



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

January 22, 2026

MEMORANDUM TO: Division Environmental and Construction Units

FROM: *mat* Michael A. Turchy, ECAP Group Leader
Environmental Analysis Unit

SUBJECT: Environmental Permits for I-485 and East John Street Interchange
Modifications in Mecklenburg County, Division 10, **TIP U-4714AB**

Please find enclosed the following permits for this project:

Agency	Permit Type	Permit Expiration
US Army Corps of Engineers Section 404 Clean Water Act Permit	Regional General Permit 50 <i>Last issued 1/12/22, Renewed 12/22/25</i>	May 25, 2030
NC Division of Water Resources Section 401 Water Quality Certification	Individual Cert. No. 008498 <i>Last issued 3/1/22 under GC 4135, Renewed 12/10/25</i>	May 25, 2030

Work is authorized by the above referenced permit provided it is accomplished in strict accordance with the permitted plans.

The Environmental Coordination and Permitting Group or the Division Environmental Office must be consulted if any deviation from the permit(s) is required.

The General Conditions and Certifications for Nationwide and Regional Permits can be referenced at:
https://xfer.services.ncdot.gov/pdea/PermIssued/_General_Conditions_and_Certifications/

PROJECT COMMITMENTS

T.I.P Project No. U-4714AB
I-485 and East John Street – Old Monroe Road (SR 1009)
Interchange Improvements
Mecklenburg County
WBS Element 39078.1.7

U-4714 - COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Traffic and Transportation – Division 10, Roadway Design

NCDOT Division 10 and the Roadway Design Unit will coordinate U-4714 and I-5507 for costs, scheduling, and construction related to the I-485 bridge widening and associated interchange modifications.

NCDOT's Division 10 Traffic Engineer will coordinate with the communities during final project design to determine posted speed limits and will continue to look for ways to reduce impacts where feasible through final design.

Bicycle/Pedestrian – Division 10, PMU, Roadway Design, Bike and Ped

NCDOT Division 10/Project Management Unit (PMU)/Roadway Design Unit/Division of Bicycle and Pedestrian Transportation will ensure that landscaping and pedestrian and bicycle accommodations will be further coordinated with the communities during final design. The Towns of Matthews, Stallings, and Indian Trail will participate in the cost of new sidewalks and multi-use paths where they do not currently exist. Municipal Agreements will be prepared prior to project construction to formalize their financial obligations in regard to sidewalk and multi-use path construction. NCDOT Division 10/Project Management Unit/Roadway Design Unit/ Division of Bicycle and Pedestrian Transportation will coordinate with the Towns of Matthews, Stallings, and Indian Trail regarding the type and location of pedestrian/bicycle crossings at major intersections.

Community Resources – Division 10, PMU, Roadway Design

NCDOT Division 10/Project Management Unit/Roadway Design Unit will continue to minimize impacts to the extent feasible during final design. NCDOT's Project Management Unit and Division 10 will coordinate with schools and fire/EMS on any detours during construction. Specifically, appropriate detour routes will be identified for Sun Valley school buses, Stallings Volunteer Fire Station 20 (4616 Old Monroe Road), and Union County MED 51 Base (100 Williams Rescue Road) prior to construction.

Relocations and Property Acquisitions – Division 10, PMU, Roadway Design, ROW

NCDOT Division 10/Project Management Unit/Roadway Design Unit will continue to minimize impacts to the extent feasible during final design. NCDOT's Right of Way (ROW) Unit will use three programs to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing

Payments or Rent Supplement. These programs are in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Comparable replacement housing and business space is available in the Project area for displaced homeowners, tenants, and businesses.

Noise – Division 10

Division 10 and the contractor will be responsible for ensuring that low cost and easily implemented construction noise control measures will be incorporated during construction to the extent practicable.

Utilities

NCDOT's Utilities Unit will coordinate with all utility providers during final design and construction to prevent damage to utility systems and to minimize disruption and degradation of utility service to local customers.

Hazardous Materials – Geoenvironmental

NCDOT's Geoenvironmental Unit will complete further assessments on properties as necessary prior to right of way acquisition.

Floodplains and Floodways and Hydrology – Hydraulics

NCDOT's Hydraulics Unit will coordinate with FEMA and local authorities to ensure compliance with applicable floodplain management ordinances. Since this project involves construction on or adjacent to FEMA regulated streams, NCDOT Division 10 shall submit sealed as-built construction plans to NCDOT's Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

Cultural Resources – PMU, EAU

NCDOT's Project Management Unit and NCDOT's Environmental Analysis Unit (EAU) will review final plans to ensure the following applicable conditions are met to maintain the No Adverse Effect determinations:

Reid House

- No construction in right-of-way
- No drainage easements
- No permanent utility easements
- Only replace curb and gutter
- Keep existing sidewalk
- No tree removal

Banks H Funderburk Store (a.k.a. Rock Store Bar-B-Q)

- No right-of-way
- No permanent drainage easements

Banks and Carolyn Funderburk House

- No right-of-way
- No easements
- Minimize tree removal
- No permanent utility easements
- No permanent drainage easements

Section 4(f) – Division 10, PMU, Roadway Design

NCDOT Division 10/Project Management Unit/Roadway Design Unit will ensure that final design and construction within Section A shall avoid any impacts to the Four Mile Creek Greenway entrance on East John Street west of the I-485 interchange.

U-4714AB - COMMITMENTS FROM PERMITTING

Special Conditions from March 2022 Permit Modification:

401 Project Specific Condition #2: At final construction Site 3 will have grading and any associated appurtenances necessary to ensure surface and ground water from/near Stream SSG enters 2GI-SP (Y6RPC Sta 19+50) and retains connectivity to Four Mile Creek. [15A NCAC 02H.0506(b)(2)]

401 Project Specific Condition #3: The culvert extension at Site 4 was estimated to terminate in a location that allows the flow of Four Mile Creek to be easily directed into one barrel of the culvert extension. Should stream flow not be easily directed into one barrel, DWR approval for any stream flow changes will be required. [15A NCAC 02H.0506(b)(2)]

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2019-01774

County: Mecklenburg

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: North Carolina Department of Transportation

Ms. Erin Cheely

Address: 1598 Mail Service Center

Raleigh, North Carolina 27699-1598

Telephone Number: 919-707-6108

E-mail: ekcheely@ncdot.gov

Size (acres): 74 acres

Nearest Town: Matthews

Nearest Waterway Fourmile Creek

River Basin Santee

USGS HUC 05050103

Coordinates Latitude: 35.102524

Longitude: -80.709087

Location description: I 485 and SR 1009 (E. John St.-Old Monroe Rd.), near Matthews, Mecklenburg County, North Carolina.

Description of projects area and activity: This verification authorizes the reconfiguration of an existing diamond interchange at I 485 and SR 1009, with a partial cloverleaf interchange (NC DOT TIP No. U 4714 AB). The construction project would permanently impact 201 linear feet of stream channels for the construction of one (1) new 30" reinforced concrete pipe, the extension of existing box culverts in three locations, and the permanent placement of 97 lf of fill for roadway. In addition, the project would also result in a total of 175 linear feet of the placement of permanent stream bank stabilization at several locations, and the total of 150 lf of temporary placement of stream dewatering impacts.

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Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Regional General Permit Number and/or Nationwide Permit Number: Regional General Permit 50 (RGP-50), SAW-2019-02350, issued May 26, 2025

SEE ATTACHED RGP or NWP GENERAL, REGIONAL AND/OR SPECIAL CONDITIONS


Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application and attached information dated November 17, 2025. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide and/or regional general permit authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide and/or regional general permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide and/or regional general permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide and/or regional general permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide and/or regional general permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 919-807-6300) to determine Section 401 requirements.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Stephen Brumagin at 704-798-6471 or stephen.a.brumagin@usace.army.mil**.

Corps Regulatory Official:  Date: **December 22, 2025**

Tyler Crumbley
Deputy Chief of Regulatory
USACE - Wilmington District

Expiration Date of Verification: **May 25, 2030**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at <https://regulatory.ops.usace.army.mil/customer-service-survey/>.

Enclosures:

Project Plans
401 WQC
RGP-50

Copy furnished:

Joel Howard, NCDOT Div 10 (via jmhoward@ncdot.gov)

SPECIAL CONDITIONS

1. 1. All work must be performed in strict compliance with (a) the description of work in the PCN and (b) the Wetlands and Surface Water Impact Permit Drawing(s) (Permit Plans) in the re-verification dated November 17, 2025. Any modification to the description of work and/or the permit plans must be approved by the USACE prior to implementation.
2. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this authorization letter in the construction and maintenance of this project and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this authorization letter, all conditions, and any authorized modifications. A copy of this authorization letter, all conditions, and any authorized modifications, shall be available at the project site during construction and maintenance of this project.

Action ID Number: SAW-2019-01774

County: Mecklenburg

Permittee: North Carolina Department of Transportation
Ms. Erin Cheely

Project Name: SAW-2019-01774, NCDOT U-4714 AB

Date Verification Issued: December 22, 2025

Project Manager: Stephen Brumagin

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Stephen Brumagin
Charlotte Regulatory Field Office
8430 University Executive Park Drive
Suite 615
Charlotte, NC 28262

or electronically to:
stephen.a.brumagin@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

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

Permittee: NCDOT, Div. of Highways

Action ID: SAW- 2019-01774

Project Name: TIP U-4714AB_I-485&SR1009_EastJohnSt_interchange improvements **County:** Mecklenburg

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 Wilmington District 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 verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether 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 ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the 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: 03050103, Catawba River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
56						

*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: 03050103 Expanded Service Area

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
112						

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 Wilmington District, 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: NCDEQ - DMS

Name of Sponsor's Authorized Representative: Beth Harmon

Beth Harmon

Signature of Sponsor's Authorized Representative

01/13/2022

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 District 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 District 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. When NCDMS provides mitigation 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 NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District 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 District 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 District, the Sponsor must obtain case-by-case approval from the District 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 District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This mitigation requirement will be satisfied in the 03050103 Expanded Service Area. This Compensatory Mitigation Responsibility Transfer Form requires additional mitigation beyond that required for the previous project verification dated May 6, 2021.

This form is not valid unless signed below by the District 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 District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil).***

Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

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



Wilmington District Project Manager Signature

January 12, 2022

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>.

JOSH STEIN
Governor

D. REID WILSON
Secretary

RICHARD E. ROGERS, JR.
Director



NORTH CAROLINA
Environmental Quality

December 10, 2025
Mecklenburg County
NCDWR Project No. 20191245 V4
I-485 and East John Street Interchange Improvements
STIP #U-4714AB

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Ms. Erin Cheely
NCDOT
1598 Mail Service Center
Raleigh, NC 27699-1598
EKCheely@NCDOT.gov

Subject: Approval of Renewal to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the I-485 and East John Street Interchange Improvements in Mecklenburg County, NCDWR Project No. 20191245 V4, STIP #I-4714AB.

Dear Ms. Cheely

Attached hereto is a copy of Certification No. WQC008498 issued to The NCDOT dated December 10, 2025.

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Water Quality Certification. If you change your project, you must notify the Division, and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)]. This Certification does not relieve the permittee of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

This letter completes the review of the Division under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Mary Plummer at 704-235-2193 or Mary.Plummer@deq.nc.gov if you have any questions or concerns.

Sincerely,

Signed by:

Paith Hardin

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Richard E. Rogers, Jr., Director
Division of Water Resources

Electronic copy only distribution:

Joel Howard, NCDOT
Steve Brumagin, US Army Corps of Engineers, Charlotte Field Office
Holland Youngman, US Fish and Wildlife Service
David McHenry, NC Wildlife Resources Commission



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

Approval of Renewal 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 623 Linear Feet of jurisdictional streams in Mecklenburg County. The project shall be constructed pursuant to the application dated and received November 18, 2025. The authorized impacts are as described below:

Stream Impacts (Linear Feet) in the Catawba River Basin.
U-4714AB - DWR Project No. 20191245
Stream Impacts in the Catawba River Basin.

Sites	Bank Stabilization Permanent (LF)	Bank Stabilization Temporary (LF)	Permanent Fill in Perennial Stream (LF)		Total Stream Impacts (LF)	Stream Impacts Requiring Mitigation (LF)
			Culvert/ Extension	Roadway Fill		
1	45	33	14	-	92	14
2	57	51	31	-	139	31
3	31	10	100	97	238	197
4	42	56	56	-	154	56
TOTALS	175	150	201	97	623	298
			298			

Red indicates sites with authorized modifications since 2019 permitting.
No wetland impacts on U-4714AB

Total Stream Impacts for Project: 623 Linear Feet.

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 application dated and received November 18, 2025. 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 300 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.

This Water Quality Certification neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Water Quality Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This Water Quality Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Water Quality Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded. Upon the presentation of proper credentials, the Division may inspect the property.



Condition(s) of Certification:

Project Specific Conditions

1. All the authorized activities and conditions associated with the original Water Quality Certification dated November 15, 2019, renewed on June 8, 2021, and revised on March 1, 2022, still apply except where superseded by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]
2. All work in or adjacent to stream waters shall be conducted per approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual. [15A NCAC 02H.0506(b)(3) and (c)(3)]
3. Compensatory mitigation for impacts to 298 linear feet of impacts to perennial streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Services (DMS), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in letters dated September 13, 2019 and November 4, 2021, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010
4. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
5. Design and placement of the culverts and other structures shall be installed in such a manner that the original stream profiles are not altered (i.e., the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions (including pattern and profile) are to be maintained above and below locations of each culvert. The structures shall be designed and installed to allow for fish and other wildlife movement as well as prevent headcutting of the stream. The applicant may be required to provide evidence that the equilibrium has been maintained if requested in writing by the NCDWR. [15A NCAC 02H.0506(b)(2)]
6. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage. [15A NCAC 02H.0506(b)(2)]
7. Riprap shall not be placed in the active thalweg channel. If placement in the streambed is approved per plans and permit, the riprap must be keyed-into the streambed in a manner that shall not preclude aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]
8. For all streams being impacted due to site dewatering activities or other temporary impacts, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]
9. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)].



10. The waiver for culvert burial was granted as requested. Stream bed is required to be level with the end of the culvert extension, as presented in the application. [15A NCAC 02H.0506(b)(2)]
11. At final construction Site 3 will have grading and any associated features necessary to ensure surface and ground water from/near SSG enters 2GI-SP (Y6RPC Sta 19+50) and retains connectivity to Four Mile Creek. [15A NCAC 02H.0506(b)(2)]
12. The culvert extension at Site 4 was estimated to terminate in a location that allows the flow of Four Mile Creek to be easily directed into one barrel of the culvert extension. Should stream flow not be easily directed into one barrel, DWR approval of any stream flow changes will be required. [15A NCAC 02H.0506(b)(2)]

General Conditions

1. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]
2. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S. or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]
3. The dimension, pattern and profile of the stream above and below any crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]
4. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]
5. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507 (c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
6. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3)]
7. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]
8. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]
9. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]
10. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
11. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]



12. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
13. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
14. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization, including all non-commercial borrow and waste sites associated with the project, shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
15. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
16. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
17. Upon completion of the project (including any impacts at associated borrow or waste sites), the authorized agent shall complete and return the "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0507]
18. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0506(b)(2)]
19. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities. [15A NCAC 02H.0506(b)(3) and (c)(3)]
20. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within jurisdictional wetlands. [15A NCAC 2H.0506; 15A NCAC 2H.0507]
21. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act
22. Sediment and erosion control measures shall not be placed in wetlands or surface waters, or within 5 feet of the top of bank, without prior approval from DWR. [15A NCAC 02H.0506(b)(3) and (c)(3)]



23. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0200]
24. Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*.
25. All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
26. For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*. Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

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. Please be aware that impacting waters without first applying for and securing the issuance of a 401 Water Quality Certification violates Title 15A of the North Carolina Administrative Code (NCAC) 2H .0500. Title 15A NCAC 2H .0500 requires certifications pursuant to Section 401 of the Clean Water Act whenever construction or operation of facilities will result in a discharge into navigable waters, including wetlands, as described in 33 Code of Federal Regulations (CFR) Part 323. It also states any person desiring issuance of the State certification or coverage under a general certification required by Section 401 of the Federal Water Pollution Control Act shall file with the Director of the North Carolina Division of Water Quality. Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. Pursuant to G.S. 143-215.6A, these violations and any future violations are subject to a civil penalty assessment of up to a maximum of \$25,000.00 per day for each violation.

This approval and its conditions are final and binding unless contested [G.S. 143-215.5]. Please be aware that impacting waters without first applying for and securing the issuance of a 401 Water Quality Certification violates Title 15A of the North Carolina Administrative Code (NCAC) 2H .0500. Title 15A NCAC 2H .0500 requires certifications pursuant to Section 401 of the Clean Water Act whenever construction or operation of facilities will result in a discharge into navigable waters, including wetlands, as described in 33 Code of Federal Regulations (CFR) Part 323. It also states any person desiring issuance of the State certification or coverage under a general certification required by Section 401 of the Federal Water Pollution Control Act shall file with the Director of the North Carolina Division of Water Quality. Pursuant to G.S. 143-215.6A, these violations and any future violations are subject to a civil penalty assessment of up to a maximum of \$25,000.00 per day for each violation.

This Certification can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) within sixty (60) calendar days. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

A party filing a Petition must serve a copy of the Petition on:

Dan Hirschman, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

If the party filing the Petition is not the permittee, then the party must also serve the recipient of the Certification in accordance with N.C.G.S 150B-23(a).



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

This the 10th day of December 2025

DIVISION OF WATER RESOURCES

Signed by:

Faith Hardin

3185423002EA45E...

Richard E. Rogers, Jr., Director

WQC No. WQC008498



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

JOSH STEIN
Governor

D. REID WILSON
Secretary

RICHARD E. ROGERS, JR.
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 _____

Completed hard copies can be emailed to kristilynn.carpenter@ncdenr.gov or mailed to:

NCDEQ Transportation Permitting
1617 Mail Service Center
Raleigh NC 27699-1617



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

10/11/2021
\\wspdw041cs01\work_dir\48520\335941_U-4714AB_hyd_prm_wet_psh01.TSH.dgn
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TIP PROJECT: U-4714AB

CONTRACT: C203970

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

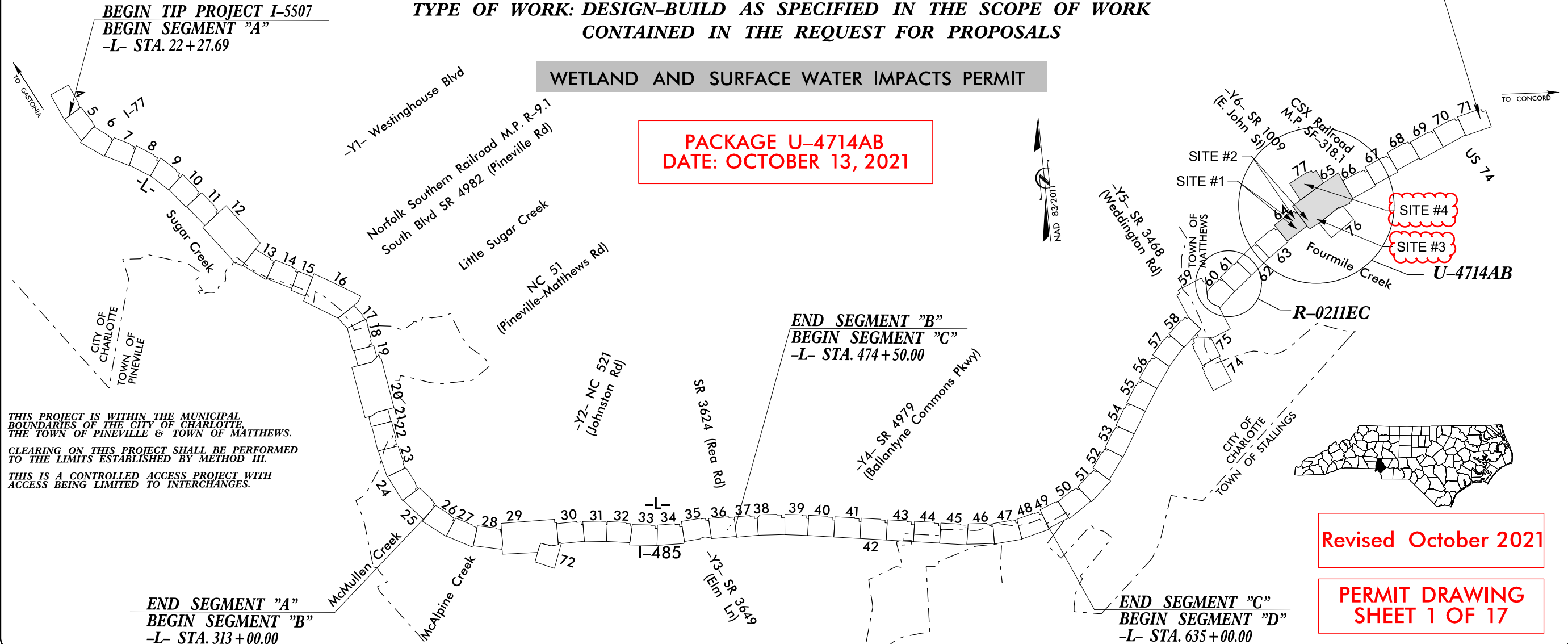
MECKLENBURG COUNTY

LOCATION: I-485 FROM I-77 TO US 74 (INDEPENDENCE BOULEVARD) (I-5507);
I-485 / WEDDINGTON ROAD INTERCHANGE (R-0211EC); AND I-485 /
EAST JOHN STREET - OLD MONROE ROAD INTERCHANGE (U-4714AB)

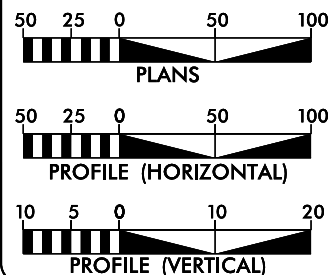
TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK
CONTAINED IN THE REQUEST FOR PROPOSALS

WETLAND AND SURFACE WATER IMPACTS PERMIT

PACKAGE U-4714AB
DATE: OCTOBER 13, 2021



GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 118,400
ADT 2040 = 159,200
DHV = 9 %
D = 55 %
T = 9 % *
V = 70/75 MPH
*(TTST 4 + DUAL 5)
FUNCTIONAL CLASSIFICATION:
INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT I-5507 = 17.137 mi
LENGTH OF STRUCTURES TIP PROJECT I-5507 = 0.395 mi
(BASED ON 485 WB BRIDGES)
TOTAL LENGTH OF TIP PROJECT I-5507 = 17.532 mi

NCDOT CONTACT:

TIM MCFADDEN, PE
DESIGN BUILD PROJECT ENGINEER -
TRANSPORTATION PROGRAM MANAGEMENT UNIT

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:
SEPTEMBER 18, 2018

LETTING DATE:
SEPTEMBER 18, 2018

DANIEL H. BRIDGES, PE
DESIGN PROJECT MANAGER

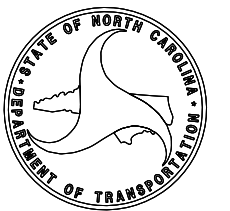
DAVID B. GOURLEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.

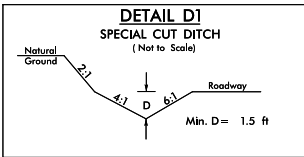
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



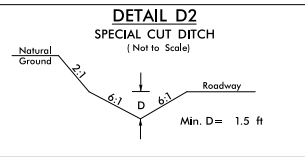
Revised October 2021

PERMIT DRAWING
SHEET 1 OF 17

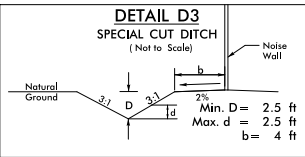
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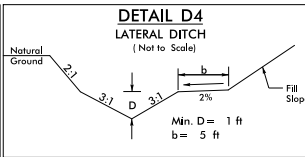
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-L- FROM STA. 688+57 TO 701+37 LT
-L- FROM STA. 706+21 TO 711+00 LT
-L- FROM STA. 753+98 TO 760+32 LT
-L- FROM STA. 794+62 TO 795+50 LT
-L- FROM STA. 764+81 TO 767+50 LT
-L- FROM STA. 916+63 TO 917+50 LT
-L- FROM STA. 929+50 TO 931+50 LT
-L- FROM STA. 709+81 TO 713+00 RT
-L- FROM STA. 804+50 TO 805+50 RT
-L- FROM STA. 901+00 TO 905+17 RT
-Y5RPD- FROM STA. 24+00 TO 26+50 RT
-Y6RPC- FROM STA. 24+50 TO 26+50 RT



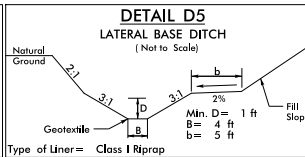
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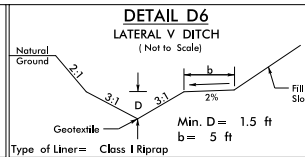
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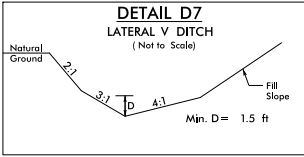
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-L- FROM STA. 898+00 TO 900+00 LT
-L- FROM STA. 936+50 TO 940+50 LT
-L- FROM STA. 885+00 TO 888+19 RT
-L- FROM STA. 892+00 TO 897+09 RT



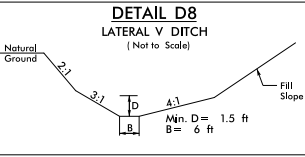
-L- FROM STA. 791+50 TO 793+50



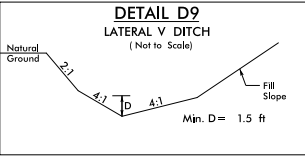
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-L- FROM STA. 890+91 TO 892+00 RT
-L- FROM STA. 897+24 TO 899+50 RT



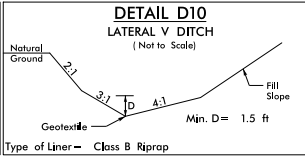
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-Y5RPA- FROM STA. 20+24 TO 22+00 LT



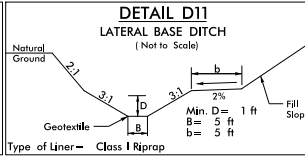
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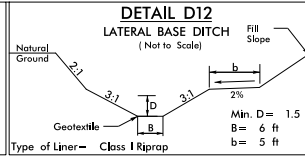
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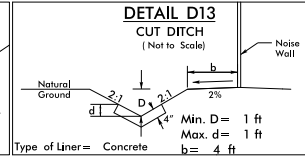
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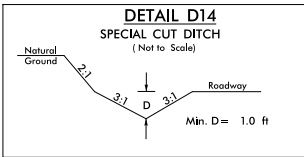
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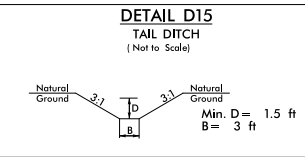
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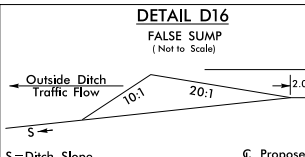
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-Y6RPB- FROM STA. 15+11 TO 22+63 RT



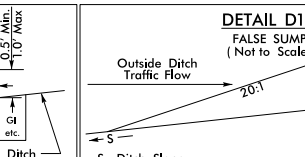
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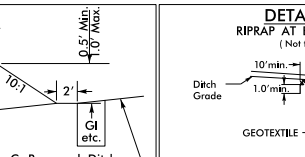
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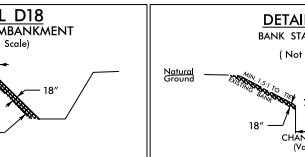
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-Y6RPB- STA. 17+70 LT



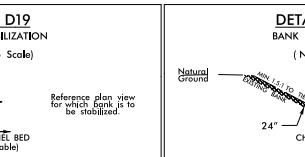
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-Y5RPD- STA. 21+39 LT
-Y5RPD- STA. 21+31 RT



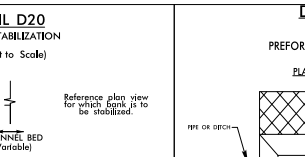
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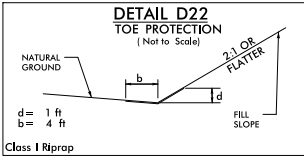
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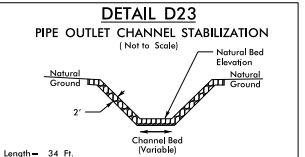
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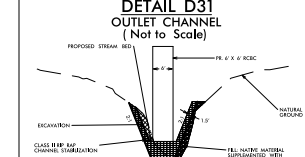
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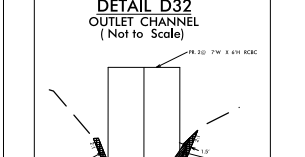
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-L- FROM STA. 649+50 TO 653+10 RT
-L- FROM STA. 791+44 TO 792+52 RT
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-Y6RPC- FROM STA. 19+26 TO 20+55 RT
-Y6RPC- FROM STA. 23+69 TO 24+87 RT



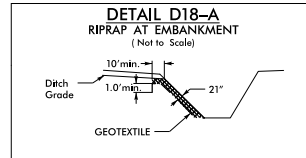
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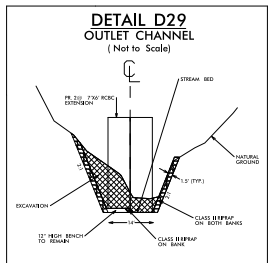
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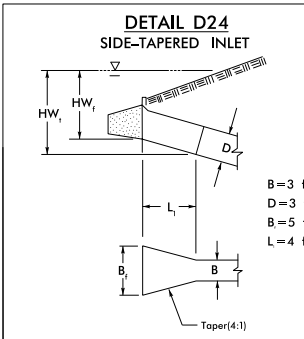
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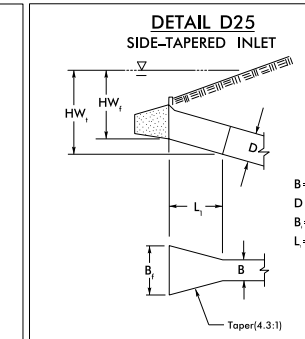
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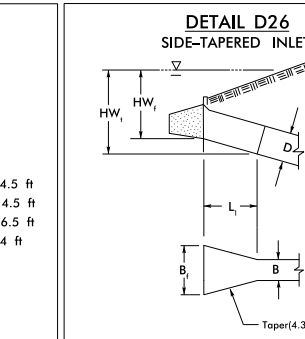
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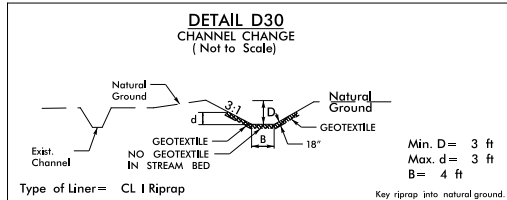
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-L- STA. 749+91 RT
-Y24RPA- STA. 18+83 RT

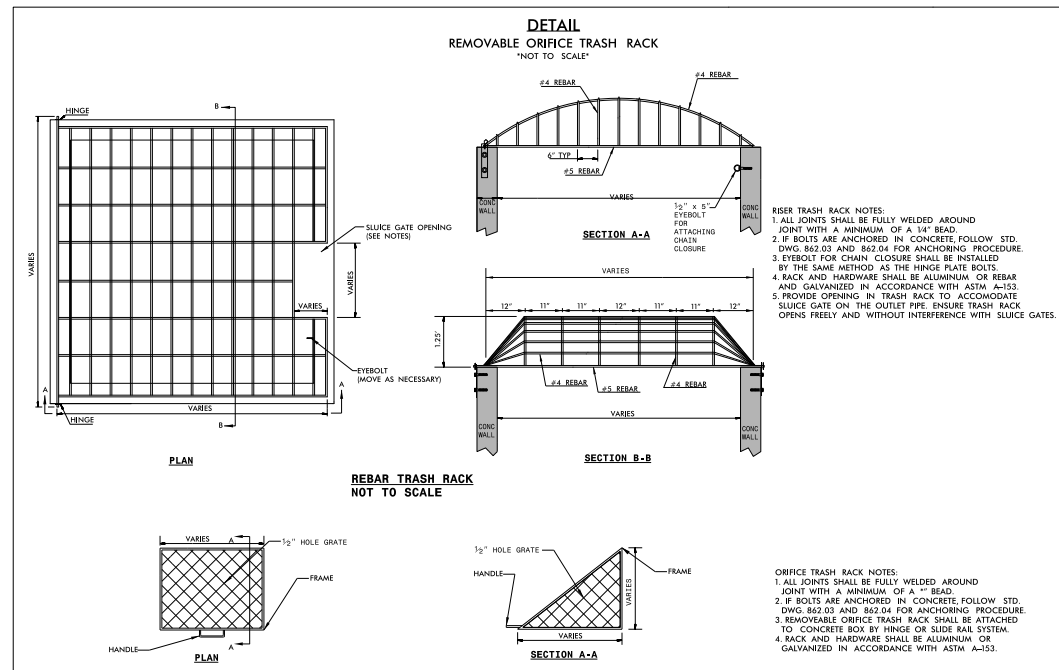
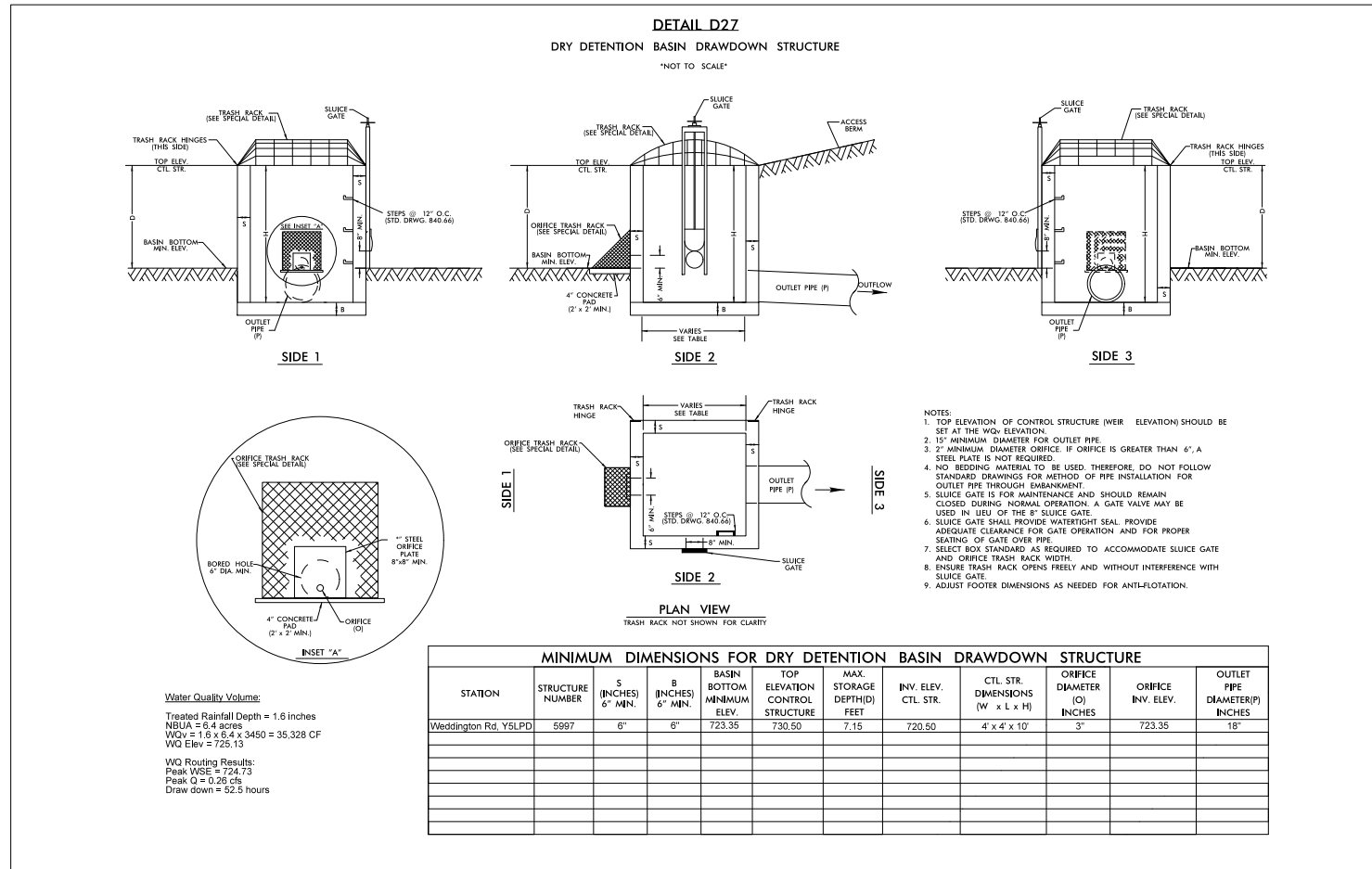


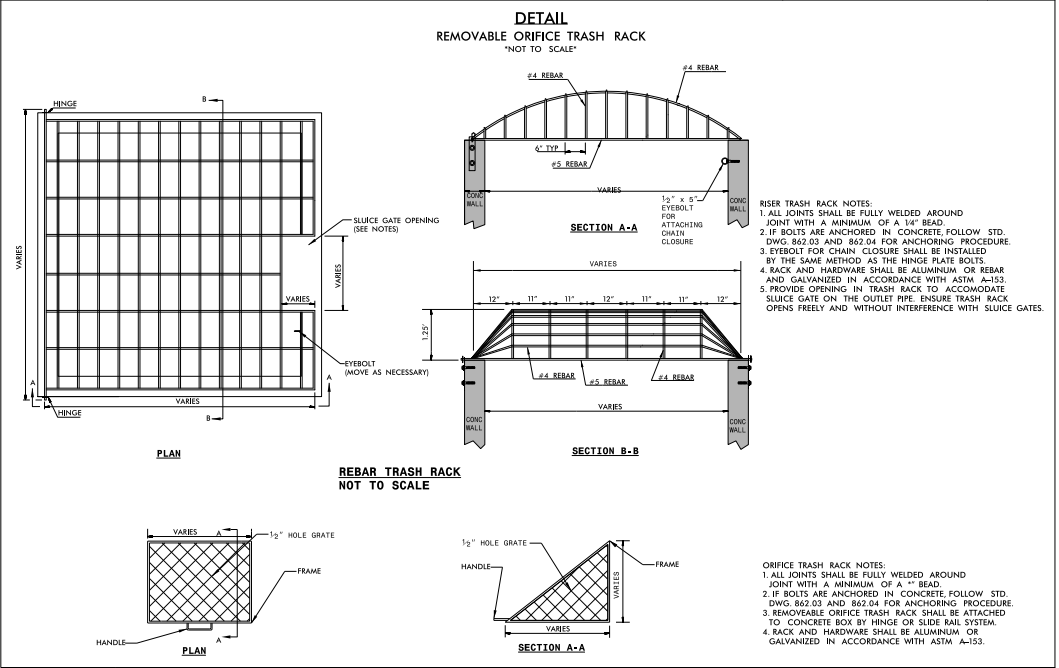
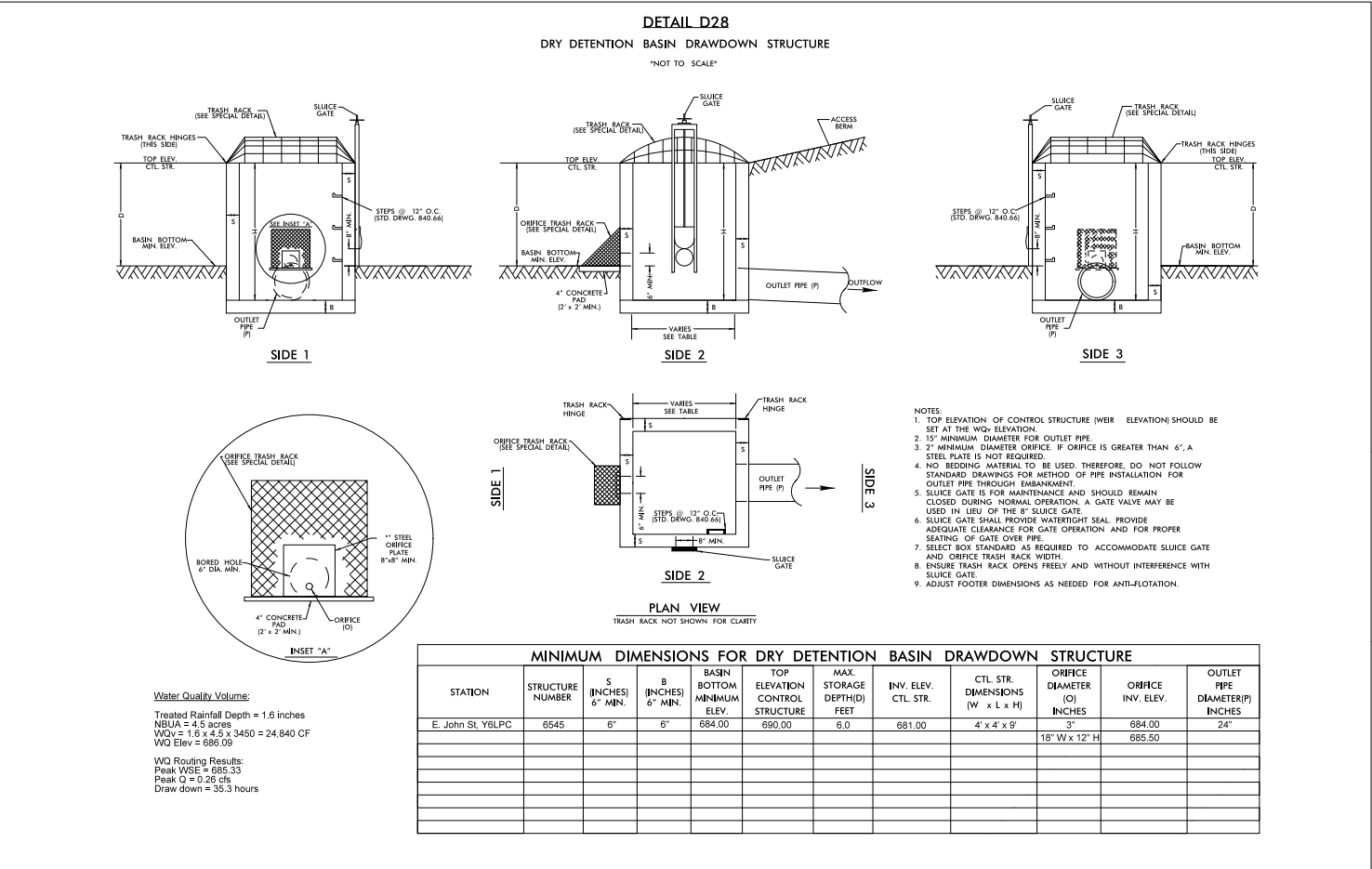
-L- STA. 644+52 LT



-L- STA. 897+13 RT

PERMIT DRAWING
SHEET 2 OF 17





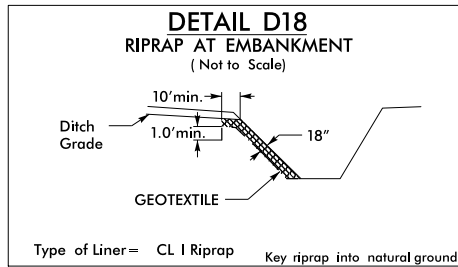
8/17/99

REVISIONS

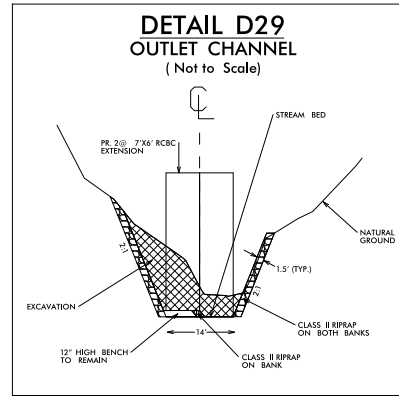
1.9/5/19 - ADDED BOX 6440.

9/12/2019
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P:\DWG\3094

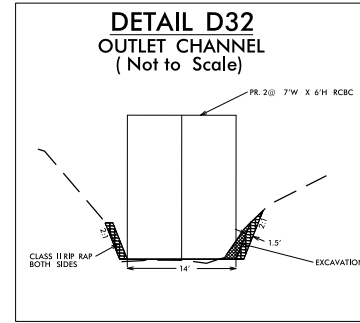
MATCH LINE SEE SHEET 63
-L- STA. 829 + 00.00



NOTE: APPLY TO EITHER BANK
AS SHOWN ON THE PLANS.



-L- STA. 837 + 70 LT



-L- STA. 841 + 00

5/5
15/15
DENOTES IMPACTS IN
SURFACE WATER
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.	SHEET NO.
U-4714AB	64
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SITES #1 AND #2 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

SEE SHEET 64A

SITE #1

SITE #2 (PART 1)

SBB

SBC

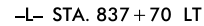
SITE #1


SEE SHEET 64A


PERMIT DRAWING
SHEET 5 OF 17

MATCH LINE SEE SHEET 65
-L- STA. 842 + 00.00

100 0 100
GRAPHIC SCALE

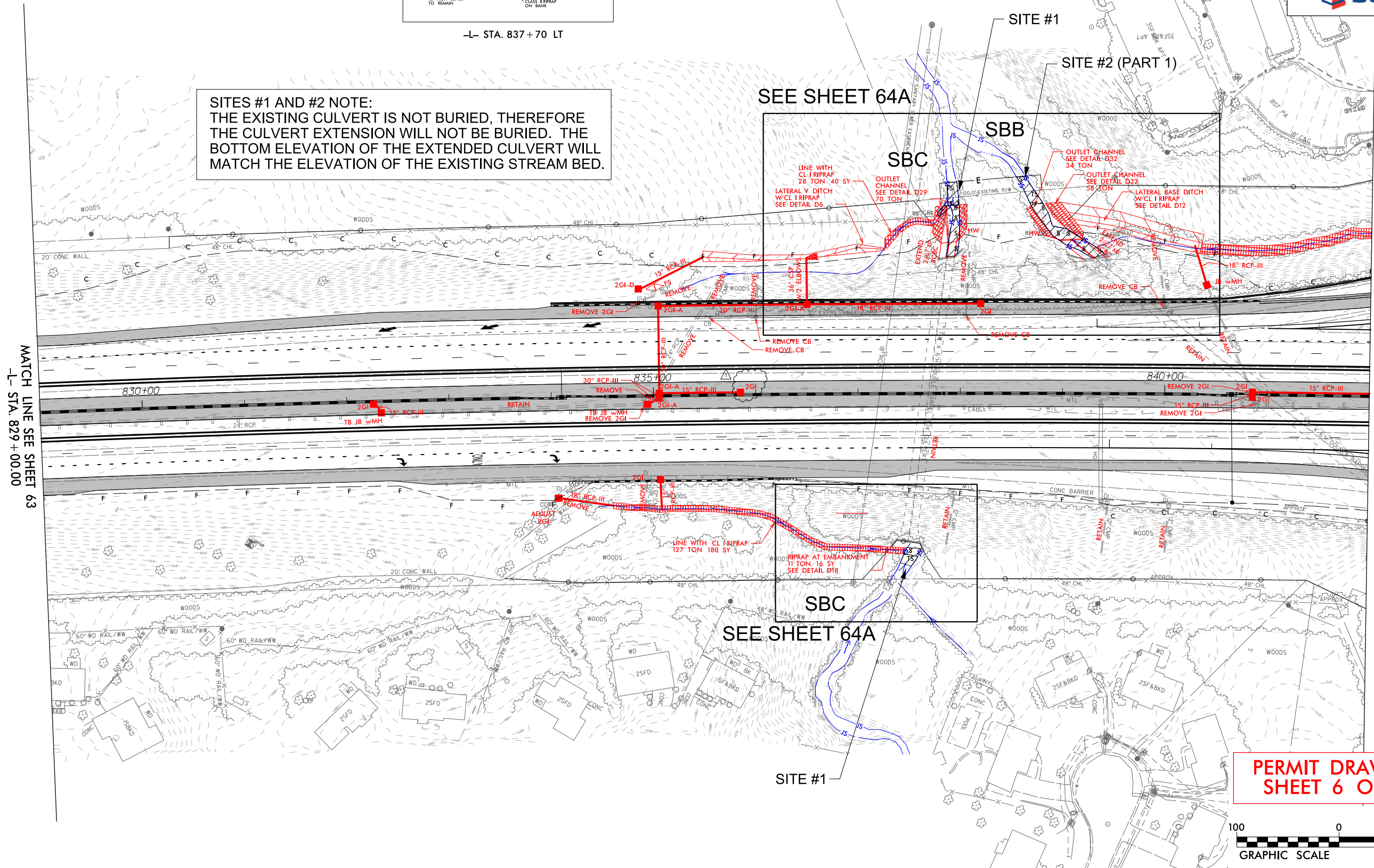


 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/2017

SITES #1 AND #2 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.



PERMIT DRAWING
SHEET 6 OF 17

100 0 100

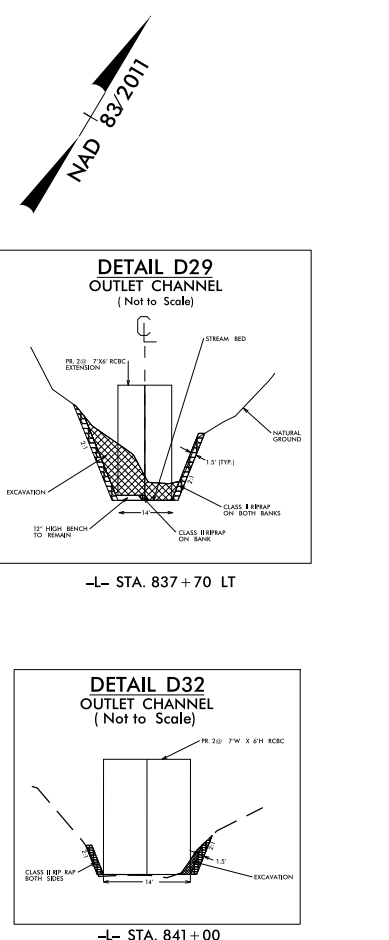
GRAPHIC SCALE

REVISIONS

1. 9/5/19 - ADDED BOX 6440.

MATCH LINE SEE SHEET 63
-L- STA. 829 + 00.00

MATCH LINE SEE SHEET 65
-L- STA. 842 + 00.00

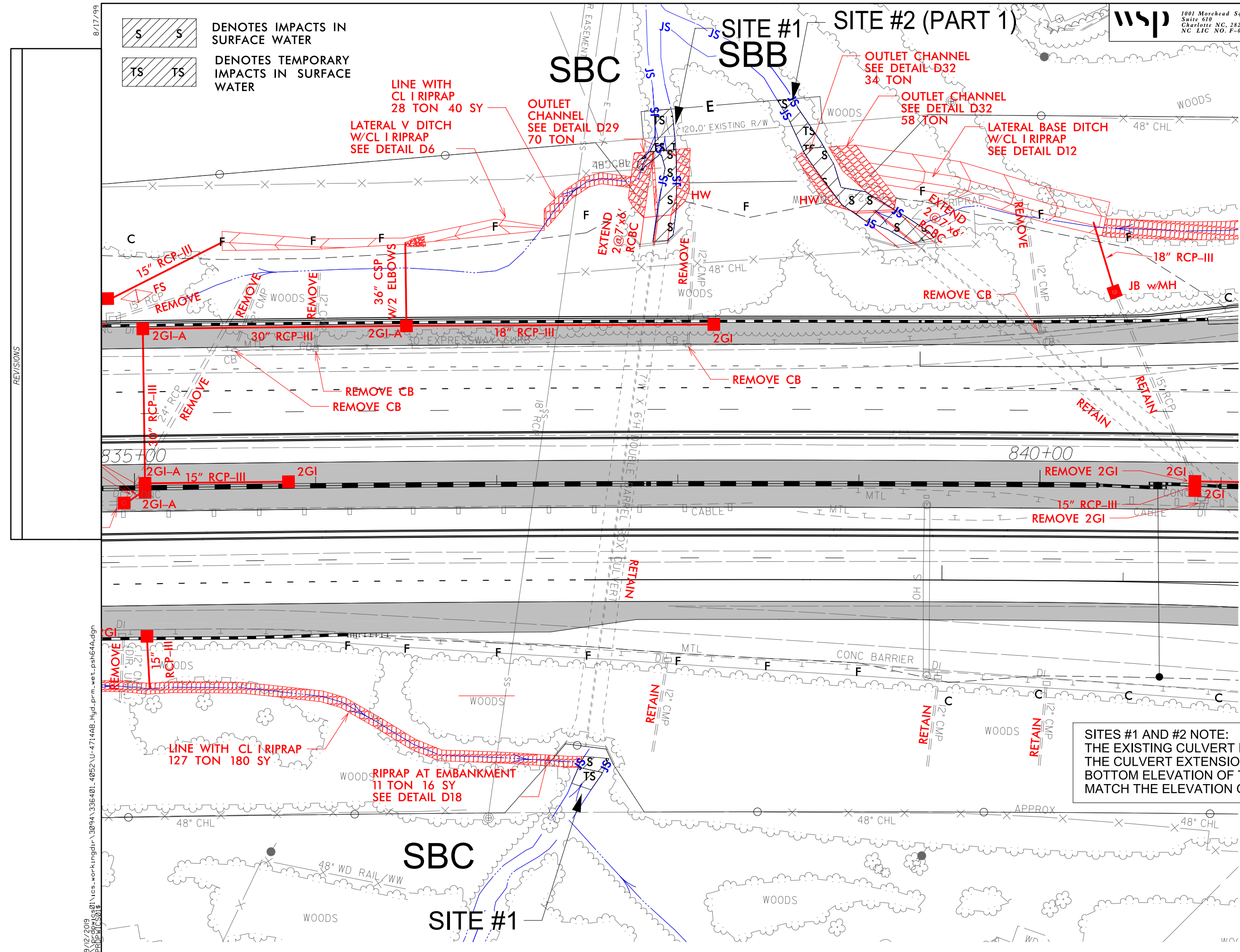


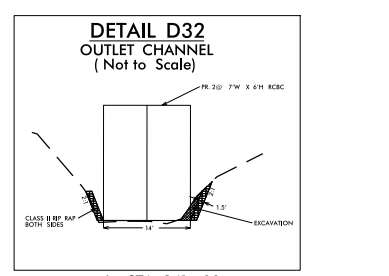
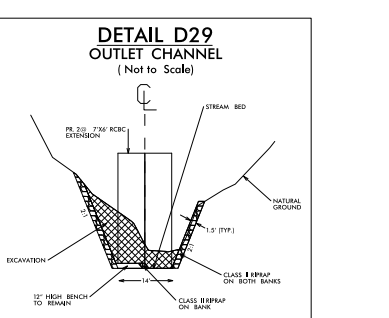
SITES #1 AND #2 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.

PERMIT DRAWING
SHEET 7 OF 17

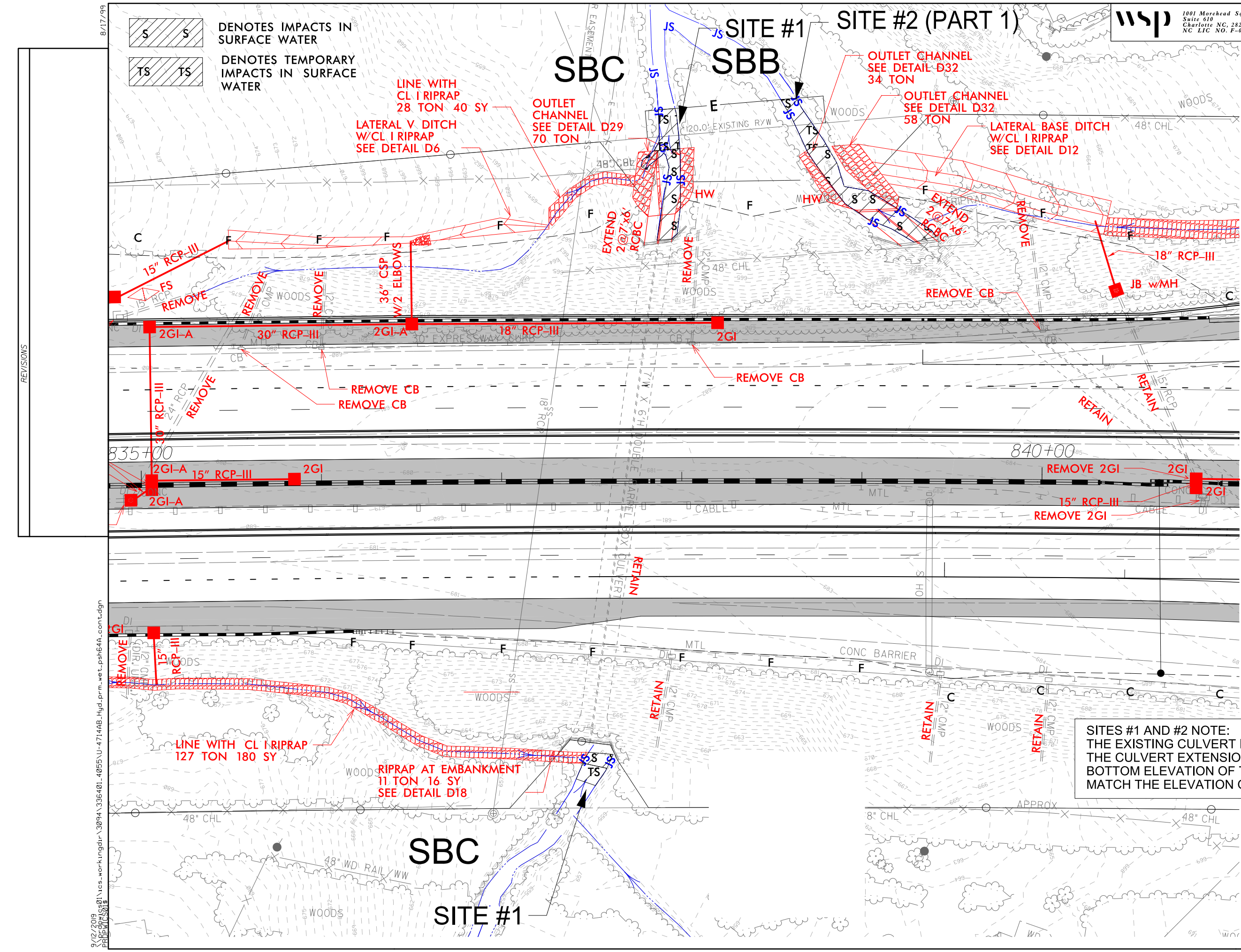
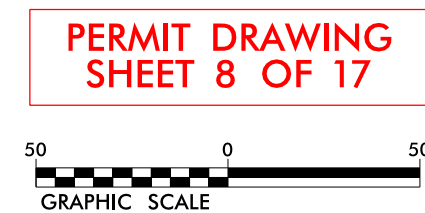
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GRAPHIC SCALE



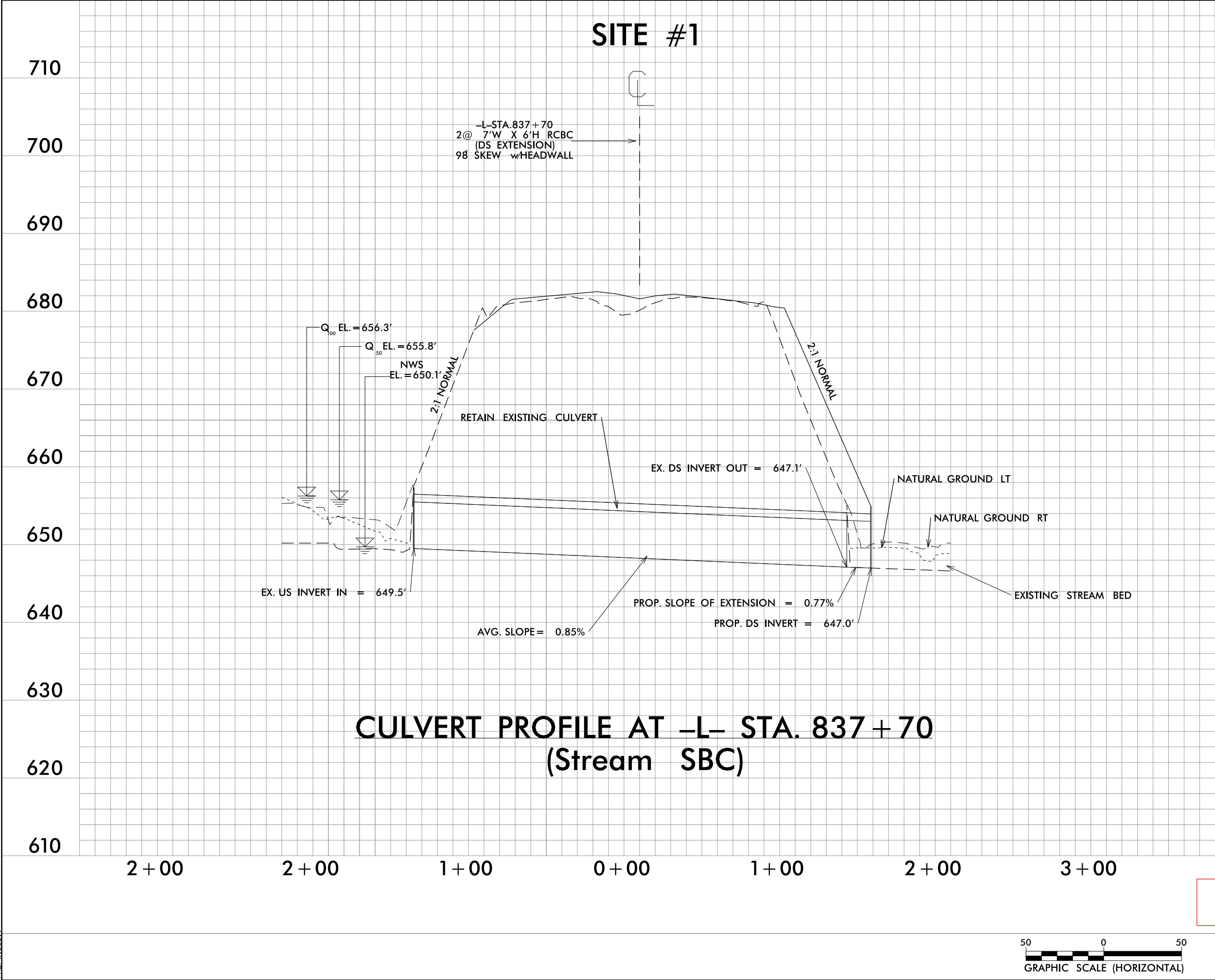


SITES #1 AND #2 NOTE:
THE EXISTING CULVERT IS NOT BURIED, THEREFORE
THE CULVERT EXTENSION WILL NOT BE BURIED. THE
BOTTOM ELEVATION OF THE EXTENDED CULVERT WILL
MATCH THE ELEVATION OF THE EXISTING STREAM BED.



5/28/99

9/12/2019
\\spsdpc\cs01\ics_workingdir\3094\336401_4051\U-4714AB_Hyd-prm-wet.psh64_pf1_culvert.837.dgn
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PROJECT REFERENCE NO. U-4714AB		SHEET NO. 64-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

**PERMIT DRAWING
SHEET 9 OF 17**

50 0 50
GRAPHIC SCALE (HORIZONTAL)

10 0 10
GRAPHIC SCALE (VERTICAL)

5/28/99

9/12/2019
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SITE #2

PROJECT REFERENCE NO.		SHEET NO.
U-4714AB		64-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

710

700

690

680

670

660

650

640

630

620

610

690

680

670

660

650

640

630

620

610

2 + 00

2 + 00

1 + 00

0 + 00

1 + 00

2 + 00

3 + 00

CULVERT PROFILE AT -L- STA. 841+00
(Stream SBB)

-L-STA. 841+00
2 @ 7' X 6' RCBC
(DS EXTENSION)

Q₁₀₀ EL.=663.4'
Q₅₀ EL.=663.2'
NWS EL.=658.7'

2:1 NORMAL

RETAIN EXISTING CULVERT AND EXTEND
IN DOWNSTREAM

SIDE-TAPERED INLET

EX. US INVERT = 657.2'

BOX CULVERT SLOPE= 1.45%

2:1 NORMAL

EX. DS INVERT = 648.9'

PR. SLOPE OF EXTENSION = 1.1%

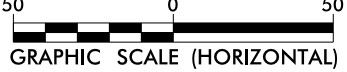
PR. DS INVERT = 648.5'

NATURAL GROUND LT

NATURAL GROUND RT

STREAM BED

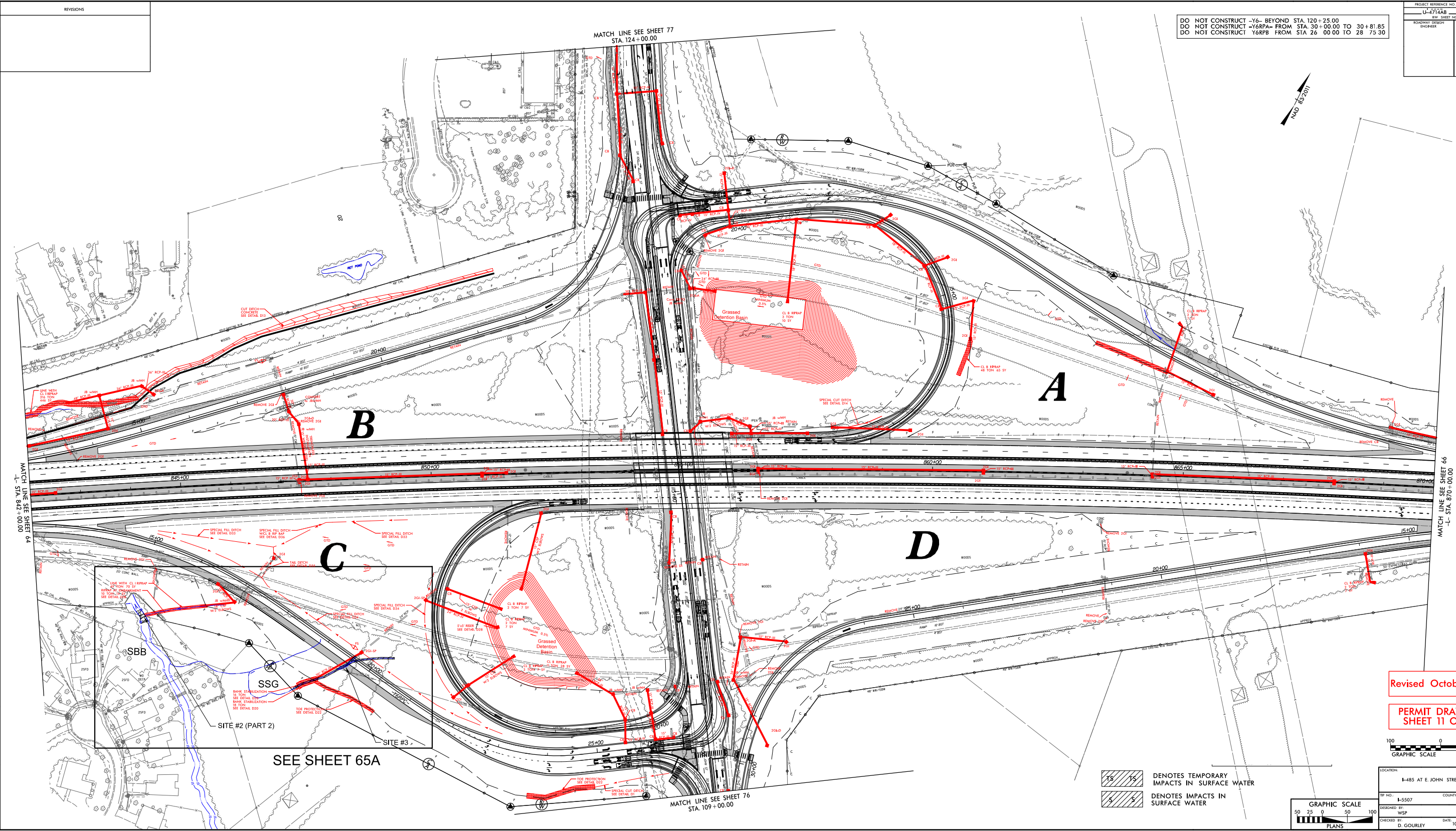
PERMIT DRAWING
SHEET 10 OF 17



REVISIONS
1.7.20/2020 - REMOVED THE PROPOSED ACCESS ROAD FROM THE DESIGN
2.10/9/2020 - REVISED -66-, -68- & -69- FOR NORTHERN EXTENSION

DO NOT CONSTRUCT -Y6- BEYOND STA. 120+25.00
DO NOT CONSTRUCT -Y6RPA- FROM STA. 30+00.00 TO 30+81.85
DO NOT CONSTRUCT -Y6RFB- FROM STA. 26-00.00 TO 28-73.30

PROJECT REFERENCE NO.	SHEET NO.
U-4714AB	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Revised October 2021

PERMIT DRAWING
SHEET 11 OF 17

15 15
5 5
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN
SURFACE WATER

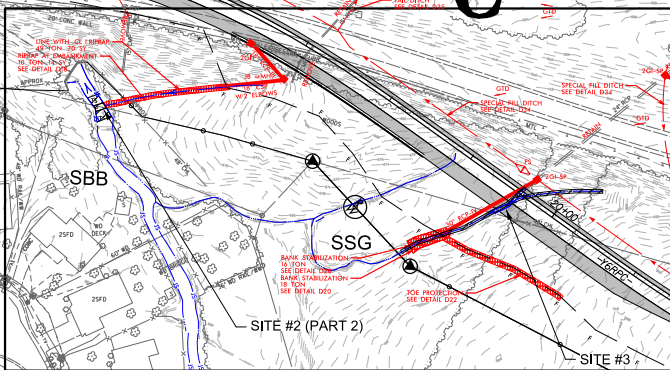
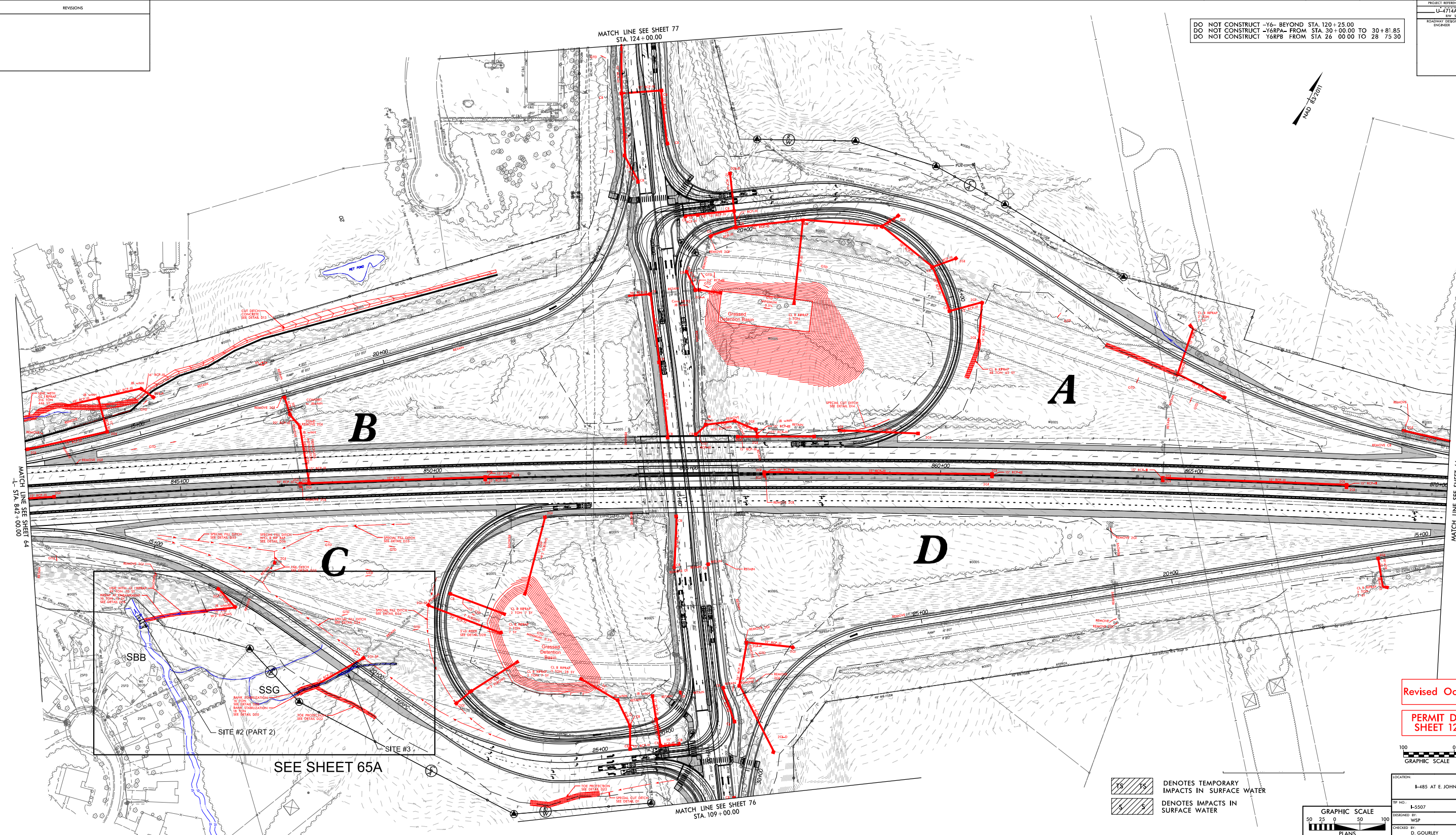
GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION	I-485 AT E. JOHN STREET (SR 1010)
TRP NO.	I-5507
DESIGNED BY	WSP
CHECKED BY	D. GOURLEY
DATE	10/12/2021

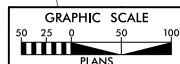
REVISIONS
1.7.20/2022 - REMOVED THE PROPOSED ACCESS ROAD FROM THE DESIGN
2.10/9/2020 - REVISED -16'-100" & -100' FOR NORTHERN EXTENSION

DO NOT CONSTRUCT -Y6- BEYOND STA. 120+25.00
DO NOT CONSTRUCT -Y6RPA- FROM STA. 30+00.00 TO 30+81.85
DO NOT CONSTRUCT Y6RPA FROM STA. 26 00.00 TO 28 75.30

PROJECT REFERENCE NO.	SHEET NO.
U-4714AB	65
ROADWAY DESIGN	HYDRAULICS
ENGINEER	ENGINEER



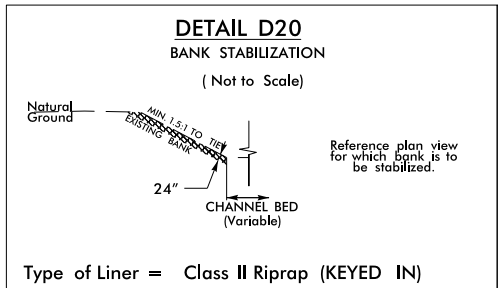
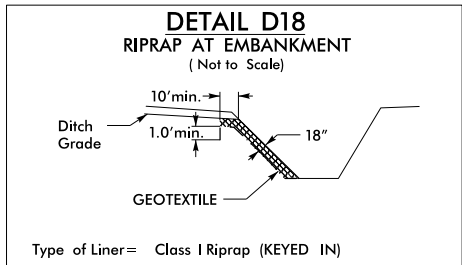
15 15
5 5
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER



Revised October 2021
PERMIT DRAWING
SHEET 12 OF 17

LOCATION	I-485 AT E. JOHN STREET (SR 1010)
TRP NO.	I-5507
DESIGNED BY	WSP
CHECKED BY	D. GOURLEY
DATE	10/12/2021

8/17/99



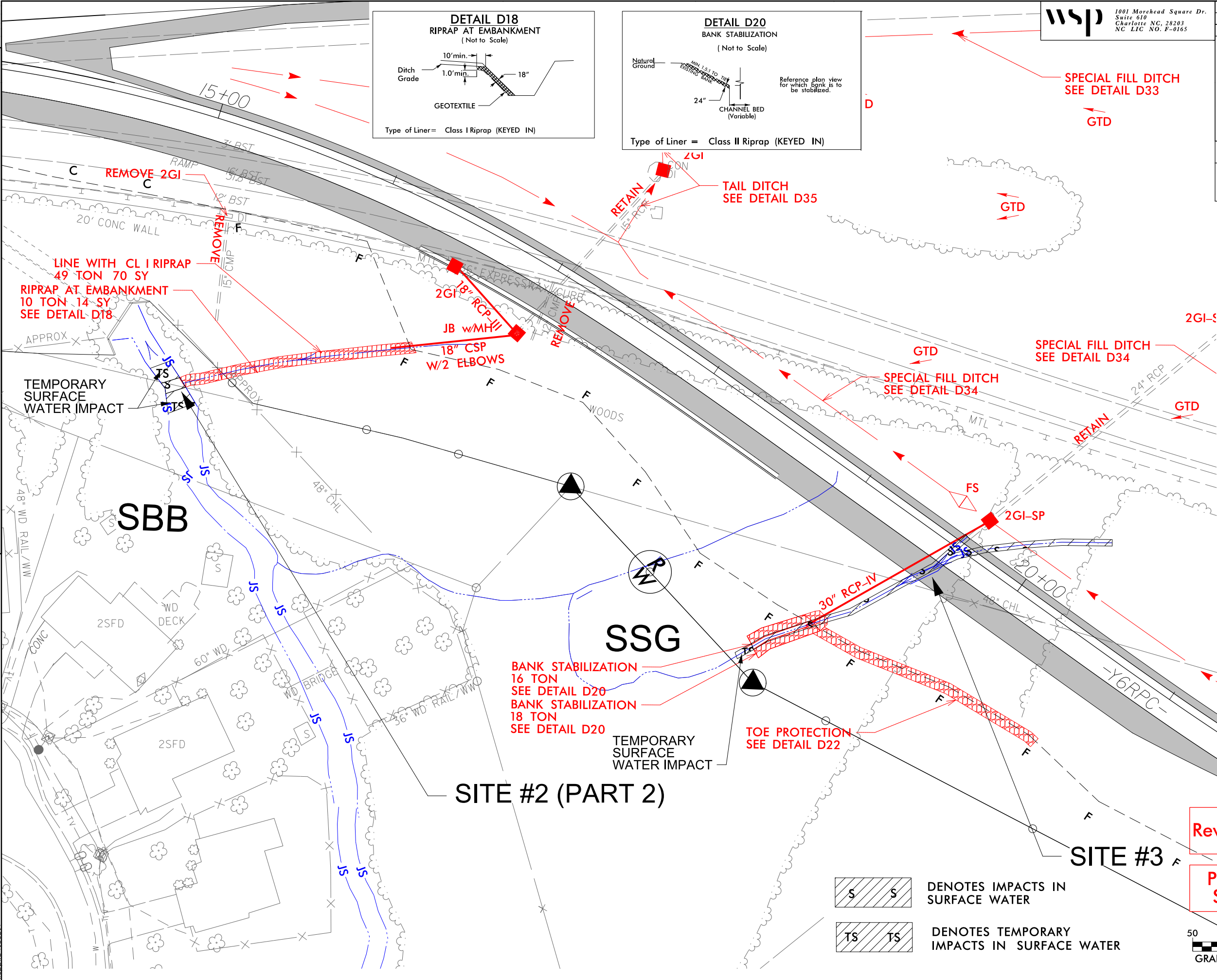
wsp
1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

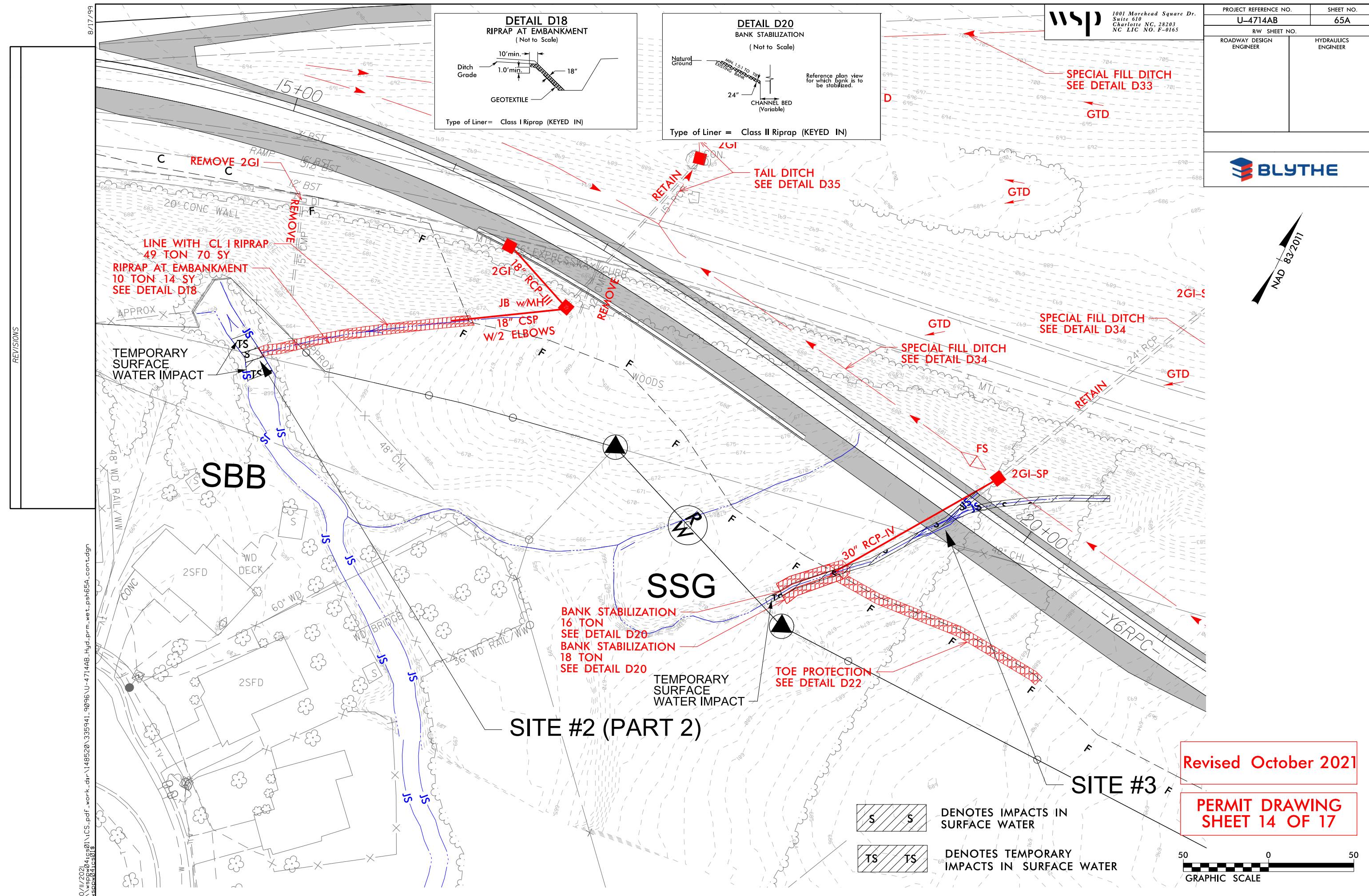
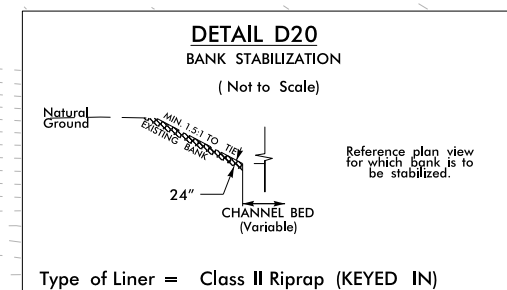
PROJECT REFERENCE NO. U-4714AB		SHEET NO. 65A
R/W SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

BLYTHE

REVISIONS

10/11/2021
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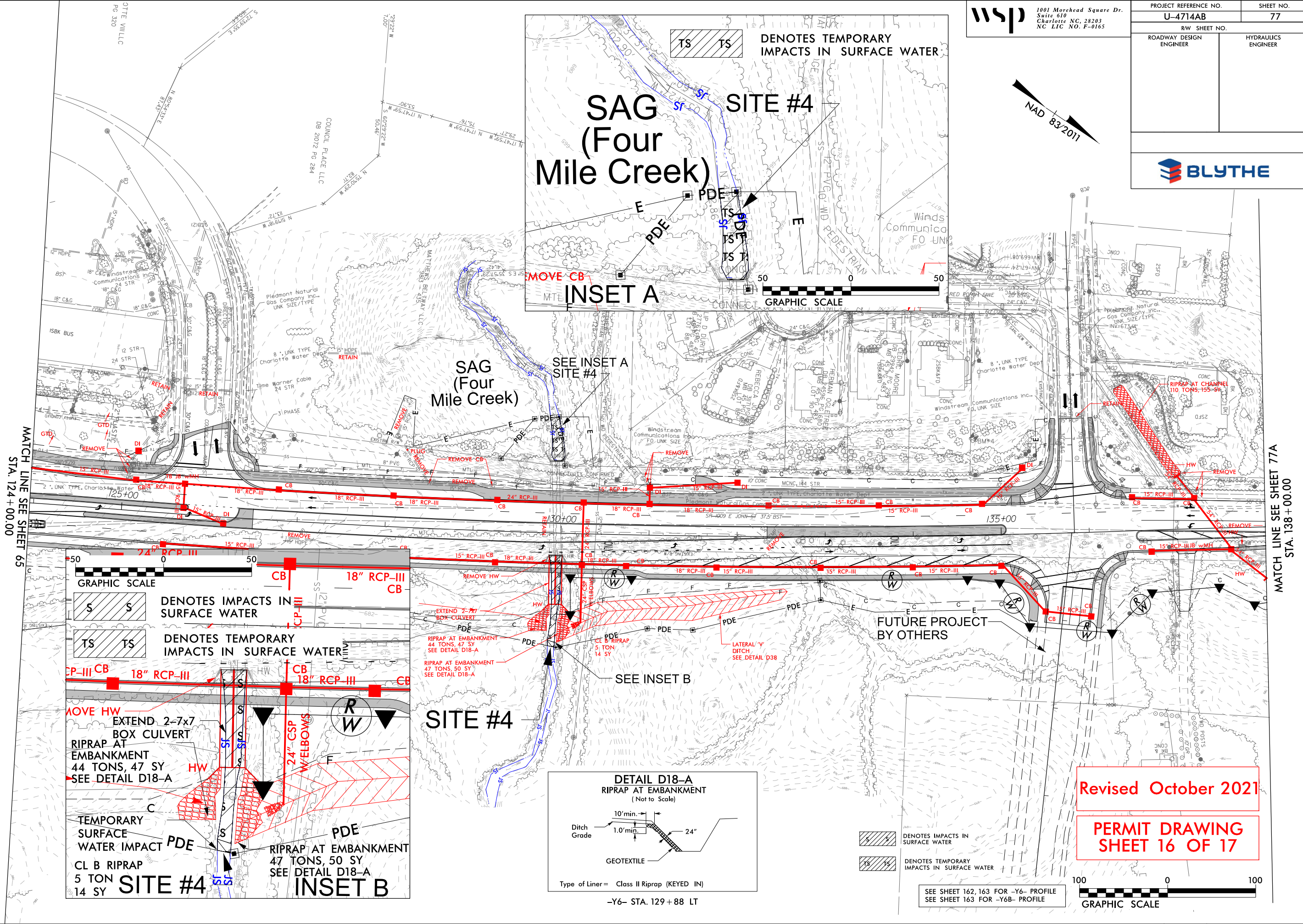





8/17/99

11/22/2021
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REVISIONS




wsp 1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165

PROJECT REFERENCE NO.		SHEET NO.	
U-4714AB		77	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			

5/28/99 10/11/2021 \\wsp\p04\cs\pdf_work_dir\148520\335941_9098\5507_Hyd-prm_wet.psh77.pfl_culvert.dgn

SITE #4



1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC NO. F-0165


PROJECT REFERENCE NO.
U-4714AB

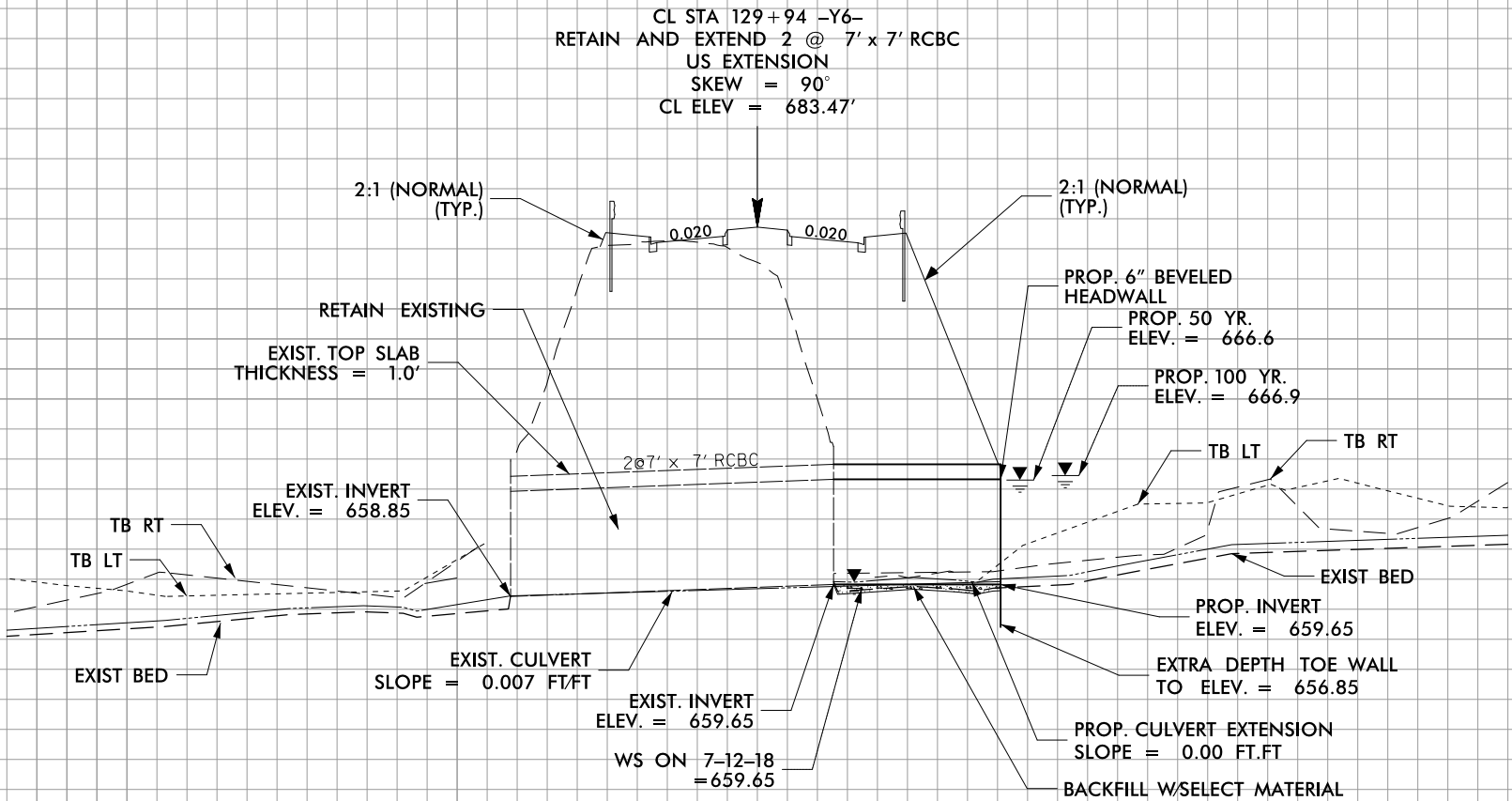
ROADWAY DESIGN
ENGINEER

SHEET NO.
77-1

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED





CULVERT PROFILE AT -L- STA. 129+94
STREAM SAG (FOUR MILE CREEK)

Revised October 2021

PERMIT DRAWING
SHEET 16A OF 17

50 0 50

GRAPHIC SCALE (HORIZONTAL)

10 0 10

GRAPHIC SCALE (VERTICAL)

WETLAND AND SURFACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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	837+80 -L- (LT)	Extend 2 @ 7' x 6' RCBC						< 0.01		14		
1	837+80 -L-	Bank Stabilization						0.01	< 0.01	45	33	
2	839+00 -L- (LT)	Extend 2 @ 7' x 6' RCBC						< 0.01		31		
2	839+00 -L- (LT)	Bank Stabilization						0.01	< 0.01	51	31	
2	15+20 -Y6RPC- (RT)	Bank Stabilization						< 0.01	< 0.01	6	20	
3	19+50 -Y6RPC (RT)	30" RCP						< 0.01		100		
3	19+50 -Y6RPC (RT)	Bank Stabilization						< 0.01	< 0.01	31	10	
3	19+50 -Y6RPC (LT)	Roadway Fill						< 0.01		97		
4	129+50 -Y6- (RT)	Bank Stabilization						< 0.01	< 0.01	42	6	
4	129+50 -Y6- (RT)	Extend 2 @ 7' x 7' RCBC						0.01		56		
4	129+50 -Y6- (LT)	Temporary Erosion Measures							0.06		50	
TOTALS*:								0.07	0.08	473	150	0

NOTES:

At Sites 1 and 2, the existing culvert is not buried, therefore the culvert extension will not be buried. The bottom elevation of the extended culvert will match the elevation of the existing stream bed.

At Site 1, 0.01 ac (45 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 2, 0.01 ac (51 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

At Site 3, <0.01 ac (31 lf) of temporary impacts due to construction activities are included within the bank stabilization impacts.

Revised 10/11/2021
MECKLENBURG
TIP NO. U-4714AB
WBS NO. 39078.1.1