

PROJECT COMMITMENTS

T.I.P Project No. I-3819B
Proposed I-40/I-77 Interchange Area Improvements
Iredell County
WBS Element 34192.1.2

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

In addition to the Section 404 Conditions, Regional Conditions, State Consistency, North Carolina Department of Transportation's (NCDOT) Guidance for Best Management Practices for the Protection of Surface Waters, General Certification Conditions, and Section 401 Conditions for Certification, State Stormwater Permit, NCDOT has agreed to the following special commitments:

Roadway Design Unit

Wetlands: Additional area of wetlands in the southwest quadrant of the I-40/I-77 interchange will be bridged to minimize impacts. Fill slopes will not encroach into the jurisdictional wetland boundaries any more than practicable as shown in the preliminary design.

Structures over Fourth Creek will accommodate the existing Museum Greenway path: The new and widened structures at SR 1934 (Hillside Lane) extension, I-40 and I-77, and their associated ramps shall be designed to span the existing greenway that follows Fourth Creek.

Retaining walls at Pressly Elementary School and Northview Elementary School: In order to minimize the impact to the grounds of these schools, a retaining wall along the proposed shoulder of I-40 and I-77 shall be constructed in accordance with NCDOT construction standards.

The retaining wall for Northview Elementary School was constructed as part of the I-3819A project.

Noise Mitigation:

A final design noise report will be performed based on the results of the planning noise study. Noise mitigation will be provided as required in accordance with the NCDOT Noise Abatement Policy.

COMMITMENTS FROM PERMITTING

See 404 Permit and 401 Certification for special conditions developed during permitting.



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

December 14, 2021

Regulatory Division

DA No. SAW-2018-01504

Philip S. Harris III, P.E., C.P.M.
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, NC, 27699-1598

Dear Mr. Harris:

Reference the Department of the Army (DA) individual permit issued on January 21, 2020, to the North Carolina Department of Transportation (NCDOT), for impacts associated with the I-40/I-77 interchange improvements project (TIP Nos. I-3819B/U-6039), including I-40 from west of SR 2003 (Radio Road) to SR 2158 (Old Mocksville Road) and I-77 from south of SR 2321 (East Broad Street) to south of SR 2171 (Jane Sowers Road), in Iredell County, North Carolina. Reference also the modification to the permit issued on February 25, 2021 (Mod01).

On October 20, 2021, the U.S. Army Corps of Engineers (Corps) received your second request (Mod02) to modify the standard permit for the I-3819B/U-6039 project. The request included additional necessary bank stabilization, and a revised mitigation proposal. The total waters of the U.S. impacts, including utilities, for the I-3819B/U-6039 modified design are: 1.40 acres of permanent wetland impacts (including 0.33 acre mechanized clearing), 2.64 acres of temporary wetland impacts, 3,305 linear feet of permanent stream impacts, of which 1,139 linear feet are bank stabilization, and 482 linear feet of temporary stream impacts.

The Corps has completed the evaluation of your request and has determined that it is appropriate and reasonable, and no public notice is required for this modification. Therefore, the permit is modified as requested, including revised mitigation (revised Mitigation Responsibility Transfer form is enclosed), and as shown on the enclosed revised PERMIT DRAWINGS, Sheets 1 through 5, 46 through 49, 66, and 67, of 67 (I-3819B/U-6039), Rev. 10/04/2021.

For your information, the following special conditions from the original

authorization are relevant to the new compensatory mitigation requirements, and the new modified permit drawings (enclosed):

Special Conditions

1. Work Limits: All work authorized by this permit shall be performed in strict compliance with the submitted sets of plans, including submitted revisions, which are part of this permit. The Permittee shall ensure the construction design plans for this project do not deviate from the submitted permit drawings. Any additional modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers prior to any active construction in waters or wetlands.

14. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit.

All other conditions of the permit, including the permit expiration date of December 31, 2025, remain in effect as written. Should you have any questions, contact Mr. Eric Alsmeyer, via email at Eric.C.Alsmeier@usace.army.mil or by telephone at (919) 554-4884, extension 23.

FOR THE COMMANDER



Date: 2021.12.14

13:16:42 -05'00'

Monte Matthews
Lead Project Manager
Wilmington District

Enclosures

Electronic Copies Furnished with Enclosures:

Ms. Beth Harmon
NC Division of Mitigation Services
beth.harmon@ncdenr.gov

Ms. Erin Cheely
NCDOT
ekcheely@ncdot.gov

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: NCDOT

Action ID: SAW-2018-01504

Project Name: TIPS I-3819B/U-6039_I-77_I-40 Interchange_Div12 (Mod02)

County: Iredell

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor must verify that the mitigation requirements (credits) shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated bank ledger to the Permittee, the USACE Project Manager, and the Wilmington District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: 8-digit HUC and Basin: 03040102, Yadkin River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
				0.01		

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: 8-digit HUC and Basin: 03040102, Yadkin River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
				0.02		

Mitigation Site Debited: NCDMS

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

Signature of Sponsor's Authorized Representative

Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions: This form requires supplemental mitigation for Mod02 of this project, beyond the form dated February 25, 2021.

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (email: todd.tugwell@usace.army.mil).*** Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

USACE Project Manager: Eric Alsmeyer
USACE Field Office: Raleigh Regulatory Field Office
US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587
Email: eric.c.alsmeyer@usace.army.mil



USACE Project Manager Signature

December 13, 2021

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.



ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

S. DANIEL SMITH

Director

December 9, 2021

Mr. Philip S. Harris, III, P.E., CPM
Environment Analysis Unit Head
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for Proposed improvements to the I-77 and I-40 interchange in Iredell County, including Broad Street improvements, TIP I-3819B, U-6039, WBS 34192.3.2. NCDWR Project No. 20191006 v.3

Dear Mr. Harris:

Attached hereto is a modification of Certification No. WQC004203 (version 3) issued to The North Carolina Department of Transportation (NCDOT) originally dated November 19, 2019 and Addendum and Correction issued on January 20, 2020, and version 2 modification date February 12, 2021.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

DocuSigned by:

Amy Chapman

9C9886312DCD474...

S. Daniel Smith, Director

Division of Water Resources

Attachments

Electronic copy only distribution:

Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Jeff Wyatt, Division 12 Environmental Officer
Michael Turchy, NC Department of Transportation
Amanetta Somerville, US Environmental Protection Agency
Holland Youngman, US Fish and Wildlife Service
Andrea Leslie, NC Wildlife Resources Commission
Donna Hood, NC Division of Water Resources Mooresville Regional Office
File Copy



**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act
with ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 This certification authorizes the NCDOT to impact an additional jurisdictional wetlands and jurisdictional streams in Iredell County as listed below in red. The project shall be constructed pursuant to the modification dated received October 20, 2021. The additional authorized impacts are as described below:

Site	Bank Stabilization (linear feet)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
<u>2</u> 16+70-21+50YRPA	115 42				10 20	125 62	
<u>7A</u>	19				21	40	

Wetland Impacts in the Yadkin-PeeDee River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
<u>2</u> 16+70-21+50 YRPA	0.02 0.04	0.62 0.61		0.02	0		0.66 0.65

The application provides adequate assurance that the discharge of fill material into the waters of the Catawba River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received October 20, 2021. All the authorized activities and conditions of certification associated with the original Water Quality Certification and subsequent modifications dated November 19, 2019, January 30, 2020 and November 24, 2020 still apply except where superseded by this certification. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

1. Exemption for pipe burial at Permitted Sites 16, 17, 18, 19, 21, 22, 24, 25, and 27 are granted as requested based on the condition of the existing pipe. The existing pipes are perched and meeting burial requirements will be impossible within current right of way lines. However, the permittee will be expected to incorporate acceptable stream structures, such as rock ladders, at these sites to restore aquatic passage to the maximum extent practicable.
2. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated November 19, 2019 and subsequent modification dated January 30, 2020 still apply except where superseded by this certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center

This the 12th day of February 2021

DIVISION OF WATER RESOURCES

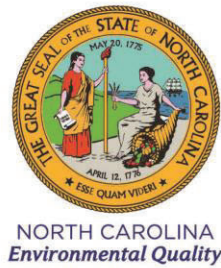
DocuSigned by:

Amy Chapman

S. Daniel Smith, Director

WQC No. 004203

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
S. DANIEL SMITH
Director



NCDWR Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____
Date _____



09/28/19

TIP PROJECT: I-3819BU-6039

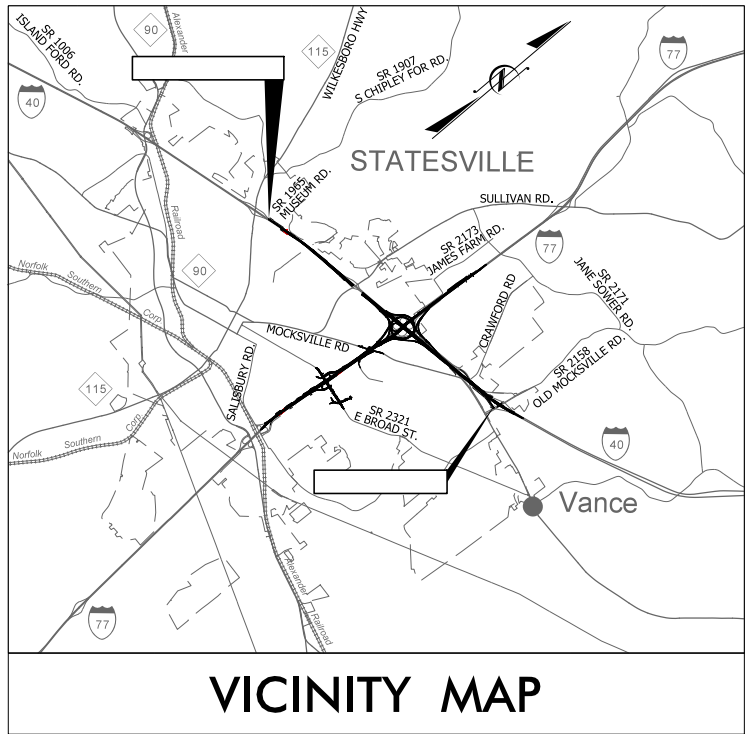
PROJECT: 34192.1.2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

IREDELL COUNTY

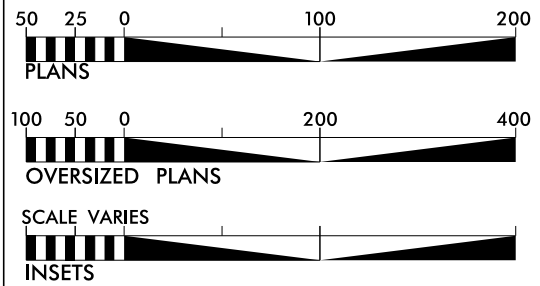
LOCATION: I-40/I-77 INTERCHANGE INCLUDING I-40 FROM WEST OF SR 2003 (RADIO RD.) TO SR 2158 (OLD MOCKSVILLE RD.) & I-77 FROM SOUTH OF SR 2321 (EAST BROAD ST.) TO SOUTH OF SR 2171 (JANE SOWERS RD.)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, RETAINING WALLS, NOISE WALLS, AND TRAFFIC CONTROL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-3819BU-6039	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34192.1.2	IMS-40-2(124)	P.E.	
34192.3.2	N/A	DESIGN BUILD	



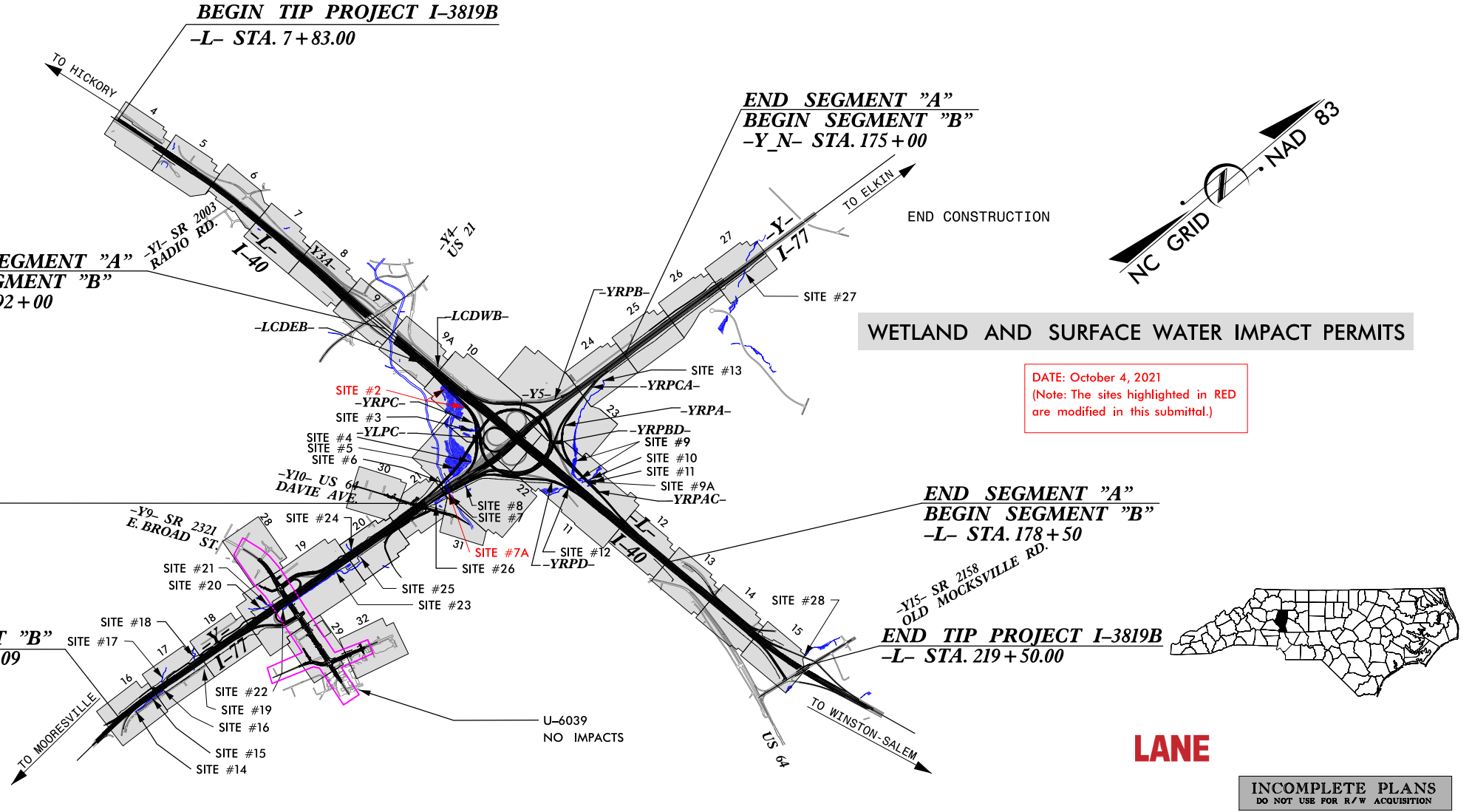
VICINITY MAP

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF STATESVILLE AND THE TOWNSHIP OF BETHANY



PERMIT DRAWING
SHEET 1 OF 67
Rev. 10/04/2021

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES



WETLAND AND SURFACE WATER IMPACT PERMITS

DATE: October 4, 2021
(Note: The sites highlighted in RED are modified in this submittal.)

LANE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

GRAPHIC SCALES

SEE ABOVE

DESIGN DATA	
I-40	I-77
ADT 2018 = 57,300	62,900
ADT 2040 = 72,500	77,500
DHV = 5,800	6,200
D = 55 %	55 %
T = 16 % *	19 % **
V = 60 MPH	60 MPH
* TTST 13 + DUAL 3 (I-40)	
** TTST 16 + DUAL 3 (I-77)	
CLASSIFICATION: INTERSTATE	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT I-3819B	= 3.885
LENGTH STRUCTURES TIP PROJECT I-3819B	= 0.124
TOTAL LENGTH OF TIP PROJECT I-3819B	= 4.009

Prepared in the Office of:
WSP
1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203
NC LIC NO. F-0165

2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: OCTOBER 30, 2018	CHRISTOPHER D. DAVIS, P.E. PROJECT ENGINEER
LETTING DATE: OCTOBER 30, 2018	ERIC W. SECKINGER, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

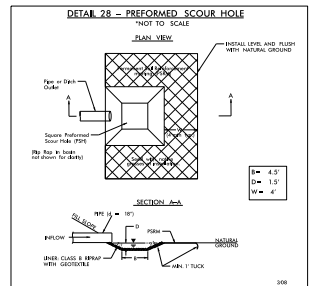
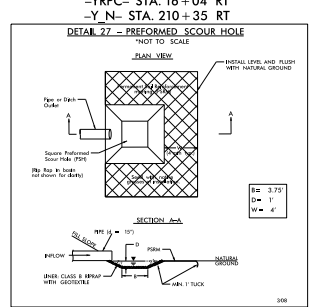
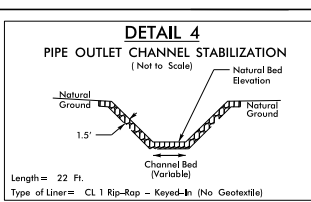
SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

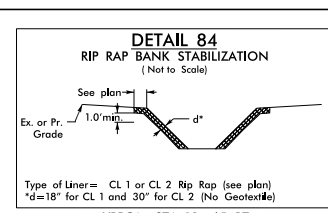
STATE HIGHWAY DESIGN ENGINEER P.E.

9/30/2021 G:\projects\wise\project\wiseint\wsp...victoria.kohlwey\d0339329\13819_hyd_prm_TSH.dgn USVK677148

6/2/2021
-MATCHLINE- STA. 106 + 50.00 -L- SEE SHEET NO. 9A
10 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
15/16/2021
C:\Users\jgibson\OneDrive\Documents\1513333333\1513333333.dwg



-Y-LT-		-Y-RT-		-Y-RPC-		-Y-RPCB-	
PI Sta 334+86.61	PI Sta 337+98.63	PI Sta 344+30.02	PI Sta 346+71.0	PI Sta 347+44.1	PI Sta 358+44.78	PI Sta 59+35.20	
$\Delta = 8' 29" 43.8"$ (LT)	$\Delta = 2' 34" 41.5"$	$\Delta = 2' 57" 48.9"$	$\Delta = 2' 19" 17.2"$ (RT)	$\Delta = 2' 57" 48.9"$	$\Delta = 9' 49" 33.0"$ (LT)	$\Delta = 5' 07" 18.7"$	
D = 154' 35.5'	Ls = 270.00'	Ls = 240.00'	Ls = 270.00'	Ls = 240.00'	Ls = 220.00'	Ls = 144.00'	
T = 222.82'	LT = 180.00'	LT = 180.00'	T = 47.00'	T = 47.00'	T = 264.38'	LT = 96.00'	
R = 3,000.00'	ST = 90.02'	ST = 80.02'	R = 2,330.00'	R = 2,330.00'	R = 833.00'	ST = 48.03'	
SE = 06	DS = 60 MPH	DS = 60 MPH	SE = 06	DS = 60 MPH	SE = 06	DS = 60 MPH	



SITE #3 INSET

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

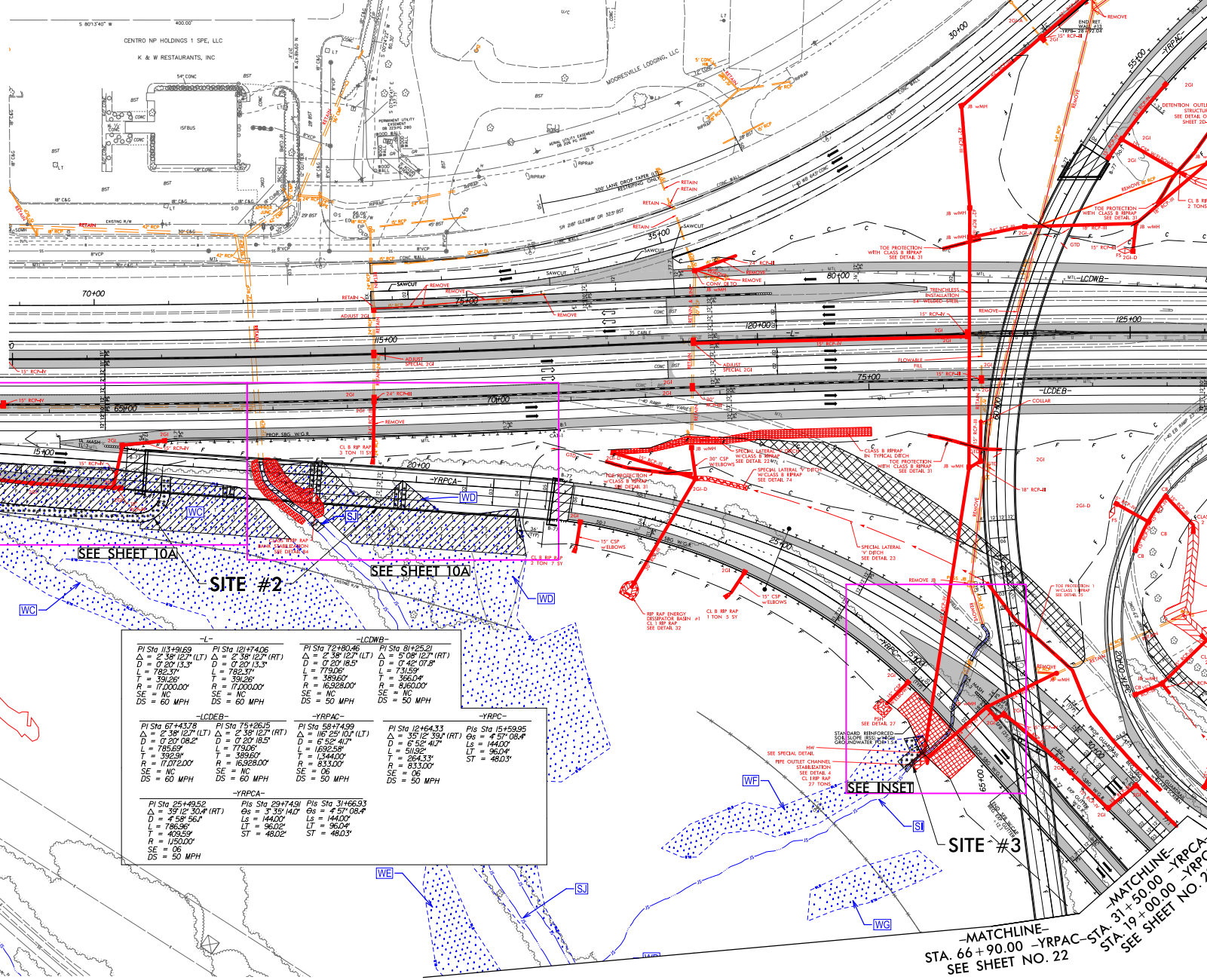
GRAPHIC SCALE - INSET

wsp 1881 Morehead Square Dr., Suite 610, Charlotte, NC 28213
NC LIC. NO. E-0165

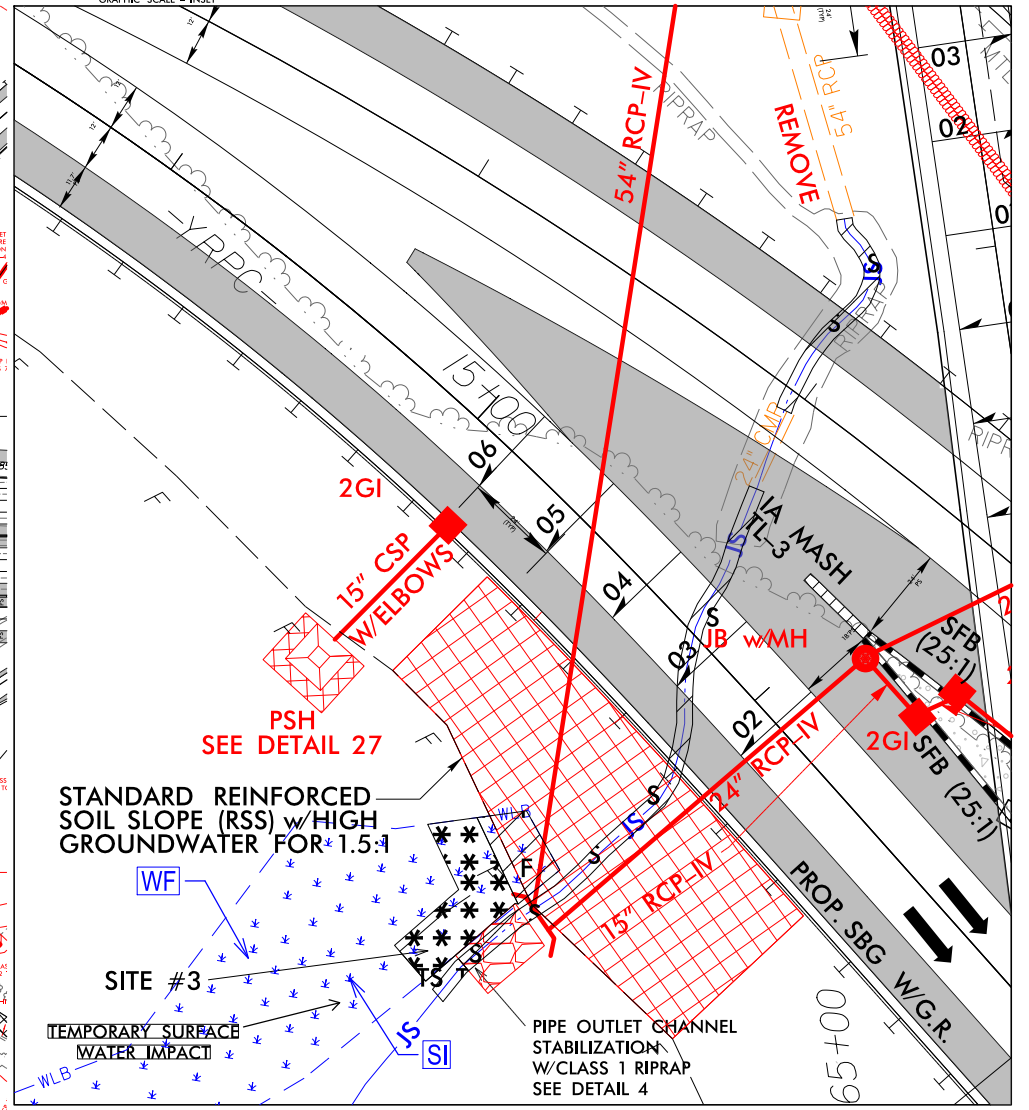
PROJECT REFERENCE NO. 1-38198
SHEET NO. 10

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-		-LCWB-		-Y-RPC-		-Y-RPCB-	
PI Sta 113+93.69	PI Sta 121+74.06	PI Sta 76+80.46	PI Sta 81+25.21	PI Sta 87+43.78	PI Sta 75+26.15	PI Sta 59+74.99	PI Sta 15+59.95
$\Delta = 2' 58" 12.7"$ (LT)	$\Delta = 2' 58" 12.7"$ (RT)	$\Delta = 2' 58" 12.7"$ (LT)	$\Delta = 2' 58" 12.7"$ (RT)	$\Delta = 2' 58" 12.7"$ (LT)	$\Delta = 2' 58" 12.7"$ (RT)	$\Delta = 2' 58" 12.7"$ (LT)	$\Delta = 2' 58" 12.7"$ (RT)
D = 0' 20" 13.3"	D = 0' 20" 13.3"	D = 0' 20" 13.3"	D = 0' 20" 13.3"	D = 0' 20" 13.3"	D = 0' 20" 13.3"	D = 0' 20" 13.3"	D = 0' 20" 13.3"
L = 782.57'	L = 782.57'	L = 782.57'	L = 782.57'	L = 782.57'	L = 782.57'	L = 782.57'	L = 782.57'
T = 392.89'	T = 392.89'	T = 392.89'	T = 392.89'	T = 392.89'	T = 392.89'	T = 392.89'	T = 392.89'
R = 17,000.00'	R = 17,000.00'	R = 16,928.00'	R = 16,928.00'	R = 833.00'	R = 833.00'	R = 833.00'	R = 833.00'
SE = NC	SE = NC	SE = NC	SE = NC	SE = NC	SE = NC	SE = NC	SE = NC
DS = 60 MPH	DS = 60 MPH	DS = 60 MPH	DS = 60 MPH	DS = 60 MPH	DS = 60 MPH	DS = 60 MPH	DS = 60 MPH



PERMIT DRAWING
SHEET 2 OF 67
 Rev. 10/04/2021

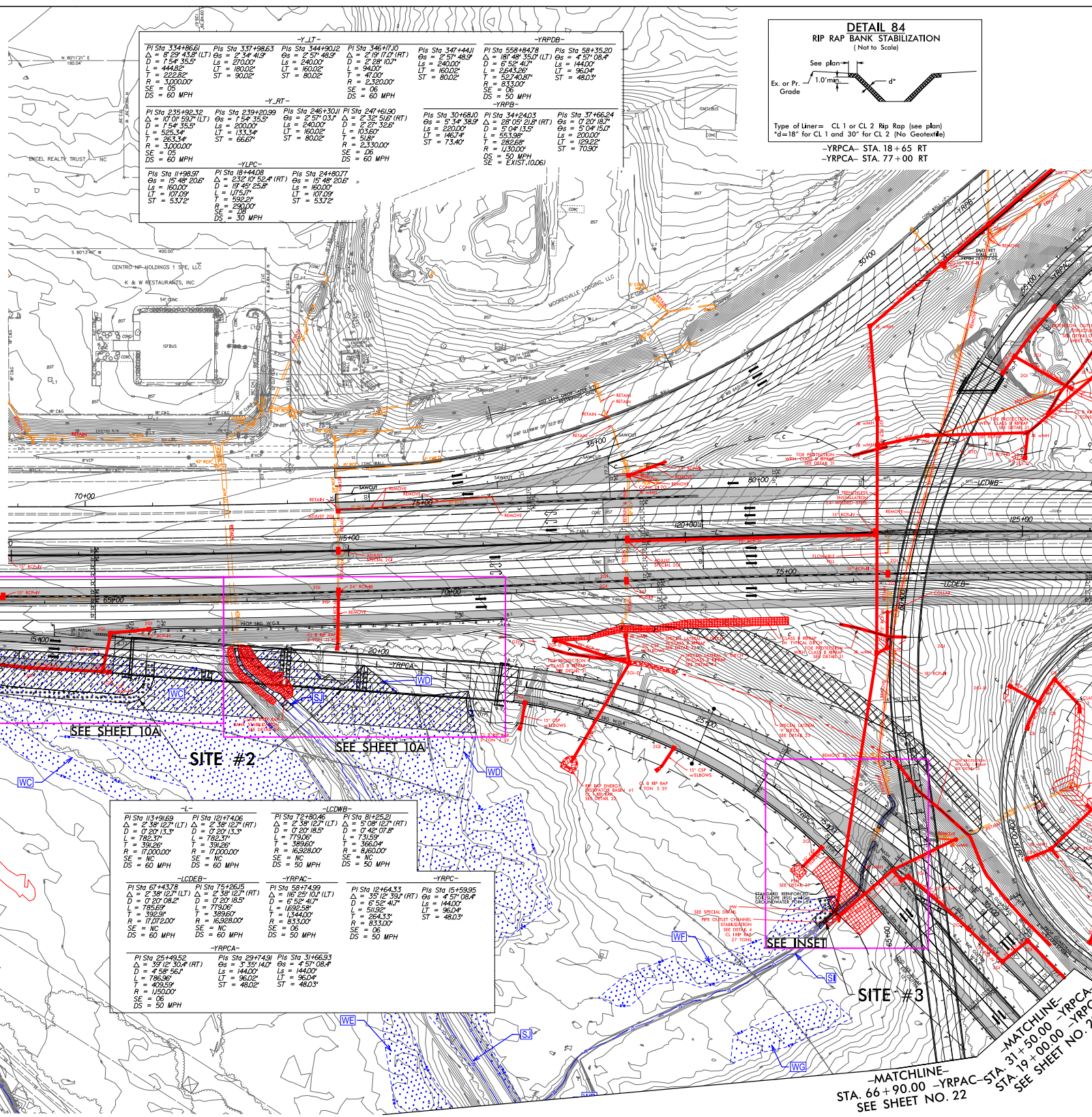
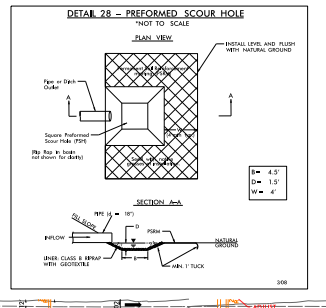
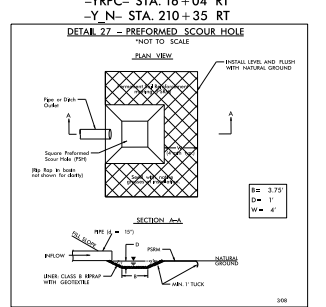
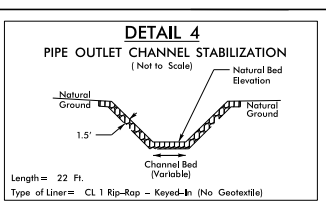
LOCATION _____

TP NO. _____ COUNTY BEG. _____

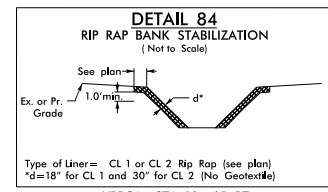
DESIGNED BY: _____ DATE: _____

CHECKED BY: _____ DATE: _____

6/22/2021
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 01/16/2021
 C:\Users\jgibson\OneDrive\Documents\Projects\2021\10060\10060.dwg



-Y-RT-		-Y-LT-		-Y-RPDB-	
PI Sta 334+86.61	PI Sta 337+98.63	PI Sta 344+90.02	PI Sta 346+71.0	PI Sta 347+44.1	PI Sta 358+44.78
$\Delta = 2' 29'' 43.8''$ (LT)	$\Delta = 2' 34'' 41.5''$	$\Delta = 2' 57'' 48.9''$	$\Delta = 2' 19'' 17.2''$ (RT)	$\Delta = 2' 57'' 48.9''$	$\Delta = 5' 52'' 41.7''$
$D = 144.00'$	$D = 270.00'$	$D = 840.00'$	$D = 940.00'$	$D = 240.00'$	$D = 5' 52'' 41.7''$
$L = 144.00'$	$L = 270.00'$	$L = 840.00'$	$L = 940.00'$	$L = 240.00'$	$L = 5' 52'' 41.7''$
$T = 222.82'$	$T = 180.00'$	$T = 80.02'$	$T = 47.00'$	$T = 83.300'$	$T = 48.03'$
$SE = 330.000'$	$ST = 90.02'$	$ST = 80.02'$	$ST = 2,330.00'$	$SE = 58'$	$ST = 58'$
$DS = 60$ MPH	$DS = 60$ MPH	$DS = 60$ MPH	$DS = 60$ MPH	$DS = 60$ MPH	$DS = 60$ MPH



SITE #3 INSET

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

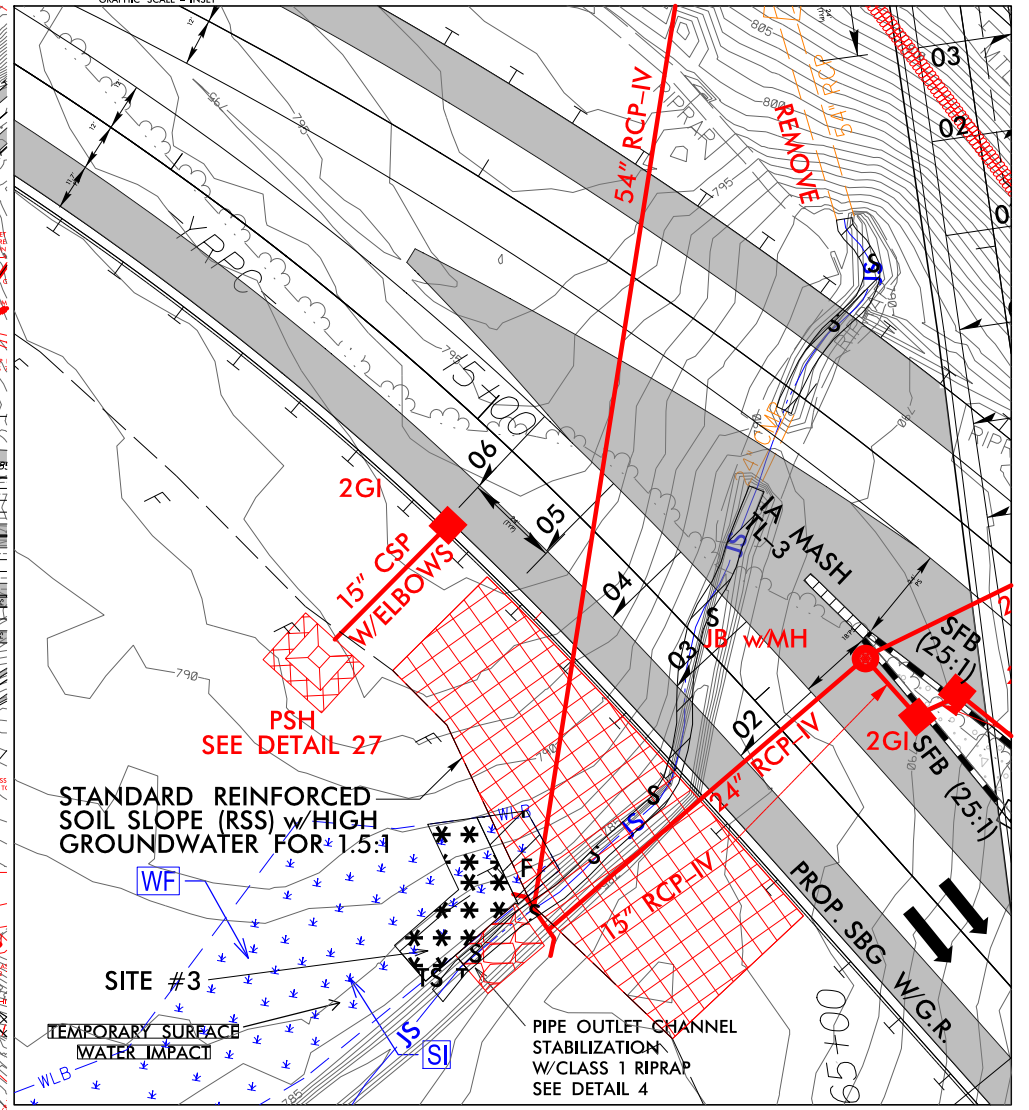
GRAPHIC SCALE - INSET

wsp 1881 Morehead Square Dr., Suite 610, Charlotte, NC 28213
 NC LIC. NO. E-0165

PROJECT REFERENCE NO. 1-38198
 SHEET NO. 10

ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

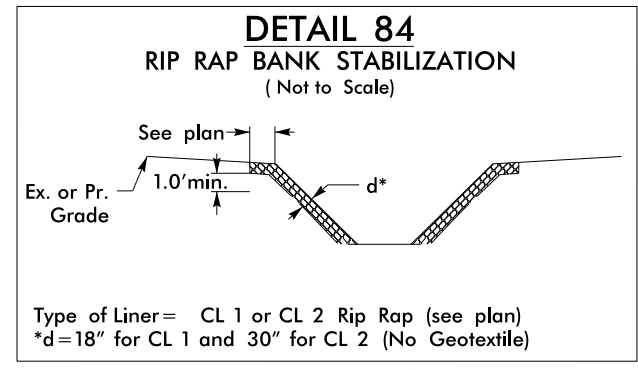
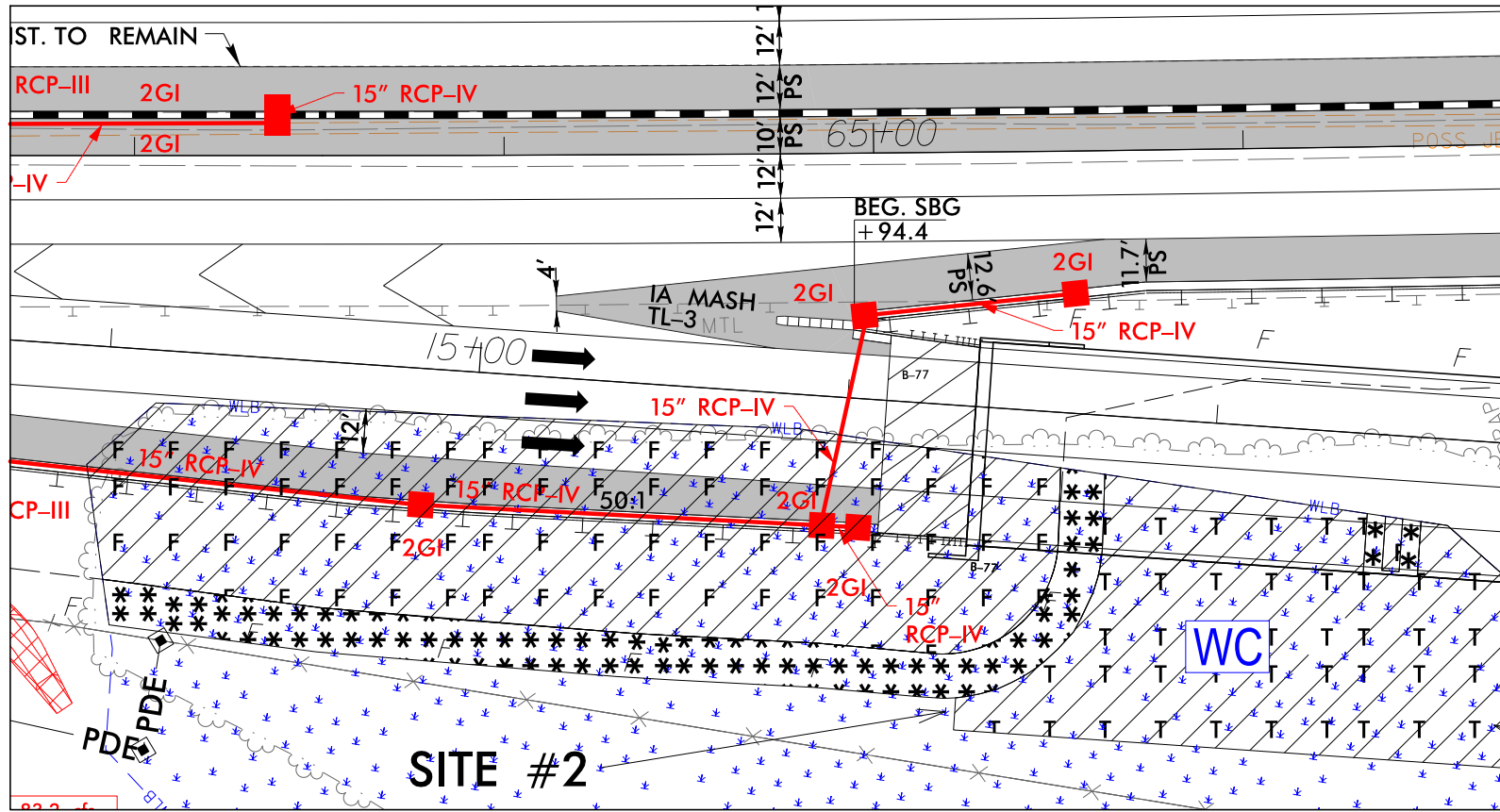


PERMIT DRAWING
SHEET 3 OF 67
 Rev. 10/04/2021

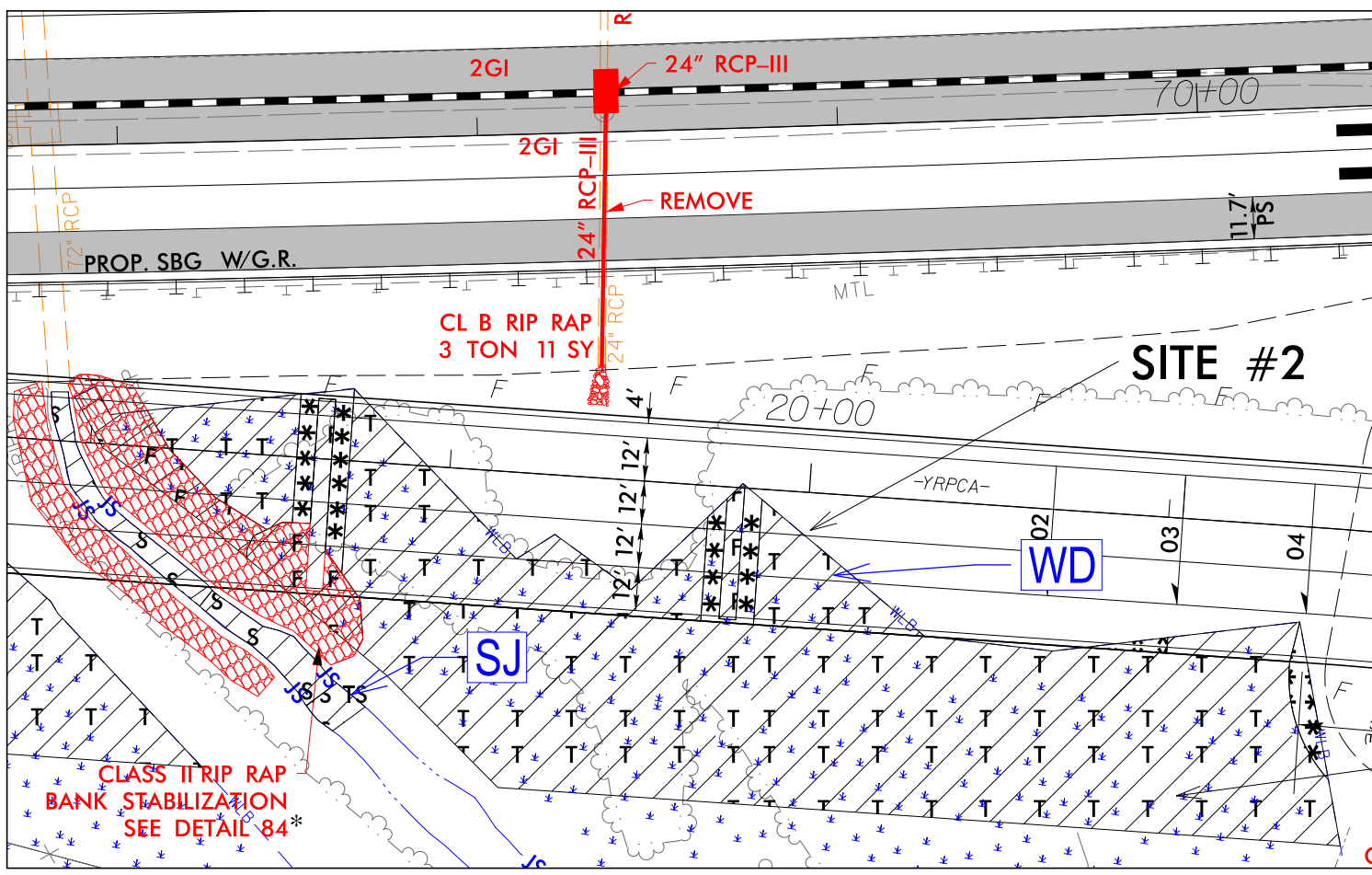
LOCATION	
TP NO. / SHEET	COUNTY / BEG. / END
DESIGNED BY	C. GIBSON
CHECKED BY	D. ANDREWS
DATE	10/04/2021

SITE #2

PROJECT REFERENCE NO. I-3819B	SHEET NO. 10A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-YRPCA- STA. 18+65 RT*
-YRPCA- STA. 77+00 RT



TEMPORARY FILL
IN WETLAND
(MATTING FOR
CONSTRUCTION
ACCESS - BRIDGE
STRUCTURE #12)

PERMIT DRAWING
SHEET 4 OF 67
Rev. 10/04/2021

*NOTE: RIPRAP WAS INSTALLED
IN THE FIELD THROUGH COORDINATION
WITH NCDWR. NO RIPRAP WAS PLACED
IN STREAM BED.

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND

NC GRID NAD 8395

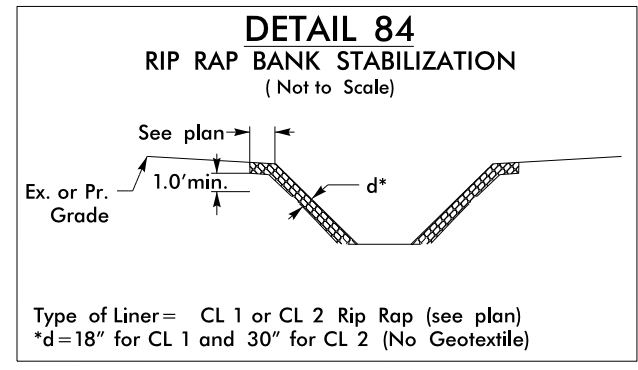
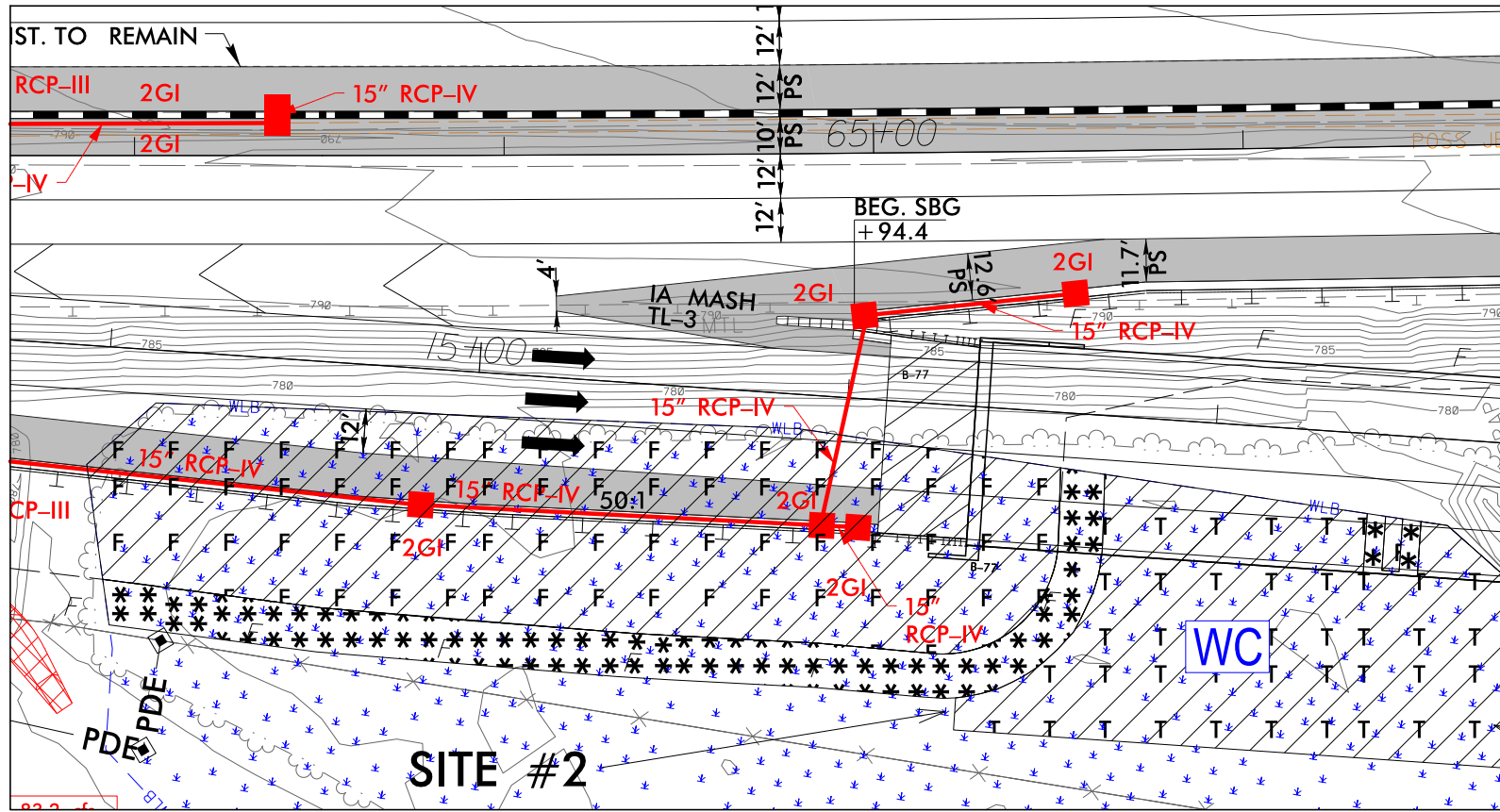


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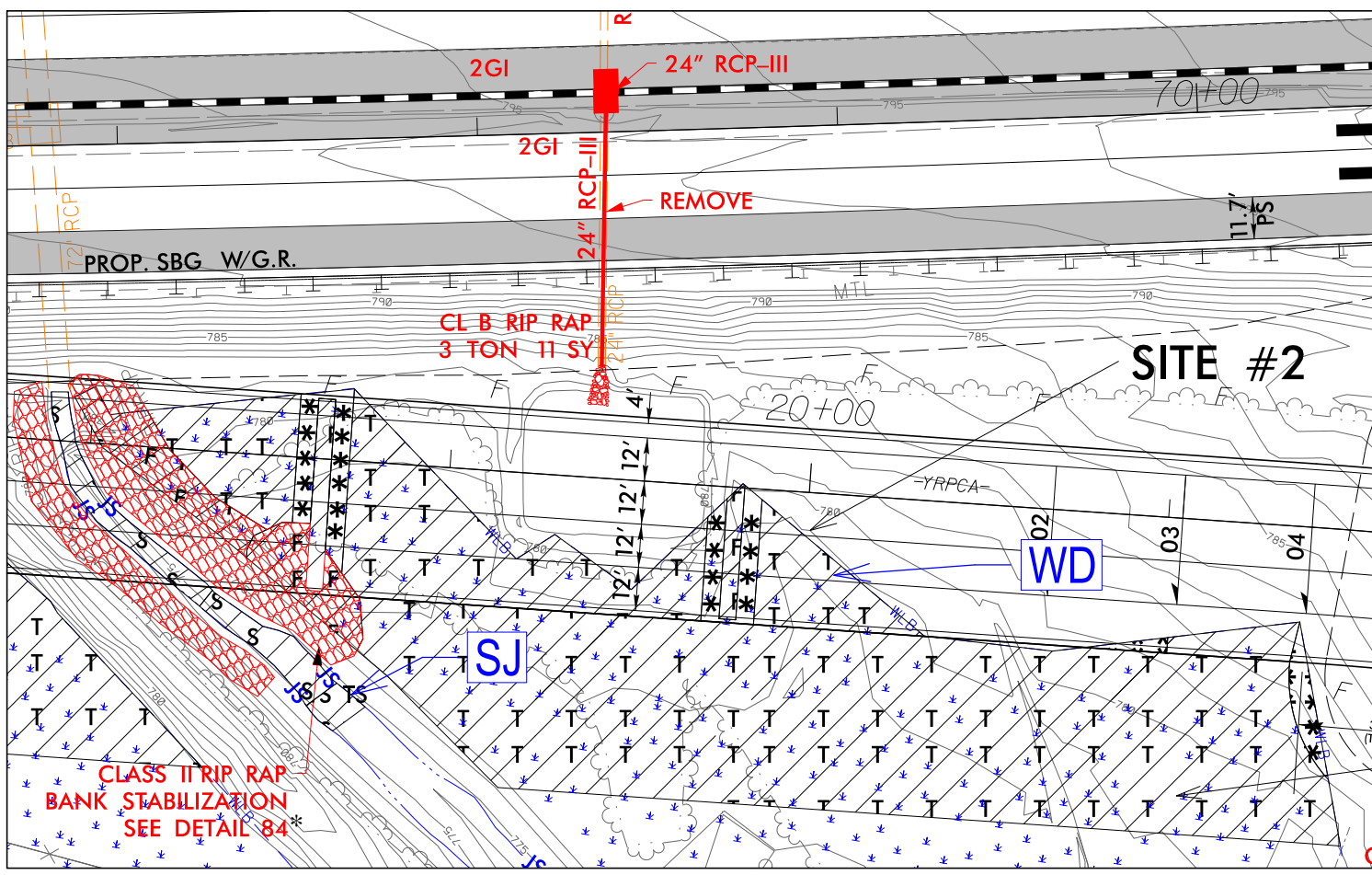
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15/16/2021

SITE #2

PROJECT REFERENCE NO. 1-3819B	SHEET NO. 10A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



Type of Liner = CL 1 or CL 2 Rip Rap (see plan)
*d=18" for CL 1 and 30" for CL 2 (No Geotextile)
-YRPCA- STA. 18+65 RT*
-YRPCA- STA. 77+00 RT



TEMPORARY FILL
IN WETLAND
(MATTING FOR
CONSTRUCTION
ACCESS - BRIDGE
STRUCTURE #12)

**PERMIT DRAWING
SHEET 5 OF 67
Rev. 10/04/2021**

*NOTE: RIPRAP WAS INSTALLED
IN THE FIELD THROUGH COORDINATION
WITH NCDWR. NO RIPRAP WAS PLACED
IN STREAM BED.

TEMPORARY FILL
IN WETLAND
(MATTING FOR
CONSTRUCTION
ACCESS - BRIDGE
STRUCTURE #12)

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND



GRAPHIC SCALE - INSET

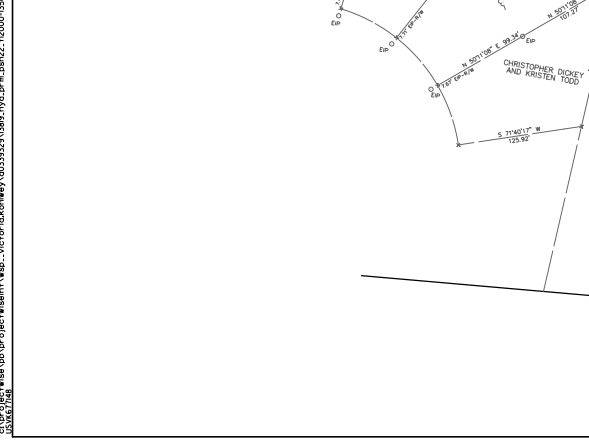
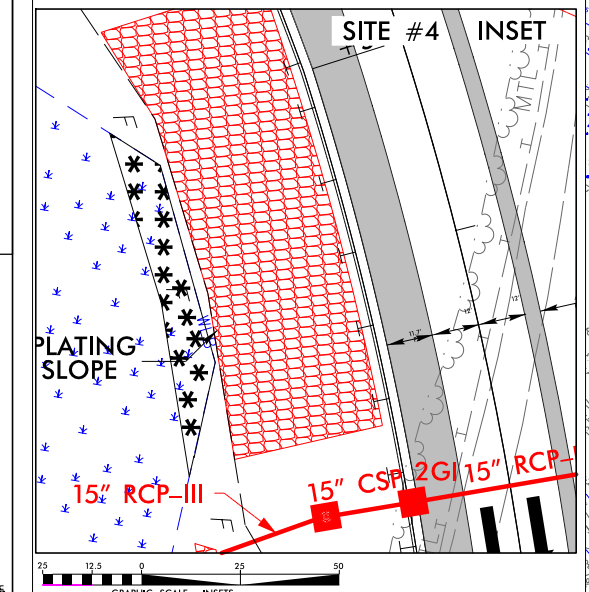
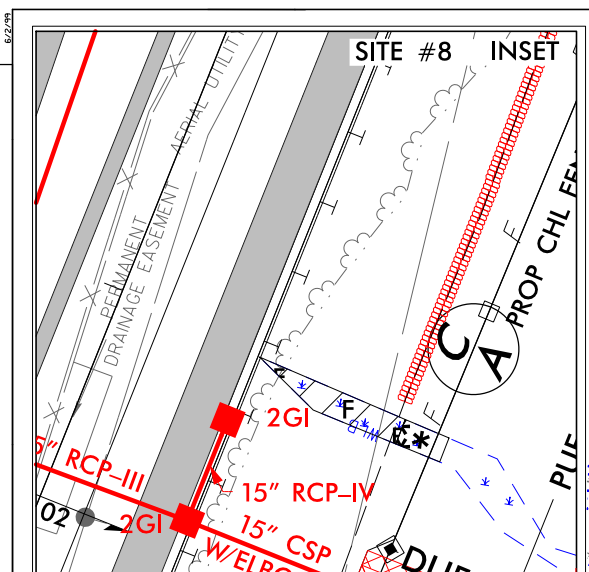
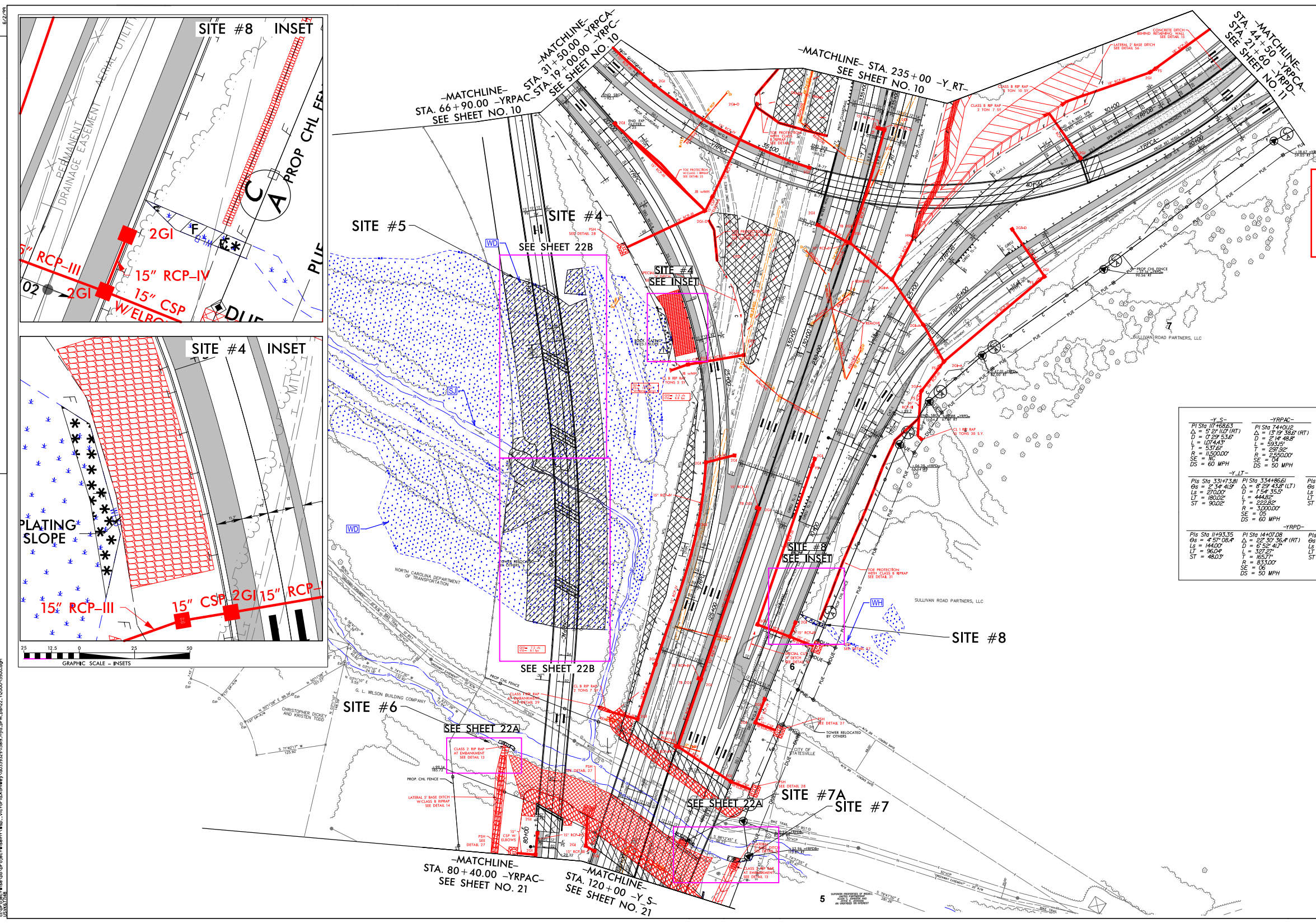
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15/16/2021

PERMIT DRAWING
SHEET 46 OF 67
Rev. 10/04/2021

-Y S-		-YRPAC-		-Y RT-		-YRPDB-	
PI Sta 11+656.3	PI Sta 74+012	PI Sta 232+62.32	PI Sta 275+92.32	PI Sta 20+250.4	PI Sta 24+662.7	PI Sta 28+270.3	PI Sta 30+959.4
Δ = 2° 31' 10.3" (RT)	Δ = 1° 19' 52.2" (RT)	Δ = 1° 54' 35.5"	Δ = 10° 07' 59.7" (LT)	Δ = 4° 57' 08.4"	Δ = 5° 52' 40.2"	Δ = 4° 57' 08.4"	Δ = 4° 57' 08.4"
D = 7° 29' 53.6"	D = 2° 14' 48.8"	D = 2000.0'	D = 1° 54' 35.5"	D = 1440.0'	D = 6° 52' 40.2"	D = 1440.0'	D = 1440.0'
L = 1074.43'	L = 297.92'	L = 444.32'	L = 365.34'	L = 96.04'	L = 736.07'	L = 96.04'	L = 1440.0'
T = 537.62'	T = 297.92'	T = 297.92'	T = 263.34'	T = 393.37'	T = 393.37'	T = 393.37'	T = 393.37'
R = 115000.0'	R = 255000.0'	R = 30000.0'	R = 30000.0'	R = 30000.0'	R = 30000.0'	R = 30000.0'	R = 30000.0'
SE = 06	SE = 14	SE = 05	SE = 05	SE = 06	SE = 06	SE = 06	SE = 06
DS = 60 MPH	DS = 50 MPH	DS = 60 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH

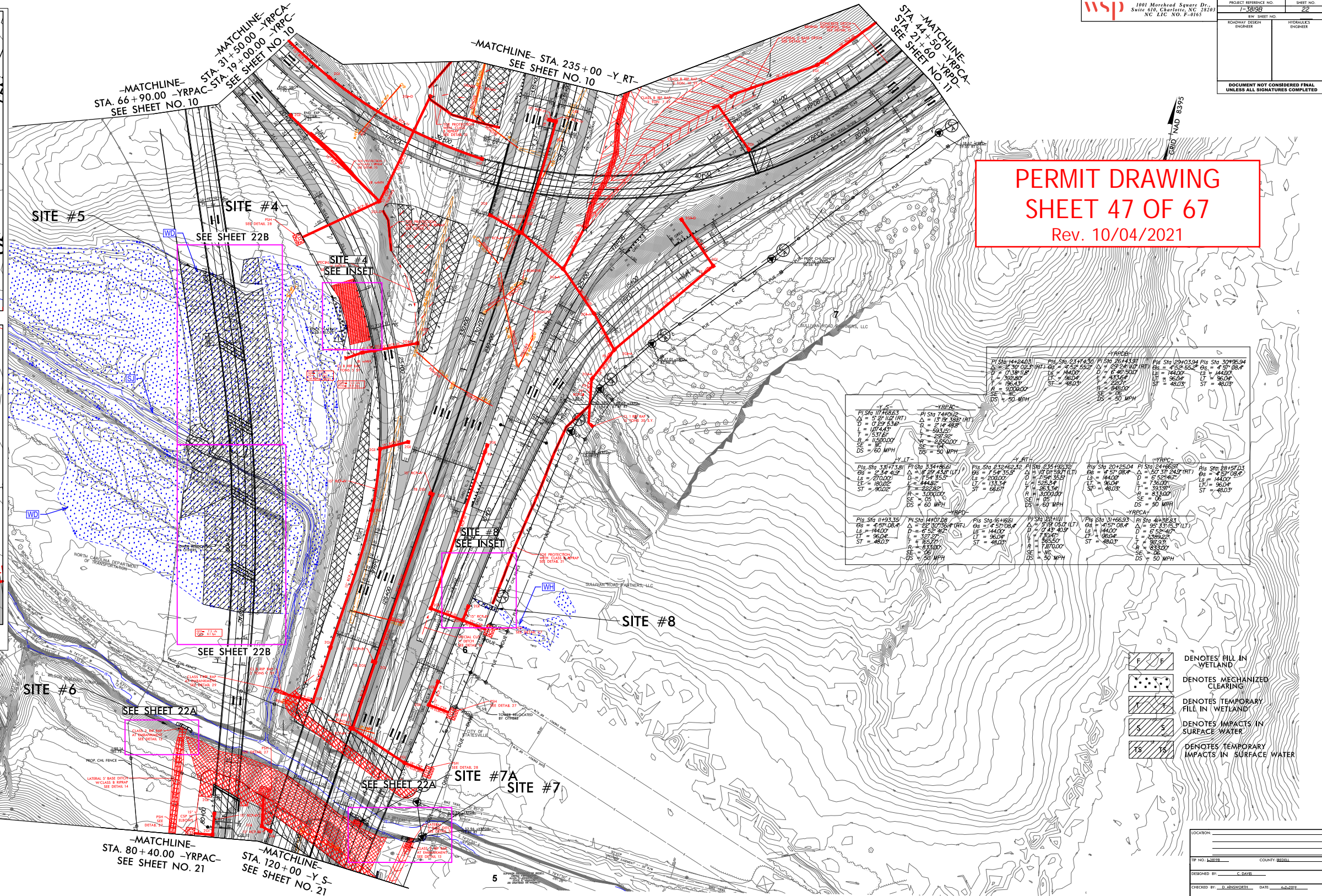
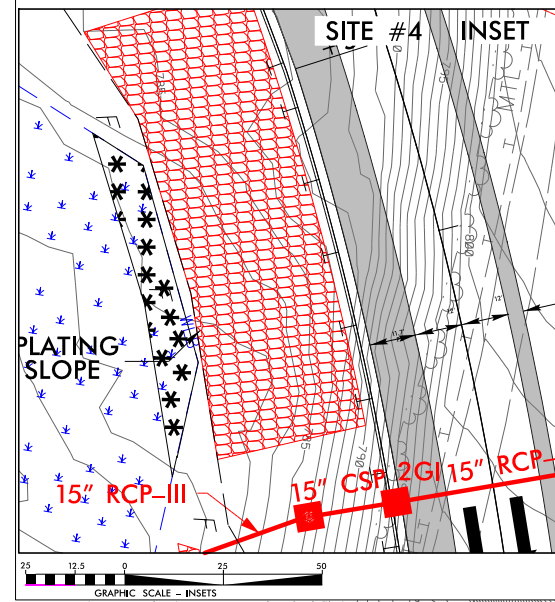
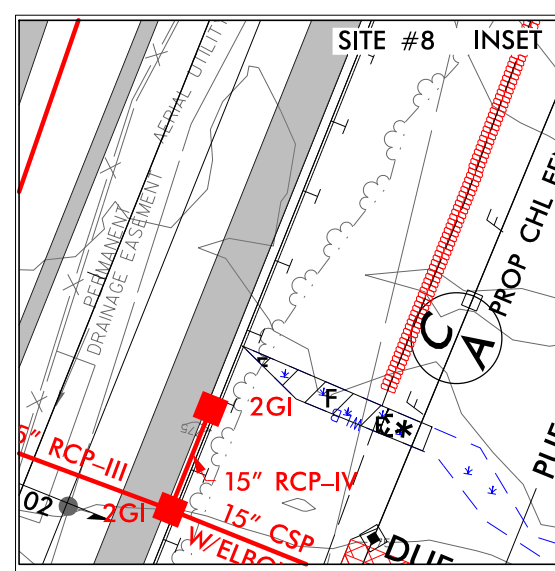
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LOCATION	
TP NO. / SHEETS	COUNTY / BEG. / END
DESIGNED BY	C. DAVIS
CHECKED BY	D. ANDREWS
DATE	6-2-2021



6.2/204
 1881 Morehead Square Dr., Suite 610, Charlotte, NC 28213
 NC LIC. NO. E-0165
 PROJECT REFERENCE NO. 1-3878B
 SHEET NO. 22
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 PERMIT DRAWING SHEET 46 OF 67 Rev. 10/04/2021
 GRAPHIC SCALE - INSETS
 0 12.5 25 50
 1881 Morehead Square Dr., Suite 610, Charlotte, NC 28213
 NC LIC. NO. E-0165
 PROJECT REFERENCE NO. 1-3878B
 SHEET NO. 22
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 PERMIT DRAWING SHEET 46 OF 67 Rev. 10/04/2021
 GRAPHIC SCALE - INSETS
 0 12.5 25 50
 1881 Morehead Square Dr., Suite 610, Charlotte, NC 28213
 NC LIC. NO. E-0165
 PROJECT REFERENCE NO. 1-3878B
 SHEET NO. 22
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 PERMIT DRAWING SHEET 46 OF 67 Rev. 10/04/2021
 GRAPHIC SCALE - INSETS
 0 12.5 25 50

PERMIT DRAWING
SHEET 47 OF 67
Rev. 10/04/2021



Y-S	YRAC	YRCA	YRCA
PI Sta 114+84.05 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 744+01.2 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 26+43.31 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 23+03.94 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH
PI Sta 331+71.41 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 134+18.61 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 234+62.32 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 204+25.04 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH
PI Sta 1193.35 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 144+07.08 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 16+16.61 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH	PI Sta 22+11.11 Δ = 13.18' (RT) D = 214' 48.8' L = 308.89' T = 96.04' R = 3000.00' SE = 14' DS = 60 MPH

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LOCATION: _____

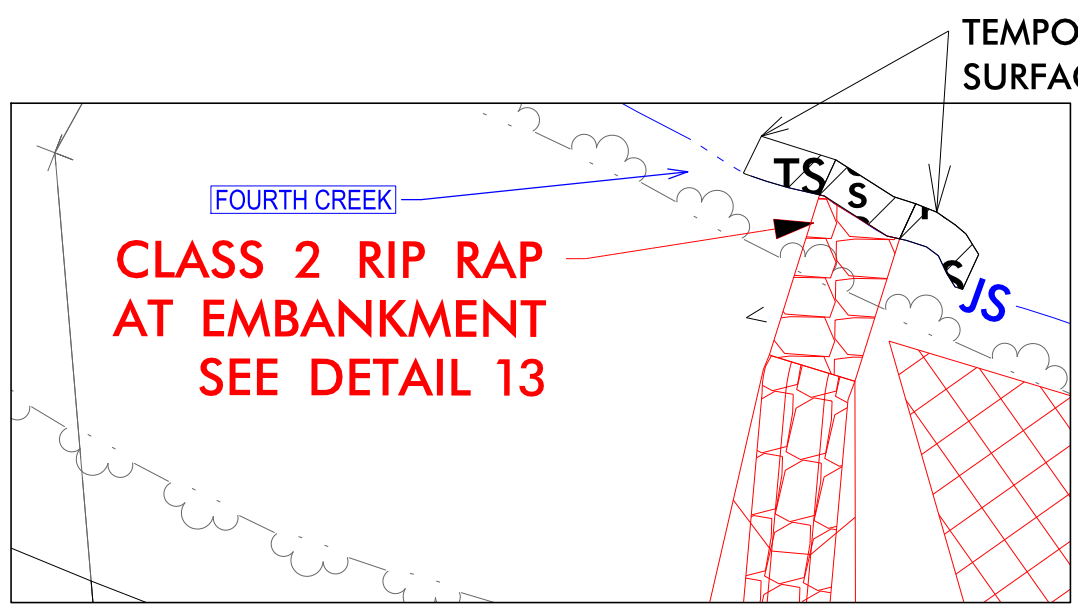
TP NO. ADDRESS: _____ COUNTY BEGAL: _____

DESIGNED BY: C. DAVIS

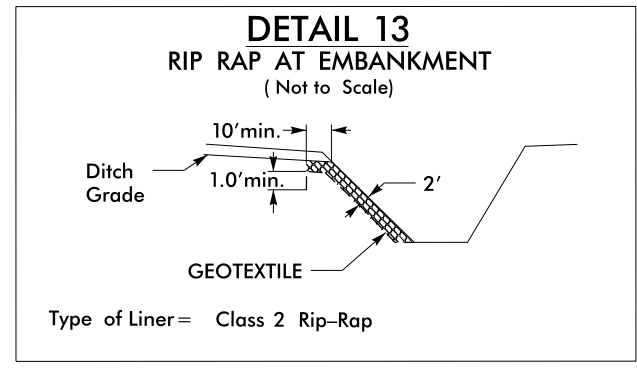
CHECKED BY: D. ANDREWS DATE: 10-2021

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 10/24/2021 10:58:00 AM

PROJECT REFERENCE NO. I-3819B	SHEET NO. 22A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

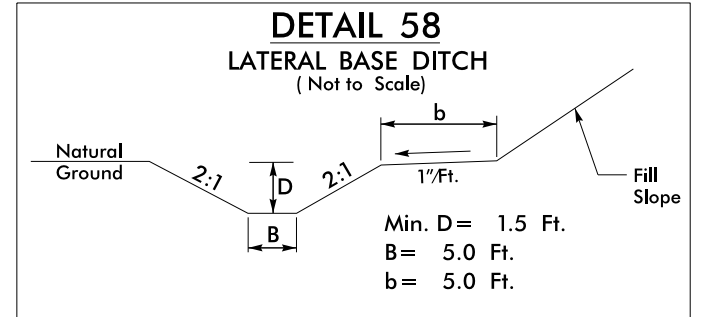


**SITE# 6
INSET**



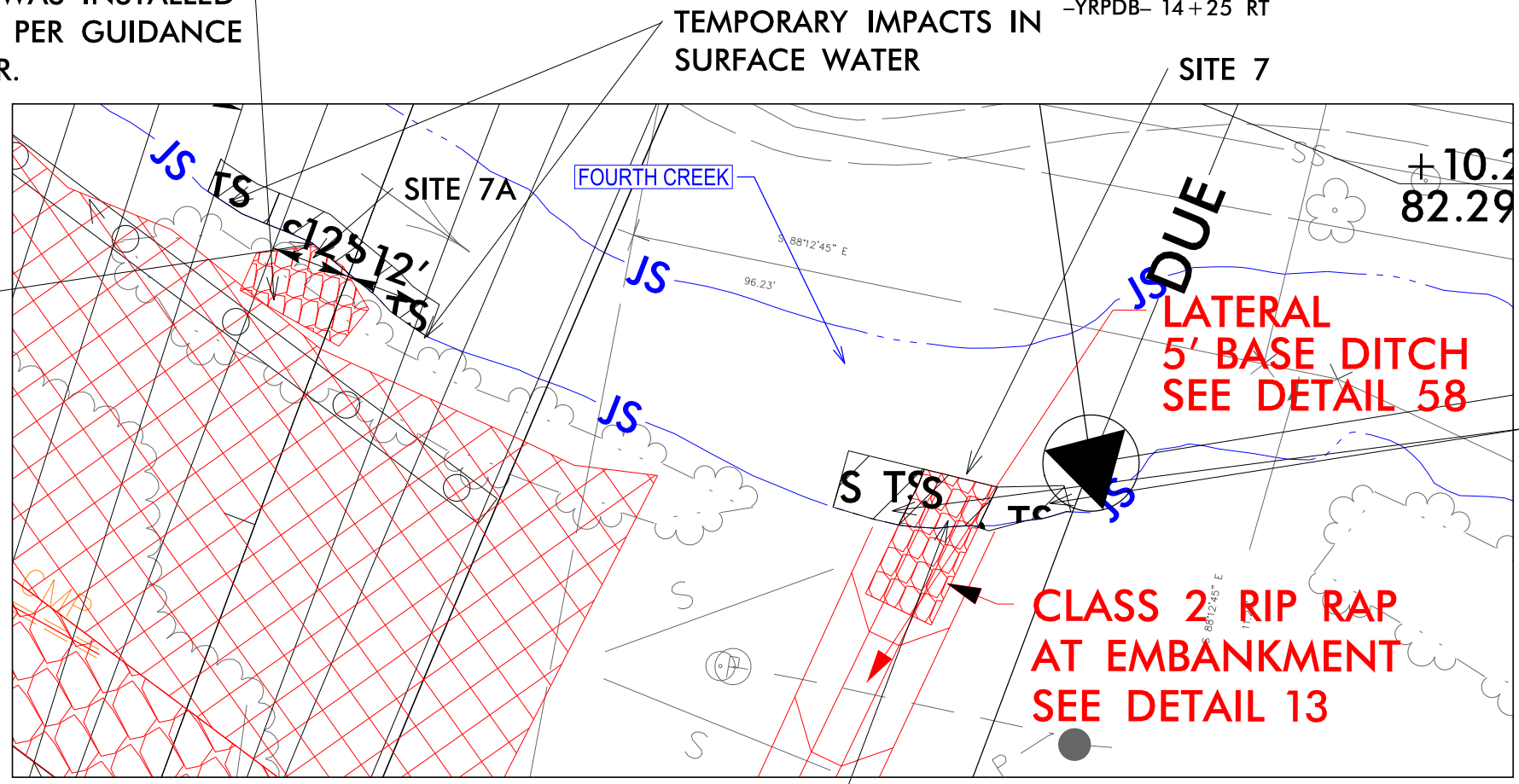
- Y S- STA. 69+50 LT
- Y S- STA. 33+80 RT
- YRPAC- 27+86 RT
- YRPAC- 78+50 RT
- YRPDB- 14+25 RT

PERMIT DRAWING
SHEET 48 OF 67
Rev. 10/04/2021



-YRPDB- FROM STA. 11+99 TO STA. 14+29 RT

NOTE: RIPRAP WAS INSTALLED IN THE FIELD PER GUIDANCE FROM NCDWR.



**SITE# 7 & 7A
INSET**

TEMPORARY IMPACTS IN SURFACE WATER



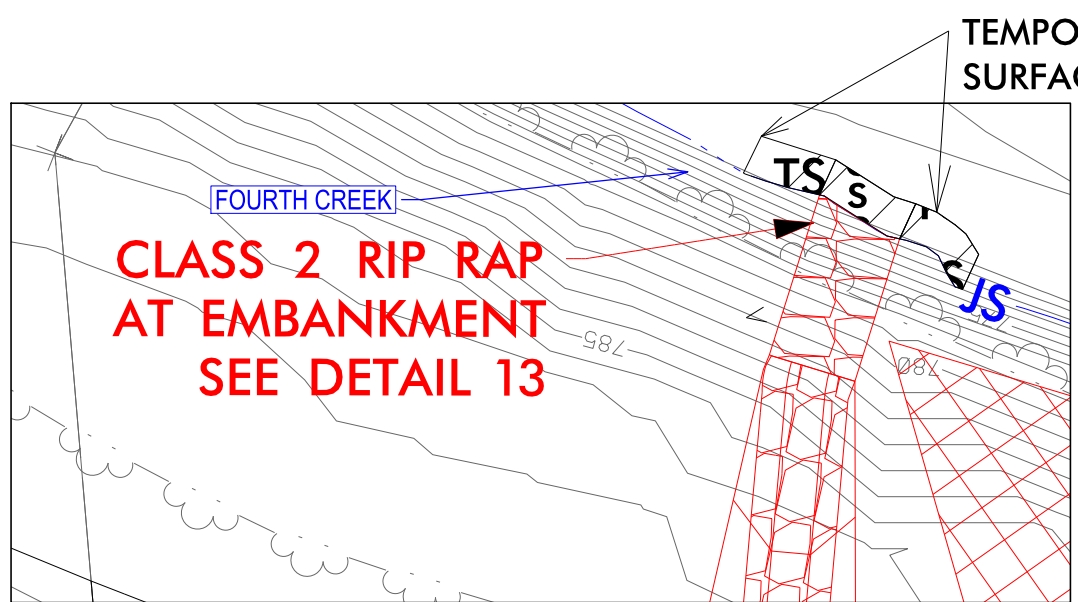
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



GRAPHIC SCALE - INSETS

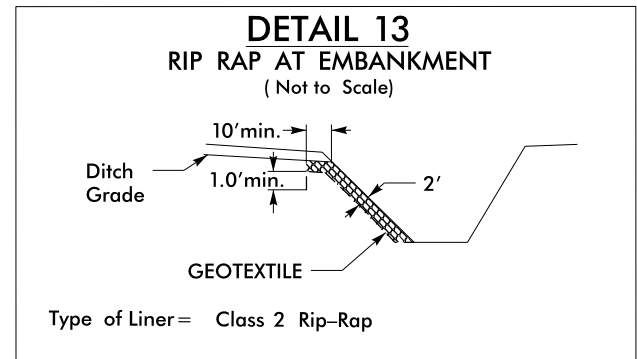
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PROJECT REFERENCE NO. 1-3819B	SHEET NO. 22A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



**CLASS 2 RIP RAP
AT EMBANKMENT
SEE DETAIL 13**

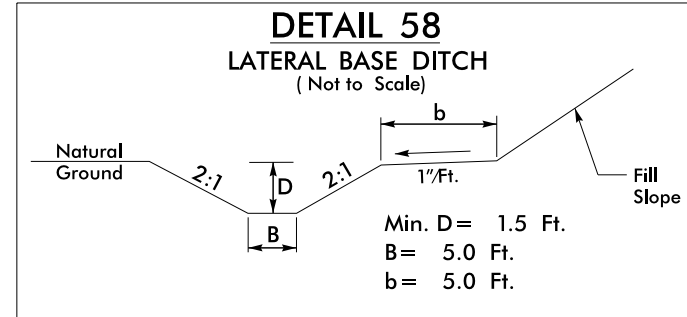
**SITE# 6
INSET**



Type of Liner = Class 2 Rip-Rap

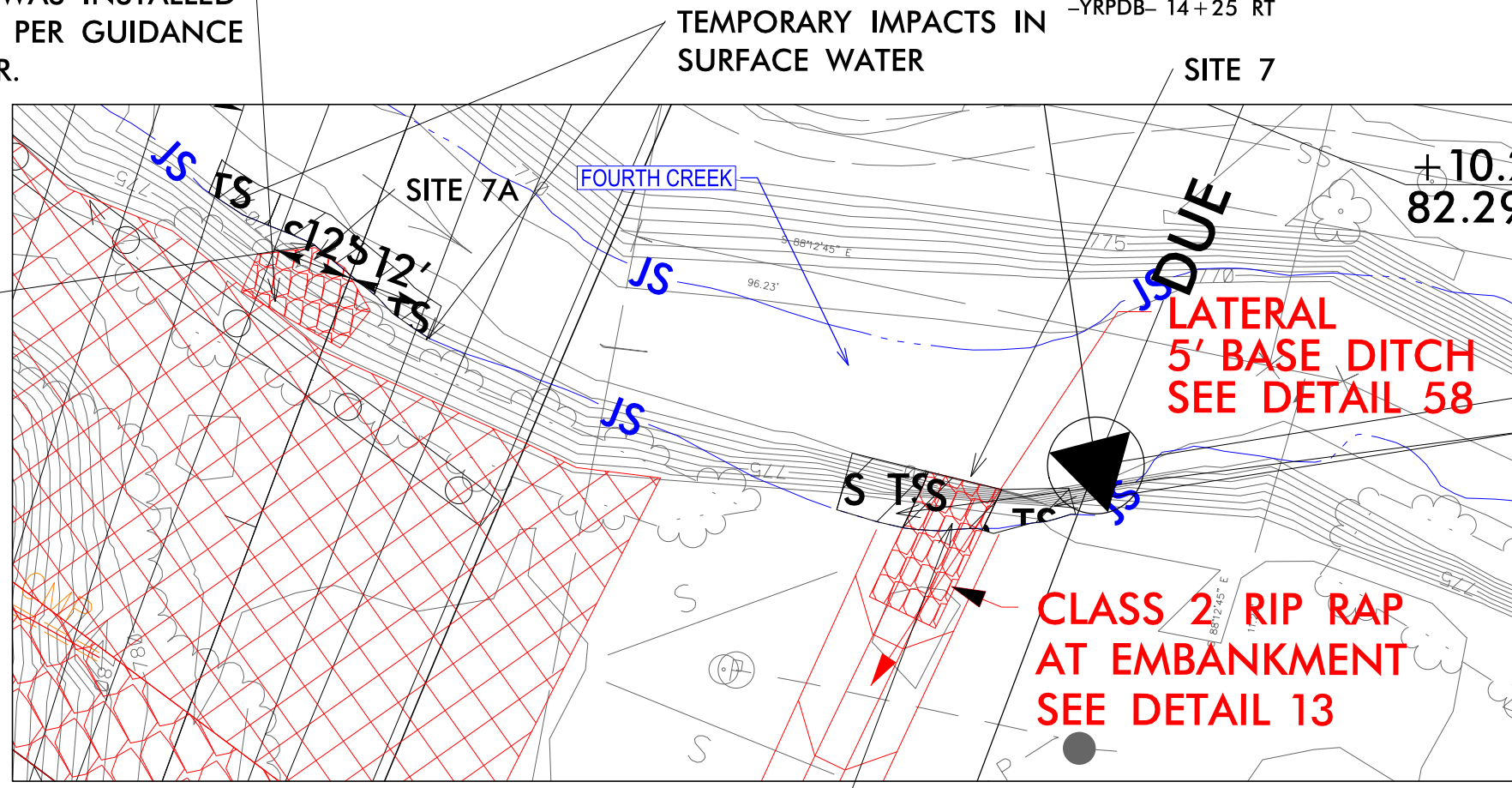
- Y S- STA. 69+50 LT
- Y S- STA. 33+80 RT
- YRPAC- 27+86 RT
- YRPAC- 78+50 RT
- YRPDB- 14+25 RT

**PERMIT DRAWING
SHEET 49 OF 67
Rev. 10/04/2021**



-YRPDB- FROM STA. 11+99 TO STA. 14+29 RT

NOTE: RIPRAP WAS INSTALLED IN THE FIELD PER GUIDANCE FROM NCDWR.



**SITE# 7 & 7A
INSET**

TEMPORARY IMPACTS IN SURFACE WATER



- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



GRAPHIC SCALE - INSETS

9/30/2021 c:\pr9\p9\wise\pb\project\wiseint\wsp...victoria.kohlwey\d0339329\13819_hyd_prm_psh22A_Y12000-13500.dgn USV677148

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	Site 1 Eliminated											
2	14+00 -21+50-YRPCA-	Roadway Fill	0.32			0.09						
2	16+70 - 21+50-YRPCA-	Bridge/Stream Bank Stabilization**	0.04	0.61		0.02		0.02	< 0.01	115	10	
3	15+75-YRPC-	Roadway Fill	< 0.01			0.01		0.02	< 0.01	206	10	
4	24+00-YRPC-	Roadway Fill				0.02						
5	70+00 - 76+25 -YRPAC-	Bridge	0.03	1.81		0.05						
5	72+70 - 74+50 -YRPAC-	Construction Access		0.23					0.02		77	
6	121+50-Y_LT-	Stream Bank Stabilization						< 0.01	< 0.01	12	20	
7	120+90-Y_RT-	Stream Bank Stabilization						< 0.01	< 0.01	12	20	
7A	120+95-Y_RT-	Stream Bank Stabilization**						< 0.01	< 0.01	19	21	
8	19+00-YRPDB-	Roadway Fill	< 0.01			< 0.01						
9	28+50 - 34+00-YRPAC-	Roadway Fill	0.40			0.08		0.07	< 0.01	747	10	
9A	28+10 - 28+30-YRPAC-	Construction Access							0.01		50	
10	28+00-YRPAC-	Stream Bank Stabilization						< 0.01	< 0.01	25	20	
11	27+50 - 26+50-YRPAC	Roadway Fill	0.19			0.02						
12	149+00-150+00-L-	Bridge						< 0.01	0.01	10	54	
13	167+00-Y_RT-	Stream Bed Stabilization						< 0.01		17		
13	167+00-Y_RT-	Stream Bank Stabilization						< 0.01	< 0.01	44	10	
14	28+50-Y-	Stream Bed Stabilization						< 0.01	< 0.01	17	10	
15	33+75-Y-	Stream Bank Stabilization						< 0.01	< 0.01	11	20	
16	37+10-37+20-Y-	54" RCP Extension						< 0.01		15		
16	35+90-37+10-Y-	Stream Bed Stabilization						< 0.01	< 0.01	98	10	
17	37+70-37+80-Y-	54" RCP Extension						< 0.01		20		
17	37+80-38+50-Y-	Stream Bed Stabilization						0.01	< 0.01	94	14	
SHEET 66 SUBTOTALS*:			0.98	2.64	0.00	0.29	0.00	0.16	0.07	1462	356	0.00

*Rounded totals are sum of actual impacts for sites listed on Sheet 66. See Sheet 67 for project total.

**Additional riprap was added for bank stabilization per NCDWR request

**PERMIT DRAWING
SHEET 66 of 67
Rev. 10/04/2021**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/04/2021
IREDELL
TIP NO. I-3819B
WBS NO.

SHEET 66 OF 67

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)
18	47+50-Y-	54" RCP Extension						< 0.01		39		
18	47+50-Y-	Stream Bed Stabilization						< 0.01	< 0.01	33	10	
19	46+00-Y-	Roadway Fill						< 0.01		34		
20	68+50-Y-	New Channel						< 0.01	< 0.01	13	10	
20	68+50-Y-	Roadway Fill						< 0.01		48		
21	70+20-Y-	3@9'X11" RCBC Extension						0.02		39		
21	69+20-70+20-Y-	Stream Bed Stabilization						0.08	< 0.01	137	21	
22	71+30-71+90-Y-	3@9'X11" RCBC Extension						0.02		45		
22	71+90-72+89-Y-	Stream Bed Stabilization						0.08		160		
22	72+89-75+10-Y-	Stream Bank Stabilization**						0.08		225		
22	75+10-84+00-Y-	Stream Bank Stabilization						0.34		901		
22	83+59-83+85-Y-	Stream Bed Stabilization						< 0.01		25		
23	87+70-Y-	Roadway Fill							< 0.01		33	
24	93+75-Y-	66" RCP Extension						< 0.01	< 0.01	49	10	
25	94+50-Y-	66" RCP Extension						< 0.01		10		
25	94+50-Y-	Stream Bed Stabilization						< 0.01	< 0.01	21	21	
26	116+70-120+10-Y-	Roadway Fill	0.09			0.04						
27	210+00-Y-	60" RCP Extension						< 0.01		29		
27	210+00-Y-	Stream Bed Stabilization						< 0.01	< 0.01	19	10	
28	24+00-Y15RPB-	Stream Bed Stabilization						< 0.01	< 0.01	16	11	
SHEET 66 SUBTOTAL			0.98	2.64	0.00	0.29	0.00	0.16	0.07	1462	356	0.00
SHEET 67 SUBTOTAL			0.09	0.00	0.00	0.04	0.00	0.67	0.03	1843	126	0.00
PROJECT TOTALS*:			1.07	2.64	0.00	0.33	0.00	0.83	0.10	3305	482	0.00

*Rounded totals are sum of actual impacts for entire project area

PERMIT DRAWING
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NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
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