



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: 45575.1.1 TIP No.: B-5620 County(ies): Beaufort Page 1 of 2

General Project Information

WBS Element:	45575.1.1	TIP Number:	B-5620	Project Type:	Bridge Replacement	Date:	10/25/2017
NCDOT Contact:	Robert T. Turnbull, Environmental Services, Inc.		Contractor / Designer:		HNTB North Carolina, P.C. / James A. Byrd, PE		
Address:	4901 Trademark Dr. Raleigh, NC 27610		Address:	343 E. Six Forks Road Suite 200 Raleigh, NC 27609			
	Phone: (919) 212-1760			Phone: (919) 424-0437			
	Email: rturnbull@esinc.cc			Email: jabyrd@hntb.com			
City/Town:	Aurora		County(ies):	Beaufort			
River Basin(s):	Tar-Pamlico		CAMA County?	Yes			
Wetlands within Project Limits?	Yes						

Project Description

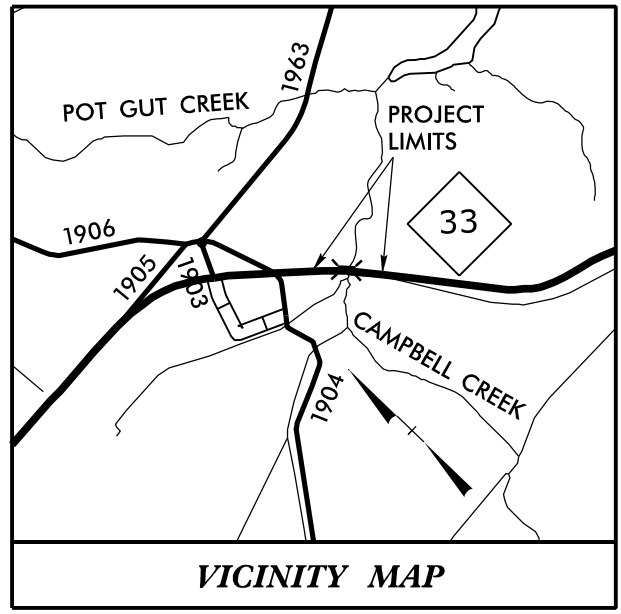
Project Length (lin. miles or feet):	0.18	Surrounding Land Use:	Rural Residential and Agriculture					
Project Built-Up Area (ac.)		Proposed Project		Existing Site				
0.6 ac.		0.5 ac.						
Typical Cross Section Description:	2 - 11' asphalt paved lanes with 2' paved shoulders, 3' grass shoulders.			2 - 9' asphalt paved lanes with grass shoulders. Wetlands and tributaries to Campbell Creek are present in all four quadrants. CAMA wetlands are distinguished from 404 wetlands.				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	480	Year:	2033	Existing:	240	Year:	2013
General Project Narrative: (Description of Minimization of Water Quality Impacts)	<p>State project B-5620 involves the replacement of Beaufort County Bridge #060030 on NC 33 over Campbell Creek. The existing bridge consists of 1 @ 25' - 6", 1 @ 24' - 11", 1 @ 25' - 1", and 1 @ 25' - 5" reinforced concrete floor and continuous I-beams on reinforced concrete caps and timber piles. It is to be replaced with a 1 @ 45' - 0", 1 @ 50' - 0" and 1 @ 45' - 0", 21" cored slab (140' total length, 33' total width) 13' downstream of the existing crossing.</p> <p>In accordance with Tar-Pamlico River Buffer Regulations, the proposed bridge does not contain deck drains. All stormwater from the bridge and approaches will be collected by a storm drainage system and discharged into the wetlands. The drainage system will outlet outside of the buffer limits in the west quadrant at -L- station 16+75 RT with the outlet pipe set at 0.3% to reduce velocity into the wetlands. No rip rap pad was specified at the outlet due to low velocity and agency's desire to minimize impacts.</p>							

Waterbody Information

Surface Water Body (1):	Campbell Creek		NCDWR Stream Index No.:	29-33-2-(2)				
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class SA					
	Supplemental Classification:		High Quality Waters (HQW) (NSW)					
Other Stream Classification:								
Impairments:								
Aquatic T&E Species?	Comments:							
NRTR Stream ID:						Buffer Rules in Effect:	Tar-Pamlico	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?				N/A
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)								

09_08/99

TIP PROJECT: B-5620



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

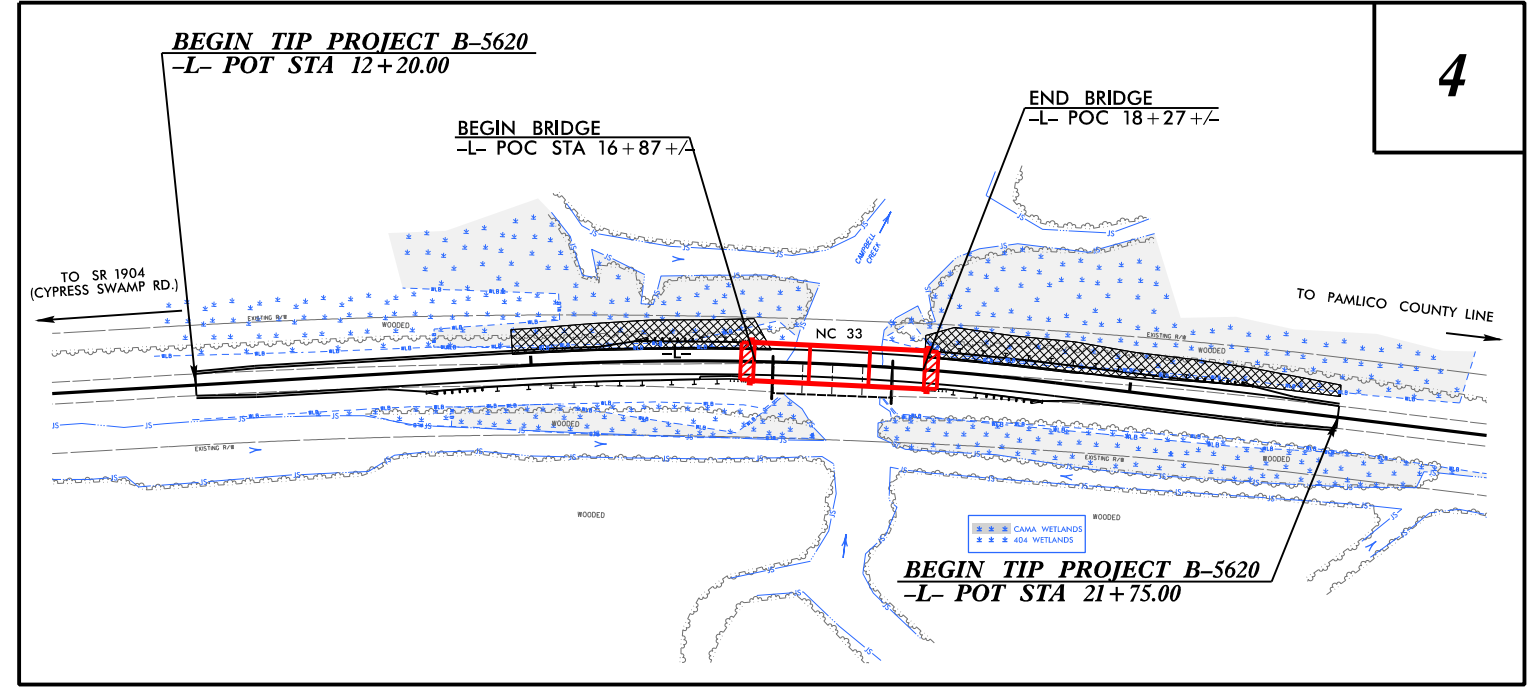
LOCATION: REPLACE BRIDGE NO. 30 OVER CAMPBELL CREEK
ON NC 33

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

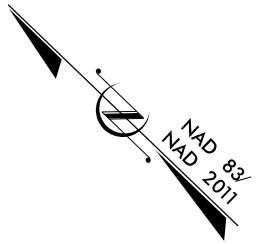
PERMIT DRAWINGS: WETLAND & STREAM IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5620	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45575.1.1		PE	

PERMIT DRAWING
SHEET 1 OF 9



4

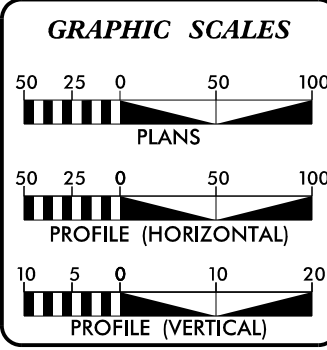


NOTES:

- CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
- THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA

ADT 2013 =	240
ADT 2033 =	480
K =	10 %
D =	60 %
T =	7 % *
V =	55 MPH
* TTST =	2% DUAL 5%
FUNC CLASS =	MAJOR COLLECTOR
REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5620 =	0.155 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5620 =	0.026 MILES
TOTAL LENGTH OF TIP PROJECT B-5620 =	0.181 MILES

Prepared In the Office of:
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 10, 2017

LETTING DATE:
OCTOBER 4, 2017

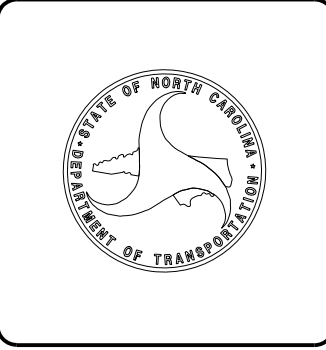
DAVID W. BASS, PE PROJECT ENGINEER
MONICA J. DUVAL PROJECT DESIGN ENGINEER
HON F. YEUNG, PE NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



10/25/2017
\\B-5620_hyd_prm_tsh.dgn
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8/17/99

SCALE: 1" = 40'

WETLAND & STREAM IMPACTS

HNTB HNTB NORTH CAROLINA, P.C.
340 E. 9th Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
B-5620	4

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 2 OF 9

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

W2
 MECHANIZED CLEARING IN WETLANDS (404) = 0.02 Ac /1024 SF
 MECHANIZED CLEARING IN WETLANDS (CAMA) = 0.04 Ac /1537 SF
 PERMANENT FILL IN WETLAND IMPACTS (404) = 0.06 Ac /2532 SF
 PERMANENT FILL IN WETLAND IMPACTS (CAMA) = 0.09 Ac /3959 SF
 EXCAVATION IN WETLANDS (404) = <0.01 Ac /410 SF
 EXCAVATION IN WETLANDS (CAMA) = <0.01 Ac /10 SF
 TEMPORARY IMPACTS IN SURFACE WATER = <0.01 Ac

SCALE: 1" = 40'

W1
 MECHANIZED CLEARING IN WETLANDS (404) = <0.01 Ac /148 SF
 MECHANIZED CLEARING IN WETLANDS (CAMA) = 0.04 Ac /1795 SF
 PERMANENT FILL IN WETLAND IMPACTS (404) = 0.01 Ac /486 SF
 PERMANENT FILL IN WETLAND IMPACTS (CAMA) = 0.12 Ac /5110 SF
 EXCAVATION IN WETLANDS (404) = <0.01 Ac /320 SF
 EXCAVATION IN WETLANDS (CAMA) = <0.01 Ac /119 SF
 TEMPORARY IMPACTS IN SURFACE WATER = 0 LF

SCALE: 1" = 40'

SCALE: 1" = 40'

W3
 MECHANIZED CLEARING IN WETLANDS (404) = 0.02 Ac /659 SF
 MECHANIZED CLEARING IN WETLANDS (CAMA) = <0.01 Ac /143 SF
 PERMANENT FILL IN WETLAND IMPACTS (404) = <0.01 Ac /119 SF
 PERMANENT FILL IN WETLAND IMPACTS (CAMA) = 0.00 Ac /0 SF
 EXCAVATION IN WETLANDS (404) = <0.01 Ac /34 SF
 EXCAVATION IN WETLANDS (CAMA) = <0.01 Ac /13 SF
 PERMANENT IMPACTS IN SURFACE WATER = <0.01 Ac

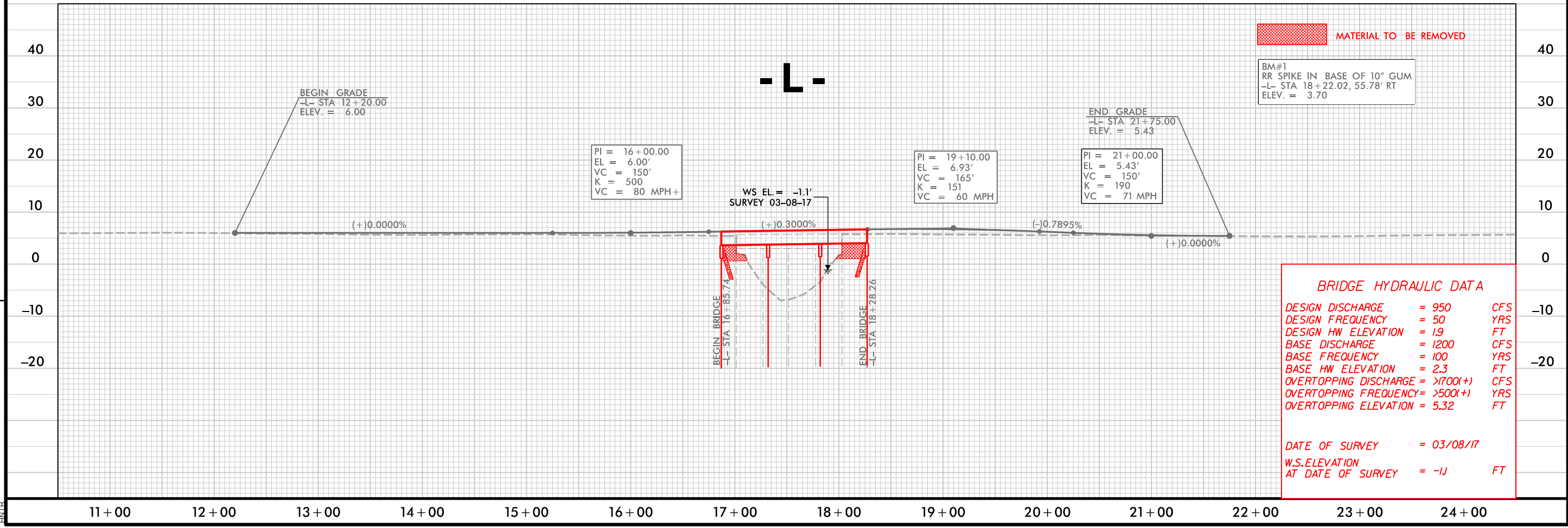
W4
 MECHANIZED CLEARING IN WETLANDS (404) = <0.01 Ac /96 SF
 MECHANIZED CLEARING IN WETLANDS (CAMA) = <0.01 Ac /89 SF
 PERMANENT FILL IN WETLAND IMPACTS (404) = 0.00 Ac /0 SF
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 EXCAVATION IN WETLANDS (404) = <0.01 Ac /35 SF
 EXCAVATION IN WETLANDS (CAMA) = 0.00 Ac /0 SF
 TEMPORARY IMPACTS IN SURFACE WATER = 0 LF

BEGIN TIP PROJECT B-5620
-L- POT STA 12+20.00

END TIP PROJECT B-5620
-L- POT STA 21+75.00

LEGEND

	DENOTES MECHANIZED CLEARING
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES CAMA WETLANDS
	DENOTES 404 WETLANDS



REVISIONS

10/25/2017 hyd.prm_pah4.dgn

8/17/99

SCALE: 1" = 40'

WETLAND & STREAM IMPACTS

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PROJECT REFERENCE NO.	SHEET NO.
B-5620	4

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 3 OF 9

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LEGEND

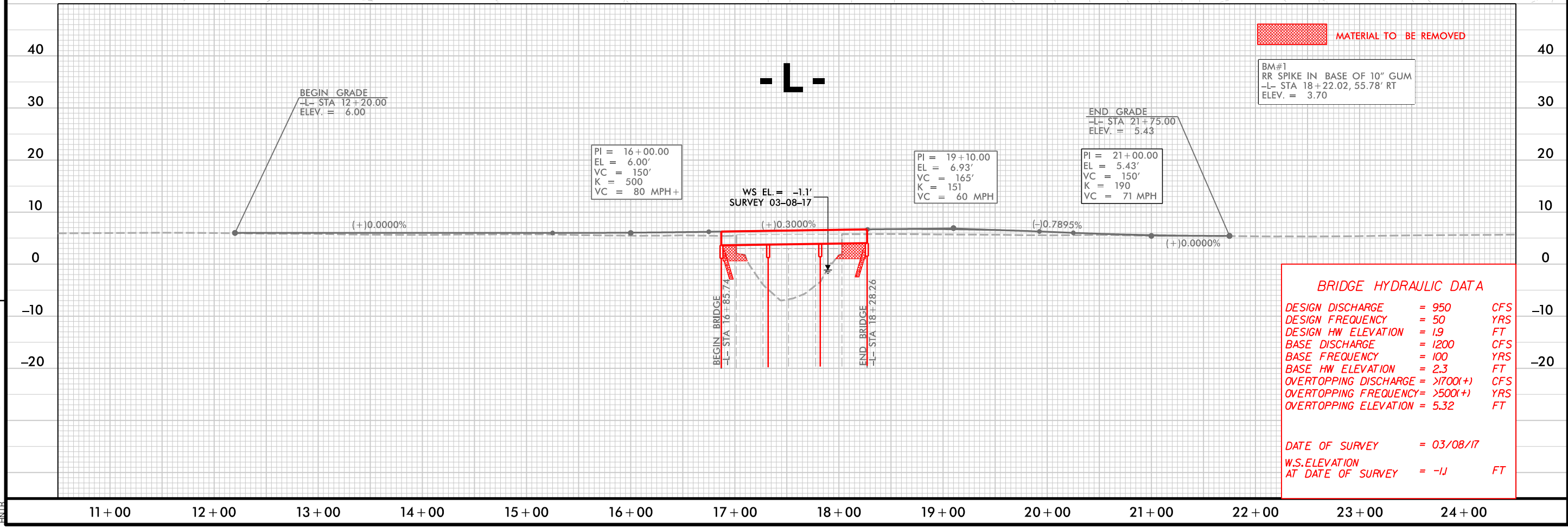
	DENOTES MECHANIZED CLEARING
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES CAMA WETLANDS
	DENOTES 404 WETLANDS

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BEGIN TIP PROJECT B-5620
-L- POT STA 12+20.00

END TIP PROJECT B-5620
-L- POT STA 21+75.00



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1.9	FT
BASE DISCHARGE	= 1200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2.3	FT
OVERTOPPING DISCHARGE	= >1700(+)	CFS
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING ELEVATION	= 5.32	FT

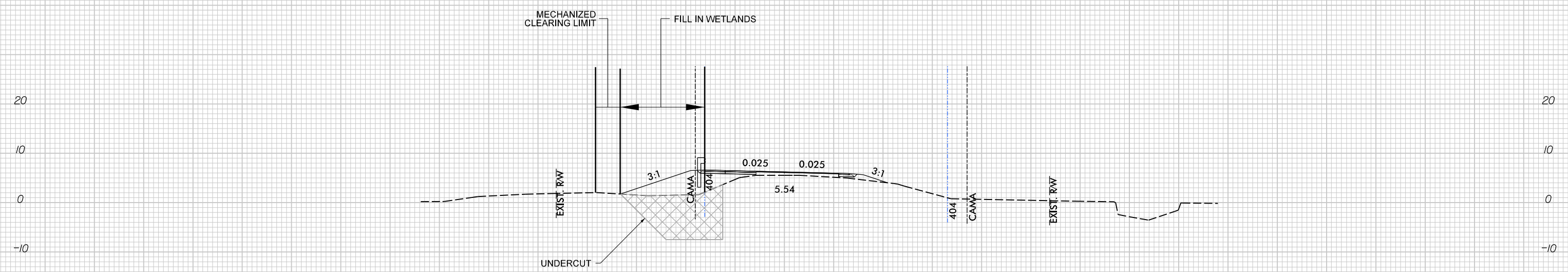
DATE OF SURVEY = 03/08/17
 W.S.ELEVATION AT DATE OF SURVEY = -1J FT

REVISIONS

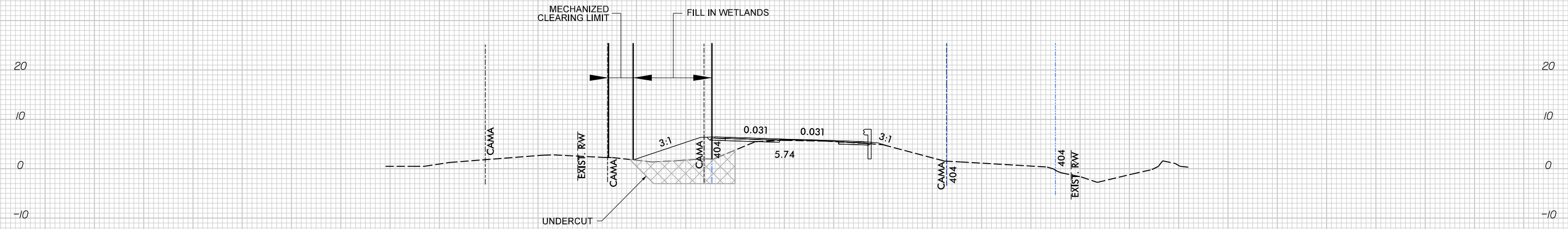
10/25/2017 hyd.prm_pah4.dgn

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

WETLAND CROSS SECTIONS



-L- 20+00.00

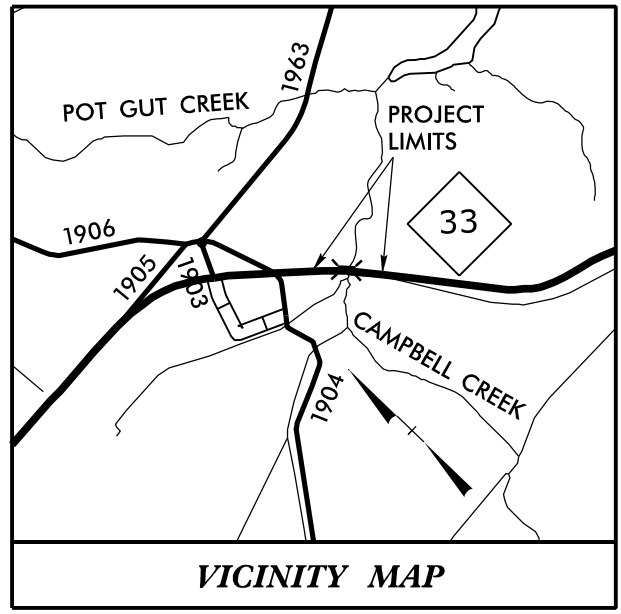


-L- 15+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

09.08/99

TIP PROJECT: B-5620



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BEAUFORT COUNTY

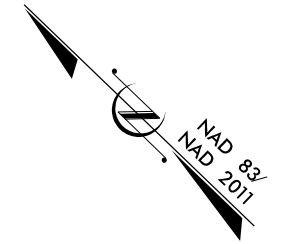
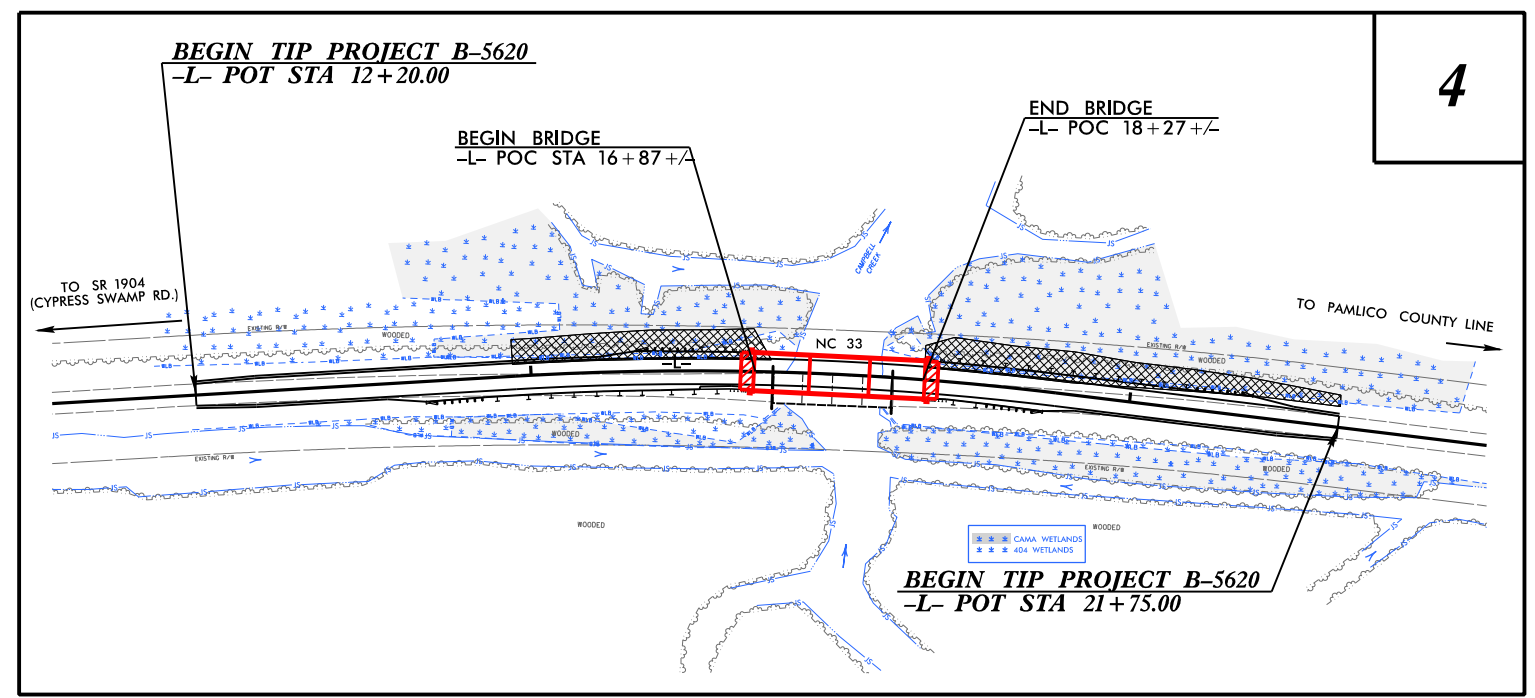
LOCATION: REPLACE BRIDGE NO. 30 OVER CAMPBELL CREEK ON NC 33

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5620	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45575.1.1		PE	

PERMIT DRAWING SHEET 5 OF 9

PERMIT DRAWINGS: BUFFER IMPACTS

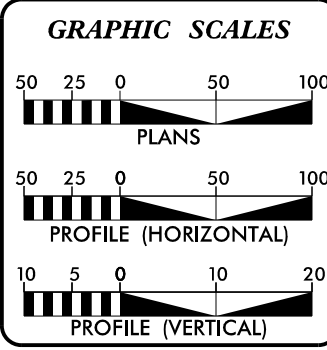


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CONTRACT:



DESIGN DATA

ADT 2013 =	240
ADT 2033 =	480
K =	10 %
D =	60 %
T =	7 % *
V =	55 MPH
* TTST =	2% DUAL 5%
FUNC CLASS =	MAJOR COLLECTOR
REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5620 =	0.155 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5620 =	0.026 MILES
TOTAL LENGTH OF TIP PROJECT B-5620 =	0.181 MILES

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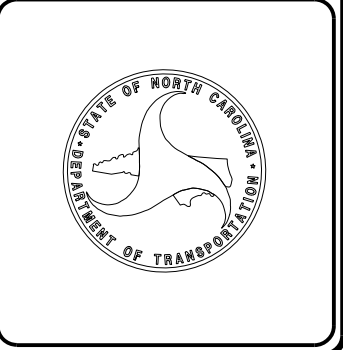
DAVID W. BASS, PE PROJECT ENGINEER
MONICA J. DUVAL PROJECT DESIGN ENGINEER
HON F. YEUNG, PE NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



10/25/2017
\\B-5620_hyd_buff_tsh.dgn
HNTB

*NOTE: THERE ARE NO IMPACTS TO BUFFERS OUTSIDE OF THE WETLANDS ALONG THE TRIB. TO CAMPBELL CREEK, THEREFORE BUFFER MITIGATION IS NOT REQUIRED.

BUFFER IMPACTS

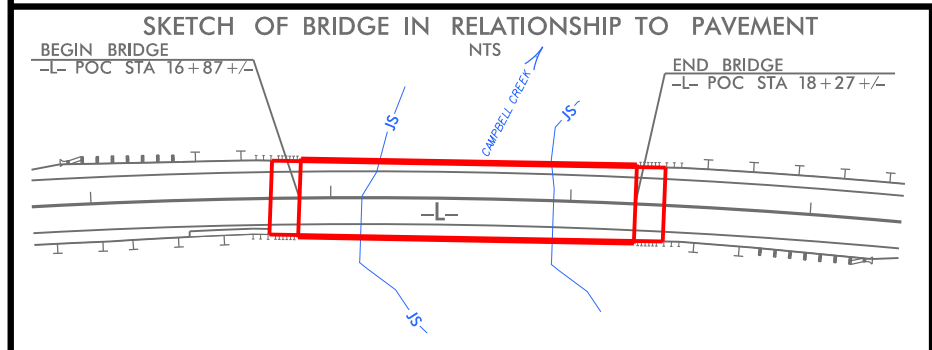
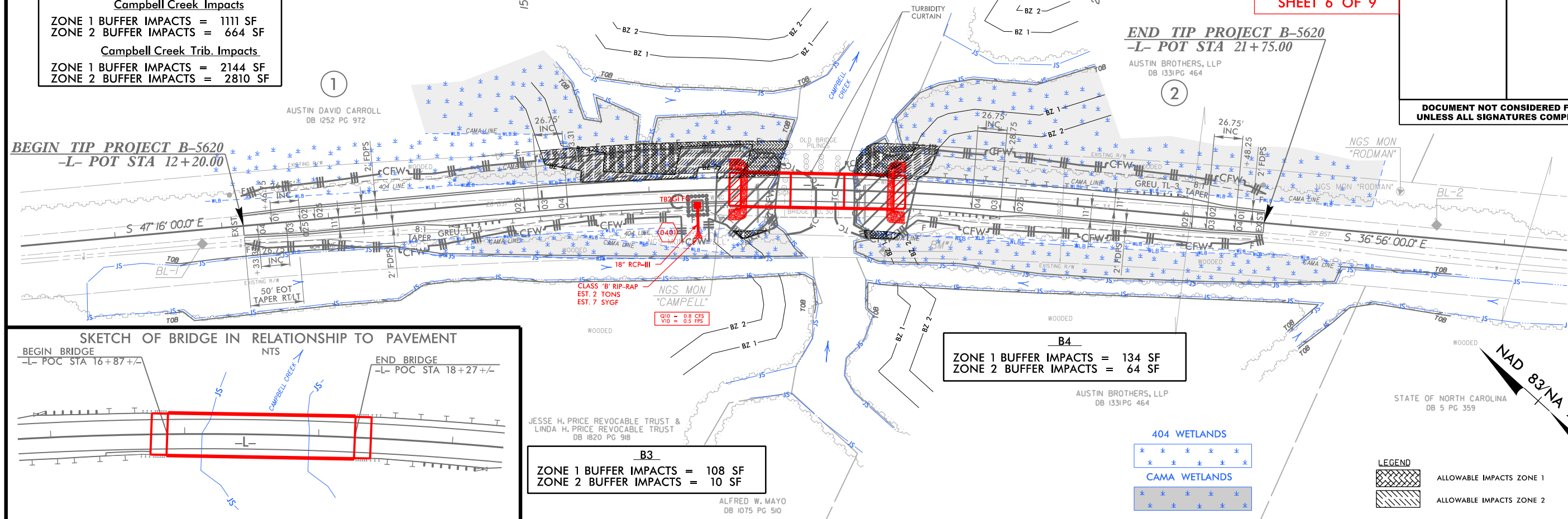
B1
 ZONE 1 BUFFER IMPACTS = 1248 SF
 ZONE 2 BUFFER IMPACTS = 859 SF

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 HNTB NORTH CAROLINA, P.C.
 340 E. 9th Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554

PROJECT REFERENCE NO. B-5620	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

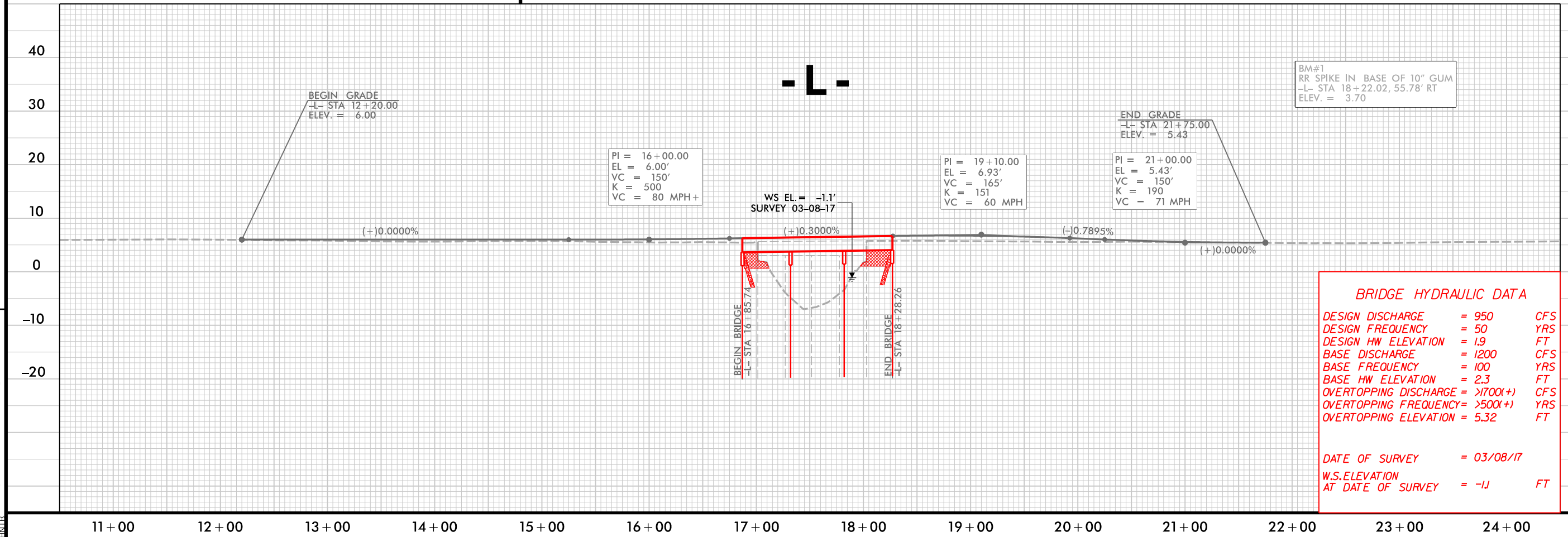
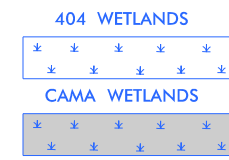
PERMIT DRAWING SHEET 6 OF 9

B2
Campbell Creek Impacts
 ZONE 1 BUFFER IMPACTS = 1111 SF
 ZONE 2 BUFFER IMPACTS = 664 SF
Campbell Creek Trib. Impacts
 ZONE 1 BUFFER IMPACTS = 2144 SF
 ZONE 2 BUFFER IMPACTS = 2810 SF



B3
 ZONE 1 BUFFER IMPACTS = 108 SF
 ZONE 2 BUFFER IMPACTS = 10 SF

B4
 ZONE 1 BUFFER IMPACTS = 134 SF
 ZONE 2 BUFFER IMPACTS = 64 SF



DATE OF SURVEY = 03/08/17
 W.S.ELEVATION AT DATE OF SURVEY = -1.1 FT

REVISIONS

10/25/2017 hyd.prm.buffer.psh4.dgn

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)
1	-L- STA. 12+20 TO STA. 21+75	21" CORED SLAB BRIDGE (404)	0.07	0.00	0.02	0.04	0.00	0	0	0	0	0
1	-L- STA. 12+20 TO STA. 21+75	21" CORED SLAB BRIDGE (CAMA)	0.21	0.00	<0.01	0.08	0.00	0	0	0	0	0
1	-L- STA. 12+20 TO STA. 21+75	21" CORED SLAB BRIDGE	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	0	0	0
TOTALS:			0.28	0.00	0.02	0.12	0.00	<0.01	<0.01	0	0	0

Notes: Total Surface Water Impacts (include removal of existing piles and proposed piles) = 46.6 sq ft.
 Temporary Impacts result from removal of existing piles and Permanent Impacts result from installation of proposed piles.
 33 existing piles at 0.8 sq ft per pile = 26.4 sq ft.
 14 proposed piles at 1.4 sq ft per pile = 20.2 sq ft.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 BEAUFORT COUNTY BRIDGE NO. 030
 B-5620

 SHEET 7 OF 9 10/25/2017

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)	WETLANDS IN BUFFERS	
		ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	-L- 15+02-17+30LT	3153	3403
	-L- 16+78 - 17+10RT	108	10
	-L- 17+91 - 18+70LT	1069	795
	-L- 18+02 - 18+37RT	113	49
TOTAL:		4443	4257

NOTE: THERE ARE NO IMPACTS TO BUFFERS OUTSIDE OF THE WETLANDS ALONG THE TRIB TO CAMPBELLS CREEK IN THE NORTHWEST QUADRENT OF THE PROJECT, THEREFORE BUFFER MITIGATION IS NOT REQUIRED.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY BRIDGE NO. 030
PROJECT: B-5620

DATE 10/25/2017
SHEET 9 OF 9