACE BRIDGE #072
ON SR 1502 OVER
BEAR CREEK**

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	VANDER WADE JR.	5326 FRINK SCHOOL RD LAGRANGE, NC 28551
2	BUTTERBALL, LLC	ONE BUTTERBALL LANE GARNER, NC 27529
3	ANN H. BATT	128 BOWEN ST ATLANTIC BEACH, NC 28512
4	SHIRLEY SUTTON	424 LA GRANGE ROAD LA GRANGE, NC 28551

**PERMIT DRAWING
SHEET 7 OF 7**

NCDOT
DIVISION OF HIGHWAYS
LENOIR COUNTY
PROJECT: 17BP.2.R.72 (SF-530072)
REPLACE BRIDGE #072
ON SR 1502 OVER
BEAR CREEK

8/18/17

\$DATE\$

\$(/USERNAME)\$

530072 Hyd prm buf_sht7.dgn 8/18/2017 2:34:57 PM