STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

September 30, 2025

U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Dr., Suite 105
Wake Forest, NC 27587

ATTN: Mr. Eric Alsmeyer
NCDOT Coordinator

N.C. Division of Water Resources
Transportation Permitting Branch
1617 Mail Service Center
Raleigh, NC 27699-1617

ATTN: Mr. Rob Ridings
NCDOT Coordinator

SUBJECT: Request for Modification of the Phased Section 404 Individual Permit and Section 401 Individual Water Quality Certification for the construction of the Triangle Expressway Southeast Extension from NC-55 Bypass in Apex to I-40, Wake and Johnston Counties. TIP Nos.: R-2721, R-2828, and R-2829. Federal Aid Project No. 0540047.

REFERENCE: USACE Section 404 Authorization SAW-2009-02240, issued October 24, 2019, modified February 4, 2020 (corrected revision issued February 7, 2020), April 29, 2020, January 7, 2021, March 19, 2021, March 3, 2022, July 1, 2022, September 13, 2022, February 17, 2023, June 21, 2023, July 19, 2023, August 4, 2023, August 11, 2023, December 13, 2023, January 22, 2024, May 29, 2024, October 28, 2024, December 13, 2024, May 19, 2025, June 6, 2025 and August 26, 2025.

NCDWR Water Quality Certification Number 4179 and Neuse River Riparian Buffer Authorization, issued February 15, 2019, modified January 30, 2020, April 20, 2020 (corrected revision issued April 23, 2020), June 1, 2020, December 29, 2020, March 9, 2021, April 8, 2021, November 1, 2021, May 18, 2022, July 22, 2022, February 15, 2023, June 19, 2023, July 19, 2023, August 4, 2023, August 11, 2023, December 12, 2023, January 22, 2024, May 29, 2024, October 7, 2024, December 10, 2024, May 1, 2025, June 2, 2025, and August 20, 2025.

MAILING ADDRESS
NC DEPARTMENT OF TRANSPORTATION
TURNPIKE AUTHORITY
1599 MAIL SERVICE CENTER
RALEIGH, NC 27699-1599

Telephone: 919-707-2700
FAX: 919-715-551
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

LOCATION
2501 AERIAL CENTER PARKWAY
SUITE 200
MORRISVILLE, NC 27560

Dear Sirs:

As you are aware, the North Carolina Department of Transportation (NCDOT) applied for a phased Section 404 Individual Permit, Section 401 Individual Water Quality Certification (WQC), and Neuse River Riparian Buffer Authorization, and Non-404 Jurisdictional Wetlands and Waters Permit for the subject project in September 2018. The project, also known as Complete 540, encompasses three NCDOT Transportation Improvement Plan (TIP) projects: R-2721 (NC-55 Bypass to US-401), R-2828 (east of US-401 to I-40 Interchange), and R-2829 (east of I-40 to US 64/264). The permit and previous modification dates are listed in the reference section above.

We are requesting a modification to Section 404 Authorization (SAW-2019-02240) and the associated 401 Individual Water Quality Certification (Permit No. 20181249). This request is prompted by several areas changing from one wetland impact type to another (e.g. mechanized clearing to excavation) or temporary stream impacts changing to permanent stream impacts for bank stabilization purposes. Also, additional impacts are needed for a ditch tie-in at Wetland WHG, which was removed during the 4B meeting, but is being added back in as a permit site (Site 13). Details of why these changes are being made are provided below.

Details of the revised impacts are outlined below and depicted on the updated permit drawing sheets corresponding to each revision. For ease of review, all modified impacts areas are shown in bold font in this submittal.

Summary of Impacts

Revised impacts for final design for R-2829B include: 9.517 (previously 9.492) acres of permanent wetland (riparian and non-riparian) impacts (fill, excavation, and mechanized clearing); 8,300 (previously 7,825) linear feet of permanent stream impacts (including 868 (previously 616) linear feet of bank stabilization); 1,212 (previously 1,603) linear feet of temporary stream impacts.

Revised Table 5. R-2829B Jurisdictional Resources Impacts

Riparian Wetlands Temp./ Perm. (ac.)	Non-Riparian Wetlands Perm. (ac.)	Ponds (ac.)	Streams (lf)			Riparian Buffer (sq. ft.) Zone 1/ Zone 2
			Perm.	Temp.	Bank Stab.[2]	
1.021[1]/ 9.132	0.385	14.104	8,300	1,212	1,275	**Allowable**: 91,045/51,631 **Mitigable**: 590,137/389,322

[1] Includes 0.398 acres of hand clearing.
[2] Includes countersunk riprap pads, which do not count toward mitigation

Impacts to Jurisdictional Resources

Revisions to proposed impacts are summarized below and reflected in the updated Tables 20 and 21, which detail site specific impacts to wetlands and streams. The revised permit drawings identify the station number, structure size and type, jurisdictional feature name and associated impact type for each location. All impacts occur within the Neuse River Basin (HUC 03020201). Detailed revisions are provided below.

Site 13

- Excavation in Wetland: 0.002 ac (previously 0)
- Mechanized Clearing in Wetland: 0.006 ac (previously 0)
- Total: 0.008 ac (previously 0) – overall **increase of 0.008 ac**

Permit Site 13 was originally identified and included in the Interagency Hydraulic Design Review (4B Type) Meeting on April 8, 2024. However, during the 4B Meeting, it was suggested that the impacts be eliminated if the ditch could be tied in before the wetland. During final design, the ditch was shortened, and the impact was eliminated in the subsequent permit submittal. During construction, on May 20, 2025, it was determined by the Resident Engineer's Office, in coordination with the Roadside Environmental Unit, that head cutting was present that would necessitate extension of the proposed ditch by approximately 10 feet within the wetland. The mechanized clearing and excavation has been extended to the DUE to facilitate stabilization of this head cut. It was agreed that a permit mod is warranted to perform this work.

Site 18

- Permanent Stream Impact (Bank Stabilization): 306 lf (previously 60) – **Increase of 246 lf**
- Temporary Stream Impact (Causeway): 73 lf (previously 285) – Decrease of 212 lf
- Temporary Stream Impact (Dewatering): 36 lf (previously 70) – Decrease of 34 lf

Several areas of Temporary Surface Water (SW) impacts have been converted to Permanent SW Impacts due to the placement of bank stabilization on the existing bank being necessary once the temporary pipes are removed from under the construction access causeways.

Site 24

- Excavation in Wetland: 0.039 ac (previously 0.028) – Increase of 0.011 ac
- Mechanized Clearing in Wetland: 0.044 ac (previously 0.054) – Decrease of 0.010 ac
- Total Mitigable Impacts: 0.440 ac (previously 0.439) – overall **Increase of 0.001 ac**

A small area of Mechanized Clearing in Wetlands has been modified to Excavation in Wetlands. The planned temporary diversion has been adjusted to tie in on the opposite side of the culvert as originally planned, resulting in an additional 0.001 ac of Excavation in Wetlands. The grade on the north side of the culvert is better suited for a temporary diversion as proposed to mitigate potential sediment loss risks, improve erosion control, and maintenance. The existing excavation impact limits have been retained to facilitate pipe outlet grading to the culvert.

Site 25

- Permanent Fill in Wetland: 0.209 ac (previously 0.207) – Increase of 0.002
- Excavation in Wetland: 0.042 ac (previously 0.034) – Increase of 0.008 ac
- Mechanized Clearing in Wetland: 0.156 ac (previously 0.166) – Decrease of 0.010 ac
- Total Mitigable Impacts: 0.407 ac (previously 0.407) – **Overall No Change**

No new impacts are required at Site 25. The actual culvert headwall/endwall's entire footprint, including footing, has been updated in the permit drawings. The toe protection has been adjusted. For both scenarios, mechanized clearing within these areas has been converted to excavation or fill, depending on the location. In addition, a small area of Mechanized Clearing in Wetlands has been

modified to Excavation in Wetlands. The planned temporary diversion has also been adjusted to better coordinate with the on-site conditions.

Site 31

- Permanent Fill in Wetland: 0.615 ac (previously 0.612) – Increase of 0.003 ac
- Mechanized Clearing in Wetland: 0.015 ac (previously 0.002) – Increase of 0.013 ac
- Total Mitigable Impacts: 0.630 ac (previously 0.614) – **Increase of 0.016 ac**

A small area of Mechanized Clearing in Wetlands has been modified to Fill in Wetlands where the toe protection has been extended. It appears that the original measurement of Mechanized Clearing in Wetlands was incorrect, so the total Mechanized Clearing in Wetlands has also increased to accurately represent the area shown on the permit drawings.

Site 32

- Permanent Fill in Wetland: 0.218 ac (previously 0.212) – Increase of 0.006
- Excavation in Wetland: 0.048 ac (previously 0.040) – Increase of 0.008 ac
- Mechanized Clearing in Wetland: 0.101 ac (previously 0.115) – Decrease of 0.014 ac
- Total Mitigable Impacts: 0.367 ac (previously 0.367) – **No Change**
- Permanent Stream Impact (Bank Stabilization): 195 lf (previously 0)
- Temporary Stream Impact (Causeway): 74 lf (previously 269)
- **No Net Change**

No new impacts are required at Site 32. A small area of Mechanized Clearing in Wetlands has been modified to Excavation in Wetlands and Permanent Fill in Wetlands. The planned temporary diversion has been adjusted to better coordinate the culvert sequencing within this area. This change in impacts is a result of the revised culvert sequencing plans approved by the NCTA Resident Engineer's Office, NCDOT REU, and NCTA's environmental consultants. In addition, several areas of Temporary SW impacts have been converted to Permanent SW Impacts due to the potential for additional bank stabilization being necessary once the temporary pipes are removed from under the construction access causeways.

Revised Table 20. R-2829B Wetland Impacts

Permit Drawing Site Number	NRTR Label	NCWAM Type	Riparian or Non-riparian	Impact Type	Permanent Fill (ac.)	Temporary Impacts (ac.)	Excavation (ac.)	Mechanized Clearing (ac.)	Hand Clearing (ac.)
1	WHH	Headwater Forest	Non-riparian	Roadway Fill	0.143	-	-	-	-
2	WHQ	Headwater Forest	Riparian	Excavation	-	-	0.021	0.031	-
3	WHR	Headwater Forest	Riparian	Fill Pond	0.037	-	-	-	-
4	WRV	Headwater Forest	Riparian	Ditch Excavation	0.043	-	0.040	-	-
5	WAAH	Headwater Forest	Riparian	Fill	0.095	-	-	-	-
6	WHS	Headwater Forest	Riparian	Ditch	0.024	-	-	0.003	-

Revised Table 20. R-2829B Wetland Impacts

Permit Drawing Site Number	NRTR Label	NCWAM Type	Riparian or Non-riparian	Impact Type	Permanent Fill (ac.)	Temporary Impacts (ac.)	Excavation (ac.)	Mechanized Clearing (ac.)	Hand Clearing (ac.)
Ye7	WHP	Headwater Forest	Riparian	2@ 6'x8' RCBC	0.027	-	-	-	-
7A	WHM	Non-tidal Freshwater Marsh	Riparian	Ditch Excavation	-	-	-	0.038	-
9	WIC	Headwater Forest	Riparian	Roadway Fill	0.052	-	-	-	-
10*	WIG	Headwater Forest	Riparian	O/H Power Lines	-	-	-	-	0.002
11	WIH	Headwater Forest	Non-riparian	Roadway Fill	0.053	-	-	-	-
13	**WHG**	**Headwater Forest**	**Riparian**	**Ditch Excavation**	**-**	**-**	**0.002**	**0.006**	**-**
14	WIP	Headwater Forest	Non-riparian	Channel Realignment	-	-	0.002	0.011	-
14	WIQ	Headwater Forest	Non-riparian	Channel Realignment	0.044	-	0.011	-	
17	WIU	Non-tidal Freshwater Marsh	Riparian	Roadway Fill	0.118	-	-	0.031	-
18	WIW	Non-tidal Freshwater Marsh	Riparian	Bridge Causeway	0.615	-	0.028	0.113	-
19	WIV	Headwater Forest	Riparian	Bridge/Channel Change	0.066	-	0.133	0.115	-
20	WIX	Non-tidal Freshwater Marsh	Riparian	Roadway Fill	0.001	-	0.001	0.021	-
21	WIY	Headwater Forest	Non-riparian	Roadway Fill	0.089	-	-	0.032	-
22	WIZ	Headwater Forest	Riparian	Roadway Fill	0.181	-	-	-	-
22	WJA	Headwater Forest	Riparian	Roadway Fill	0.002	-	0.003	0.036	-
23	WJB	Headwater Forest	Riparian	Roadway Fill	-	-	-	0.011	-
24	**WJD**	**Headwater Forest**	**Riparian**	**1@6'x8' RCBC**	0.357	-	**0.039**	**0.044**	-
25	WJF	Bottomland Hardwood Forest	Riparian	1@6'x8' RCBC	1.232	-	0.039	0.102	-
25	**WJF**	**Bottomland Hardwood Forest**	**Riparian**	**1@6'x8' RCBC**	**0.209**	**-**	**0.042**	**0.156**	-
27	WJH	Headwater Forest	Riparian	Roadway Fill	0.271	-	-	-	-
31	**WJK**	**Headwater Forest**	**Riparian**	**Roadway Fill**	**0.615**	**-**	**-**	**0.015**	-
31*	WJK	Headwater Forest	Riparian	O/H Power Lines	-	-	-	-	0.006

Revised Table 20. R-2829B Wetland Impacts

Permit Drawing Site Number	NRTR Label	NCWAM Type	Riparian or Non-riparian	Impact Type	Permanent Fill (ac.)	Temporary Impacts (ac.)	Excavation (ac.)	Mechanized Clearing (ac.)	Hand Clearing (ac.)
32	WJJ(1)	Bottomland Hardwood Forest	Riparian	Bridge	0.008	0.623	-	0.270	0.390
32	WJJ(1)	Bottomland Hardwood Forest	Riparian	Roadway Fill	0.013	-	-	0.034	-
32	**WJJ(1)**	**Bottomland Hardwood Forest**	**Riparian**	**1@10'x8' RCBC**	**0.218**	**-**	**0.048**	**0.101**	-
32	WJL	Headwater Forest	Riparian	Roadway Fill/Channel Change	0.407	-	0.094	0.119	-
32	WJJ(1)	Bottomland Hardwood Forest	Riparian	Roadway Fill	0.346	-	0.037	0.069	-
32	WJL	Headwater Forest	Riparian	Roadway Fill	0.018	-	-	-	-
33	WJJ(1)	Bottomland Hardwood Forest	Riparian	1@6'x8' RCBC	-	-	0.052	0.083	-
34	WJJ(2)	Non-tidal Freshwater Marsh	Riparian	Roadway Fill	1.052	-	-	0.120	-
35	WJX	Headwater Forest	Riparian	Roadway Fill	0.144	-	-	-	-
35	WJS	Headwater Forest	Riparian	Roadway Fill	0.007	-	-	0.005	-
38	WJJ(2)	Bottomland Hardwood Forest	Riparian	1@9'x6' RCBC Extension	0.128	-	-	0.091	-
39	WJJ(1)	Bottomland Hardwood Forest	Riparian	1@9'x6' RCBC Extension	0.508	-	0.003	0.142	-
			Total		**7.123**	**0.623**	**0.595**	**1.799**	**0.398**
			Total Riparian		**6.794**	**0.623**	**0.582**	**1.756**	**0.398**
			Total Non-Riparian		**0.329**	**-**	**0.013**	**0.043**	**-**

* Utility Impacts

Revised Table 21. R-2829B Surface Water (Stream) Impacts

Permit Drawing Site Number	NRTR Label	Impact Type	Permanent Impacts (lf)	Temporary Impacts (lf)	Mitigation Required
4	SOR	Ditch Excavation	-	34	No
6	SAAM	Ditch Excavation	-	11	No
6	SGJ	Fill	160	-	Yes
7	SGJ	Bank Stabilization	28	23	No
7	SGJ	Countersunk Riprap	39	-	No
7	SGK	2@6'x8' RCBC	406	23	Yes
7	SGK	Countersunk Riprap	55	-	No
7	SGK	Countersunk Riprap	44	47	No
8	SGJ	Bank Stabilization	32	42	No
8	SGJ	Ditch Excavation	7	7	Yes
10	SGJ	Bank Stabilization	32	57	No
12	SGI	Bank Stabilization	22	17	No
12	SGI	Countersunk Riprap	48	-	No
12	SGI	3@7'x8' RCBC	408	105	Yes
12	SGI	Countersunk Riprap	26	-	No
12	SGI	Bank Stabilization	61	5	No
14	SGR	Channel Realignment	442	-	Yes
15	Neuse River	Bridge	20	51	Yes
15	Neuse River	Bridge Causeway	-	220	No
15	Neuse River	Bank Stabilization	76	108	No
16	SGT	Ditch	10	12	Yes
18	**SGU (Hinton's Creek)**	**Bridge Causeway**	**-**	**73**	**No**
18	**SGU (Hinton's Creek)**	**Bank Stabilization**	**306**	**36**	**No**
20	SGV	Roadway Fill	793	12	Yes
22	SGY	Roadway Fill	309	-	Yes
22	SGY	Countersunk Riprap	28	10	No
24	SHA	1@ 6'x8' RCBC	290	-	Yes
24	SHA	Countersunk Riprap	15	11	No
25	SHB	1@ 6'x8' RCBC	48	-	Yes
25	SHB	Countersunk Riprap	8	13	No
27	SHD	Roadway Fill	1,804	-	Yes
27	SHD	Countersunk Riprap	10	10	No
28	SHC	2@ 12'x11'	174	-	Yes
28	SHC	Countersunk Riprap	83	9	No
28	SHC	Channel Change	39	-	Yes
28	SHC	3@ 12'x11'	48	-	Yes
28	SHC	Countersunk Riprap	30	-	No
28	SHC	Bank Stabilization	65	10	No
29	SHE	Roadway Fill	173	-	Yes
32	**SHC**	**Bridge / Bank Stabilization**	**195**	**74**	**No**

Revised Table 21. R-2829B Surface Water (Stream) Impacts

Permit Drawing Site Number	NRTR Label	Impact Type	Permanent Impacts (lf)	Temporary Impacts (lf)	Mitigation Required
32	SHC	1@ 10'x8' RCBC	255	-	Yes
32	SHC	Roadway Fill/Channel Change	319	14	Yes
32	SHC	Roadway Fill	967	11	Yes
33	SHH	1@ 6'x8' RCBC	127	11	Yes
35	SHM	Roadway Fill	-	16	No
36	SAAJ	42" RCP-III	13	-	Yes
36	SAAJ	Countersunk Riprap	37	10	No
37	Neuse River	Riprap at Embankment	26	37	Yes
38	SHL	1@ 9'x6' RCBC Ext	31	-	Yes
38	SHL	Countersunk Riprap	33	-	No
38	SHL	Bank Stabilization	32	78	No
38	SAAL	Roadway Fill	46	-	Yes
39	SHL	1@ 9'x6' RCBC Extension	55	-	Yes
39	SHL	Countersunk Riprap	25	15	No
Total			**8,300**	**1,212**	
Bank Stabilization/Countersunk Riprap			**1,275**	**501**	
Total Requiring Mitigation			7,025	-	

Mitigation Options

The avoidance and minimization efforts incorporated into the final design resulted in an overall reduction of permanent jurisdictional impacts as detailed in Table below.

Jurisdictional Impacts from Preliminary Design to Current Proposed Design

Category	Preliminary Design*	Revised Design^	Change
Streams (lf)	8,402	7,025	-1,377
Streams (number)	18	21	+3
Buffer Zone 1 (sq ft)	680,343	681,182	+839
Buffer Zone 2 (sq ft)	445,816	440,953	-4,863
Wetlands (ac)	9.87	9.517	-0.353
Wetlands (number)	29	31	+2
Ponds (ac)	6.454	14.104	+7.650
Ponds (number)	5	5	0

*Preliminary impacts were calculated using proposed slope stakes plus 25 feet. ^Current proposed design includes impacts associated with all utilities, which were not accounted for in preliminary design.

Compensatory Mitigation:

Compensatory for these additional unavoidable wetland impacts associated with R-2829B will be provided by way of Private Mitigation Banks. Included in this permit modification request are the revised acceptance letters from the Private Mitigation Banks. Below is a summary of the proposed impacts.

Revised Table 28. R-2829B Proposed Compensatory Mitigation[1]

Mitigation Type	Riparian Wetlands Perm. (ac.)	Non-Riparian Wetlands Perm. (ac.)	Stream (lf)	Riparian Buffer Calculation (sq. ft.)		Riparian Buffer Total (sq. ft.)
				Zone 1	Zone 2	
Neuse River Basin (HUC 03020201)	9.132 **(+0.025)**	0.385 (0)	7,025 (0)	481,426 (0)	337,079 (0)	818,505 (0)

[1] Mitigation ratios not applied

Compensatory riparian wetland mitigation for R-2829B will be provided by NCDOT credit purchases from Falling Creek Umbrella Mitigation Bank from the Falling Creek Site sponsored by Wildland Holdings. NCDOT has requested additional wetland mitigation of 0.025 acre from the Falling Creek Site to cover the revised total of 9.132 acres (previously 9.107 acres)

Revised Table 28B below shows the impacts associated with R-2829B and the wetland mitigation credits from Falling Creek Umbrella Mitigation Bank.

Revised Table 28B R-2829B Compensatory Riparian Wetland Mitigation Bank

Site Name	Wetland Type	Bank Name	Purchased Wetland Mitigation Credits (ac)	Wetland Impacts (ac)	Wetland Mitigation Required (ac)
Falling Creek	Riparian	Falling Creek Umbrella Mitigation Bank	18.264	9.132	18.264

Regulatory Approvals

Section 404:

We are requesting a modification to the USACE Permit Number SAW-2009-02240 Section 404 Individual Permit for the above-described activities.

Section 401:

We are requesting a modification to the Section 401 WQC Permit Number 4179 from NCDWR.

The individual permit modification package for the Complete 540 project (STIP Projects R-2721, R2828, and R-2829) is available at:
https://xfer.services.ncdot.gov/pdea/PermApps/

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Deanna Riffey at driffey@ncdot.gov or (919) 707-6151.

Sincerely,

DocuSigned by:
Alan Shapiro
B149124683BD45B...

Alan Shapiro, P.E.
Chief Engineer
North Carolina Turnpike Authority

Cc: NCDOT Permit Application Standard Distribution List

TIP PROJECT: R-2829B

CONTRACT: C204825

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2829B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
35517.3.TA2	N/A	DESIGN-BUILD
35517.3.TAGV2	0540048	DESIGN-BUILD

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

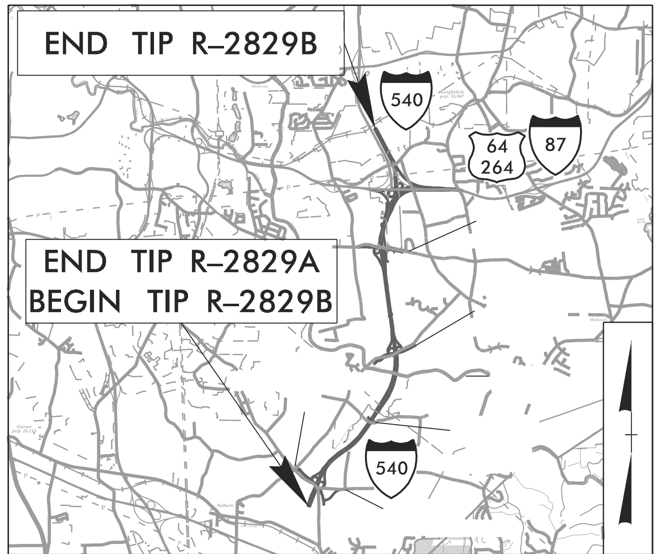
PERMIT DRAWING SHEET 1 OF 112

WETLAND AND SURFACE WATER IMPACTS PERMIT

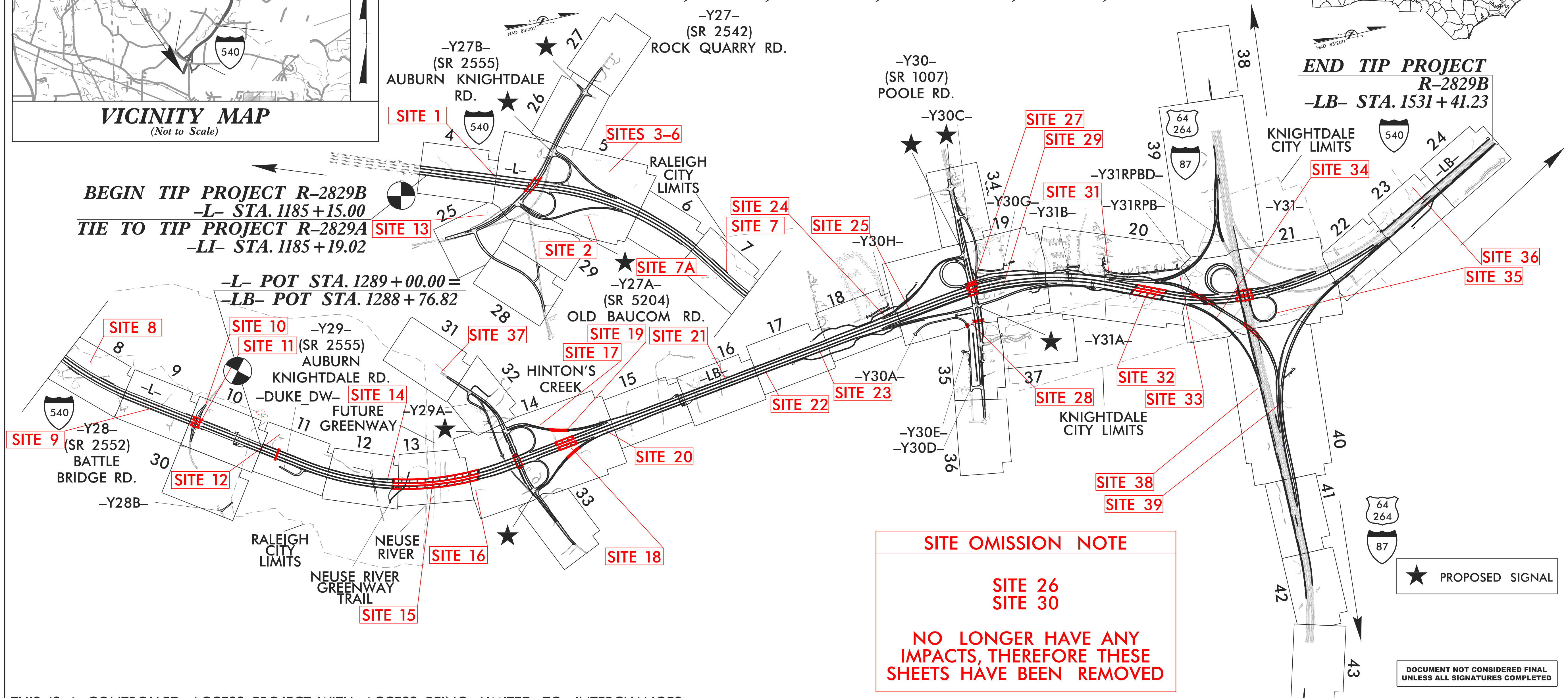
REVISED 7/18/2025

LOCATION: TRIANGLE EXPRESSWAY SOUTHEAST EXTENSION FROM SOUTH OF SR 2542 (ROCK QUARRY ROAD) TO I-87/US 64/US 264

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



VICINITY MAP
(Not to Scale)



SITE OMISSION NOTE

SITE 26
SITE 30

NO LONGER HAVE ANY IMPACTS, THEREFORE THESE SHEETS HAVE BEEN REMOVED

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

20 10 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2025 = 34,800
ADT 2045 = 66,600
K = 12%
D = 60/65%
T = 10% *
V = 75 MPH
* TTST = 4% DUAL = 6%
FUNC CLASS = INTERSTATE STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2829B = 5.967 MILES
LENGTH STRUCTURE TIP PROJECT R-2829B = 0.595 MILES
TOTAL LENGTH TIP PROJECT R-2829B = 6.562 MILES

Prepared In the Office of:
ICE of CAROLINAS, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609

Prepared for:
NORTH CAROLINA TURNPIKE AUTHORITY
1000 Birch Ridge Dr., Raleigh NC 27610

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 8/29/2023

LETTING DATE: 8/29/2023

BRIAN LUSK, P.E.
PROJECT ENGINEER

RON McCOLLUM, P.E.
NCTA CONTACT EASTERN DEPUTY CHIEF ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

NORTH CAROLINA
Turnpike Authority

PERMIT DRAWING
SHEET 5A OF 112

8/17/99

SITE 13 ENLARGEMENT

ARCADIS

Arcadis CE, Inc.
175 Regency Woods Place, Suite 350
Cary, North Carolina 27518
Phone: 919-854-1282
License #: F-0299

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISED 7/18/2025

FOR -Y27- CURVE DATA SEE SHT.3A-1
FOR -Y27A- CURVE DATA SEE SHT.3A-1
FOR -Y27_GW- CURVE DATA SEE SHT.3A-1

FOR -Y27- PROFILE SEE SHT.56
FOR -Y27A- PROFILE SEE SHT.61
FOR -Y27_GW- PROFILE SEE SHT.57

Submitted September 30, 2025

PERMIT DRAWING SHEET 5B OF 112

ARCADIS
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175 Regency Woods Place, Suite 350
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License #: F-0299

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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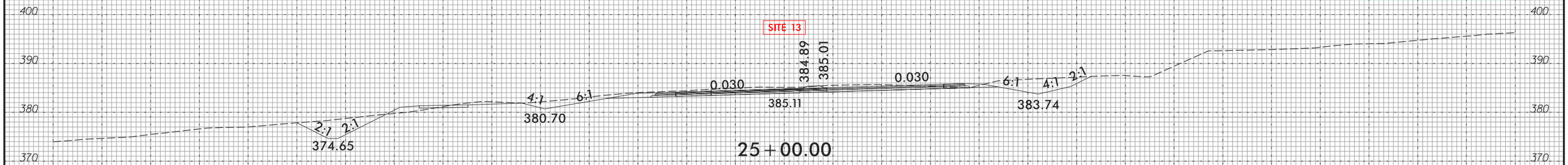
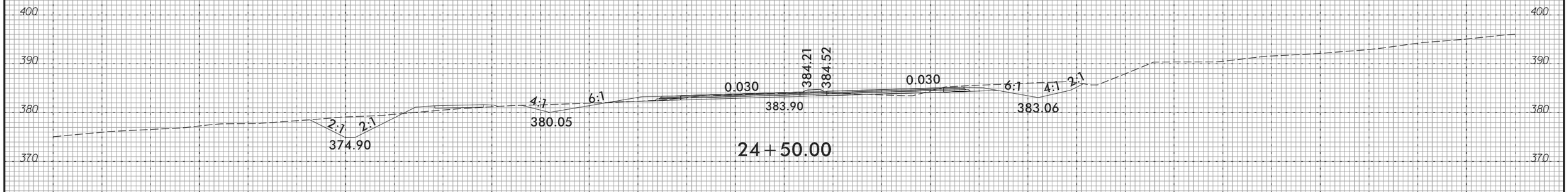
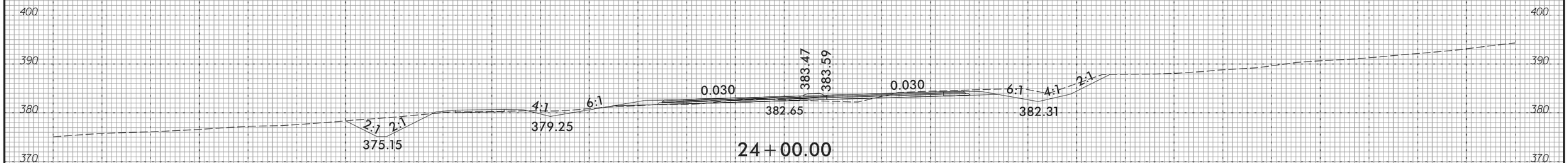
REVISED 7/18/2025

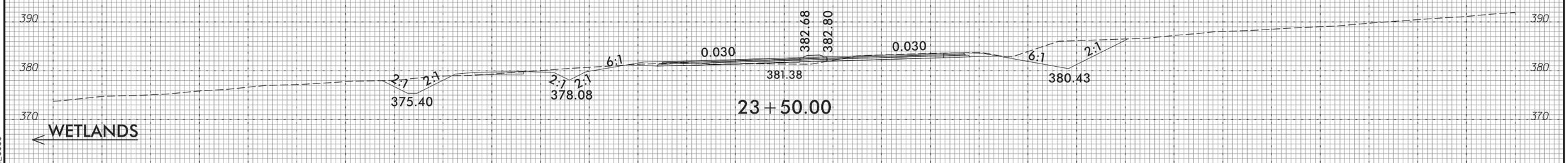
FOR -Y27- CURVE DATA SEE SHT.3A-1
FOR -Y27A- CURVE DATA SEE SHT.3A-1
FOR -Y27_GW- CURVE DATA SEE SHT.3A-1

FOR -Y27- PROFILE SEE SHT.56
FOR -Y27A- PROFILE SEE SHT.61
FOR -Y27_GW- PROFILE SEE SHT.57









Submitted September 30, 2025

PERMIT DRAWING SHEET 5C OF 112	0 10 20	PROJ. REFERENCE NO.	SHEET NO.
		R-2829B	X-174

REVISED 7/18/2025

Submitted September 30, 2025

PERMIT DRAWING SHEET 40 OF 112

GRAPHIC SCALE 100' 0' 100' 200' 300'

- WETLAND EXCAVATION
- FILL IN WETLAND
- SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- TEMPORARY SURFACE WATER IMPACTS
- TEMPORARY FILL IN WETLAND

NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE

TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION INCLUDES EROSION CONTROL DEVICE INSTALLATION

ICE of Carolinas, PLLC
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Raleigh, North Carolina 27609
Phone 919.872.5115
License # C-4268

PROJECT REFERENCE NO.	SHEET NO.
R-2828B	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

REVISED 7/18/2025

CAUSEWAY DETAIL

MATCHLINE –Y29– STA. 25+00.00 SEE SHEET 32

MATCHLINE –LB– STA. 1328+00.00 SEE SHEET 13

MATCHLINE –LB– STA. 1356+00.00 SEE SHEET 15

MATCHLINE –Y29– STA. 40+00.00 SEE SHEET 33

SITE 17

SITE 18

SITE 19

SITE 20

SEE PERMIT DRAWING SHEET 41 OF 112 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 43 OF 112 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 42 OF 112 FOR ENLARGEMENT

TEMPORARY ACCESS

WIU WIV WIW WIX SGU SGV SGW WLD PAAC

–Y29– (SR 2555) AUBURN KNIGHTDALE RD.
6,100 9,900
800 1,700 | 4,100 6,800
16,100 32,500 NC 540 21,300 39,600
1,000 2,500 | 2,900 4,500
5,100 8,400
–Y29– (SR 2555) AUBURN KNIGHTDALE RD. 2025 ADT 2045 ADT

★ PROPOSED SIGNAL

FOR –LB– CURVE DATA SEE SHT. 3A–1
FOR –Y29RPA– CURVE DATA SEE SHT. 3A–1
FOR –Y29LPA– CURVE DATA SEE SHT. 3A–1
FOR –Y29RPD– CURVE DATA SEE SHT. 3A–1
FOR –Y29LPD– CURVE DATA SEE SHT. 3A–1
FOR –Y29– CURVE DATA SEE SHT. 3A–1

FOR –LB– PROFILE SEE SHTS. 49 & 50
FOR –Y29RPA– PROFILE SEE SHTS. 65 & 66
FOR –Y29LPA– PROFILE SEE SHT. 64
FOR –Y29RPD– PROFILE SEE SHT. 66
FOR –Y29LPD– PROFILE SEE SHT. 65
FOR –Y29– PROFILE SEE SHTS. 63 & 64

GRAPHIC SCALE 50 25 0 50 100 PLANS

8/17/99

PERMIT DRAWING SHEET 41 OF 112

SITE 18 & 19 ENLARGEMENT

E E	WETLAND EXCAVATION
F F	FILL IN WETLAND
* * *	MECHANIZED CLEARING (GRUBBING)
TS TS	TEMPORARY SURFACE WATER IMPACTS
S S	SURFACE WATER IMPACTS

▨	TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION AND PERIMETER EROSION CONTROL DEVICE INSTALLATION

ICE of CAROLINAS, PLLC
ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 803-822-0333
License #: P-0999

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISED 7/18/2025

NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE

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PROJECT REFERENCE NO.	SHEET NO.
R-2829B	____
R/W SHEET NO.	____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

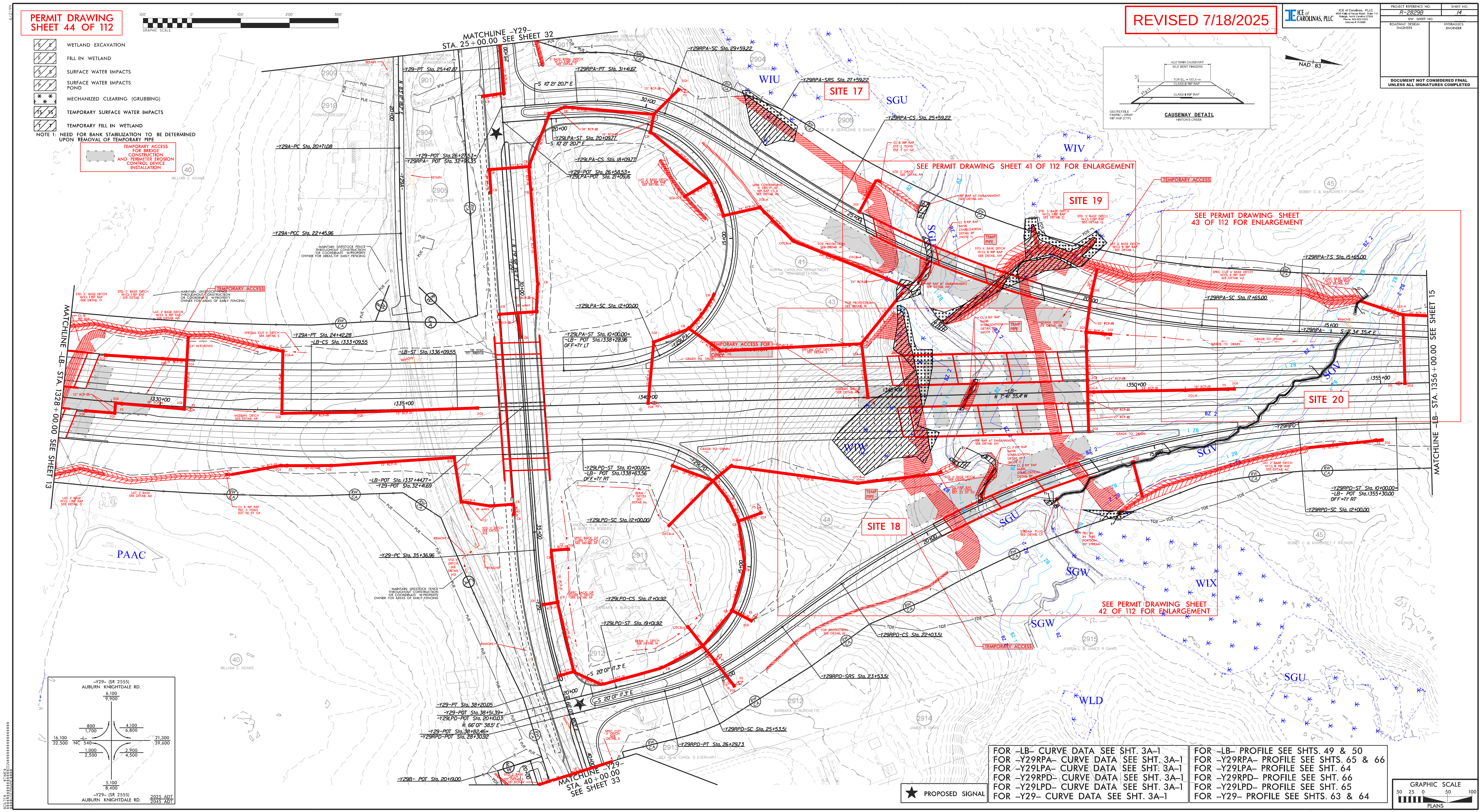
PERMIT DRAWING SHEET 42 OF 112

SITE 18 & 20 ENLARGEMENT

REVISED 7/18/2025

F F	FILL IN WETLAND
E E	WETLAND EXCAVATION
S S	SURFACE WATER IMPACTS
* *	MECHANIZED CLEARING (GRUBBING)
TS TS	TEMPORARY SURFACE WATER IMPACTS
T T	TEMPORARY FILL IN WETLAND
▨	TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION AND PERIMETER EROSION CONTROL DEVICE INSTALLATION

NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE


PERMIT DRAWING
SHEET 44 OF 112
GRAPHIC SCALE
100' 0' 100' 200' 300'
WETLAND EXCAVATION
FILL IN WETLAND
SURFACE WATER IMPACTS
SURFACE WATER IMPACTS POND
MECHANIZED CLEARING (GRUBBING)
TEMPORARY SURFACE WATER IMPACTS
TEMPORARY FILL IN WETLAND
NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE
TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION AND PERIMETER EROSION CONTROL DEVICE INSTALLATION
REVISED 7/18/2025
ICE of CAROLINAS, PLLC
ICE of Carolinas, PLLC
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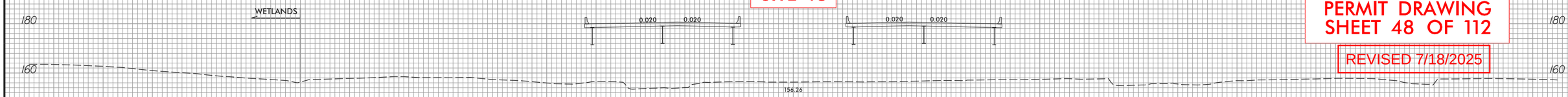
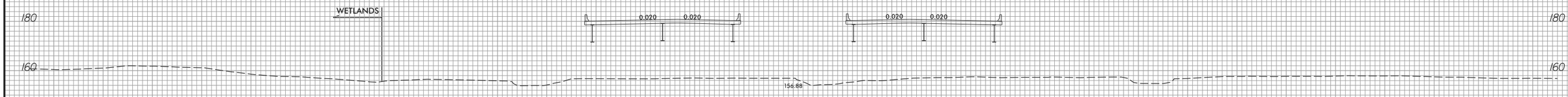
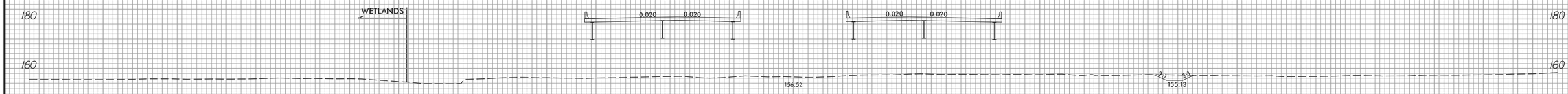
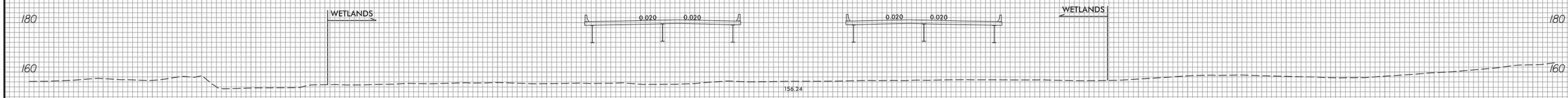
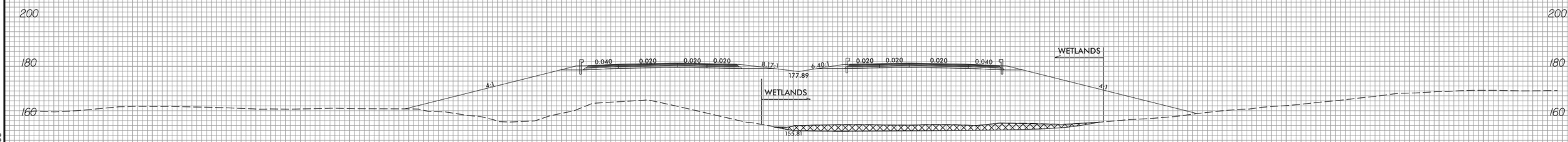
Raleigh, North Carolina 27609
Phone: 803-822-0333
License #: P-0999
PROJECT REFERENCE NO.
R-2829B
SHEET NO.
14
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
43.0' MAIN CAUSEWAY
50.0' BENT FINGERS
TOP EL. = 157.4 +/-
CLASS B RIP RAP
CLASS II RIP RAP
GEOTEXTILE FABRIC - WRAP RIP RAP (TYP)
CAUSEWAY DETAIL
HINTON'S CREEK
NAD 83
MATCHLINE -Y29- STA. 25+00.00 SEE SHEET 32
MATCHLINE -Y29- STA. 40+00.00 SEE SHEET 33
MATCHLINE -LB- STA. 1328+00.00 SEE SHEET 13
MATCHLINE -LB- STA. 1356+00.00 SEE SHEET 15
SITE 17
SITE 18
SITE 19
SITE 20
SEE PERMIT DRAWING SHEET 41 OF 112 FOR ENLARGEMENT
SEE PERMIT DRAWING SHEET 42 OF 112 FOR ENLARGEMENT
SEE PERMIT DRAWING SHEET 43 OF 112 FOR ENLARGEMENT
WIU
SGU
WIV
SGV
WIW
SGW
WIX
WLD
PAAC
TEMPORARY ACCESS
-Y29- (SR 2555) AUBURN KNIGHTDALE RD.
NC 540
2025 ADT
2045 ADT
PROPOSED SIGNAL
FOR -LB- CURVE DATA SEE SHT. 3A-1
FOR -Y29RPA- CURVE DATA SEE SHT. 3A-1
FOR -Y29LPA- CURVE DATA SEE SHT. 3A-1
FOR -Y29RPD- CURVE DATA SEE SHT. 3A-1
FOR -Y29LPD- CURVE DATA SEE SHT. 3A-1
FOR -Y29- CURVE DATA SEE SHT. 3A-1
FOR -LB- PROFILE SEE SHTS. 49 & 50
FOR -Y29RPA- PROFILE SEE SHTS. 65 & 66
FOR -Y29LPA- PROFILE SEE SHT. 64
FOR -Y29RPD- PROFILE SEE SHT. 66
FOR -Y29LPD- PROFILE SEE SHT. 65
FOR -Y29- PROFILE SEE SHTS. 63 & 64
GRAPHIC SCALE
50 25 0 50 100
PLANS











Submitted September 30, 2025

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-2829B	X-79

6/23/16

SITE 18

PERMIT DRAWING
SHEET 48 OF 112

REVISED 7/18/2025

$$$$$$SYSTIME$$$$$$ $$$$$$USERNAME$$$$$$ $$$$$$DGN$$$$$$

PERMIT DRAWING
SHEET 60 OF 112

Submitted September 30, 2025

REVISED 7/18/2025

FLATIRON
FRED SMITH COMPANY
CONSTRUCTION

ICE of CAROLINAS, PLLC

ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 803-822-0333
License #: P-0999

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

F F	FILL IN WETLAND
S S	SURFACE WATER IMPACTS
✱ ✱	MECHANIZED CLEARING (GRUBBING)
TS TS	TEMPORARY SURFACE WATER IMPACTS
E E	WETLAND EXCAVATION

REVISIONS

8/29/2025: REVISED ROADWAY AND DRAINAGE DESIGN FOR FINAL NOISE WALL LOCATIONS.

ALL DRIVEWAY RADII 10' UNLESS NOTED OTHERWISE.

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-5

R/W LABELED OFF -LB- UNLESS NOTED OTHERWISE.

FOR -Y30RPB- CURVE DATA SEE SHT. 3A-2
FOR -Y30RPC- CURVE DATA SEE SHT. 3A-2
FOR -Y30H- CURVE DATA SEE SHT. 3A-2

FOR -LB- PROFILE SEE SHTS. 51 & 52
FOR -Y30RPB- PROFILE SEE SHT. 71
FOR -Y30RPC- PROFILE SEE SHT. 72
FOR -Y30H- PROFILE SEE SHT. 76

8/17/99

PERMIT DRAWING SHEET 61 OF 112

Submitted September 30, 2025

F F	FILL IN WETLAND
S S	SURFACE WATER IMPACTS
* * *	MECHANIZED CLEARING (GRUBBING)
TS TS	TEMPORARY SURFACE WATER IMPACTS
E E	WETLAND EXCAVATION

100′ 0′ 100′ 200′ 300′
GRAPHIC SCALE

FLATIRON
FRED SMITH COMPANY CONSTRUCTION

ICE of CAROLINAS, PLLC

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Raleigh, North Carolina 27609
Phone: 803-822-0333
License #: P-0999

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISED 7/18/2025

REVISIONS

2 8/29/2025: REVISED ROADWAY AND DRAINAGE DESIGN FOR FINAL NOISE WALL LOCATIONS.

MATCHLINE -LB- STA. 1398+00.00 SEE SHEET 17

MATCHLINE -LB- STA. 1412+00.00 SEE SHEET 19

MATCHLINE -Y30RPC- STA. 17+00.00 SEE SHEET 19

ALL DRIVEWAY RADII 10′ UNLESS NOTED OTHERWISE.

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-5

R/W LABELED OFF -LB- UNLESS NOTED OTHERWISE.

FOR -Y30RPB- CURVE DATA SEE SHT. 3A-2
FOR -Y30RPC- CURVE DATA SEE SHT. 3A-2
FOR -Y30H- CURVE DATA SEE SHT. 3A-2

FOR -LB- PROFILE SEE SHTS. 51 & 52
FOR -Y30RPB- PROFILE SEE SHT. 71
FOR -Y30RPC- PROFILE SEE SHT. 72
FOR -Y30H- PROFILE SEE SHT. 76

$DATE$ $TIME$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$
$$$$USERNAME$$$$

Submitted September 30, 2025

8/17/99

ICE of CAROLINAS, PLLC

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PROJECT REFERENCE NO.	SHEET NO.
R-2829B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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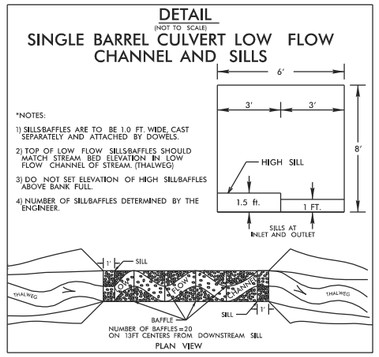
REVISED 7/18/2025

PERMIT DRAWING
SHEET 62 OF 112

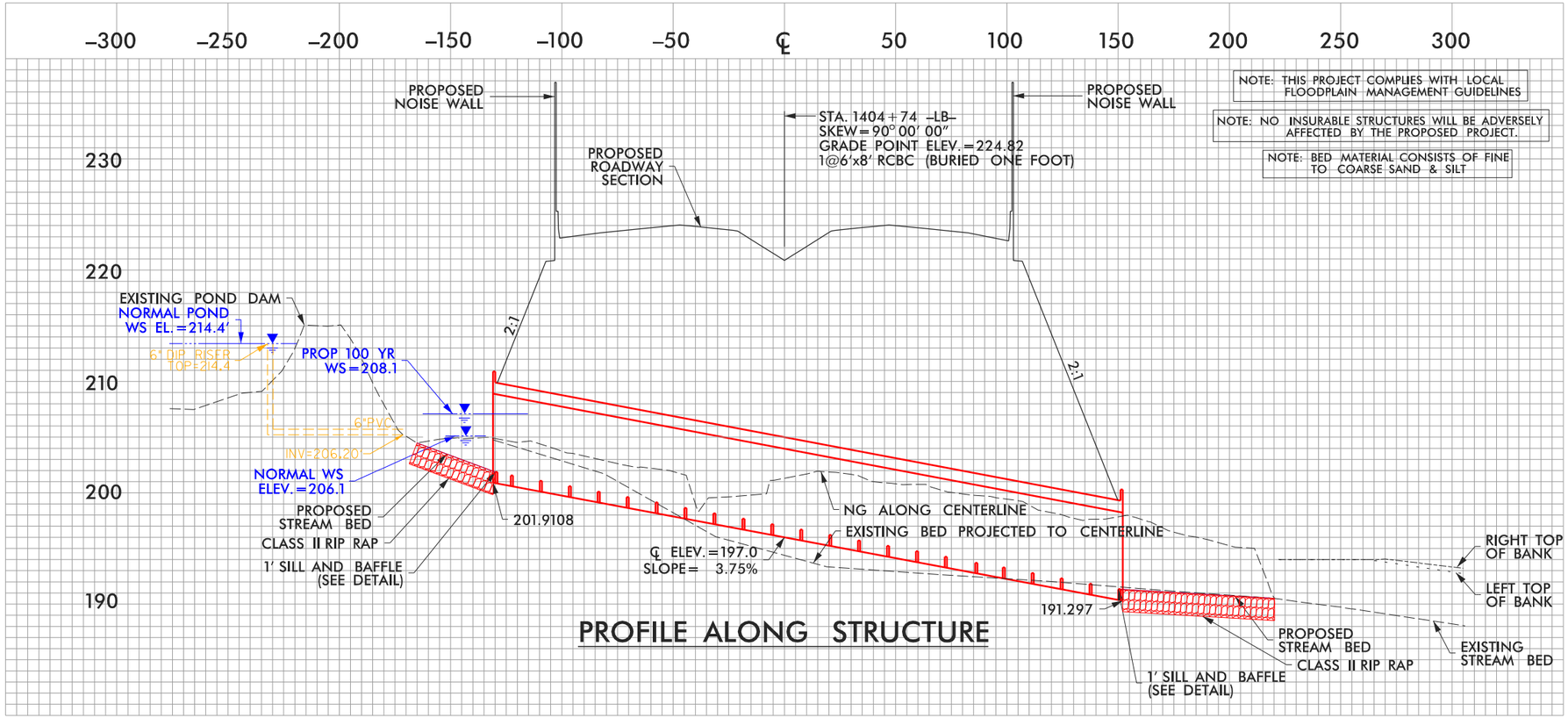
SITE 24



DETAIL
(NOT TO SCALE)
SINGLE BARREL CULVERT LOW FLOW CHANNEL AND SILLS

*NOTES:

1) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
2) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
3) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.
4) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.

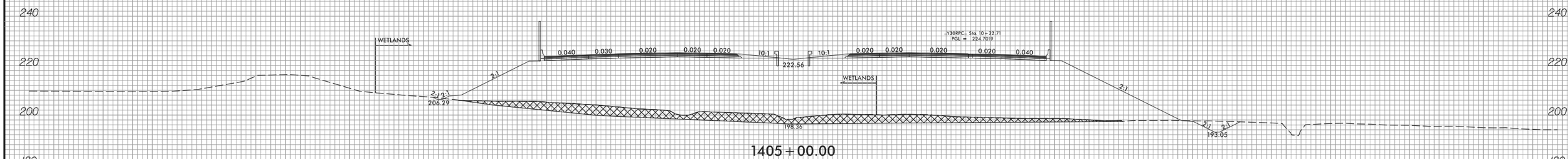


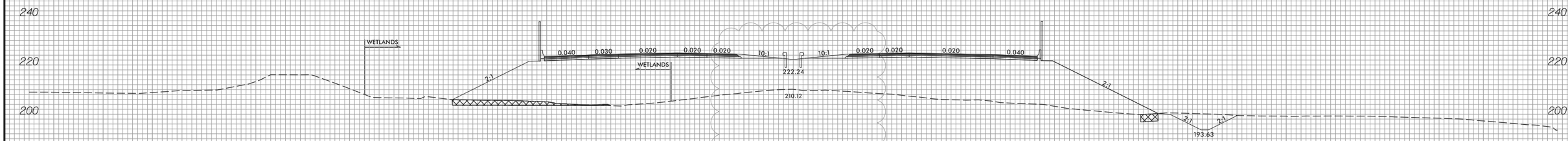
NOTE: THIS PROJECT COMPLIES WITH LOCAL FLOODPLAIN MANAGEMENT GUIDELINES

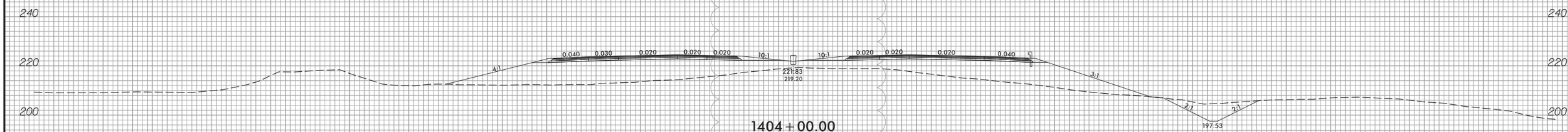
NOTE: NO INSURABLE STRUCTURES WILL BE ADVERSELY AFFECTED BY THE PROPOSED PROJECT.

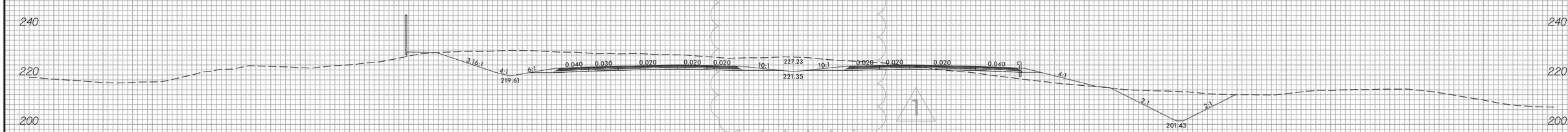
NOTE: BED MATERIAL CONSISTS OF FINE TO COARSE SAND & SILT

PROFILE ALONG STRUCTURE









Submitted September 30, 2025

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-2829B	X-107

6/23/16

REVISIONS
5/2/2025: -LB- STA. 1403+50 TO STA. 1404+50 & STA. 1405+50 TO STA. 1406+50 MEDIAN SLOPE REVISED TO 10:1.

SITE 24

PERMIT DRAWING
SHEET 63 OF 112

REVISED 7/18/2025

UNDERCUT ▨

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

Submitted September 30, 2025

PERMIT DRAWING
SHEET 64 OF 112

GRAPHIC SCALE 100' 0' 100' 200' 300'

FILL IN WETLAND
SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
TEMPORARY SURFACE WATER IMPACTS
SURFACE WATER IMPACTS POND
WETLAND EXCAVATION

MECH CLEARING AND EXCAVATION REQUIRED FOR TEMPORARY DIVERSION CHANNEL

MATCHLINE -Y30- STA. 23+00.00 SEE SHEET 34

ICE of CAROLINAS, PLLC

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

REVISED 7/18/2025

(Non-404, buffered)
(Non-404)
WAAC
SAAB
WAAB
PAAB

-Y30RPB-PT Sta. 30+16.96
-Y30RPB-SC Sta. 27+36.61
-Y30RPB-SRS Sta. 25+36.61
-Y30RPB-CS Sta. 23+33.61
-Y30RPB-ST Sta. 21+30.61
-Y30RPB-TS Sta. 19+27.61
-Y30RPB-SC Sta. 17+24.61
-Y30RPB-CS Sta. 15+21.61
-Y30RPB-SRS Sta. 13+18.61
-Y30RPB-PT Sta. 12+18.61
-Y30SPURB-POT Sta. 10+00.00=
-Y30LPB-POC Sta. 30+33.67
OFF=12'
-Y30LPB-CS Sta. 32+26.08
-Y30LPB-ST Sta. 34+26.08=
-Y30-POT Sta. 29+11.28
OFF=40'
-Y30LPB-POT Sta. 19+61.49=
-Y30-POT Sta. 30+49.30
-Y30LPB-TS Sta. 20+24.34
-Y30LPB-SC Sta. 24+24.34
-Y30LPB-ST Sta. 18+29.26
-Y30LPB-CS Sta. 16+79.26
-Y30LPB-SC Sta. 14+75.92
-Y30LPB-TS Sta. 13+25.92
-Y30LPB-POT Sta. 7+08.49=
-SB-POC Sta. 1438+87.45
OFF=83' LT
-Y30C-PT Sta. 16+43.34
-Y30-POT Sta. 25+31.67=
-Y30RPB-POT Sta. 33+03.87
-Y30-POT Sta. 25+69.91=
-Y30SPURB-POT Sta. 12+77.20
-Y30C-POT Sta. 10+00.00
-Y30C-PC Sta. 12+34.29
-Y30C-PT Sta. 13+08.75
-Y30C-POT Sta. 15+03.55
-Y30RPC-PRC Sta. 25+17.35
-Y30-POC Sta. 34+73.61=
-Y30RPC-POT Sta. 31+58.00
-Y30RPD-POT Sta. 29+72.26
-Y30RPC-PT Sta. 30+41.60
-Y30RPD-PT Sta. 26+97.26
-Y30RPD-SC Sta. 25+47.02
-Y30RPD-CS Sta. 22+47.02
-Y30RPD-SRS Sta. 23+97.02
-Y30A-PC Sta. 19+54.75
-Y30A-PT Sta. 14+78.08
-Y30A-PC Sta. 11+20.16
-LB-TS Sta. 1420+32.82
-LB-SC Sta. 1423+32.82
-LB-POC Sta. 1426+57.35=
-Y30-POT Sta. 31+98.70

CELL TOWER & GRAVEL DRIVE (BY OTHERS)

SEE PERMIT DRAWING SHEET 65 OF 112 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 66 OF 112 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 67 OF 112 FOR ENLARGEMENT

SITE 25
SITE 27
SITE 28
SITE 29

Pond WJI

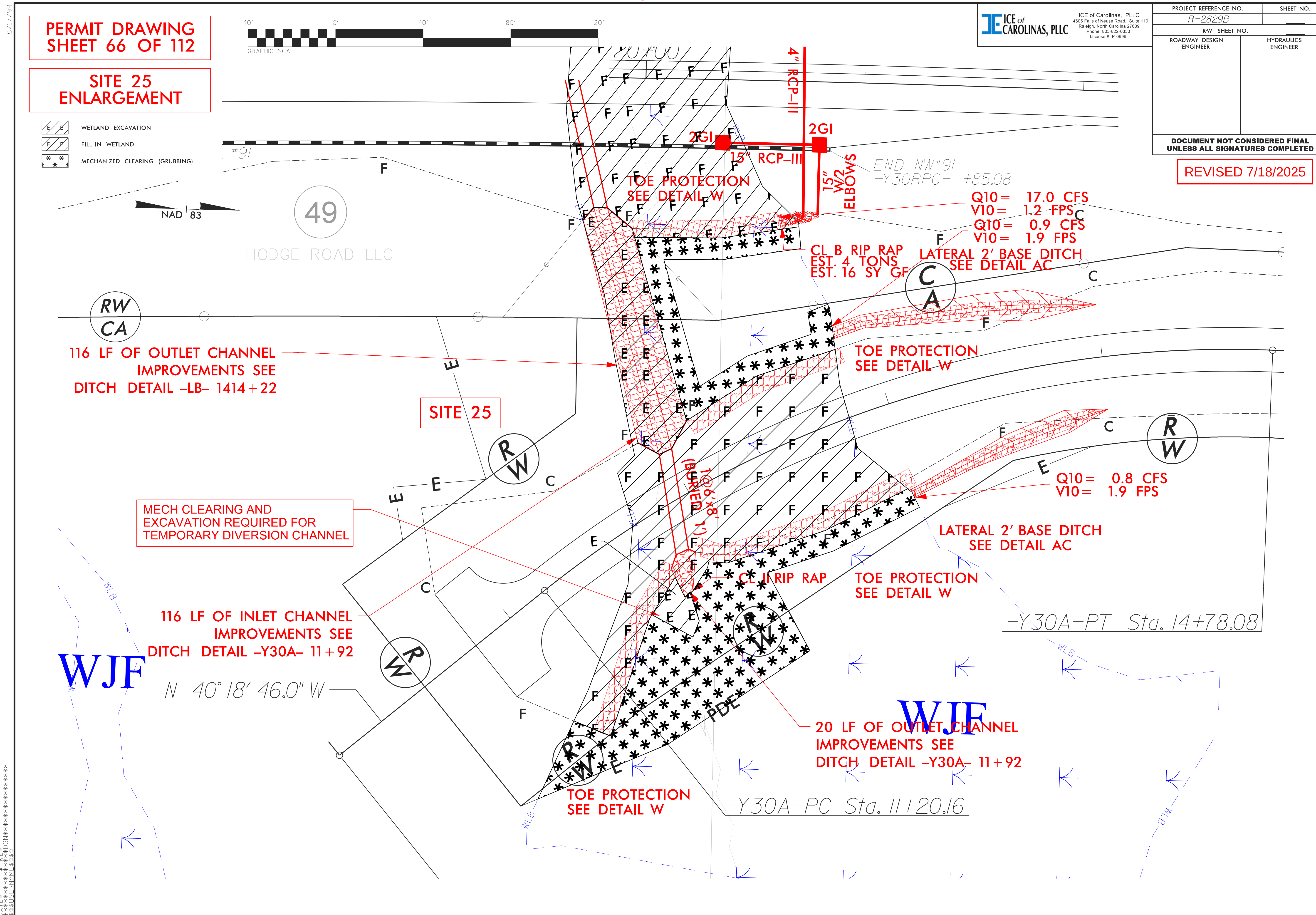
MATCHLINE -LB- STA. 1417+00.00 SEE SHEET 18
MATCHLINE -Y30RPC- STA. 17+00.00 SEE SHEET 18
MATCHLINE -LB- STA. 1440+00.00 SEE SHEET 20
MATCHLINE -Y30RPD- STA. 16+00.00 SEE SHEET 20
MATCHLINE -Y30A- STA. 22+00.00 SEE SHEET 35
MATCHLINE -Y30- STA. 38+00.00 SEE SHEET 35

TEMPORARY STREAM IMPACT CHANGED TO PERMANENT IN THIS LOCATION TO ACCOUNT FOR TRENCHED INSTALLATION OF UTILITY LINES

PROPOSED SIGNAL

FOR –LB– CURVE DATA SEE SHT. 3A–1	FOR –LB– PROFILE SEE SHTS. 52 & 53
FOR –Y30– CURVE DATA SEE SHT. 3A–1	FOR –Y30– PROFILE SEE SHTS. 67 & 68
FOR –Y30LPB– CURVE DATA SEE SHT. 3A–2	FOR –Y30LPB– PROFILE SEE SHTS. 69 & 70
FOR –Y30RPB– CURVE DATA SEE SHT. 3A–2	FOR –Y30RPB– PROFILE SEE SHTS. 70 & 71
FOR –Y30RPC– CURVE DATA SEE SHT. 3A–2	FOR –Y30RPC– PROFILE SEE SHTS. 71 & 72
FOR –Y30RPD– CURVE DATA SEE SHT. 3A–2	FOR –Y30RPD– PROFILE SEE SHTS. 72 & 73
FOR –Y30A– CURVE DATA SEE SHT. 3A–2	FOR –Y30A– PROFILE SEE SHTS. 73 & 74
FOR –Y30G– CURVE DATA SEE SHT. 3A–2	FOR –Y30G– PROFILE SEE SHT. 75

GRAPHIC SCALE 50 25 0 50 100 PLANS


PERMIT DRAWING
SHEET 66 OF 112
SITE 25
ENLARGEMENT
WETLAND EXCAVATION
FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)
GRAPHIC SCALE
NAD 83
ICE of CAROLINAS, PLLC
PROJECT REFERENCE NO.
SHEET NO.
R-2829B
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
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REVISED 7/18/2025
49
HODGE ROAD LLC
4" RCP-III
2GI
2GI
15" RCP-III
15" W/2 ELBOWS
END NW#91
-Y30RPC- +85.08
TOE PROTECTION
SEE DETAIL W
Q10 = 17.0 CFS
V10 = 1.2 FPS
Q10 = 0.9 CFS
V10 = 1.9 FPS
CL B RIP RAP
EST. 4 TONS
EST. 16 SY GF
LATERAL 2' BASE DITCH
SEE DETAIL AC
116 LF OF OUTLET CHANNEL
IMPROVEMENTS SEE
DITCH DETAIL -LB- 1414+22
SITE 25
TOE PROTECTION
SEE DETAIL W
Q10 = 0.8 CFS
V10 = 1.9 FPS
MECH CLEARING AND
EXCAVATION REQUIRED FOR
TEMPORARY DIVERSION CHANNEL
LATERAL 2' BASE DITCH
SEE DETAIL AC
CL II RIP RAP
TOE PROTECTION
SEE DETAIL W
116 LF OF INLET CHANNEL
IMPROVEMENTS SEE
DITCH DETAIL -Y30A- 11+92
-Y30A-PT Sta. 14+78.08
WJF
N 40° 18' 46.0" W
20 LF OF OUTLET CHANNEL
IMPROVEMENTS SEE
DITCH DETAIL -Y30A- 11+92
WJF
TOE PROTECTION
SEE DETAIL W
-Y30A-PC Sta. 11+20.16
PDE

Submitted September 30, 2025

PERMIT DRAWING
SHEET 68 OF 112

GRAPHIC SCALE 100' 0' 100' 200' 300'

FILL IN WETLAND
SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
TEMPORARY SURFACE WATER IMPACTS
SURFACE WATER IMPACTS POND
WETLAND EXCAVATION

–Y30– (SR 1007) POOLE RD.
15,700 29,400
3,000 3,400
7,900 12,600
21,300 39,600
NC 540
34,800 66,600
3,200 4,100
11,900 21,900
20,000 39,400
–Y30– (SR 1007) POOLE RD.
2025 ADT 2045 ADT

MECH CLEARING AND EXCAVATION REQUIRED FOR TEMPORARY DIVERSION CHANNEL

PAL
SEE PERMIT DRAWING SHEET 65 OF 112 FOR ENLARGEMENT

MATCHLINE –Y30– STA. 23+00.00
SEE SHEET 34

NAD 83

ICE of CAROLINAS, PLLC

PROJECT REFERENCE NO.	SHEET NO.
R-2829B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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(Non–404, buffered)
WAAC
SAAB
WAAB
(Non–404)
PAAB
CELL TOWER & GRAVEL DRIVE (BY OTHERS)
DRAIN POND
Pond WJI

SITE 25
SITE 27
SITE 28
SITE 29

SEE PERMIT DRAWING SHEET 66 OF 112 FOR ENLARGEMENT

MECH CLEARING AND EXCAVATION REQUIRED FOR TEMPORARY DIVERSION CHANNEL

SEE PERMIT DRAWING SHEET 67 OF 112 FOR ENLARGEMENT

MATCHLINE –Y30A– STA. 22+00.00 SEE SHEET 35
MATCHLINE –Y30– STA. 38+00.00 SEE SHEET 35
MATCHLINE –LB STA. 1417+00.00 SEE SHEET 18
MATCHLINE –Y30RPC– STA. 17+00.00 SEE SHEET 18
MATCHLINE –LB STA. 1440+00.00 SEE SHEET 20
MATCHLINE –Y30RPD– STA. 16+00.00 SEE SHEET 20

TEMPORARY STREAM IMPACT CHANGED TO PERMANENT IN THIS LOCATION TO ACCOUNT FOR TRENCHED INSTALLATION OF UTILITY LINES

★ PROPOSED SIGNAL

FOR –LB– CURVE DATA SEE SHT. 3A–1
FOR –Y30– CURVE DATA SEE SHT. 3A–1
FOR –Y30LPB– CURVE DATA SEE SHT. 3A–2
FOR –Y30RPB– CURVE DATA SEE SHT. 3A–2
FOR –Y30RPC– CURVE DATA SEE SHT. 3A–2
FOR –Y30RPD– CURVE DATA SEE SHT. 3A–2
FOR –Y30A– CURVE DATA SEE SHT. 3A–2
FOR –Y30G– CURVE DATA SEE SHT. 3A–2

FOR –LB– PROFILE SEE SHTS. 52 & 53
FOR –Y30– PROFILE SEE SHTS. 67 & 68
FOR –Y30LPB– PROFILE SEE SHTS. 69 & 70
FOR –Y30RPB– PROFILE SEE SHTS. 70 & 71
FOR –Y30RPC– PROFILE SEE SHTS. 71 & 72
FOR –Y30RPD– PROFILE SEE SHTS. 72 & 73
FOR –Y30A– PROFILE SEE SHTS. 73 & 74
FOR –Y30G– PROFILE SEE SHT. 75

GRAPHIC SCALE 50 25 0 50 100 PLANS

Submitted September 30, 2025

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2829B	___
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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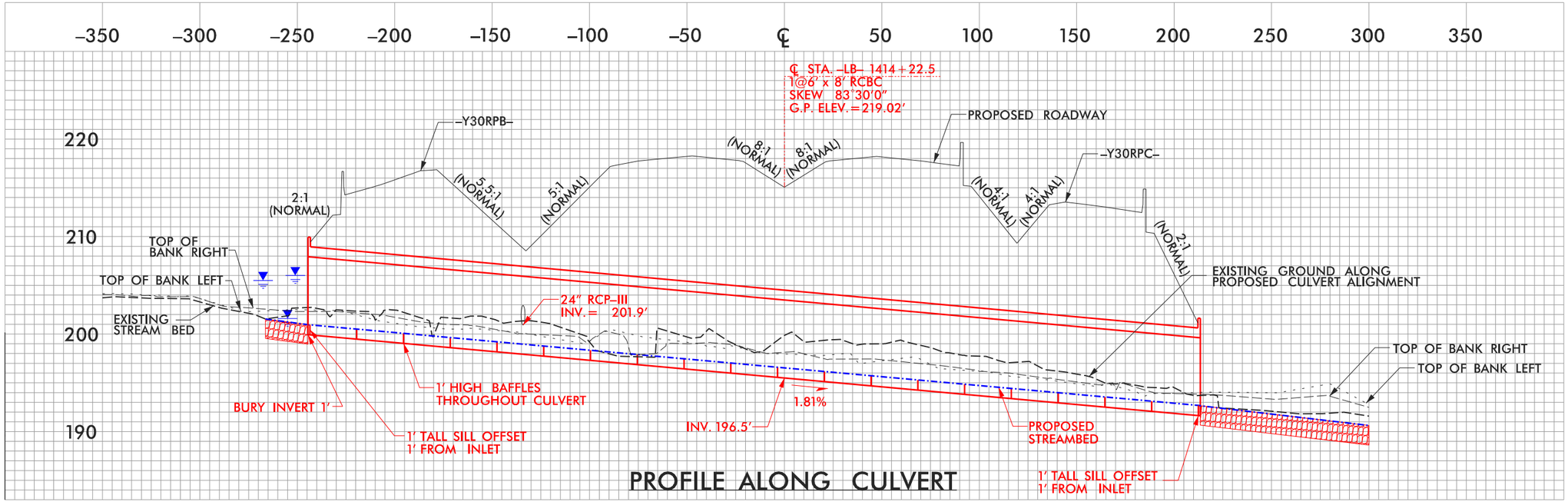
PERMIT DRAWING
SHEET 69 OF 112

REVISED 7/18/2025

SITE 25



PROFILE ALONG CULVERT

$DATE$ $TIME$
$$$$USERNAME$$$$DGN$$$$$$$$$$$$$$$$$$$$

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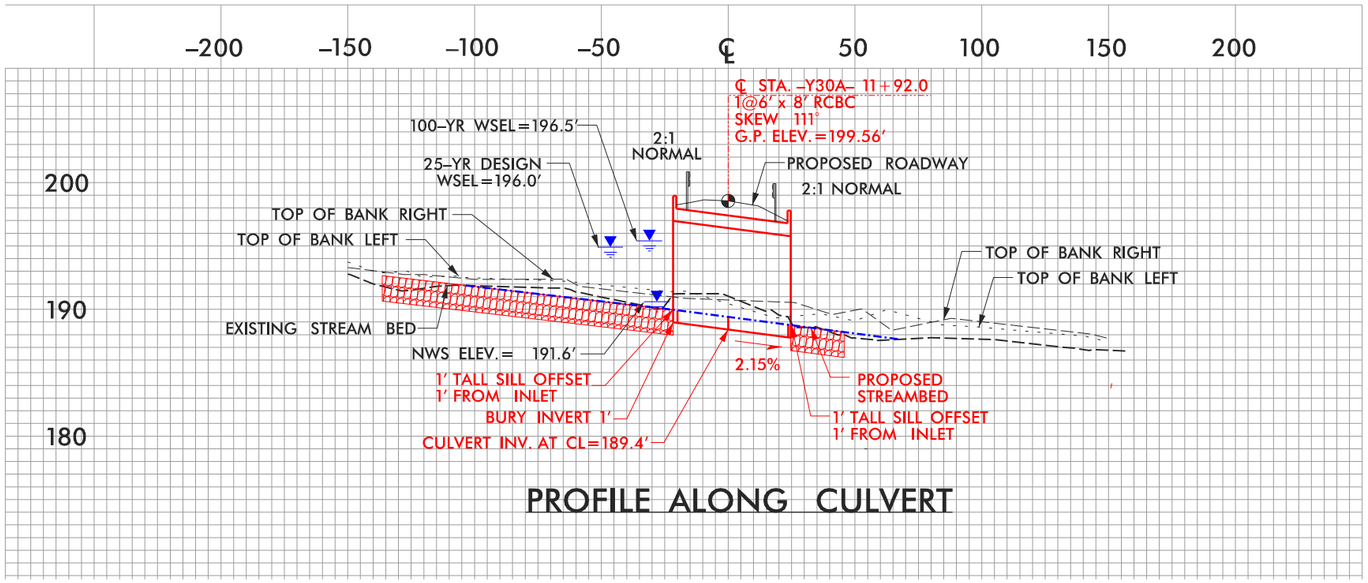
SHEET 70 OF 112

SITE 25



PROFILE ALONG CULVERT

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6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-2829B	X-112

SITE 25

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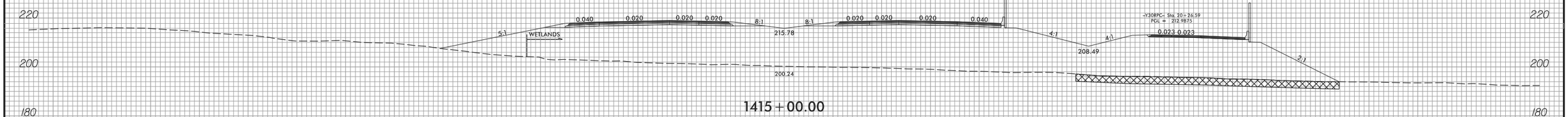
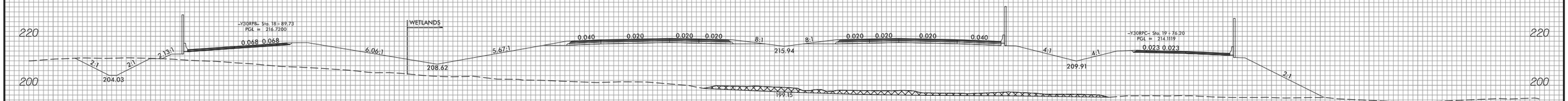
SHEET 73 OF 112

REVISED 7/18/2025

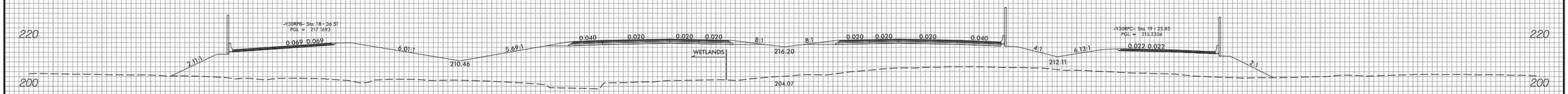
300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300



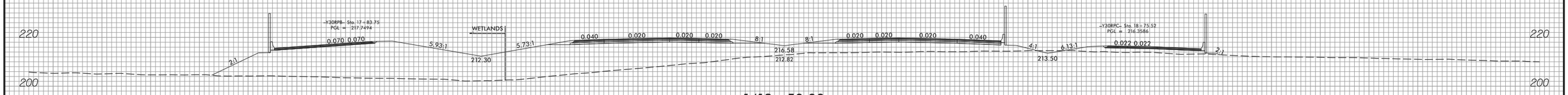
1415+00.00



1414+50.00



1414+00.00



1413+50.00

UNDERCUT

—LB—

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

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SHEET 76 OF 112

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PROJECT REFERENCE NO.	SHEET NO.
R-2829B	20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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GRAPHIC SCALE 100' 0' 100' 200' 300'

FILL IN WETLAND
SURFACE WATER IMPACTS
SURFACE WATER IMPACTS POND
MECHANIZED CLEARING (GRUBBING)
TEMPORARY SURFACE WATER IMPACTS
TEMPORARY FILL IN WETLAND
HAND CLEARING (NON-GRUBBING)
WETLAND EXCAVATION

TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION ONLY

NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE

NAD 83

SITE 33

SITE 32

SITE 31

SEE PERMIT DRAWING SHEET 79 OF 112 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 78 OF 112 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 77 OF 112 FOR ENLARGEMENT

MATCHLINE –Y31RPB– STA. 27+00.00 SEE SHEET 21

MATCHLINE –LB– STA. 1467+00.00 SEE SHEET 21

MATCHLINE –LB– STA. 1440+00.00 SEE SHEET 19

MATCHLINE –Y30RPD– STA. 16+00.00 SEE SHEET 19

JURISDICTIONAL FEATURES WITHIN EXISTING RIGHT OF WAY EXTEND BEYOND THE LIMITS SHOWN

DESPITE BEING WITHIN NCDOT R/W, CONTRACTOR IS NOT PERMITTED TO USE THIS AREA FOR STAGING, AS THE STREAM AND WETLAND HAVE NOT BEEN PERMITTED FOR THIS

CAUSEWAY DETAIL
WETLANDS BRIDGE

FOR –LB– CURVE DATA SEE SHT. 3A–1
FOR –Y30RPD– CURVE DATA SEE SHT. 3A–2
FOR –Y31RPB– CURVE DATA SEE SHT. 3A–2
FOR –Y31RPC– CURVE DATA SEE SHT. 3A–2
FOR –Y31FLYDB– CURVE DATA SEE SHT. 3A–2
FOR –Y31A– CURVE DATA SEE SHT. 3A–2

FOR –LB– PROFILE SEE SHTS. 53 & 54
FOR –Y30RPD– PROFILE SEE SHT. 72
FOR –Y31RPB– PROFILE SEE SHT. 78
FOR –Y31RPC– PROFILE SEE SHT. 78
FOR –Y31FLYDB– PROFILE SEE SHTS. 83 & 84
FOR –Y31A– PROFILE SEE SHT. 84
FOR –Y31B– PROFILE SEE SHT. 84

GRAPHIC SCALE 50 25 0 50 100 PLANS

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PERMIT DRAWING
SHEET 77 OF 112

SITE 31 & 32
ENLARGEMENT

F F FILL IN WETLAND

* * MECHANIZED CLEARING (GRUBBING)

HC HC HAND CLEARING (NON-GRUBBING)

▨ TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION ONLY

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R/W SHEET NO.	
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SHEET 78 OF 112

SITE 32
ENLARGEMENT

TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION ONLY

20

F F	FILL IN WETLAND
S S	SURFACE WATER IMPACTS
* *	MECHANIZED CLEARING (GRUBBING)
TS TS	TEMPORARY SURFACE WATER IMPACTS
T T	TEMPORARY FILL IN WETLAND
HC HC	HAND CLEARING (NON–GRUBBING)
E E	WETLAND EXCAVATION

NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE

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REVISED 7/18/2025

40 LF OF OUTLET CHANNEL IMPROVEMENTS SEE DITCH DETAIL -Y31RPB- 29+13 / -Y31FLYDB- 54+63

116 LF OF OUTLET CHANNEL IMPROVEMENTS SEE DITCH DETAIL -Y31FLYDB- 52+68

CL II RIP RAP BANK STABILIZATION DETAIL BP (NOTE 1)

CL II RIP RAP BANK STABILIZATION DETAIL BP (NOTE 1)

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8/17/99

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SHEET 79 OF 112

SITE 32
ENLARGEMENT

40' 0' 40' 80' 120'
GRAPHIC SCALE

▨ TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION ONLY

F F	FILL IN WETLAND
S S	SURFACE WATER IMPACTS
* * *	MECHANIZED CLEARING (GRUBBING)
E E	WETLAND EXCAVATION

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R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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$$$DATE$$$
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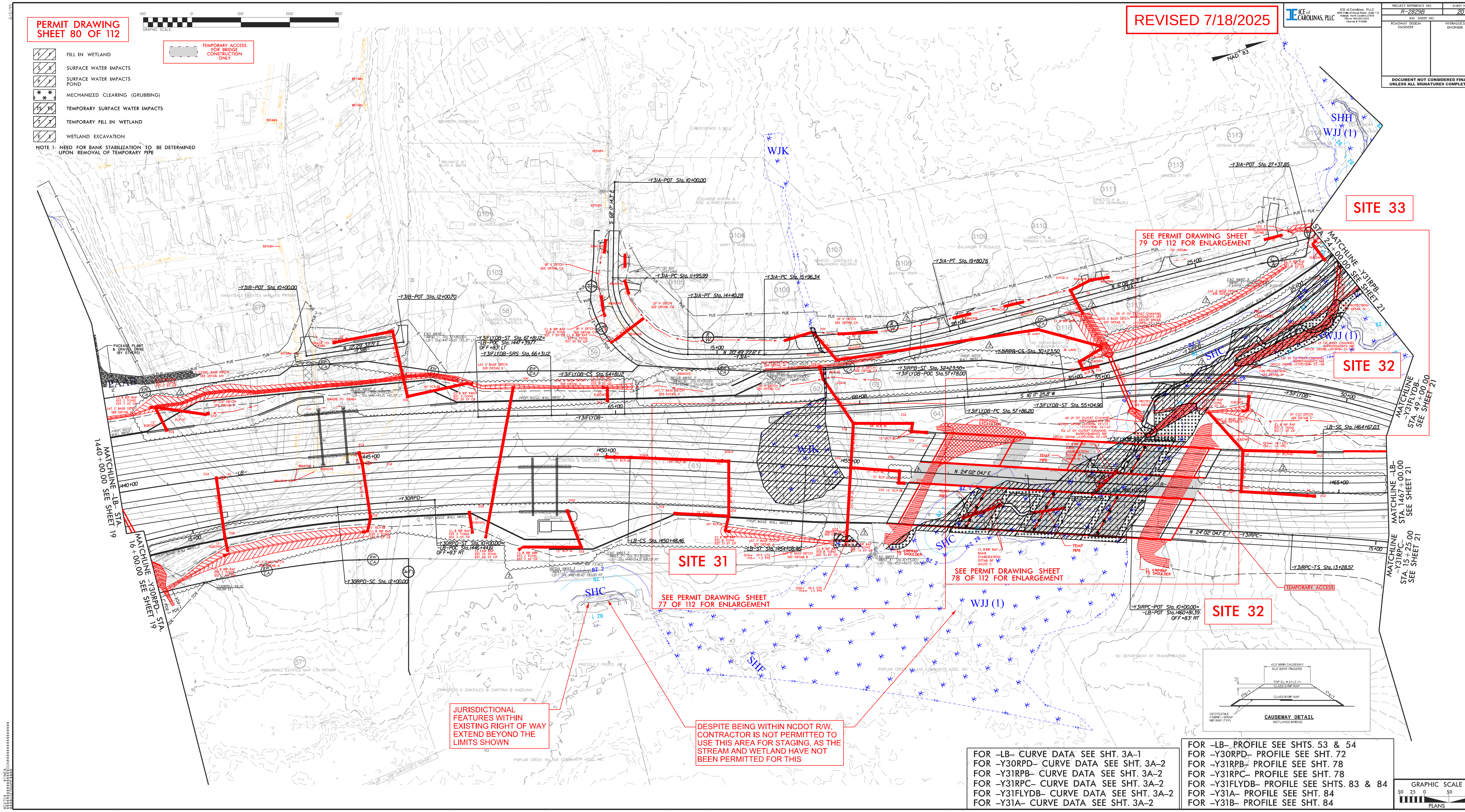
PERMIT DRAWING SHEET 80 OF 112
REVISED 7/18/2025
FILL IN WETLAND
SURFACE WATER IMPACTS
SURFACE WATER IMPACTS POND
MECHANIZED CLEARING (GRUBBING)
TEMPORARY SURFACE WATER IMPACTS
TEMPORARY FILL IN WETLAND
WETLAND EXCAVATION
NOTE 1: NEED FOR BANK STABILIZATION TO BE DETERMINED UPON REMOVAL OF TEMPORARY PIPE
TEMPORARY ACCESS FOR BRIDGE CONSTRUCTION ONLY
SITE 33
SITE 32
SITE 31
SEE PERMIT DRAWING SHEET 79 OF 112 FOR ENLARGEMENT
SEE PERMIT DRAWING SHEET 78 OF 112 FOR ENLARGEMENT
SEE PERMIT DRAWING SHEET 77 OF 112 FOR ENLARGEMENT
TEMPORARY ACCESS
WJK
SHH
WJJ (1)
SHC
SHF
MATCHLINE -LB- STA. 1440+00.00 SEE SHEET 19
MATCHLINE -Y30RPD- STA. 16+00.00 SEE SHEET 19
MATCHLINE -Y31RPB- STA. 24+00.00 SEE SHEET 21
MATCHLINE -Y31FLYDB- STA. 49+00.00 SEE SHEET 21
MATCHLINE -LB- STA. 1467+00.00 SEE SHEET 21
MATCHLINE -Y31RPC- STA. 15+25.00 SEE SHEET 21
JURISDICTIONAL FEATURES WITHIN EXISTING RIGHT OF WAY EXTEND BEYOND THE LIMITS SHOWN
DESPITE BEING WITHIN NCDOT R/W, CONTRACTOR IS NOT PERMITTED TO USE THIS AREA FOR STAGING, AS THE STREAM AND WETLAND HAVE NOT BEEN PERMITTED FOR THIS
CAUSEWAY DETAIL
FOR -LB- CURVE DATA SEE SHT. 3A-1
FOR -Y30RPD- CURVE DATA SEE SHT. 3A-2
FOR -Y31RPB- CURVE DATA SEE SHT. 3A-2
FOR -Y31RPC- CURVE DATA SEE SHT. 3A-2
FOR -Y31FLYDB- CURVE DATA SEE SHT. 3A-2
FOR -Y31A- CURVE DATA SEE SHT. 3A-2
FOR -LB- PROFILE SEE SHTS. 53 & 54
FOR -Y30RPD- PROFILE SEE SHT. 72
FOR -Y31RPB- PROFILE SEE SHT. 78
FOR -Y31RPC- PROFILE SEE SHT. 78
FOR -Y31FLYDB- PROFILE SEE SHTS. 83 & 84
FOR -Y31A- PROFILE SEE SHT. 84
FOR -Y31B- PROFILE SEE SHT. 84
GRAPHIC SCALE
PLANS
ICE of CAROLINAS, PLLC
R-2829B
20
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8/17/99

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R-2829B	____
R/W SHEET NO.	____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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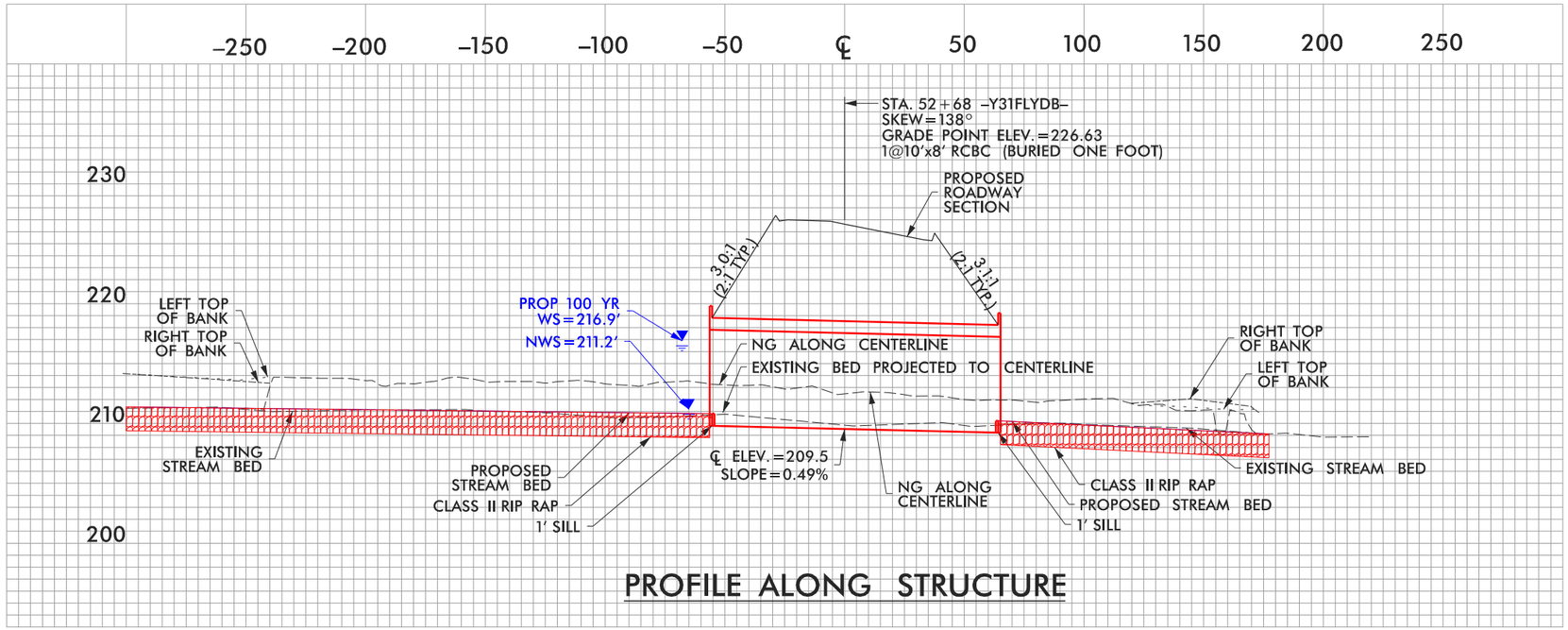
SHEET 81 OF 112

REVISED 7/18/2025

SITE 32



PROFILE ALONG STRUCTURE

$DATE$ $TIME$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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SHEET 83 OF 112

FLATIRON
FRED SMITH COMPANY

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PROJECT REFERENCE NO.	SHEET NO.
R-2829B	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISED 7/18/2025

REVISIONS
5/2/2025: UPDATED BRIDGE STATION CALLOUTS TO MATCH FINAL BRIDGE PLANS.

-LB-

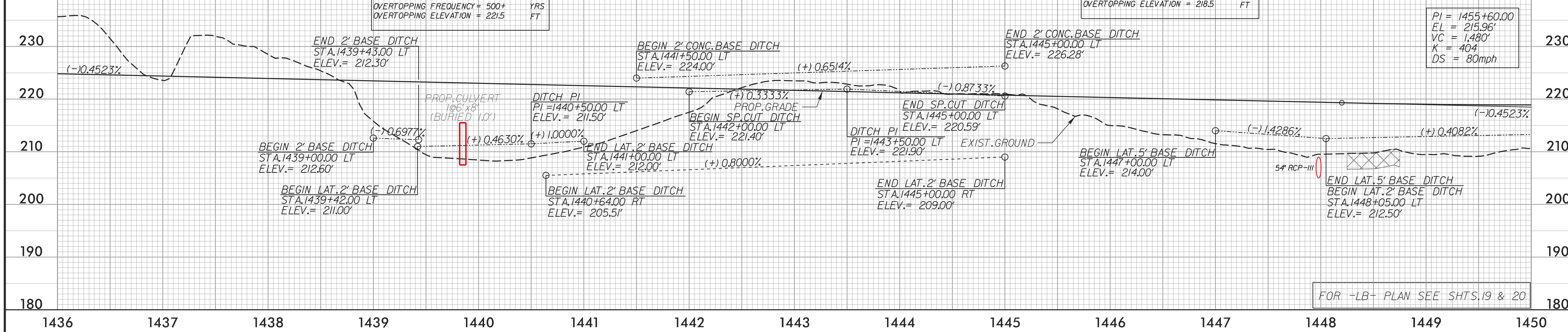
BM#29 ELEVATION = 228.40'
LB STA 1446+21.59 368.23' LEFT

STRUCTURE HYDRAULIC DATA
1 @ 6'X8' RCBC -LB- STA.1439+85

DESIGN DISCHARGE	=	240	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	217.4	FT
BASE DISCHARGE	=	240	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	217.4	FT
OVERTOPPING DISCHARGE	=	530	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	221.5	FT

PIPE HYDRAULIC DATA
54" RCP-III -LB- STA.1447+98

DRAINAGE AREA	=	24.3	AC
DESIGN DISCHARGE	=	90	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	217.0	FT
100 YEAR DISCHARGE	=	90	CFS
100 YEAR HW ELEVATION	=	217.0	FT
OVERTOPPING DISCHARGE	=	130	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	218.5	FT



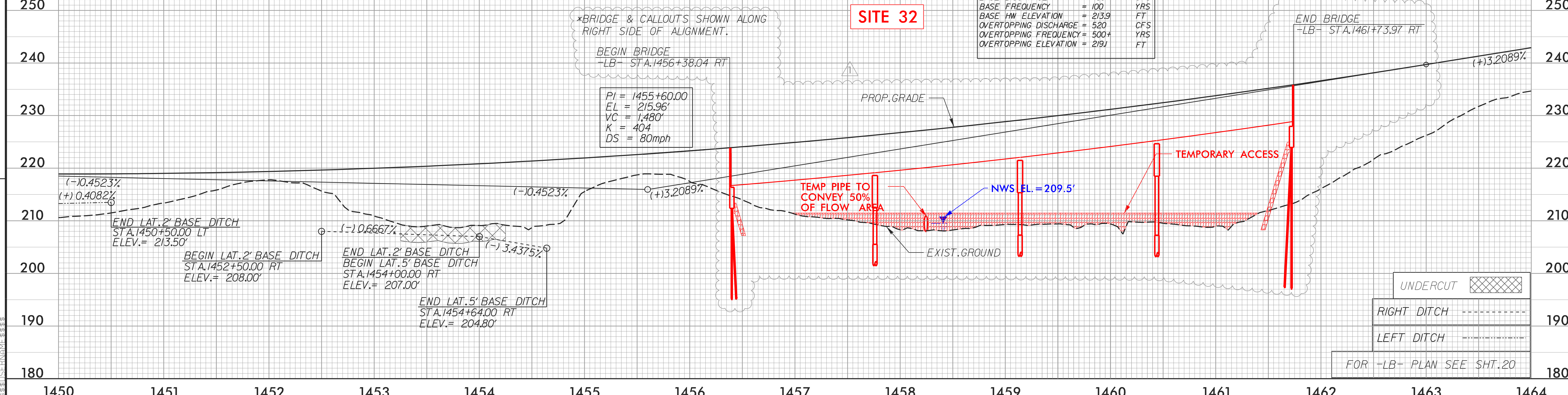
270
260
250
240
230
220
210
200
190
180
PI = 1455+60.00
EL = 215.96'
VC = 1,480'
K = 404
DS = 80mph
(-)0.4523%
END 2' BASE DITCH
STA.1439+43.00 LT
ELEV.= 212.30'
PROP. CULVERT
1@6'x8'
(BURIED 1.0')
DITCH PI
PI =1440+50.00 LT
ELEV.= 211.50'
BEGIN 2' CONC.BASE DITCH
STA.1441+50.00 LT
ELEV.= 224.00'
(+) 0.6514%
END 2' CONC.BASE DITCH
STA.1445+00.00 LT
ELEV.= 226.28'
(+) 0.3333%
PROP. GRADE
(-) 0.8733%
BEGIN SP.CUT DITCH
STA.1442+00.00 LT
ELEV.= 221.40'
END SP.CUT DITCH
STA.1445+00.00 LT
ELEV.= 220.59'
DITCH PI
PI =1443+50.00 LT
ELEV.= 221.90'
EXIST. GROUND
(-)0.6977%
(+) 0.4630%
(+) 1.0000%
END LAT.2' BASE DITCH
STA.1441+00.00 LT
ELEV.= 212.00'
(+) 0.8000%
BEGIN 2' BASE DITCH
STA.1439+00.00 LT
ELEV.= 212.60'
BEGIN LAT.2' BASE DITCH
STA.1439+42.00 LT
ELEV.= 211.00'
BEGIN LAT.2' BASE DITCH
STA.1440+64.00 RT
ELEV.= 205.51'
END LAT.2' BASE DITCH
STA.1445+00.00 RT
ELEV.= 209.00'
BEGIN LAT.5' BASE DITCH
STA.1447+00.00 LT
ELEV.= 214.00'
(-) 1.4286%
(+) 0.4082%
(-)0.4523%
54" RCP-III
END LAT.5' BASE DITCH
BEGIN LAT.2' BASE DITCH
STA.1448+05.00 LT
ELEV.= 212.50'
FOR -LB- PLAN SEE SHTS.19 & 20
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450

-LB-

SITE 32

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	460	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	213.9	FT
BASE DISCHARGE	=	460	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	213.9	FT
OVERTOPPING DISCHARGE	=	520	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	219.1	FT



270
260
250
240
230
220
210
200
190
180
*BRIDGE & CALLOUTS SHOWN ALONG RIGHT SIDE OF ALIGNMENT.
BEGIN BRIDGE
-LB- STA.1456+38.04 RT
END BRIDGE
-LB- STA.1461+73.97 RT
PI = 1455+60.00
EL = 215.96'
VC = 1,480'
K = 404
DS = 80mph
PROP. GRADE
(+)3.2089%
TEMPORARY ACCESS
TEMP PIPE TO CONVEY 50% OF FLOW AREA
NWS EL. = 209.5'
EXIST. GROUND
(-)0.4523%
(+) 0.4082%
(-)0.4523%
(+)3.2089%
END LAT.2' BASE DITCH
STA.1450+50.00 LT
ELEV.= 213.50'
BEGIN LAT.2' BASE DITCH
STA.1452+50.00 RT
ELEV.= 208.00'
(-) 0.6667%
END LAT.2' BASE DITCH
BEGIN LAT.5' BASE DITCH
STA.1454+00.00 RT
ELEV.= 207.00'
(-) 3.4375%
END LAT.5' BASE DITCH
STA.1454+64.00 RT
ELEV.= 204.80'
UNDERCUT
RIGHT DITCH
LEFT DITCH
FOR -LB- PLAN SEE SHT.20
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464

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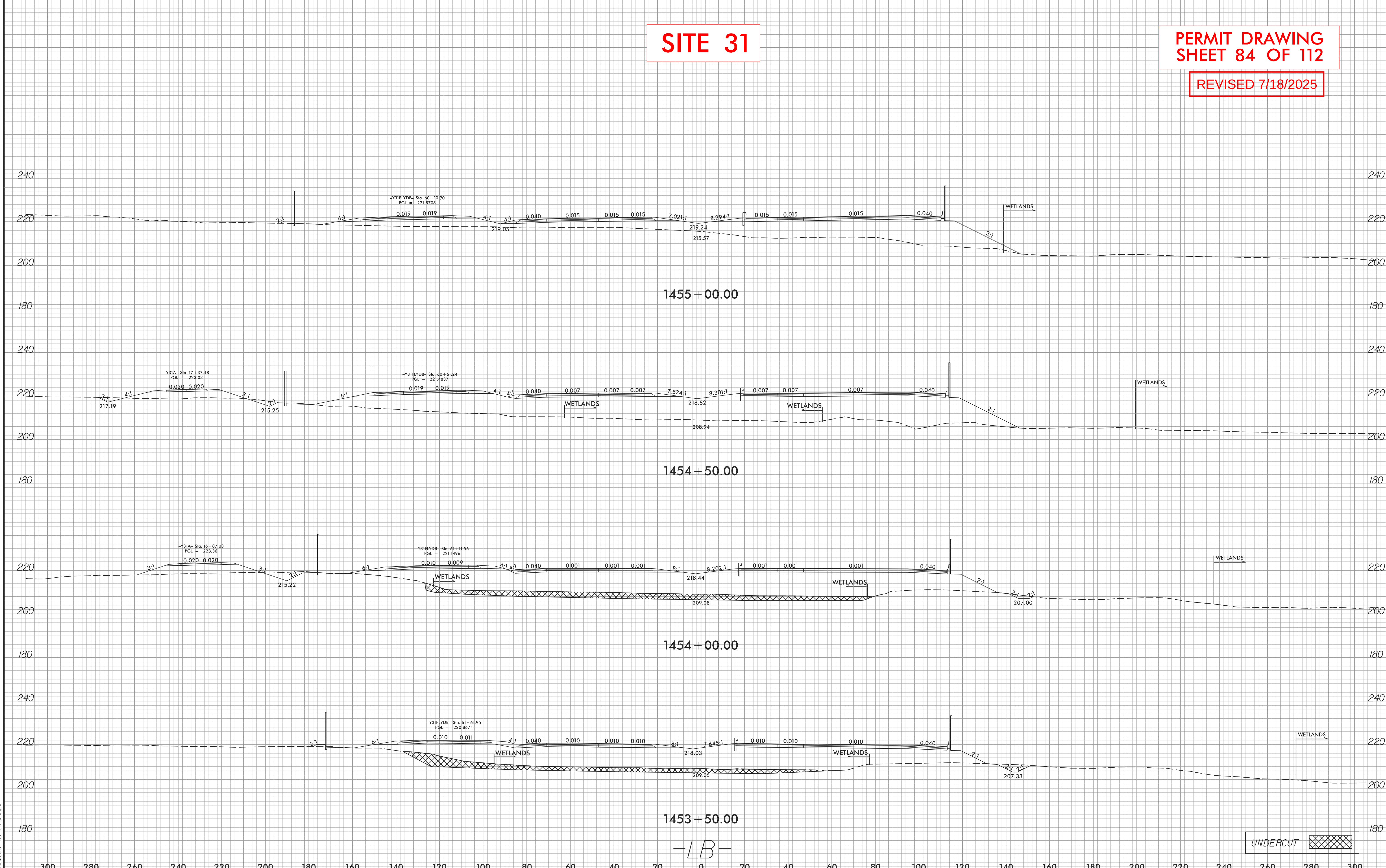
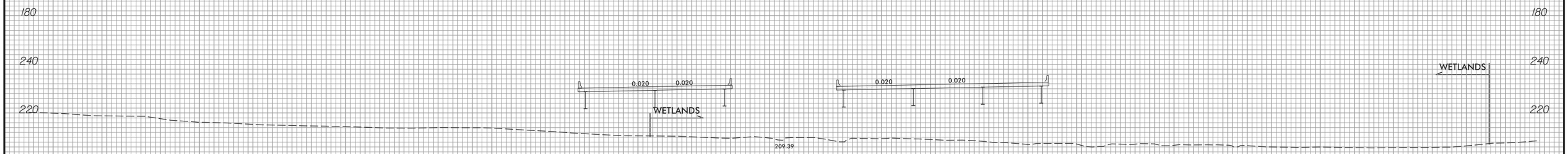
PROJ. REFERENCE NO.	SHEET NO.
R-2829B	X-132

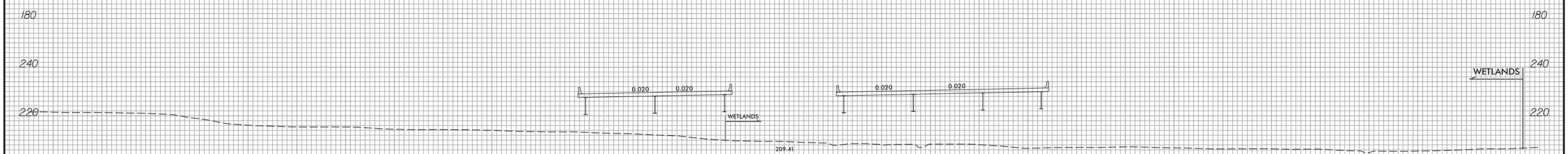
SITE 31

PERMIT DRAWING
SHEET 84 OF 112

REVISED 7/18/2025







Submitted September 30, 2025

PROJ. REFERENCE NO.	SHEET NO.
R-2829B	X-135

6/23/16

SITE 32

PERMIT DRAWING
SHEET 85 OF 112

REVISED 7/18/2025

Submitted September 30, 2025

WETLAND AND SURACE WATER IMPACTS SUMMARY

				WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Wetland and/or Stream ID	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 1197+22/1198+69, M	ROADWAY FILL	WHH	0.143									
2	-Y27-RPD- 18+86/20+85, LT	EMB. EXCAVATION	WHQ			0.021	0.031						
3	-Y27-RPA- 12+57/22+32, RT	FILL (POND)	WHR, PAH	0.037					7.078				
4	-Y27-RPA- 21+68/23+22, RT	DITCH EXCAVATION	WRV, SOR	0.043		0.040				0.002		34	
5	-Y27-RPA- 13+89/17+08, RT	FILL	WAAH	0.095									
6	-Y27-RPA- 11+97/12+09, RT	DITCH	WHS,SAAM	0.024			0.003			0.002		11	
6	-Y27-RPA- 11+81/12+99, RT	FILL	SGJ						0.022		160		
7	-L- 1241+61/1242+00, RT	BANK STABILIZATION	SGK						0.006	0.005	28	23	
7	-L- 1242+00/1242+30, RT	STRUCTURE STABILIZATION	SGK						0.006		39		
7	-L- 1243+18, M	2 @ 6'x8' RCBC	WHP, SGK	0.027					0.054	0.005	406	23	
7	-L- 1244+17/1244+44, LT	STRUCTURE STABILIZATION	SGK						0.013		55		
7	-L- 1244+19/1244+91, LT	STRUCTURE STABILIZATION	SGJ						0.009	0.009	44	47	
7A	-L- 1240+99/1241+32, RT	DITCH EXCAVATION	WHM				0.038						
8	-L- 1253+21/1253+29, LT	BANK STABILIZATION	SGJ						0.003	0.006	32	42	
8	-L- 1253+21/1253+29, LT	DITCH EXCAVATION	SGJ						0.001	0.001	7	7	
9	-L- 1268+92/1269+46, LT	ROADWAY FILL	WIC	0.052									
10	-Y28- 14+75, LT/RT	BANK STABILIZATION	SGJ						0.004	0.008	32	57	
11	-L- 1276+60/1277+19 RT	ROADWAY FILL	WIH	0.053									
12	-L- 1288+28/1288+34, LT	BANK STABILIZATION	SGI						0.004	0.003	22	17	
12	-L- 1288+34/1288+15, LT	STRUCTURE STABILIZATION	SGI						0.008		48		
12	-L- 1288+18, M	3 @ 7'x8' RCBC	SGI						0.087	0.023	408	105	
12	-L- 1288+11/1288+06, RT	STRUCTURE STABILIZATION	SGI						0.007		26		
12	-L- 1288+06/1288+28, RT	BANK STABILIZATION	SGI						0.014	0.002	61	5	
13	**-Y27- 25+62, LT**	**DITCH EXCAVATION**	**WHG**			**0.002**	**0.006**						
14	-LB- 1315+04 TO 1315+72 LT	CHANNEL REALIGNMENT	WIP			0.002	0.011						
14	-LB- 1316+80 TO 1320+05 M	CHANNEL REALIGNMENT	WIQ, SGR	0.044		0.011			0.036		442		
15	-LB- 1320+03 TO 1321+42 M	BRIDGE	Neuse River						0.005	0.009	20	51	
15	-LB- 1320+87 TO 1321+76 M	BRIDGE CAUSEWAY	Neuse River							0.300		220	
15	-LB- 1319+95 TO 1321+83 M	BANK STABILIZATION	Neuse River						0.016	0.019	76	108	
16	-LB- 1323+35 TO 1323+55 RT	DITCH	SGT						0.002	0.001	10	12	
TOTALS*:				0.518	0.000	**0.076**	**0.089**	0.000	7.375	0.395	1916	762	

*Rounded totals are sum of actual impacts

NOTES:

SITE 15 WETLAND WIR IS NON-404

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/14/2024 (REV 7/18/2025)
WAKE COUNTY

R-2829B

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Wetland and/or Stream ID	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
17	-Y29RPA- 28+45 TO 27+03 LT	ROADWAY FILL	WIU	0.118			0.031						
18	-LB- 1343+75 TO 1348+35 M**	BRIDGE CAUSEWAY	SGU, WIW	0.615		0.028	0.113			**0.007**		**73**	
18	-LB- 1345+30 TO 1346+41 M	BANK STABILIZATION	SGU						**0.071**	**0.016**	**306**	**36**	
19	-Y29RPA- 19+91 TO 22+80 M ***	BRIDGE/CHANNEL CHANGE	WIV	0.066		0.133	0.115						
20	-LB- 1348+26 TO 1354+79 M	ROADWAY FILL	SGV, WIX	0.001		0.001	0.021		0.036	0.001	793	12	
21	-LB- 1373+42 TO 1374+06 RT	ROADWAY FILL	WIY	0.089			0.032						
22	-LB- 1377+53 TO 1382+16 M	ROADWAY FILL	SGY, WIZ	0.181					0.021		309		
22	-LB- 1381+13 TO 1381+24 LT	COUNTERSUNK RIPRAP	SGY						0.002	0.001	28	10	
22	-LB- 1381+15 TO 1381+55 LT	ROADWAY FILL	WJA	0.002		0.003	0.036						
22	-LB- 1377+53 TO 1380+76 RT	ROADWAY FILL (POND)	PAI						1.679				
23	-LB- 1390+22 TO 1390+64 RT	ROADWAY FILL	WJB				0.011						
23	-LB- 1388+53 TO 1394+71 M	ROADWAY FILL (POND)	PAK						4.543				
24	-LB- 1404+10 TO 1405+75 M	1 @ 6'x8' RCBC	SHA, WJD	0.357		**0.039**	**0.044**		0.023		290		
24	-LB- 1404+71 TO 1404+82 RT	COUNTERSUNK RIPRAP	SHA						0.001	0.001	15	11	
25	-LB- 1412+45 TO 1415+37 M	1 @ 6'x8' RCBC	SHB, WJD	1.232		0.039	0.102		0.003		48		
25	-LB- 1413+94 LT	COUNTERSUNK RIPRAP	SHB							0.001	8	13	
25	-Y30A- 10+58 TO 12+97 M	1 6'x8'	SHD	**0.209**		**0.042**	**0.156**						
27	-Y30- 22+73 TO 37+02 M	ROADWAY FILL	SHC	0.271					0.171		1804		
27	-Y30- 22+79 RT	COUNTERSUNK RIPRAP	SHC						0.001	0.001	10	10	
28	-Y30- 36+94 TO 37+96 M	2 @ 12'x11'	SHC						0.041		174		
28	-Y30- 37+24 TO 37+64 LT	COUNTERSUNK RIPRAP	SHC						0.029	0.003	83	9	
28	-Y30- 37+21 TO 38+01 RT	CHANNEL CHANGE	SHC						0.015		39		
28	-Y30A- 21+58 TO 22+00 M	3 @ 12'x11'	SHC						0.022		48		
28	-Y30A- 21+64 TO 21+94 RT	COUNTERSUNK RIPRAP	SHC						0.015		30		
28	-Y30A- 21+37 TO 22+00 RT	BANK STABILIZATION	SHC						0.031	0.005	65	10	
29	-Y30RPD- 25+73 TO 25+06 LT	ROADWAY FILL	SHE						0.024		173		
29	-LB- 1431+22 TO 1432+16 M	ROADWAY FILL (POND)	POND WJI						0.106				
TOTALS*:				**3.141**	0.000	**0.285**	**0.661**	0.000	**6.834**	**0.036**	**4223**	**184**	

*Rounded totals are sum of actual impacts

NOTES:
** SITE 18 Mechanized clearing total has been calculated for the worst-case scenario of losing entire wetland WIW
*** SITE 19 There will be temporary fill placed in the 0.003 ac. under the causeway which will be removed post-construction

SITE 26 CONTAINS NO WET IMPACTS AND HAS BEEN OMITTED FROM SUMMARY
SITE 30 CONTAINS NO WET IMPACTS AND HAS BEEN OMITTED FROM SUMMARY

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/14/2024 (REV 09/27/2025
WAKE COUNTY

R-2829B

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Wetland and/or Stream ID	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
31	-LB- 1453+07 TO 1454+88 M	ROADWAY FILL	WJK	**0.615**			**0.015**						
32	-LB- 1456+41 TO 1461+83 M	BRIDGE / BANK STABILIZATION	SHC, WJJ(1)	0.008	0.623		0.270	0.39	**0.02**	**0.009**	**195**	**74**	
32	-LB- 1454+75 TO 1456+43 RT	ROADWAY FILL	WJJ(1)	0.013			0.034						
32	-Y31FLYDB- 51+90 TO 54+62 M	1 @ 10'x8' RCBC	SHC, WJJ(1)	**0.218**		**0.048**	**0.101**		0.032		255		
32	-Y31RPB- 23+56 TO 27+29 M	RDY FILL/CHANNEL CHANGE	SHC, WJL	0.407		0.094	0.119		0.045	0.002	319	14	
32	-Y31LPB- 17+74 TO 23+16 M	ROADWAY FILL	SHC, WJJ(1)	0.346		0.037	0.069		0.100	0.001	967	11	
32	-Y31LPB- 18+26 TO 18+67 RT	ROADWAY FILL	WJL	0.018									
33	-Y31RPB- 21+60 TO 24+06 M	1 @ 6'x8' RCBC	SHH, WJJ(1)			0.052	0.083		0.007	0.001	127	11	
34	-Y31RPC- 21+40 TO 26+00 M	ROADWAY FILL	WJJ(2)	1.052			0.120						
35	-Y31LPD- 19+31 TO 21+97 M	ROADWAY FILL	SHM, WJX	0.144						0.002		16	
35	-Y31LPD- 18+56 TO 19+86 LT	ROADWAY FILL (POND)	PAM						0.698				
35	-Y31RPD- 55+77 TO 56+11 LT	ROADWAY FILL	WJS	0.007			0.005						
36	-LB- 1516+53 TO 1516+56 LT	42" RCP-III	SAAJ								13		
36	-LB- 1516+45 TO 1516+56 LT	COUNTERSUNK RIPRAP	SAAJ						0.004		37	10	
37	-Y29- 8+37 TO 8+54 LT	RIPRAP AT EMBANKMENT	Neuse River						0.003	0.005	26	37	
38	-Y31- 76+81 TO 79+47 RT	1@9'x6' RCBC EXTENSION	SHL, WJJ(2)	0.128			0.091		0.013		31		
38	-Y31- 77+71 TO 78+03 RT	COUNTERSUNK RIPRAP	SHL						0.009		33		
38	-Y31- 77+16 TO 77+48 RT	BANK STABILIZATION	SHL						0.006	0.021	32	78	
38	-Y31- 76+91 TO 77+28 RT	ROADWAY FILL	SAAL						0.005		46		
39	-Y31RPD- 36+61 TO 40+84 RT	1@9'x6' RCBC EXTENSION	SHL, WJJ(1)	0.508		0.003	0.142		0.014		55		
39	-Y31RPD- 39+93 TO 40+03 RT	COUNTERSUNK RIPRAP	SHL						0.004	0.002	25	15	
	PAGE 110 TOTALS			0.518		**0.076**	**0.089**		7.375	0.395	1916	762	
	PAGE 111 TOTALS			**3.141**		**0.285**	**0.661**		**6.834**	**0.036**	**4223**	**184**	
TOTALS*:				**7.123**	0.623	**0.595**	**1.799**	0.390	**15.170**	**0.474**	**8300**	**1212**	

*Rounded totals are sum of actual impacts

NOTES:

WETLAND WIT (former Site 37) ON PSH 32 HAS BEEN REMOVED AND OMITTED FROM WETLAND IMPACT SUMMARY

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/14/2024 (REV 07/18/2025)
WAKE COUNTY

R-2829B

Neuse Wetland Credits Statement of Availability

September 8, 2025

Attn: Mr. Brad Chilton
NCDOT
1000 Birch Ridge Road
Raleigh, NC 27610

RE: Availability of Riparian Wetland Credits for the "R-2829B" project
Bank Name: Falling Creek Umbrella Mitigation Bank
Bank Sites: Falling Creek Mitigation Site
Bank Sponsor: Wildlands Holdings III, LLC
USACE Action ID No.: SAW-2015-00940
Permittee: NCDOT
Riparian Wetland Credits Needed: 18.264 acres
Riparian Wetland Credits Available: 18.965 acres
Neuse 03020201 River Basin

Dear Mr. Chilton,

Wildlands Holdings III, LLC, owned and operated by Wildlands Engineering, Inc., currently has sufficient stream and riparian wetland credits from the **Falling Creek Umbrella Mitigation Bank: Falling Creek Mitigation Site** to satisfy the stream and/or wetland mitigation requirements related to the above-mentioned project. The project is located within the Neuse River Basin of the service area (HUC 03020201) of the Bank.

This letter is simply a statement of availability of credits as of the date written. It is neither a guarantee of future credit availability, nor a guarantee of credit pricing. Credits are sold on a first come, first serve basis at the Bank's price at the time an invoice is requested. Please note that these credits have been reserved and paid for in advance by the NCDOT.

Final transfer of the credits will be made upon receipt of a copy of the US Army Corps of Engineers Compensatory Mitigation Responsibility Transfer Form approving the Stream and/or wetland mitigation purchase from the Bank and upon receipt of your payment to Wildlands Holdings III, LLC.

We appreciate the opportunity to assist you with your mitigation requirements. Please contact me at (704) 332-7754 x301 or cbrunick@wildlandseng.com if you have any questions or need any additional information.

Sincerely,

Camden Brunick

Camden M. Brunick
Wildlands Engineering, Inc.
Mitigation Credit Sales
cbrunick@wildlandseng.com
O: (704) 332-7754 ext. 301
M: (919) 219-6162