



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

August 3, 2022

MEMORANDUM TO: Mr. Pat Ivey, P.E.
Division 9 Engineer

FROM: *mat* for Philip S. Harris, III, P.E., Manager
Environmental Analysis Unit

SUBJECT: Environmental Permits for the Winston-Salem Northern Beltway in
Forsyth County, Division 9, **TIP U-2579AB.**

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	Individual Permit, dated 7/29/2022 <i>Replaces previous January 22, 2018 Preliminary Approval for this [AB] Section</i>	Dec. 31, 2028
NC Division of Water Resources Section 401 Water Quality Certification	Individual Cert. No. 4131, dated 1/10/2022 <i>Previous Certifications remain applicable except where superseded by this modification</i> Original Water Quality Certification, dated November 14, 2017 for R-2247 B Phase 2, CA, CB, CD, D, EA, EB, and EC, U-2579 C Phase 2, D, E, and F, and U-2579 AA and AB and subsequently modified Revision 2 dated December 21, 2017; Revision 3 dated February 7, 2019; Revision 4 dated August 13, 2019; Revision 5 dated November 14, 2019; Revision 6, dated November 30, 2020; In-Field Modification dated January 14, 2021; and, Revision 7 dated February 9, 2021	Dec. 31, 2028

Please feel free to contact our Unit for any questions.

cc:
NCDOT Permit Website (<https://xfer.services.ncdot.gov/pdea/PermIssued/>)

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

PROJECT COMMITMENTS

T.I.P Project No. U-2579AA
Winston-Salem Northern Beltway (eastern Section of Future I-74)
from US 311 to I-40
Forsyth County
Federal-Aid Project No. NHF-0918 (94)
WBS Element 34839.1.7

All commitments developed during the project development and design phases for the Winston-Salem Northern Beltway have been incorporated into the current design. Commitments that apply specifically to STIP Projects U-2579AA are shown in black. Those which are not pertinent to U-2579AA have been grayed out.

* Commitments marked by asterisk (*) are taken from the Memorandum of Agreement between SHPO, NCDOT, and FHWA regarding addressing the Adverse Effects to historic resources.

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

PDEA, Roadway Design, Division 9

1. Archaeological site 31FY570, a historic cemetery, will require avoidance or compliance with North Carolina General Statute, Chapter 70.

Action: The commitment will be fulfilled during final design and construction.

2. Temporary construction easements may be required for the historic Clayton Family Farm Property. Temporary easements would not constitute a use under Section 4(f). No permanent right of way (ROW) will be acquired from the Clayton Family Farm Property, and the encroachment on the property will be minimal. The duration of the temporary encroachment on the property will be shorter than the timeframe of construction for the project. The land temporarily occupied from the Clayton Family Farm will be fully restored, that is, the Clayton Family Farm will be returned to a condition that is at least as good as that which existed prior to the project. Based on preliminary plans, a temporary easement is required.

Action: The commitment will be fulfilled during final design and construction.

3. The Eligibility of Site 31FY64 is unknown because archaeologists were denied access to the property. If changes to the preferred alternative causes this site to fall within the area

of potential disturbance, an assessment will be conducted prior to construction. Currently, this site is adjacent to a non-selected alternative.

Action: The commitment will be fulfilled during ROW acquisition.

4. A Design Noise Study was conducted in 2016 for the project, including R-2247 Sections EC and CD. *The study includes an evaluation of Ronald Reagan High School. Update 3/28/2017: A DNR for U-2579C was completed in July 2016 under the 2011 NCDOT Traffic Noise Abatement Policy. An Addendum to the DNR will be prepared in 2017 to reflect additional changes that have occurred during the final design process.*

Action: The ROD was signed in February 2008. Design Noise Reports based upon preliminary design were completed for U-2579 AB, B & C in 2009. A Revised Design Noise Report based upon final design was completed for U-2579B and approved by FHWA in 2014. A Revised Design Noise Report based upon final design will be completed for U-2579C in 2015. Revised Design Noise Reports based upon final design of U-2579AA and AB will be completed prior to Project Letting scheduled for October 2021. All Design Noise Reports are subject to approval by NCDOT and FHWA. The original Date of Public Knowledge of February 15, 2008 will remain unchanged for all sections of U-2579. A revised DNR will be prepared in 2015 for U-2579C under the NCDOT 2011 noise abatement criteria.

The design noise study for the Project R-2247 portion of the Beltway will include an evaluation of Ronald Reagan High School.

- *6. NCDOT will develop Data Recovery Plans (DRPs) for Sites 31FY888, 31FY893, 31FY902, 31FY903, 31FY910, 31FY911, 31FY912, 31FY921, 31FY925, 31FY944, and 31FY1053, all of which will be affected by the subject project, in consultation with the North Carolina State Historic Preservation Office (NC-HPO).

*Action: A Data Recovery Plan for excavation of site 31FY925** was developed and implemented. Data recovery was completed in February 2019.*

- *7. The NCDOT will ensure that each DRP is implemented after Right-of-Way is acquired or once Right-of-Entry is secured from the property owners and prior to construction activities within the site location as shown in the DRP.

Action: A Data Recovery Plan was developed and implemented after design was completed and Right-of-Way was acquired. Data recovery was completed in February 2019.

- *8. As they are developed, each individual DRP will be forwarded for review by the SHPO.

Action: The data recovery plan was submitted to SHPO on 9/30/2018. SHPO concurred with the data recovery plan on 11/9/2018.

- *9. Upon completion of each Data Recovery effort, the NCDOT will prepare and forward a Management Summary to the SHPO detailing the results of the Data Recovery field investigations. The Management Summary will contain sufficient information to demonstrate that the field investigation portion of the DRP has been implemented.

Action: The end of fieldwork management summary was submitted to SHPO on 2/26/2019.

- *10. Upon receipt of the Management Summary detailed in Section 5, NC-HPO will respond within ten days to the recommendations contained in the document.

Action: SHPO concurred with the results of the management summary on 3/18/2019.

- *11. Upon acceptance of the recommendations contained in the Management Summary, NC-HPO will issue to NCDOT documentation that the Data Recovery field investigations have been completed.

Action: SHPO concurred with the recommendation that no further archaeological work is required on 3/18/2019.

- *12. The analysis and report preparation, detailing sites 31FY888, 31FY893, 31FY901, 31FY902, 31FY903, 31FY910, 31FY911, 31FY912, 31FY921, 31FY925, 31FY944, 31FY1053 will be completed by NCDOT, or their consultants, within 24 months after completion of each site's fieldwork schedule.

*Action: This commitment is not necessary for site 31FY925** because the end of fieldwork management summary recommended no further work. SHPO agreed on 3/18/2019.*

PDEA, Roadway Design, Division 9, ROW Branch:

1. In the vicinity of the Alexander Hege House, NCDOT in consultation with NC-HPO will determine the extent of control-of-access fencing, as well as its type, material, and finish. NCDOT will purchase and then install the control-of-access fencing within NCDOT ROW. NCDOT will maintain the control-of-access fencing.

Action: The commitment will be fulfilled during final design and construction.

Roadway Design, Utility Unit. Division 9, ROW Branch, Geotechnical:

1. NCDOT will continue to work with residents of affected communities to develop mitigation strategies for community impacts. The following options will be considered during final design to minimize impacts to communities/subdivisions: construction of noise abatement barriers landscaping, or vegetative screens based on NCDOT policies and guidelines. These types of options already have been incorporated into the preliminary engineering designs where practicable but will be further considered during final design.
Action: This commitment has been implemented into the design through the completion of the noise wall abatement process for U-2579AA and U-2579AB. NCDOT will prepare a post construction landscape design/corridor plan.
2. During final design, all utility providers and railroad operators would be coordinated with to ensure that the proposed design and construction of the project would not substantially disrupt service.
This is a standard commitment.
3. The development of this project will be further coordinated with the City of Winston-Salem and Forsyth County Parks and Recreation Departments to minimize any conflicts with future parks and greenways planning. Provisions will be considered to maintain the future viability of any impacted proposed greenways.
Action: The Department has coordinated with the City of Winston Salem to review options that would not preclude future greenway plans.
4. NCDOT will coordinate with the NCDENR Division of Waste Management regarding the Reynolds Auto Junkyard and other solid waste sites along the selected alternatives for Projects R-2247, U-2579, and U-2579A. Impacted sites will be remediated as required.
Action: The GeoEnvironmental Section of the Geotechnical Engineering Unit will coordinate with the Right of Way Branch to provide acquisition recommendations for potentially contaminated parcels. This coordination will occur prior to the parcel being acquired. Prior to construction the GeoEnvironmental Section will also coordinate with the NCDENR Division of Waste Management to address contaminated soil and ground water that may be encountered during construction.
5. NCDOT will consider wildlife crossings where appropriate in the vicinity of stream crossings, which will allow animals to cross under the Beltway.
Action: No special wildlife crossings are proposed. Opportunities for wildlife to cross exist along streams under bridges and through culverts. Also, small wildlife can use floodplain drains which are provided in the B and C projects.

6. NCDOT will coordinate with the Town of Kernersville regarding the compatibility of the Beltway design with the proposed Big Mill Farm Road interchange at US 421. This coordination will take place once all relevant design information has been obtained regarding the design of the Big Mill Farm Road interchange.

Action: Roadway Design coordinated and will continue to coordinate until project completion.

7. NCDOT intends to maintain a connection from Northampton Road to Old Walkertown Road. The final design will be developed based on design constraints and cost considerations.

Action: Current connection will be maintained.

- *8. NCDOT will align the Alexander Hege House driveway opposite the new intersection ramp, so property access will be under full traffic control. This will allow NCDOT and the property owner full movement for equipment and trucks.

Hydraulics Unit:

1. All bridges and culverts located in designated FEMA flood zones will be designed such that an increase in flood elevations would not exceed the lesser of 0.5 foot per the 100-year flood event or the elevation needed to protect structures.

Action: The commitment will be fulfilled during final design and construction. All MOAs have been approved by NCFPM.

2. The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Action: The commitment will be fulfilled during final design and construction. Coordination with the FMP will continue through project completion.

3. NCDOT will avoid installing bridge bents in creeks to the maximum extent practicable.

Action: The commitment will be fulfilled during final design and construction.

Roadside Environmental, Division 9:

1. During design and construction, efforts will be made to minimize the impact to existing vegetative buffers and natural areas. NCDOT will prepare a post construction landscape

design/corridor plan to mitigate construction impacts and integrate enhancements, while remaining sensitive to the environment and to the safety of the traveling public.

Action: This is a standard commitment; post construction plans will be prepared.

2. NCDOT will incorporate sediment and erosion control measures according to the Design Standards in Sensitive Watersheds for all construction in the 303(d) listed portions of Muddy Creek in compliance with 15a NCAC 04B.0124.

Action: The commitment will be fulfilled during final design and construction.

- *3 NCDOT will provide tree protection measures along the National Register boundary lines adjoining project construction areas. NCDOT will exercise best management practices to minimize, as practicable, tree trimming and disturbance of existing plantings along the National Register boundary.

Action: NCDOT will implement this commitment as described in the concurrence form with SHPO. Properties listed are Alexander Hege House, Samuel Stauber House & Barn John Henry Kapp Farm, Clayton Family Farm Seaver's Gas Station, Hammock Family Farm And John & Charles Fries Day Farm.

Roadway, Hydraulics:

1. Generally, 2:1 slopes will be used where possible to minimize culvert length, and NCDOT will shorten culvert lengths where possible and daylight systems between culverts where possible in interchange areas.

Action: Where streams and wetlands are located, where possible, 2:1 slopes were used to minimize impacts.

Right of Way Branch:

1. NCDOT will work with the property owner of Walker Mobile Home Park off of Bethania-Tobaccoville Road to determine the feasibility of relocating the homes to another area of the parcel.

This commitment will take place after design is complete and during Right of Way acquisition.

2. NCDOT will contact the pastor of Mount Pleasant Holiness Church prior to the public hearing and will, if desired, meet with the pastor and members of the church to discuss the impact of Project U-2579 on the church, NCDOT relocation policies, and potential mitigation.

Action: Since the 2004 SFEIS/SDEIS, NCDOT and consultant staff met with the Pastor and members of Mount Pleasant Holiness Church during the 2005 Public hearings. The church representatives declined to attend an Additional meeting regarding this project or impacts of the Northern Beltway on the church.

3. NCDOT will contact minority residents of North Oaks subdivision prior to the public hearing and will, if desired, meet with them to discuss the impacts of Project U-2579 on the community, NCDOT relocation policies, and potential mitigation.

Action: NCDOT and consultant staff met with North Oaks community on November 15, 2004.

Division 9 Construction Unit:

1. A pre-construction survey will be done in areas of possible concern regarding structural damage to assess a pre-construction condition.

Action: The commitment will be done prior to initiation of construction.

Division 9:

1. During construction for Project U-2579AB, NCDOT will coordinate with the Forsyth County School Board to ensure the safety of those students bicycling and/or walking to Sedge Garden Elementary School. If a portion of school property is needed for a temporary construction easement that area will be fenced to keep school children out of the construction site. The school property will be restored following construction. *Action: This commitment will be implemented during construction.*

2. NCDOT will coordinate with local media during the construction of the project to alert the public of traffic restrictions and construction related activities.

Action: This commitment will be implemented during construction.

3. NCDOT shall not approve any new driveway permits along the property of the historic John Henry Kapp Farm within the right of way for the Preferred Alternative. This condition shall be filed in the NCDOT Division office responsible for driveway permits.

Action: This commitment will be implemented as described in the concurrence form with SHPO, during construction of the project.

4. This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics

Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

Action: The commitment will be fulfilled during final design and construction.

PDEA-NES EAU:

1. The biological conclusion for the Northern long-eared bat is Unresolved. Construction authorization will not be requested until ESA compliance is satisfied for the northern long-eared bat.

Action: NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for NLEB.

COMMITMENTS FROM PERMITTING

No new commitments were developed during permitting.



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

February 10, 2021

Regulatory Division

Action ID No. SAW-2017-02112

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:

*Per 2/11/2011 tel. conv. w/
Bill Barrett NCDOT, this is
a typo. Should be 'Section AB'.
E.H.H.*

Reference the Department of the Army (DA) phased permit issued on January 22, 2018, to the North Carolina Department of Transportation (NCDOT), for impacts associated with the new location project (TIPs No. R-2247 and U-2579), the Winston-Salem North Beltway, in Forsyth County, North Carolina.

On December 2, 2020, the U.S. Army Corps of Engineers (Corps) received your request to modify the standard permit for Section B phase of the U-2579 project. The request included final design drawings, including final design for utility relocations, and a mitigation proposal. The total waters of the U.S., including wetland impacts, for the U-2579AB final design are: 1.43 acres of permanent wetland impacts, 0.01 acre of temporary wetland impacts, 9,180 linear feet of permanent stream impacts, of which 219 linear feet are bank stabilization, 948 linear feet of temporary stream impacts, and 3.61 acres of permanent pond 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 and as shown on the revised PERMIT DRAWINGS, Sheets 1 through 78 (U-2579AB), received on December 2, 2020.

For your information, the following special conditions from the original authorization have been updated to include the new compensatory mitigation requirements (enclosed), and the new modified permit drawings:

Special Conditions

1. All work authorized by this permit shall be performed in strict compliance with the following sets of plans: "U-2579DEF: PERMIT MODIFICATION PACKAGE" Sheets 1-97, dated December 18, 2018, with revisions to Sheets 60, 61, 72, 73, 74, 75, 96, & 97, received on November 5, 2020; Sheets 1-34, dated September 16, 2019; and PERMIT DRAWINGS Sheets 1 through 78 (U-2579AB), received on December 2, 2020; which are part of this permit. The Permittee shall ensure the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers (Corps) prior to any active construction in waters or wetlands.

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

26. You must comply with the following conditions specified in the February 9, 2021 water quality certification:

Condition(s) of Certification

1. This approval is only valid for the purpose and design that you submitted in your application for a modification dated December 2, 2020. All the authorized activities and conditions associated with the phased permit Water Quality Certification issued on November 14, 2017, along subsequent modifications, and revisions, still apply except where superseded by this Certification.

2. *Off-Site Stream Mitigation.* Compensatory mitigation for 5,222 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (OMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated September 29, 2017 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.

3. Off-Site Wetland Mitigation. Compensatory mitigation for impacts to 1.43 acres of riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated September 29, 2017 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.

All other conditions of the permit, including the permit expiration date of December 31, 2028, 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: 2021.02.10
11:35:59 -05'00'

Monte Matthews
Lead Project Manager
Wilmington District

Enclosure

Electronic Copies Furnished with Enclosure:

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

Mr. Bill Barrett
NCDOT
wabarrett@ncdot.gov

July 2022

Modification
for
Noise Wall



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

July 29, 2022

Regulatory Division

Action ID. SAW-2017-02112
NC DOT TIP No.: U-2579AA and U-2579AB

Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit Head
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Reference the Department of the Army (DA) phased permit issued on January 22, 2018, and subsequent modifications dated March 4, 2019, August 13, 2019, January 29, 2020, December 9, 2020, and February 10, 2021, for the impacts associated with the new location project (TIPs R-2247 and U-2579), the Winston-Salem Beltway, in Forsyth County, North Carolina. Reference is also made to your Section U-2579 AB and AA permit modification request dated November 3, 2021. This modification requests the following:

1) To revise the previously permitted U-2579AB section (USACE 404 Permit Modification for U-2579AB dated February 10, 2021; NCDWR 401 WQC Revision 7, dated February 9, 2021) with impacts associated with the inclusion of the construction of a noise wall, and

2) To provide final design and impact calculations for the Winston-Salem Northern Beltway (Eastern Section of Future I-74), from US 311 to I-40 (U-2579AA). This U-2579AA section was in preliminary design phase when the original permit application was submitted on October 2, 2017.

Impacts associated with the modifications are as follows:

U-2579AB —sites added					
Permit Site	Waters ID	Permanent Impact	Temporary Impact	Mechanized Clearing Impact	Impacts requiring mitigation

14B	ESE-W36 (wetland)	0.01 ac	0 acre	0.02 acre	0.02 acre
31	ESE-S48 (tributary)	15 lf	10 lf	NA	15 lf

U-2579AA —Changes from Preliminary to Final Design			
	Wetland Impacts	Stream Impacts	Open Water
<u>Preliminary Plans</u> (permitted January 22, 2018)	1.43 acre	3,019 lf	0 acres
<u>Final Plans</u> (with Mod)	1.56 acre	3,044 lf	3.04 acres

The Corps has completed the evaluation of your request and has determined that it is appropriate and reasonable, and a public notice is not required for this modification. Furthermore, we have determined the proposed project modifications described above are not contrary to the public interest and are consistent with the 404(b)(1) Guidelines and therefore, the DA permit is hereby modified with the additional Special Condition detailed below.

Additional Special Condition(s):

1. All work authorized by this permit modification shall be performed in strict compliance with the plans submitted with the November 3rd, 2021, modification request (TIP U-2579 Permit Drawings Sheets 1-79 and TIP U-2579AA Permit Drawing Sheets 1-32). These plans are now considered a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from these permit plans. Any modification to the submitted permit plans must be approved by the US Army Corps of Engineers prior to any active construction in waters or wetlands.

All other conditions of the original permit and previous modifications remain applicable, and the expiration date is unchanged. No additional compensatory mitigation is required for this specific request.

This approved modification should be attached to the original permit and will be utilized for future compliance reviews of the project. If you have questions, please contact Andy Williams of the Wilmington District Regulatory Division, at telephone (919) 554-4884.

FOR THE DISTRICT COMMANDER

*Monte
Matthews*

Date: 2022.07.29

14:59:34 -04'00'

Monte Matthews
Lead Project Manager
Wilmington District

cc. electronic

Amy Chapman, NCDEQ
Dave Wanucha, NCDEQ

ROY COOPER

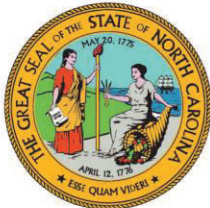
Governor

MICHAEL S. REGAN

Secretary

S. DANIEL SMITH

Director



NORTH CAROLINA
Environmental Quality

February 9, 2021

Mr. Philip S. Harris, III, P.E., CPM
Natural Environment Section Head
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: **Modification to 401 Water Quality Certification** (WQC004131) for Section U-2579AB of the Winston Salem Northern Beltway (Eastern Section of Future I-74) from I-40 to I-40 Business/US 421, pursuant to Section 401 of the Federal Clean Water Act, for the Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 north (U-2579C Phase 2, D, E, and F) and from I-40 Business to US 311 south (U-2579AA and AB). This will be NCDWR Project No. 19980260 (version 7).

Note: On January 26, 2021, NCDOT requested a revision to the modification issued on January 25, 2021. There were a few minor edits needed and a Table 5 describing wetland utility impacts was inadvertently left out of the original. Therefore, the Certification issued on January 25, 2021 is to be replaced by this Certification dated February 9, 2021.

Dear Mr. Harris:

Attached hereto is a copy of modified Certification No. WQC004131 for TIP U-2579AB (v7-revised) issued to The North Carolina Department of Transportation (NCDOT) dated February 9, 2021.

For reference, WQC004131 was initially issued on November 14, 2017, revised on November 27, 2017, December 21, 2017 and on February 7, 2019. Revised version 4 (modification for TIP R-2247EB) was issued on August 13, 2019. Modification 5 (for U-2579 D, E & F) was dated November 14, 2019. Modification 6 (for U-2579 D, E & F) was issued on November 30, 2020; and, In-Field Modification issued for U-2579 D, E & F on January 14, 2021.

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

Sincerely,
DocuSigned by:

Amy Chapman

9C9886312DCD474...

Director
Division of Water Resources

Electronic copy only distribution:

Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Bill Barrett, NC Department of Transportation
Amy Euliss, DEO, NC Department of Transportation, Division 9
Beth Harmon, Division of Mitigation Services
Amanetta Somerville, US Environmental Protection Agency
Janet Mizzi, US Fish and Wildlife Service
Marla Chambers, NC Wildlife Resources Commission
File Copy



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

**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 1.43 acres of wetlands, 9,180 linear feet of permanent impacts and 824 linear feet of temporary impacts to jurisdictional streams in Forsyth County. The project shall be constructed pursuant to the modification application dated December 2, 2020. The authorized impacts are as described below:

Table 1. Wetland (Riverine/Riparian) Impacts in the Yadkin Pee Dee River Basin U-2579AB.

Site	Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Impacts Requiring Mitigation (ac)
4A	0.13	-	-	0.13
5A	-	-	<0.01	<0.01
6A	0.03	-	-	0.03
7A	0.36	-	-	0.36
12A	0.08	-	0.17	0.25
13A	0.08	-	-	0.08
14A	0.03	-	0.07	0.10
17A	0.06	-	-	0.06
17B	0.09	-	-	0.09
17C	0.03	-	-	0.03
23A	0.22	0.02	0.06	0.30
Total	1.11	0.02	0.29	1.43*

* Mitigation totals are rounded.

Table 2. Stream Impacts in the Yadkin Pee Dee River Basin, U-2579AB

Site	Stream Designation	Description of Impacts	Permanent Impacts (linear ft)	Temporary Impacts (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	Intermittent	Pipe	48	-	-
		Ditch	76	18	-
2	Perennial	Pipe	51	-	-
		Dissipator Basin	20	-	-
		Bank Stabilization	14	-	-
		Detour	-	76	-
3	Intermittent	Pipe	137	12	-
4		Fill	74	-	-
5		Ditch	28	32	-
6	Perennial	Culvert	589	-	589
		Bank Stabilization	26	41	-
		Outlet Protection	81	88	81
6B	Intermittent	Pipe	-	19	-
7	Perennial	Pipe	92	-	92
		Ditch	84	10	84
		Riprap Pad	16	25	16
8	Perennial	Pipe	342	-	342
		Bank Stabilization	17	10	-
	Intermittent	Pipe	102	-	-
9	Perennial	Inlet Protection	66	10	66
		Culvert	226	-	226
		Outlet Protection	22	-	22
		Ditch	149	-	149
		Inlet Protection	18	-	18
		Culvert	354	-	354
		Ditch	195	10	195

Table 2. Stream Impacts in the Yadkin Pee Dee River Basin, U-2579AB

Site	Stream Designation	Description of Impacts	Permanent Impacts (linear ft)	Temporary Impacts (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
10	Intermittent	Pipe	556	-	-
	Perennial	Pipe	60	-	-
		Ditch	52	-	-
12	Perennial	Culvert	372	-	372
	Intermittent	Ditch/Stabilization	277	-	-
13		Pipe	136	-	-
	Perennial	Pipe	368	-	368
		Bank Stabilization	28	10	-
14		Pipe	44	-	-
		Pipe cleanout	-	43	-
		Bank Stabilization	22	14	-
15		Pipe	36	10	-
		Riprap Pad	23	48	-
16		Pipe Extension	44	26	-
16A		Pipe	170	10	-
		Bank Stabilization	33	10	
17		Culvert	427	-	427
		Channel Protection	35	-	35
18		Fill	900	102	900
		Bank Stabilization	44	11	-
19		Fill	80	-	-
		Ditch	50	-	-
		Pipe	14	-	-
		Pipe	16	-	-
		Ditch	65	-	-
		Pipe	18	-	-
		Channel Protection	6	6	-

Table 2. Stream Impacts in the Yadkin Pee Dee River Basin, U-2579AB

Site	Stream Designation	Description of Impacts	Permanent Impacts (linear ft)	Temporary Impacts (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
20	Perennial	Pipe	100	-	-
		Ditch	55	10	-
		Pipe	20	-	-
21	Intermittent	Ditch	548	10	
		Ditch	180	50	-
22	Perennial	Ditch	67	-	-
23		Ditch	62	10	
24		Ditch	0	10	-
25		Culvert	92	-	92
		Bank Stabilization	35	5	-
		Outlet Protection	48	13	48
26		Culvert	56	-	-
		Inlet Protection	18	14	-
		Outlet Protection	33	-	-
27	Intermittent	Pipe	14	-	-
		Riprap Pad	12	10	
28	Perennial	Culvert	84	-	
	Intermittent		30	-	
29	Perennial	Ditch	1,023	10	1,023
30		Ditch	0	41	-
Totals			9,180	824	5,222

Table 3. Open Water (Pond) Impacts in the Yadkin Pee Dee River Basin U-2579AB.

Site	Permanent Fill	Impacts Requiring Mitigation
4B	0.89	-
12B	2.37	-
24	0.35	-
Totals	3.61	-

Table 4. Utility Stream Impacts in the Yadkin Pee Dee River Basin U-2579AB.

Site	Impact Type	Temporary Impact (linear feet)	Impacts Requiring Mitigation
	Gravity Sewer Line (inches)		
U-1	8	6	-
U-2	16	8	-
U-3	8	8	-
U-4	8	78	-
U-5	8	24	-
Totals		124	-

Table 5. Utility Wetland Impacts in the Yadkin Pee Dee River Basin U-2579AB.

Site	Impact Type	Temporary Impacts (ac)	Impact Requiring Mitigation
U-4	Gravity Sewer Line (8 inch)	0.01	-
U-5		<0.01	-
Totals		0.01	-

Table 6. Culverts/Pipes to be Buried in the Yadkin Pee Dee River Basin U-2579AB.

Site	Culvert/Pipe Size
6	RCBC 12' x 10' (2 barrels)
9	RCBC 6' x 7'
14	RCP III 72"
17	RCBC 8' x 7'
25	RCBC 12' x 7' (3 barrels)
26	RCBC 7' x 8'

The modification application provides adequate assurance that the discharge of fill material into the waters of the Yadkin Pee Dee 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 for a modification dated December 2, 2020. All the authorized activities and conditions associated with the phased permit Water Quality Certification issued on November 14, 2017 and subsequent modifications and revisions, still apply except where superseded by this Certification.

Should your project change, you are required to notify 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 perennial 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.

Condition(s) of Certification

1. This approval is only valid for the purpose and design that you submitted in your application for a modification dated December 2, 2020. All the authorized activities and conditions associated with the phased permit Water Quality Certification issued on November 14, 2017, along subsequent modifications and revisions, still apply except where superseded by this Certification.
2. *Off-Site Stream Mitigation.* Compensatory mitigation for 5,222 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated September 29, 2017 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.
3. *Off-Site Wetland Mitigation.* Compensatory mitigation for impacts to 1.43 acres of riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated September 29, 2017 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.

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 that 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 9th day of February 2021

DIVISION OF WATER RESOURCES

DocuSigned by:

Amy Chapman

9C9886312DCD474...

S. Daniel Smith, Director

ROY COOPER

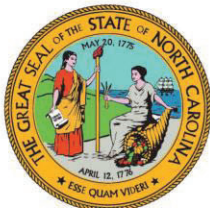
Governor

MICHAEL S. REGAN

Secretary

S. DANIEL SMITH

Director

NORTH CAROLINA
Environmental Quality

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 _____



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

401 Certification Modification for Noise Wall

dated January 10, 2022

ROY COOPER
Governor

ELIZABETH S. BISER
Secretary

S. DANIEL SMITH
Director



January 10, 2022

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

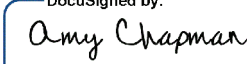
Subject: Modification to the 401 Water Quality Certification (WQC 004131) Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS, for additional portions of the Winston Salem Northern Beltway (Eastern Section of Future I-74) from US 311 to I-40 of which includes Sections **U-2579AB and U-2579AA** (I-40 Business to US 311 South); Federal Aid Project No. NHF-0918(14); WBS No. 34839.1.7; NCDWR Project No. 19980260 version 8.

Dear Mr. Harris:

Attached hereto is a modification of Certification No. 004131 issued to The North Carolina Department of Transportation (NCDOT) originally issued and dated November 14, 2017 for the Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 North (U-2579C Phase 2, D, E, and F), and from I-40 Business to US 311 South (U-2579AA and AB); Revision 2 dated December 21, 2017; Revision 3 dated February 7, 2019; Revision 4 dated August 13, 2019; Revision 5 dated November 14, 2019; Revision 6, dated November 30, 2020; In-Field Modification dated January 14, 2021; and, Revision 7 dated February 9, 2021.

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

Sincerely,

DocuSigned by:

S. L. 9C9886312DCD474...
Division of Water Resources

Attachments

Electronic copy only distribution:

Andrew Williams, US Army Corps of Engineers, Raleigh Field Office
Amy Euliss, NC Department of Transportation, Division 9
Colin Mellor, NC Department of Transportation
Carla Dagnino, NC Department of Transportation
Bill Barrett, NC Department of Transportation
Amanetta Somerville, US Environmental Protection Agency
Janet Mizzi, US Fish and Wildlife Service
Andrea Leslie, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services
401- R4notices@epa.gov
File Copy



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

**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 3,491 linear feet of jurisdictional streams, 1.64 acres of wetlands and 3.04 acres of open water (ponds) in Forsyth County (for U-2579AA and AB). The project shall be constructed pursuant to the modification dated November 3, 2021. The authorized impacts are as described in Tables 1 through 7 below:

Table 1. New (Modified) Wetland Impacts in the Yadkin Pee Dee River Basin; U-2579AB.

New Permit Site	Permanent Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Impacts Requiring Mitigation (ac)
14B	<0.01	-	0.02	0.02
Previously Permitted Totals (for all Sites)	1.11	0.02	0.29	1.43

Notes: Data are rounded.

Table 2. New (Modified) Intermittent Stream Impacts in the Yadkin Pee Dee River Basin; U-2579AB.

New Permit Site	Impact Type	Permanent Impacts (linear ft)	Temporary Impacts (linear ft)	Impacts Requiring Mitigation (linear ft)
	Roadway Fill			
31		15	10	-
Previously Permitted Totals (for all Sites)		9,180	824	5,222

Table 3. Stream Impacts in the Yadkin Pee Dee River Basin - U-2579AA.

Permit Site	Stream Type	Impact Type	Permanent Impacts (linear ft)	Temporary Impacts (linear ft)	Impacts Requiring Mitigation (linear ft)
1	I	42-inch RCP-V (not buried)	392	0	--
		Channel armoring	14	24	--
		Bank Stabilization	15	9	--
2C	P		16	20	--
3		2 @ 9'X 9' RCBC	240	0	240
		Channel Change	124	0	124
		Bank Stabilization	26	20	26
3A		Bank stabilization (detour-ditch outlets)	20	40	20
3B		Bank Stabilization - (detour bridge)	35	18	35
4		2 @ 10'X 9' RCBC	418	0	418
		Channel Change	85	0	85
		Bank Stabilization	80	0	80
4A		Bank Stabilization – (culvert phasing)	67	10	67

Table 3. Stream Impacts in the Yadkin Pee Dee River Basin - U-2579AA.

Permit Site	Stream Type	Impact Type	Permanent Impacts (linear ft)	Temporary Impacts (linear ft)	Impacts Requiring Mitigation (linear ft)
5A	P	Scour Hole Stabilization (assoc. w/ 60” CMP removal)	42	40	42
5B		Scour Hole Stabilization (assoc. w/ 60” CMP removal)	8	10	8
5C		Bank Stabilization	236	17	236
5D			173	0	173
6	I	36-inch Welded Steel Pipe / channel armoring	57	0	--
		Bank Stabilization	68	20	--
7	P	72-inch Alt/Welded Steel Pipe	26	0	--
		Bank Stabilization	23	15	--
7A		72-inch Alt/Welded Steel Pipe	11	0	--
Bank Stabilization		35	10	--	
		10	60	20	--
		10A	9	22	--
		10B	8	10	--
		10C	8	10	--
		10D	10	10	--
12A		I	Channel armoring (for Energy Dissipator Basin)	33	0
12B	Channel change		80	10	--
13	60-inch Alt/Welded Steel Pipe		32	0	--
	Channel Armoring		31	25	--
14	P	3 @ 8’X 8’ RCBC Extension	150	0	150
		Bank Stabilization	97	20	97
14A	I	3’ Base Ditch	50	10	--
15	P	36-inch RCP - III	249	0	--
		Bank Stabilization	16	32	--
Totals			3,044	422	1,801

Notes: For stream types; I = Intermittent, P = Perennial.

Table 4. Wetland Impacts in the Yadkin PeeDee River Basin - U-2579AA.

Permit Site	Permanent Fill Impacts (ac)	Excavation Impacts (ac)	Mechanized Clearing Impacts (ac)	Impacts Requiring Mitigation (ac)
5	<0.01	0	0.02	0.02
8	0.04	0.04	0.02	0.10
9	0	0	0.06	0.06
11	0	0	0.03	0.03
14B	0.38	0	0.05	0.43
15A	0.64	0.07	0.20	0.92
Totals	1.07	0.11	0.38	1.56

Notes: Data are rounded.

Table 5. Open Water Impact (Ponds) in the Yadkin PeeDee River Basin - U-2579AA.

Permit Site	Pond Size (ac)	Permanent Fill (ac)	Impacts Requiring Mitigation (ac)
2	0.50	0.50	-
2A	0.12	0.12	-
2B	2.31	2.31	-
6A	0.11	0.11	-
Totals	3.04	3.04	-

Table 6. Wetland Impacts in the Yadkin PeeDee from Utilities - U-2579AA.

Utility Site	Impact Type	Excavation (ac)	Impacts Requiring Mitigation (ac)
	Gravity Sewer Line (inch)		
Site 5	30	0.02	0.02
Site 16	16	< 0.01	< 0.01
Site 17	16	0.03	0.03
Site 18	30	< 0.01	< 0.01
Totals		0.06	0.06

Notes: Impacts for Sites 5 and 18 are outside of permanent fill at Wetland Site 5. Data are rounded.

Table 7. Permit Sites where culvert/pipe inverts are to be buried vs. not buried – U-2579AA.

Yes	3	4	--				
No	1	6	7	7A	13	14	15

The application provides adequate assurance that the discharge of fill material into the waters of the Yadkin PeeDee and Roanoke River Basins 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 modification application dated November 3, 2021. All the authorized activities and conditions associated with the original Water Quality Certification dated November 14, 2017 for the Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 North (U-2579C Phase 2, D, E, and F), and from I-40 Business to US 311 South (U-2579AA and AB) and subsequently modified (Revision 2 dated December 21, 2017; Revision 3 dated February 7, 2019; Revision 4 dated August 13, 2019; Revision 5 dated November 14, 2019; Revision 6, dated November 30, 2020; In-Field Modification dated January 14, 2021; and, Revision 7 dated February 9, 2021) 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 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.

Condition(s) of Certification:

1. This modification is applicable only to the additional proposed activities and design that you submitted in your request for modification dated November 3, 2021. All the authorized activities and conditions

associated with the original Water Quality Certification dated November 14, 2017 for the Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 North (U-2579C Phase 2, D, E, and F), and from I-40 Business to US 311 South (U-2579AA and AB) and subsequently modified (Revision 2 dated December 21, 2017; Revision 3 dated February 7, 2019; Revision 4 dated August 13, 2019; Revision 5 dated November 14, 2019; Revision 6, dated November 30, 2020; In-Field Modification dated January 14, 2021; and, Revision 7 dated February 9, 2021) still apply [15A NCAC 02H.0506(b) (1, 2)].

2. 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. Table 7 above lists those permit sites where culvert/pipe burial is exempt from this condition or not. 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 downstream 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)]

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 10th day of January 2022

DIVISION OF WATER RESOURCES

DocuSigned by:

Amy Chapman

9C9886312DCD474...

S. Daniel Smith, Director

WQC No. 004131

ROY COOPER

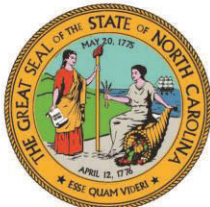
Governor

ELIZABETH S. BISER

Secretary

S. DANIEL SMITH

Director

NORTH CAROLINA
Environmental Quality

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 _____

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



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8 TIP No.: U-2579AB County(ies): Forsyth Page 1 of 13

General Project Information

WBS Element:	34839.1.8	TIP Number:	U-2579AB	Project Type:	New Location	Date:	7/2/2021
NCDOT Contact:	Craig J Lee, PE			Contractor / Designer:	Wyatt D. Yelverton, PE		
Address:	1020 Birch Ridge Dr. Raleigh, NC 27610			Address:	555 Fayetteville St., Suite 900 Raleigh, NC 27601		
	Phone: 919-707-6708				Phone: 919-232-6623		
	Email: cjlee@ncdot.gov				Email: wyatt.yelverton@hdrinc.com		
City/Town:	Winston-Salem			County(ies):	Forsyth		
River Basin(s):	Yadkin-Pee Dee			CAMA County?	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	2.73 Miles	Surrounding Land Use:	Residential (Single Family)
Proposed Project		Existing Site	
Project Built-Upon Area (ac.)	530.0 ac.	90.0 ac.	
Typical Cross Section Description:	6 lane divided freeway w/ an 18 foot grass median: (2) 12 foot outside paved shoulders, (3) 12 foot travel lanes, (2) 12 foot paved median shoulders - Total width of 146'		
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 20,200	Year: 2040	Existing: 14,700 Year: 2018
General Project Narrative: (Description of Minimization of Water Quality Impacts)	Project Description: The proposed project (U-2579AB) is part of the future I-74 Winston-Salem Northern Beltway from I-40 Bus/US 421 to I-40 and tying with the U-2579AA portion. The project will construct approximately 3 miles of 6-lane divided highway in new location. The project also includes widening of I-40 and 2 major interchanges: Kernersville Rd. and 3-level interchange at I-40. There are 2 proposed single barrel culvert crossings on the project at tributaries to Fiddlers Creek. There are no bridge crossings over major water bodies on the project. Pipe culverts will be used to convey all other jurisdictional stream crossings through the project. Wetlands are also located throughout the length of the entire project. Impact Minimization Efforts: Guardrail with 2:1 slopes were utilized throughout the project to minimize surface water impacts to streams and wetlands. Ditches and pipes that outlet adjacent to wetlands have been designed to have non-erosive velocities to help protect the existing wetlands. Stormwater BMP Measures: Stormwater control measures such as dry detention and energy dissipator basins were proposed at specific locations along the project. Many ditches are designed to achieve grass swale credit.		

Waterbody Information

Surface Water Body (1):	Fiddlers Creek	NCDWR Stream Index No.:	12-94-13-3		
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C			
	Supplemental Classification:	None			
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	ESE-S8, ESE-S61, ESE-S11, ESE-S59, ESE-S12, ESE-S13, ESE-S14, ESE-S15, ESE-S16, ESE-S49, ESE-S51, ESE-S52, ESE-S56, ESE-S58, ESE-S25, ESE-S72, ESE-S50, ESE-S26		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element: 34839.1.8 TIP No.: U-2579AB County(ies): Forsyth Page 2 of 13

Additional Waterbody Information

Surface Water Body (2):	Fishers Branch	NCDWR Stream Index No.:	12-94-12-2-(1)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply III (WS-III)	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	No	Comments:	
NRTR Stream ID:	ESE-S63, ESE-S69	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	Dissipator Pads Provided in Buffer?
(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)

Surface Water Body (3):	Swaim Creek	NCDWR Stream Index No.:	12-94-13-1
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	No	Comments:	
NRTR Stream ID:	ESE-S19, ESE-S42	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	Dissipator Pads Provided in Buffer?
(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 3

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4	-L- 692+33 M	Fishers	0.0	4.0	6.0	0.5	45	292	2.08%	1.3	1.9	1.6	2.1	No	No
	36.1006784/-80.1362789	Branch													
5	-L- 703+50 M	Fishers	0.0	4.0	10.0	0.3	28	100	1.65%	0.9	1.5	1.2	1.6	No	No
	36.0976758/-80.1380454	Branch													
5	-L- 704+50 M	Fishers	0.0	4.0	10.0	0.3	33	150	1.17%	1.1	1.4	1.4	1.5	No	No
	36.0974187/-80.1381536	Branch													
5	-L- 704+50 RT	Fishers	0.0	4.0	4.0	0.1	14	150	1.60%	0.5	1.4	0.6	1.5	No	No
	36.0974854/-80.1384480	Branch													
5	-L- 707+50 RT	Fishers	0.0	6.0	4.0	0.1	9	150	0.23%	0.2	0.5	0.2	0.6	No	No
	36.0966710/-80.1387137	Branch													
5	-Y1B- 12+50 LT	Fishers	0.0	4.0	2.0	0.1	11	150	0.01%	0.4	0.2	0.5	0.2	No	No
	36.10011150/-80.1391462	Branch													
5	-Y1B- 13+00 LT	Fishers	0.0	4.0	2.0	0.1	7	100	0.13%	0.2	0.5	0.3	0.5	No	No
	36.1000860/-80.1390067	Branch													
5	-Y1B- 18+00 LT	Fishers	0.0	4.0	2.0	0.4	39	400	1.18%	1.3	1.7	1.6	1.9	No	No
	36.0986947/-80.1384805	Branch													
5	-Y1B- 12+50 RT	Fishers	0.0	4.0	2.0	0.2	15	150	0.30%	0.4	0.8	0.5	0.8	No	No
	36.0986184/-80.1389079	Branch													
5	-Y1B- 19+00 RT	Fishers	0.0	4.0	2.0	0.3	30	400	1.61%	0.6	1.7	0.8	1.8	No	No
	36.0983349/-80.1387000	Branch													
5	-Y1B- 20+50 RT	Fishers	2.0	2.0	2.0	1.1	113	253	0.50%	3.2	1.4	4.0	1.5	No	No
	36.0978718/-80.1385609	Branch													
6	-L- 706+00 M	Fishers	0.0	4.0	10.0	0.4	44	200	0.70%	1.4	1.2	1.8	1.3	No	No
	36.0970192/-80.1382776	Branch													
6	-L- 708+00 M	Fishers	0.0	4.0	10.0	0.4	39	200	0.67%	1.3	1.2	1.7	1.2	No	No
	36.0964794/-80.1384027	Branch													
6	-L- 710+00 M	Fishers	0.0	4.0	10.0	0.4	42	200	0.66%	1.4	1.2	1.7	1.3	No	No
	36.0959338/-80.1384811	Branch													
6	-L- 712+00 M	Fishers	0.0	4.0	10.0	0.7	67	300	0.67%	2.2	1.3	2.8	1.4	No	No
	36.0953852/-80.1385126	Branch													
6	-L- 715+00 M	Fishers	0.0	4.0	8.0	0.5	47	250	0.63%	1.5	1.2	1.9	1.3	No	No
	36.0945621/-80.1384714	Branch													
6	-L- 717+50 M	Fishers	0.0	4.0	6.0	0.6	64	409	0.65%	2.1	1.4	2.6	1.5	No	No
	36.0938820/-80.1383564	Branch													
6	-L- 710+50 LT	Fishers	0.0	6.0	4.0	1.3	128	250	0.50%	3.0	1.4	3.9	1.5	No	No
	36.0956113/-80.1384356	Branch													
6	-L- 711+00 LT	Fishers	0.0	6.0	4.0	1.3	128	300	0.94%	3.0	1.8	3.9	1.9	No	No
	36.0954521/-80.1382090	Branch													

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 4

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
6	-L- 711+00 LT 36.0954521/-80.1382090	Fishers Branch	0.0	6.0	4.0	2.0	197	389	0.30%	4.7	1.3	6.0	1.4	No	No
6	-L- 715+00 LT 36.0945983/-80.1381676	Fishers Branch	0.0	6.0	4.0	0.4	40	150	0.72%	1.0	1.2	1.3	1.3	No	No
6	-L- 715+00 LT 36.0945983/-80.1381676	Fishers Branch	0.0	6.0	6.0	0.7	74	250	0.83%	1.9	1.5	2.4	1.6	No	No
6	-L- 707+50 RT 36.0968041/-80.1386987	Fishers Branch	0.0	6.0	4.0	0.3	25	200	0.38%	0.4	0.8	0.5	0.8	No	No
6	-L- 709+50 RT 36.0960971/-80.1387955	Fishers Branch	0.0	6.0	4.0	1.6	164	609	0.47%	2.5	1.3	3.2	1.4	No	No
6	-L- 715+50 RT 36.0943983/-80.1387565	Fishers Branch	0.0	6.0	4.0	0.3	30	150	0.69%	0.7	1.1	0.9	1.2	No	No
6	-L- 715+50 RT 36.0943983/-80.1387565	Fishers Branch	0.0	6.0	4.0	0.3	31	150	0.54%	0.7	1.0	0.9	1.1	No	No
6	-L- 717+50 RT 36.0938372/-80.1386614	Fishers Branch	0.0	6.0	5.0	0.2	17	50	0.30%	0.4	0.7	0.5	0.7	No	No
6	-L- 719+50 RT 36.0932869/-80.1385279	Fishers Branch	0.0	6.0	6.0	0.8	75	200	0.30%	1.6	1.0	2.1	1.0	No	No
6	-L- 726+00 LT 36.0916661/-80.1374075	Fiddlers Creek	0.0	6.0	9.0	0.9	85	100	0.84%	2.0	1.4	2.6	1.5	No	No
6	-L- 726+00 LT 36.0916661/-80.1374075	Fiddlers Creek	0.0	6.0	8.0	1.4	136	300	0.66%	3.2	1.5	4.1	1.6	No	No
6	-L- 729+00 LT 36.0908643/-80.1371730	Fiddlers Creek	0.0	6.0	8.0	0.8	76	300	0.67%	2.1	1.3	2.7	1.4	No	No
6	-L- 730+00 LT 36.0905980/-80.1370899	Fiddlers Creek	0.0	6.0	8.0	0.8	76	200	1.58%	2.1	1.8	2.7	2.0	No	No
6	-L- 725+00 RT 36.0918243/-80.1380437	Fiddlers Creek	0.0	6.0	4.0	0.3	28	50	0.84%	0.7	1.2	0.9	1.2	No	No
6	-L- 726+50 RT 36.0914156/-80.1379661	Fiddlers Creek	0.0	6.0	4.0	0.9	90	150	0.72%	1.9	1.4	2.5	1.5	No	No
6	-L- 726+50 RT 36.0914156/-80.1379661	Fiddlers Creek	0.0	6.0	4.0	0.9	90	250	0.69%	1.9	1.4	2.5	1.5	No	No
6	-L- 729+00 RT 36.0907482/-80.1377666	Fiddlers Creek	0.0	6.0	4.0	0.6	59	250	1.40%	1.7	1.8	2.1	1.9	No	No
6	-Y4RPC- 14+21 LT 36.0895946/-80.1375256	Fiddlers Creek	0.0	6.0	4.0	0.1	10	25	0.33%	1.2	0.6	0.3	0.7	No	No
6	-Y4RPC- 14+21 LT 36.0895946/-80.1375256	Fiddlers Creek	0.0	6.0	4.0	0.7	66	219	0.30%	1.6	1.0	2.0	1.1	No	No

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 5

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
6	-Y4RPD- 13+33 RT 36.0895455/-80.1366931	Fiddlers Creek	0.0	6.0	4.0	0.8	77	262	0.48%	2.2	1.3	2.8	1.4	No	No
6	-Y1B- 34+50 RT 36.0947968/-80.1356940	Fiddlers Creek	2.0	2.0	2.0	0.1	8	83	2.44%	0.2	1.0	0.3	1.1	No	No
6	-L- 708+00 LT 36.0964426/-80.1381046	Fiddlers Creek	0.0	2.0	2.0	0.4	40	75	1.60%	0.9	1.6	1.1	1.7	No	No
7	-L- 737+00 M 36.0918351/-80.1368794	Fiddlers Creek	0.0	6.0	5.0	0.4	35	335	1.33%	0.8	1.4	1.1	1.5	No	No
7	-L- 737+00 RT 36.0886700/-80.1368347	Fiddlers Creek	0.0	6.0	4.0	1.3	125	350	0.85%	3.0	1.7	3.8	1.8	No	No
7	-NWL1- 15+50 RT 36.0891145/-80.1377104	Fiddlers Creek	2.0	2.0	2.0	0.0	3	38	9.74%	0.1	1.0	0.1	1.1	No	No
7	-L- 733+18 RT 36.0895946/-80.1375256	Fiddlers Creek	0.0	2.0	2.0	0.2	24	52	2.32%	0.6	1.6	0.7	1.7	No	No
7	-L- 737+00 RT 36.0886700/-80.1368347	Fiddlers Creek	0.0	2.0	2.0	0.1	12	51	3.84%	0.3	1.7	0.4	1.8	No	No
7	-SR1- 16+50 RT 36.0878445/-80.1360991	Fiddlers Creek	0.0	2.0	2.0	0.4	39	166	2.20%	0.9	0.7	1.2	0.8	No	No
7	-SR1- 20+74 LT 36.0867225/-80.1356815	Fiddlers Creek	0.0	4.0	2.0	0.2	17	258	0.20%	0.4	1.7	0.5	1.8	No	No
8	-L- 754+00 RT 36.0840573/-80.1365954	Fiddlers Creek	2.0	2.0	2.0	0.2	17	50	2.80%	0.4	1.3	0.5	1.4	No	No
9	-L- 769+50 LT 36.0825232/-80.1358857	Fiddlers Creek	0.0	6.0	6.0	2.0	200	650	0.47%	6.4	1.6	8.3	1.7	No	No
9	-L- 762+50 M 36.0818518/-80.1363079	Fiddlers Creek	0.0	6.0	6.0	0.2	24	150	2.58%	0.5	1.6	0.7	1.7	No	No
9	-L- 770+50 M 36.0795198/-80.1364511	Fiddlers Creek	0.0	6.0	6.0	0.6	57	350	0.97%	1.5	1.4	1.9	1.5	No	No
9	-L- 773+50 M 36.0786967/-80.1365019	Fiddlers Creek	0.0	6.0	6.0	1.1	107	300	0.54%	2.8	1.4	3.5	1.4	No	No

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 6

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
10	-Y15FLYBD- 25+50 LT 36.0782290/-80.1376728	Fiddlers Creek	0.0	2.0	2.0	0.9	94	175	0.31%	1.6	1.0	2.1	1.1	No	No
10	-Y15RPB- 20+50 LT 36.0759891/-80.1400686	Fiddlers Creek	0.0	2.0	2.0	1.4	140	175	1.05%	2.4	1.8	3.1	1.9	No	No
10	-L- 773+50 RT 36.0895296/-80.1374963	Fiddlers Creek	0.0	6.0	6.0	2.3	230	750	0.64%	5.9	1.8	7.6	1.9	No	No
10	-L- 790+50 RT 36.0741606/-80.1377016	Fiddlers Creek	0.0	6.0	4.0	0.4	37	175	1.86%	1.1	1.8	1.4	1.9	No	No
10	-L- 798+50 RT 36.0721321/-80.1386442	Fiddlers Creek	0.0	4.0	3.0	0.9	88	350	0.39%	2.3	1.3	2.9	1.4	No	No
10	-L- 774+50 LT 36.0784408/-80.1368754	Fiddlers Creek	0.0	6.0	4.0	1.9	193	800	0.87%	3.3	1.8	4.3	1.9	No	No
10	-L- 782+50 LT 36.0761947/-80.1364914	Fiddlers Creek	0.0	6.0	6.0	0.2	16	50	2.76%	0.4	1.6	0.5	1.7	No	No
10	-L- 790+00 LT 36.0741653/-80.1370800	Fiddlers Creek	0.0	2.0	2.0	0.3	34	225	1.76%	0.6	1.8	0.8	1.9	No	No
10	-L- 733+50 M 36.0896047/-80.1371120	Fiddlers Creek	0.0	6.0	5.0	1.6	160	850	0.67%	4.1	1.7	5.3	1.8	No	No
10	-L- 782+00 M 36.0762398/-80.1368252	Fiddlers Creek	0.0	6.0	5.0	0.9	92	450	0.67%	2.4	1.5	3.0	1.6	No	No
10	-L- 786+50 M 36.0751611/-80.1370823	Fiddlers Creek	0.0	6.0	5.0	0.8	76	350	0.84%	2.0	1.5	2.5	1.6	No	No
10	-L- 790+00 M 36.0742274/-80.1373641	Fiddlers Creek	0.0	6.0	5.0	0.4	43	200	1.72%	1.1	1.7	1.4	1.8	No	No
10	-Y15FLYCA- 76+20 RT 36.0781488/-80.1355575	Fiddlers Creek	0.0	6.0	4.0	0.3	32	270	3.81%	0.6	2.0	0.7	2.1	No	No
10	-Y15FLYBD- 60+50 RT 36.0713379/-80.1340468	Fiddlers Creek	0.0	6.0	6.0	0.1	13	150	1.07%	0.2	0.9	0.3	1.0	No	No
10	-Y15REV- 48+64 RT 36.0742992/-80.1367863	Fiddlers Creek	0.0	6.0	6.0	0.2	24	136	2.51%	0.7	1.7	0.9	1.8	No	No
10	-Y15REV- 52+50 RT 36.0743956/-80.1354862	Fiddlers Creek	0.0	6.0	4.0	0.6	61	320	0.56%	1.7	1.3	2.2	1.4	No	No
10	-Y15REV- 65+40 RT 36.0747188/-80.1311390	Fiddlers Creek	0.0	6.0	4.0	2.4	240	970	0.52%	6.2	1.7	7.9	1.8	No	No
10	-Y15REV- 49+40 LT 36.0748370/-80.1365888	Fiddlers Creek	0.0	6.0	4.0	0.1	10	66	0.43%	0.3	0.8	0.4	0.8	No	No
10	-Y15REV- 49+40 LT 36.0748370/-80.1365888	Fiddlers Creek	0.0	6.0	4.0	0.8	76	310	0.81%	2.3	1.6	2.9	1.7	No	No

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 7

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
10	-Y15REV- 54+00 LT 36.0749751/-80.1350413	Fiddlers Creek	0.0	6.0	6.0	0.2	24	100	3.66%	0.7	2.0	0.9	2.1	No	No
10	-Y15REV- 54+00 LT 36.0749751/-80.1350413	Fiddlers Creek	0.0	6.0	6.0	2.1	211	225	0.44%	5.4	1.5	7.0	1.6	No	No
10	-Y15LPA- 18+30 RT 36.0759679/-80.1357773	Fiddlers Creek	0.0	2.0	2.0	0.4	36	88	0.31%	0.8	0.8	1.0	0.9	No	No
10	-Y15LPA- 18+30 RT 36.0759679/-80.1357773	Fiddlers Creek	0.0	2.0	2.0	0.8	84	117	0.57%	1.8	1.3	2.3	1.4	No	No
11	-Y16- 28+50 RT 36.0674483/-80.1397486	Fiddlers Creek	0.0	4.0	2.0	0.2	24	131	1.80%	0.6	1.7	0.8	1.8	No	No
11	-Y16B- 12+50 LT 36.0672495/-80.1399005	Fiddlers Creek	0.0	4.0	2.0	0.3	25	138	0.34%	0.5	0.9	0.7	0.9	No	No
11	-Y16B- 12+00 RT 36.0671058/-80.1397792	Fiddlers Creek	0.0	4.0	2.0	0.1	11	125	0.86%	0.3	1.1	0.4	1.1	No	No
11	-L- 801+50 M 36.0712502/-80.1386544	Fiddlers Creek	0.0	6.0	6.0	0.5	47	250	1.28%	1.2	1.5	1.6	1.6	No	No
11	-L- 804+00 M 36.0706260/-80.1390070	Fiddlers Creek	0.0	6.0	6.0	0.9	94	500	0.63%	2.4	1.4	3.1	1.5	No	No
11	-L- 809+00 M 36.0694072/-80.1397865	Fiddlers Creek	0.0	6.0	6.0	0.5	52	250	0.53%	1.3	1.1	1.7	1.2	No	No
11	-L- 811+50 M 36.0688140/-80.1402126	Fiddlers Creek	0.0	6.0	6.0	0.3	33	150	0.53%	0.9	1.0	1.1	1.1	No	No
11	-L- 813+00 M 36.0684636/-80.1404796	Fiddlers Creek	0.0	6.0	6.0	1.7	172	1000	0.77%	4.4	1.4	5.7	1.5	No	No
11	-L- 823+00 M 36.0661876/-80.1423738	Swaim Creek	0.0	6.0	6.0	0.4	37	230	0.34%	1.0	0.7	1.2	0.8	No	No
11	-L- 825+30 M 36.0656658/-80.1428127	Swaim Creek	0.0	6.0	6.0	0.4	35	220	0.33%	0.9	0.7	1.2	0.8	No	No
11	-Y15RPD- 33+32 LT 36.0689516/-80.1394923	Fiddlers Creek	0.0	6.0	4.0	1.4	141	582	1.74%	3.0	1.9	3.9	2.0	No	No
11	-Y15RPD- 34+89 LT 36.0686338/-80.1398458	Fiddlers Creek	0.0	4.0	4.0	2.4	239	738	0.29%	5.1	1.4	6.6	1.5	No	No
11	-Y15FLYAC- 79+00 RT 36.0690725/-80.1409880	Fiddlers Creek	0.0	6.0	6.0	0.2	23	100	0.35%	0.5	0.8	0.6	0.8	No	No
11	-Y15FLYAC- 84+23 RT 36.0677911/-80.1417327	Fiddlers Creek	0.0	6.0	4.0	1.5	146	200	0.73%	3.1	1.6	4.0	1.7	No	No
11	-L- 801+50 LT 36.0711493/-80.1383719	Fiddlers Creek	0.0	6.0	4.0	0.4	36	250	1.28%	0.8	1.4	1.0	1.5	No	No

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 8

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
11	-L- 804+00 LT 36.0705181/-80.1387291	Fiddlers Creek	0.0	6.0	6.0	1.1	105	500	0.63%	2.3	1.4	2.9	1.5	No	No
11	-L- 809+00 LT 36.0692854/-80.1395192	Fiddlers Creek	0.0	6.0	6.0	0.2	22	150	1.98%	0.5	1.4	0.6	1.5	No	No
11	-L- 812+50 LT 36.0684155/-80.1400668	Fiddlers Creek	0.0	4.0	4.0	1.0	100	350	0.63%	2.2	1.4	2.8	1.4	No	No
11	-L- 823+00 LT 36.0660109/-80.1420552	Fiddlers Creek	0.0	6.0	6.0	1.7	169	501	0.31%	3.6	1.3	4.7	1.4	No	No
11	-L- 804+00 RT 36.0707343/-80.1392850	Fiddlers Creek	0.0	6.0	4.0	0.9	94	450	0.64%	2.4	1.5	3.1	1.6	No	No
11	-L- 809+50 RT 36.0694122/-80.1401388	Fiddlers Creek	0.0	4.0	4.0	0.7	74	148	1.62%	1.3	2.0	2.0	2.1	No	No
11	-L- 811+00 RT 36.0690598/-80.1403898	Fiddlers Creek	0.0	6.0	4.0	0.7	74	200	0.53%	1.3	1.2	2.0	1.3	No	No
11	-L- 813+00 RT 36.0685972/-80.1407396	Fiddlers Creek	0.0	6.0	6.0	1.5	146	300	0.33%	3.1	1.2	4.0	1.2	No	No
11	-L- 816+00 RT 36.0679192/-80.1412983	Fiddlers Creek	0.0	6.0	6.0	1.5	146	300	0.49%	3.1	1.4	4.0	1.4	No	No
11	-L- 827+50 RT 36.0653701/-80.1435992	Swaim Creek	0.0	4.0	4.0	2.0	200	650	0.30%	4.3	1.3	5.5	1.4	No	No
11	-Y15RPC- 28+90 RT 36.0683966/-80.1414094	Fiddlers Creek	0.0	6.0	4.0	0.7	72	365	0.35%	1.5	1.0	2.0	1.1	No	No
11	-Y15RPC- 31+36 RT 36.0677911/-80.1417320	Fiddlers Creek	0.0	6.0	4.0	1.5	145	246	0.57%	3.1	1.5	4.0	1.6	No	No
11	-Y15RPC- 19+50 RT 36.0705722/-80.1421520	Fiddlers Creek	0.0	2.0	2.0	0.2	17	48	5.24%	0.4	2.0	0.5	2.1	No	No
11	-Y16- 16+10 LT 36.0666229/-80.1438385	Fiddlers Creek	0.0	4.0	2.0	0.8	83	290	1.26%	1.8	2.0	2.3	1.1	No	No
11	-Y16- 16+00 RT 36.0664973/-80.1438209	Swaim Creek	0.0	4.0	2.0	0.2	20	150	0.77%	0.6	1.2	0.8	1.3	No	No
11	-Y16C- 19+36 LT 36.0674474/-80.1405360	Fiddlers Creek	0.0	3.0	2.0	0.8	80	236	0.25%	1.9	1.1	2.2	1.1	No	No
11	-DR1- 10+90 RT 36.0651152/-80.1410598	Swaim Creek	0.0	3.0	2.0	0.4	43	127	0.30%	1.2	1.0	1.5	1.1	No	No
12	-L- 827+50 M 36.0651668/-80.1432325	Swaim Creek	0.0	6.0	6.0	0.4	35	225	0.32%	0.9	0.7	1.2	0.7	No	No
12	-L- 833+50 M 36.0638058/-80.1443775	Swaim Creek	0.0	6.0	6.0	1.0	96	600	1.55%	2.7	2.0	3.2	2.1	No	No

Additional Comments



North Carolina Department of Transportation
Highway Stormwater Program



STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 9

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
12	-L- 836+32 M 36.0631661/-80.1449156	Swaim Creek	0.0	6.0	6.0	0.5	45	282	2.38%	1.2	1.9	1.5	2.0	No	No
13	-Y4- 18+25 LT 36.0910900/-80.1418435	Fiddlers Creek	0.0	4.0	2.0	1.8	176	225	0.24%	4.2	1.3	5.3	1.4	No	No
13	-Y4A- 14+92 RT 36.0921054/-80.1424339	Fiddlers Creek	0.0	4.0	5.0	0.4	35	342	1.08%	1.0	1.6	1.3	1.7	No	No
13	-Y4- 17+30 RT 36.0907011/-80.1419223	Fiddlers Creek	0.0	4.0	2.0	0.5	51	160	1.32%	1.4	1.9	1.8	2.0	No	No
13	-Y4- 18+90 RT 36.0909197/-80.1414658	Fiddlers Creek	0.0	4.0	2.0	0.0	4	35	0.80%	0.1	0.8	0.1	0.9	No	No
14	-Y1B- 40+50 LT 36.0943796/-80.1336890	Fiddlers Creek	0.0	4.0	2.0	0.1	7	50	2.76%	0.2	1.5	0.3	1.6	No	No
14	-Y1B- 40+50 LT 36.0943796/-80.1336890	Fiddlers Creek	0.0	4.0	2.0	1.0	103	417	0.31%	2.9	1.3	3.7	1.4	No	No
14	-Y4- 45+50 LT 36.0943101/-80.1334953	Fiddlers Creek	0.0	4.0	2.0	0.7	69	350	0.70%	1.9	1.6	2.5	1.7	No	No
14	-Y4- 46+50 LT 36.0944003/-80.1331776	Fiddlers Creek	0.0	4.0	2.0	0.7	69	250	1.23%	1.9	2.0	2.5	2.1	No	No
14	-Y4- 54+50 RT 36.0950524/-80.1305619	Fiddlers Creek	0.0	4.0	2.0	0.5	53	200	0.47%	1.5	1.3	1.9	1.4	No	No
14	-Y4- 47+50 RT 36.0941757/-80.1326709	Fiddlers Creek	0.0	4.0	2.0	1.1	114	500	0.75%	3.2	1.9	4.1	2.0	No	No
14	-Y4- 42+50 LT 36.0939850/-80.1344285	Fiddlers Creek	0.0	2.0	2.0	0.4	44	102	2.69%	0.8	1.9	1.0	2.0	No	No
15	-Y4- 60+50 RT 36.0958418/-80.1287779	Fiddlers Creek	0.0	4.0	2.0	0.2	22	277	1.88%	0.6	1.7	0.8	1.9	No	No
15	-Y4- 56+67 LT 36.0955228/-80.1300250	Fiddlers Creek	0.0	4.0	2.0	0.4	42	167	0.42%	1.2	1.9	1.5	2.0	No	No
17	-Y15- 36+88 RT 36.0695360/-80.1557027	Fiddlers Creek	0.0	4.0	4.0	1.1	111	248	0.31%	2.6	1.2	3.4	1.3	No	No
17	-Y15- 37+25 RT 36.0695845/-80.1555924	Fiddlers Creek	0.0	2.0	2.0	1.2	119	164	0.60%	2.3	1.4	3.0	1.5	No	No
17	-Y15- 43+30 RT 36.0703075/-80.1537474	Fiddlers Creek	0.0	6.0	4.0	1.3	128	520	0.44%	3.6	1.4	4.6	1.5	No	No
18	-Y15FLYCA- 12+52 RT 36.0710359/-80.1520417	Fiddlers Creek	0.0	6.0	4.0	0.1	11	52	4.04%	0.3	1.8	0.4	1.9	No	No
18	-Y15FLYCA- 16+72 RT 36.0714922/-80.1507606	Fiddlers Creek	0.0	6.0	4.0	0.5	47	278	1.18%	1.0	1.5	1.4	1.6	No	No

Additional Comments



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element: 34839.1.8

TIP No.: U-2579AB

County(ies): Forsyth

Page 10 of 13

Swailes

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
18	-Y15FLYCA- 16+72 RT 36.0714922/-80.1507606	Fiddlers Creek	0.0	2.0	2.0	0.1	8	76	5.56%	0.1	1.5	0.2	1.6	No	No
18	-Y15FLYCA- 18+93 LT 36.0718731/-80.1501056	Fiddlers Creek	0.0	6.0	6.0	0.7	67	195	0.98%	1.9	1.5	2.4	1.6	No	No
18	-Y15FLYCA- 16+72 RT 36.0715505/-80.1498332	Fiddlers Creek	2.0	2.0	2.0	0.5	47	281	3.58%	0.7	1.7	0.9	1.9	No	No
18	-Y15FLYCA- 17+50 RT 36.0715544/-80.1505121	Fiddlers Creek	2.0	2.0	2.0	0.5	47	203	4.86%	0.7	1.9	0.9	2.1	No	No
19	-Y15REV- 17+50 RT 36.0730679/-80.1470982	Fiddlers Creek	0.0	6.0	4.0	2.0	200	366	0.75%	4.5	1.8	5.7	1.9	No	No
19	-Y15REV- 30+50 LT 36.0743828/-80.1429621	Fiddlers Creek	0.0	6.0	6.0	1.9	187	200	0.30%	3.2	1.1	4.1	1.2	No	No
20	-Y15FLYBD- 76+00 RT 36.0730686/-80.1293328	Fiddlers Creek	0.0	6.0	4.0	0.3	29	100	2.64%	0.6	1.8	0.8	1.9	No	No
20	-Y15FLYBD- 87+60 RT 36.0742539/-80.1258580	Fiddlers Creek	0.0	6.0	4.0	0.6	57	260	2.17%	1.2	2.0	1.6	2.1	No	No
20	-Y15FLYBD- 87+60 LT 36.0748911/-80.1260916	Fiddlers Creek	0.0	6.0	4.0	0.4	36	235	2.17%	0.8	1.7	1.0	1.9	No	No
20	-Y15REV- 80+50 RT 36.0748897/-80.1260687	Fiddlers Creek	0.0	4.0	4.0	1.0	103	300	0.86%	2.2	1.7	2.8	1.8	No	No
20	-Y15REV- 73+50 LT 36.0754219/-80.1284513	Fiddlers Creek	0.0	2.0	2.0	0.9	94	152	1.48%	2.4	2.0	3.0	2.1	No	No
20	-Y15REV- 65+34 LT 36.0751944/-80.1312128	Fiddlers Creek	0.0	6.0	4.0	3.3	332	759	0.34%	7.1	1.5	9.1	1.6	No	No
20	-Y15REV- 66+00 LT 36.0752319/-80.1309927	Fiddlers Creek	0.0	6.0	4.0	0.1	12	66	2.71%	0.3	1.4	0.3	1.5	No	No
20	-Y15REV- 67+50 LT 36.0752694/-80.1304873	Fiddlers Creek	0.0	6.0	4.0	0.4	40	216	0.59%	1.0	1.1	1.3	1.2	No	No
20	-Y15REV- 69+40 LT 36.0754002/-80.1298561	Fiddlers Creek	0.0	2.0	2.0	0.8	75	406	1.83%	1.6	1.9	2.1	2.1	No	No
21	-Y15FLYCA- 17+60 RT 36.0714969/-80.1504588	Fiddlers Creek	2.0	2.0	2.0	1.4	135	183	1.09%	4.2	2.0	5.4	2.1	No	No
21	-Y15FLYCA- 14+60 RT 36.0712785/-80.1514355	Fiddlers Creek	0.0	6.0	4.0	0.5	52	150	1.73%	1.6	1.9	2.0	2.0	No	No
22	-Y15- 154+00 RT 36.0748506/-80.1176827	Fiddlers Creek	0.0	6.0	4.0	1.7	168	300	0.76%	4.3	1.8	5.5	1.9	No	No

Additional Comments

*Blank entries represent where ditches are no longer applicable and have been removed. (July 2021)



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element:

TIP No.: U-2579AB

County(ies): Forsyth

Page 12 of 13

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
6	-Y4- 40+43 RT 36.0933054/-80.1348169	(1)Fiddlers Creek	Riprap Energy Dissipator Basin	Class II	15.3	Pipe	36	31.8	1.0	N/A
7	-SR1- 16+49 LT 36.0878896/-80.1358437	(1)Fiddlers Creek	Riprap Energy Dissipator Basin	Class II	6.9	Pipe	30	21.0	1.0	N/A
9	-Y15FLYCA- 84+63 RT 36.0751525/-80.1358013	(1)Fiddlers Creek	PSH	Class 'B'	2.2	Pipe	18	7.4	0.4	N/A
10	-Y15FLYAC- 47+32 LT 36.0751525/-80.138670	(1)Fiddlers Creek	PSH	Class 'B'	0.2	Pipe	15	0.7	0.2	N/A
10	-Y15RPB- 11+38 RT 36.0783088/-80.1387240	(1)Fiddlers Creek	PSH	Class 'B'	0.8	Pipe	18	3.2	0.3	N/A
10	-Y15REV- 45+38 RT 36.0741738/-80.1378812	(1)Fiddlers Creek	PSH	Class 'B'	0.2	Pipe	15	0.7	0.2	N/A
17	-Y15- 40+75 LT 36.0704817/-80.1549808	(1)Fiddlers Creek	PSH	Class 'B'	0.1	Pipe	15	0.6	0.2	N/A
18	-Y15- 50+50 LT 36.0717813/-80.1519421	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.2	0.2	N/A
18	-Y15- 52+50 LT 36.0720079/-80.1513254	(1)Fiddlers Creek	PSH	Class 'B'	0.4	Pipe	15	2.0	0.2	N/A
18	-Y15- 55+50 LT 36.0724066/-80.1504363	(1)Fiddlers Creek	PSH	Class 'B'	0.4	Pipe	15	1.9	0.2	N/A
18	-Y15- 56+00 LT 36.0724731/-80.1502878	(1)Fiddlers Creek	Riprap Energy Dissipator Basin	Class II	42.4	Pipe	48	81.0	1.2	N/A
20	-Y15RPA- 13+58 RT 36.0765661/-80.1301464	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.4	0.2	N/A
23	-Y15- 13+51 LT 36.0754558/-80.1133873	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.5	0.2	N/A
16	-Y15- 30+50 LT 36.0693441/-80.1579456	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.6	0.2	N/A
17	-Y15- 35+00 LT 36.0698138/-80.1565833	(1)Fiddlers Creek	PSH	Class 'B'	0.9	Pipe	15	4.3	0.3	N/A

Additional Comments

*The final two entries (Sheets 16 and 17, PSH's on Y15 30+50 and 35+00 LT) were added as of July 2021.

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

Additional Comments

U-2579AB Culvert Buried vs Not Buried Summary

Permit Site #	Plan Sheet	Culvert Size	Buried (Yes/No)
1	6	30" RCP III	No
2	6	36" CSP	No
3	7 & 8	54" RCP IV	No
4	8	NA	NA
4A	8	NA	NA
4B	8	NA	NA
5	8	NA	NA
5A	8	NA	NA
6	9	2@ 12' x 10' RCBC	Yes
6A	9	NA	NA
7	10	54" RCP IV	No
7A	10	NA	NA
8	10	42" RCP III	No
9	10	6' x 7' RCBC	Yes
10	10	60" RCP V	No
11			
12	11	5' x 6' RCBC	No
12A	11	NA	NA
12B	11	NA	NA
13	12	36" RCP LRDF Design	No
13A	12	36" RCP LRDF Design	No
14	16	72" RCP III	Yes
14A	16	NA	NA
15	18	42" RCP III	No
16	19	54" RCP III	No
17	19	8' x 6' RCBC	No
17A	19	NA	NA
17B	19	NA	NA
17C	19	NA	NA
18	20	NA	NA
19	20	60" RCP LRFD Design	No
20	21	60" RCP III	No
21	22	60" RCP III	No
22	23	42" RCP III	No
23	12	NA	NA
23A	12	NA	NA
24	25	NA	NA
25	26	3@ 12' x 7' RCBC	Yes
26	26	7' x 8' RCBC	Yes
27	17	42" RCP III	No
28	19	NA	NA
29	19	36" RCP IV	No
30	19	NA	NA

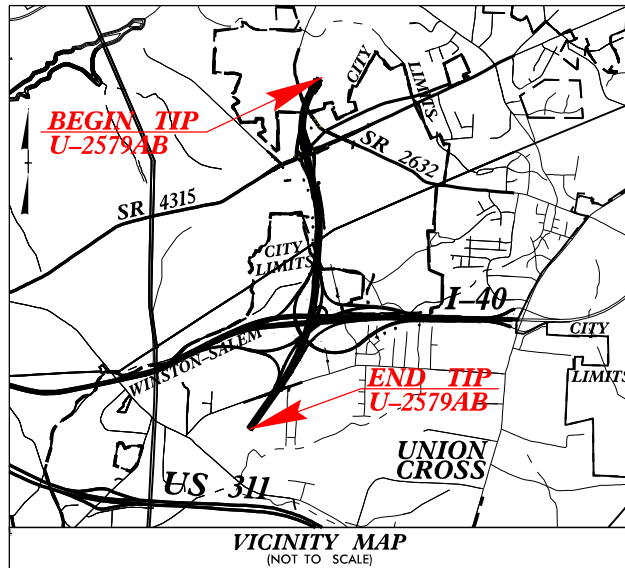
09/08/99

TIP PROJECT: U-2579AB

CONTRACT:

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TIME: 9:57:16 AM
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See Sheet 1-A For Index of Sheets



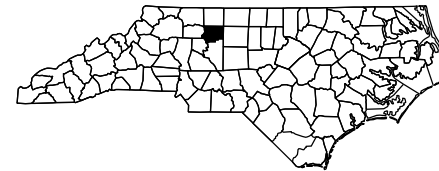
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: WINSTON-SALEM - NORTHERN BELTWAY
(EASTERN SECTION OF FUTURE I-74)
FROM I-40 BUS /US 421 TO I-40

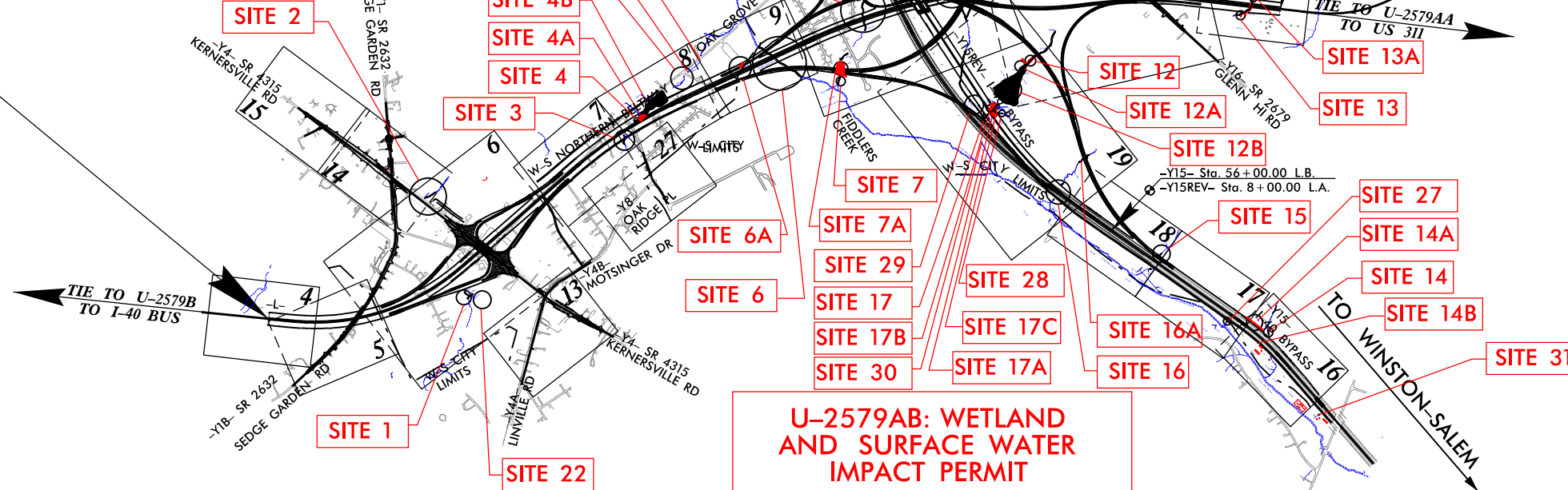
TYPE OF WORK: GRADING, PAVING DRAINAGE, STRUCTURES
SIGNALS, SIGNING AND PAVEMENT MARKERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34839.1.8		P.E.	



END TIP PROJECT U-2579AB
-L- STA. 836 + 32.44

BEGIN TIP PROJECT U-2579AB
-L- STA. 692 + 32.98

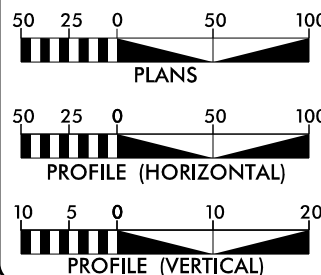


U-2579AB: WETLAND
AND SURFACE WATER
IMPACT PERMIT

PERMIT DRAWING
SHEET 1 OF 79

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 14,700
ADT 2040 = 20,200
K = 9 %
D = 70 %
T = 7 % *
V = 70 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS =
INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2579AB = 2.727 MILES
TOTAL LENGTH TIP PROJECT U-2579AB = 2.727 MILES



Prepared in the Office of:
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
TBD

LETTING DATE:
TBD

PHILLIP E. ROGERS, PE
PROJECT ENGINEER

CASEY E. HARRIS, PE
PROJECT DESIGN ENGINEER

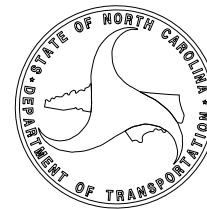
TATIA L. WHITE, PE, PLS
NCDOT CONTACT

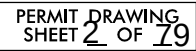
HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
ENGINEER

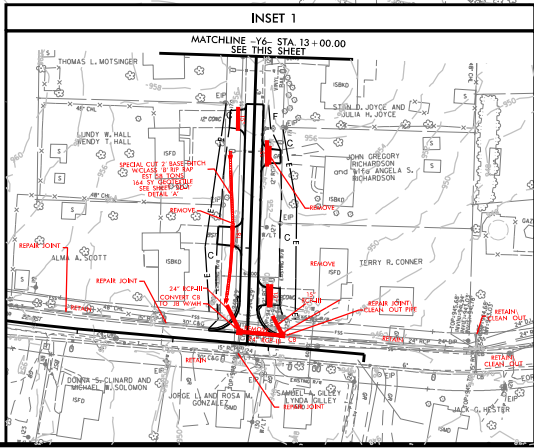
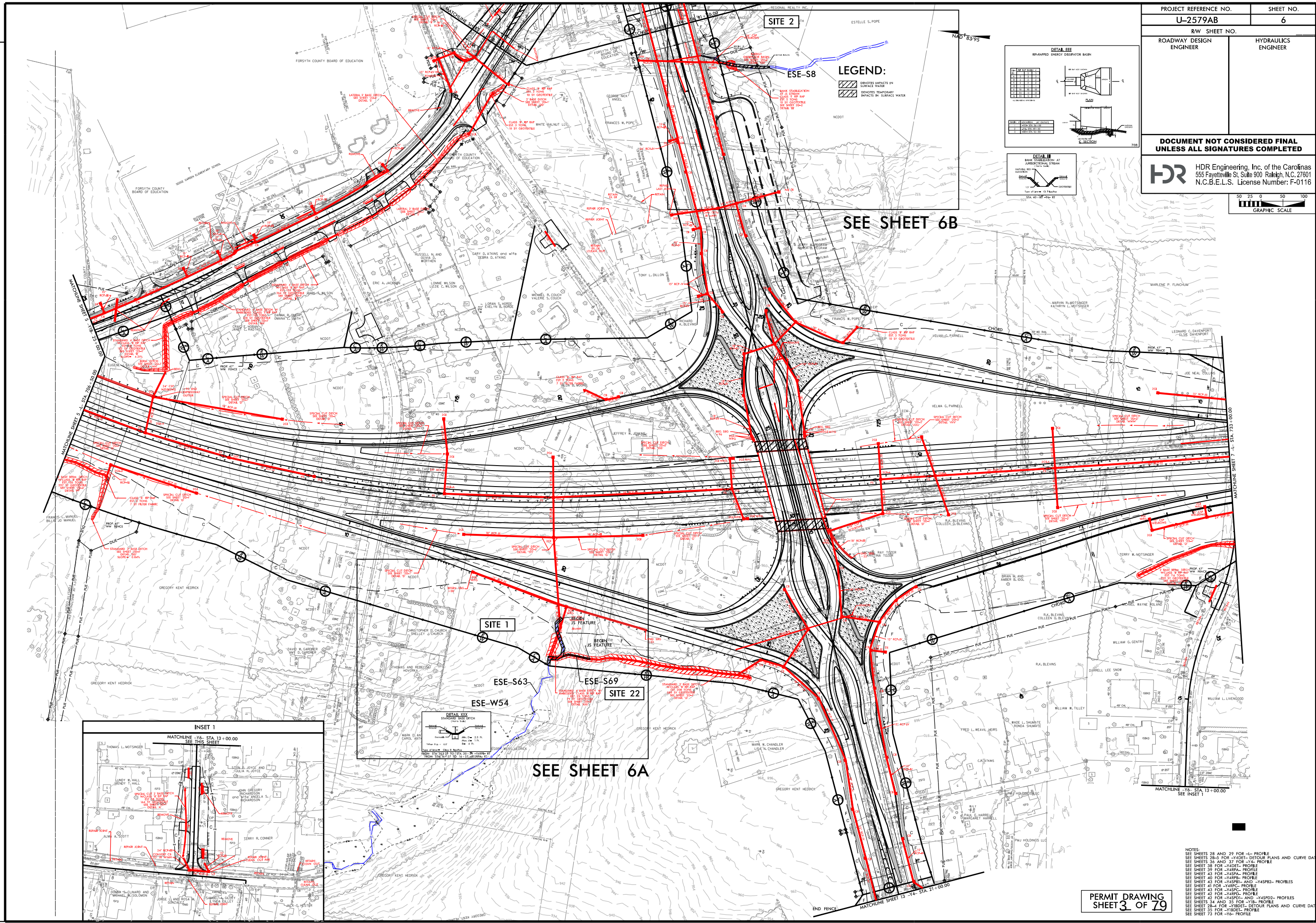
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SEE SHEETS 28 AND 29 FOR -1- PROFILE
SEE SHEETS 28-5 FOR -YADET- DETOUR PLANS AND CURVE DATA
SEE SHEET 36 FOR -YADET- PROFILE
SEE SHEET 38 FOR -YADET- PROFILE
SEE SHEET 39 FOR -YARPA- PROFILE
SEE SHEET 43 FOR -YASPA- PROFILE
SEE SHEET 40 FOR -YASPB- PROFILE
SEE SHEET 43 FOR -YASPB1- AND -YASPB2- PROFILES
SEE SHEET 41 FOR -YARPC- PROFILE
SEE SHEET 43 FOR -YASPC- PROFILE
SEE SHEET 42 FOR -YASPD- PROFILE
SEE SHEET 42 FOR -YASPD1- AND -YASPD2- PROFILES
SEE SHEETS 34 AND 35 FOR -Y1B- PROFILE
SEE SHEET 28-5 FOR -Y1BDET- DETOUR PLANS AND CURVE DATA
SEE SHEET 37 FOR -Y1BDE- PROFILE
SEE SHEET 73 FOR -Y6- PROFILE
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REVISIONS

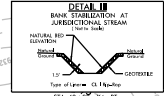
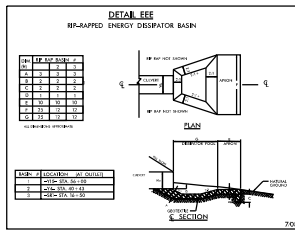


SEE SHEET 6A

SEE SHEET 6B

LEGEND:

- IMPACTS IN SURFACE WATER
- TEMPORARY IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO. U-2579AB		SHEET NO. 6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116		
GRAPHIC SCALE 50 25 0 50 100		

NOTES:
SEE SHEETS 28 AND 29 FOR -L- PROFILE
SEE SHEETS 28-5 FOR -VADET- DETOUR PLANS AND CURVE DATA
SEE SHEETS 36 AND 37 FOR -Y- PROFILE
SEE SHEET 38 FOR -VADET- PROFILE
SEE SHEET 39 FOR -VADP- PROFILE
SEE SHEET 40 FOR -VADP- PROFILE
SEE SHEET 41 FOR -VADP- PROFILE
SEE SHEET 42 FOR -VADP- PROFILE
SEE SHEET 43 FOR -VADP- PROFILE
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SEE SHEET 73 FOR -VADP- PROFILE

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REVISIONS

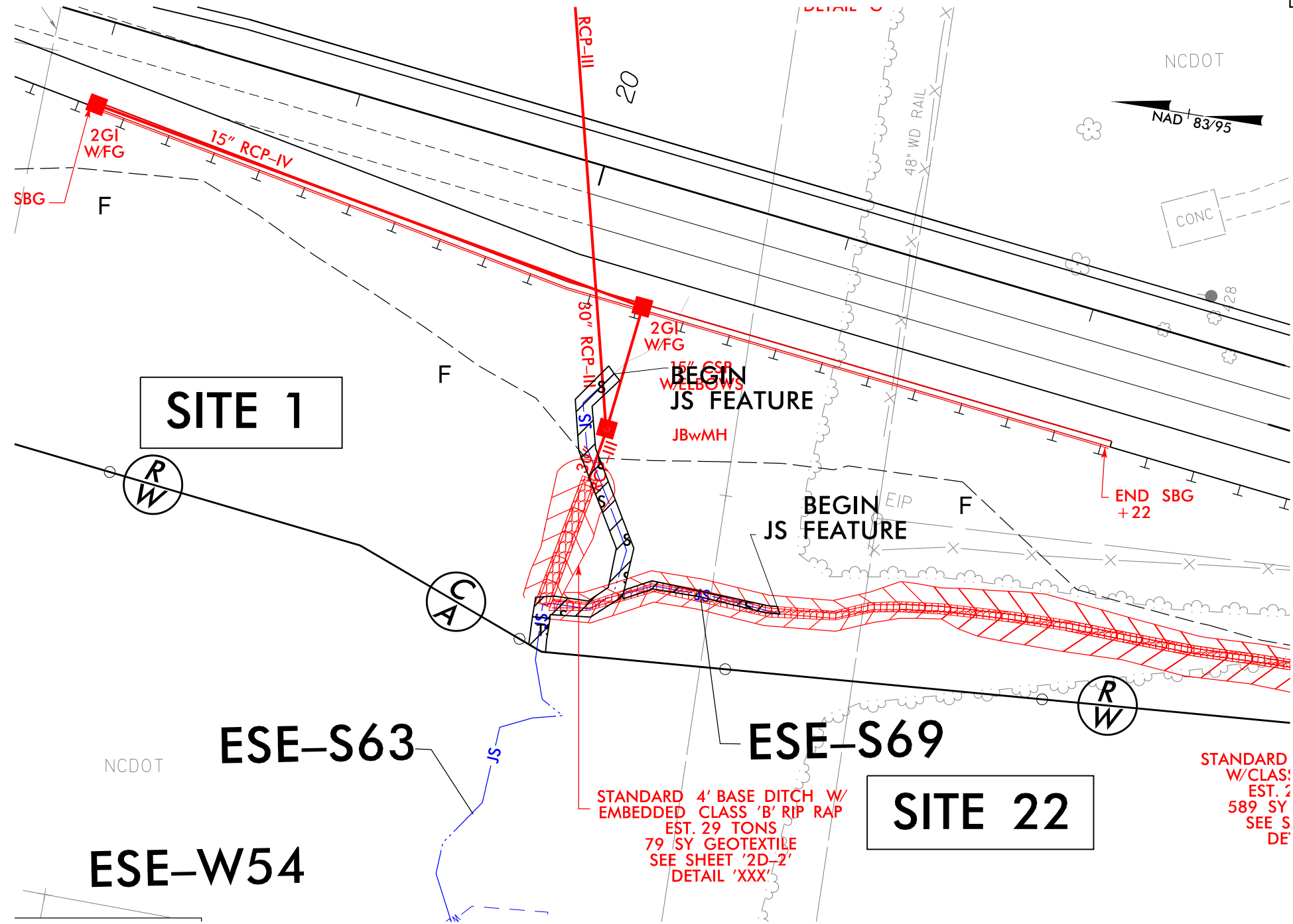
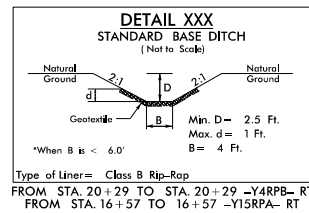
LEGEND:



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



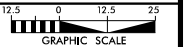
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R/W SHEET NO.			
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



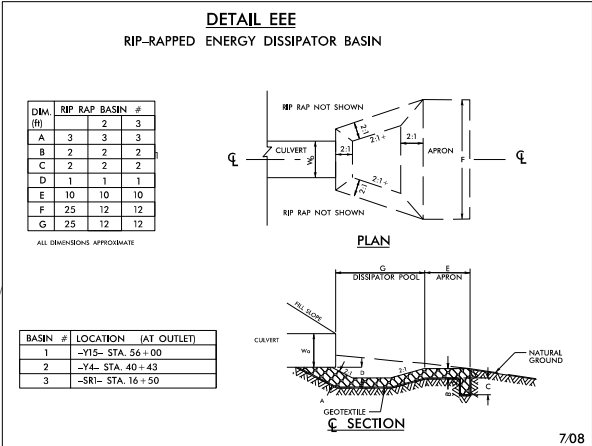
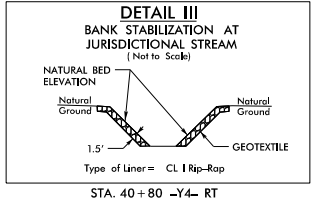
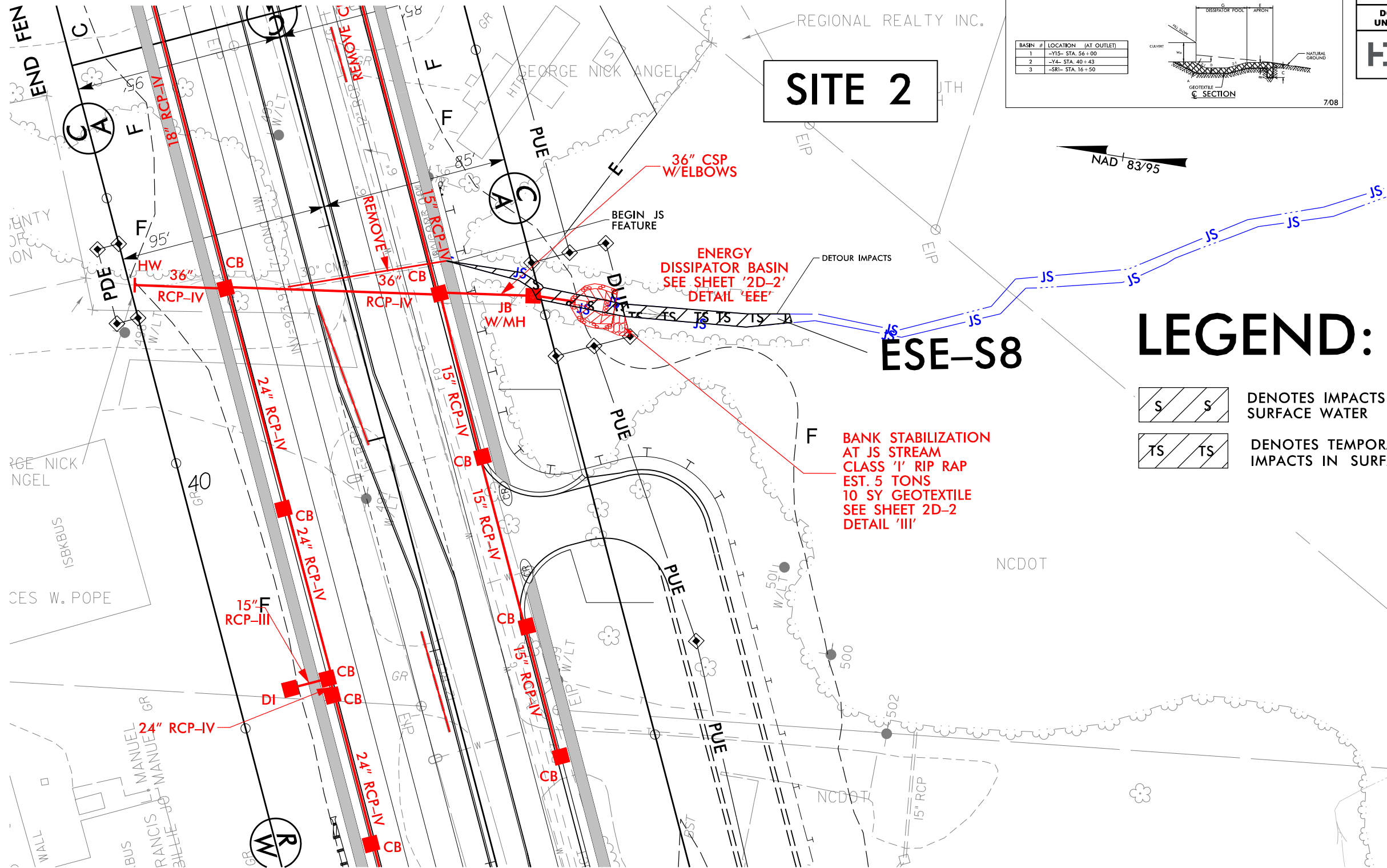
HDR Engineering, Inc. of the Carolinas

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N.C.B.E.L.S. License Number: F-0116



REVISIONS



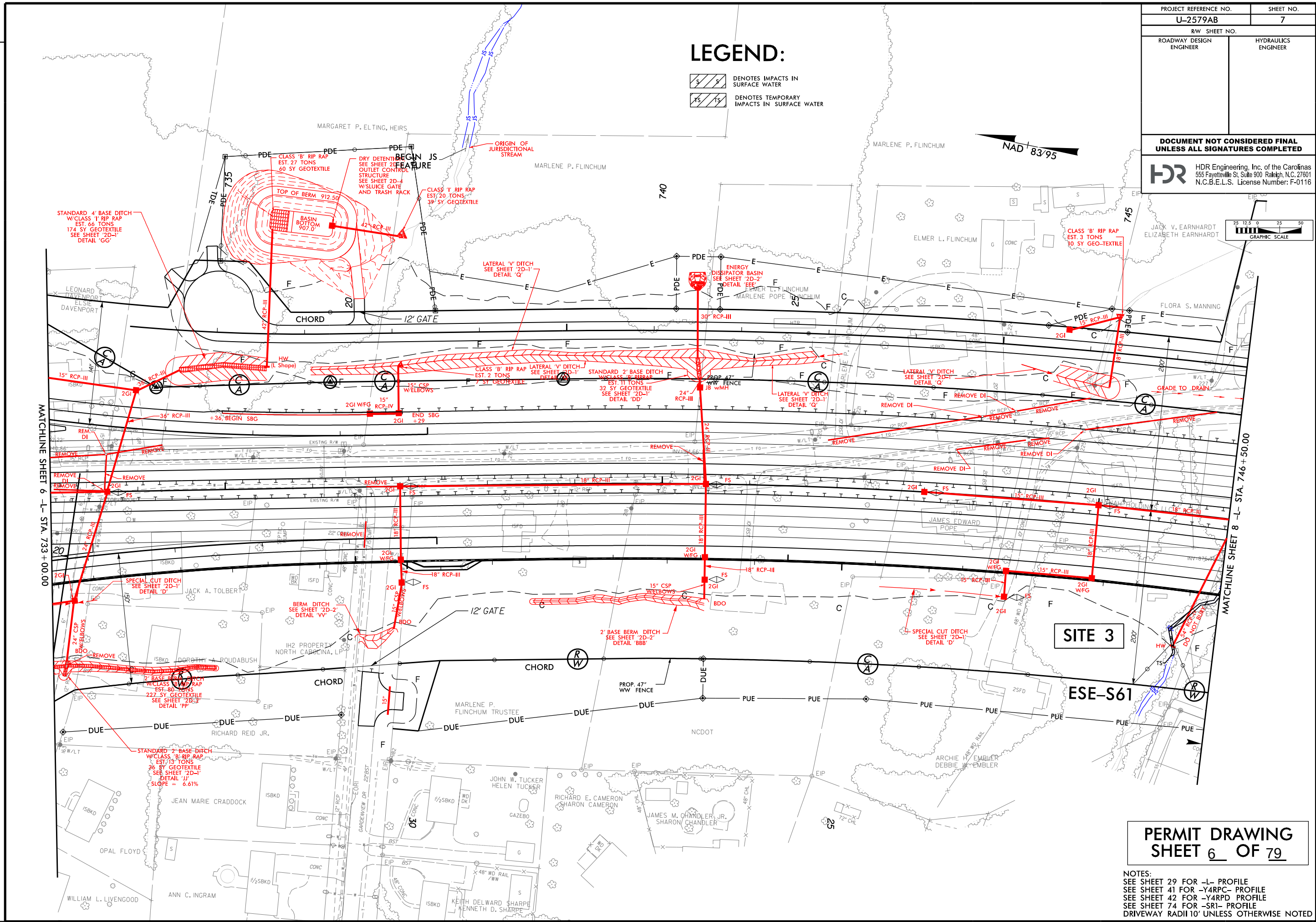
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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 GRAPHIC SCALE			

LEGEND:

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

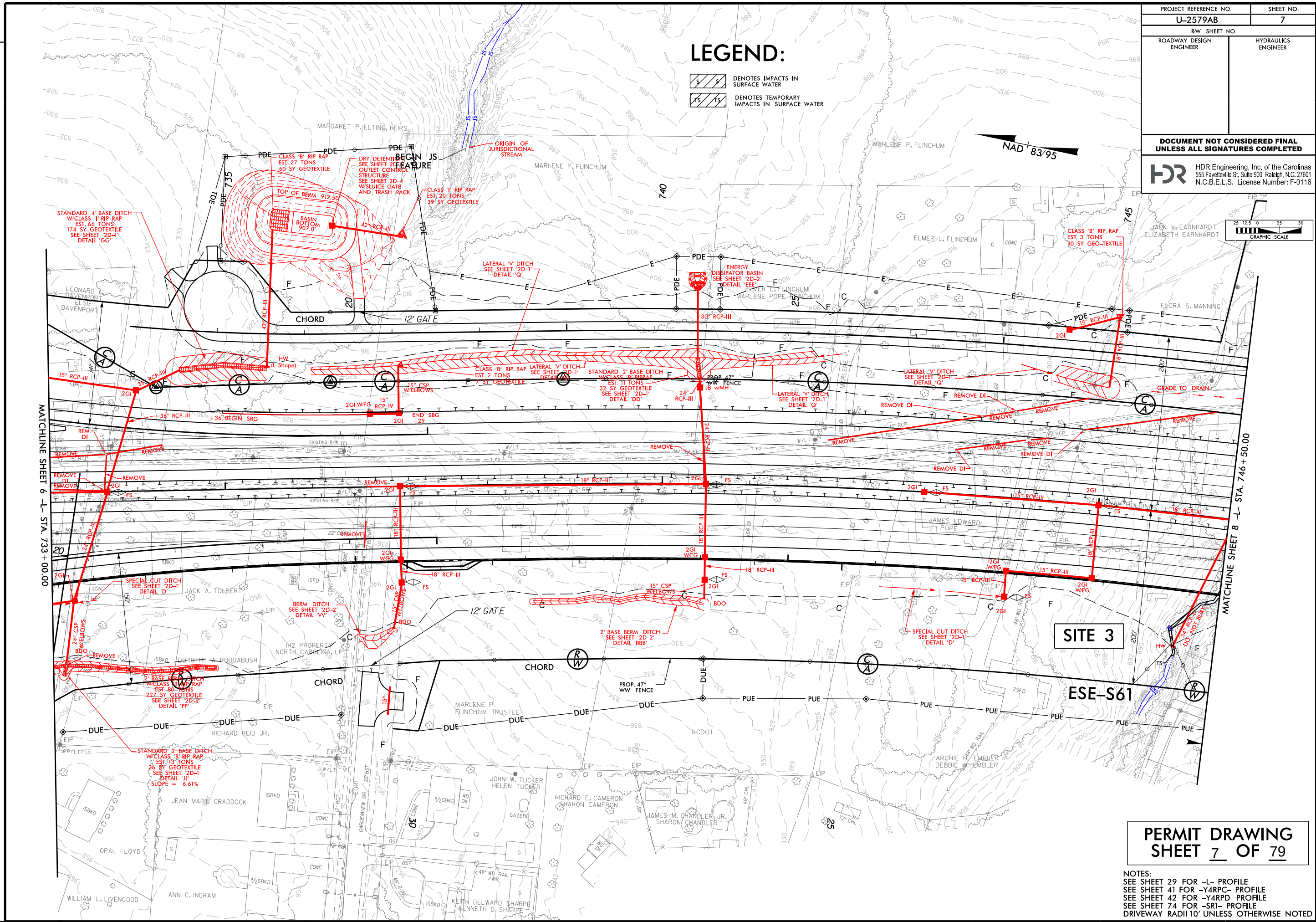
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REVISIONS



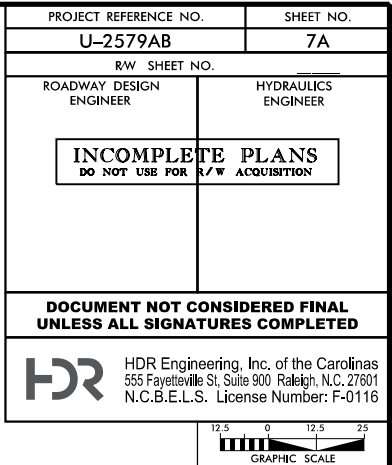
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REVISIONS



TS TS

NAD 83/95



REVISIONS

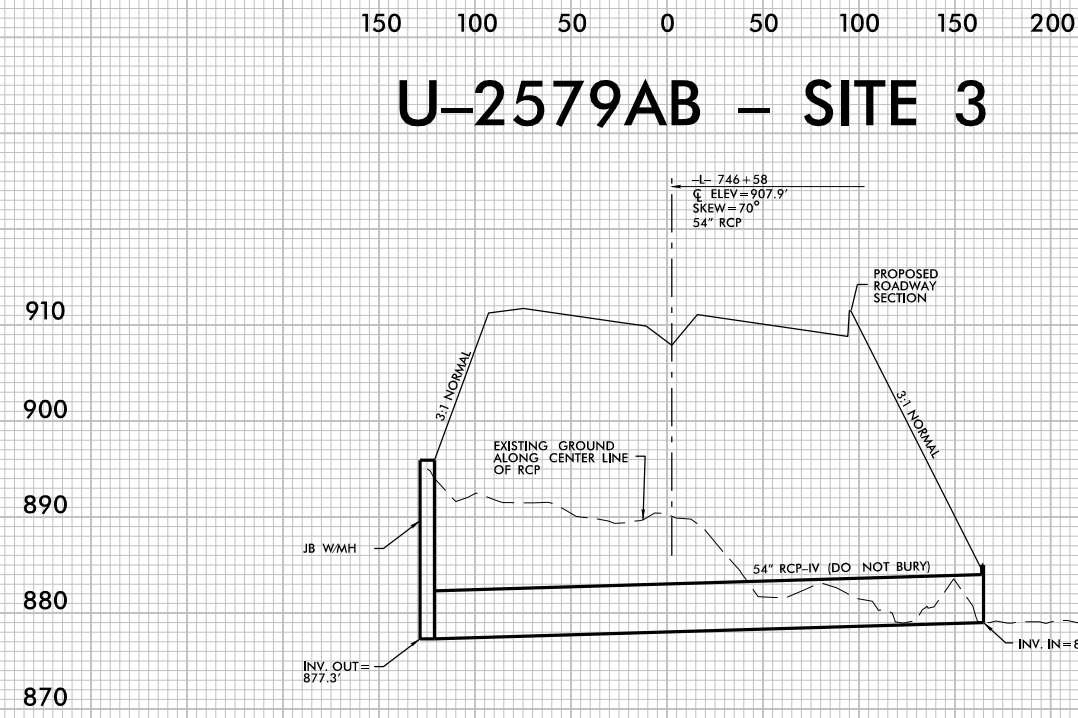


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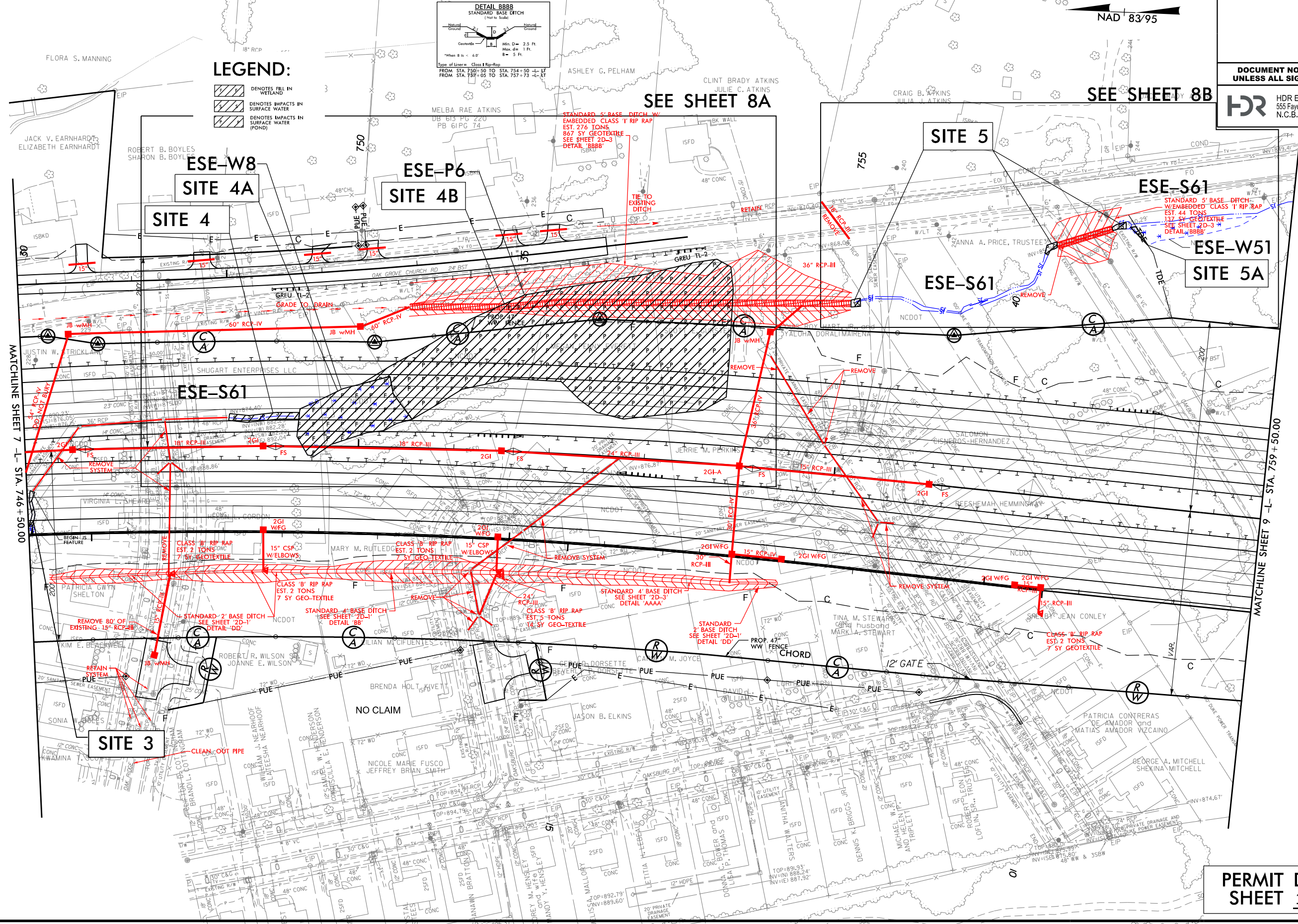
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



PROFILE ALONG $\bar{C}$ OF PIPE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
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PERMIT DRAWING
SHEET 10 OF 79

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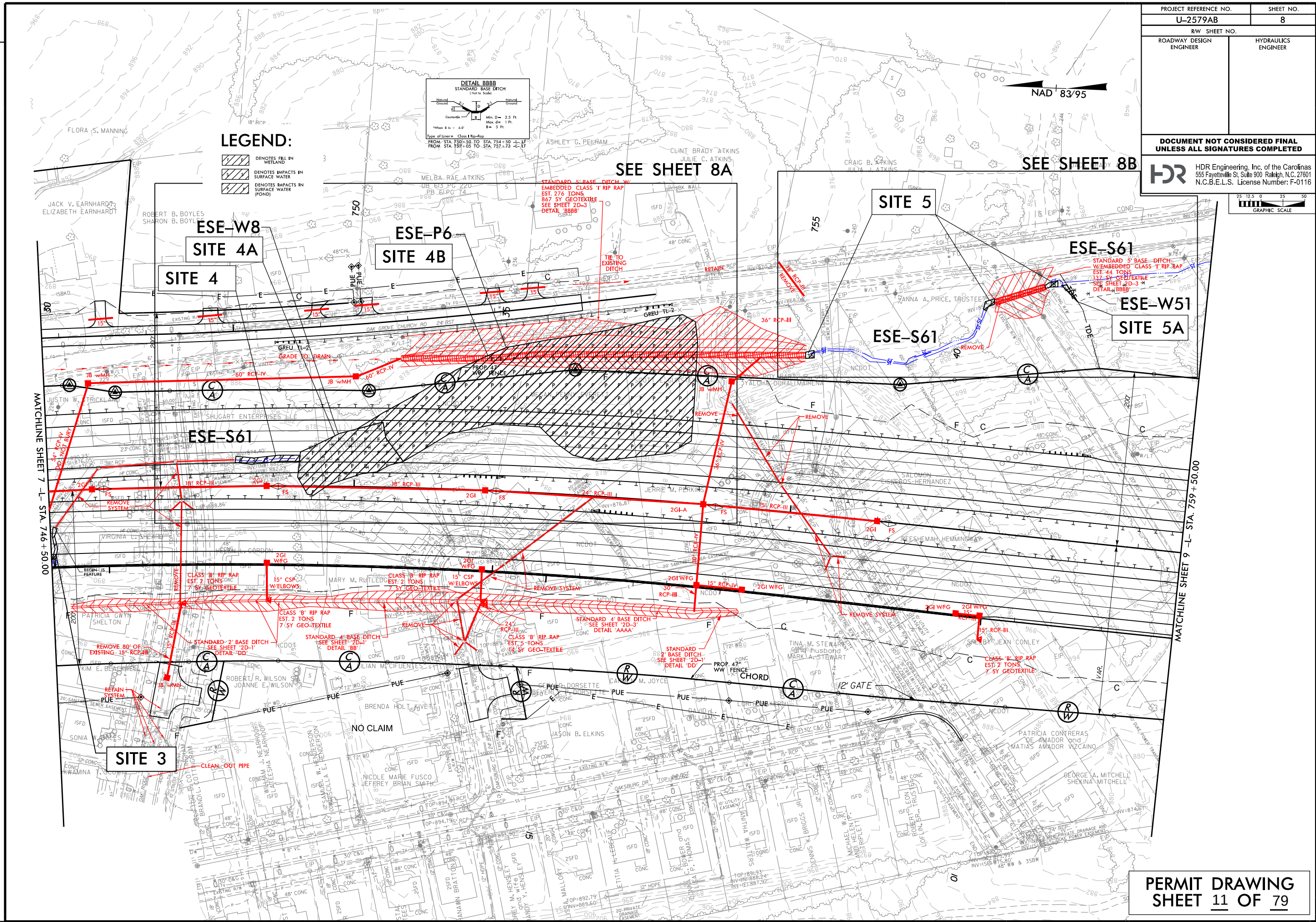
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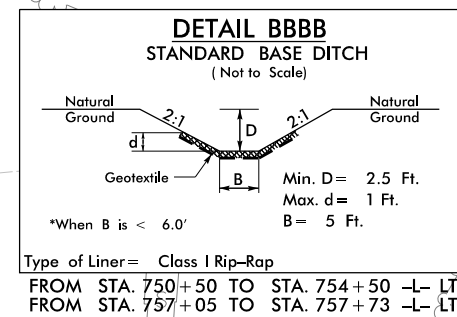
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REVISIONS



PERMIT DRAWING
SHEET 11 OF 79



LEGEND:

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)

ESE-W8
SITE 4A
SITE 4

ESE-P6
SITE 4B

ESE-S61

STANDARD 5' BASE DITCH W/
EMBEDDED CLASS 'I' RIP RAP
EST. 276 TONS
867 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 'BBBB'

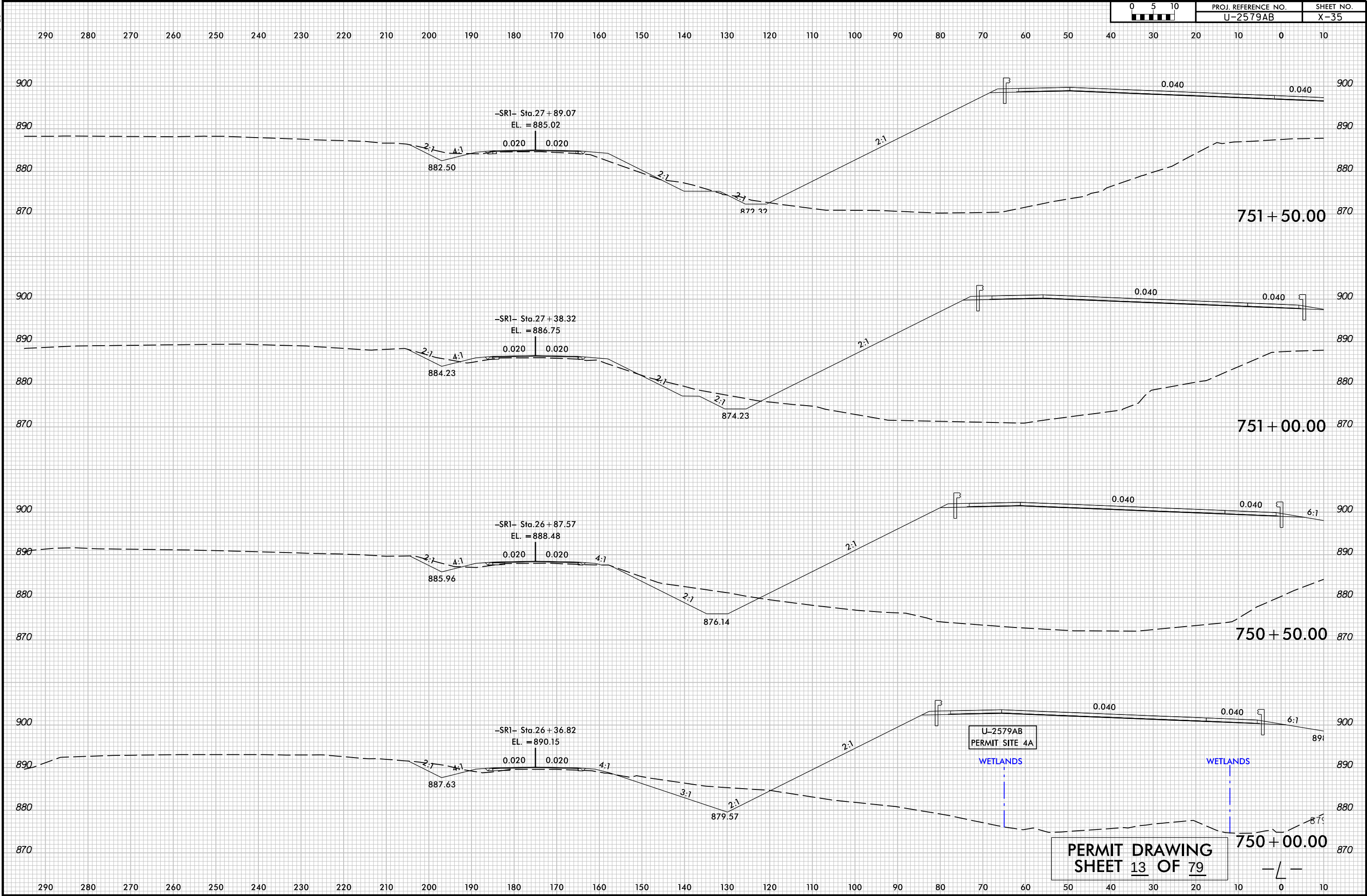
TIE TO EXISTING DITCH

PROP. 47"
WW FENCE

REMOVE

PERMIT DRAWING
SHEET 12 OF 79

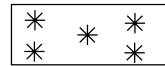
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REVISIONS

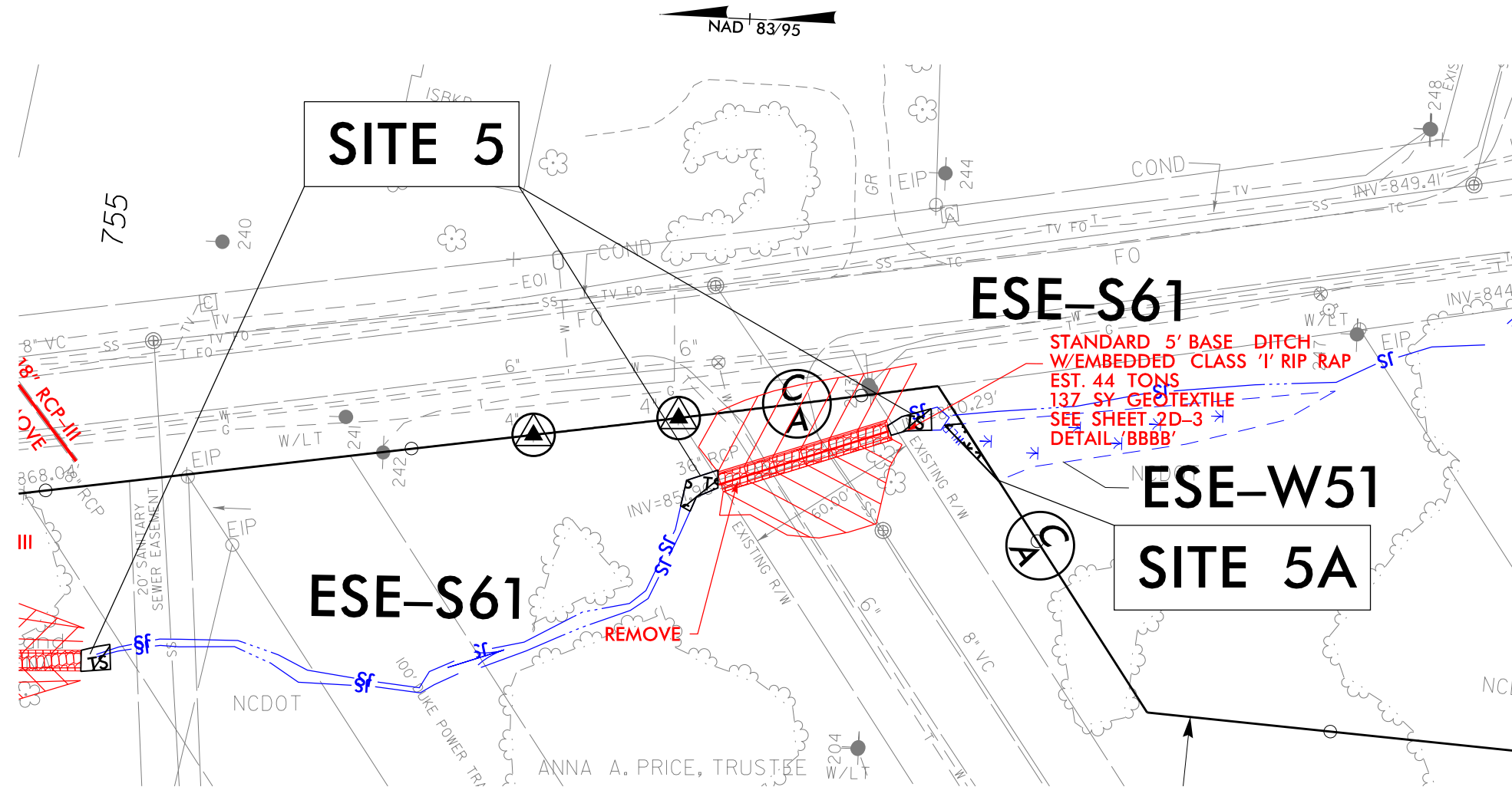
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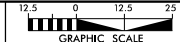
DENOTES MECHANIZED
CLEARING



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

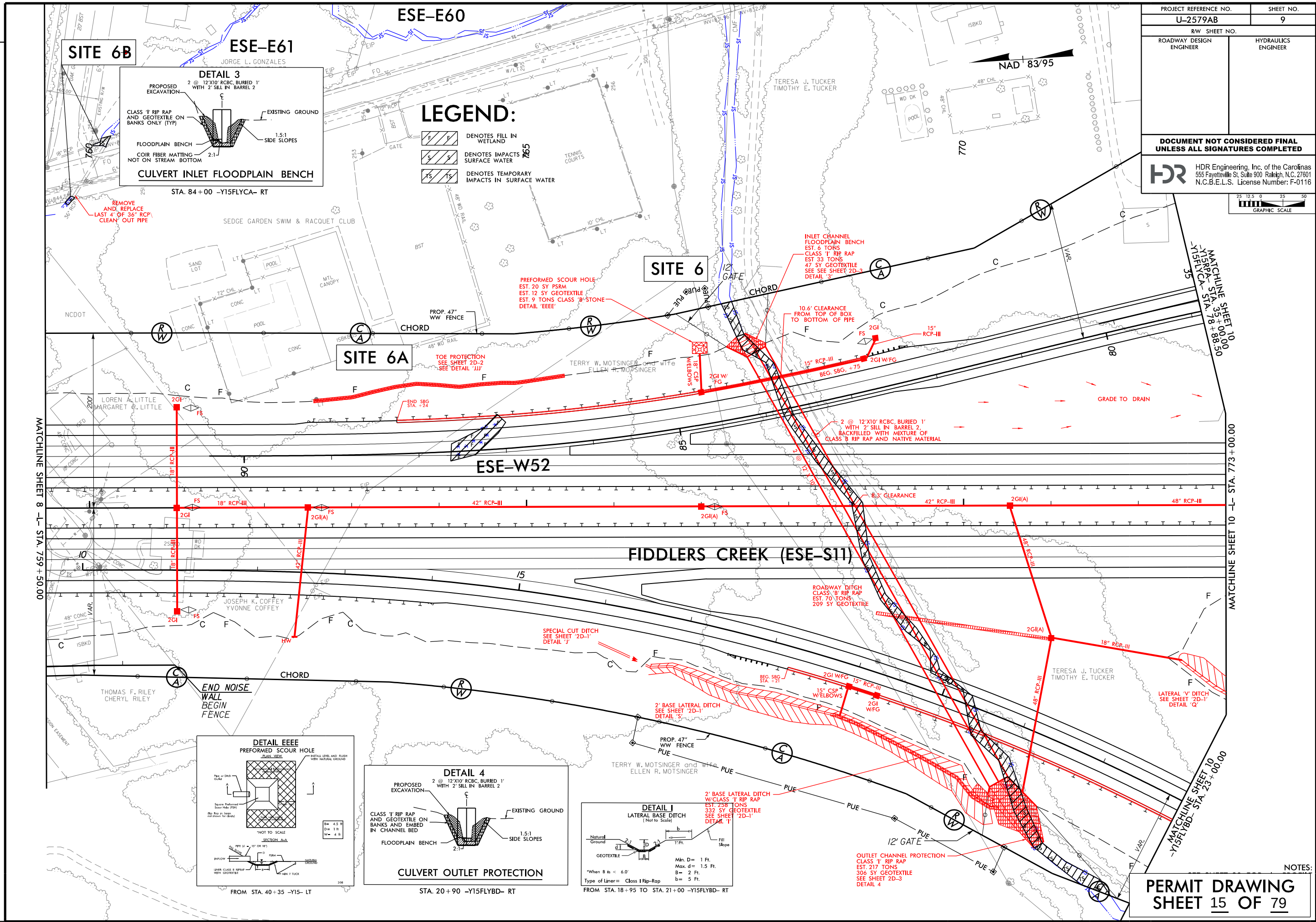


STANDARD 5' BASE DITCH
W/EMBEDDED CLASS '1' RIP RAP
EST. 44 TONS
137 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 'BBBB'

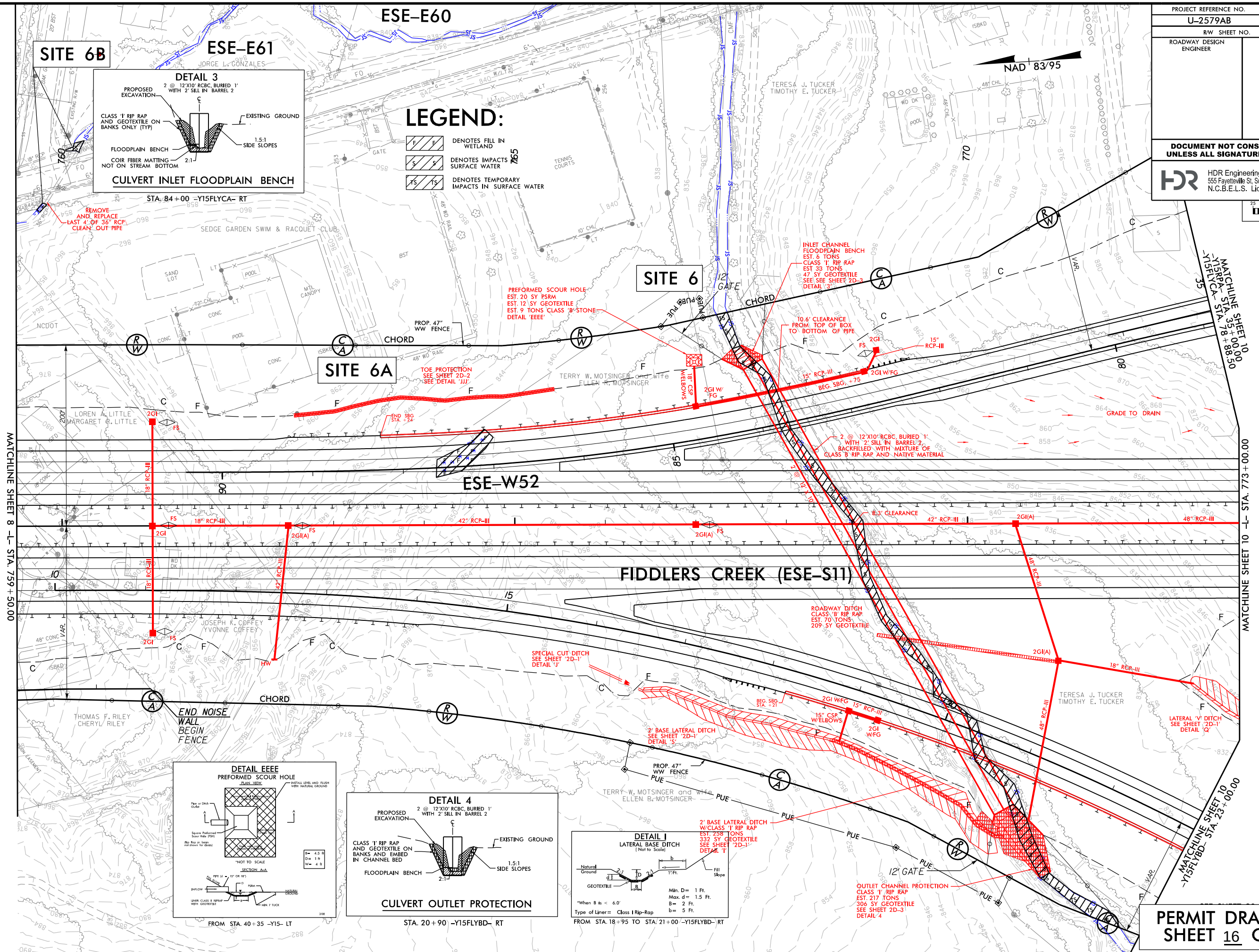
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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 GRAPHIC SCALE			

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REVISIONS



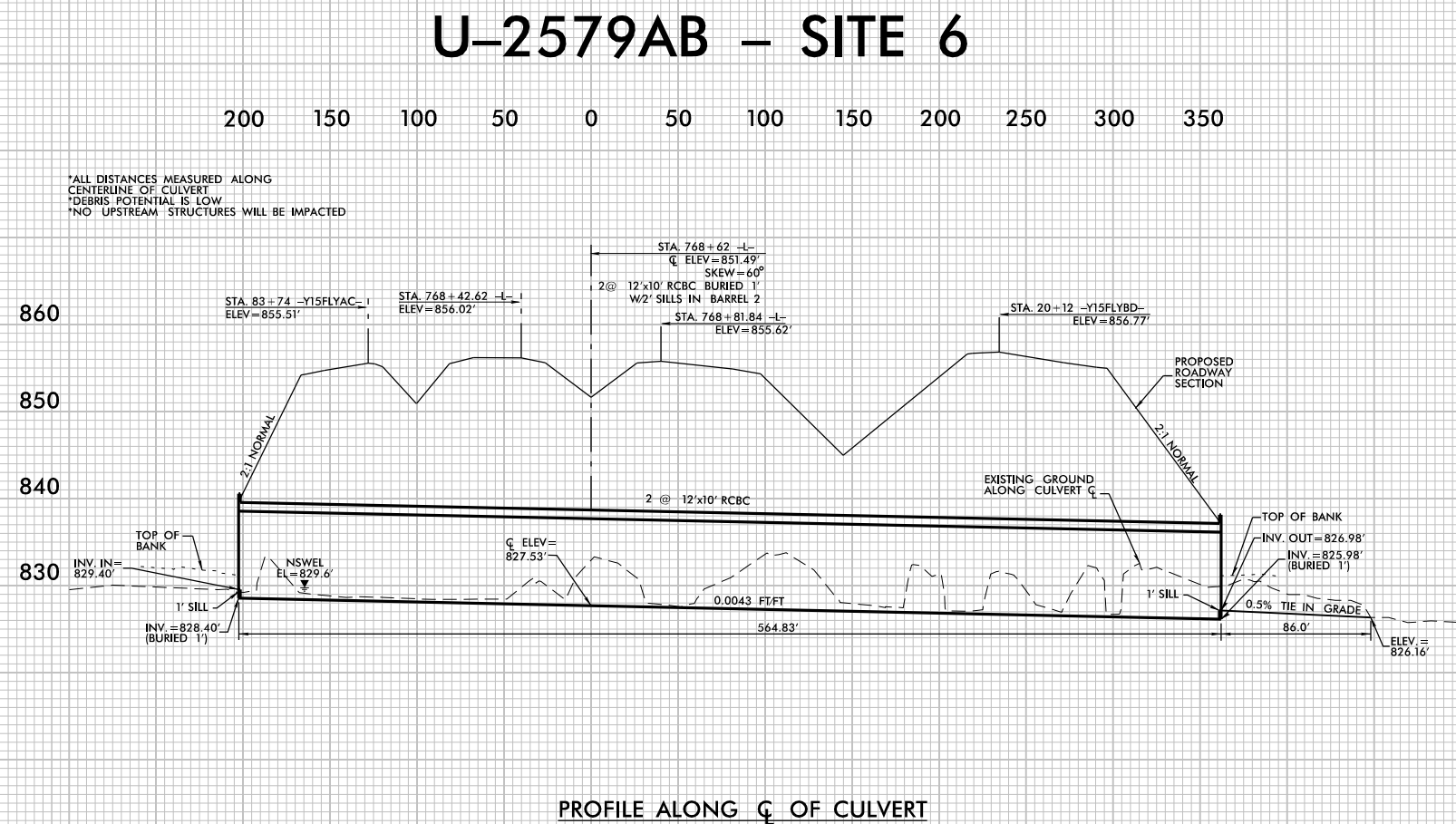
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REVISIONS

5/14/99

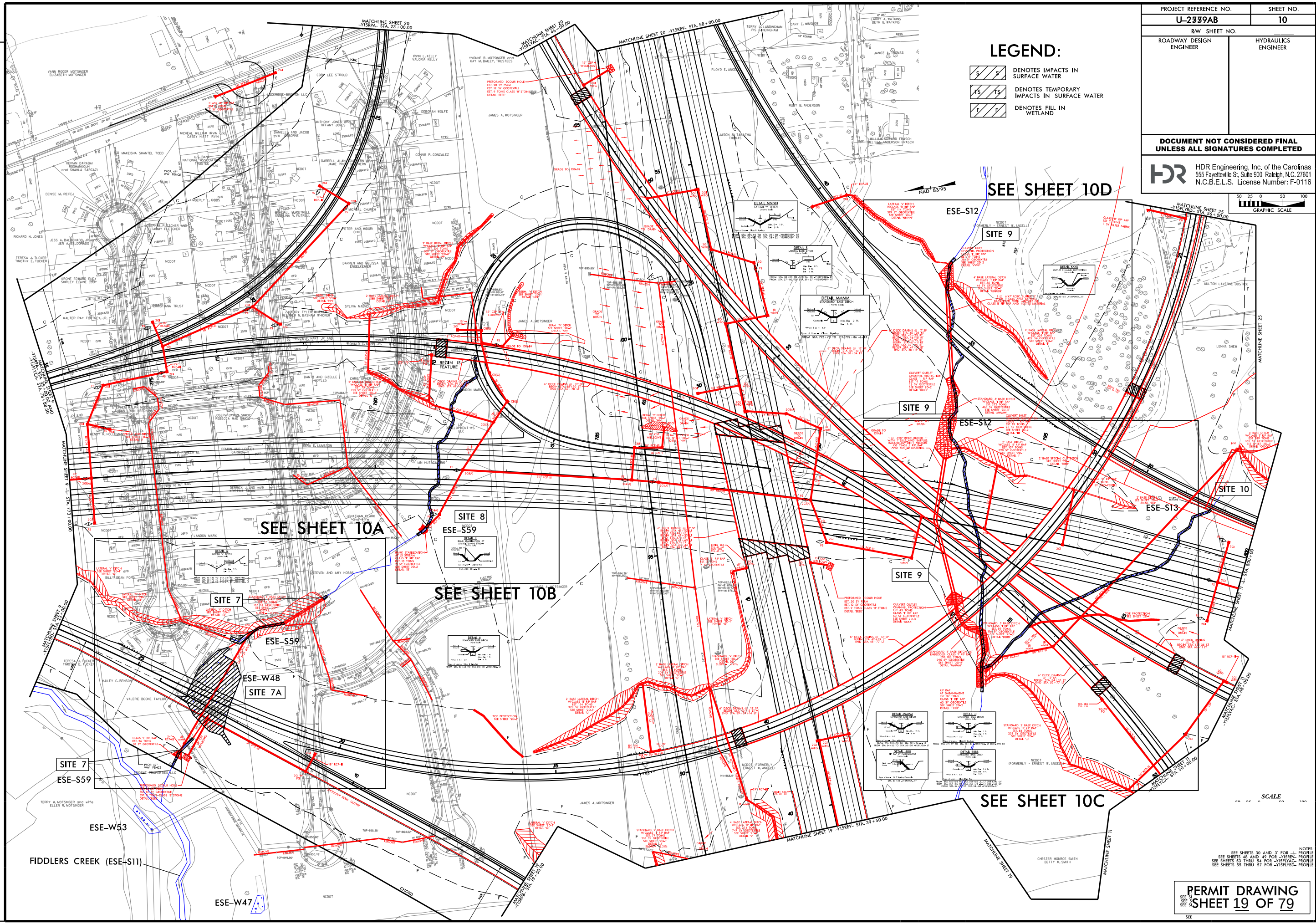
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO.		SHEET NO.
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	ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		





REVISIONS

ROW REV. - FEBRUARY 26, 2020 - SHIFTED CUL-DE-SAC ON OAK GROVE CHURCH RD. TO PROVIDE BETTER INGRESS & EGRESS FOR THE MOISINGER PROPERTY. LINE ON PARCEL 677 CHANGED TO CA TO ILLUSTRATE ENTIRE PARCEL PURCHASED FOR RW. CEH.

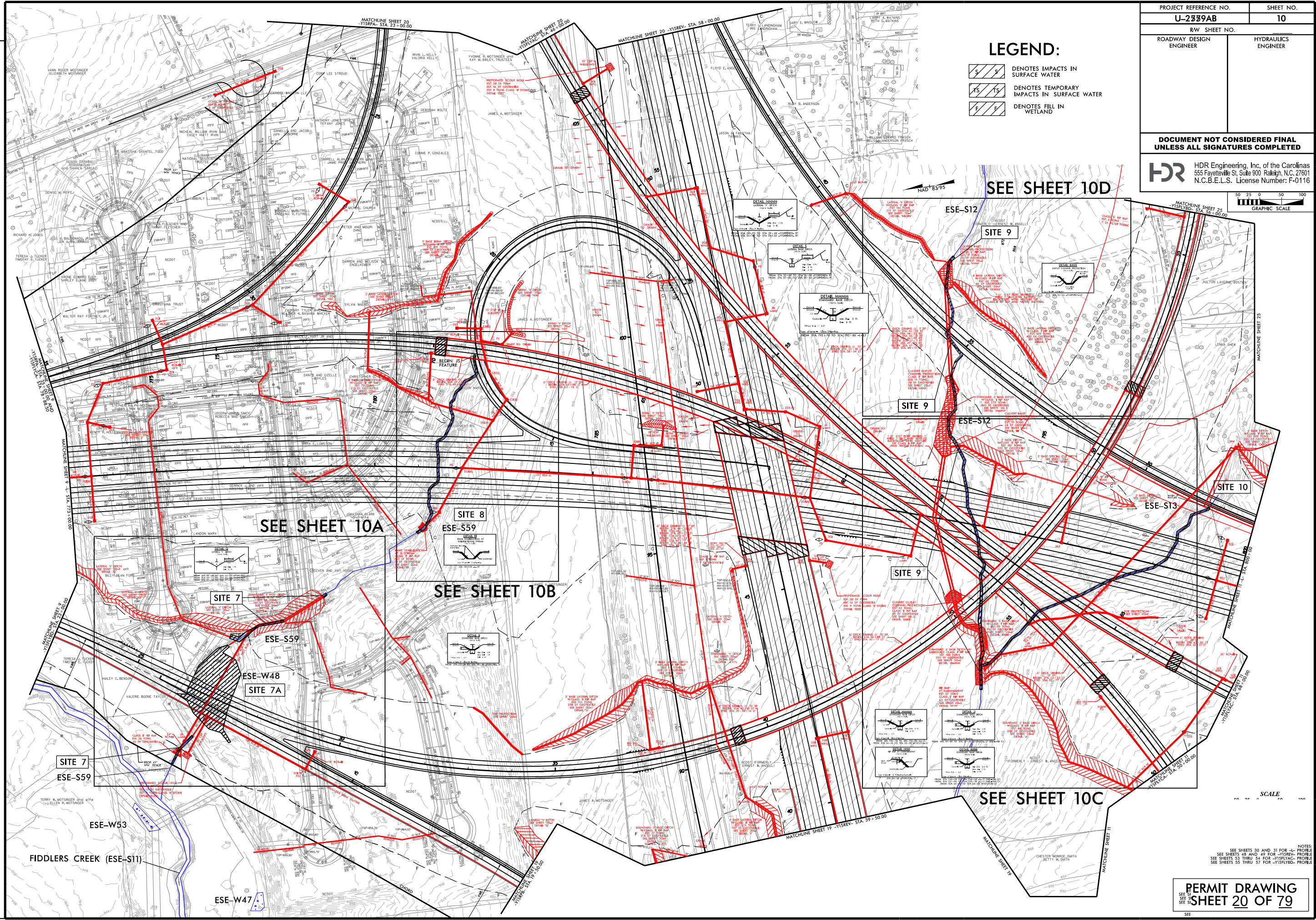


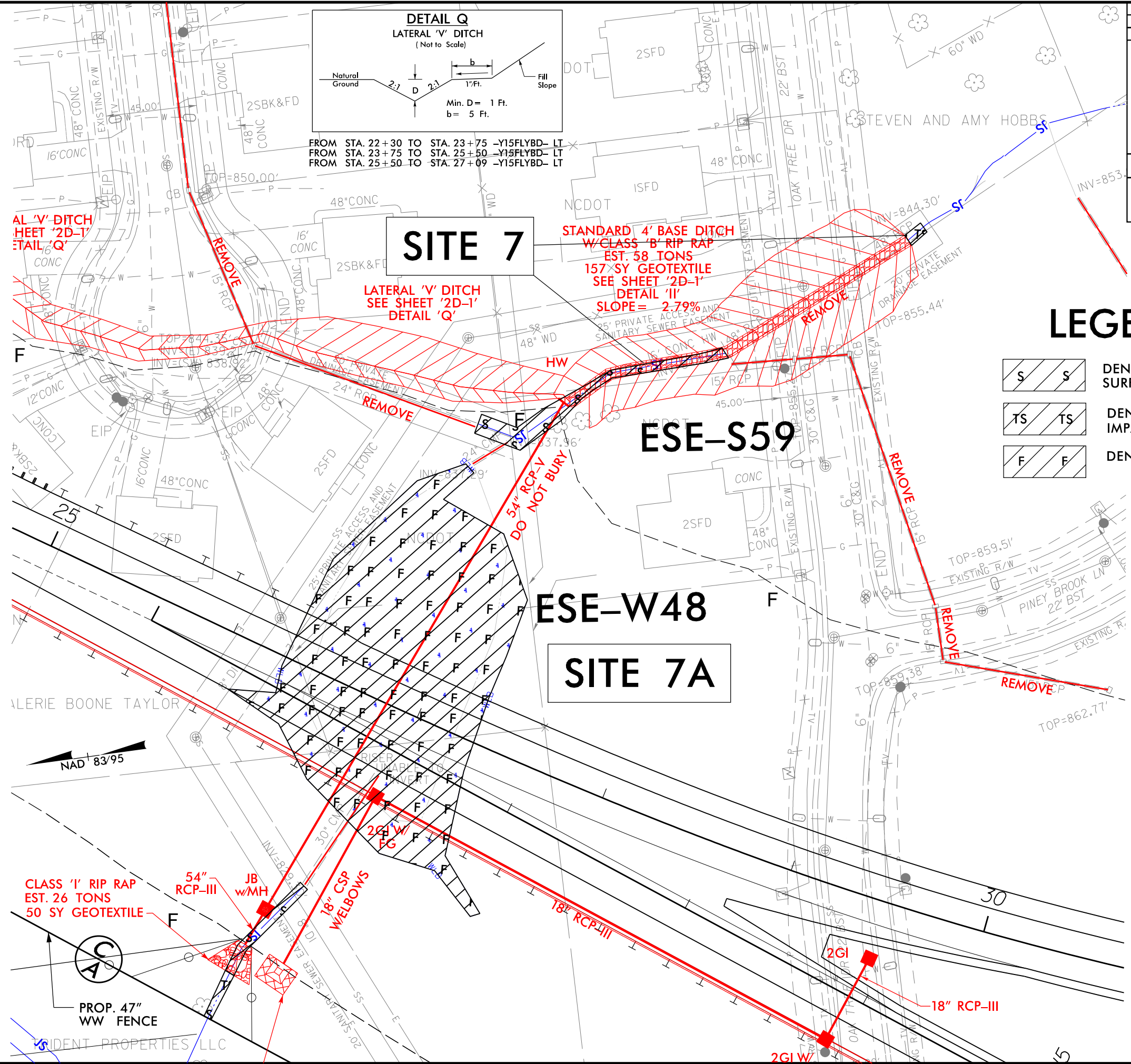
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			

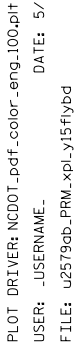
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REVISIONS

ROW REV. - FEBRUARY 26, 2020 - SHIFTED CUL-DE-SAC ON OAK GROVE CHURCH RD. TO PROVIDE BETTER INGRESS & EGRESS FOR THE MOISINGER PROPERTY. LINE ON PARCEL 677 CHANGED TO CA TO ILLUSTRATE ENTIRE PARCEL PURCHASED FOR RW. CEH.



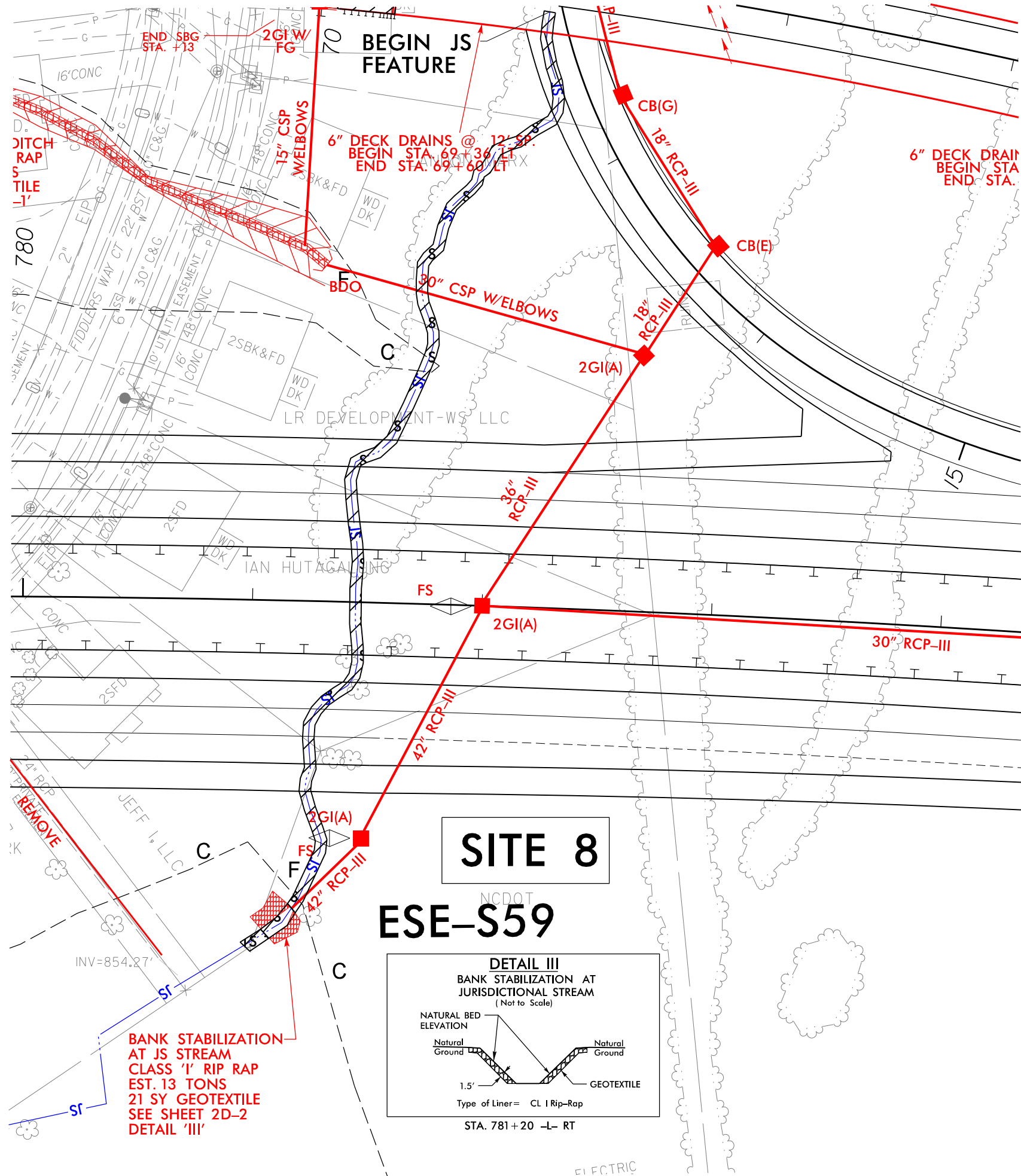




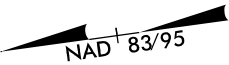
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REVISIONS



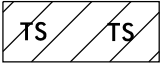
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
12.5012.525  GRAPHIC SCALE			



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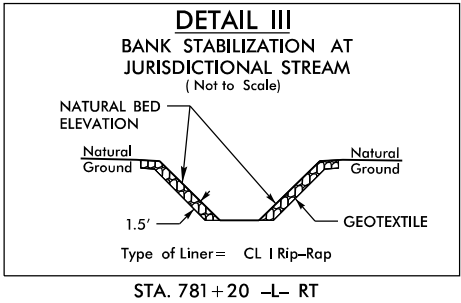


DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 8
ESE-S59

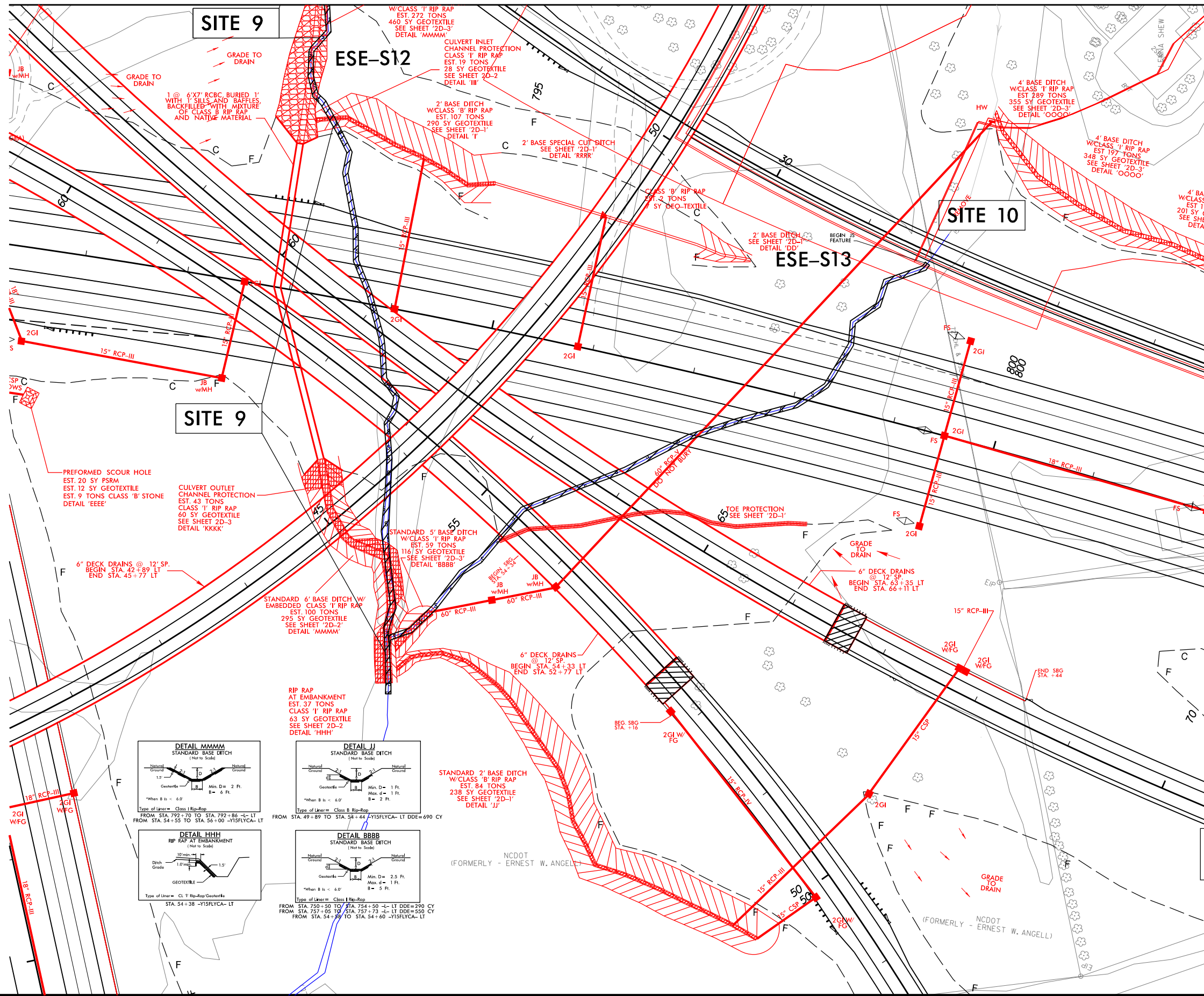


BANK STABILIZATION
AT JS STREAM
CLASS 'I' RIP RAP
EST. 13 TONS
21 SY GEOTEXTILE
SEE SHEET 2D-2
DETAIL 'III'

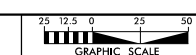
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REVISIONS

MATCHLINE SEE SHEET 10D

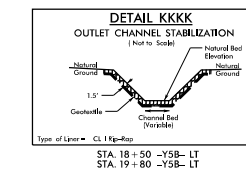
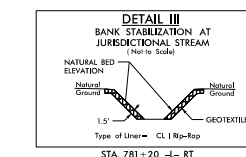


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U-2579AB		10C	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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LEGEND:

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

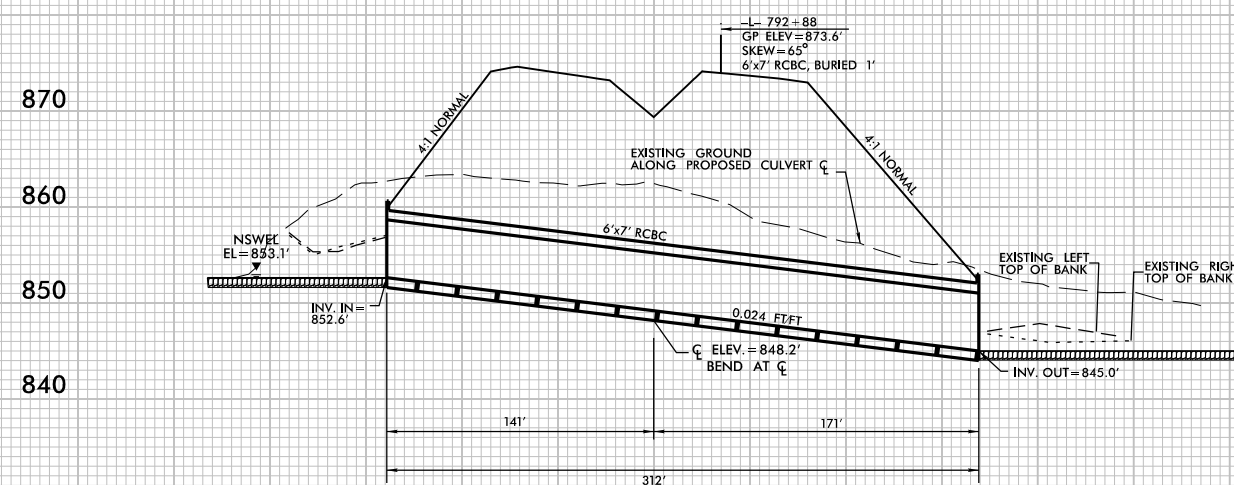


PERMIT DRAWING
SHEET 24 OF 79

NOTES:
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 42 FOR -Y4RPD- PROFILE

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

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PROFILE ALONG Q OF CULVERT

PERMIT DRAWINGS
SHEET 25 OF 79

5/14/99

REVISIONS

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REVISIONS

5/14/99



HDR Engineering, Inc. of the Carolinas

555 Fayetteville St, Suite 900 Raleigh, N.C. 27601

N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.

U-2579AB

SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

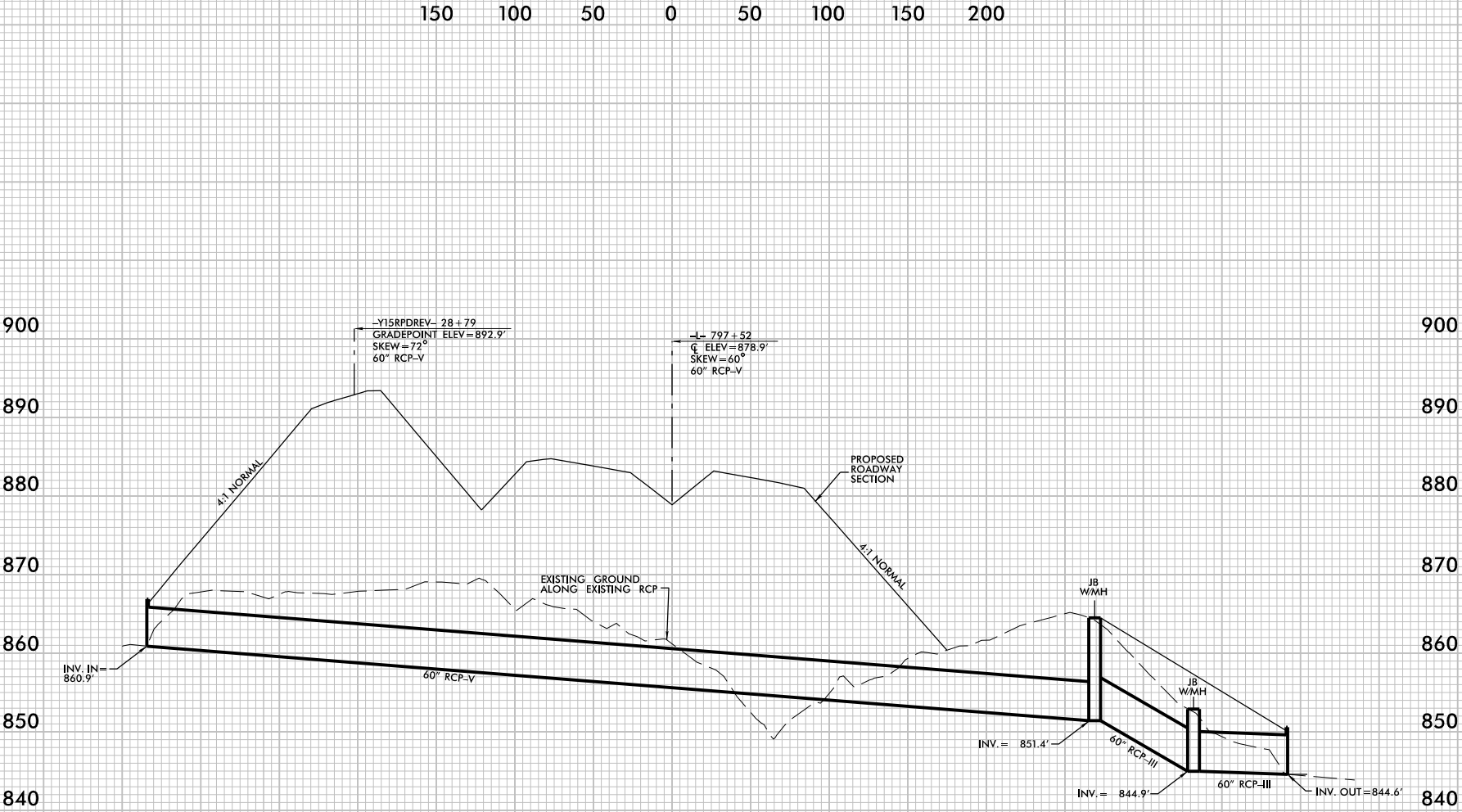
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DO NOT USE FOR R/W ACQUISITION

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UNLESS ALL SIGNATURES COMPLETED

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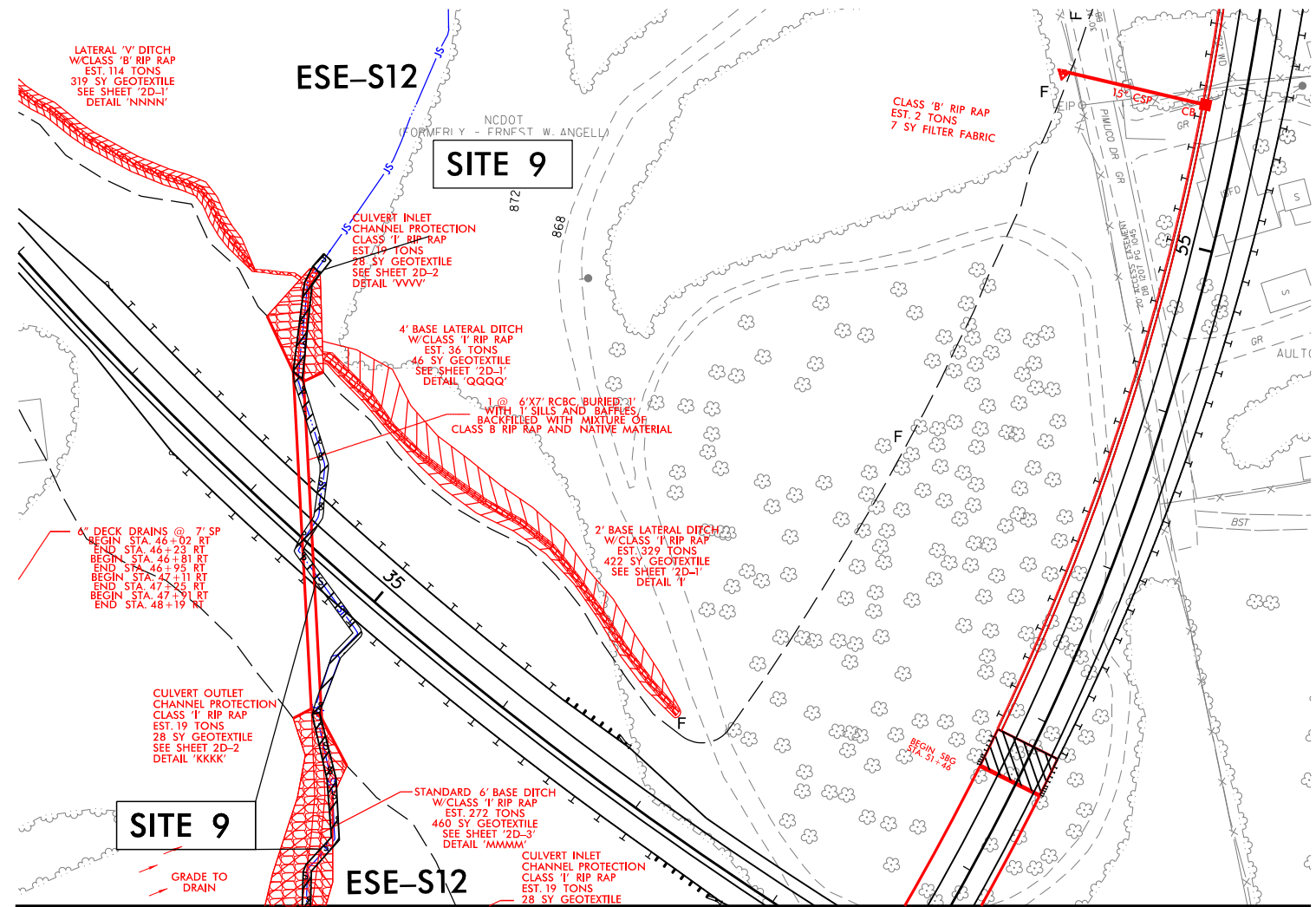


PROFILE ALONG $\bar{C}$ OF CULVERT

 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

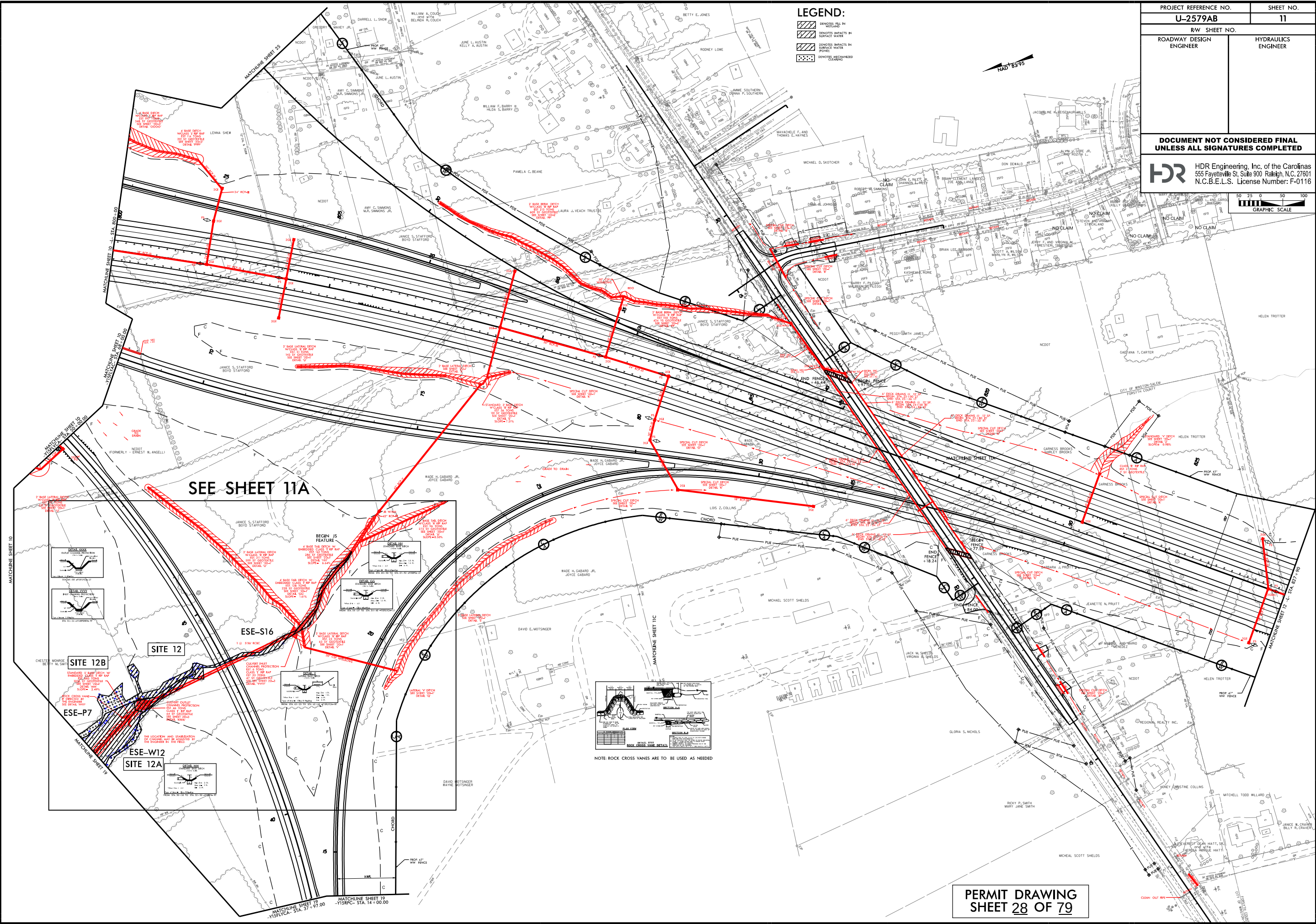
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 42 FOR -Y4RPD PROFILE



MATCHLINE SEE SHEET 10C

REVISIONS

- REV. - DECEMBER 5, 2018 - REVISED TCE ON PARCELS 182, 183, 184, 190 AND 191. CEH
ROW REV. - FEBRUARY 8, 2019 - REVISED TCE ON PARCELS 157 AND 158 TO AVOID SEPTIC TANK. SMP
ROW REV. - MARCH 29, 2019 - PARCEL 159 COMBINED WITH PARCEL 160 FOR JANICE & BOYD STAFFORD. SMP
ROW REV. - FEBRUARY 26, 2020 - REMOVED Y16C AND DRI ALIGNMENTS. CLAIMS ELIMINATED ON PARCELS 182, 183, 184, 190 AND 191. ROW AND TCE REDUCED AND/OR ADJUSTED ON PARCELS 180, 181, 192 AND 193.
ROW REV. - FEBRUARY 26, 2020 - REMOVED Y16C AND DRI ALIGNMENTS. CLAIMS ELIMINATED ON PARCELS 182, 183, 184, 190 AND 191. ROW AND TCE REDUCED AND/OR ADJUSTED ON PARCELS 180, 181, 192 AND 193.
ROW REV. - MARCH 13, 2020 - ELIMINATED TCE ON PARCEL 181. CEH
PUE EXTENDED TO TIE TO ROW ON PARCEL 181. CEH
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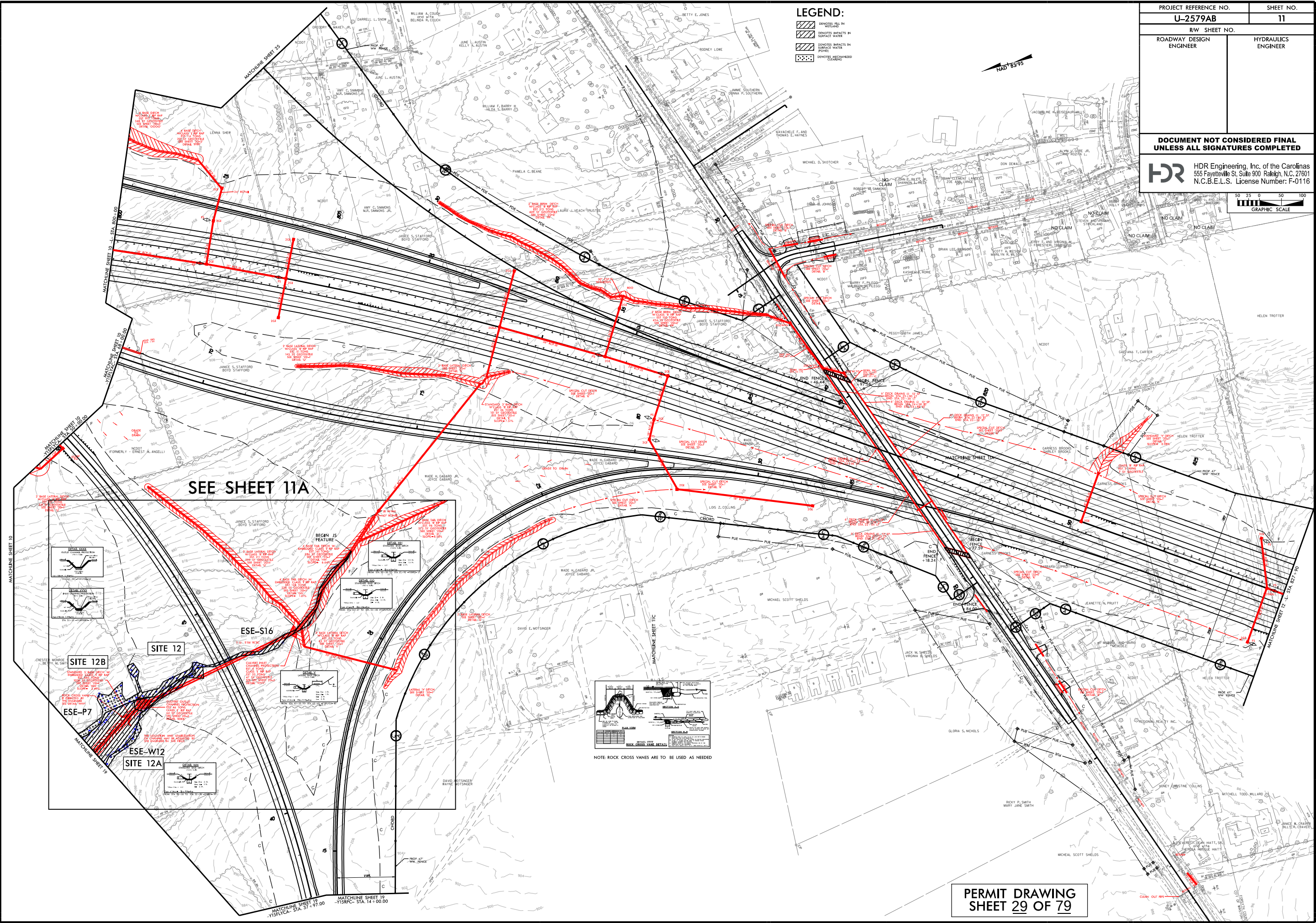
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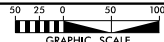
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REVISIONS

ROW REV. - DECEMBER 5, 2018 - REVISED TCE ON PARCELS 182, 183, 184, 190 AND 191. CEH
ROW REV. - FEBRUARY 8, 2019 - REVISED TCE ON PARCELS 157 AND 158 TO AVOID SEPTIC TANK. SMP
ROW REV. - MARCH 29, 2019 - PARCEL 159 COMBINED WITH PARCEL 160 FOR JANICE & BOYD STAFFORD. SMP
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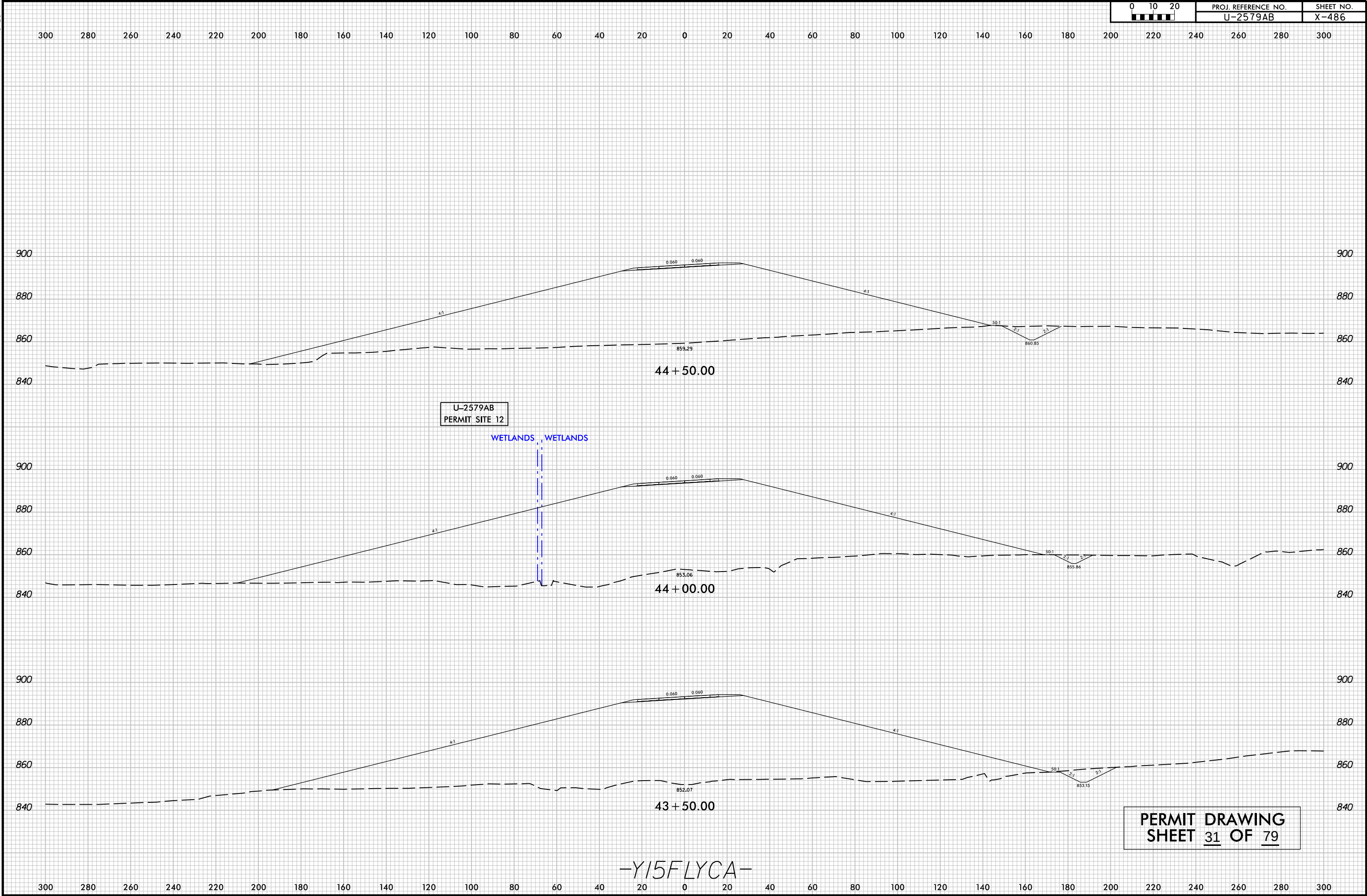
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U-2579AB		11	
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES MECHANIZED CLEARING

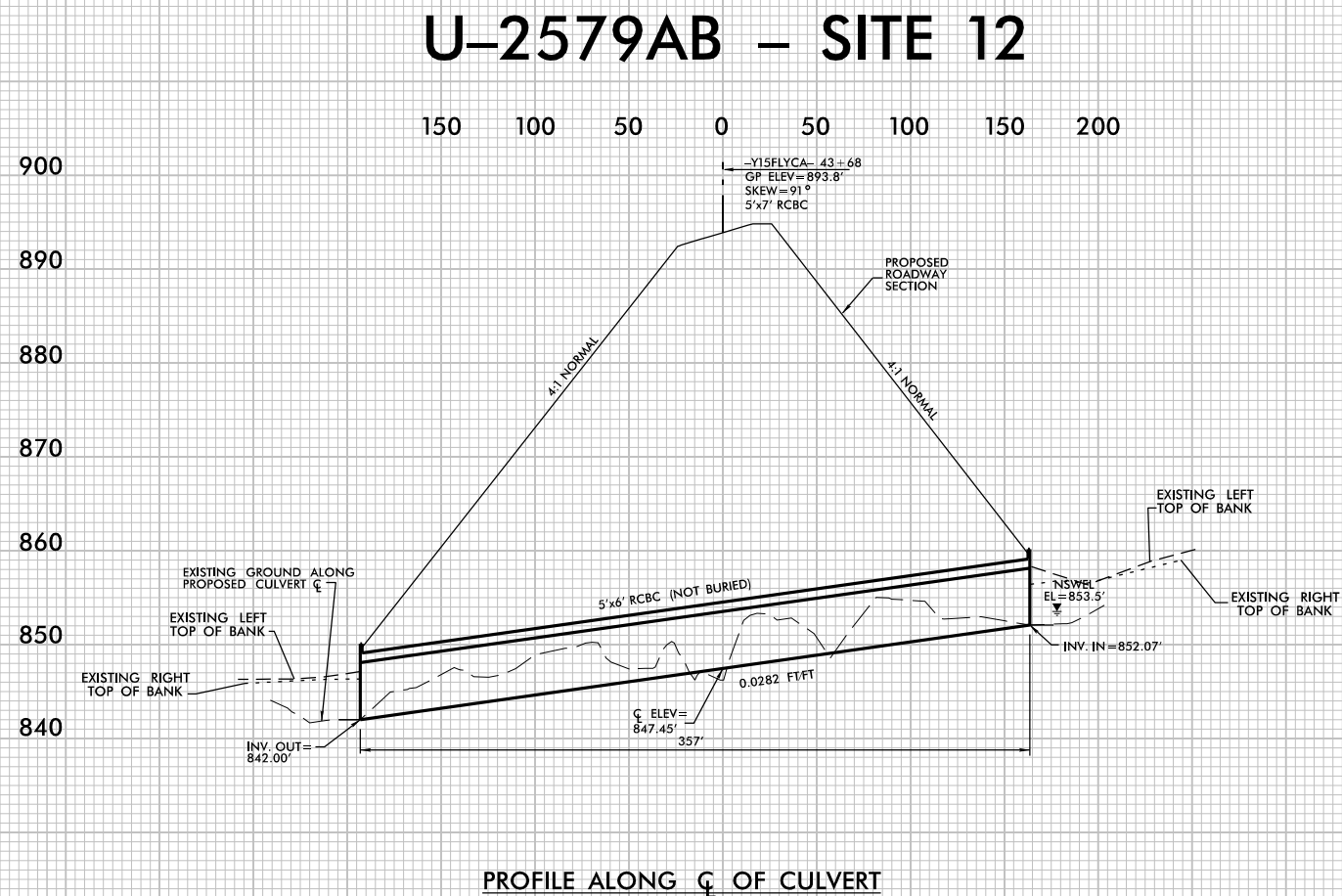


PERMIT DRAWING
SHEET 30 OF 79

8/23/99



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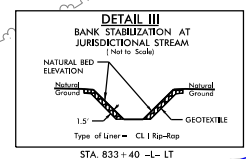
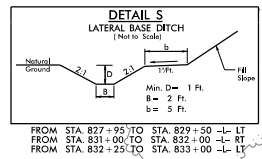


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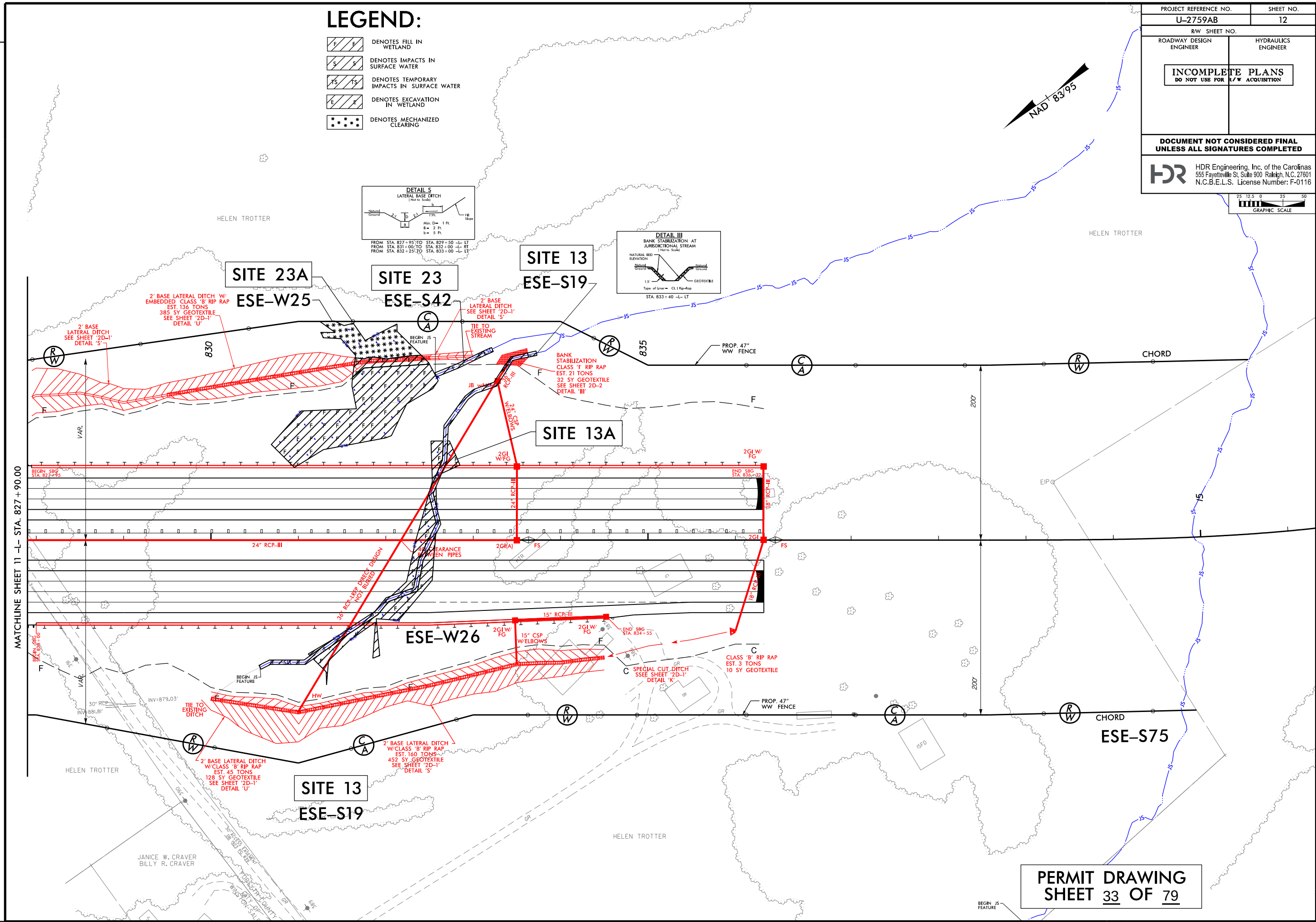
REVISIONS

LEGEND:

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



PROJECT REFERENCE NO. U-2759AB		SHEET NO. 12	
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
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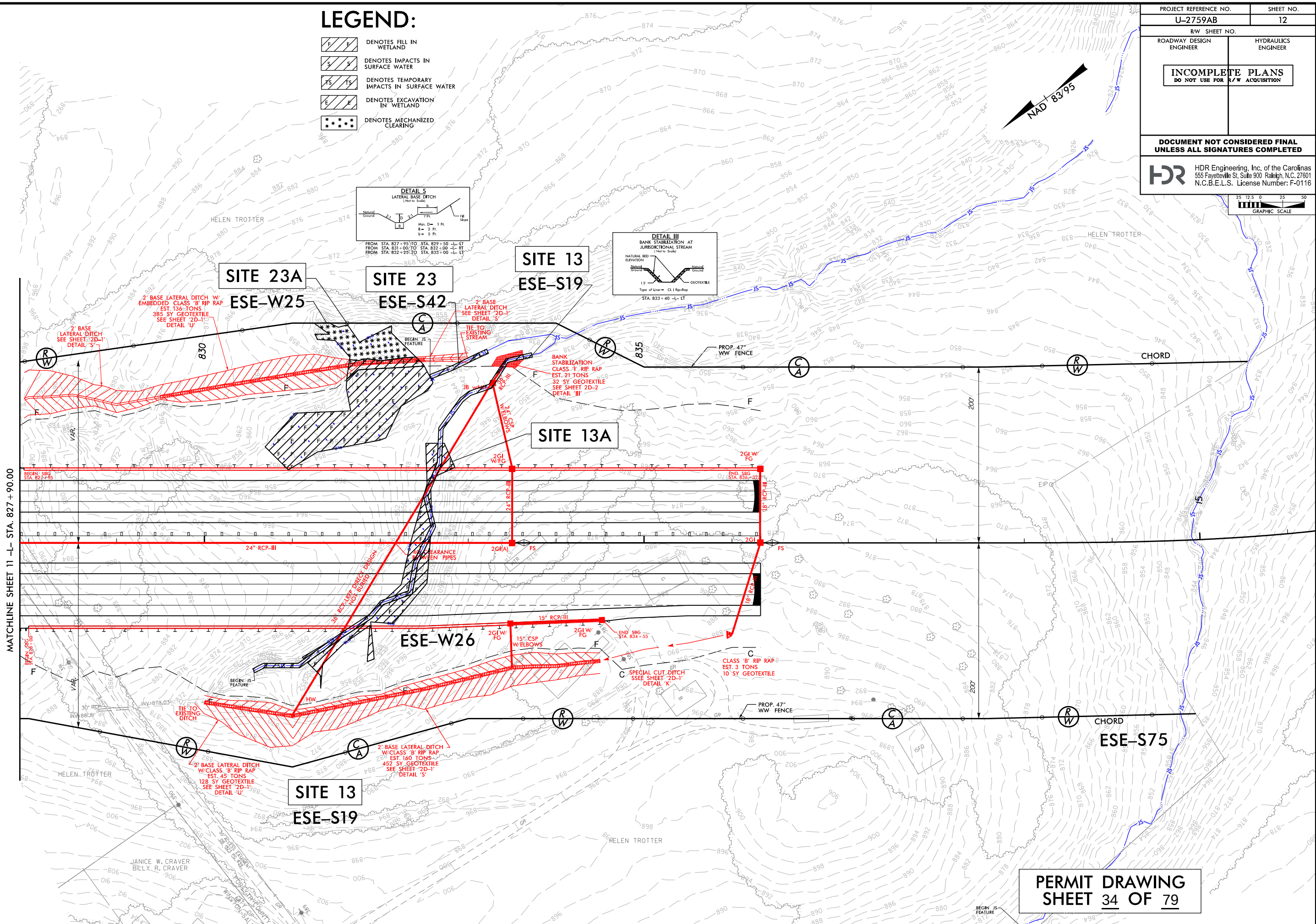
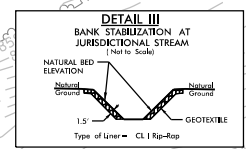
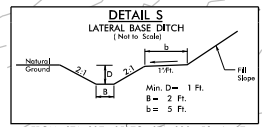


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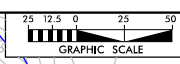
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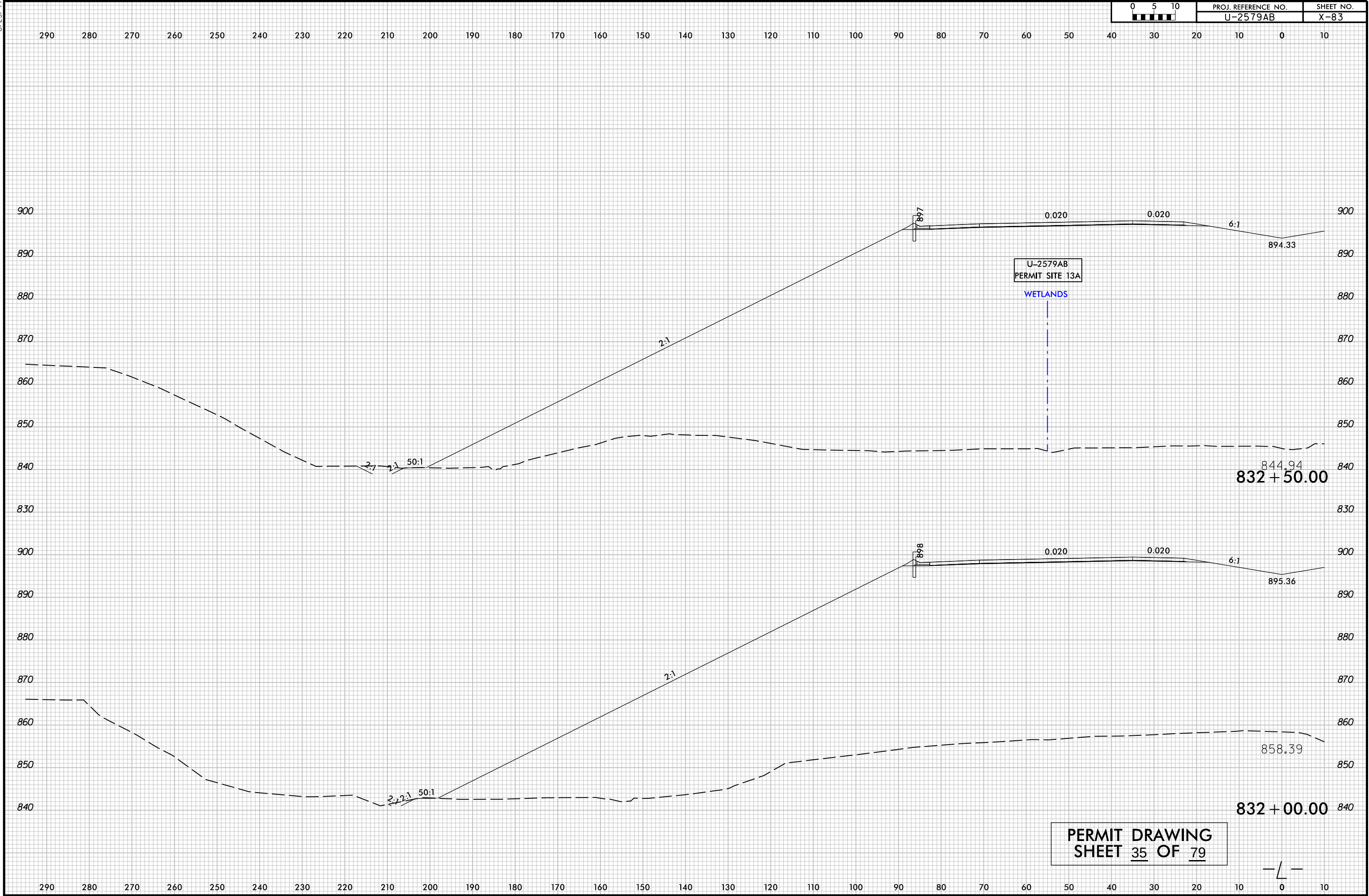
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING

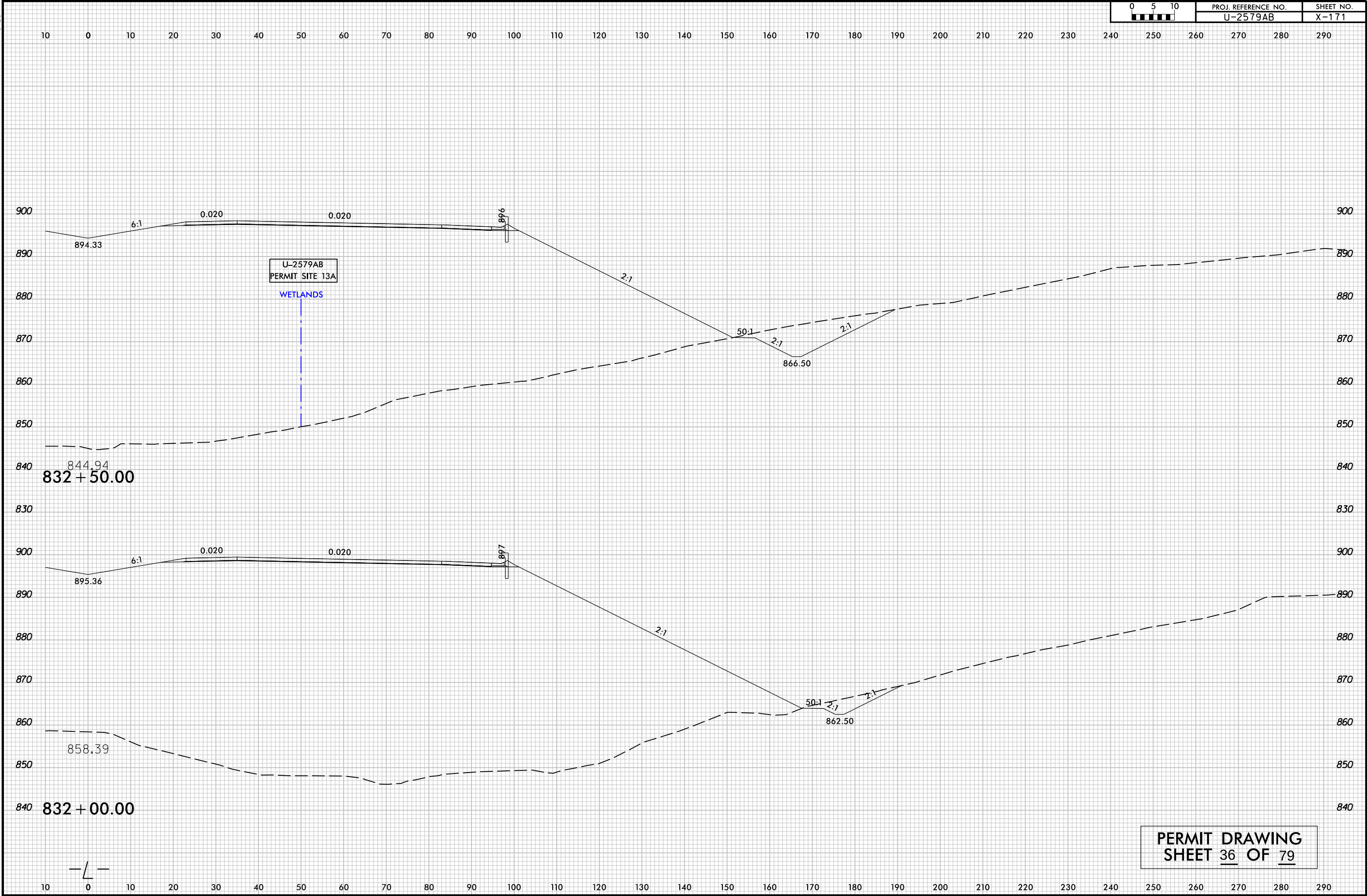


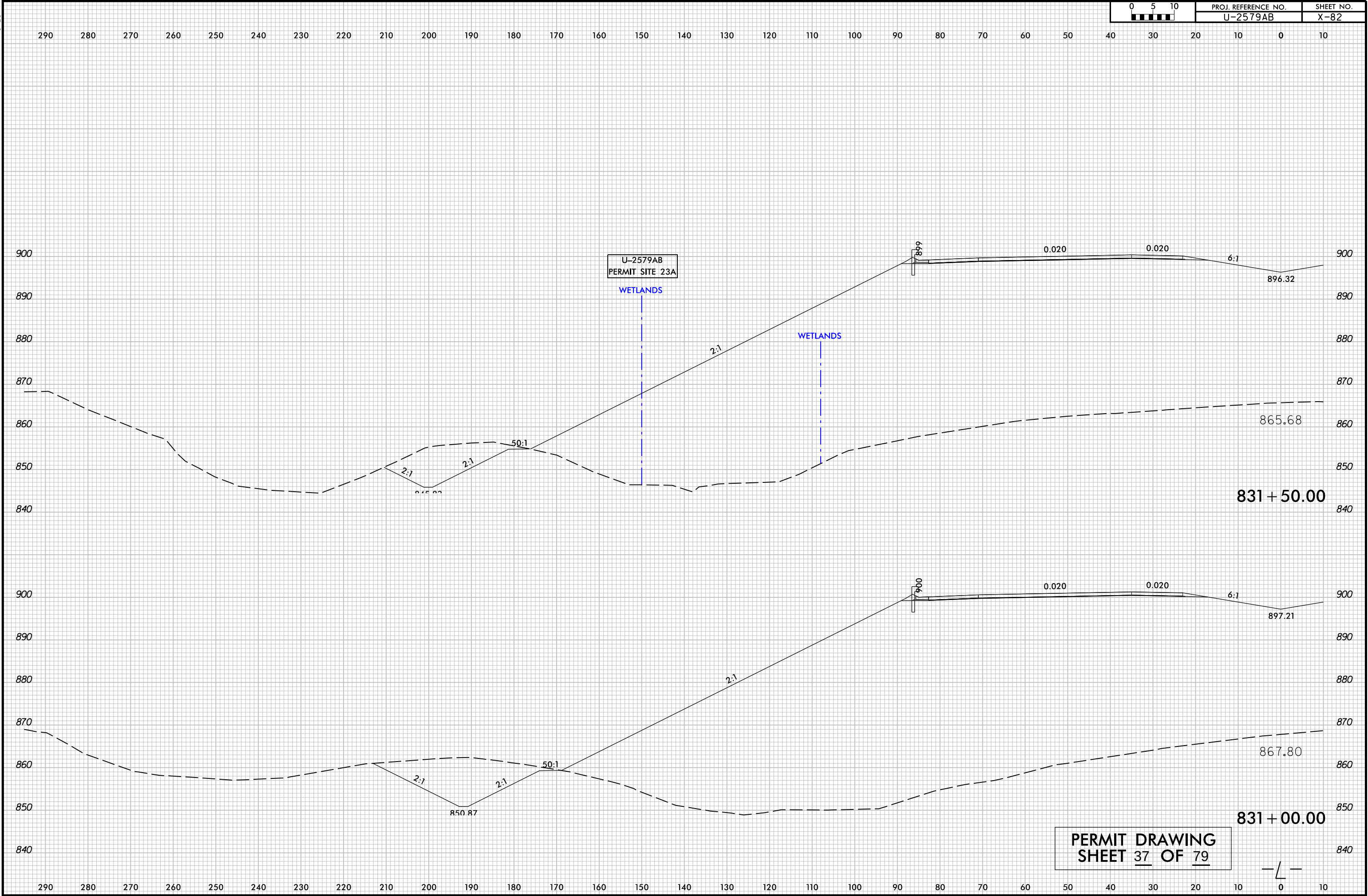
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
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PERMIT DRAWING
SHEET 34 OF 79

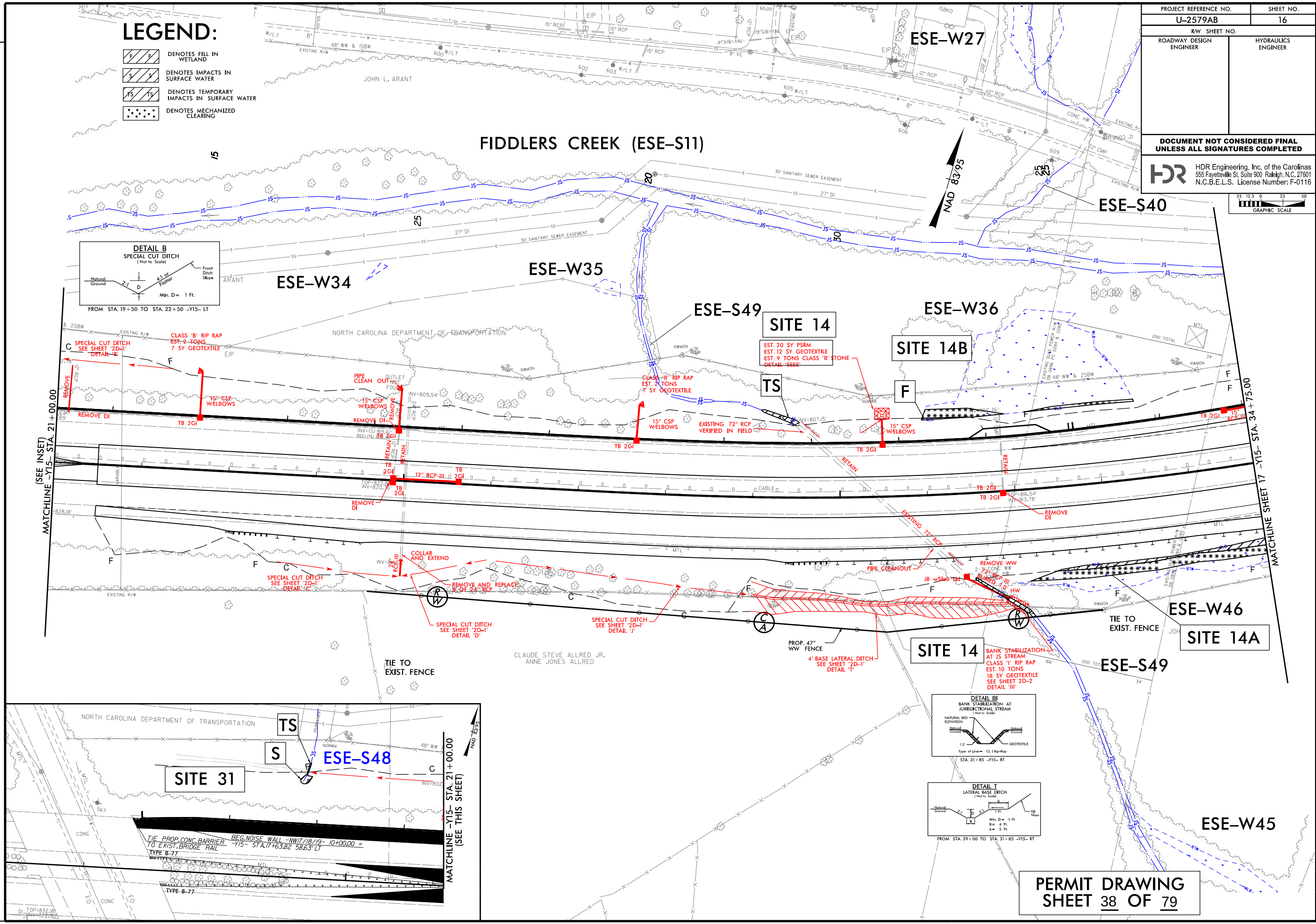






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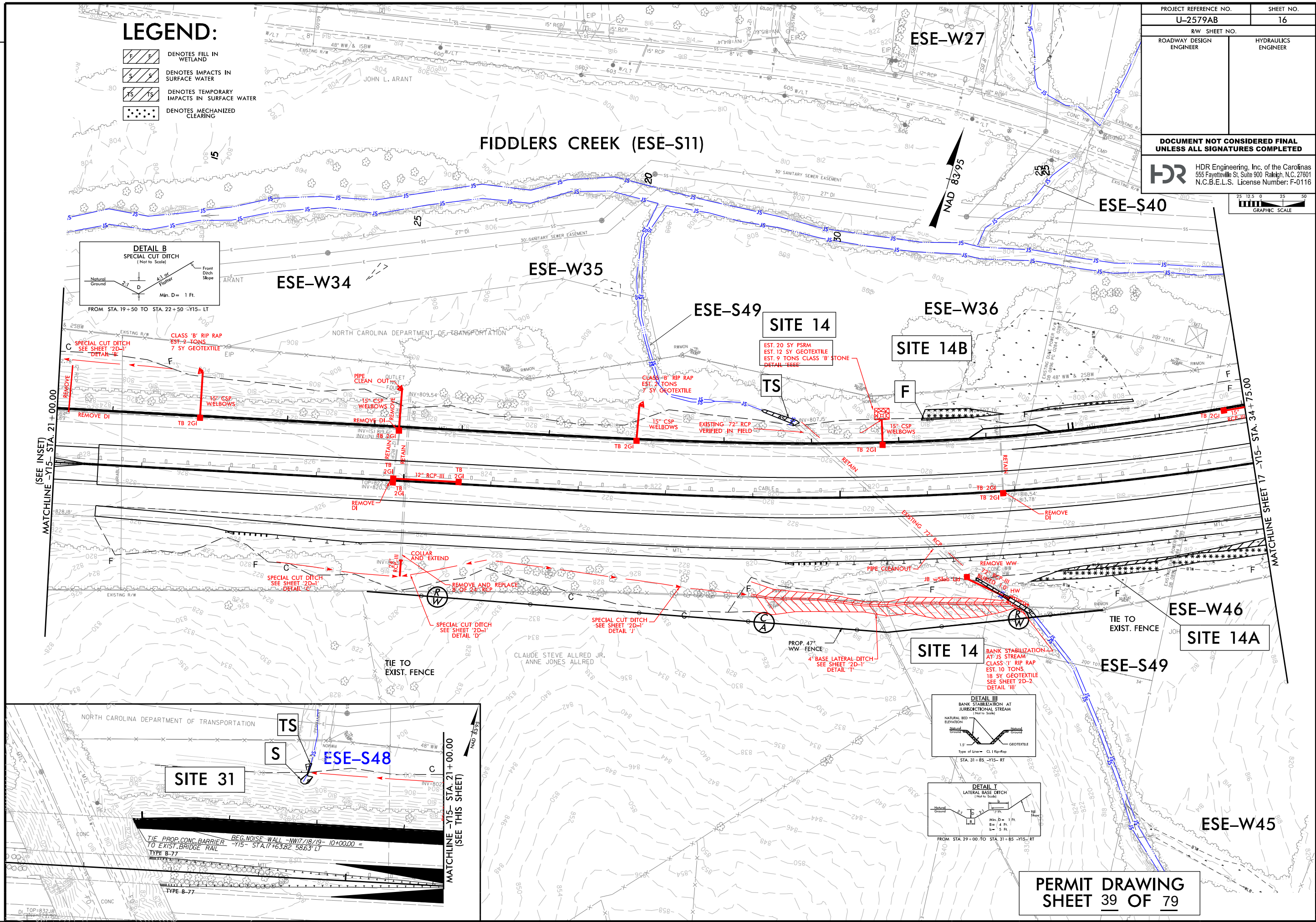
REVISIONS



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HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116		
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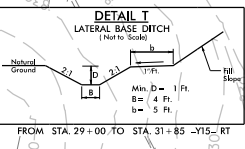
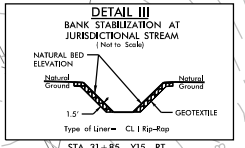
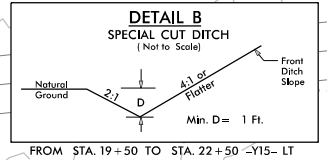
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REVISIONS



LEGEND:

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

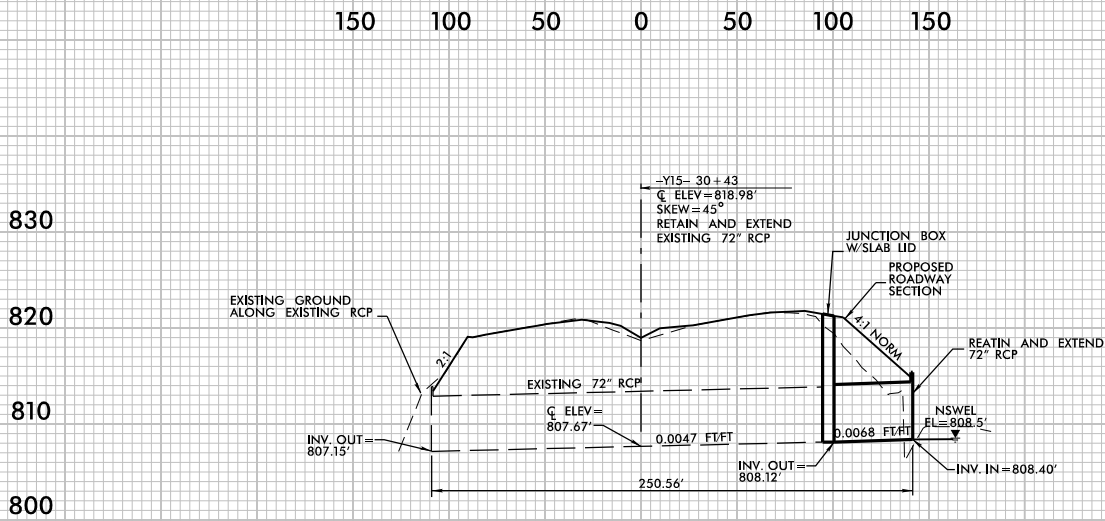


PERMIT DRAWING
SHEET 39 OF 79

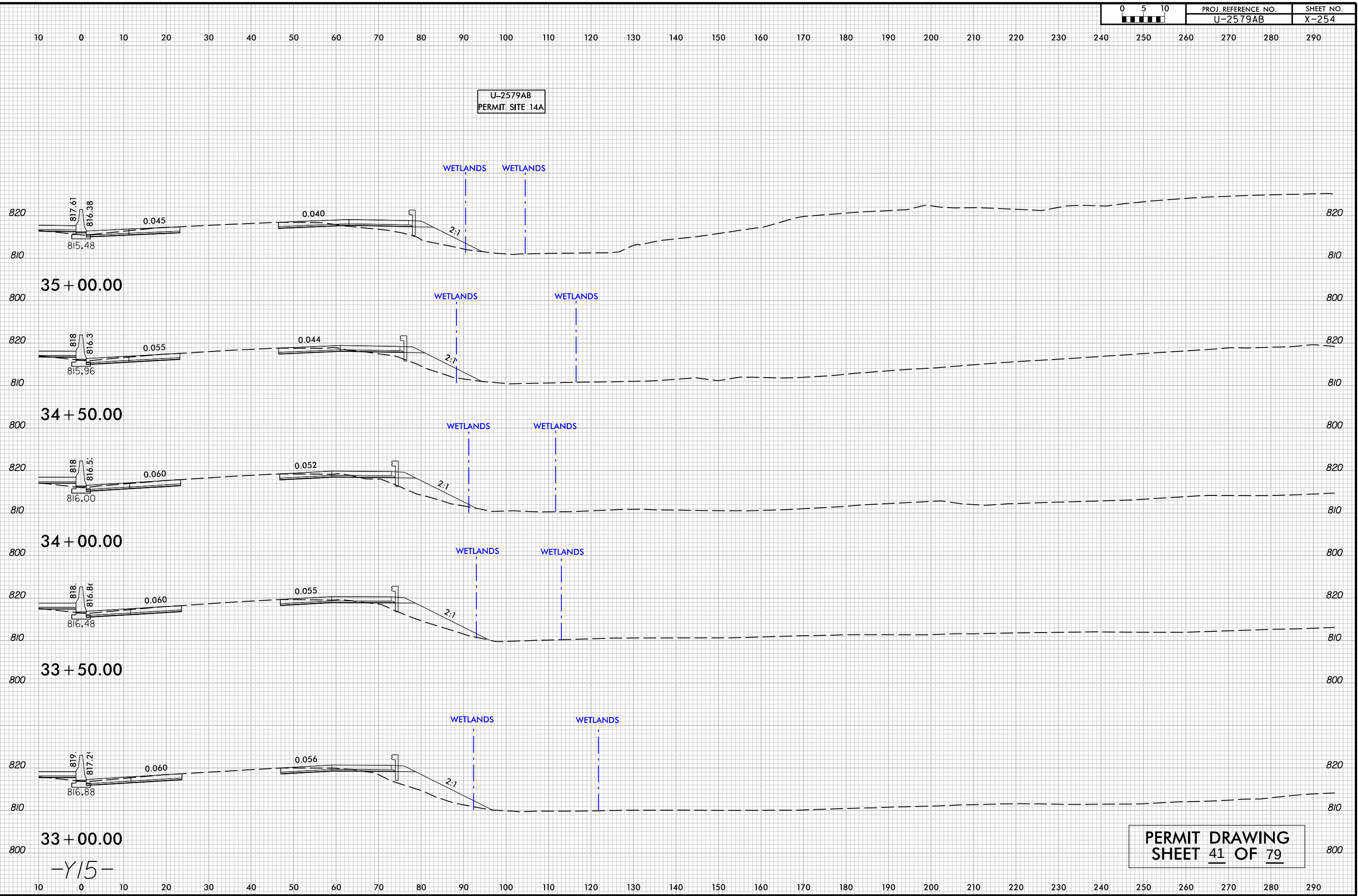
REVISIONS

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U-2579AB – SITE 14



PROFILE ALONG Q OF PIPE



8/23/99

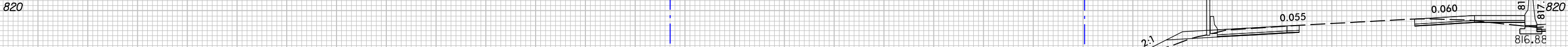
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U-2579AB
PERMIT SITE 14B

WETLANDS

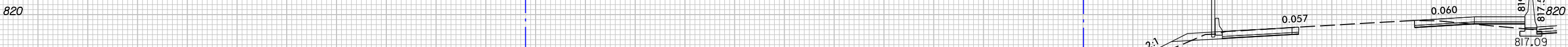
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WETLANDS

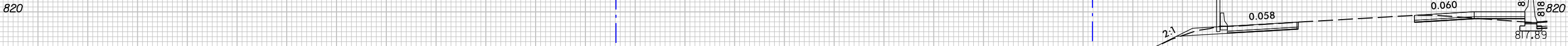
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32 + 50.00

WETLANDS

WETLANDS



32 + 00.00

WETLANDS

WETLANDS



31 + 50.00

WETLANDS

WETLANDS



31 + 00.00

PERMIT DRAWING
SHEET 42 OF 79

-Y15-

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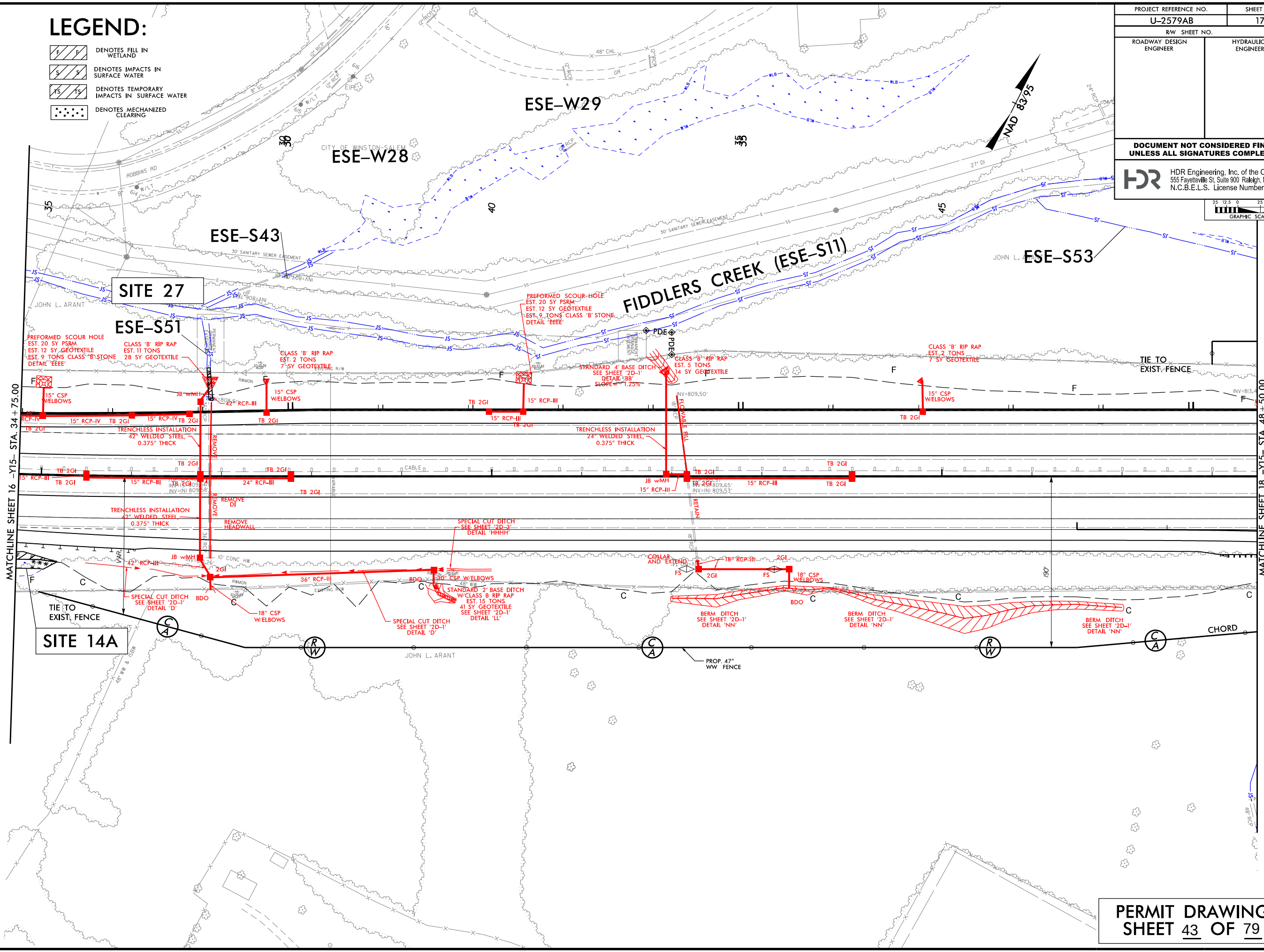
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REVISIONS

LEGEND:

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

PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		17	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



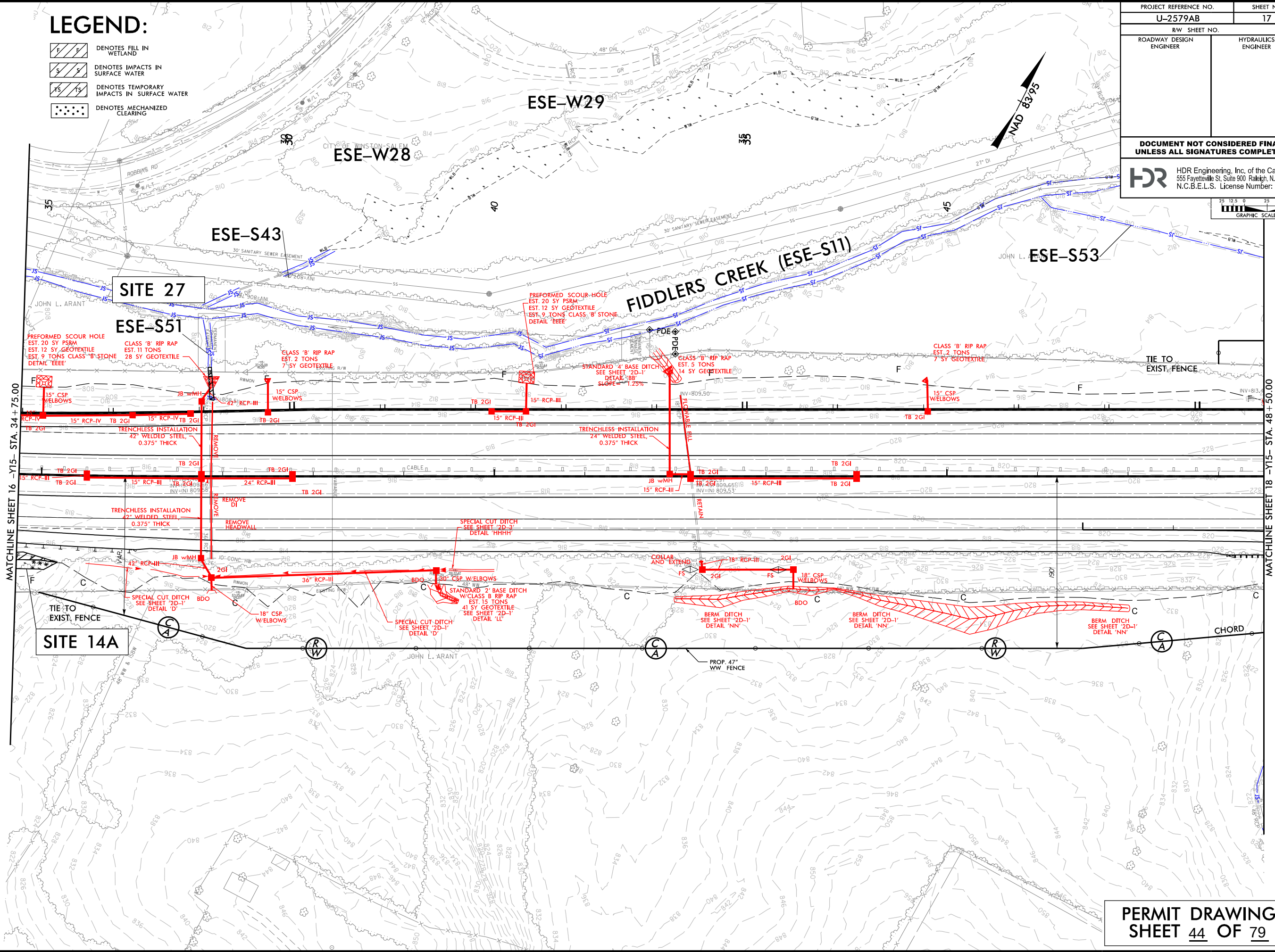
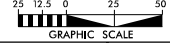
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REVISIONS

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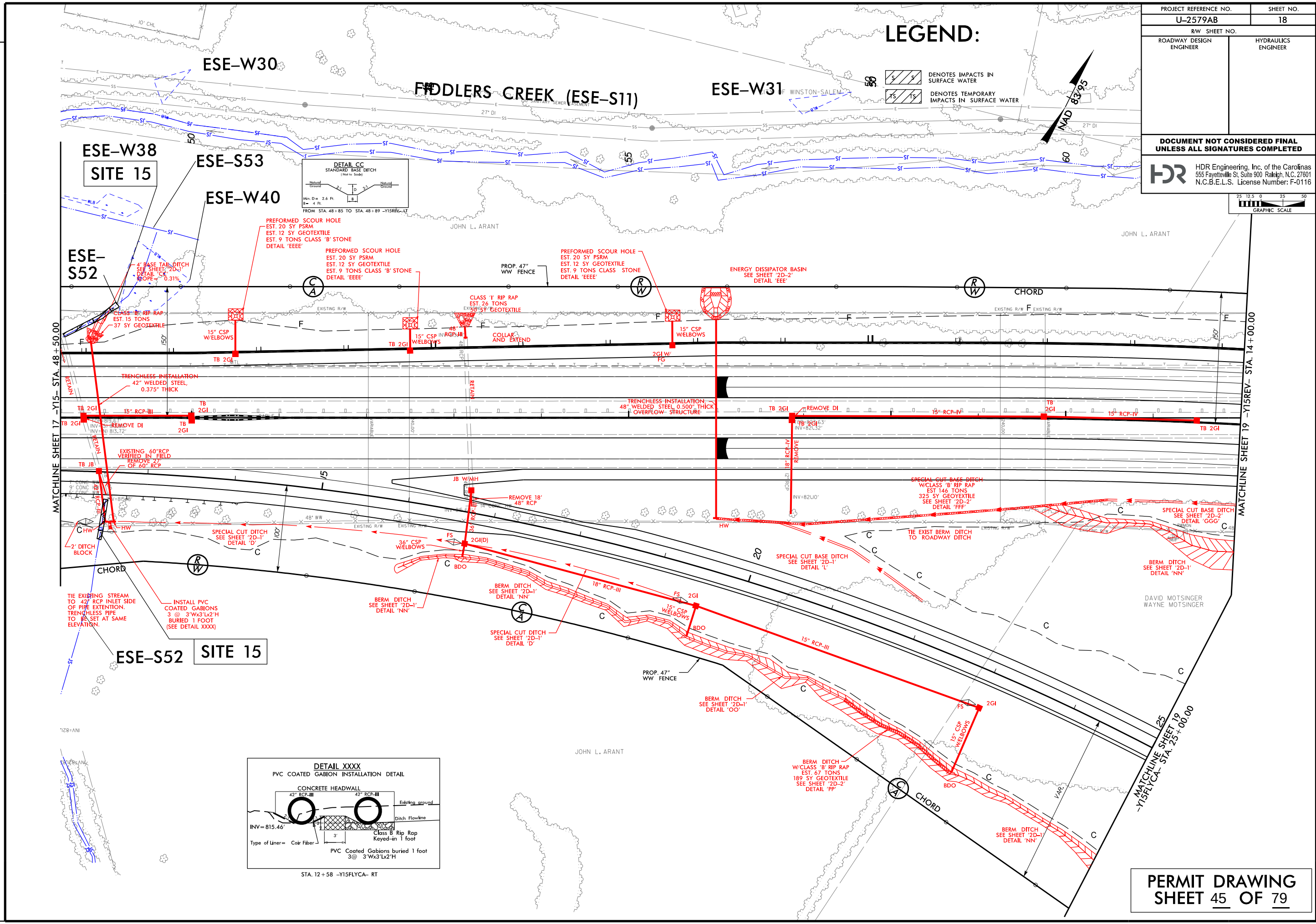
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.		SHEET NO.	
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



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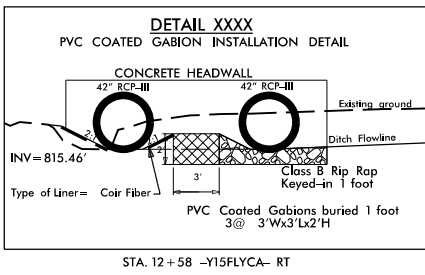
REVISIONS



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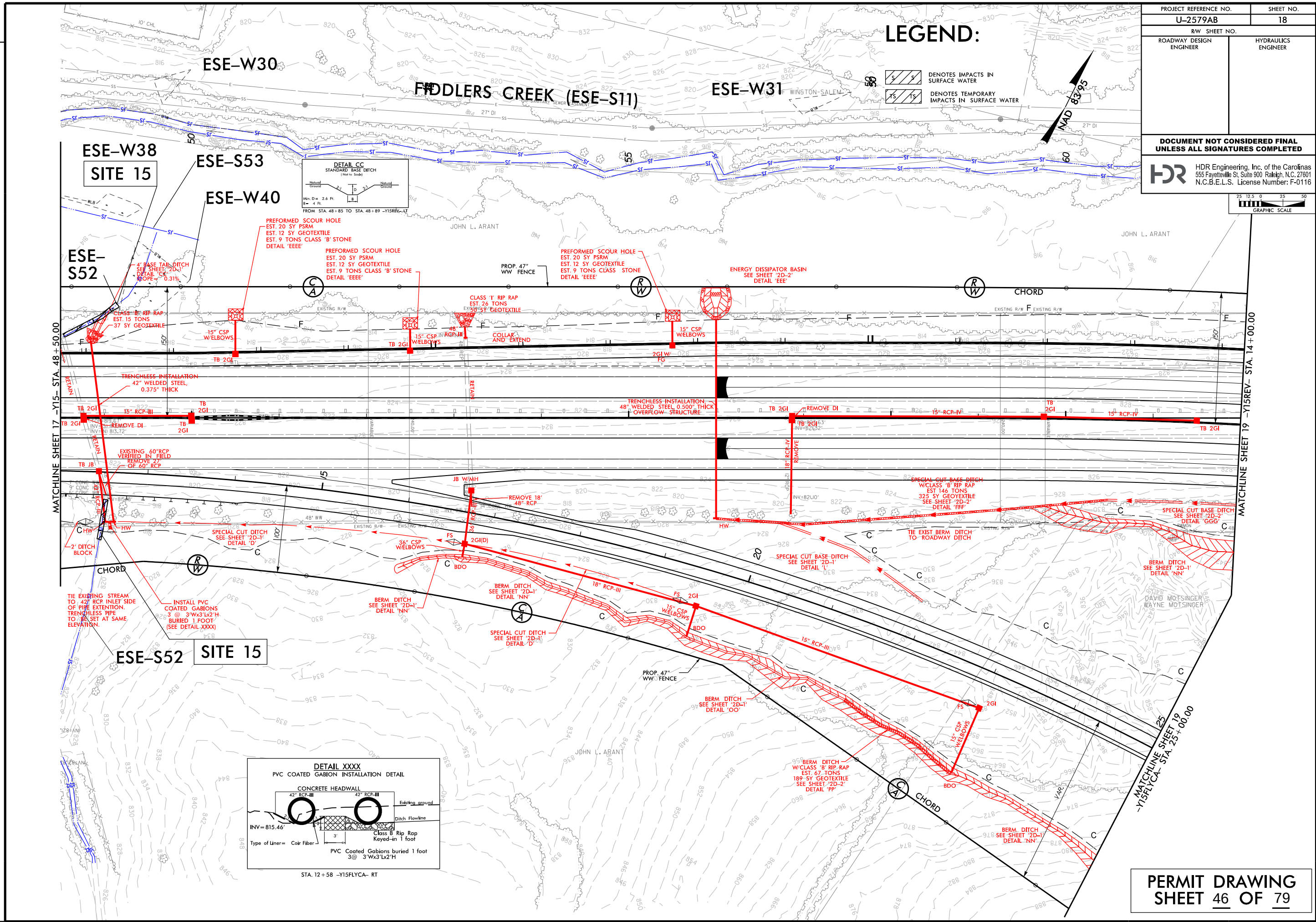
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116		
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REVISIONS



LEGEND:

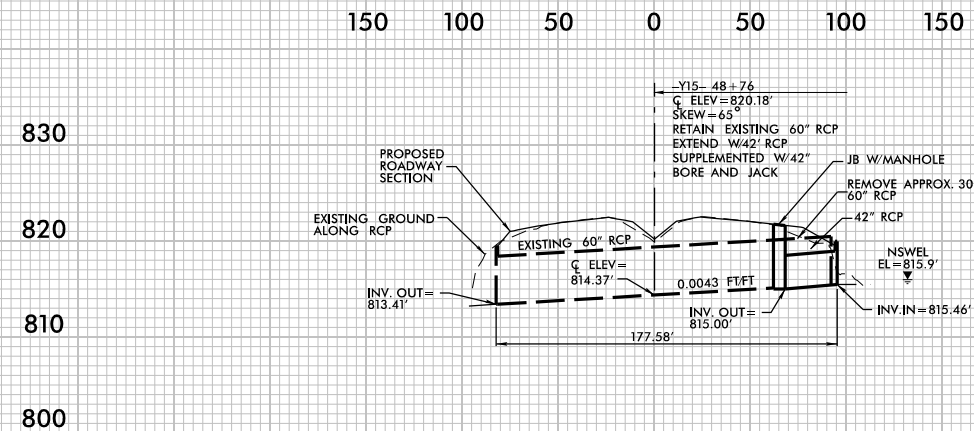
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. U-2579AB		SHEET NO. 18
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ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
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REVISIONS

 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO.		SHEET NO.
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U-2579AB – SITE 15



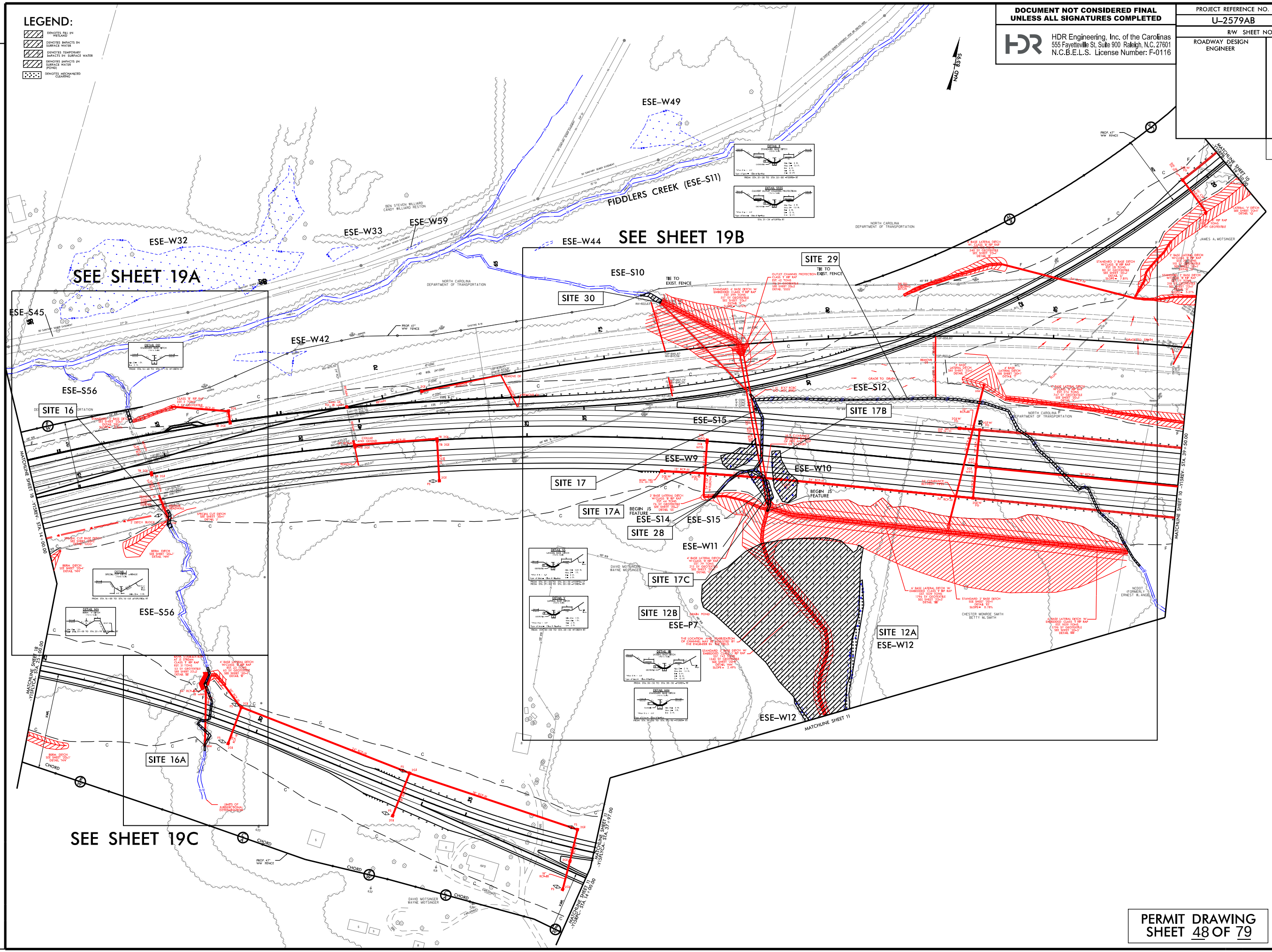
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REVISIONS

- LEGEND:**
- DENOTES FILL IN WETLAND
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES MECHANIZED CLEARING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		PROJECT REFERENCE NO. U-2579AB		SHEET NO. 19
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116		RW SHEET NO.		HYDRAULICS ENGINEER
		ROADWAY DESIGN ENGINEER		
				



REVISIONS

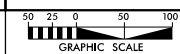
- LEGEND:
- DENOTES FILL IN WETLAND
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES MECHANIZED CLEARING

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

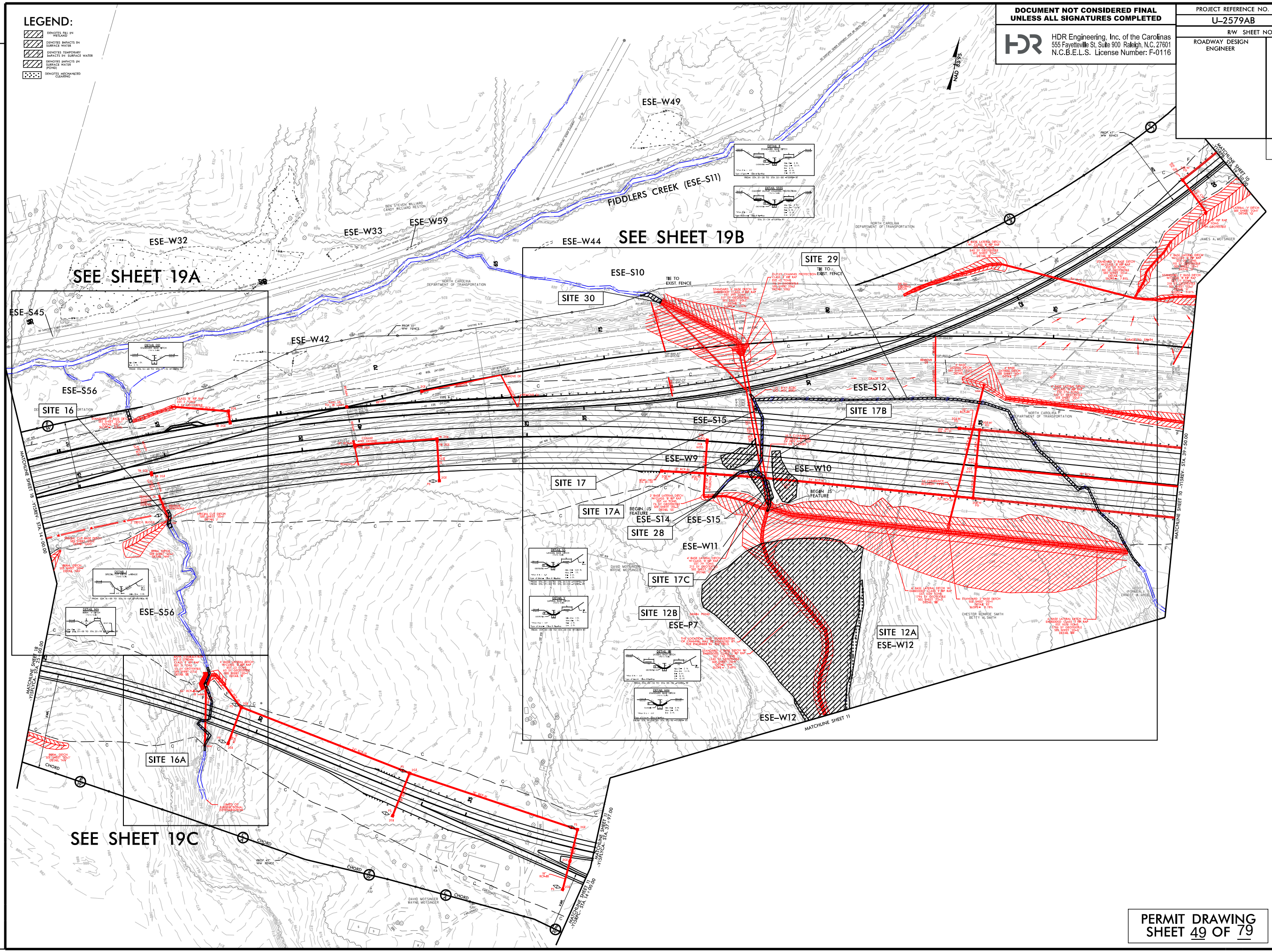


HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. U-2579AB		SHEET NO. 19
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

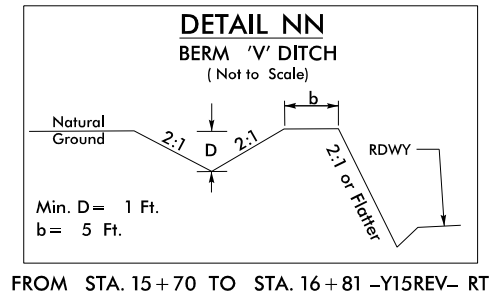
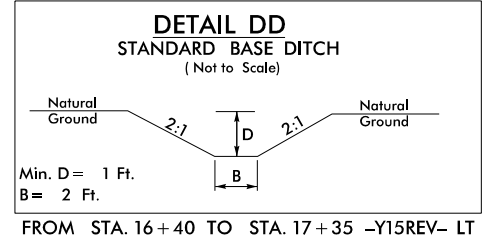
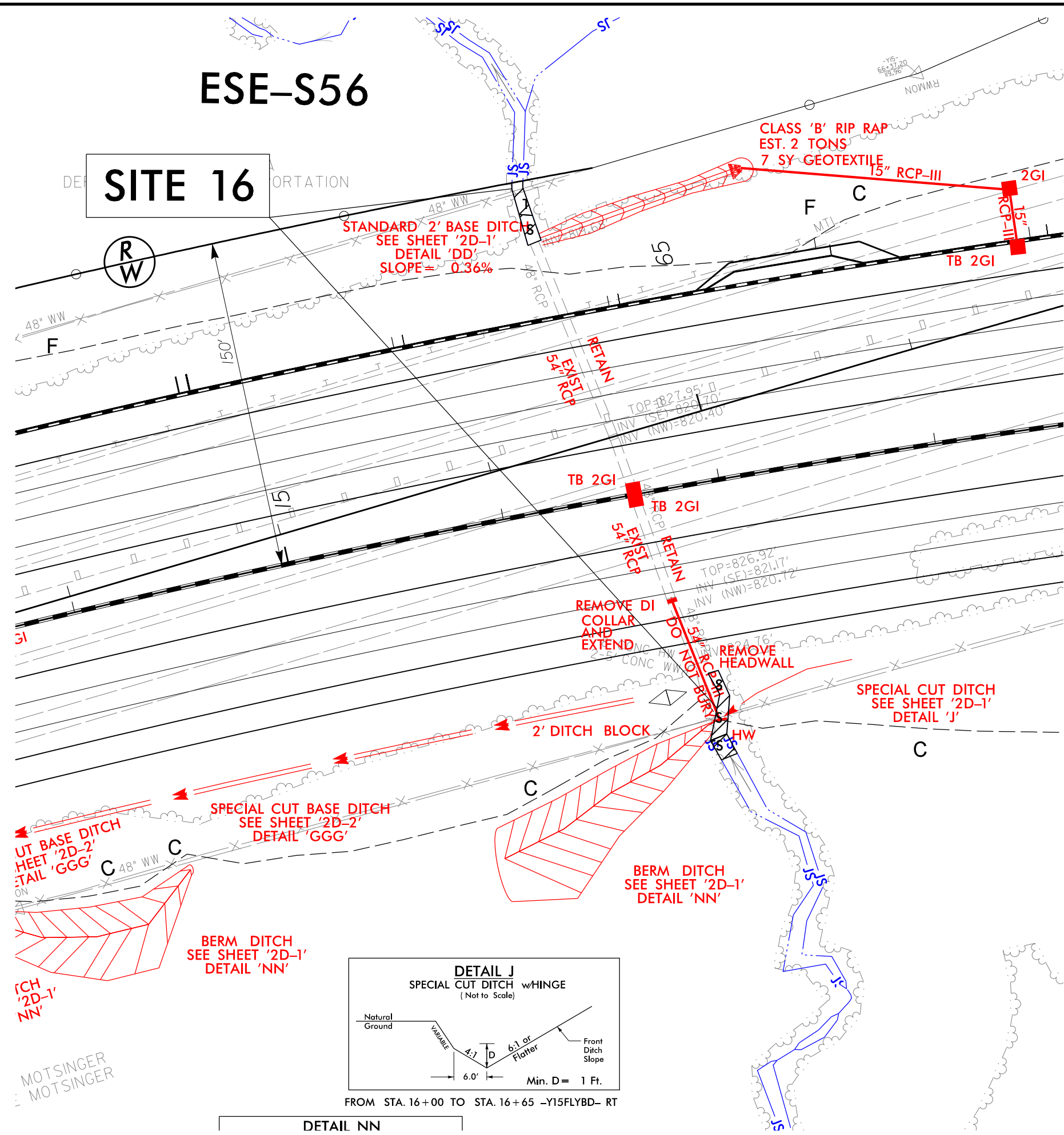


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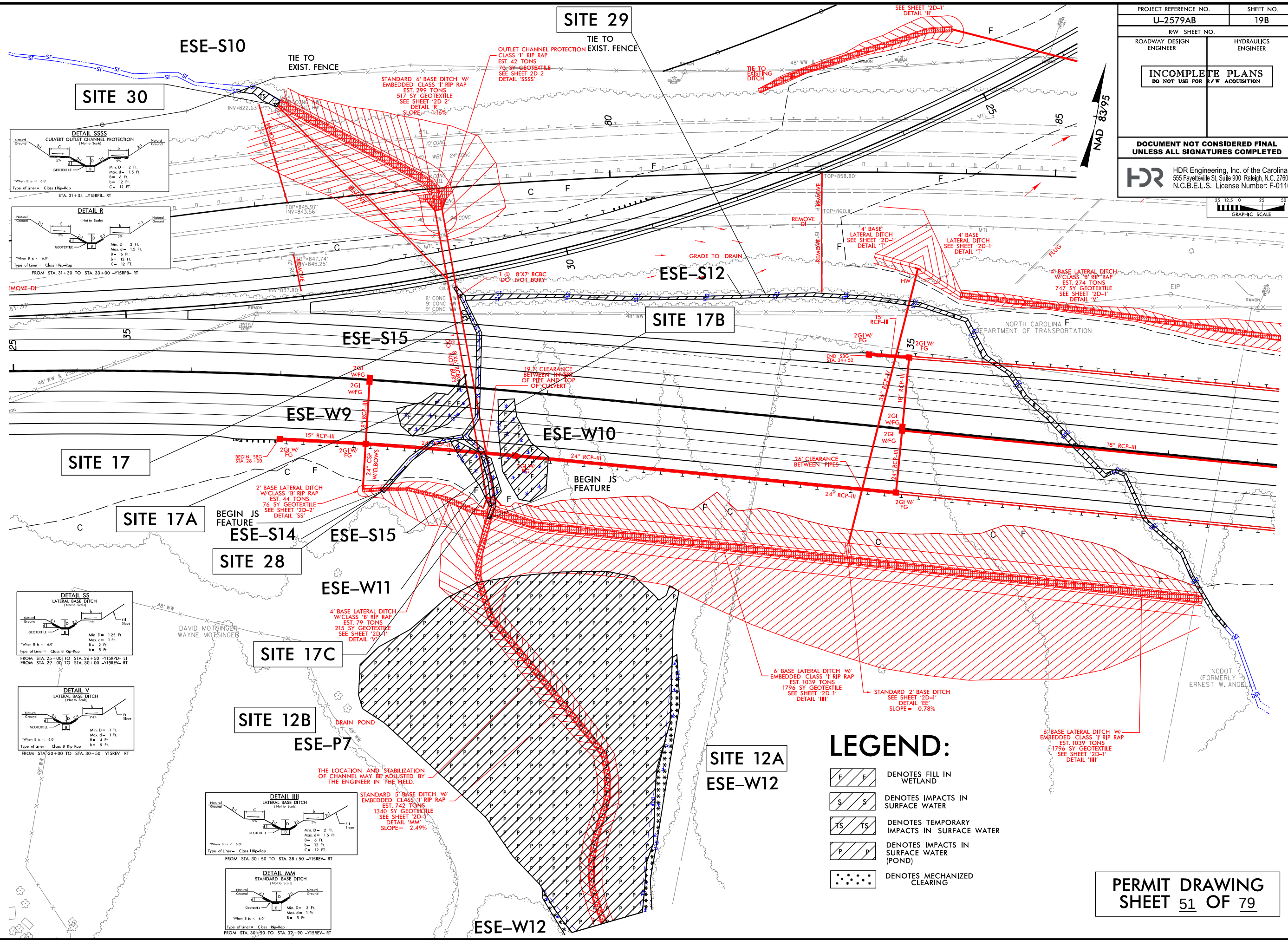
REVISIONS



LEGEND:

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

REVISIONS



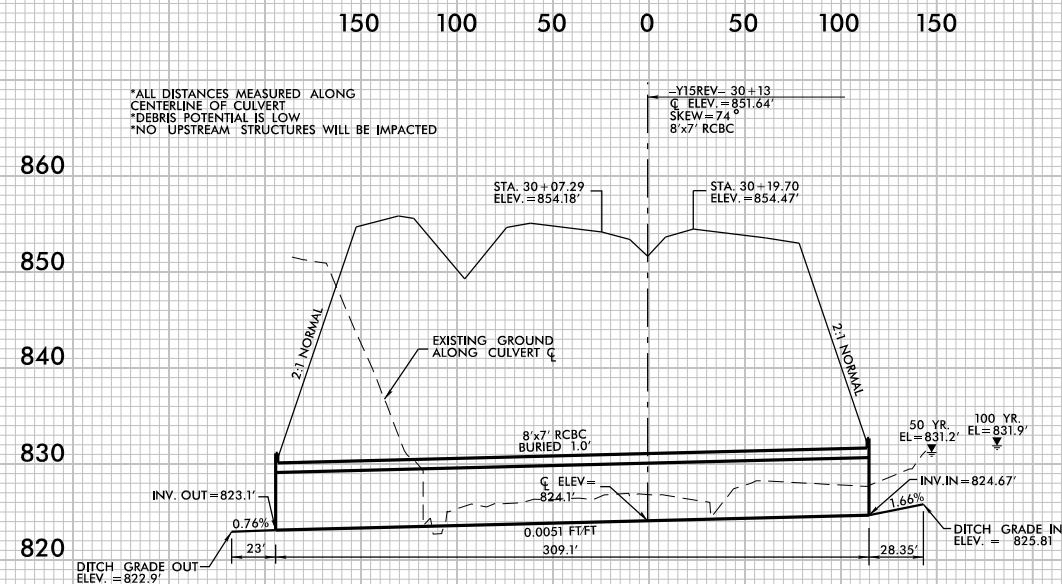
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U-2579AB	19B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	
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REVISIONS

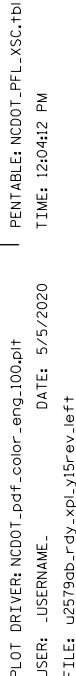
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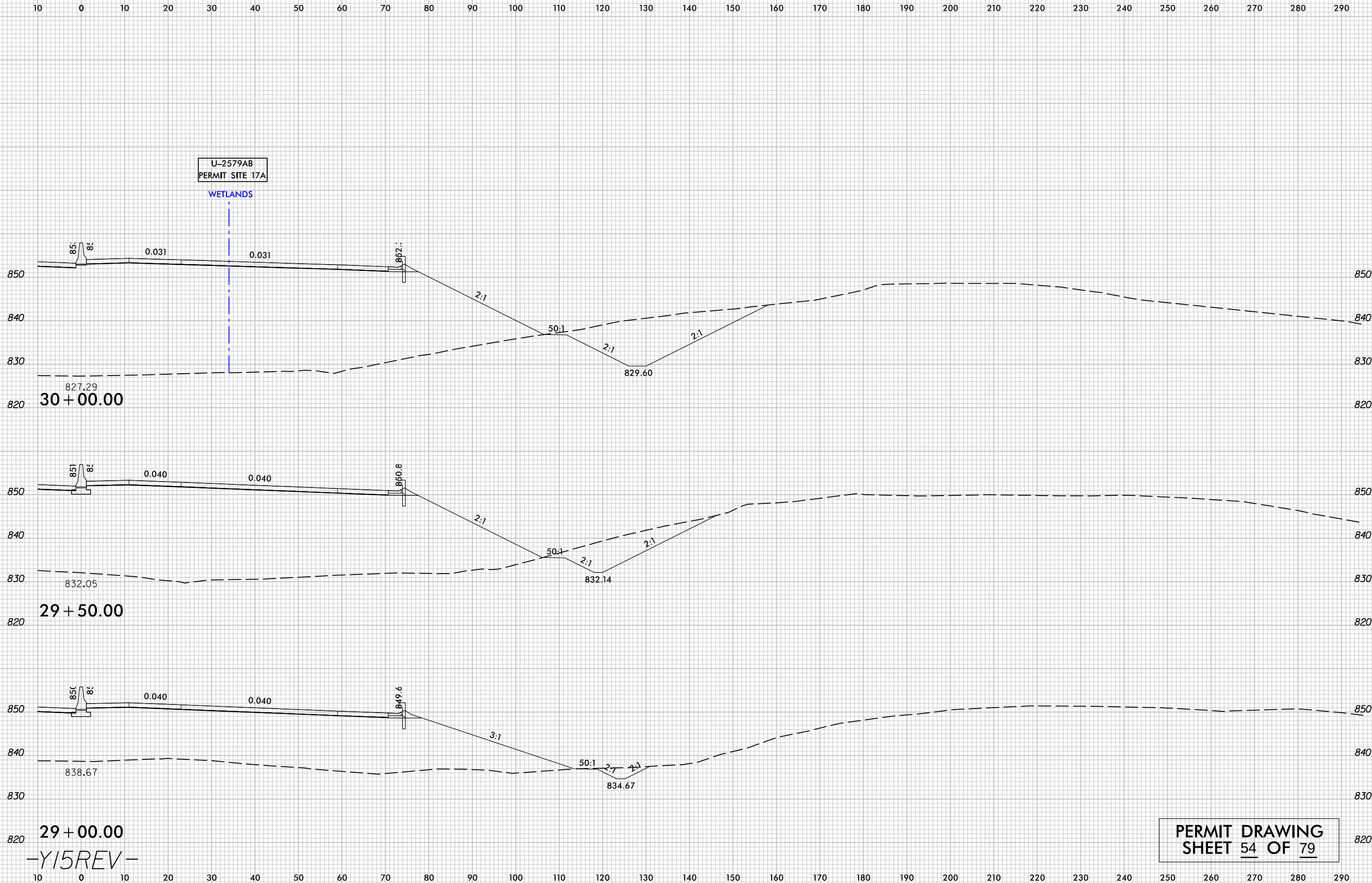
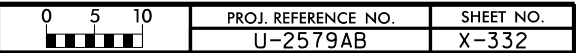
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO.		SHEET NO.
	U-2579AB		
	ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

U-2579AB – SITE 17



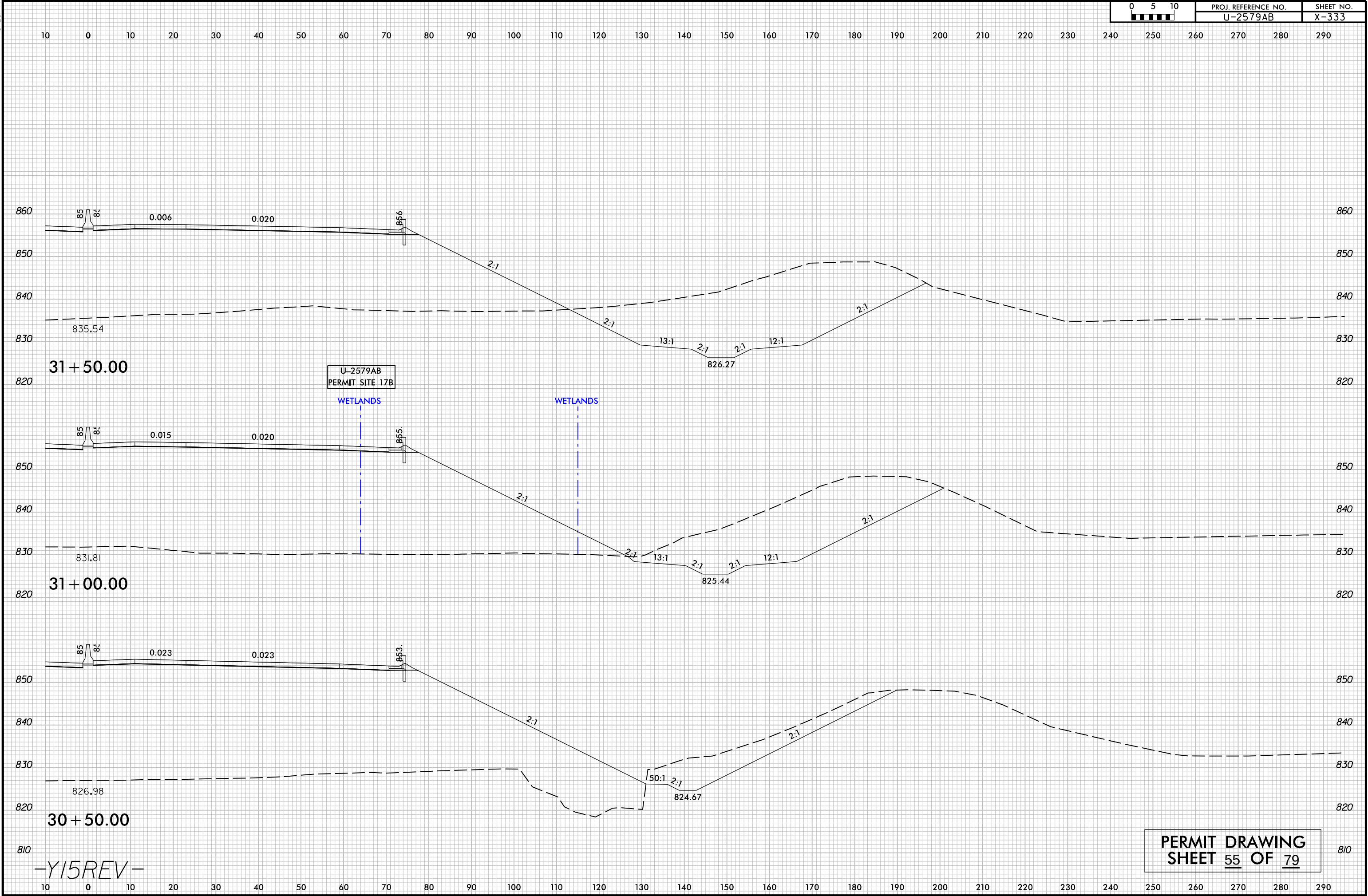
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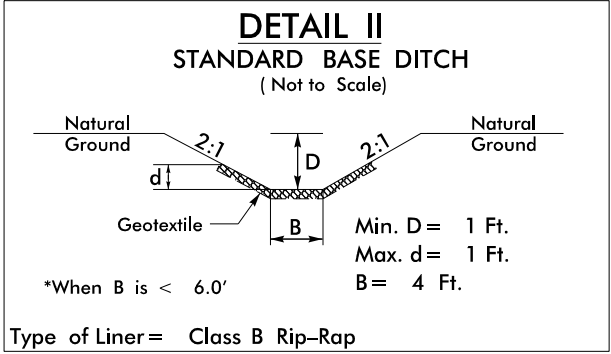
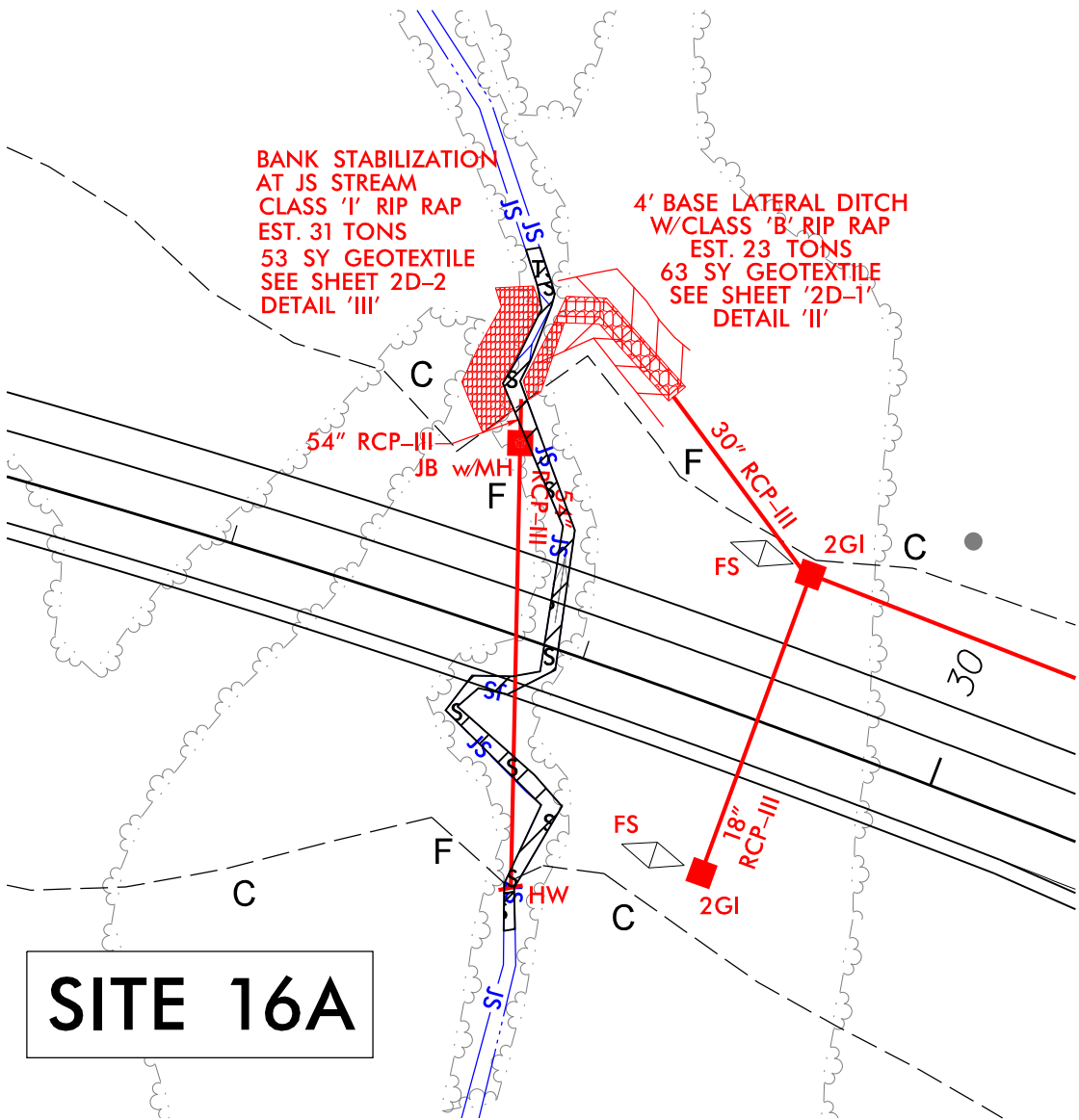
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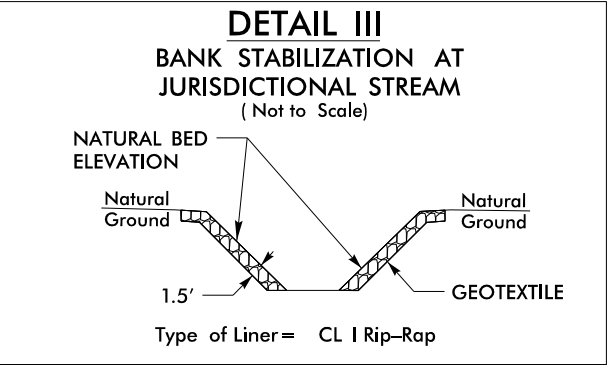
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REVISIONS

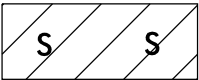


FROM STA. 28+65 TO STA. 29+00 -Y15FLYCA- LT

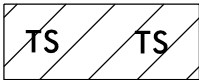


STA. 28+70 -Y15FLYCA- LT

LEGEND:



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

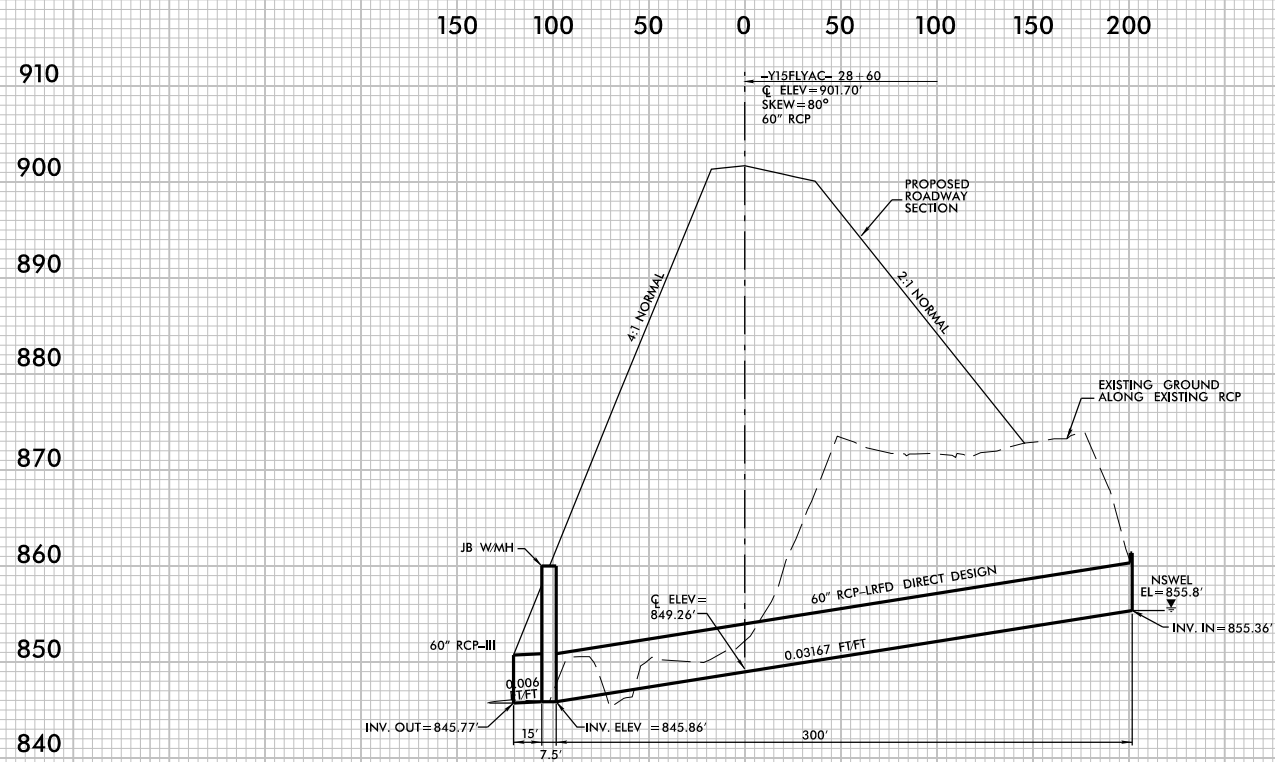
PERMIT DRAWING
SHEET 56 OF 79

PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		19C	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
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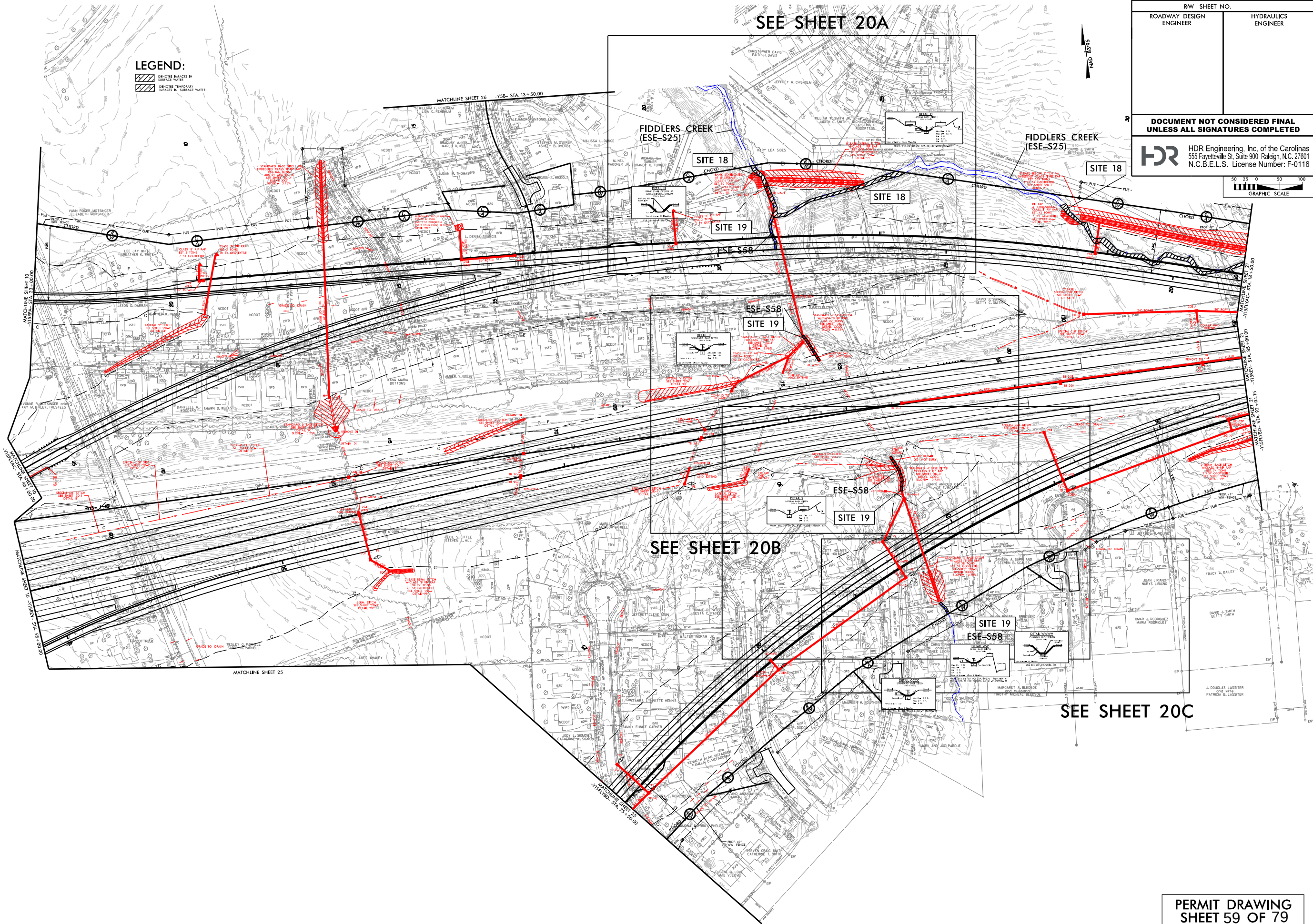


 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO.		SHEET NO.
	U-2579AB		
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

U-2579AB – SITE 19



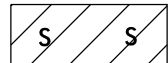
REVISIONS



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REVISIONS

LEGEND:



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		20A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



NAD 83/95

FIDDLERS CREEK
(ESE-S25)

SITE 18

CHORD

CHORD

SITE 18

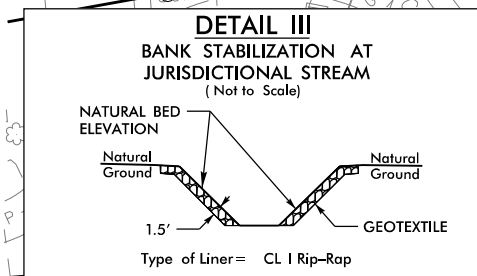
SITE 19

ESE-S58

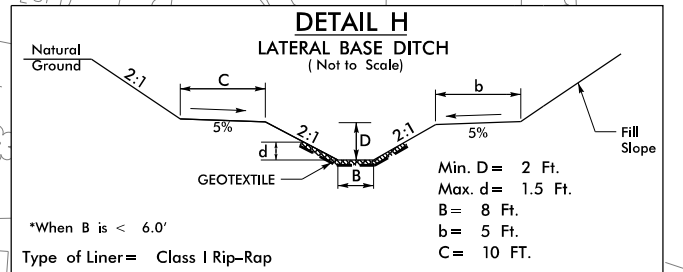
BANK STABILIZATION
AT JS STREAM
CLASS 'I' RIP RAP
EST. 50 TONS
75' SY GEOTEXTILE
SEE SHEET 2D-2
DETAIL 'III'

8' BASE LATERAL DITCH
W/CLASS 'I' RIP RAP
EST. 303 TONS
514' SY GEOTEXTILE
SEE SHEET 2D-2
DETAIL 'H'

FROM STA. 26+82 TO STA. 28+87 -Y15FLYAC- RT



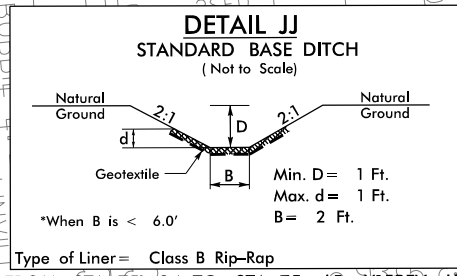
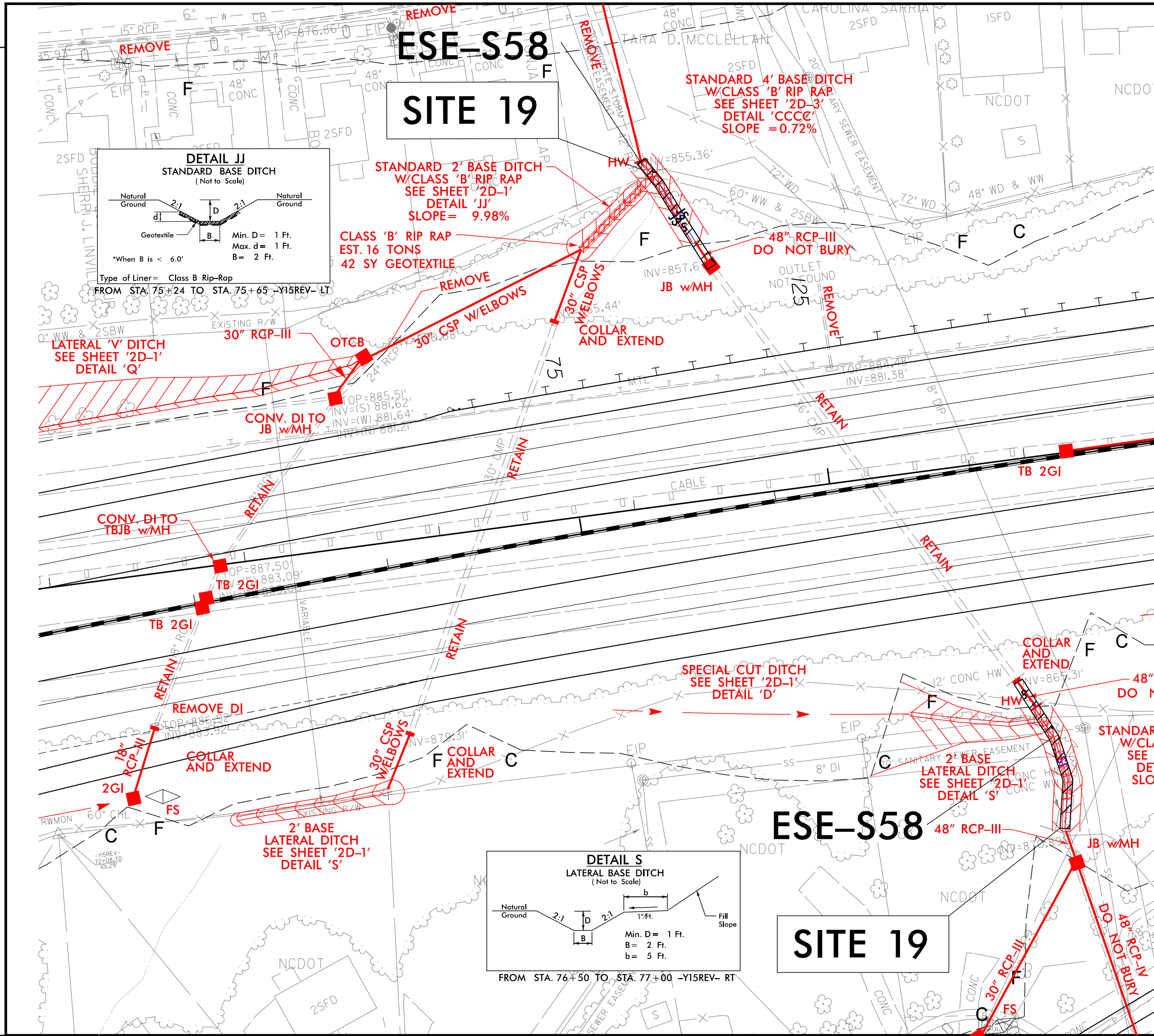
STA. 28+88 -Y15FLYCA- RT



DO NOT
DIRECT DESIGN

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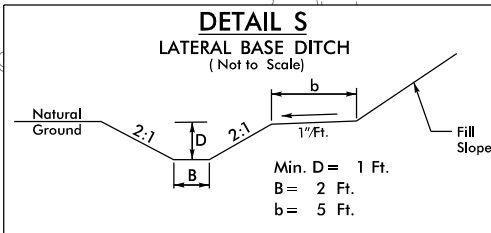
REVISIONS



STANDARD 2' BASE DITCH
W/CLASS 'B' RIP RAP
SEE SHEET '2D-1'
DETAIL 'JJ'
SLOPE = 9.98%

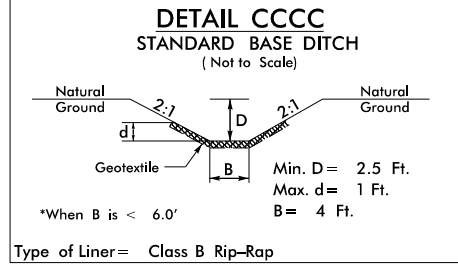
CLASS 'B' RIP RAP
EST. 16 TONS
42 SY GEOTEXTILE

STANDARD 4' BASE DITCH
W/CLASS 'B' RIP RAP
SEE SHEET '2D-3'
DETAIL 'CCCC'
SLOPE = 0.72%



2' BASE
LATERAL DITCH
SEE SHEET '2D-1'
DETAIL 'S'

2' BASE
LATERAL DITCH
SEE SHEET '2D-1'
DETAIL 'S'



LEGEND:

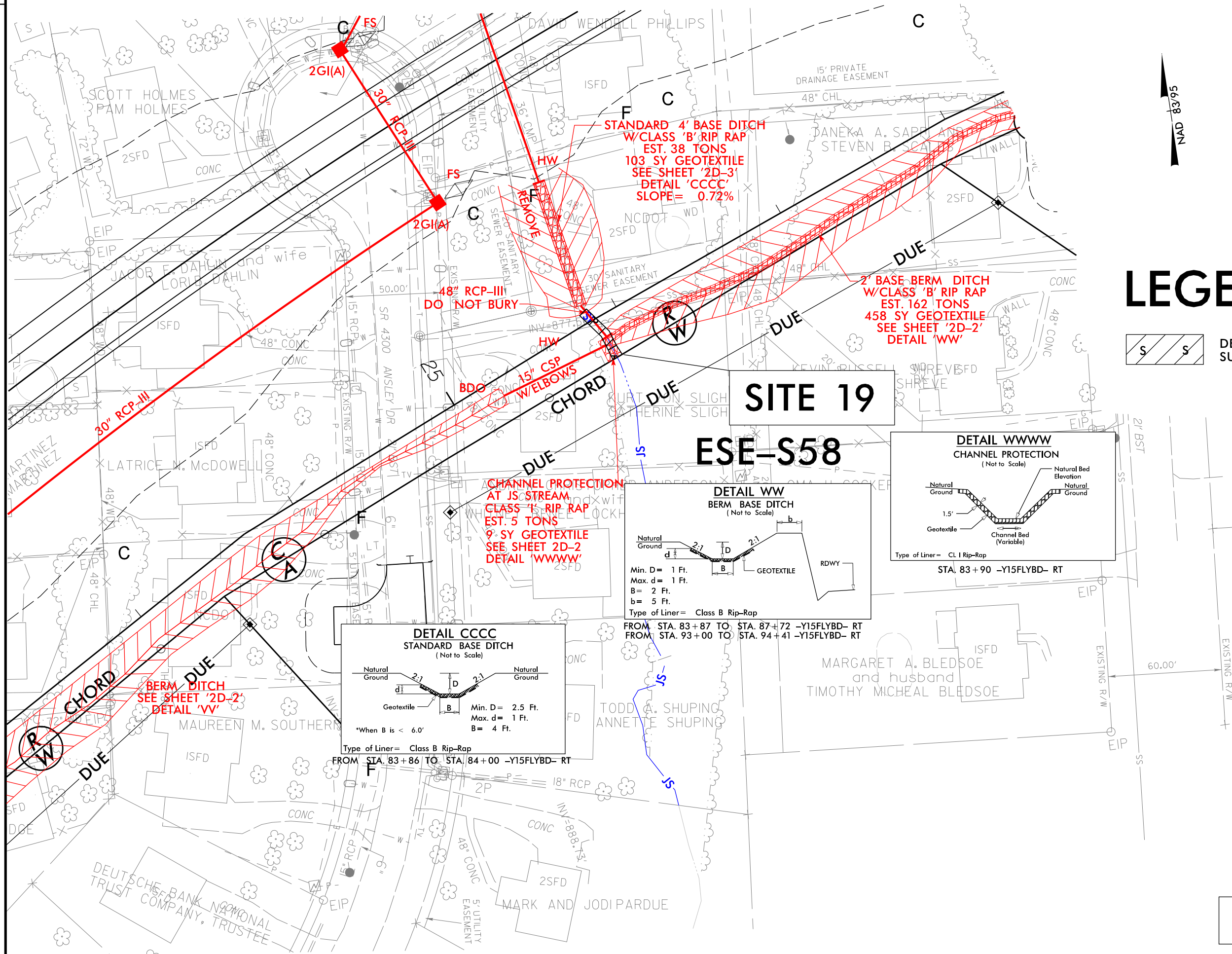
DENOTES IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 61 OF 79

PROJECT REFERENCE NO. U-2579AB		SHEET NO. 20B	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
12.5 0 12.5 25  GRAPHIC SCALE			

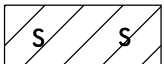
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DATE: 10/5/2020

REVISIONS

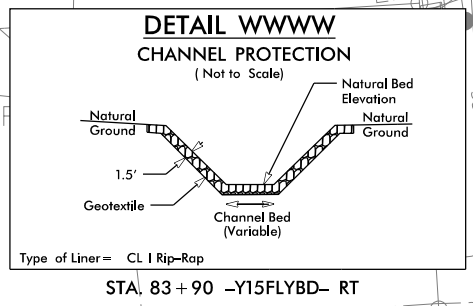
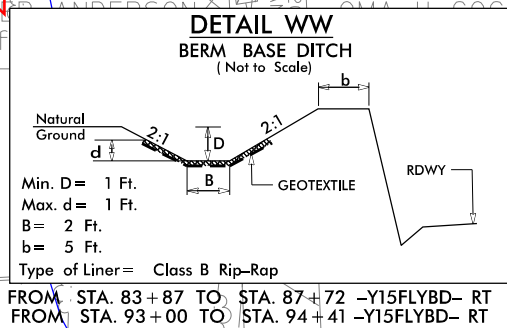
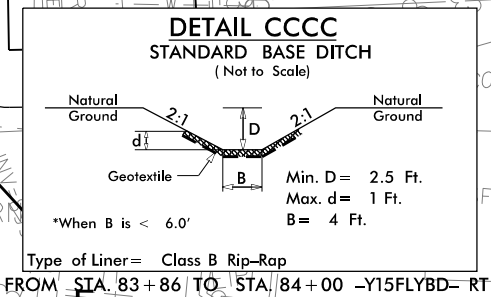


PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		20C	
R/W SHEET NO.			
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
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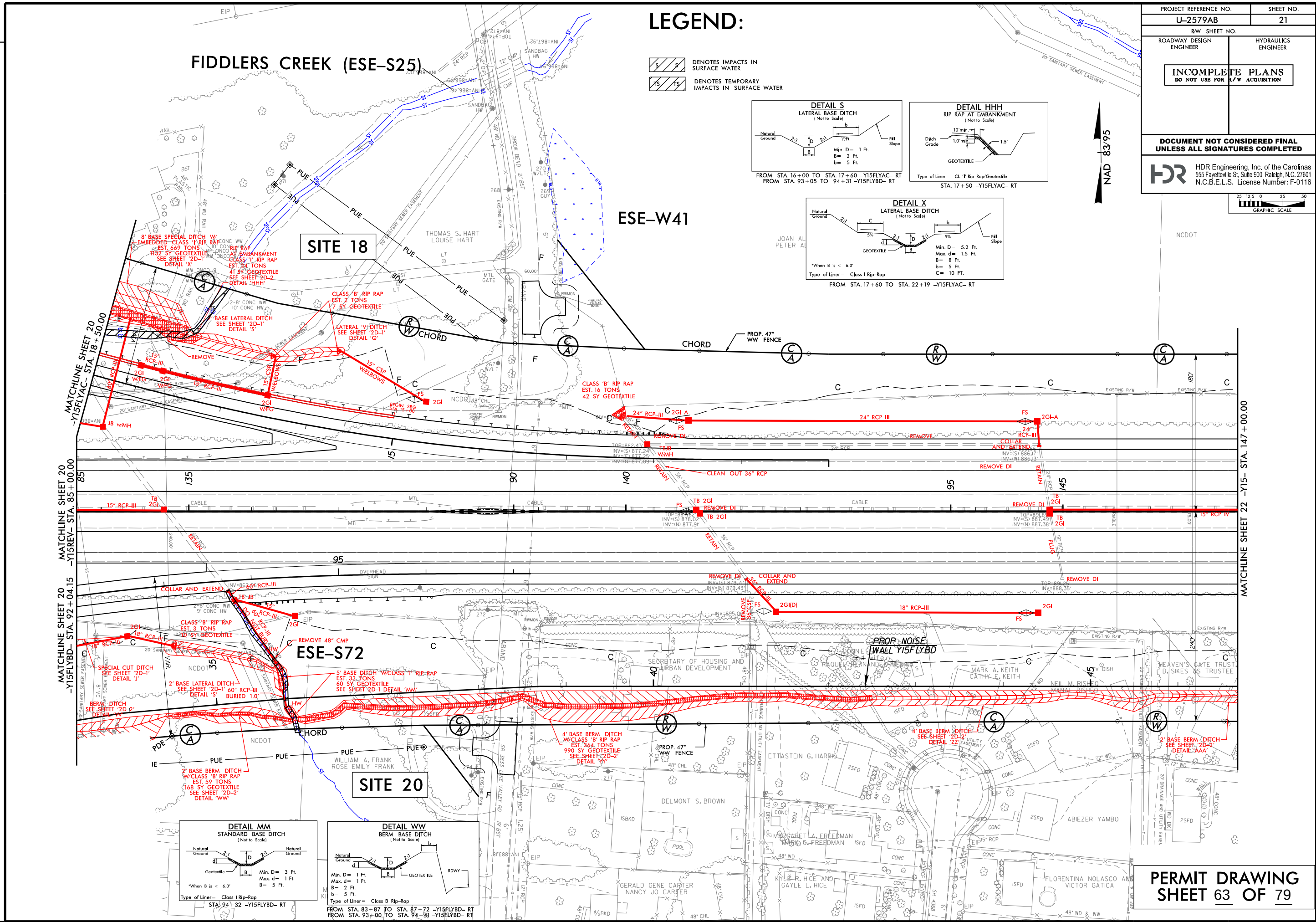
 DENOTES IMPACTS IN SURFACE WATER

SITE 19 ESE-S58



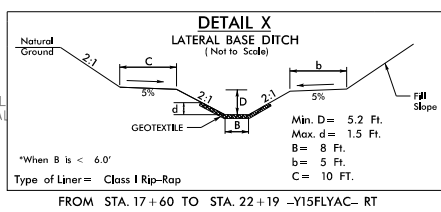
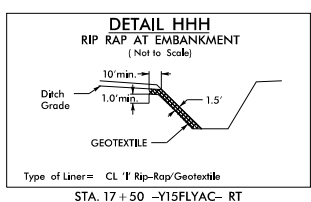
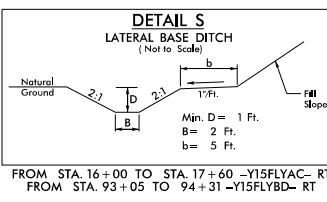
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ROW REV. - OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15FLYBD- FROM STATION 70+00 TO 92+19. JHG



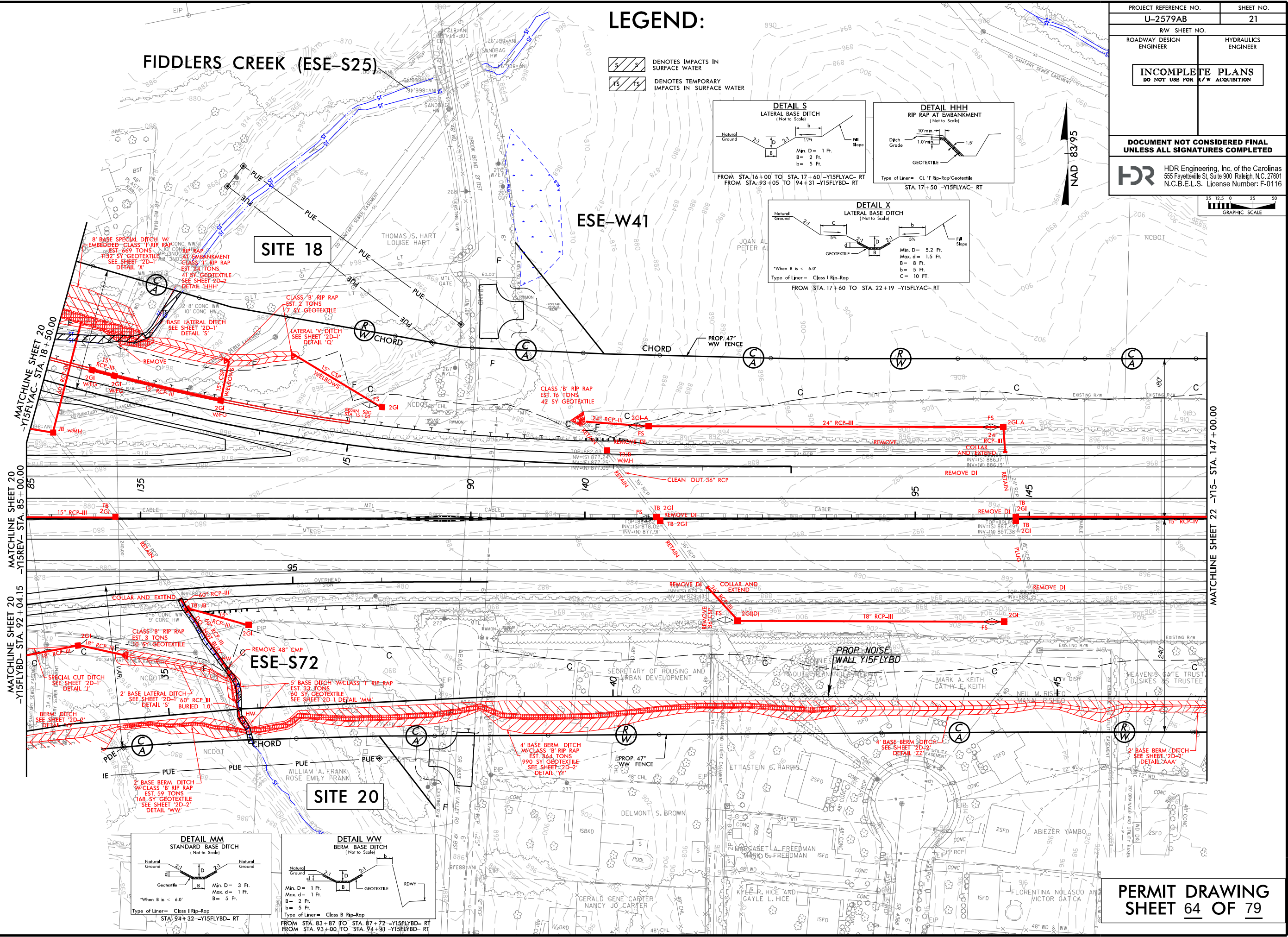
LEGEND:

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



PROJECT REFERENCE NO. U-2579AB		SHEET NO. 21	
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
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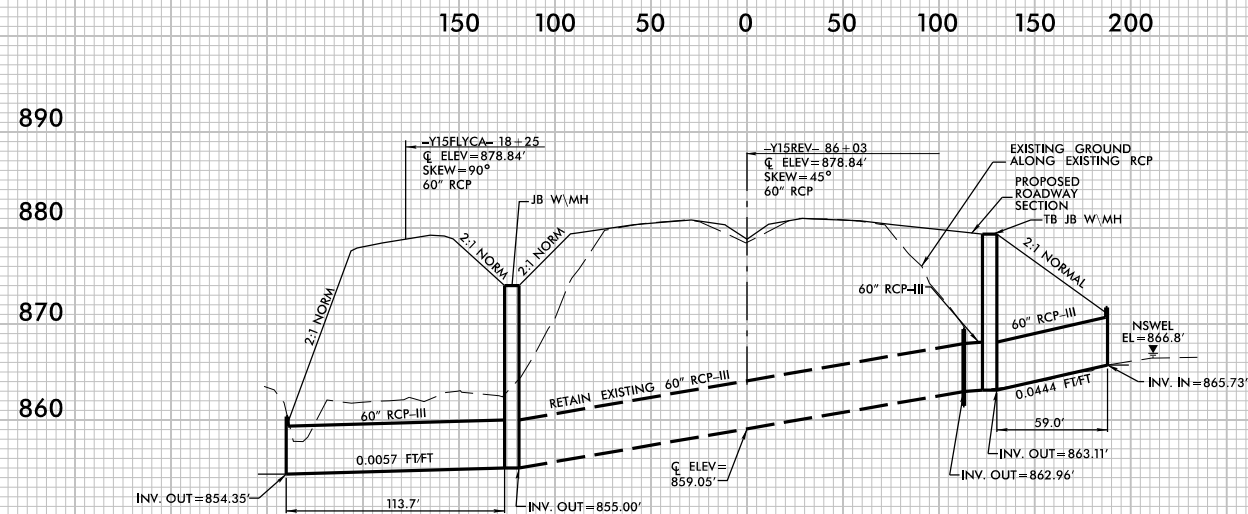
ROW REV. - OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15FLYBD- FROM STATION 70+00 TO 92+19. JHG



REVISIONS

 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO.		SHEET NO.
	U-2579AB		
	ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
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U-2579AB – SITE 18 AND 20



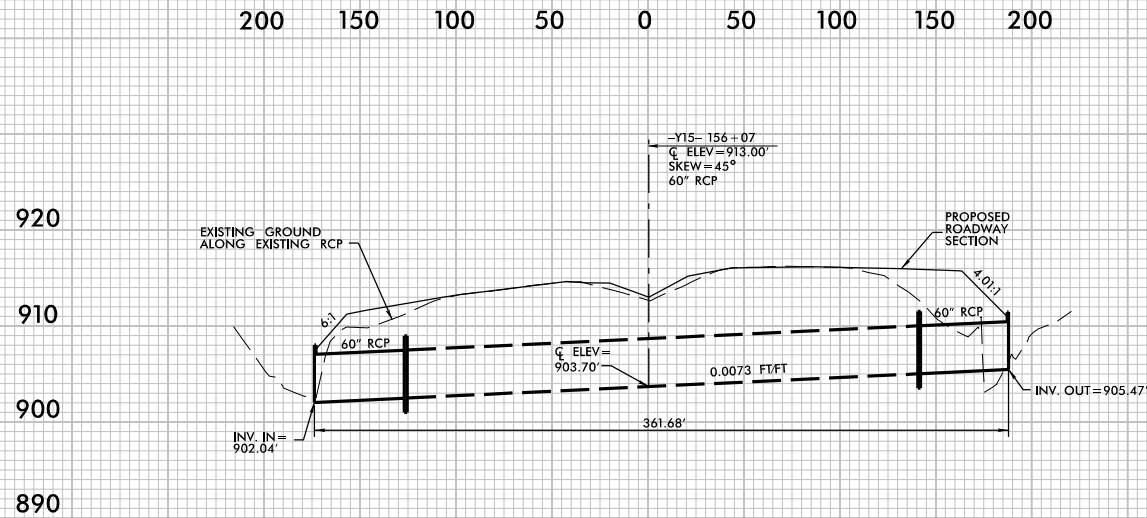
PROFILE ALONG CL OF PIPE

REVISIONS

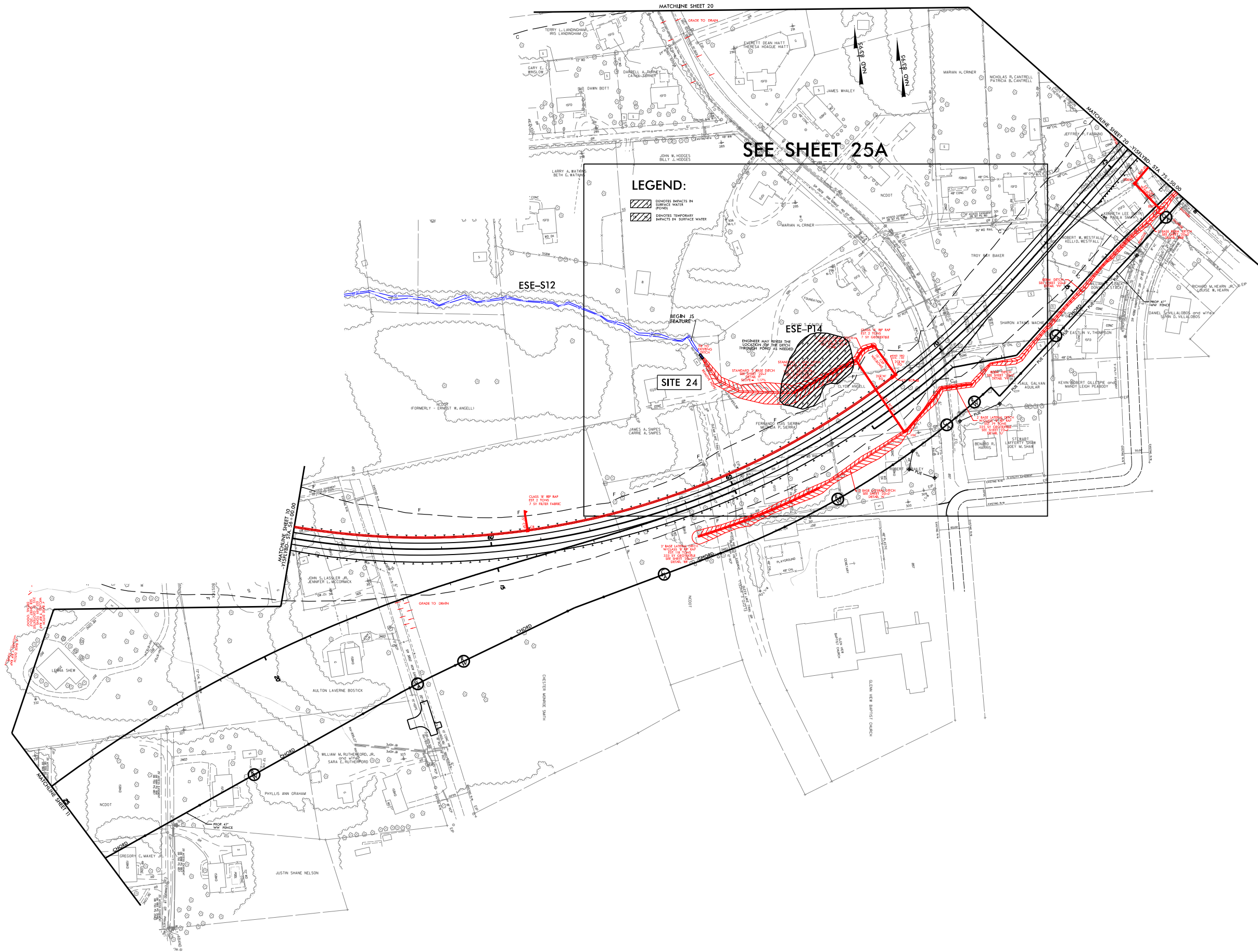
5/14/99

 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO.		SHEET NO.
	U-2579AB		
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

U-2579AB – SITE 21



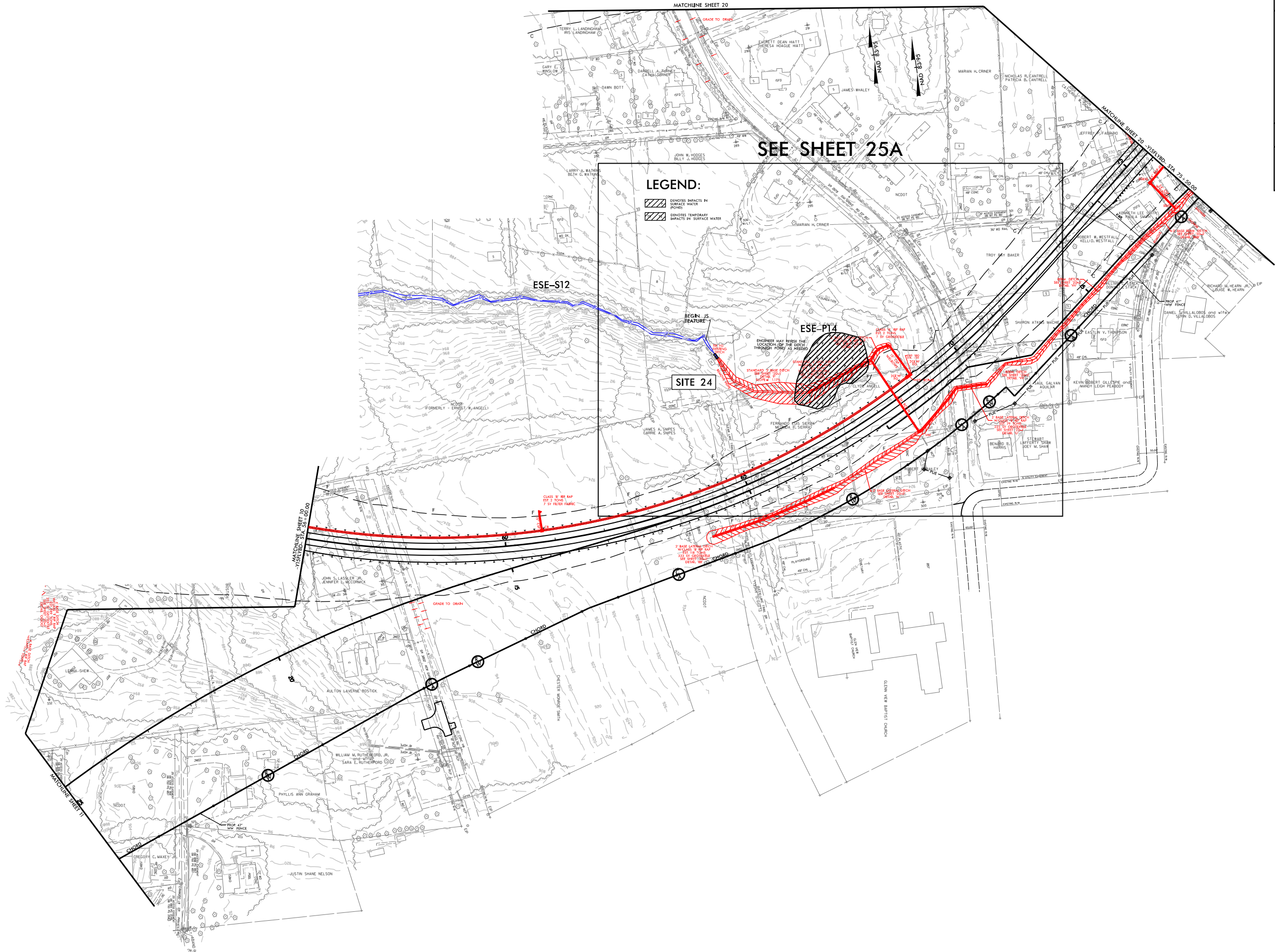
PROFILE ALONG $\bar{C}$ OF PIPE



PROJECT REFERENCE NO. U-2579AB		SHEET NO. 25	
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
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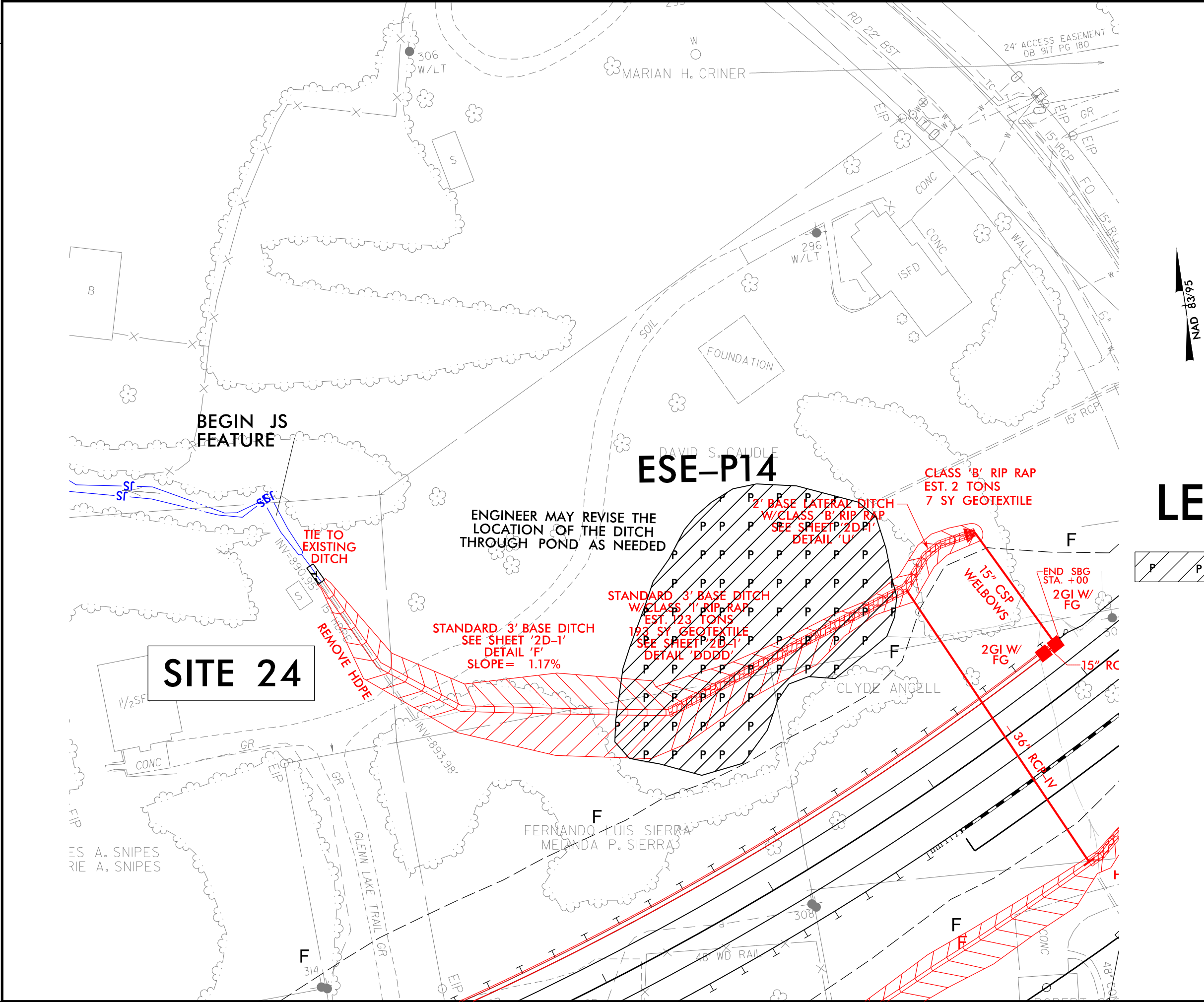
REVISIONS
ROW REV. - OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15FLYBD- FROM STATION 70+00 TO 92+19. JHG



PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		25	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-01116			
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TIME: 1:32:35 PM

REVISIONS



PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		25A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
 GRAPHIC SCALE			

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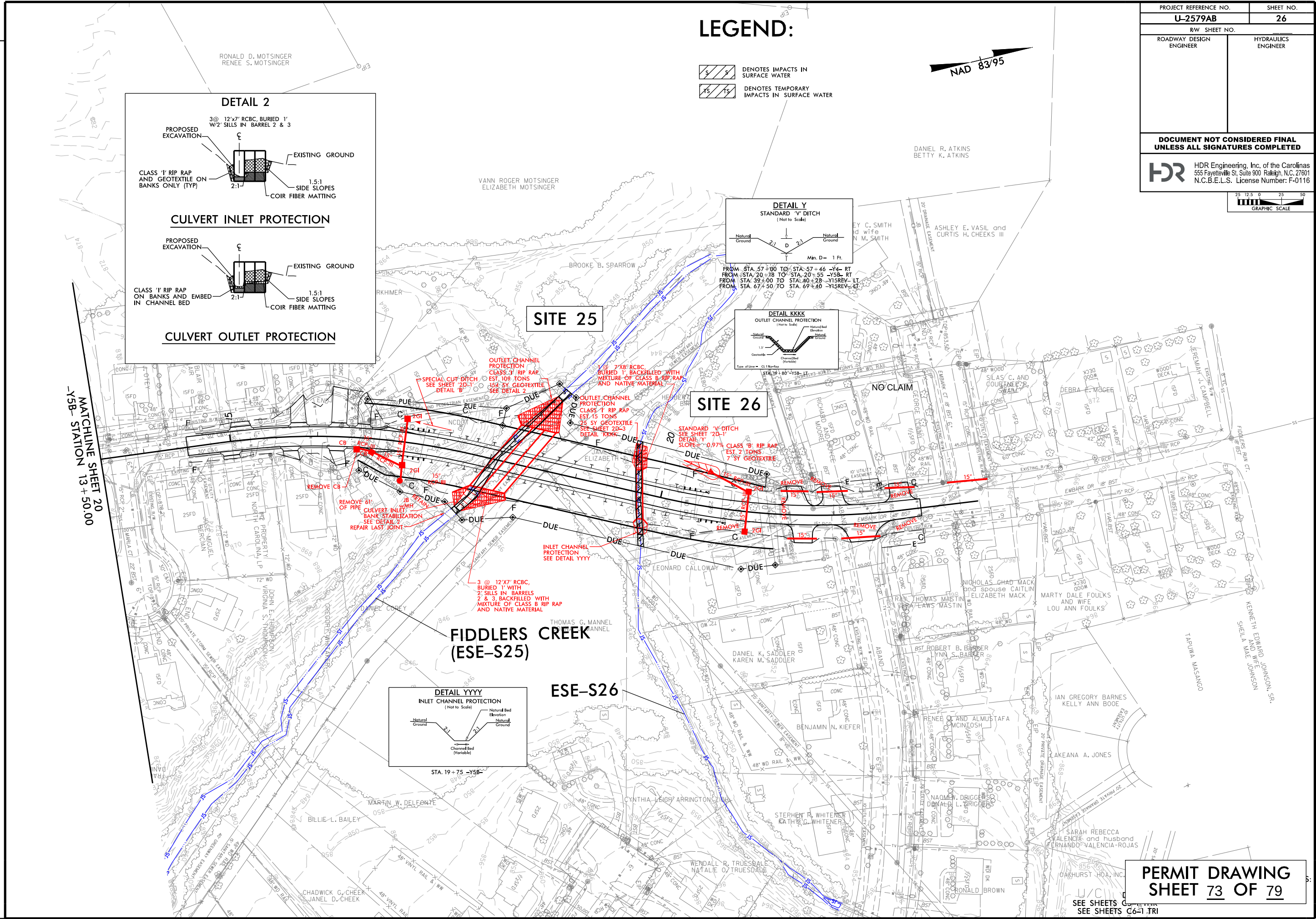
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DENOTES IMPACTS IN
SURFACE WATER
(POND)

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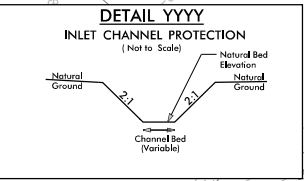
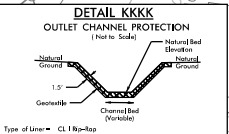
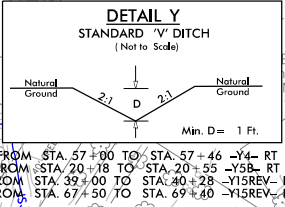
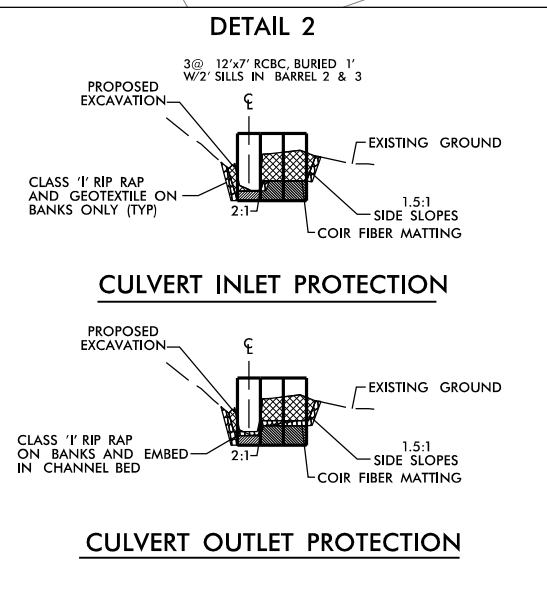
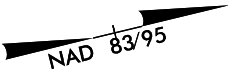
REVISIONS

ROW REV - FEBRUARY 26, 2020 - PUE ADJUSTED ON PARCELS 656 AND 657 TO AVOID BUILDING ON 656. CEH.
ROW REV - APRIL 9, 2020 - TCE ELIMINATED FROM PARCEL 362 (CLAIM ELIMINATED). CEH.



LEGEND:

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



PROJECT REFERENCE NO.		SHEET NO.	
U-2579AB		26	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

PERMIT DRAWING
SHEET 73 OF 79

SEE SHEETS C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-11, C-12, C-13, C-14, C-15, C-16, C-17, C-18, C-19, C-20, C-21, C-22, C-23, C-24, C-25, C-26, C-27, C-28, C-29, C-30, C-31, C-32, C-33, C-34, C-35, C-36, C-37, C-38, C-39, C-40, C-41, C-42, C-43, C-44, C-45, C-46, C-47, C-48, C-49, C-50, C-51, C-52, C-53, C-54, C-55, C-56, C-57, C-58, C-59, C-60, C-61, C-62, C-63, C-64, C-65, C-66, C-67, C-68, C-69, C-70, C-71, C-72, C-73, C-74, C-75, C-76, C-77, C-78, C-79, C-80, C-81, C-82, C-83, C-84, C-85, C-86, C-87, C-88, C-89, C-90, C-91, C-92, C-93, C-94, C-95, C-96, C-97, C-98, C-99, C-100

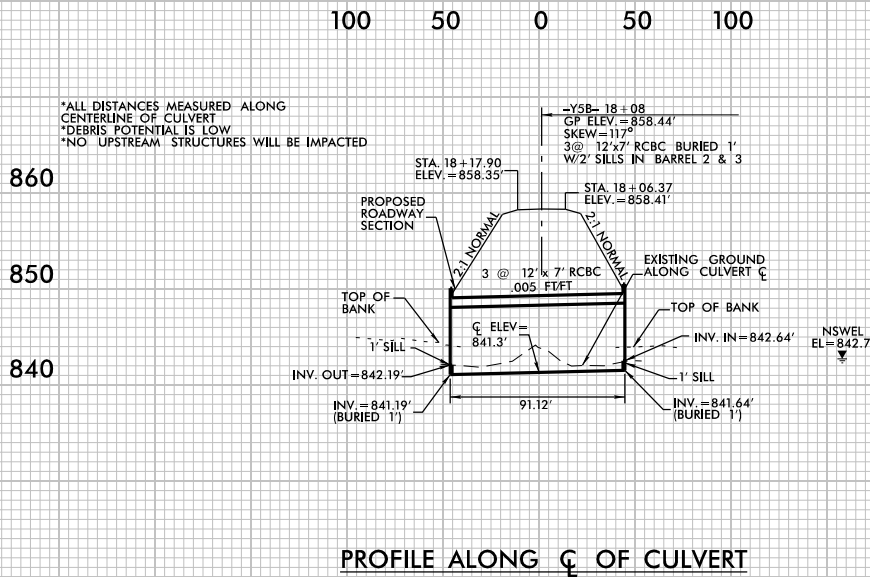
REVISIONS



HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.		SHEET NO.
U-2579AB		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

U-2579AB – SITE 25



REVISIONS

5/14/99



HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.

U-2579AB

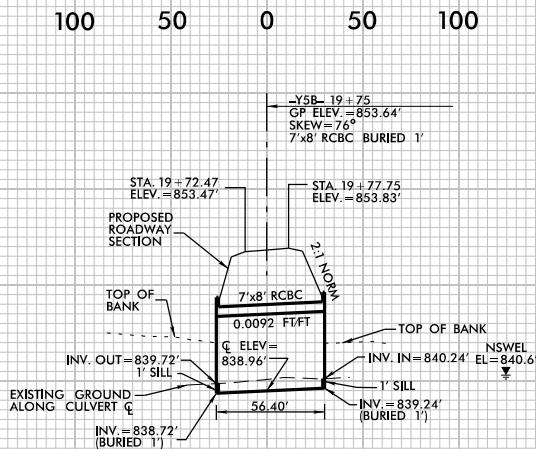
SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

U-2579AB – SITE 26



PROFILE ALONG Q OF CULVERT

WETLAND PERMIT IMPACT 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	Y4RPB 20+29 RT	30" RCP-III						0.09	< 0.01	48		
1	Y4RPB 20+29 RT	4' BASE DITCH						0.10	< 0.01	76	18	
2	Y4 40+43 RT	36" CSP						< 0.01		51		
2	Y4 40+43 RT	ENERGY DISSIPATOR BASIN						< 0.01		20		
2	Y4 40+43 RT	BANK STABILIZATION						< 0.01		14		
2	Y4 40+43 RT	DETOUR							0.01		76	
3	L 746+02 RT	54" RCP-IV						0.10	< 0.01	137	12	
4	L 748+64 - 750+76 LT	ROADWAY FILL						0.01		74		
4A	L 750+02 - 753+80 LT	ROADWAY FILL	0.13									
4B	L 748+64 - 750+76 LT	FILL IN POND						0.89				
5	L 755+00 - 758+02 LT	PIPE REM./ PROP. DITCH						< 0.01	< 0.01	28	32	
5A	L 758+02 LT	PIPE REM./ PROP. DITCH				< 0.01						
6	L 768+62	2 @ 12' x 10' RCBC						0.13		589		
6	L 768+62	INLET CHANNEL FLOODPLAIN BENCH						< 0.01	0.01	26	41	
6	L 768+62	OUTLET CHANNEL PROTECTION						0.02	0.03	81	88	
6A	L 764+50 LT	ROADWAY FILL	0.03									
6B	L 760+00 LT	EX. 36" RCP SEGMENT REPLACEMENT /CLEAN OUT							< 0.01		19	
7	Y15FLYBD	54" RCP						0.02		92		
7	Y15FLYBD	4' BASE DITCH						< 0.01	< 0.01	84	10	
7	Y15FLYBD	RIPRAP PAD						< 0.01	< 0.01	16	25	
7A	Y15FLYBD	54" RCP-IV	0.36									
8	L 781+44	42" RCP-III						0.05	< 0.01	444		
8	L 781+44	BANK STABILIZATION						< 0.01	< 0.01	17	10	
TOTALS*:			0.51			< 0.01		1.44	0.07	1797	331	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
07/02/2021
FORSYTH COUNTY
U-2579AB
34839.1.8

SHEET 76 OF 79

WETLAND PERMIT IMPACT SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
9	Y15RPDREV 36+18 RT	CULVERT INLET CHANNEL PROTECTION						< 0.01	< 0.01	66	10	
9	Y15RPDREV 35+55 CL	6' x 7' RCBC BURIED 1'						0.03		226		
9	Y15RPDREV 34+76 LT	CULVERT OUTLET CHANNEL PROTECTION						< 0.01		22		
9	Y15RPDREV 34+50 LT	6' BASE DITCH						0.02		149		
9	L 793+98 LT	CULVERT INLET CHANNEL PROTECTION						< 0.01		18		
9	L 793+98 CL	6' x 7' RCBC BURIED 1'						0.04		354		
9	Y15FLYBD 45+10 CL	6' BASE DITCH						0.02	< 0.01	195	10	
10	L 798+10	60" RCP-V						0.07		616		
10	L 798+10	5' BASE DITCH						< 0.01		52		
12	Y15REV 31+45 RT	5' x7' RCBC						0.07		372		
12	Y15REV 31+45 RT	CHANNEL STABILIZATION/ DITCH						0.07		277		
12A	Y15REV 31+45 RT	5' x7' RCBC	0.08			0.17						
12B	Y15REV 31+45 RT	FILL IN POND						2.37				
13	L 833+21 LT	36" RCP						0.06	< 0.01	504		
13	L 833+21 LT	BANK STABILIZATION						< 0.01		28	10	
13A	L 833+21	ROADWAY FILL	0.08									
14	Y15 31+20 RT	72" RCP-III						< 0.01	< 0.01	44	43	
14	Y15 31+20 RT	BANK STABILIZATION						< 0.01	< 0.01	22	14	
14A	Y15 31+99 RT	ROADWAY FILL	0.03			0.07						
14B	Y15 32+15 LT	ROADWAY FILL	< 0.01			0.02						
15	Y15 48+84 RT	42" RCP-III						< 0.01	< 0.01	36	10	
15	Y15 48+84 LT	RIPRAP PAD/DITCH						< 0.01	< 0.01	23	48	
TOTALS*:			0.19			0.26		2.77	0.01	3004	145	

*Rounded totals are sum of actual impacts

NOTES:

There is no site 11 for the project

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
07/02/2021
FORSYTH COUNTY
U-2579AB
34839.1.8
SHEET OF

WETLAND PERMIT IMPACT 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)
16	Y15 64+60 RT	54" RCP-III						< 0.01	< 0.01	44	26	
16A	Y15FLYCA 28+70 LT	BANK STABILIZATION						< 0.01	< 0.01	33	10	
16A	Y15FLYCA 28+80 CL	54" RCP-III						0.02	< 0.01	170	10	
17	Y15REV 30+00	8' x7' RCBC						0.03		427		
17	Y15REV 30+00	CHANNEL PROTECTION						< 0.01		35		
17A	Y15REV 30+00 RT	8' x7' RCBC	0.06									
17B	Y15REV 30+50 RT	8'x7' RCBC	0.09									
17C	Y15REV 30+50 RT	8' x7' RCBC	0.03									
18	Y15FLYAC 25+93 - 29+16 RT	ROADWAY FILL						0.16	0.02	900	102	
18	Y15FLYAC 25+93 - 29+16 RT	BANK STABILIZATION						< 0.01	< 0.01	44	11	
19	Y15FLYAC 28+72 RT	ROADWAY FILL						< 0.01		80		
19	Y15 124+35 LT	4' BASE DITCH						< 0.01		50		
19	Y15 124+40 LT	48" RCP-III						< 0.01		14		
19	Y15 125+82 RT	48" RCP-III						< 0.01		16		
19	Y15 126+00 RT	4' BASE DITCH						< 0.01		65		
19	Y15FLYBD 83+80 RT	48" RCP-III						< 0.01		18		
19	Y15FLYBD 83+85 RT	CHANNEL PROTECTION						< 0.01	< 0.01	6	6	
20	Y15FLYBD 93+75	60" RCP-III						0.01		100		
20	Y15FLYBD 94+22, 94+45	5' BASE DITCH						< 0.01	< 0.01	55	10	
20	Y15FLYBD 94+25	60" RCP-III						< 0.01		20		
21	Y15 149+41 - 154+60 LT	ROADWAY FILL						0.48	< 0.01	548	10	
21	Y15 157+53 - 159+59 RT	ROADWAY FILL						0.02	< 0.01	180	50	
22	Y4RPB 20+55 RT	2' BASE DITCH						< 0.01		67		
TOTALS*:			0.18					0.75	0.03	2625	189	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
07/02/2021
FORSYTH COUNTY
U-2579AB
34839.1.8

SHEET 78 OF 79

WETLAND PERMIT IMPACT 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)
23	L 830+95 - 833+21 LT	ROADWAY FILL						< 0.01	< 0.01	62	10	
23A	L 832+00 LT	ROADWAY FILL	0.22		0.02	0.06						
24	Y15FLYFLBD 67+67 LT	FILL IN POND						0.35				
24	Y15FLYFLBD 66+00 LT	DITCH TIE IN							< 0.01		10	
25	Y5B 18+06	3 @ 12' x 7' RCBC						0.02		92		
25	Y5B 18+06	BANK STABILIZATION						< 0.01	< 0.01	35	5	
25	Y5B 18+06	OUTLET CHANNEL PROTECTION						0.01	< 0.01	48	13	
26	Y5B 19+75 CL	7' x8' RCBC						< 0.01		56		
26	Y5B 19+75 RT	INLET CHANNEL PROTECTION						< 0.01	< 0.01	18	14	
26	Y5B 19+75 LT	OUTLET CHANNEL PROTECTION						< 0.01		33		
27	Y15 36+87 RT	42" RCP-III						< 0.01		14		
27	Y15 36+87 RT	RIPRAP PAD						< 0.01	< 0.01	12	10	
28	Y15REV 30+10 RT	8' x6' RCBC						0.13		114		
29	Y15REV 29+24-38+84	ROADWAY FILL						0.10	< 0.01	1023	10	
30	Y15RPB 31+30 RT	6' BASE DITCH							< 0.01		41	
31	Y15 19+47 LT	ROADWAY FILL						< 0.01	< 0.01	15	10	
		TOTALS SHEET 1	0.51			< 0.01		1.44	0.07	1797	331	
		TOTALS SHEET 2	0.19			0.26		2.77	0.01	3004	145	
		TOTALS SHEET 3	0.18					0.75	0.03	2625	189	
		TOTALS SHEET 4	0.22		0.02	0.06		0.63	0.02	1522	123	
TOTALS*: Project Totals			1.11		0.02	0.32		5.60	0.13	8948	788	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
07/02/2021
FORSYTH COUNTY
U-2579AB
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