

Project Submittal Interim Form

Updated September 4, 2020



*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Project Type: *

- ☐ For the Record Only (Courtesy Copy)
- ☐ New Project
- ☒ Modification/New Project with Existing ID
- ☐ More Information Response
- ☐ Other Agency Comments
- ☐ Pre-Application Submittal
- ☐ Re-Issuance/Renewal Request
- ☐ Stream or Buffer Appeal

Pre-Filing Meeting Information

Before submitting this form please ensure you have submitted the Pre-Filing Meeting Request Form as we will not be able to accept your application without this important first step. The Pre-Filing Meeting Request Form is used in accordance with 40 C.F.R. Section 121.4(a) "At least 30 days prior to submitting a certification request, the project proponent shall request a pre-filing meeting with the certifying agency" and in accordance with 40 C.F.R. Section 121.5(b)(7), and (c)(5) all certification requests shall include documentation that a pre-filing meeting request was submitted to the certifying authority at least 30 days prior to submitting the certification request. Click [here](#) to read more information on when this form is needed prior to application submission or [here](#) to view the form.

Attach documentation of Pre-Filing Meeting Request here: *

R-3300B 255....
Prefiling.pdf

Date for Meeting Request * 3/18/2021

ID# 20161268 **Version** 4

Project Contact Information

Name: Mason Herndon
Who is submitting the information?

Email Address: * tmherndon@ncdot.gov

Project Information

Existing ID #: *

20161268
20170001 (no dashes)

Existing Version: *

4
1

Project Name: * Hampstead Bypass

Is this a public transportation project? *

- ☒ Yes
☐ No

Is this a DOT project? *

- ☒ Yes
☐ No

Is the project located within a NC DCM Area of Environmental Concern (AEC)? *

- ☐ Yes ☒ No ☐ Unknown

TIP#:

R-3300B

WBS#:

40237.1.1

(Applies to DOT projects only)

County (ies) *

Pender

Please upload all files that need to be submitted.

Click the upload button or drag and drop files here to attach document

R-3300B Individual Modification Pender October 21

32.81MB

2021.pdf

Only pdf or kmz files are accepted.

Describe the attachments or add comments:

Cover letter, revised permit drawings

* ☒ By checking the box and signing box below, I certify that:

- I, the project proponent, hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.
- I, the project proponent, hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I agree that submission of this online form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the online form.

Signature: *

Mark C. Riverbank, III

Submittal Date:

10/21/2021

Is filled in automatically once submitted.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

October 21, 2021

Brad Shaver
NCDOT Coordinator
Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

ATTN: Brad Shaver, NCDOT Coordinator

Dear Sir:

Subject: Request for Modification to Individual Section 404 and Section 401 Water Quality Certification for the proposed Hampstead Bypass in Pender County. State Project No. 40237.1.2, TIP No. R-3300B. Debit \$570.00 from WBS No. 40237.1.1

References: Section 404 Individual Permit signed August 10, 2017 (SAW-2007-1386) for U-4751 & R-3300
Section 401 Water Quality Certification issued June 5, 2017 (20161268) for U-4751 & R-3300
DCM Federal Consistency CD17-018

The purpose of this letter is to request modification of the Clean Water Act (CWA) Section 404 Individual Permit (IP) and Section 401 Water Quality Certification for R-3300B.

This modification request addresses the following changes in design and impacts:

- Removal of Service Road (SR) 8 – The need for Service Road 8 (SR 8) and its associated bridge over proposed Hampstead Bypass were identified early in the project planning process since the project cut off access to a very large portion of the Jamestown Pender, LP property (right of way parcel 82 plan sheets 19 -23 & 32). However, following protracted negotiations with legal representatives of this Map Act property, a determination was made to purchase the entire property which negated the need for SR8. This change has decreased permanent non-riparian wetland impacts by 2.02 acres (1.947 ac of permanent fill and 0.055 ac of mechanized clearing).

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
5501 BARBADOS BOULEVARD
CASTLE HAYNE, NC 28429-5647

Telephone: 910-341-2000
Fax: 910-675-0143
Customer Service: 1-877-368-4968

Website: ncdot.gov

Location:
5501 BARBADOS BOULEVARD
CASTLE HAYNE, NC 28429-5647

- Permit Site 31 (Sta. LLT 320+33) – the original proposal was to extend the existing 2@ 4 ft x 6 ft reinforced concrete box culvert (RCBC). After further studies and evaluation of the existing structure, the Department has determined that the existing structure needs to be replaced with 2 @ 7 ft x 6 ft RCBC. See permit drawings 146, 147 and 149 of 162. The revision reduced permanent stream impacts by 7 linear feet, however temporary stream impacts increased 27 linear feet due to this change.

Please find attached a complete revised set of roadway permit drawings and impact summary for R-3300B. The existing authorized utility permit drawings and impact summary have not changed and are still valid.

In the coming months, NCDOT will be submitting another modification request for impacts associated with the completion of the U-4751 Interchange at I-140 and impacts associated with the construction of the Beane Mitigation Site once the mitigation plan is approved by the agencies. It is the Department's proposal to use the non-riparian mitigation credits that are no longer required for R-3300B due to this reduction of impacts to partially offset the impacts to non-riparian wetland impacts associated with the completion of U-4751 interchange. Our original intent was to submit all of these modification in one submittal, however the R-3300B modification is needed now in order to be included in the advertisement for Letting.

REGULATORY APPROVALS

Section 404

Application is hereby made for a modification to the USACE Individual 404 Permit as required for the above-described activities.

Section 401


Application is hereby made for a modification to the Section 401 Water Quality Certification from the NC Division of Water Resources. Authorization to debit the \$240 Permit Application Fee from WBS Element 40191.3.2 is hereby given.

CAMA

A copy of this application is being provided to the NC Division of Coastal Management for review in accordance with their Federal Consistency determination.

If you have any questions or need additional information to process this modification request, please feel free to contact me at tmherndon@ncdot.gov or at (910) 341- 2036.

Sincerely,

 Digitally signed by Mason
Herndon
Date: 2021.10.20 16:04:11
-04'00'

For Chad Kimes, PE, Division 3 Engineer
North Carolina Department of Transportation

cc: Hannah Sprinkle, NC Division of Water Resources
Kristi Lynn Carpenter, NC Division of Water Resources

Cathy Brittingham, NC Division of Coastal Management
Stephen Lane, NC Division of Coastal Management
Chris Rivenbark, NC Department of Transportation, ECAP

Enclosures



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

| | | | | | | | | | |
|--|---|--|--------------------------------|-------------------------------------|--|-------|-----------|------|---|
| WBS Element: | 40237.1.1 | TIP No.: | R-3300B | County(ies): | Pender | Page | 1 | of | 5 |
| General Project Information | | | | | | | | | |
| WBS Element: | 40237.1.1 | TIP Number: | R-3300B | Project Type: | New Location | Date: | 3/29/2019 | | |
| NCDOT Contact: | Mason Herndon | | | Contractor / Designer: | Joshua G. Dalton | | | | |
| Address: | Div 3 Environmental Program Supervisor 5501 Barbados Blvd. Castle Hayne, NC 28429 | | | Address: | Sungate Design Group, PA 905 Jones Franklin Rd Raleigh, NC 27606 | | | | |
| | Phone: 910-341-2036 | | | | Phone: 919-859-2243 | | | | |
| | Email: mherndon@ncdot.gov | | | | Email: jdalton@sungatedesign.com | | | | |
| City/Town: | Hampstead | | | County(ies): | Pender | | | | |
| River Basin(s): | Cape Fear | White Oak | CAMA County? | Yes | | | | | |
| Wetlands within Project Limits? | Yes | | | | | | | | |
| Project Description | | | | | | | | | |
| Project Length (lin. miles or feet): | 6.916 miles | Surrounding Land Use: | Rural, Residentail, Commercial | | | | | | |
| | Proposed Project | | | Existing Site | | | | | |
| Project Built-Up Area (ac.) | 89.6 | ac. | 12.6 ac. | | | | | | |
| Typical Cross Section Description: | Two 12' travel lanes in each direction (4 total) with 10' paved shoulders and 34' wide grass median. | | | N/A, new location roadway. | | | | | |
| Annual Avg Daily Traffic (veh/hr/day): | Design/Future: | 55400 | Year: | 2040 | Existing: | N/A | Year: | 2016 | |
| General Project Narrative: (Description of Minimization of Water Quality Impacts) | R-3300B is a new location roadway project for future NC 417 (Hampstead Bypass) from south of NC 210 to east of SR 1563 (Sloop Point Loop Road). Work will include grading, drainage, paving, structures, signals, and culverts. Wetland and stream impacts have been minimized using maximum 3:1 side slopes across jurisdictional streams and through wetland areas. Off-site and roadway drainage have been separated to the maximum extent practical and roadway drainage discharged outside of wetlands areas, where possible. Toe protection at toe of fill slopes, in lieu of lateral ditches, have been proposed in wetland areas to minimize impacts to wetlands, where possible. Culverts in jurisdictional streams will be buried to promote fish passage. A stormwater wet detention basin and dry detention basin have been designed at the northern most interchange to provide stormwater quality and quantity control. | | | | | | | | |
| Waterbody Information | | | | | | | | | |
| Surface Water Body (1): | UT to Old Topsail Creek | | | NCDWR Stream Index No.: | 18-87-12 | | | | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | | Class SA | | | | | |
| | Supplemental Classification: | | | High Quality Waters (HQW) | | | | | |
| Other Stream Classification: | | | | | | | | | |
| Impairments: | | | | | | | | | |
| Aquatic T&E Species? | Comments: | | | | | | | | |
| NRTR Stream ID: | NSF | | | 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: 40237.1.1 TIP No.: R-3300B County(ies): Pender Page 2 of 5

Additional Waterbody Information

| | | | |
|---|--|--|--|
| Surface Water Body (2): | Winding Branch (Trib to Harrisons Creek) | NCDWR Stream Index No.: | 18-74-49 |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | Class C | |
| | Supplemental Classification: | Swamp Waters (Sw) | |
| Other Stream Classification: | | | |
| Impairments: | | | |
| Aquatic T&E Species? | Comments: | | |
| NRTR Stream ID: | LSB | 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) | (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) | | |
| Surface Water Body (3): | Harrisons Creek | NCDWR Stream Index No.: | 18-74-49 |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | Class C | |
| | Supplemental Classification: | Swamp Waters (Sw) | |
| Other Stream Classification: | | | |
| Impairments: | | | |
| Aquatic T&E Species? | Comments: | | |
| NRTR Stream ID: | LSC | 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) | (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) | | |
| Surface Water Body (4): | Godfrey Creek | NCDWR Stream Index No.: | 18-74-49-1 |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | Class C | |
| | Supplemental Classification: | Swamp Waters (Sw) | |
| Other Stream Classification: | | | |
| Impairments: | | | |
| Aquatic T&E Species? | Comments: | | |
| NRTR Stream ID: | LSD | 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) | (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) | | |



Page 3 of 5

Additional Comments

* 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.



Level Spreaders, Hazardous Spill Basins, and Forebays

[illegible]

*Hazardous spill basins are pollution prevention measures designed for spill containment rather than stormwater treatment. Under Required / Minimum Treatment and Treatment Achieved, provide the minimum required volume and the actual HSB volume, respectively. Refer to the NCDOT Stormwater Best Management Practices Toolbox (2014) for design guidance.

Additional Comments

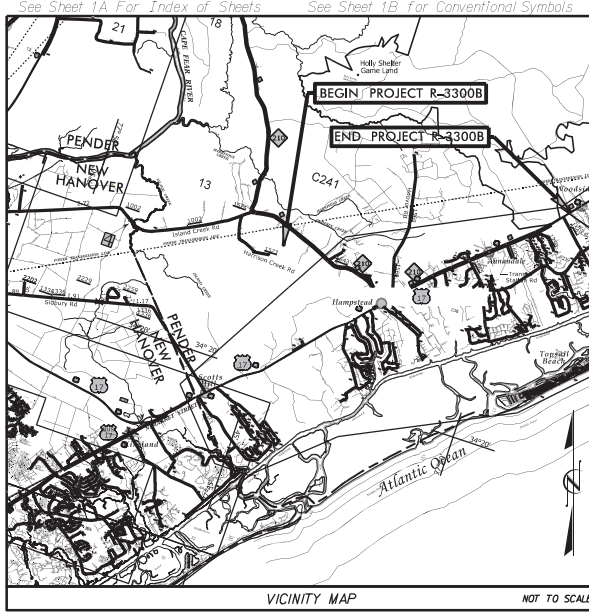
Note: Volume treated (WQv) based on storage up to elevation of first opening above tee pipe.

03/08/99

TIP PROJECT: R-3300B

CONTRACT: C204553

See Sheet 1A For Index of Sheets See Sheet 1B For Conventional Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PENDER COUNTY

LOCATION: NC 417 (HAMPSTEAD BYPASS) FROM SOUTH OF NC 210
TO NORTH OF SR 1563 (SLOOP POINT LOOP ROAD).

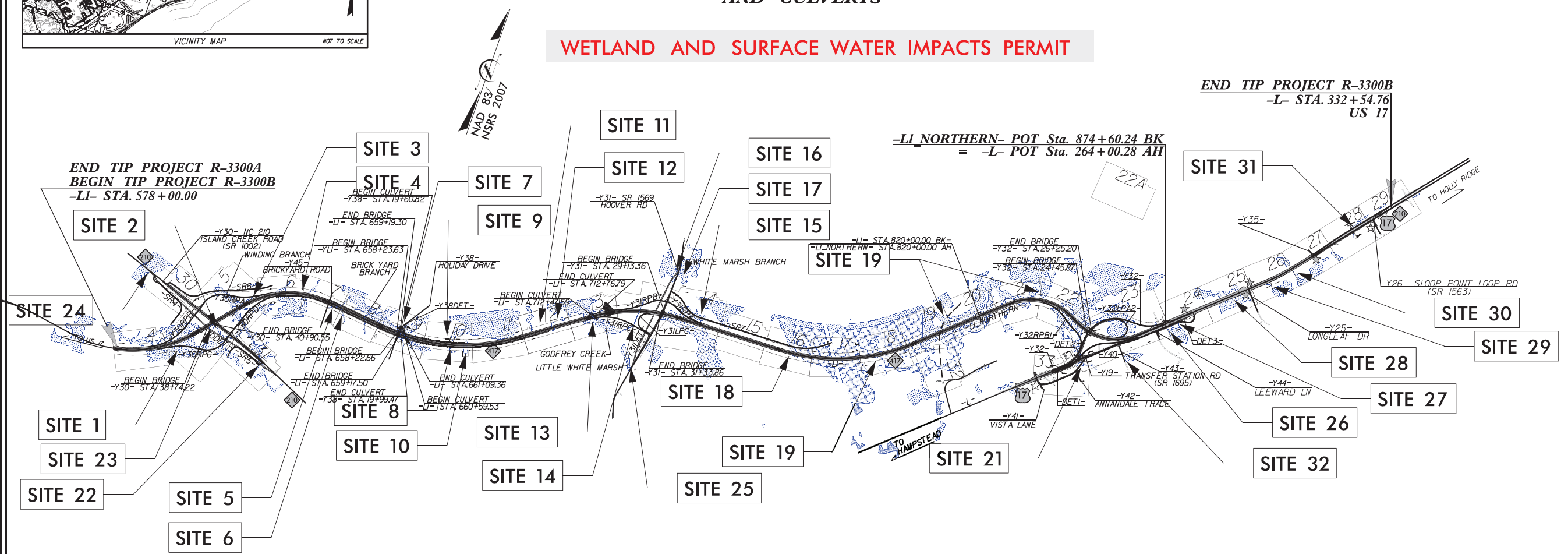
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES,
SIGNALS, ITS, NOISE WALLS, RETAINING WALLS,
AND CULVERTS

WETLAND AND SURFACE WATER IMPACTS PERMIT

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | R-3300B | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 40237.1.2 | N/A | PE | |
| 40237.2.5 | N/A | RW & UTIL | |
| 40237.3.3 | N/A | CONSTR | |
| | | | |
| | | | |
| | | | |

PERMIT DRAWING
SHEET 1 OF 162

DATE: 08-27-2021



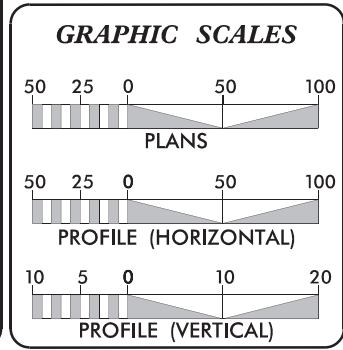
SUNGATE DESIGN GROUP, P.A.
655 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-08590

Dewberry
2610 WYCLIFF ROAD
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. P-08229

☆ UPDATE EXISTING SIGNAL
☆ PROPOSED SIGNAL

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

| | | |
|-----------------------|---|--------|
| ADT 2016 | = | N/A |
| ADT 2040 | = | 55,400 |
| K | = | 8 % |
| D | = | 60 % |
| T | = | 6 % * |
| V | = | 70 MPH |
| *(TTST 2% + DUALS 4%) | | |
| FUNC CLASS = FREEWAY | | |
| REGIONAL TIER | | |

PROJECT LENGTH

| | | |
|--------------------------------------|---|-------------|
| LENGTH ROADWAY TIP PROJECT R-3300B | = | 6.898 MILES |
| LENGTH STRUCTURE TIP PROJECT R-3300B | = | 0.018 MILES |
| TOTAL LENGTH TIP PROJECT R-3300B | = | 6.916 MILES |

PREPARED IN THE OFFICE OF:
STANTEC CONSULTING
801 Jones Franklin Road [Suite 300] Raleigh, NC 27606
Tel. (919) 851-6866 | Fax. (919) 851-7024 | www.stantec.com
License No. P-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 16, 2018

LETTING DATE: JANUARY 2022

MICHAEL D. LINDGREN, P.E.
PROJECT ENGINEER

TRACE HOWELL, P.E.
NCDOT DIVISION 3 CONTACT

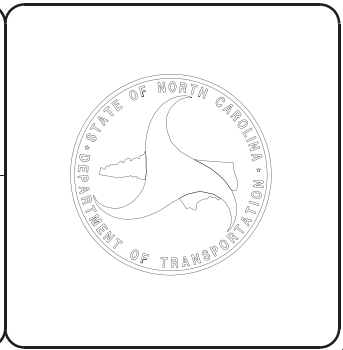
HYDRAULICS ENGINEERS

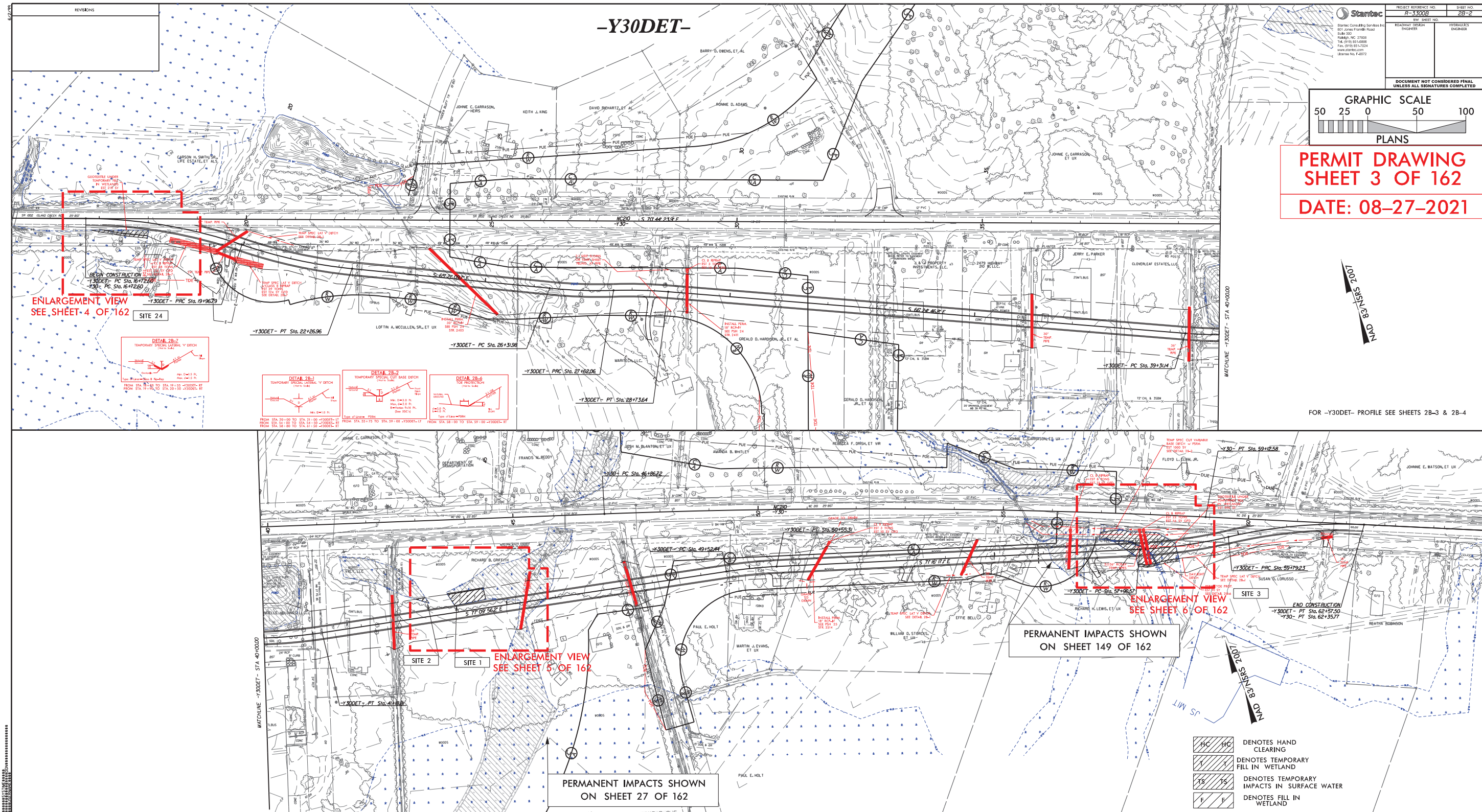
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E. SIGNATURE: P.E.

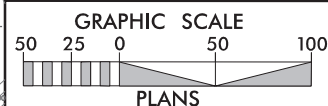
SEAL 12786
NORTH CAROLINA PROFESSIONAL ENGINEER
MICHAEL D. LINDGREN

SEAL 025513
NORTH CAROLINA PROFESSIONAL ENGINEER
TRACE HOWELL





| | |
|--|---------------------|
| PROJECT REFERENCE NO. R-33009 | SHEET NO. 28-2 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

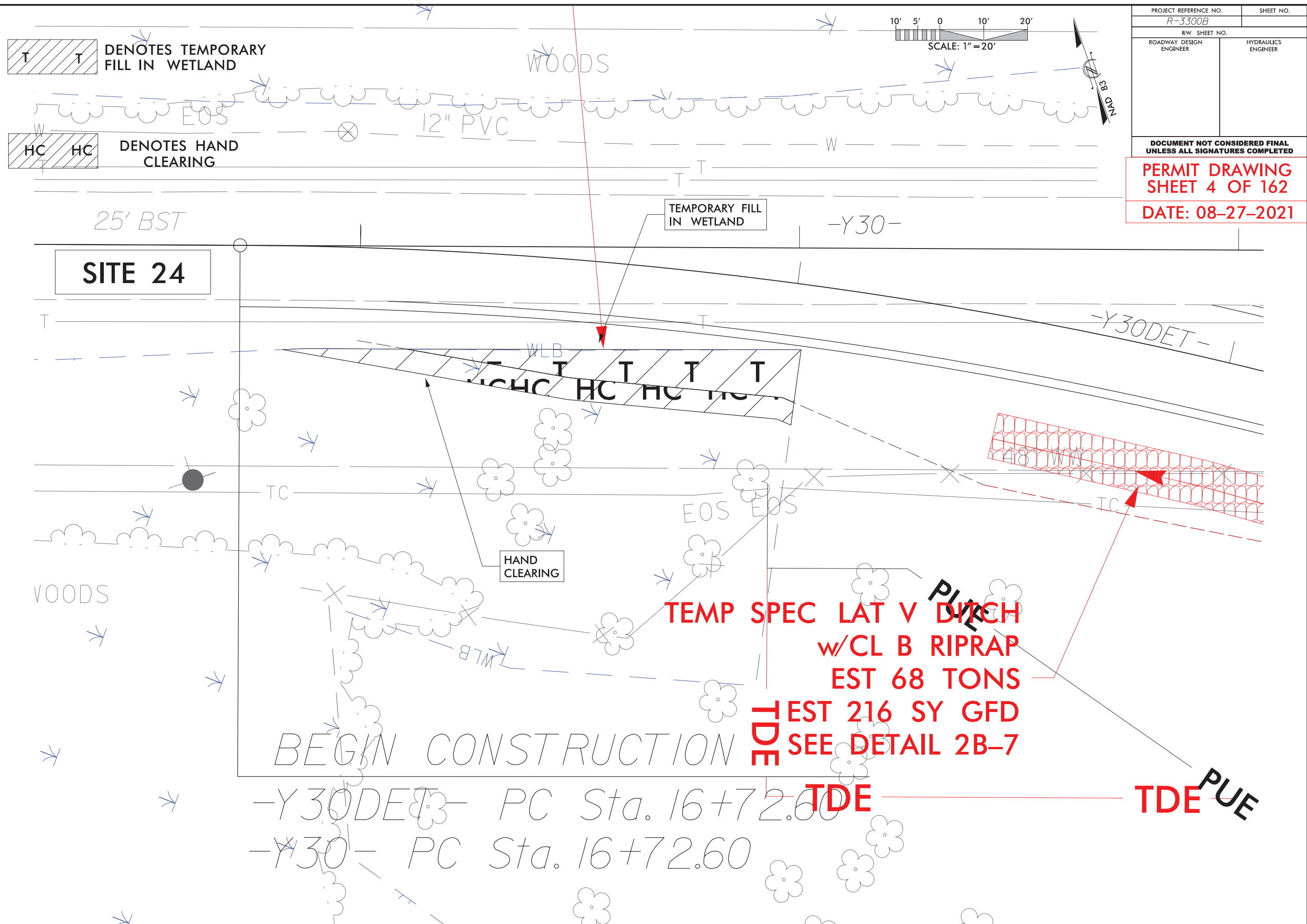


PERMIT DRAWING
SHEET 3 OF 162
DATE: 08-27-2021

100' SCALE
NAD 83
2007

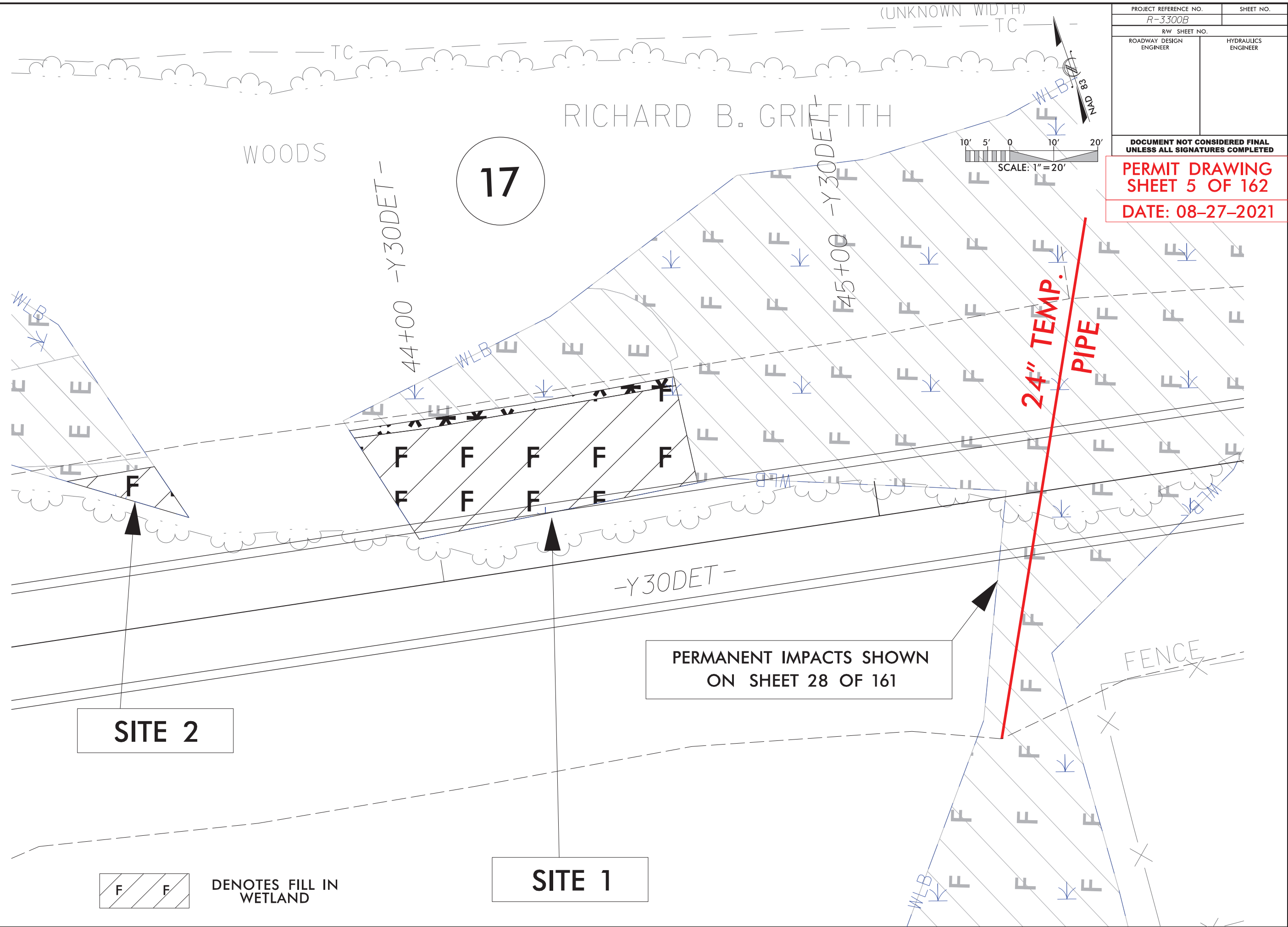
FOR -Y30DET- PROFILE SEE SHEETS 28-3 & 28-4

| | | |
|----|----|--|
| HC | HC | DENOTES HAND CLEARING |
| 1 | 1 | DENOTES TEMPORARY FILL IN WETLAND |
| TS | TS | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |
| F | F | DENOTES FILL IN WETLAND |



8/17/99

UNION COUNTY



| | | | |
|----------------------------------|--|---------------------|--|
| PROJECT REFERENCE NO. R-3300B | | SHEET NO. | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 5 OF 162

DATE: 08-27-2021

8/17/99

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 6 OF 162

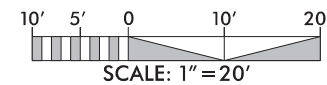
DATE: 08-27-2021

- T T DENOTES TEMPORARY FILL IN WETLAND
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- HC HC DENOTES HAND CLEARING

CA

13' WD HW
36" CMP

15' WD HW



TEMP SPEC CUT VARIABLE
BASE DITCH w/PSRM
EST 1000 SY

PERMANENT IMPACTS SHOWN
ON SHEET 149 OF 162

TEMPORARY FILL IN WETLAND

CL B RIPRAP
EST 22 TONS
EST 56 SY GFD

TEMPORARY FILL IN WETLAND

TEMPORARY FILL IN WETLAND

PDE

PDE

DUE

DUE

SITE 3

HCHC

TEMP SPEC
LAT V DITCH

PSRM TOE PROT.
EST 91 SY

HAND CLEARING

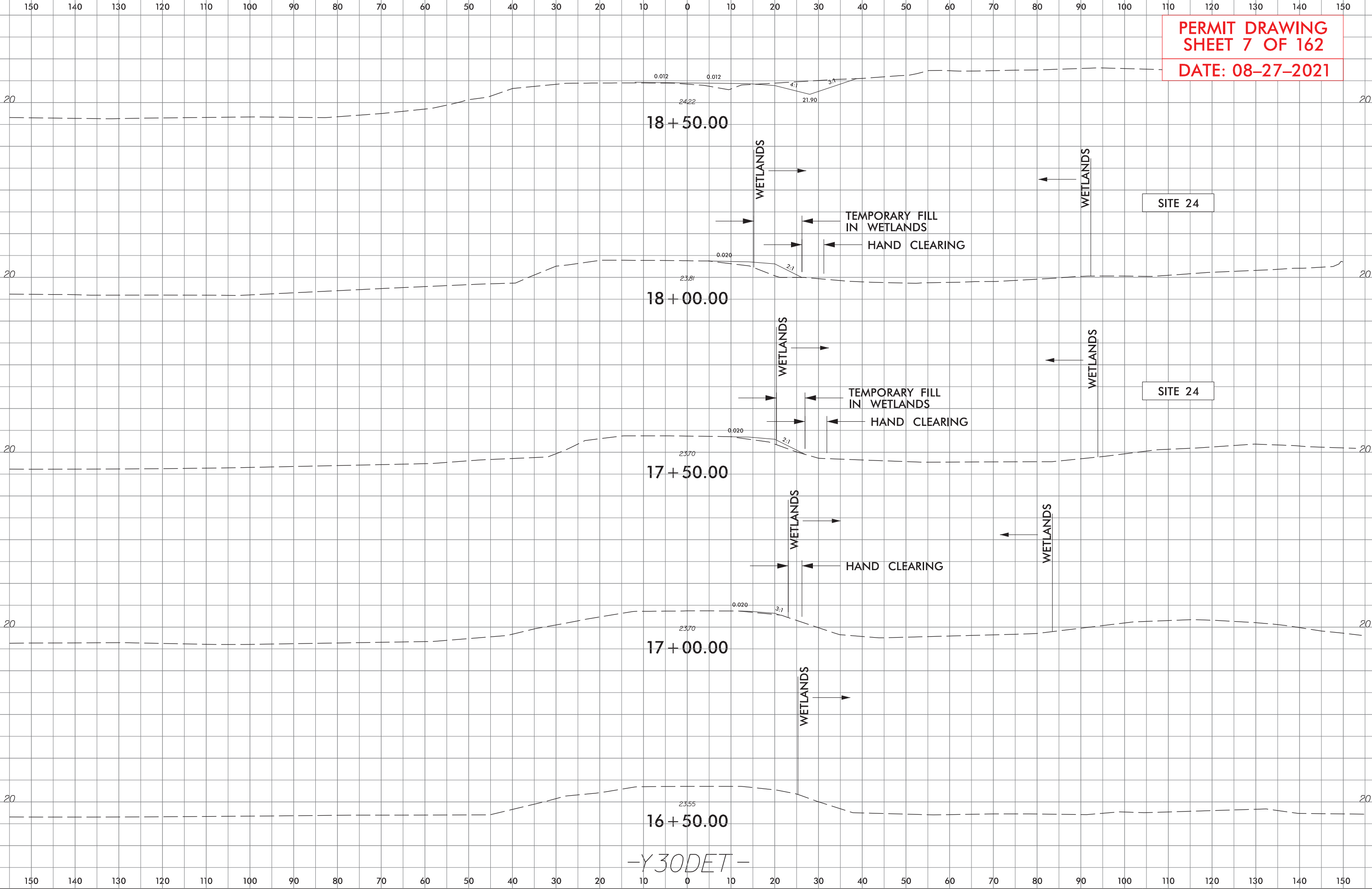
TEMPORARY IMPACTS
IN SURFACE WATER

8/17/99

6/23/16

| | | |
|-----------------------|---------------------|-----------|
| 0 5 10 [Scale Bar] | PROJ. REFERENCE NO. | SHEET NO. |
| | R-3300B | X-248 |

PERMIT DRAWING
SHEET 7 OF 162
DATE: 08-27-2021



6/23/16
[Vertical Text]

-Y30DET-

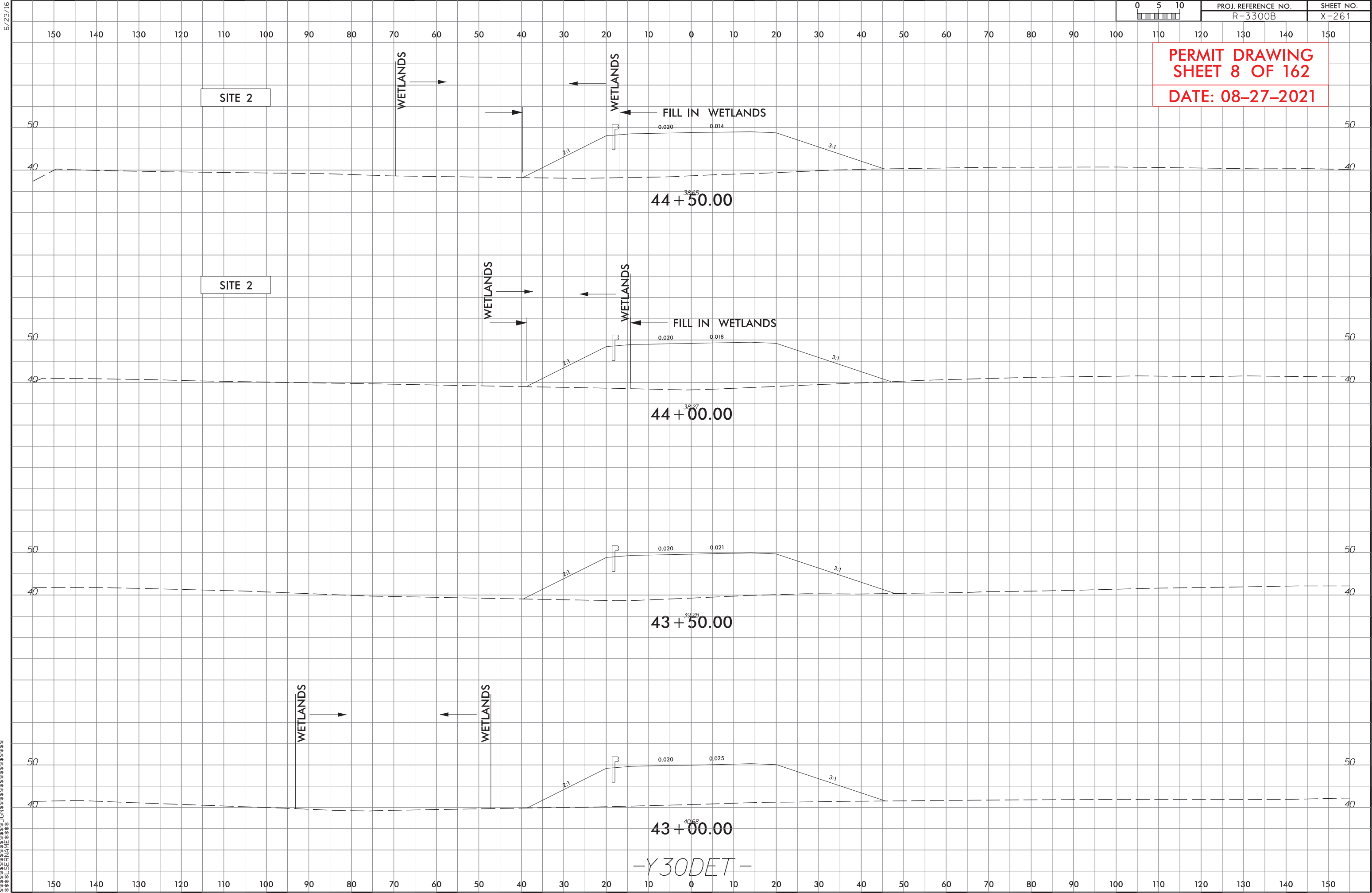
6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-261

PERMIT DRAWING
SHEET 8 OF 162
DATE: 08-27-2021

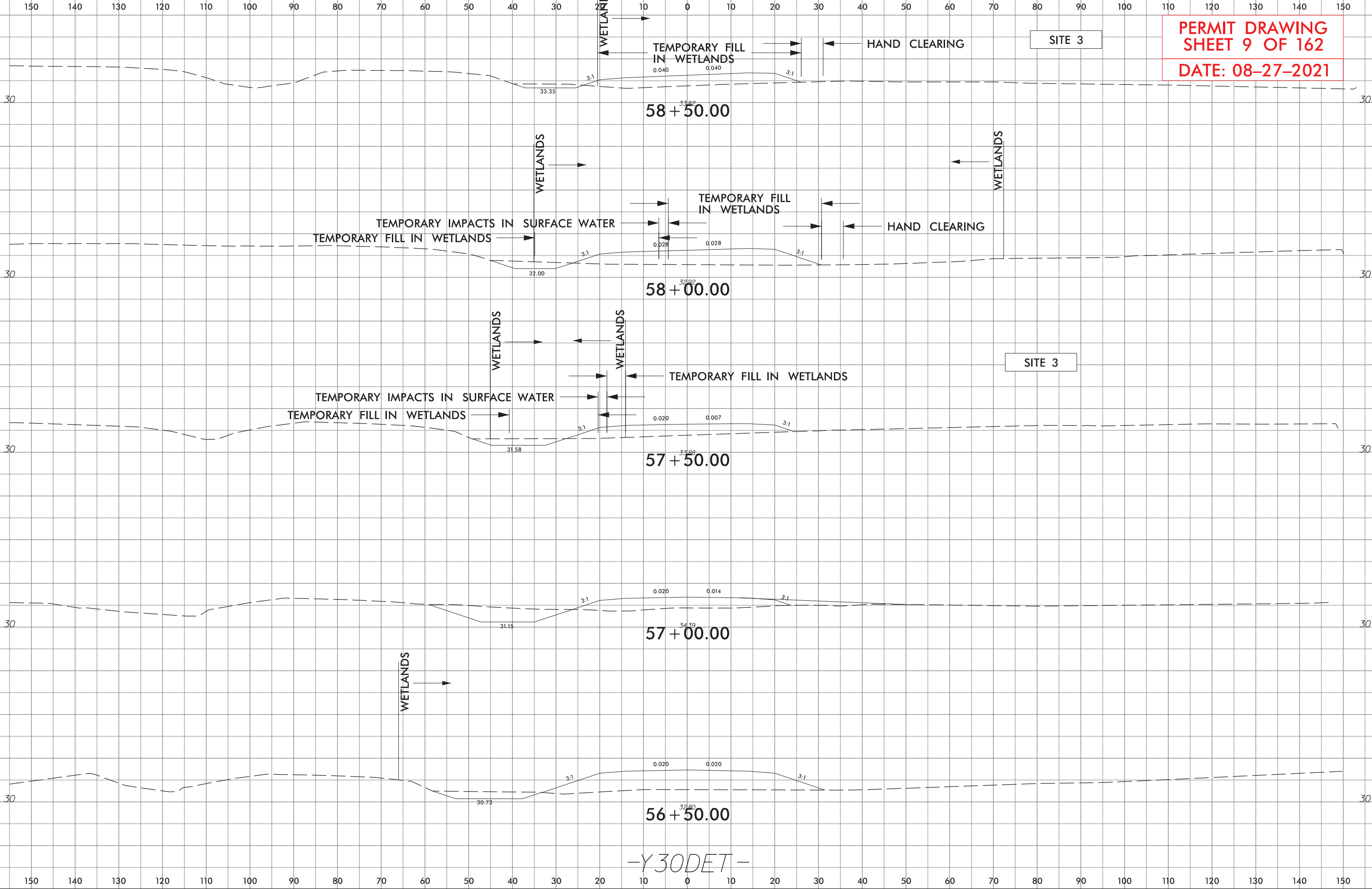


-Y30DET-

6/23/16

| | | |
|-----------------------|---------------------|-----------|
| 0 5 10 [Scale Bar] | PROJ. REFERENCE NO. | SHEET NO. |
| | R-3300B | X-267 |

PERMIT DRAWING
SHEET 9 OF 162
DATE: 08-27-2021

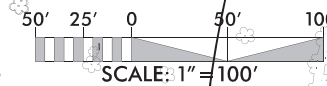


-Y30DET-

8/17/99

-Y31DET-

NAD 83/NSRS 2007



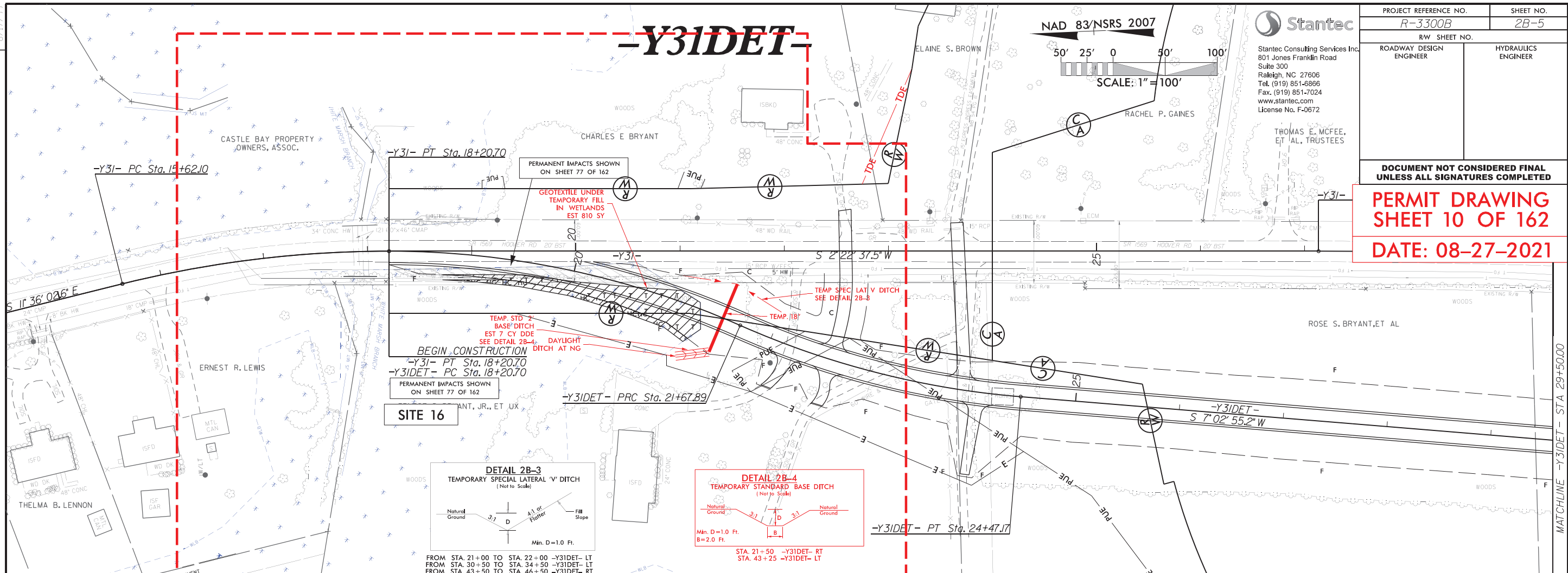
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

| | | | |
|---|--|--------------------------|--|
| PROJECT REFERENCE NO. R-3300B | | SHEET NO. 2B-5 | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

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

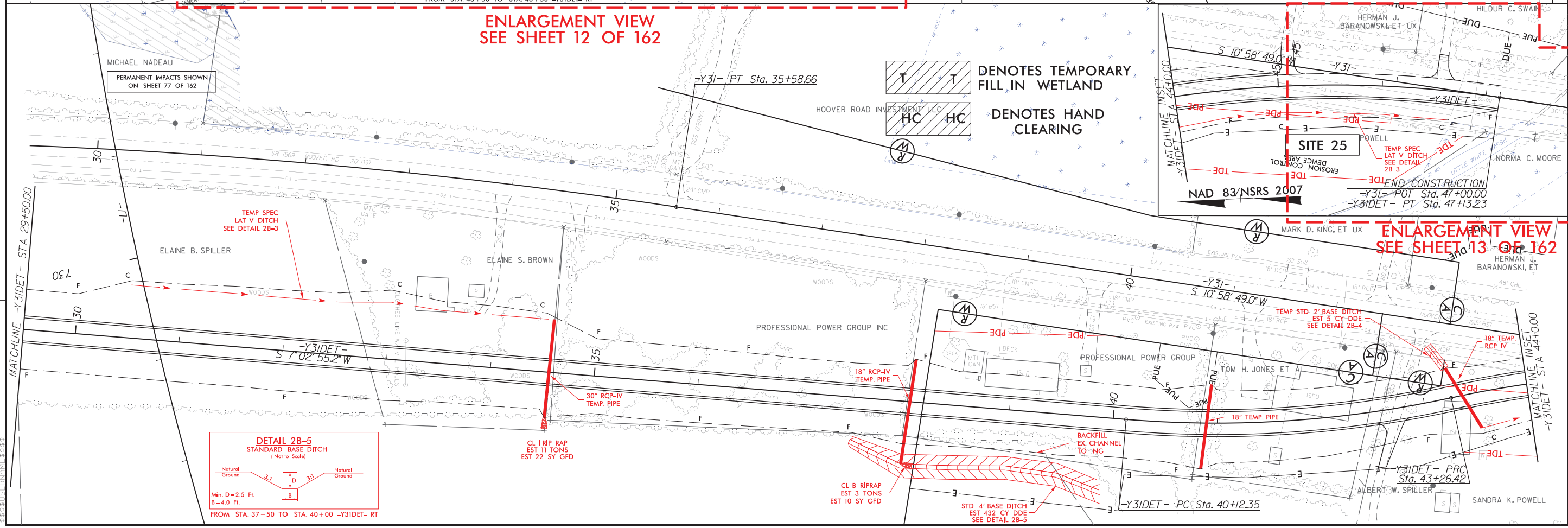
**PERMIT DRAWING
SHEET 10 OF 162**

DATE: 08-27-2021

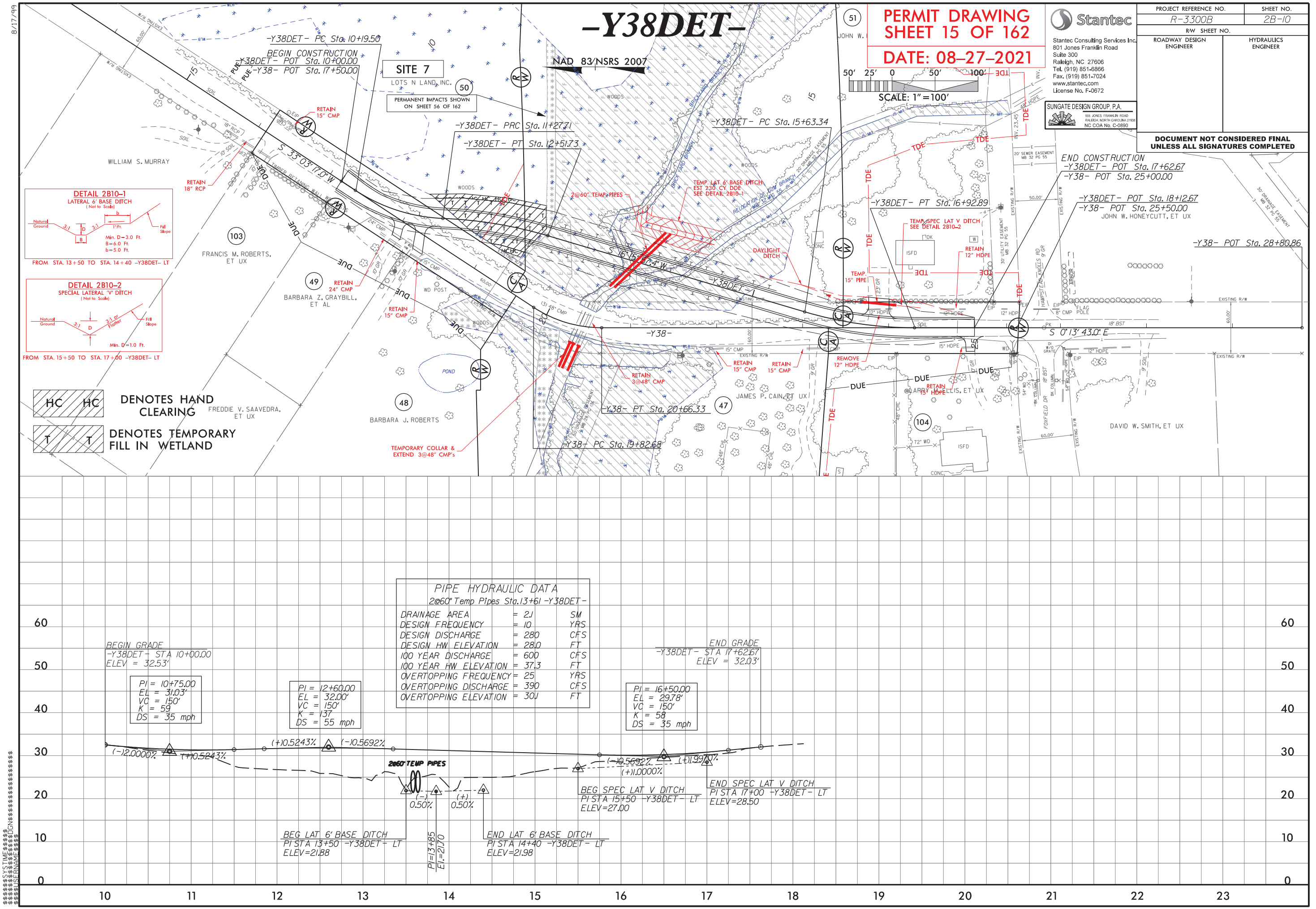


**ENLARGEMENT VIEW
SEE SHEET 12 OF 162**

**ENLARGEMENT VIEW
SEE SHEET 13 OF 162**







-Y38DET-

PERMIT DRAWING
SHEET 16 OF 162

DATE: 08-27-2021

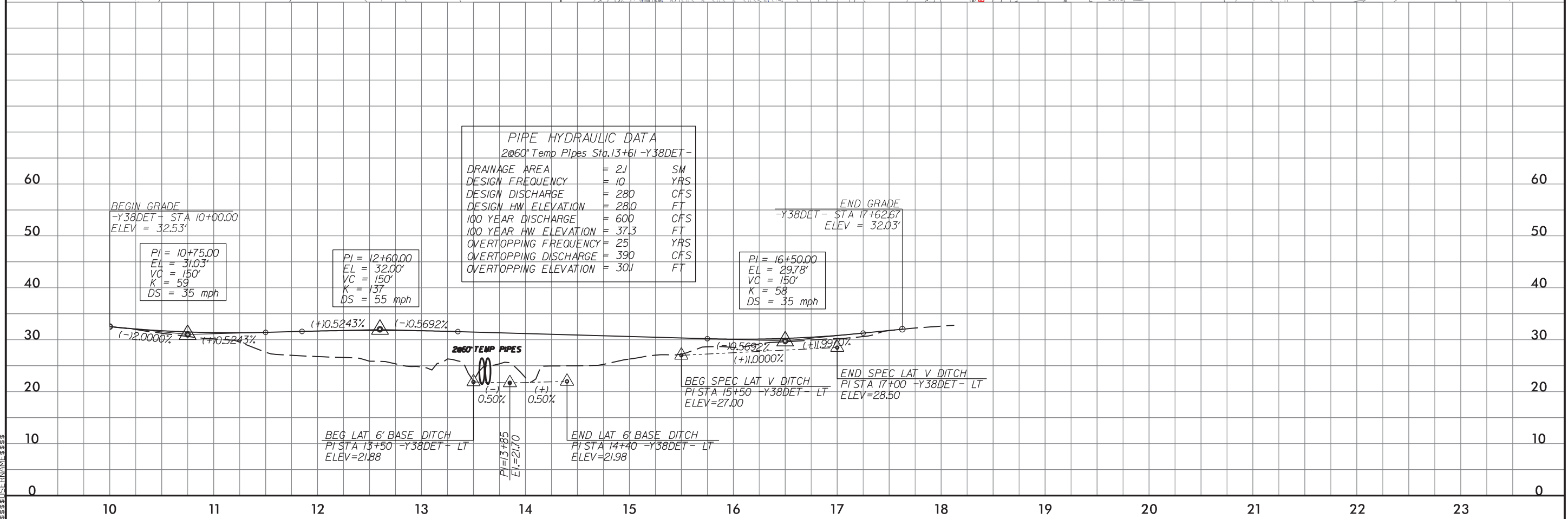
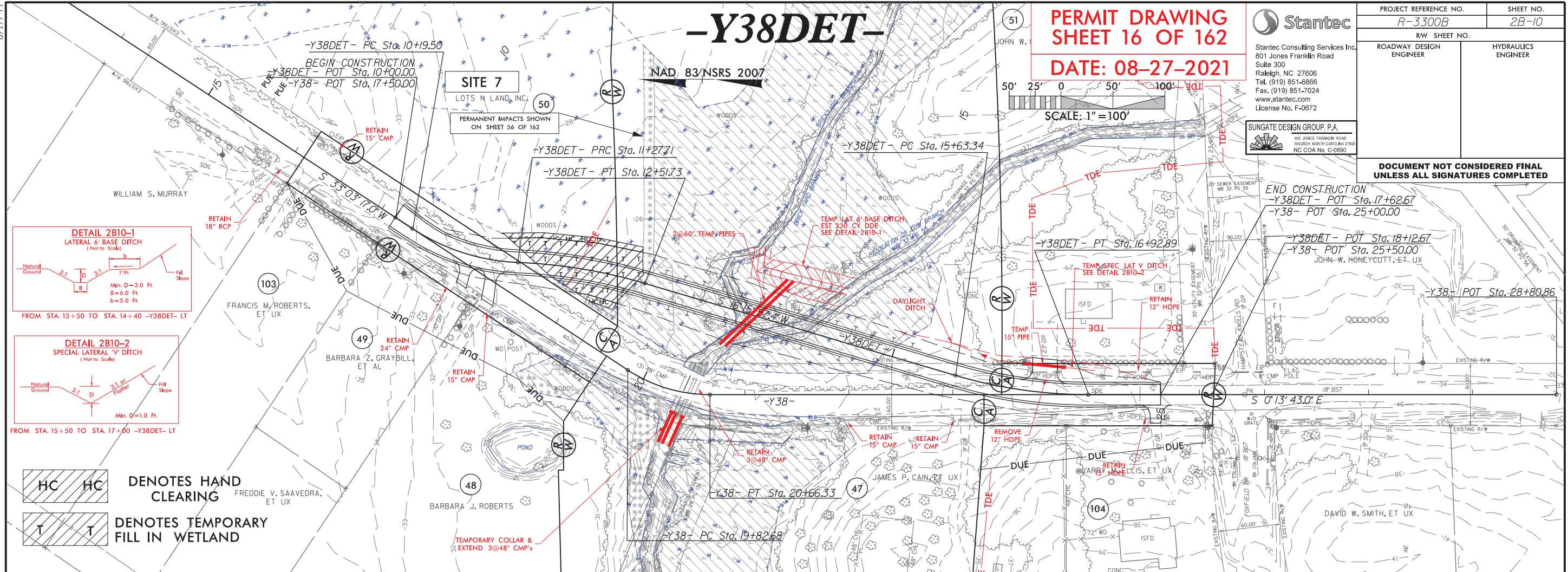


Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.

 905 JONES FRANKLIN ROAD
 RALEIGH, NORTH CAROLINA 27606
 NC COA No. C-0890

| | |
|---|------------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| <i>R-3300B</i> | <i>2B-10</i> |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| <p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> | |



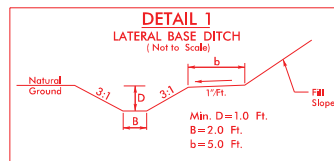
| PIPE HYDRAULIC DATA | | |
|------------------------------------|---|---------|
| 2860' Temp Pipes Sta.13+61 -Y38DET | | |
| DRAINAGE AREA | = | 2J SM |
| DESIGN FREQUENCY | = | 10 YRS |
| DESIGN DISCHARGE | = | 280 CFS |
| DESIGN HW ELEVATION | = | 28.0 FT |
| 100 YEAR DISCHARGE | = | 600 CFS |
| 100 YEAR HW ELEVATION | = | 37.3 FT |
| OVERTOPPING FREQUENCY | = | 25 YRS |
| OVERTOPPING DISCHARGE | = | 390 CFS |
| OVERTOPPING ELEVATION | = | 30J FT |

| |
|-----------------------|
| $PI = 10+75.00$ |
| $EL = 31.03'$ |
| $VC = 150'$ |
| $K = 59$ |
| $DS = 35 \text{ mph}$ |

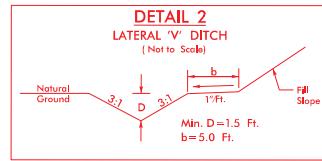
| | |
|------|----------|
| PI = | 12+60.00 |
| EL = | 32.00' |
| VC = | 150' |
| K = | 137 |
| DS = | 55 mph |

$PI = 16+50.00$
 $EL = 29.78'$
 $VC = 150'$
 $K = 58$
 $DS = 35 \text{ mph}$

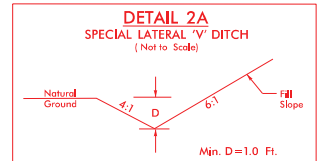




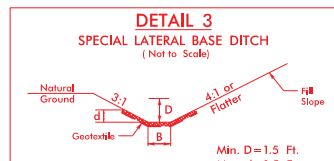
FROM STA. 581+86 TO STA. 584+00 -L1- RT
FROM STA. 656+50 TO STA. 658+40 -L1- RT
FROM STA. 694+65 TO STA. 695+50 -L1- LT
FROM STA. 713+50 TO STA. 718+00 -L1- LT
FROM STA. 28+50 TO STA. 31+00 -SR6- LT
FROM STA. 48+00 TO STA. 50+00 -Y30- RT
FROM STA. 14+50 TO STA. 16+00 -Y30RPA- RT
FROM STA. 22+00 TO STA. 24+00 -Y30RPA- RT
FROM STA. 23+00 TO STA. 25+00 -Y30RCP- RT
FROM STA. 24+50 TO STA. 25+50 -Y31- LT



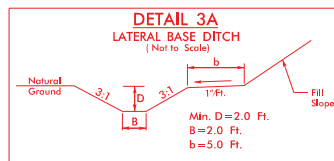
FROM STA. 726+00 TO STA. 728+70 -L1- LT
FROM STA. 17+60 TO STA. 20+15 -Y30RCP- RT



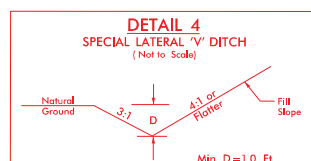
FROM STA. 695+50 TO STA. 700+50 -L1- LT



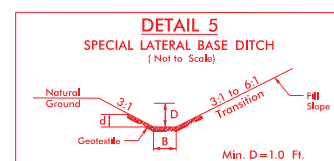
Type of Liner=Class B Rip-Rap
FROM STA. 21+50 TO STA. 23+75 -SR6- LT
FROM STA. 19+50 TO STA. 21+50 -SR6- RT



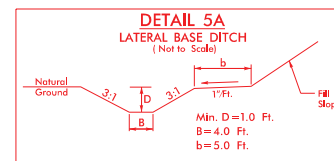
FROM STA. 659+00 TO STA. 661+90 -L1- RT



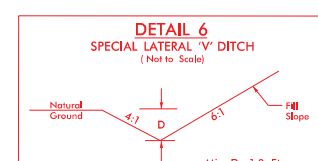
FROM STA. 10+50 TO STA. 13+50 -SR4- RT
FROM STA. 10+30 TO STA. 12+50 -SR4- LT
FROM STA. 23+50 TO STA. 24+75 -SR4- RT
FROM STA. 23+50 TO STA. 24+75 -SR4- LT
FROM STA. 25+00 TO STA. 27+65 -SR4- RT
FROM STA. 25+00 TO STA. 27+65 -SR4- LT
FROM STA. 19+50 TO STA. 21+25 -SR5- LT
FROM STA. 17+80 TO STA. 19+75 -Y38- RT
FROM STA. 23+15 TO STA. 24+50 -Y38- RT
FROM STA. 23+18 TO STA. 25+00 -Y38- LT
FROM STA. 20+00 TO STA. 22+00 -Y31- LT
FROM STA. 10+50 TO STA. 11+40 -Y42- LT
FROM STA. 10+50 TO STA. 11+40 -Y42- RT



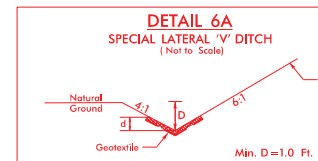
Type of Liner=Class I Rip-Rap
FROM STA. 23+00 TO STA. 24+00 -Y30- RT



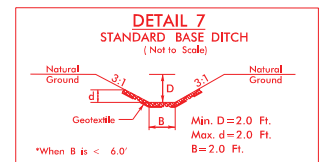
FROM STA. 663+00 TO STA. 671+50 -L1- LT
FROM STA. 25+00 TO STA. 31+00 -SR7- LT
FROM STA. 13+10 TO STA. 15+00 -Y31RPA- RT



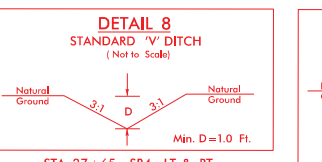
FROM STA. 700+50 TO STA. 703+50 -L1- RT
FROM STA. 704+00 TO STA. 705+70 -L1- RT
FROM STA. 9+00 TO STA. 11+00 -Y31LPC- LT



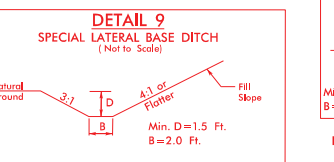
Type of Liner=Class B Rip-Rap
FROM STA. 24+00 TO STA. 25+00 -Y30- LT



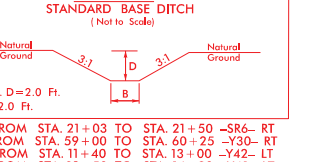
*When B is < 6.0'
Type of Liner=Class B Rip-Rap
FROM STA. 22+80 TO STA. 23+40 -Y30- LT



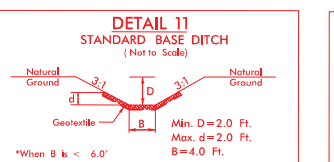
STA. 27+65 -SR4- LT & RT



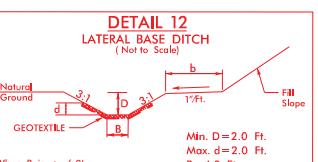
FROM STA. 20+00 TO STA. 21+50 -SR6- LT
FROM STA. 13+00 TO STA. 15+00 -SR5- LT
FROM STA. 16+00 TO STA. 19+00 -SR5- LT
FROM STA. 40+50 TO STA. 47+00 -Y31- LT
FROM STA. 17+00 TO STA. 19+50 -SR6- RT
FROM STA. 22+00 TO STA. 23+50 -SR6- RT



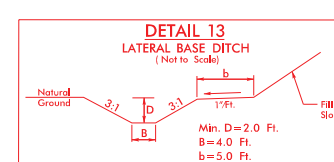
FROM STA. 21+03 TO STA. 21+50 -SR6- RT
FROM STA. 59+00 TO STA. 60+25 -Y30- RT
FROM STA. 11+40 TO STA. 13+00 -Y42- LT
FROM STA. 13+50 TO STA. 14+30 -Y42- LT
STA. 16+00 -SR7- RT
STA. 16+00 -SR5- RT
FROM STA. 40+50 TO STA. 47+00 -Y31- LT
STA. 54+00 -Y30- LT
STA. 680+00 -L1- LT



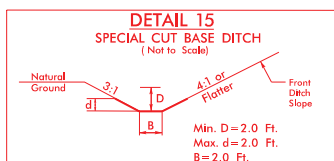
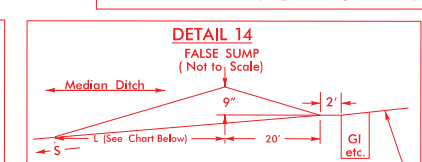
*When B is < 6.0'
Type of Liner=Class B Rip-Rap
FROM STA. 13+50 TO STA. 14+17 -Y30RPA- LT



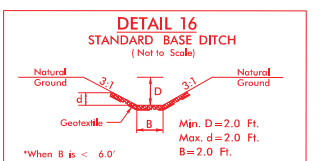
*When B is < 6.0'
Type of Liner=Class B Rip-Rap
FROM STA. 17+00 TO STA. 24+00 -Y30RPA- LT



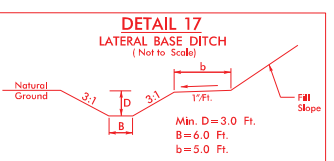
FROM STA. 635+50 TO STA. 642+75 -L1- RT
FROM STA. 11+00 TO STA. 18+50 -Y31RPA- LT
FROM STA. 12+00 TO STA. 13+50 -Y30RPA- LT
FROM STA. 601+40 TO STA. 604+00 -L1- RT



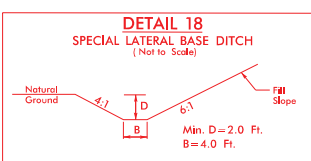
Type of Liner=Cair Fiber Matting
FROM STA. 24+00 TO STA. 28+50 -Y30- RT



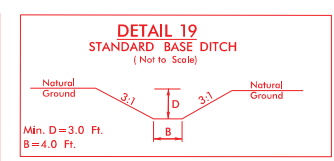
*When B is < 6.0'
Type of Liner=CL I Rip-Rap
FROM STA. 10+55 TO STA. 10+83 -SR5- LT
FROM STA. 672+20 -L1- LT



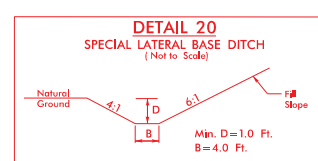
FROM STA. 54+65 TO STA. 57+00 -Y30- LT



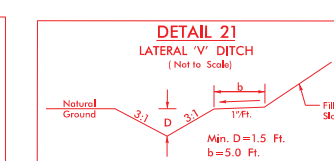
FROM STA. 57+00 TO STA. 59+50 -Y30- LT



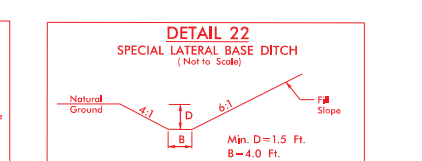
FROM STA. 20+50 TO STA. 21+50 -SR5- RT
FROM STA. 13+36 TO STA. 14+45 -Y31RPA- RT
STA. 28+75 -Y31- RT
FROM STA. 24+87 TO STA. 25+37 -Y30RCP- RT



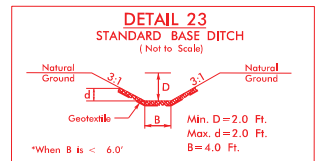
FROM STA. 693+75 TO STA. 700+00 -L1- RT



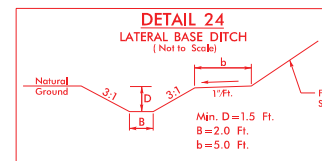
FROM STA. 726+00 TO STA. 728+70 -L1- LT
FROM STA. 10+50 TO STA. 16+50 -SR7- LT
FROM STA. 28+20 TO STA. 28+80 -Y31- LT
FROM STA. 733+00 TO STA. 735+50 -L1- LT



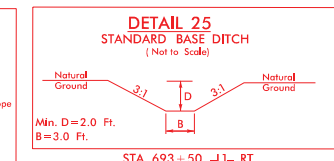
FROM STA. 748+00 TO STA. 760+50 -L1- RT



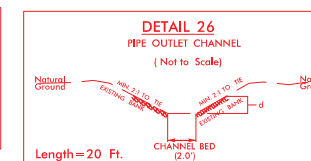
*When B is < 6.0'
Type of Liner=Class I Rip-Rap
STA. 15+15 -Y30RPA- RT
STA. 5+50 -Y30RPA- LT



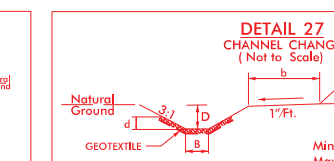
FROM STA. 578+00 TO STA. 581+86 -L1- RT
FROM STA. 677+50 TO STA. 683+00 -L1- LT
FROM STA. 28+50 TO STA. 33+00 -Y30- RT
FROM STA. 50+00 TO STA. 54+00 -Y30- RT
FROM STA. 11+00 TO STA. 12+40 -Y31LPC- LT
FROM STA. 07+00 TO STA. 14+00 -Y30RPA- RT



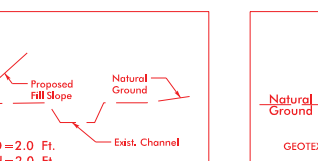
STA. 693+50 -L1- RT
STA. 694+50 -L1- LT



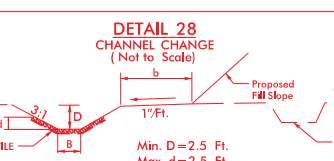
FROM STA. 22+80 -Y30- LT



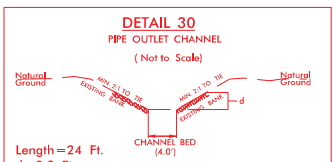
Type of Liner=Class I Riprap, Keyed-In
FROM STA. 649+20 -L1- LT



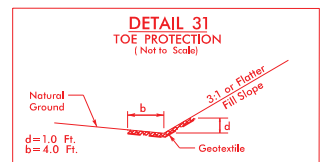
Type of Liner=Class I Riprap, Keyed-In
FROM STA. 642+45 -L1- LT



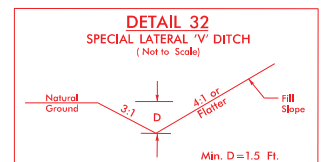
Type of Liner=CL I RIPRAP
STA. 26+50 -SR6- LT
STA. 642+75 -L1- RT



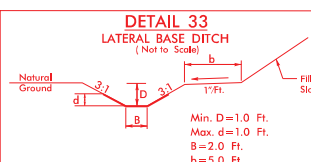
FROM STA. 724+60 -L1- RT
FROM STA. 17+75 -Y31RCP- RT



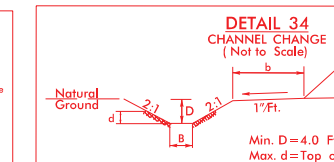
Type of Liner=Class B Rip-Rap
FROM STA. 15+25 TO STA. 18+00 -SR4- RT
FROM STA. 11+00 TO STA. 12+50 -SR5- LT
FROM STA. 31+00 TO STA. 37+50 -SR6- RT
FROM STA. 31+00 TO STA. 39+00 -SR7- RT
FROM STA. 607+60 TO STA. 611+70 -L1- RT
FROM STA. 50+00 TO STA. 54+00 -Y30- RT
FROM STA. 612+10 TO STA. 614+00 -L1- RT
FROM STA. 612+60 TO STA. 617+00 -L1- LT
FROM STA. 623+00 TO STA. 626+50 -L1- LT
FROM STA. 623+50 TO STA. 628+00 -L1- RT
FROM STA. 631+50 TO STA. 632+80 -L1- LT
FROM STA. 631+50 TO STA. 632+80 -L1- LT
FROM STA. 659+90 TO STA. 663+50 -L1- LT
FROM STA. 672+50 TO STA. 674+50 -L1- LT
FROM STA. 683+00 TO STA. 689+00 -L1- LT
FROM STA. 709+36 TO STA. 711+90 -L1- LT
FROM STA. 709+40 TO STA. 713+20 -L1- RT
FROM STA. 712+30 TO STA. 714+30 -L1- LT
FROM STA. 718+50 TO STA. 722+50 -L1- LT
FROM STA. 756+00 TO STA. 759+50 -L1- NORTH- RT
FROM STA. 789+00 TO STA. 796+00 -L1- RT
FROM STA. 801+50 TO STA. 806+50 -L1- RT
FROM STA. 803+50 TO STA. 807+20 -L1- LT
FROM STA. 809+50 TO STA. 814+00 -L1- RT
FROM STA. 822+50 TO STA. 824+00 -L1- NORTH- RT
FROM STA. 826+00 TO STA. 830+50 -L1- NORTH- RT
FROM STA. 832+00 TO STA. 836+00 -L1- NORTH- RT
FROM STA. 823+00 TO STA. 825+00 -L1- NORTH- RT
FROM STA. 826+50 TO STA. 829+50 -L1- NORTH- LT
FROM STA. 841+00 TO STA. 851+00 -L1- NORTH- LT
FROM STA. 15+75 TO STA. 17+50 -Y30RPA- LT
FROM STA. 08+85 TO STA. 19+70 -Y30RPA- LT
FROM STA. 18+50 TO STA. 19+50 -Y31- LT
FROM STA. 30+75 TO STA. 34+00 -Y31- LT
FROM STA. 08+12 TO STA. 10+00 -Y31RCP- RT
FROM STA. 19+45 TO STA. 20+50 -Y30RPA- RT
FROM STA. 07+00 TO STA. 20+50 -Y32RPA- RT
FROM STA. 23+50 TO STA. 24+82 -Y19- RT
FROM STA. 37+50 TO STA. 40+00 -Y32- LT



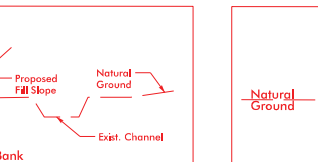
FROM STA. 38+50 TO STA. 46+50 -Y31- RT
FROM STA. 11+50 TO STA. 14+50 -Y19- LT
FROM STA. 18+30 TO STA. 21+00 -Y30- RT



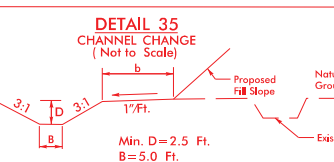
Type of Liner=PSRM
FROM STA. 26+50 TO STA. 28+50 -SR6- LT



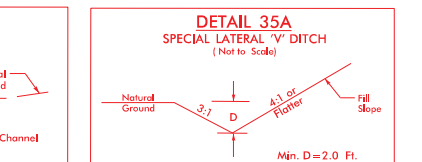
Type of Liner=Class I Riprap
FROM STA. 656+05 TO STA. 658+60 -L1- LT



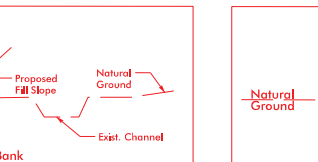
FROM STA. 661+85 TO STA. 664+00 -L1- RT



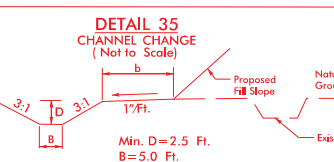
FROM STA. 612+50 -L1- LT



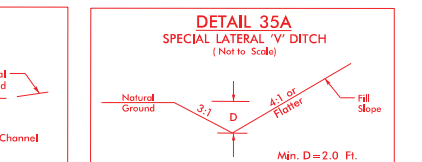
FROM STA. 712+00 -L1- LT
FROM STA. 713+00 -L1- RT



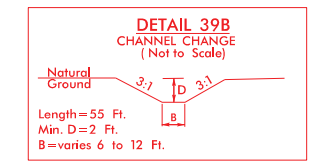
FROM STA. 612+50 -L1- LT



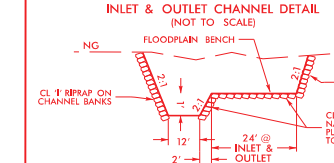
FROM STA. 40+32 TO STA. 44+35 -Y30- RT
FROM STA. 46+15 TO STA. 47+25 -Y30- RT
FROM STA. 17+00 TO STA. 18+00 -Y32RPA- LT



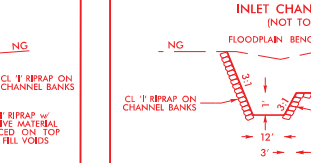
FROM STA. 19+20 TO STA. 20+00 -Y31- LT



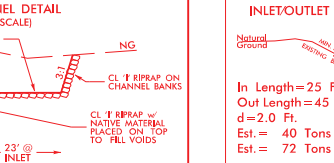
FROM STA. 15+40 -Y30RPA- LT



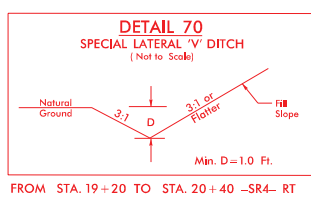
FROM STA. 19+75 -Y38- LT
FROM STA. 19+85 -Y38- RT



FROM STA. 662+00 -L1- RT



FROM STA. 19+10 -Y30RPA- RT
FROM STA. 19+85 -Y30RPA- LT



DATE: 08-27-2021

DATE: 08-27-2021



955 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27605
NC COA No. C-0890

SHEET NO.

2D-4

HYDRAULICS
ENGINEER

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

NOT TO SCALE



| DRY DET. STR. LINE ITEMS | QTY. |
|--------------------------|-----------|
| OUTLET STRUCTURE #2333 | (SEE DSS) |
| OUTLET PIPE, 48" CAAP | (SEE DSS) |
| 8" SLUICE GATE | 1 EA |



PLAN VIEW

TRASH RACK NOT SHOWN FOR CLARITY

1. 15" MINIMUM DIAMETER FOR OUTLET PIPE.
2. 2" MINIMUM DIAMETER ORIFICE. IF ORIFICE IS GREATER THAN 6", A STEEL PLATE IS NOT REQUIRED.
3. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
4. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
5. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION.
6. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
7. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATE.
8. ADJUST FOOTER DIMENSIONS AS NEEDED FOR ANTI-FLOTATION.
9. PAYMENT FOR TRASH RACKS ARE INCIDENTAL TO BASIN DRAINDOWN STRUCTURE.

| SIDE OPENING | | | DIMENSIONS | |
|---------------------|-----------------------------|---------------------------|------------------------------|-------------------------------|
| STRUCTURE NUMBER | # OF SIDES w/ OPENING | INVERT ELEV. (FEET) | OPENING WIDTH (INCHES) | OPENING HEIGHT (INCHES) |
| 2333 | 1 | 43.5' | 60" | 6" |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

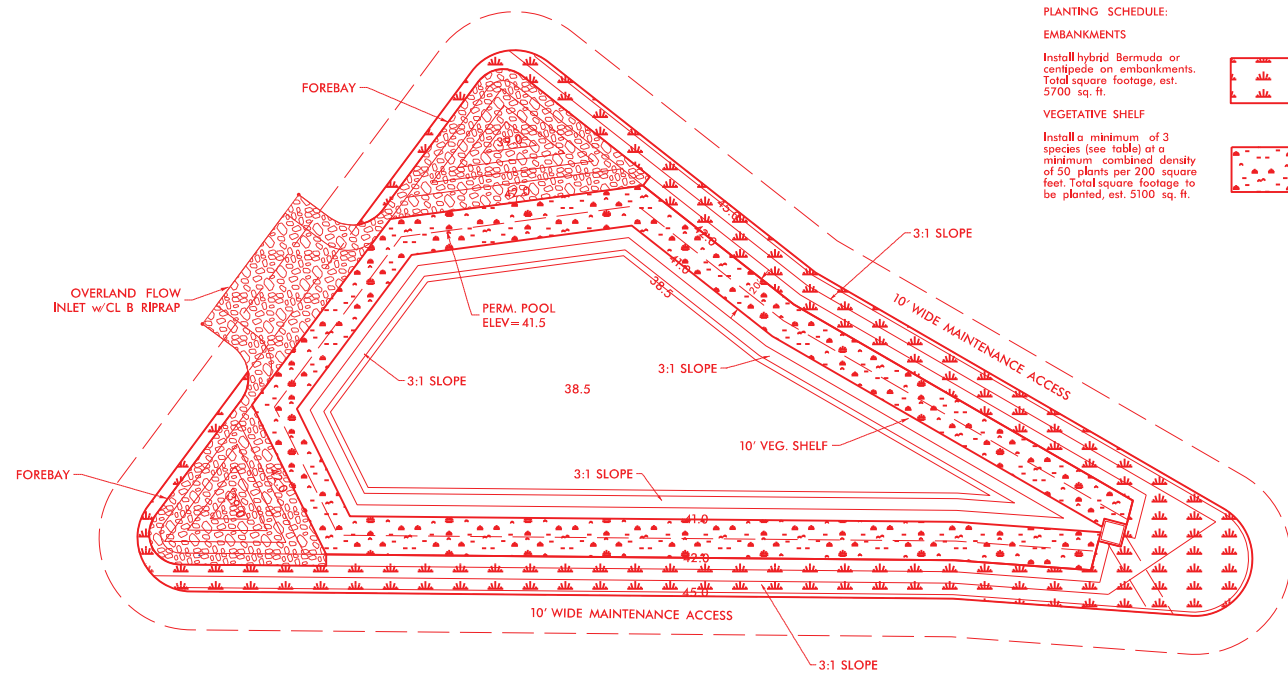
[illegible]

WET DET. BASIN DETAILS

OPERATION AND MAINTENANCE PROVISIONS

| BMP element: | Potential problems: | How to remediate the problem: |
|---|--|---|
| The entire BMP | Trash/debris is present. | Remove the trash/debris. |
| The perimeter of the wet pond | Areas of bare soil and/or erosive gullies have formed. | Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application. |
| | Vegetation is too short or too long. | Maintain vegetation at a height of approximately six inches. |
| The inlet device: pipe or swale | The pipe is clogged. | Unclog the pipe. Dispose of the sediment off-site. |
| | The pipe is cracked or otherwise damaged. | Replace the pipe. |
| | Erosion is occurring in the swale. | Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion. |
| The forebay | Sediment has accumulated to a depth greater than the original design depth for sediment storage. | Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP. |
| | Erosion has occurred. | Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems. |
| | Weeds are present. | Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying. |
| The vegetated shelf | Best professional practices show that pruning is needed to maintain optimal plant health. | Prune according to best professional practices. |
| | Plants are dead, diseased or dying. | Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if a soil test indicates it is necessary. |
| | Weeds are present. | Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying. |
| The main treatment area | Sediment has accumulated to a depth greater than the original design sediment storage depth. | Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP. |
| | Algal growth covers over 50% of the area. | Consult a professional to remove and control the algal growth. |
| | Cattails, phragmites or other invasive plants cover 50% of the basin surface. | Remove the plants by wiping them with pesticide (do not spray). |
| The embankment | Shrubs have started to grow on the embankment. | Remove shrubs immediately. |
| | Evidence of muskrat or beaver activity is present. | Use traps to remove muskrats and consult a professional to remove beavers. |
| | A tree has started to grow on the embankment. | Consult a dam safety specialist to remove the tree. |
| | An annual inspection by an appropriate professional shows that the embankment needs repair. | Make all needed repairs. |
| The outlet device / The receiving water | Clogging has occurred. | Clean out the outlet device. Dispose of the sediment off-site. |
| | The outlet device is damaged. | Repair or replace the outlet device. |
| | Erosion or other signs of damage have occurred at the outlet. | Contact the local NC Division of Water Quality Regional Office, or the 401 Oversight Unit at 919-733-1786. |
| Floating wetland island (if applicable) | Weeds or volunteer trees are growing on the mat. | Remove the weeds or trees. |
| | The anchor cable is damaged, disconnected or missing. | Restore the anchor cable to its design state. |

WET DET. BASIN -L1 NORTH- 868+00 LT - PLANTING PLAN



PLANTING SCHEDULE:
EMBANKMENTS

Install hybrid Bermuda or centipede on embankments. Total square footage, est. 5700 sq. ft.

VEGETATIVE SHELF
Install a minimum of 3 species (see table) at a minimum combined density of 50 plants per 200 square feet. Total square footage to be planted, est. 5100 sq. ft.

PERMIT DRAWING
SHEET 22 OF 162

DATE: 08-27-2021



Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.



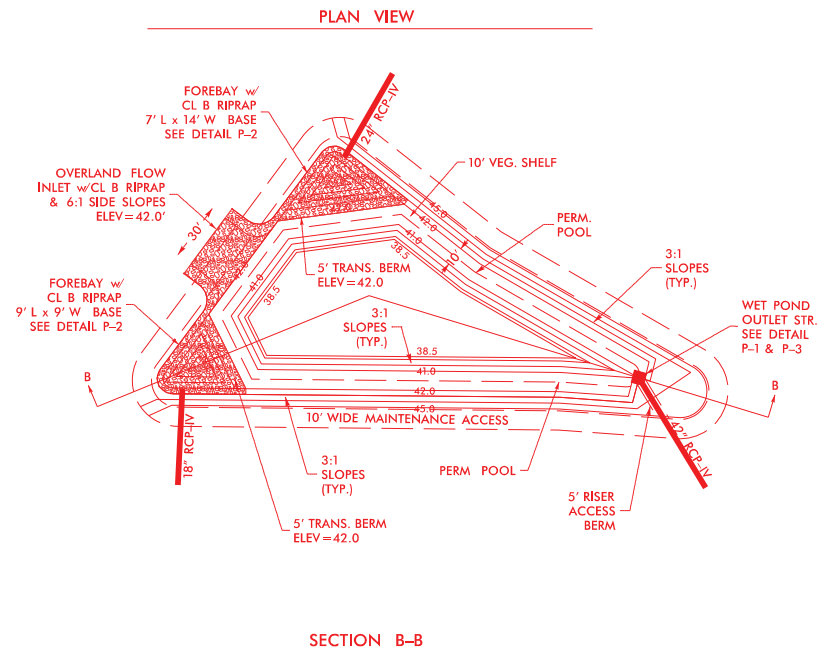
801 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | |
|----------------------------|------------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| <i>R-3300B</i> | <i>2D-5</i> |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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

| WET POND LINE ITEMS | QTY. |
|---|---------------------|
| GEOTEXTILE FOR DRAINAGE OUTLET STRUCTURE #2356 | 471 SY (SEE DSS) |
| OUTLET PIPE, 42" RCP-IV | (SEE DSS) |
| RIP RAP, CLASS B | 209 TONS |
| UNCLASSIFIED EXCAVATION | 3500 CY |
| 6" VALVE | 1 EA |
| SEEDING & MULCHING | 0.13 AC |
| VEGETATIVE SHELF PLANTING | 5100 SF |

WET DET. BASIN -L1_NORTH- 868+00 LT - PLAN & PROFILE



Landscape Plan:

1. Embankment slopes of the pond shall be vegetated with non-dumping turf grass, perennial grasses such as hybrid Bermuda or centipede are recommended; trees and woody shrubs shall not be allowed; and
2. The vegetated shelf shall be planted with a minimum of three diverse species of herbaceous, native vegetation, at a minimum density of 50 plants per 200 square feet of shelf area. Species shall be selected from the table of Plants for Submerged and Partially Submerged Vegetation Shelves, shown below. Wetland seed mixes shall not be used.
3. Trees and woody shrubs shall not be planted on the embankment slopes and any volunteers should be removed as part of regular maintenance activities.

PLANTS FOR SUBMERGED AND PARTIALLY SUBMERGED VEGETATIVE SHELVES

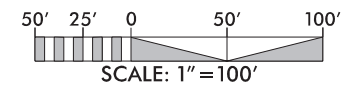
| Botanical Name | Common Name |
|------------------------------------|------------------------|
| <i>Asclepias incarnata</i> | Swamp Milkweed |
| <i>Carex</i> spp. | Sedges |
| <i>Carex tenera</i> | Quill sedge |
| <i>Eupatoriadelphus dubius</i> | Dwarf Joe Pye Weed |
| <i>Eupatoriadelphus fistulosus</i> | Joe Pye Weed |
| <i>Eupatoriadelphus maculatus</i> | Spotted trumpetweed |
| <i>Hibiscus coccineus</i> | Scarlet rose mallow |
| <i>Hibiscus laevis</i> | Halberdleaf rosemallow |
| <i>Juncus effusus</i> | Rush |
| <i>Kosteletzkya virginica</i> | Seashore Mallow |
| <i>Labellia cardinalis</i> | Cardinal Flower |
| <i>Pontederia cordata</i> | Pickersweet |
| <i>Rhynchospora</i> spp. | Beakrush |
| <i>Saccharum baldwinii</i> | Narrow plumegrass |
| <i>Sagittaria latifolia</i> | Dock Potato |
| <i>Saururus cernuus</i> | Lizardtail |
| <i>Scirpus cyperinus</i> | Woodgrass |
| <i>Scirpus</i> spp. | Bulrush |

Maintenance Plan:

1. Immediately after the wet pond is established, the plants on the vegetated shelf and perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).
2. No portion of the wet pond should be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.
3. Stable groundcover should be maintained in the drainage area to reduce the sediment load to the wet pond.
4. If the pond must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain should be minimized as much as possible.

5/14/99

STANTEC CONSULTING SERVICES INC.
801 JONES FRANKLIN ROAD
SUITE 300
RALEIGH, NC 27606
TEL. (919) 851-8866
FAX. (919) 851-7024
WWW.STANTEC.COM
LICENSE NO. F-0672



NAD 83 N58S 2007

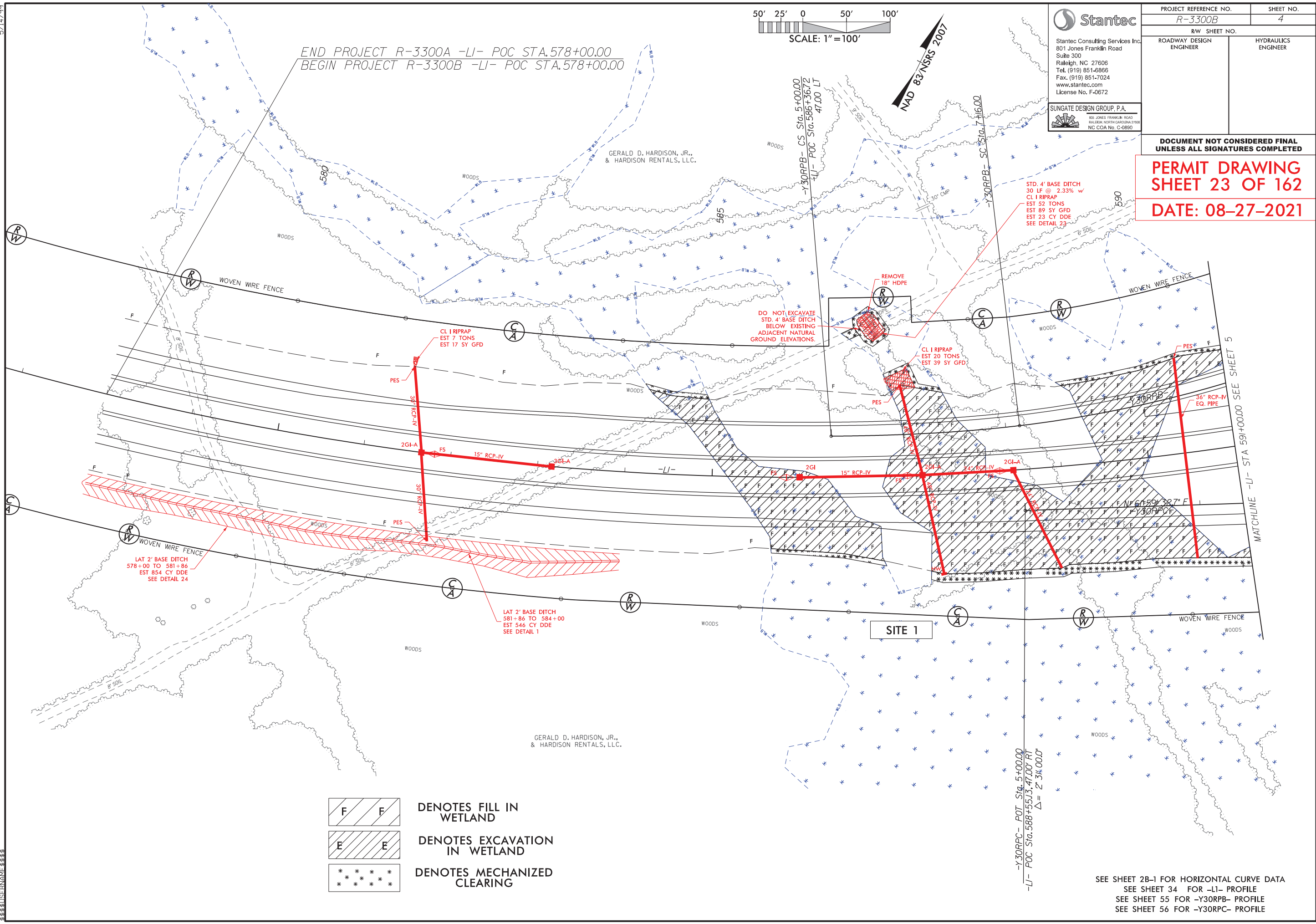
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 4 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

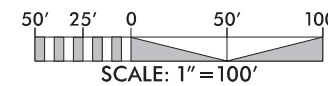
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 23 OF 162
DATE: 08-27-2021



- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 34 FOR -LI- PROFILE
SEE SHEET 55 FOR -Y30RPB- PROFILE
SEE SHEET 56 FOR -Y30RPC- PROFILE



END PROJECT R-3300A -LI- POC STA.578+00.00
/ BEGIN PROJECT R-3300B -LI- POC STA.578+00.00

 **Stantec**

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

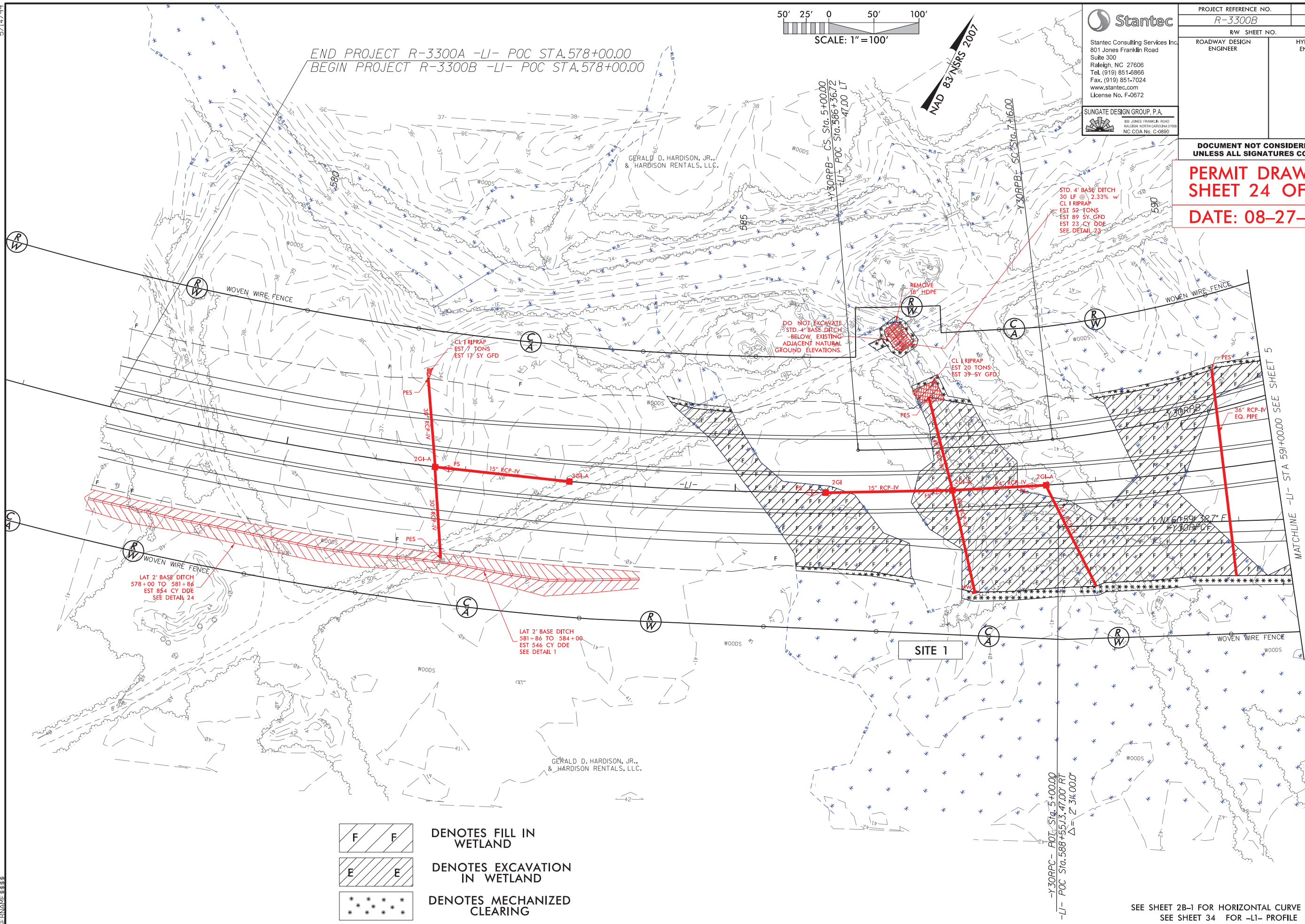
SUNGATE DESIGN GROUP, P.A.


 802 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27601
NC COA No. C-0890


| | | | |
|----------------------------|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-3300B | | 4 | |
| R/W SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |


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

PERMIT DRAWING
SHEET 24 OF 162
DATE: 08-27-2021



-  DENOTES FILL IN WETLAND

 DENOTES EXCAVATION IN WETLAND

 DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 34 FOR -L1- PROFILE
SEE SHEET 55 FOR -Y30RPB- PROFILE
SEE SHEET 56 FOR -Y30RPC- PROFILE

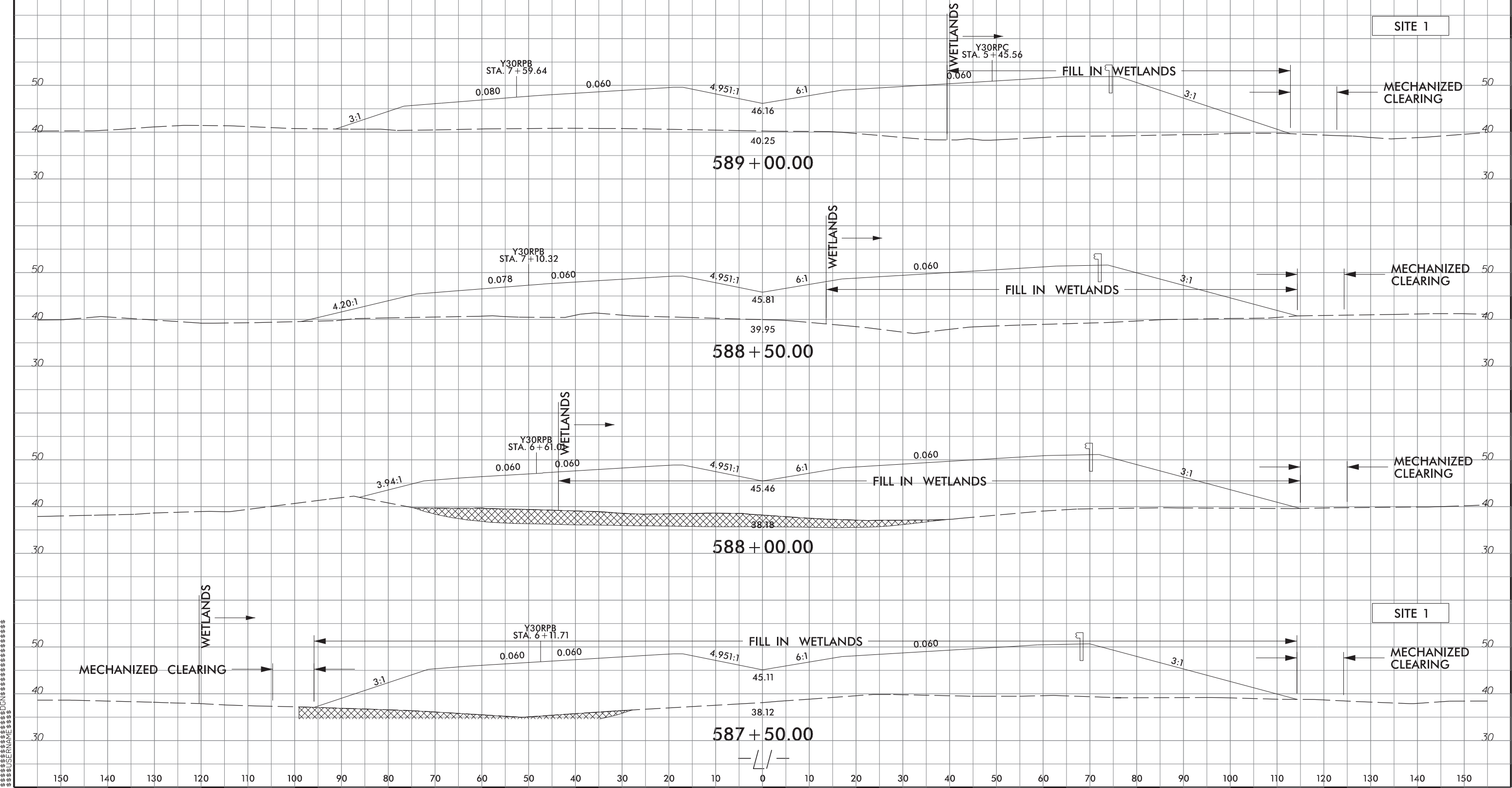
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-5 |

PERMIT DRAWING
SHEET 25 OF 162

DATE: 08-27-2021



6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-6

PERMIT DRAWING
SHEET 26 OF 162
DATE: 08-27-2021

SITE 1

FILL IN WETLANDS

MECHANIZED
CLEARING

WETLANDS

Y30RPB
STA. 9+57.14

0.080

0.060

4.951:1

6:1

0.060

Y30RPC
STA. 7+49.61

0.059

0.059

WETLANDS

FILL IN WETLANDS

MECHANIZED
CLEARING

591+00.00

MECHANIZED
CLEARING

FILL IN WETLANDS

WETLANDS

Y30RPB
STA. 9+07.72

0.080

0.060

4.951:1

6:1

0.060

Y30RPC
STA. 6+98.40

0.061

0.061

WETLANDS

FILL IN WETLANDS

MECHANIZED
CLEARING

590+50.00

MECHANIZED
CLEARING

Y30RPB
STA. 8+58.33

0.079

FILL IN WETLANDS

0.060

4.951:1

6:1

0.060

Y30RPC
STA. 6+47.33

0.060

0.060

FILL IN WETLANDS

3:1

MECHANIZED
CLEARING

590+00.00

WETLANDS

MECHANIZED
CLEARING

Y30RPB
STA. 8+08.97

0.079

0.060

4.951:1

6:1

0.060

Y30RPC
STA. 5+96.39

0.060

0.060

3:1

MECHANIZED
CLEARING

589+50.00

— / —

SITE 1

5/14/99



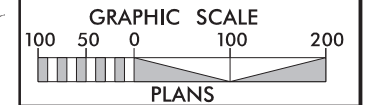
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



NAD 83/NSRS 2007

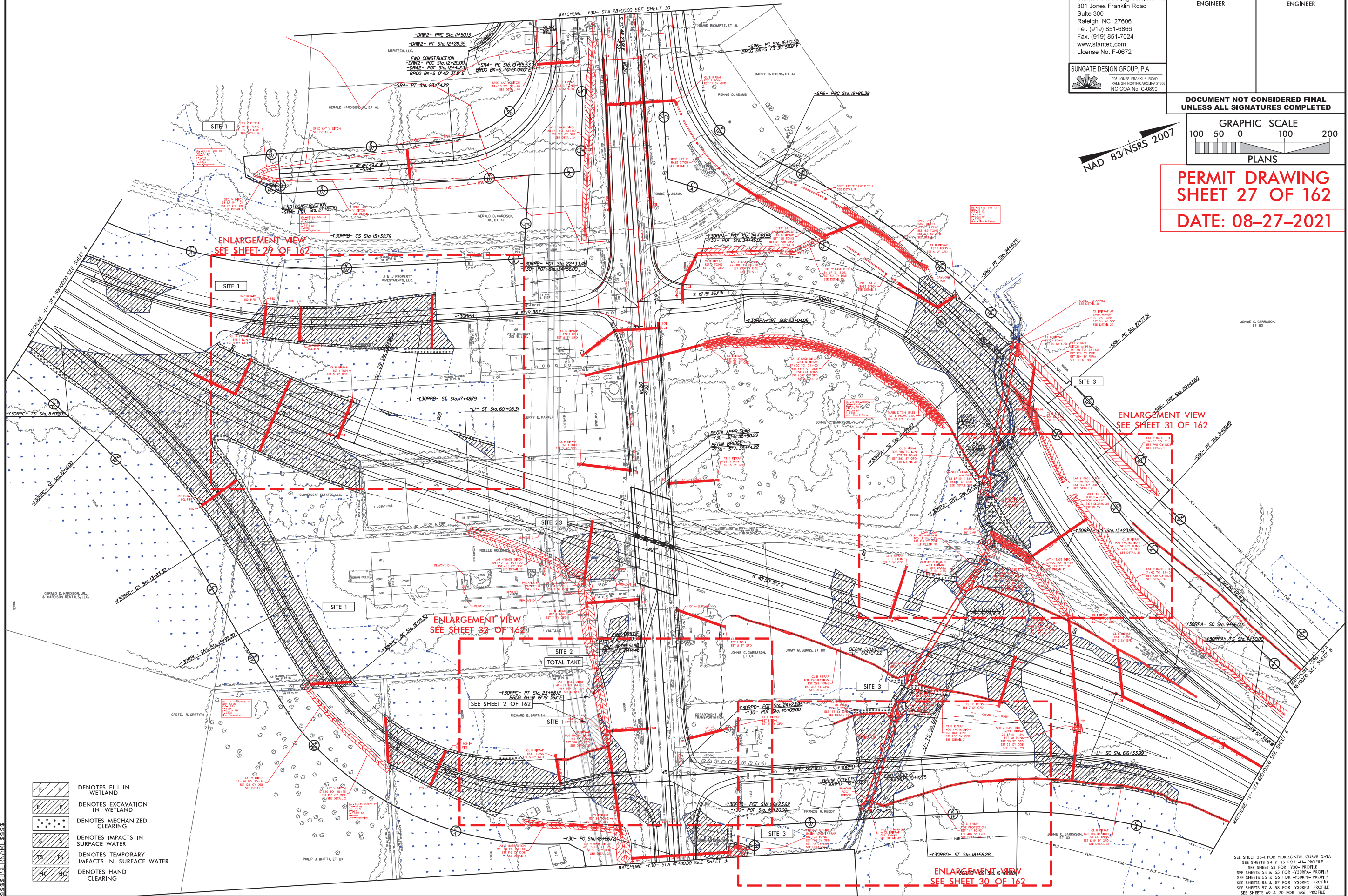
| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 5 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PERMIT DRAWING
SHEET 27 OF 162

DATE: 08-27-2021



- F F DENOTES FILL IN WETLAND
- E E DENOTES EXCAVATION IN WETLAND
- M M DENOTES MECHANIZED CLEARING
- S S DENOTES IMPACTS IN SURFACE WATER
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- HC HC DENOTES HAND CLEARING

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 34 & 35 FOR -1-1- PROFILE
SEE SHEET 53 FOR -Y30- PROFILE
SEE SHEETS 54 & 55 FOR -Y30RPA- PROFILE
SEE SHEETS 56 & 57 FOR -Y30RPA- PROFILE
SEE SHEETS 58 & 59 FOR -Y30RPA- PROFILE
SEE SHEETS 60 & 61 FOR -Y30RPA- PROFILE

5/14/99



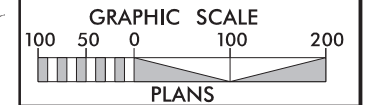
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



SUNGATE DESIGN GROUP, P.A.
895 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27609
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 5 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

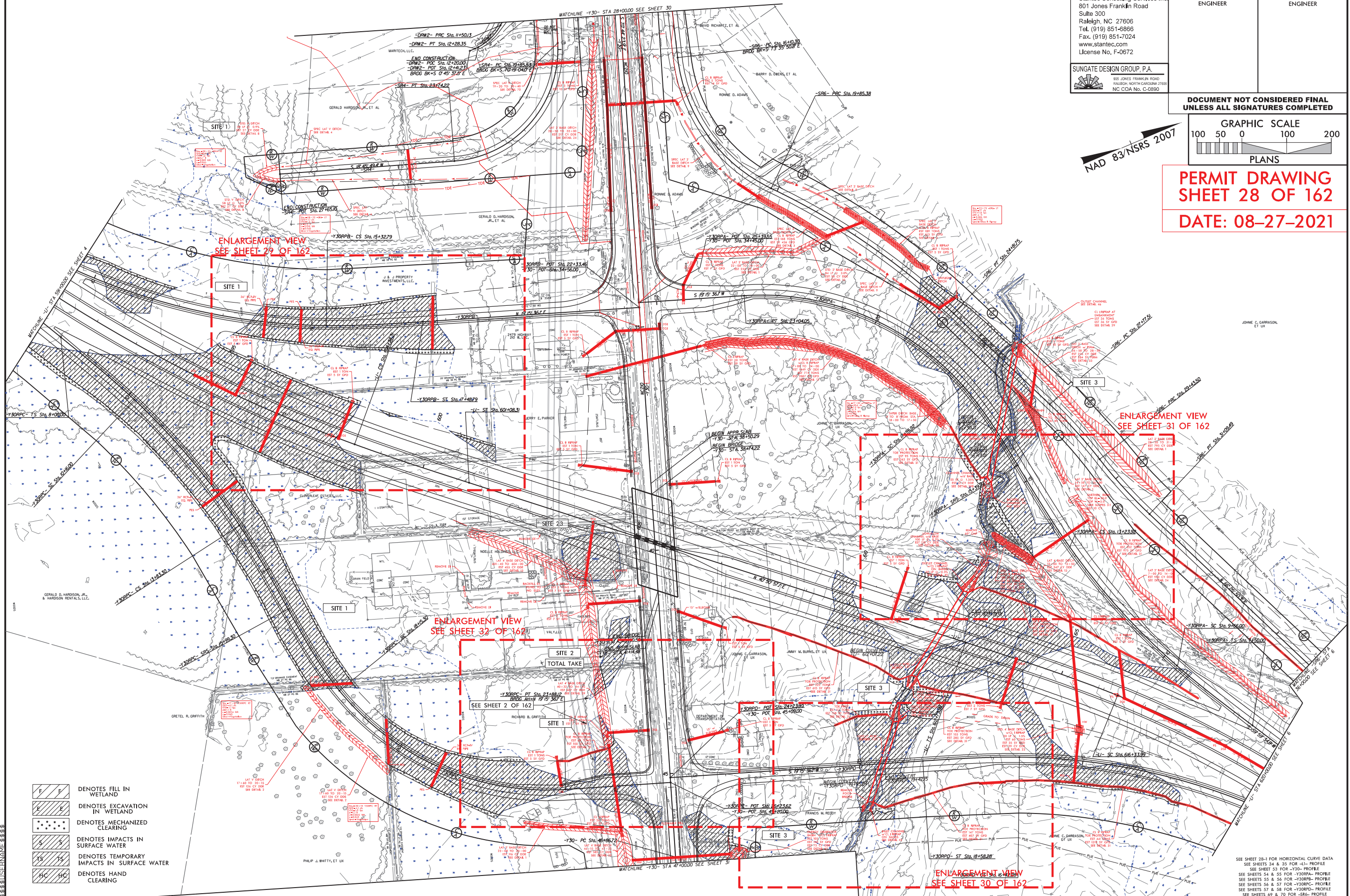
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



NAD 83/NSRS 2007

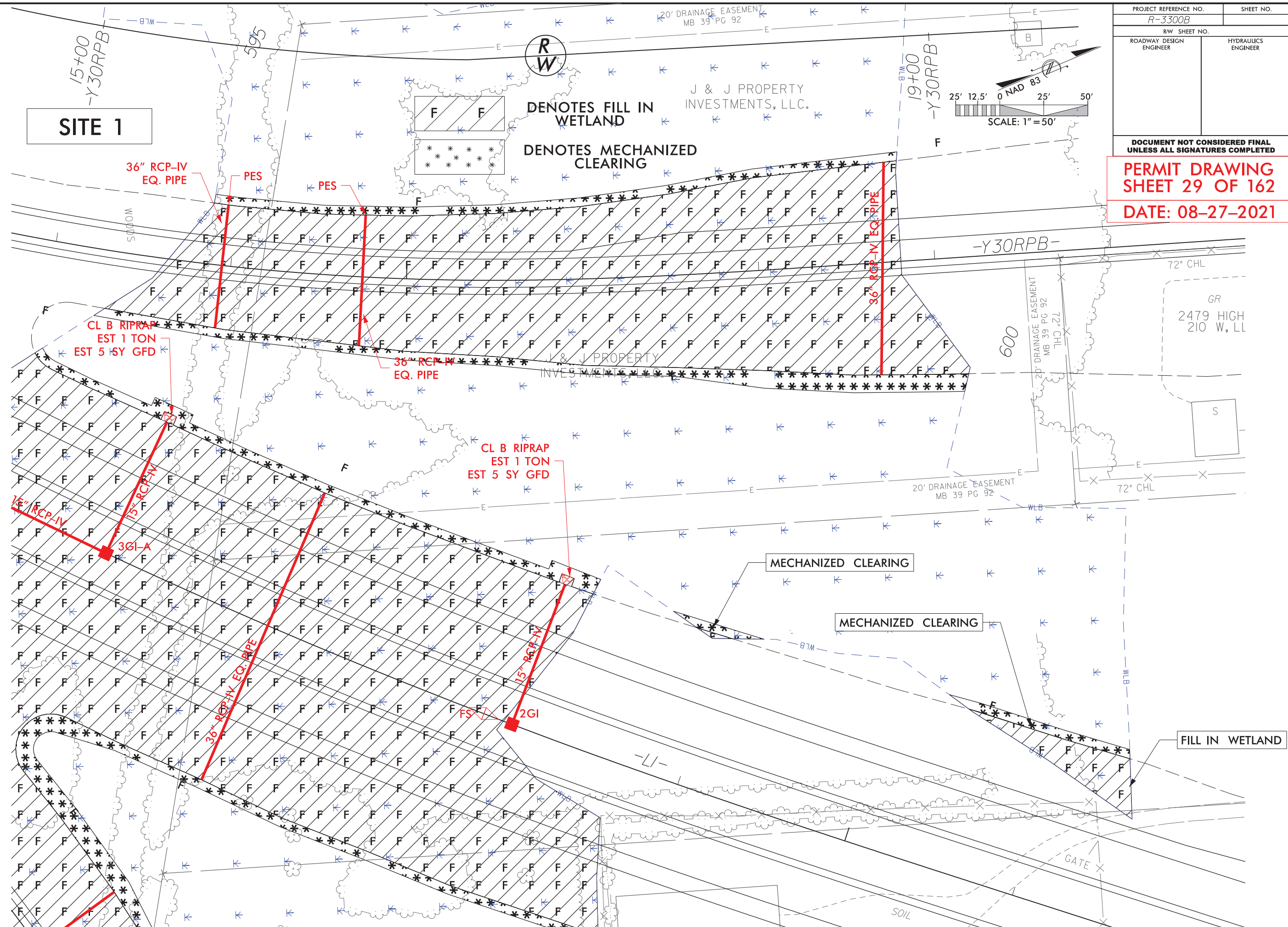
PERMIT DRAWING
SHEET 28 OF 162

DATE: 08-27-2021

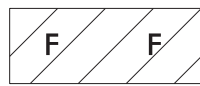


- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES HAND CLEARING

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 34 & 35 FOR -Y30- PROFILE
SEE SHEET 53 FOR -Y30- PROFILE
SEE SHEETS 54 & 55 FOR -Y30PA- PROFILE
SEE SHEETS 56 & 57 FOR -Y30RPA- PROFILE
SEE SHEETS 58 & 59 FOR -Y30RD- PROFILE
SEE SHEETS 60 & 61 FOR -SR6- PROFILE



8/17/20



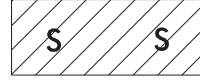
DENOTES FILL IN
WETLAND



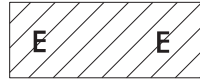
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES MECHANIZED
CLEARING



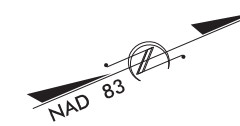
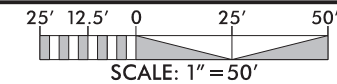
DENOTES IMPACTS IN
SURFACE WATER



DENOTES EXCAVATION
IN WETLAND



DENOTES HAND
CLEARING



PROJECT REFERENCE NO. SHEET NO.

R-3300B

RW SHEET NO.

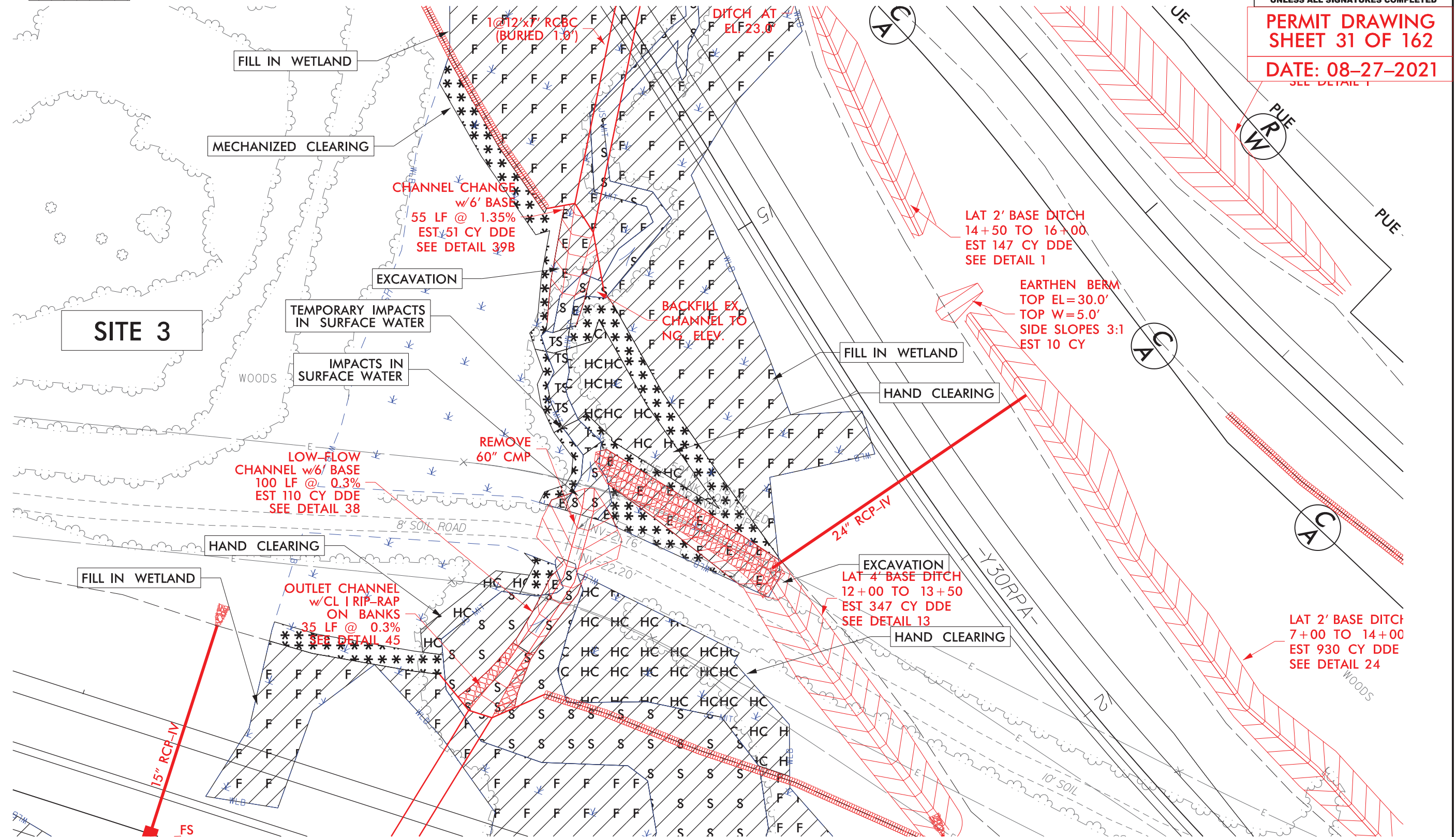
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 31 OF 162

DATE: 08-27-2021
SEE DETAIL 1




8/17/20

DENOTES FILL IN
WETLAND

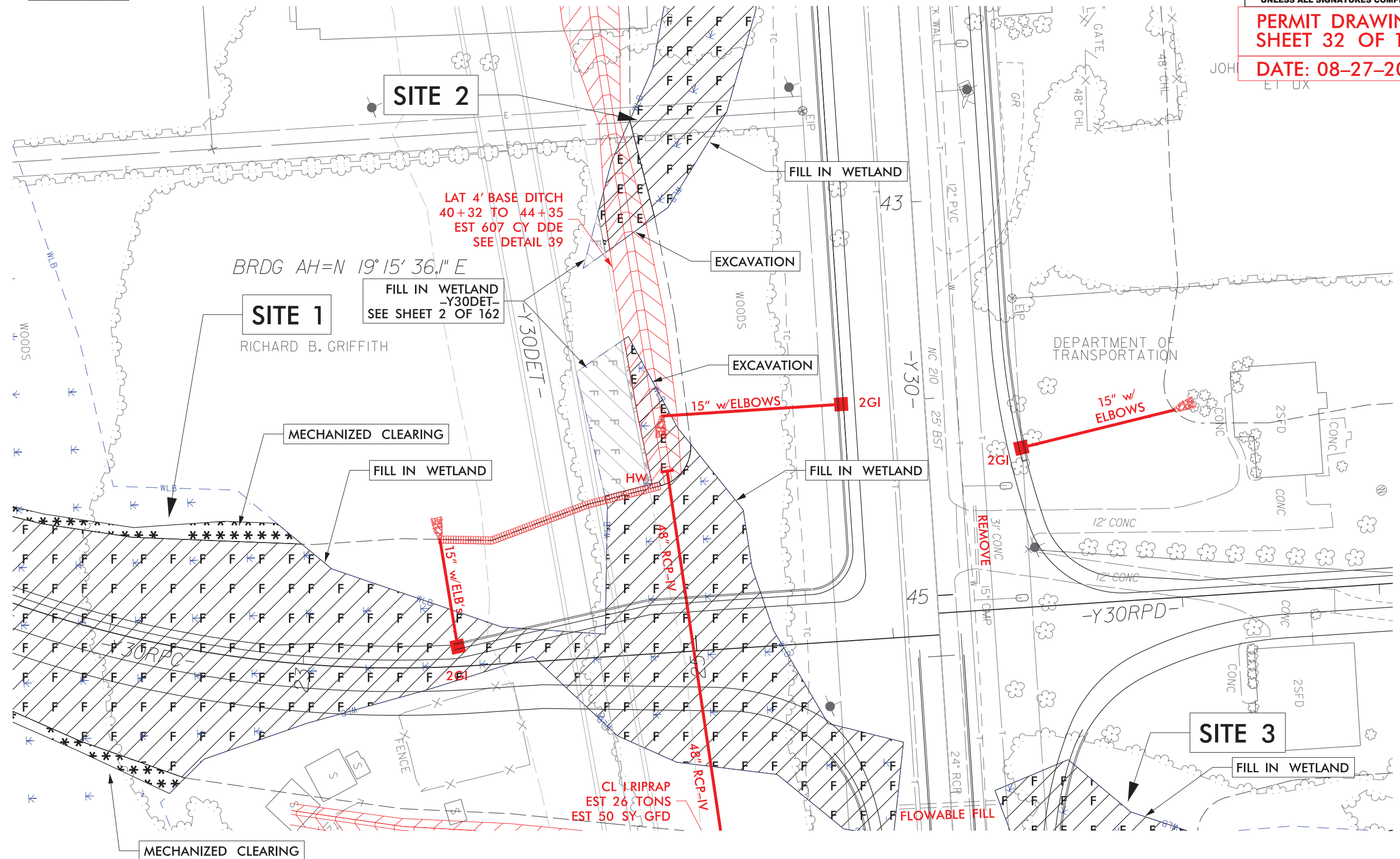
DENOTES MECHANIZED
CLEARING

DENOTES EXCAVATION
IN WETLAND



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

DATE: 08-27-2021

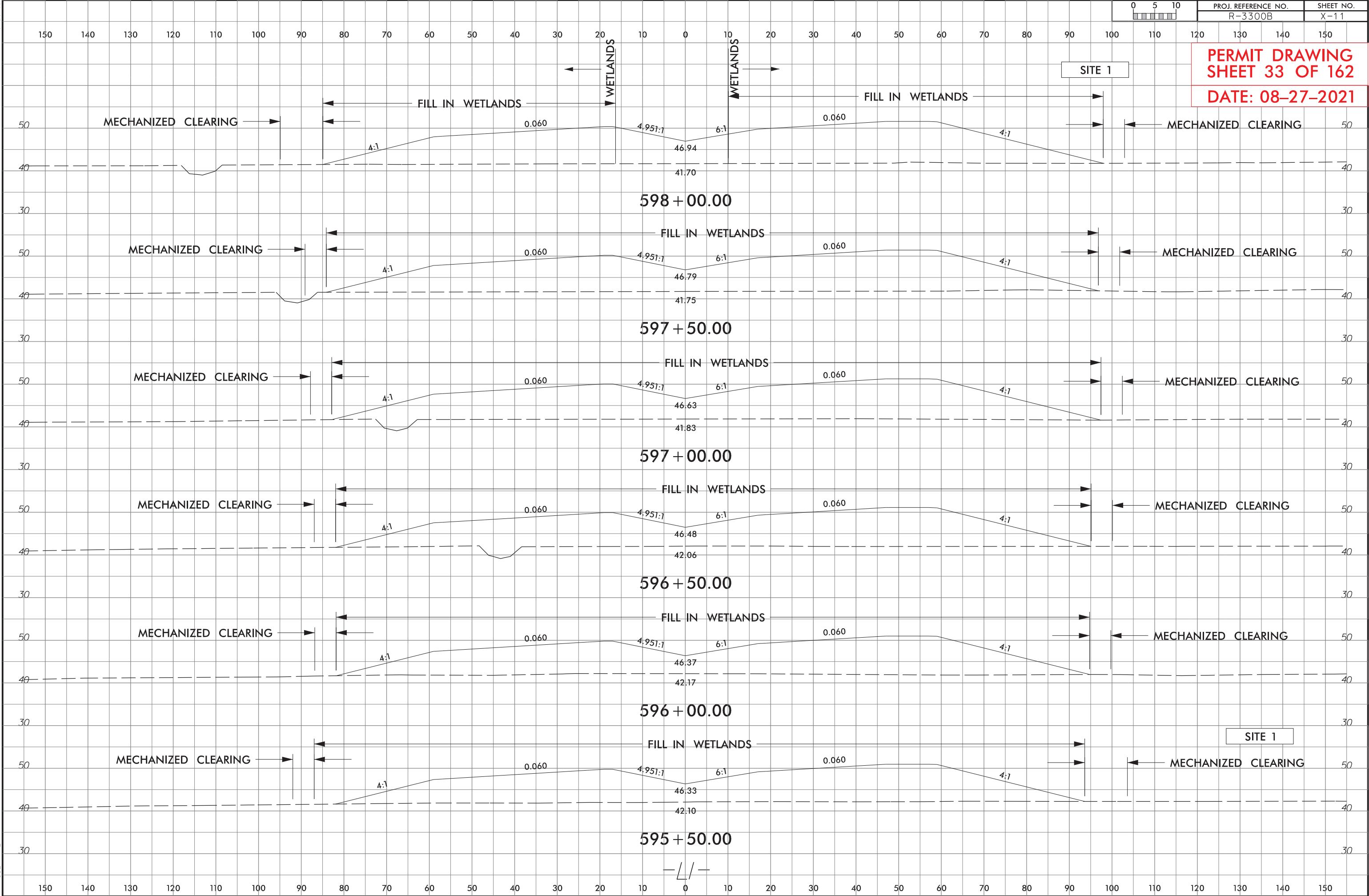


6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-11 |

PERMIT DRAWING
SHEET 33 OF 162
DATE: 08-27-2021



SECTION 595+50.00 TO 598+00.00

6/23/16

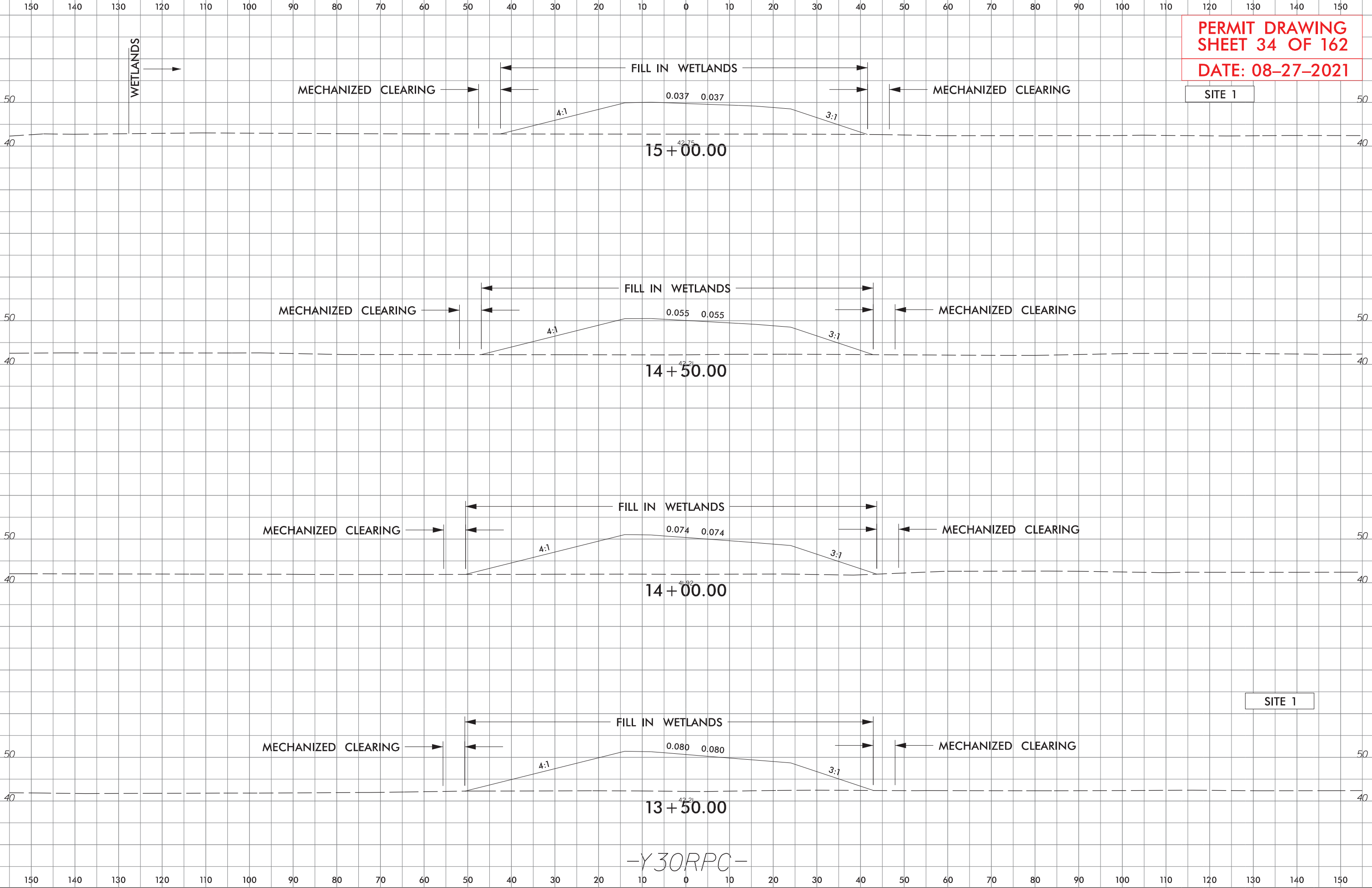


PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-234

PERMIT DRAWING
SHEET 34 OF 162
DATE: 08-27-2021

SITE 1



6/23/16

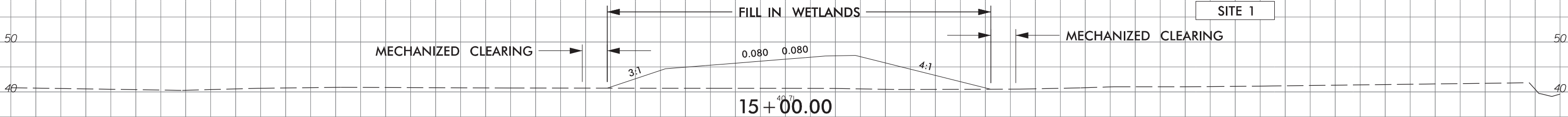
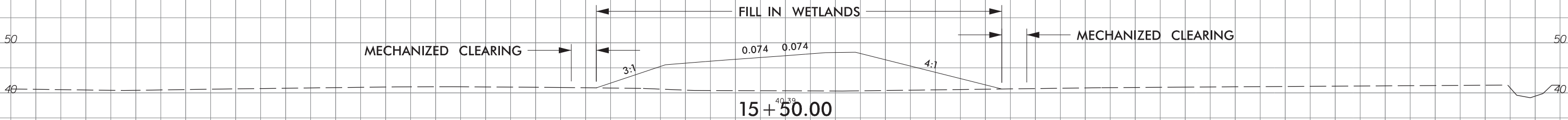
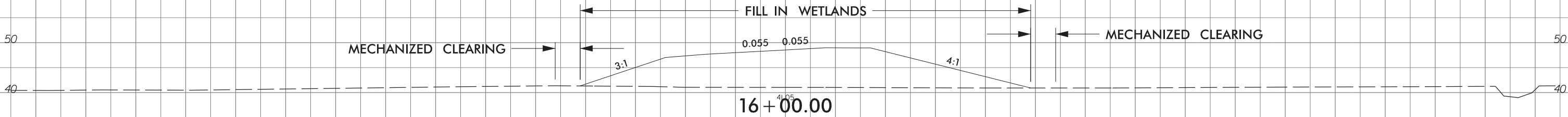
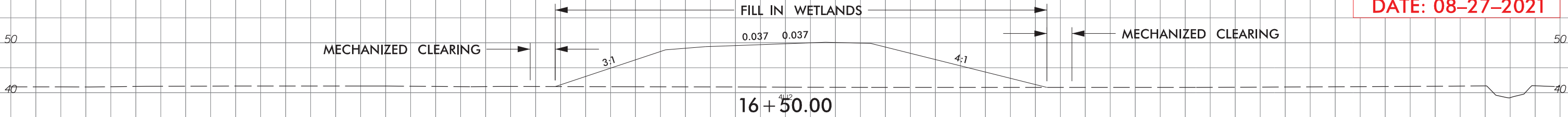


PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-228

PERMIT DRAWING
SHEET 35 OF 162
DATE: 08-27-2021

SITE 1



SITE 1

-Y30RPB-

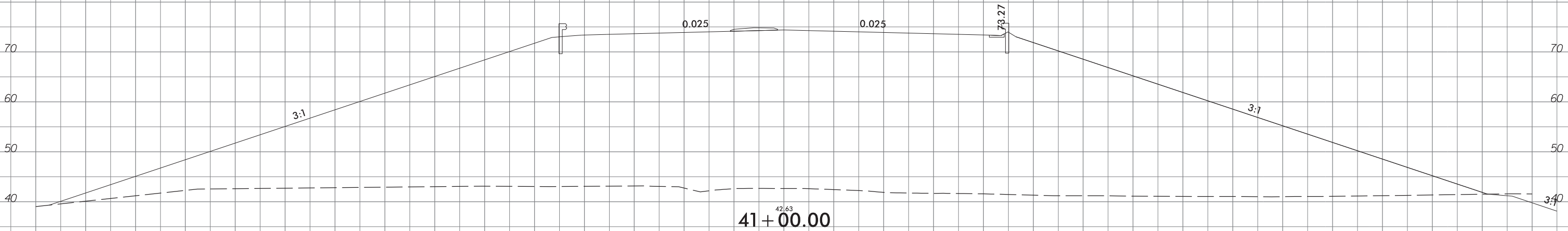
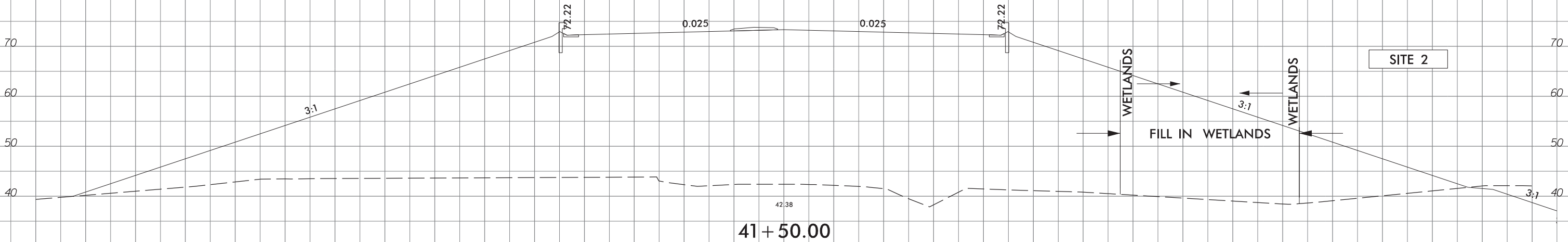
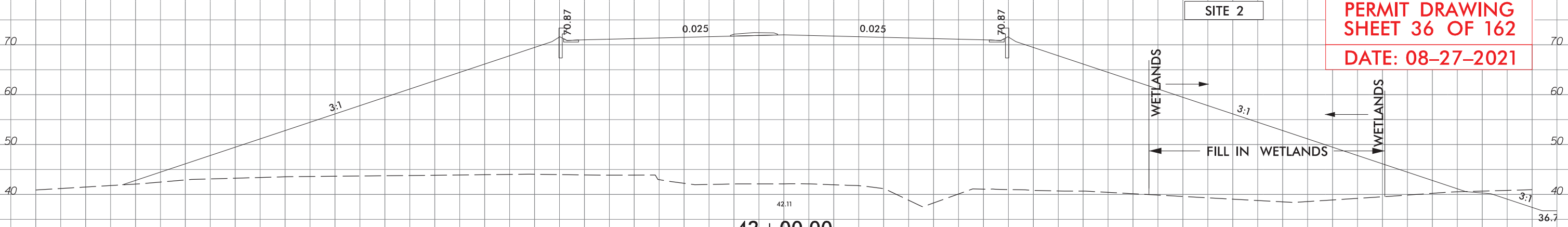
6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-207

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



-Y 30-

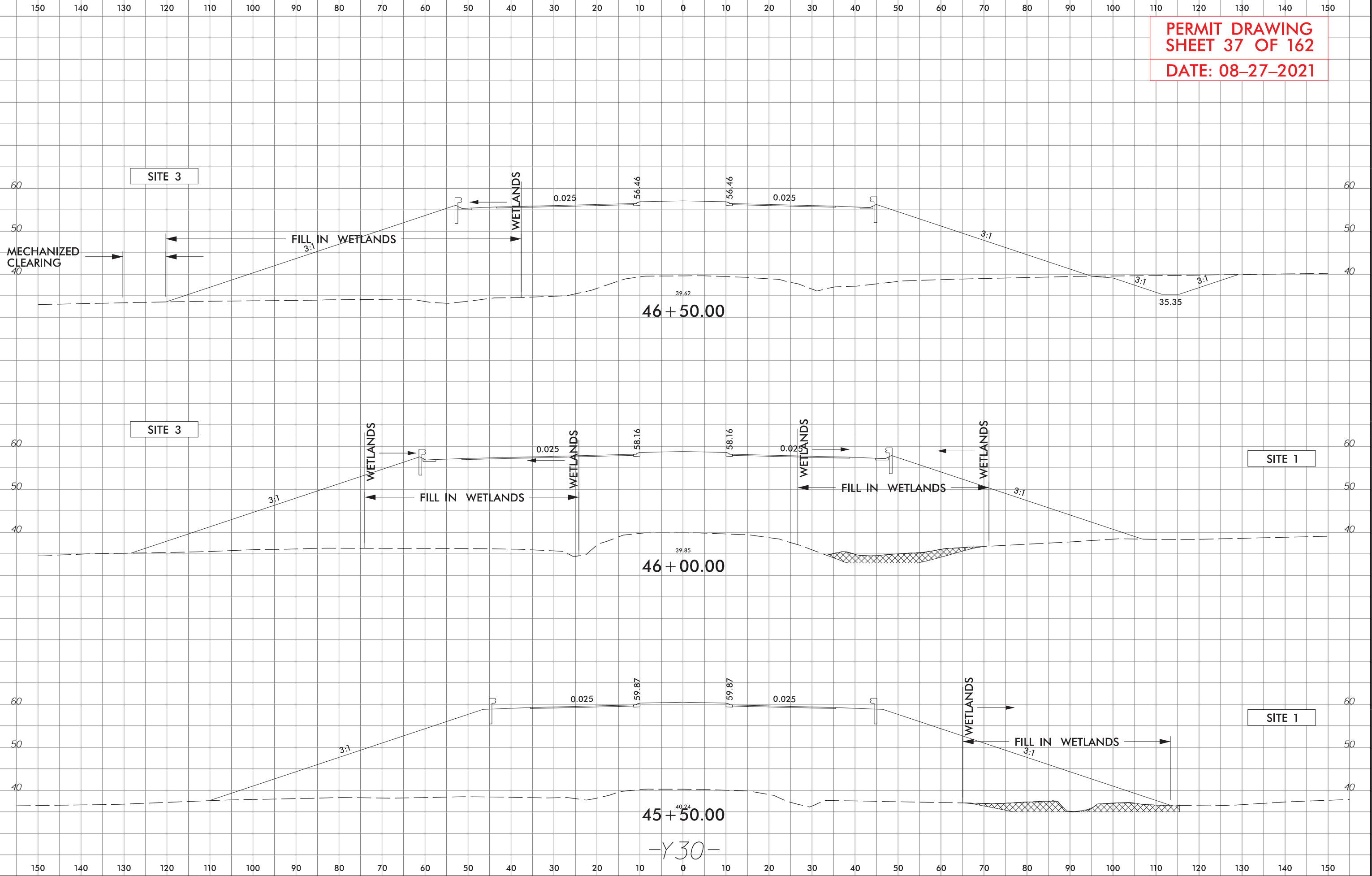
6/23/16

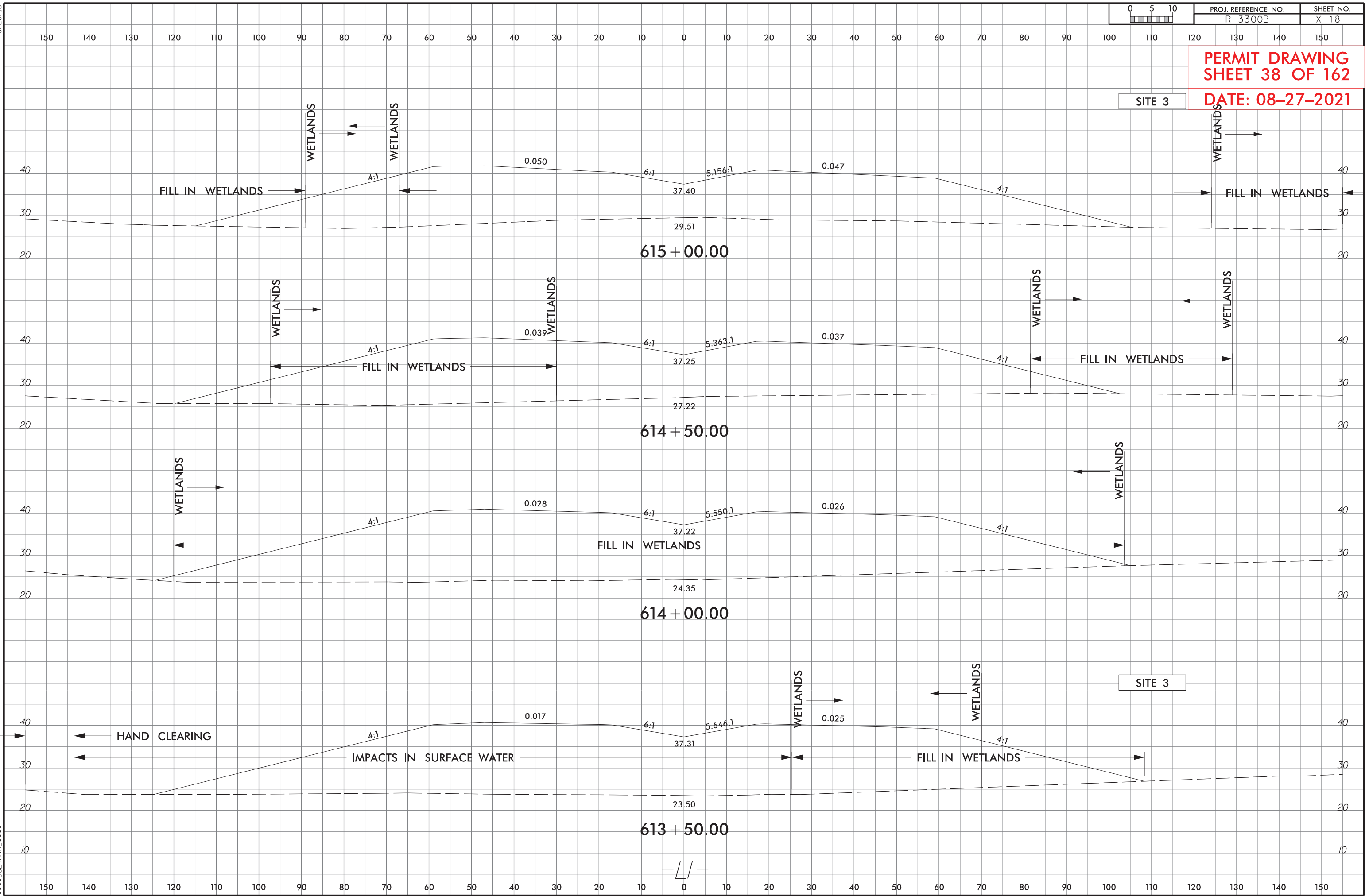


PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-210

PERMIT DRAWING
SHEET 37 OF 162
DATE: 08-27-2021





SITE 3



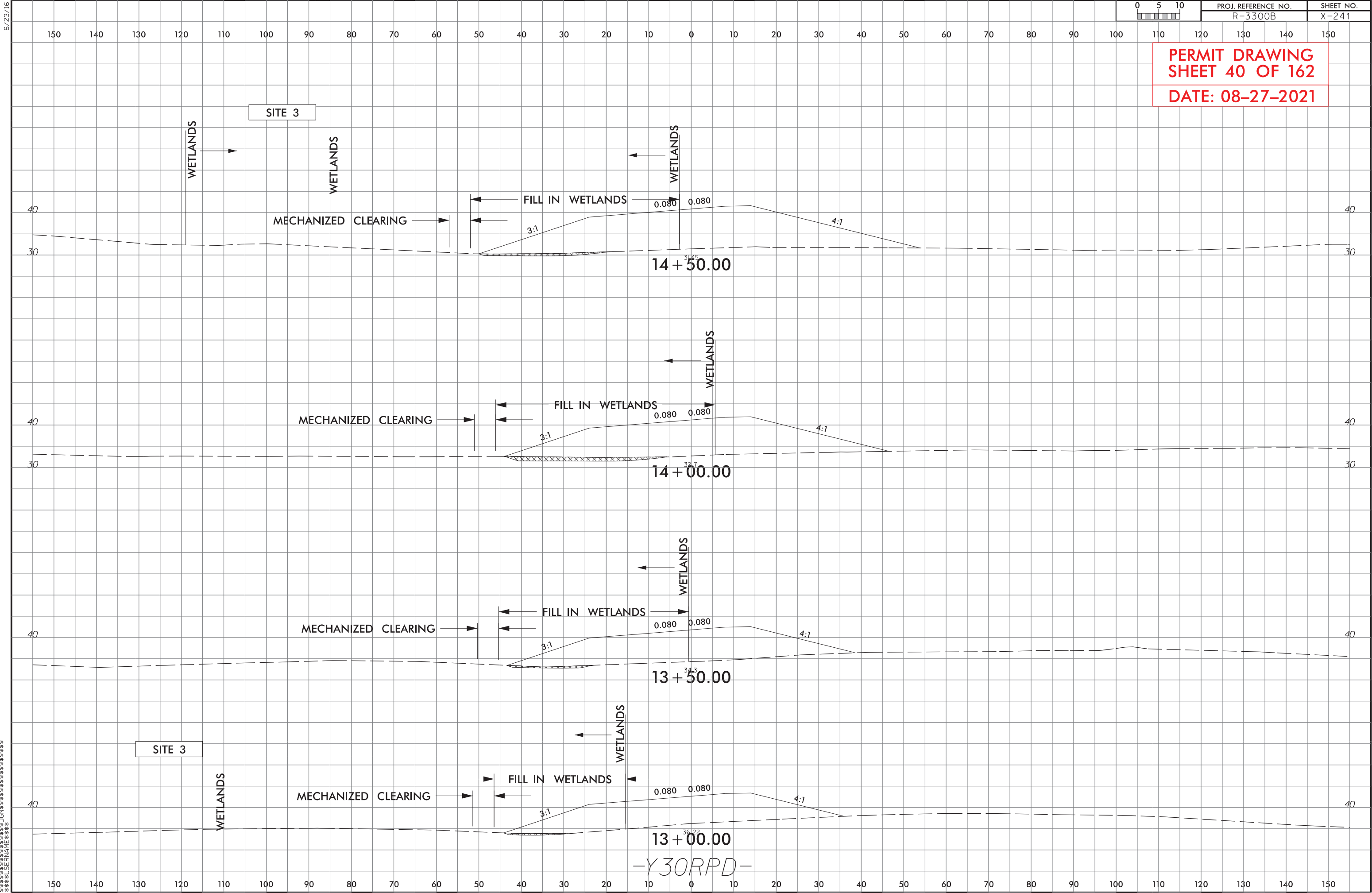
6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-241

PERMIT DRAWING
SHEET 40 OF 162
DATE: 08-27-2021

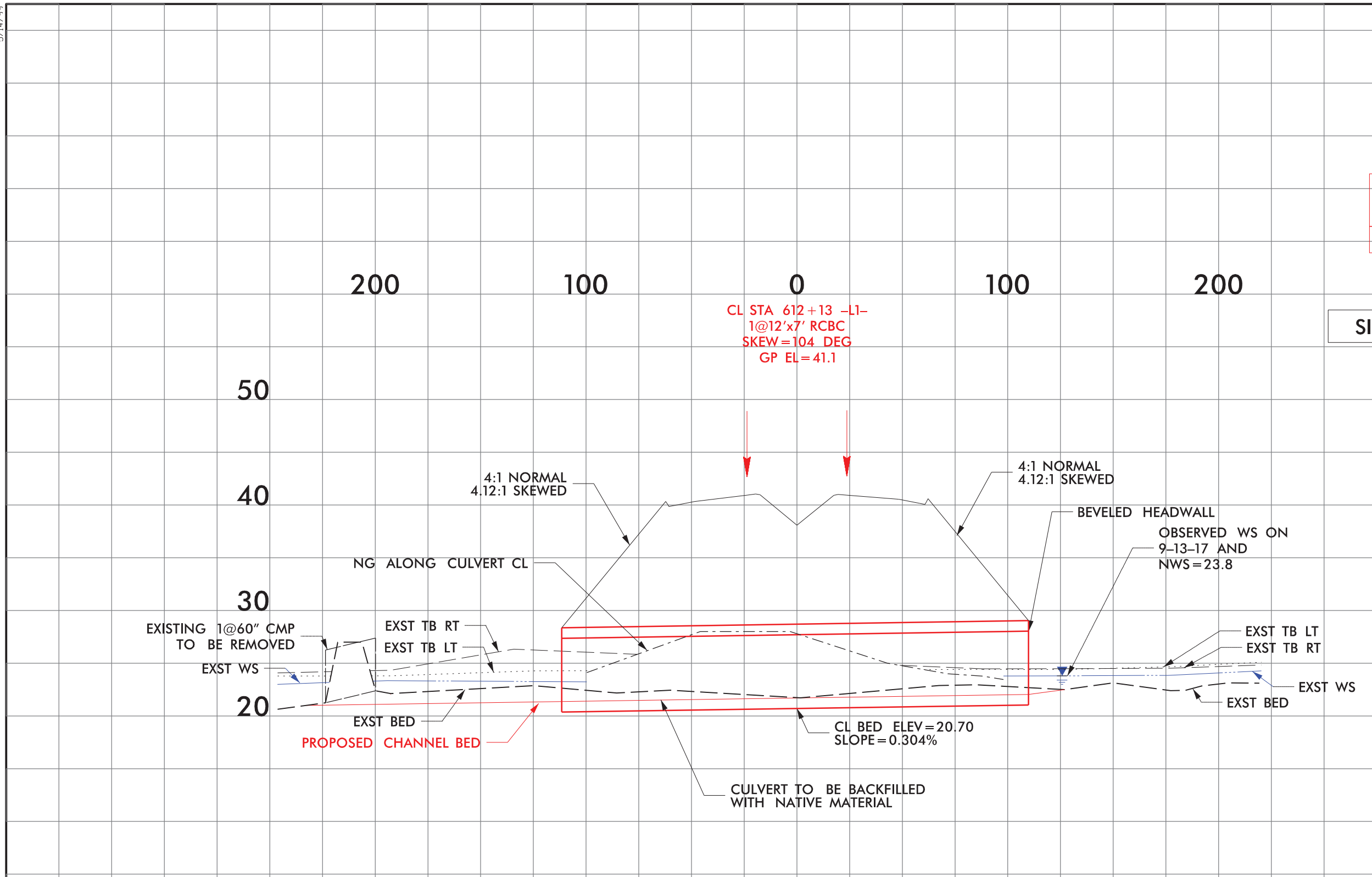


-Y30RPD-

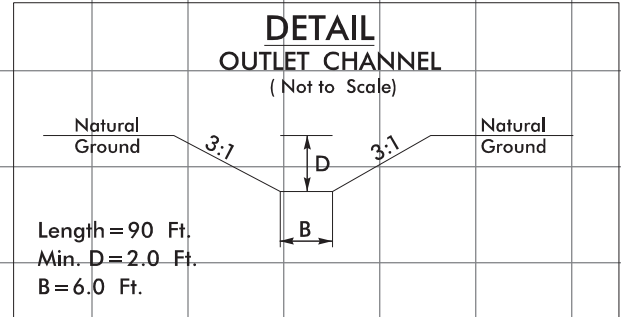
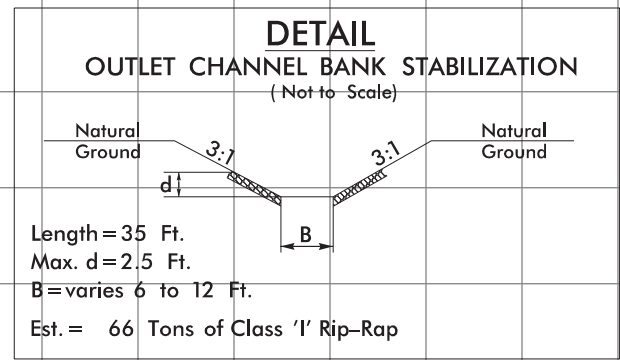
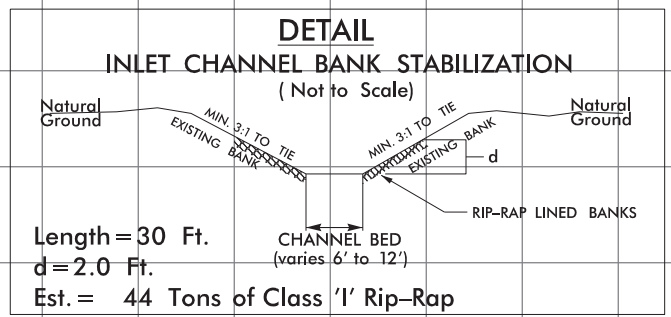
5/14/99

DATE: 08-27-2021

| | | | |
|--|--|---------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |
| PERMIT DRAWING SHEET 41 OF 162 | | | |
| DATE: 08-27-2021 | | | |

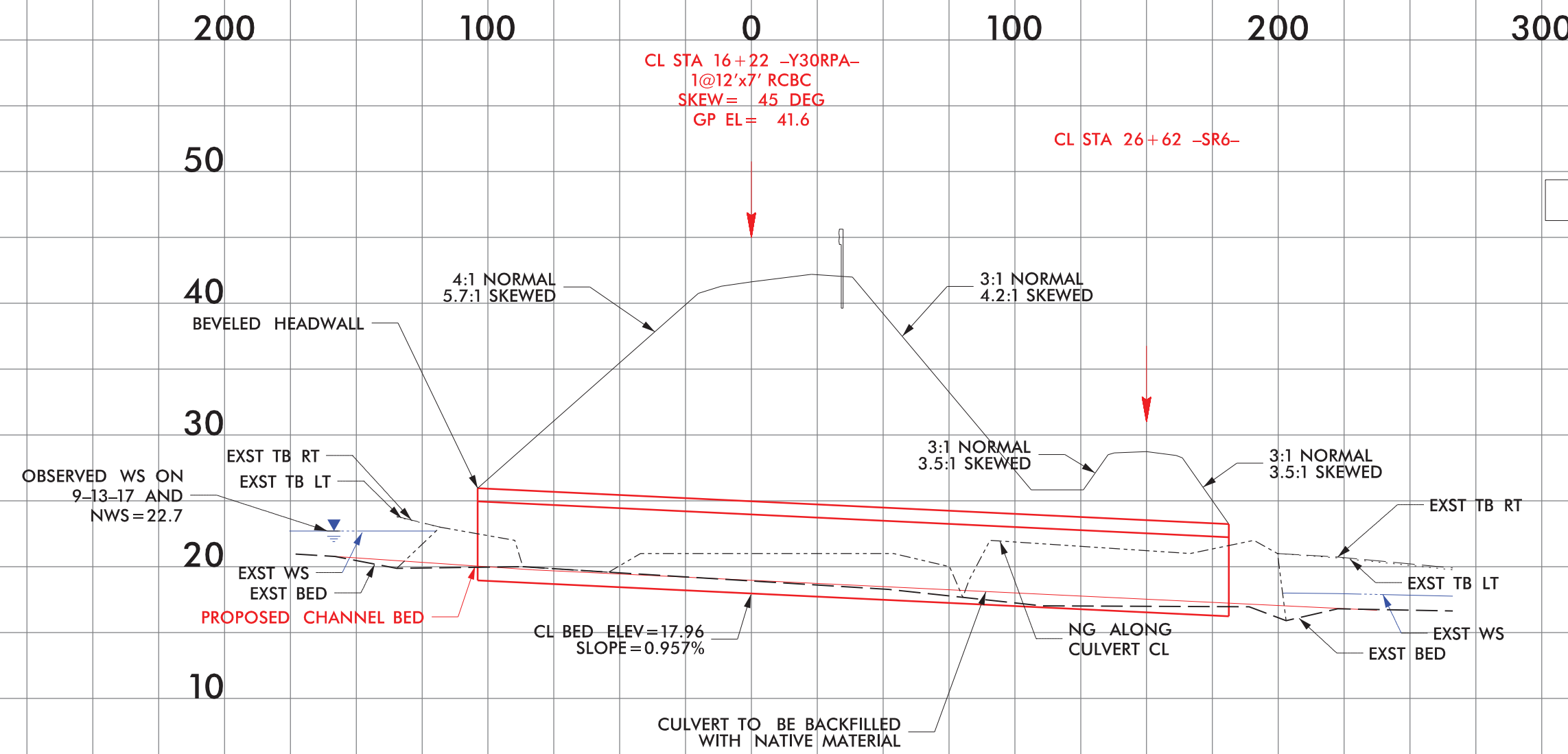


SITE 3

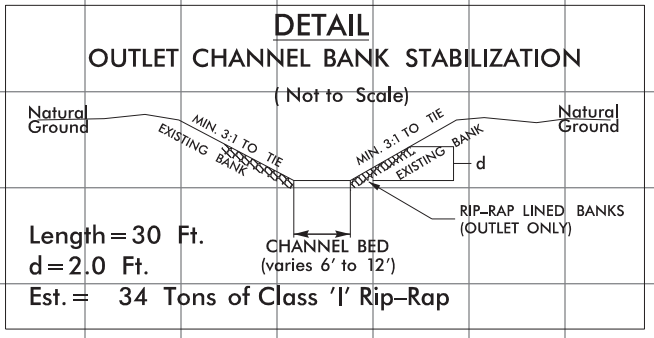
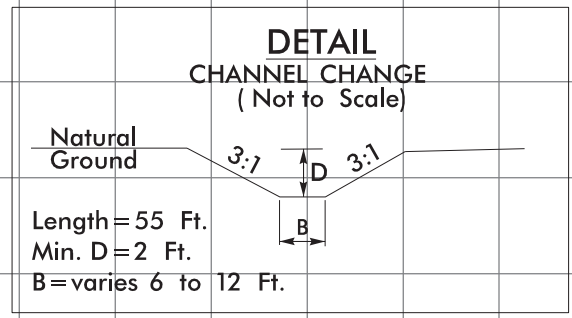


5/14/99
C:\PROJECTS\2021\08\20210827\20210827.DWG

| | | |
|--|---------------------|-----------|
| PROJECT REFERENCE NO. | | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | |
| PERMIT DRAWING SHEET 42 OF 162 DATE: 08-27-2021 | | |

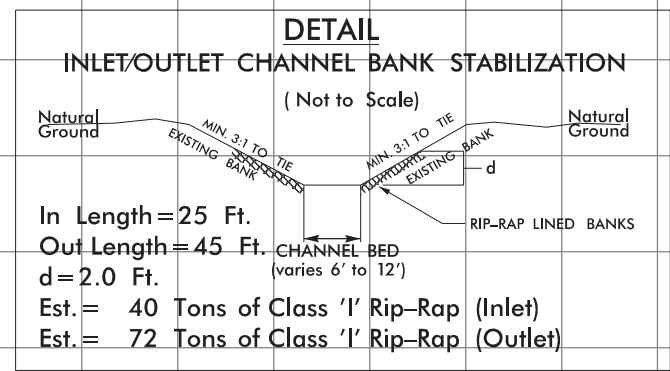
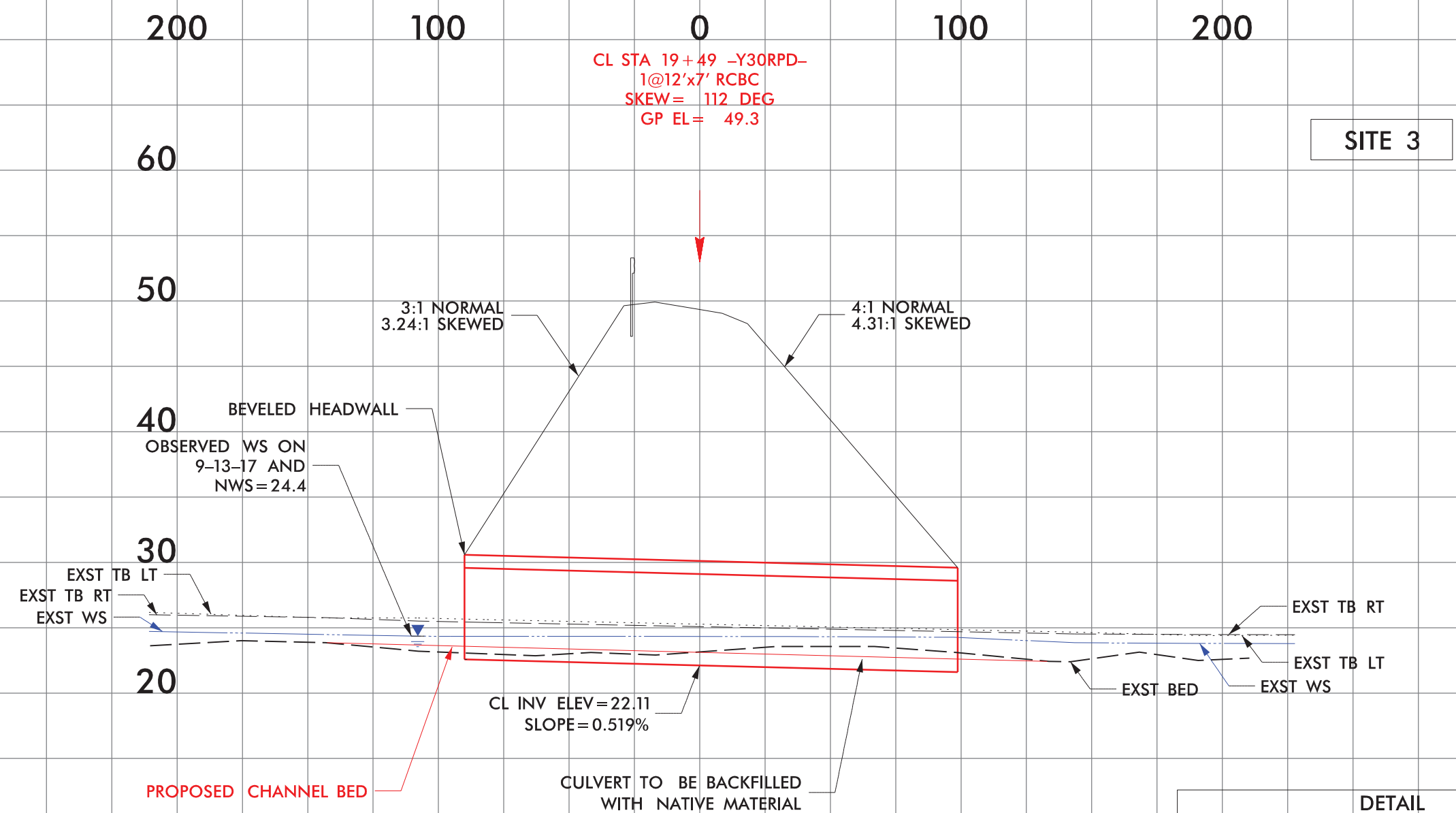


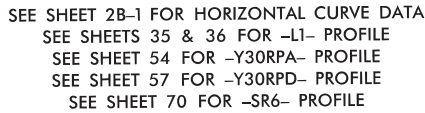
SITE 3



5/14/99
C:\Users\jgarcia\OneDrive\Documents\2021\08\27\20210827\20210827.dwg

| PROJECT REFERENCE NO. | | SHEET NO. |
|--|--|---------------------|
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | |
| PERMIT DRAWING SHEET 43 OF 162 | | |
| DATE: 08-27-2021 | | |



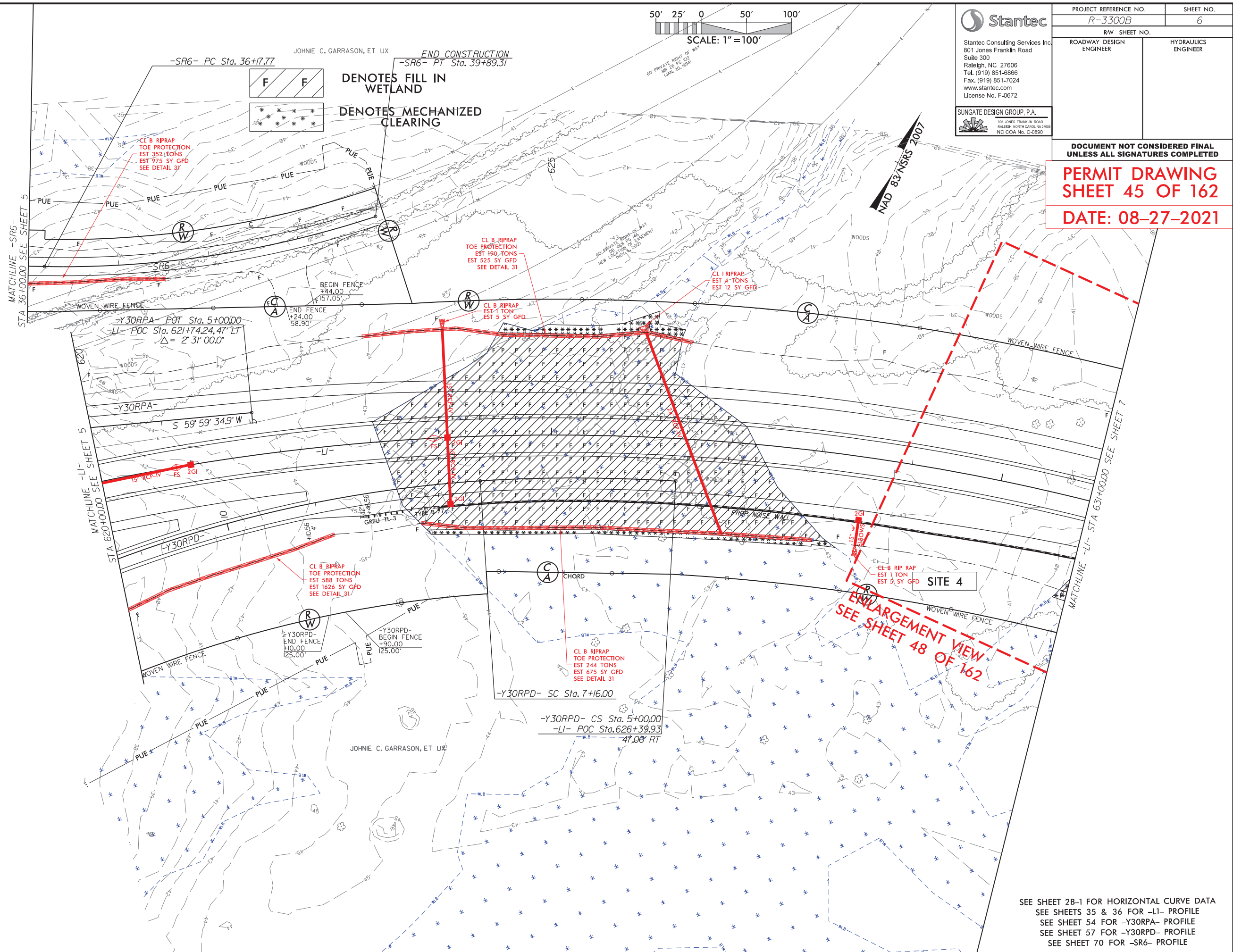


[illegible]

| | | | |
|----------------------------|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-3300B | | 6 | |
| R/W SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

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

PERMIT DRAWING
SHEET 45 OF 162
DATE: 08-27-2021



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 35 & 36 FOR -L1- PROFILE
SEE SHEET 54 FOR -Y30RPA- PROFILE
SEE SHEET 57 FOR -Y30RPD- PROFILE
SEE SHEET 70 FOR -SR6- PROFILE

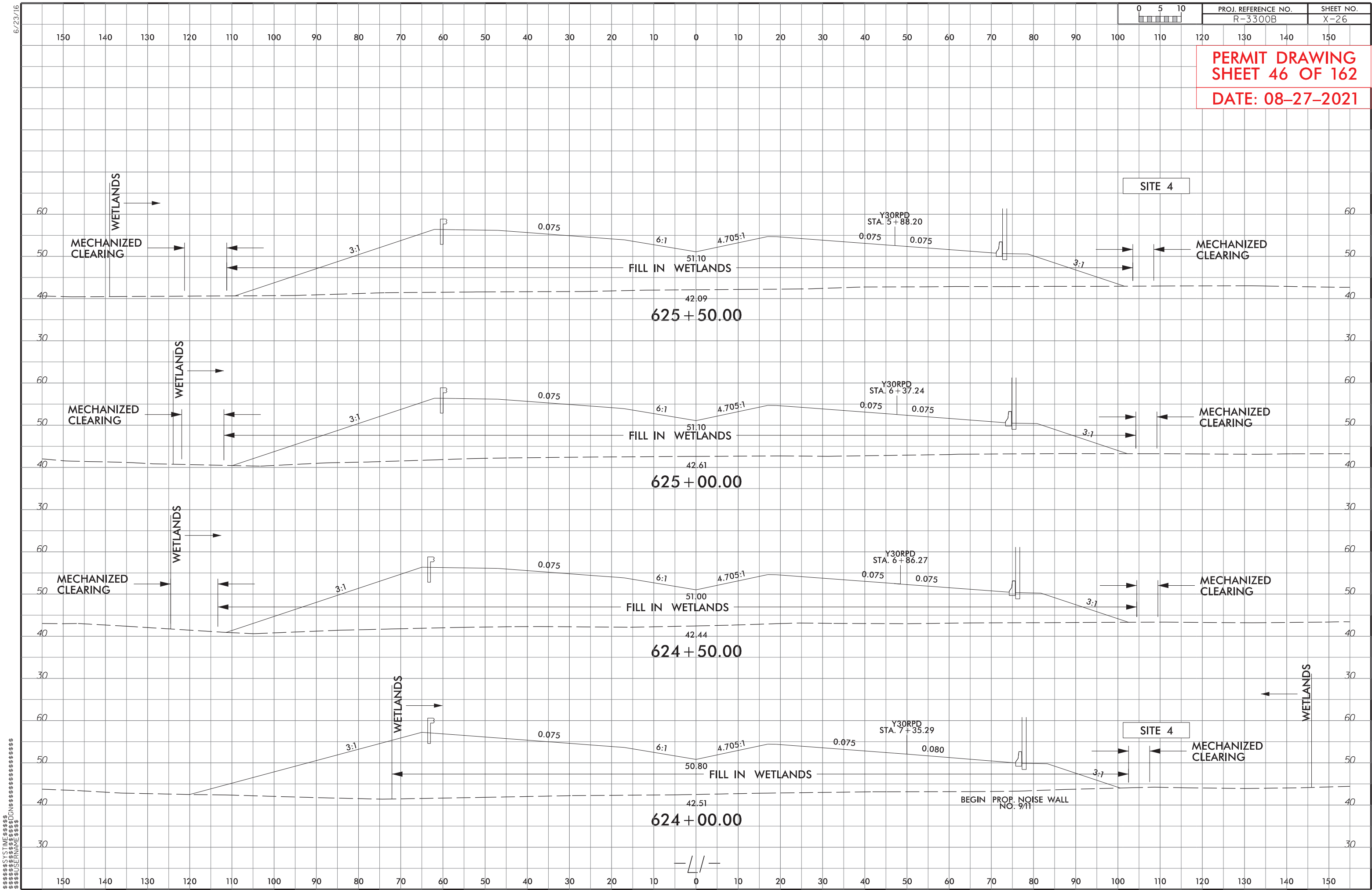
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-26 |

PERMIT DRAWING
SHEET 46 OF 162

DATE: 08-27-2021



5/14/99

5/14/99

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

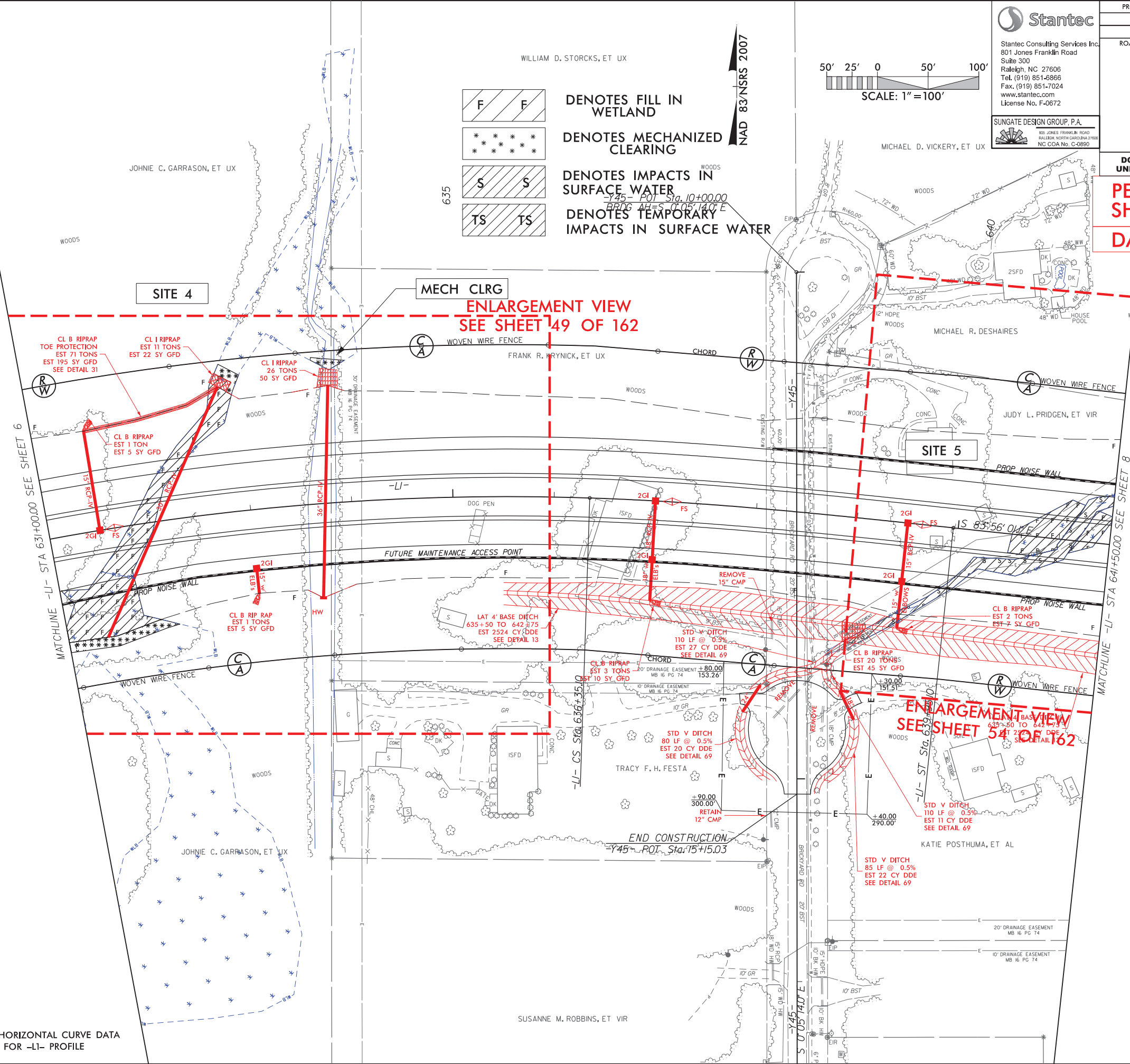
SUNGATE DESIGN GROUP, P.A.
802 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 7 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 47 OF 162
DATE: 08-27-2021

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE



5/14/99

5/14/99

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

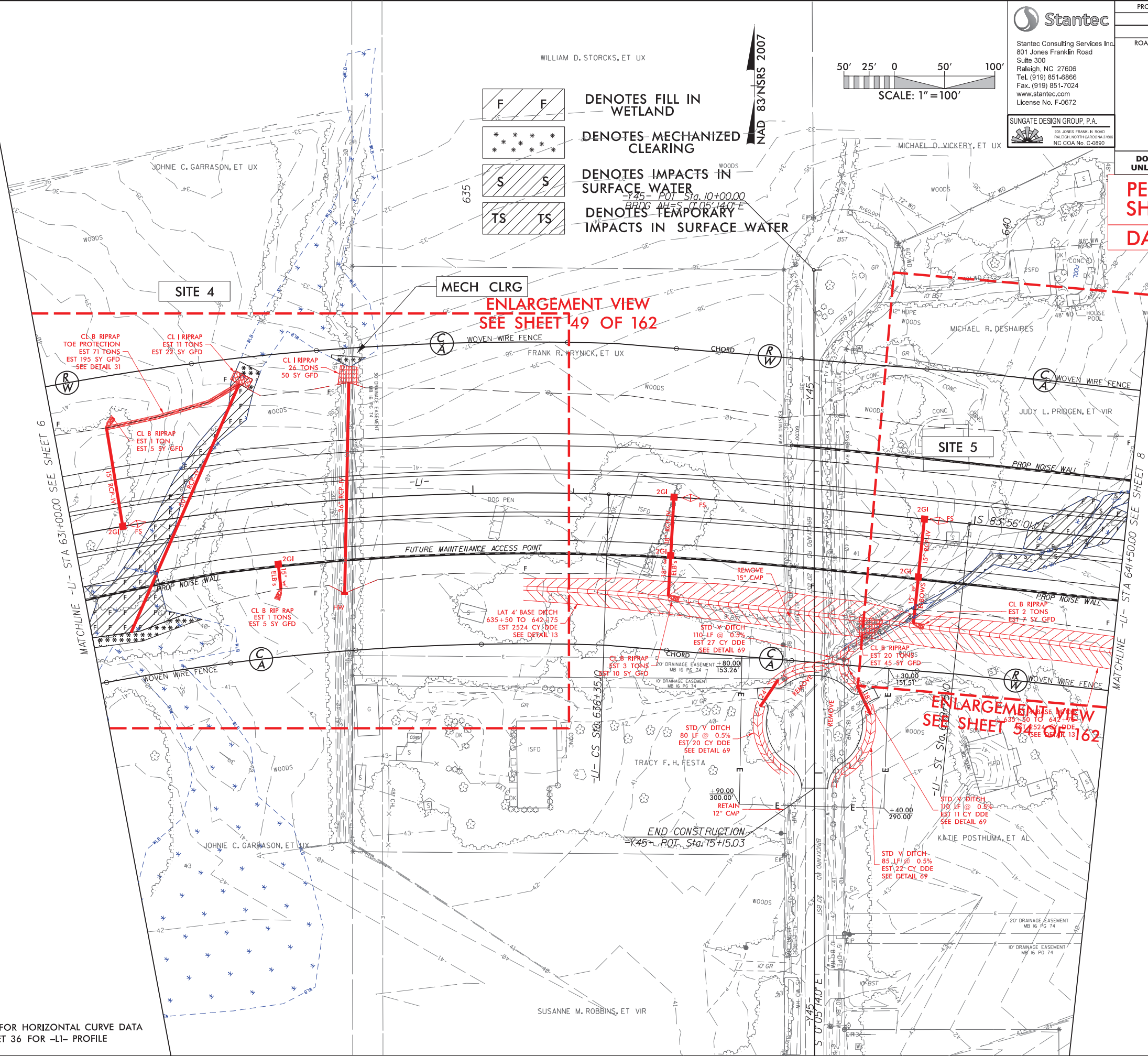
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 7 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 48 OF 162
DATE: 08-27-2021

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE



TIME DGN

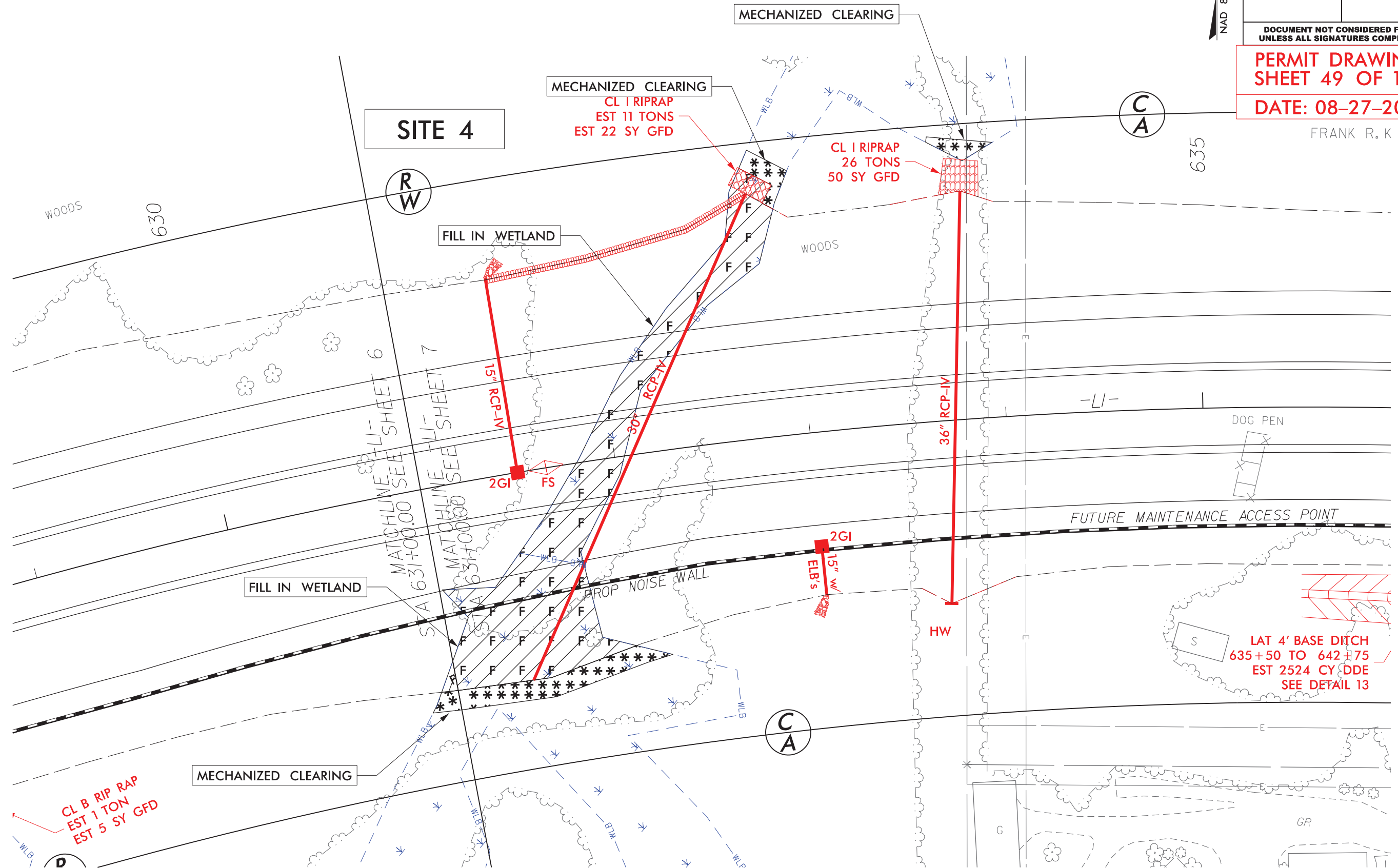


| | |
|---|------------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| <i>R-3300B</i> | |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| <p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> | |

PERMIT DRAWING
SHEET 49 OF 162

DATE: 08-27-2021

FRANK R. K



6/23/16



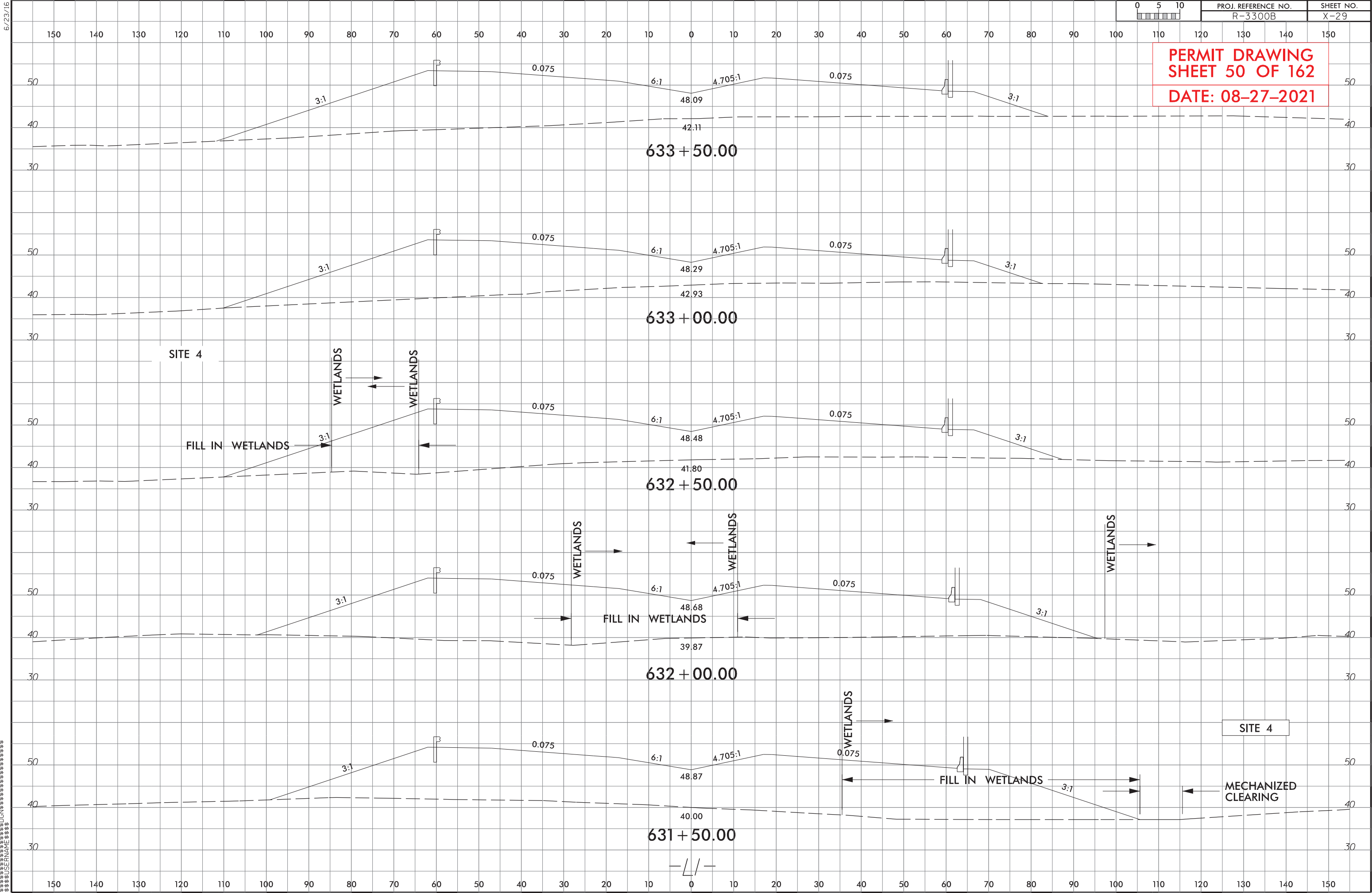
PROJ. REFERENCE NO.

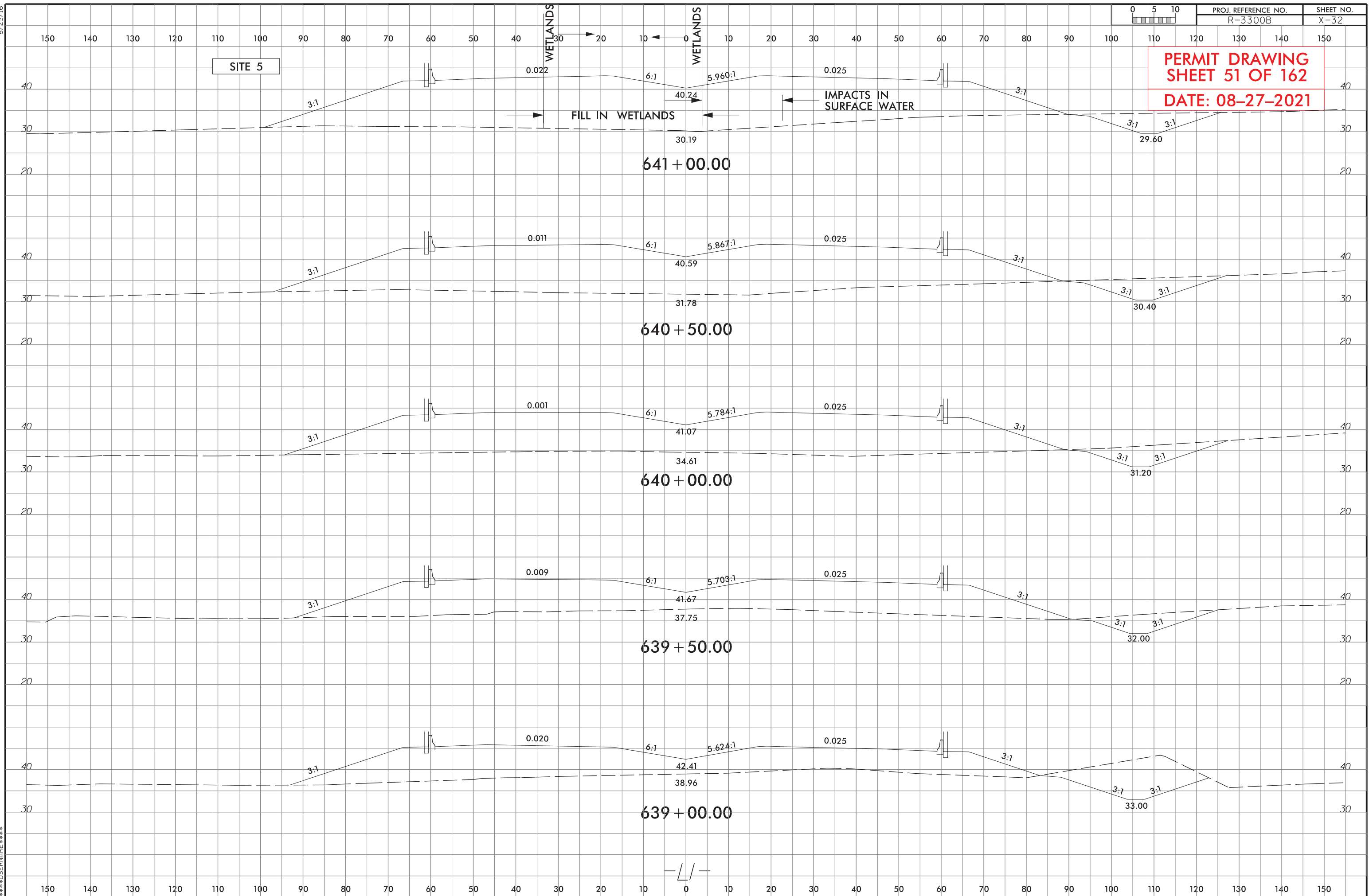
R-3300B

SHEET NO.

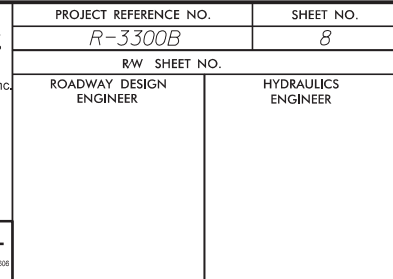
X-29

PERMIT DRAWING
SHEET 50 OF 162
DATE: 08-27-2021





SYTIME\$DGN\$\$\$\$\$

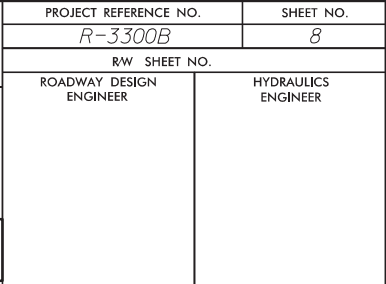


PERMIT DRAWING
SHEET 52 OF 162

DATE: 08-27-2021



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE

[illegible]

PERMIT DRAWING
SHEET 53 OF 162

352

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE



CL B RIPRAP
EST 20 TONS
EST 45 SY GFD

LAT 4' BASE DITCH
SEE DETAIL 13

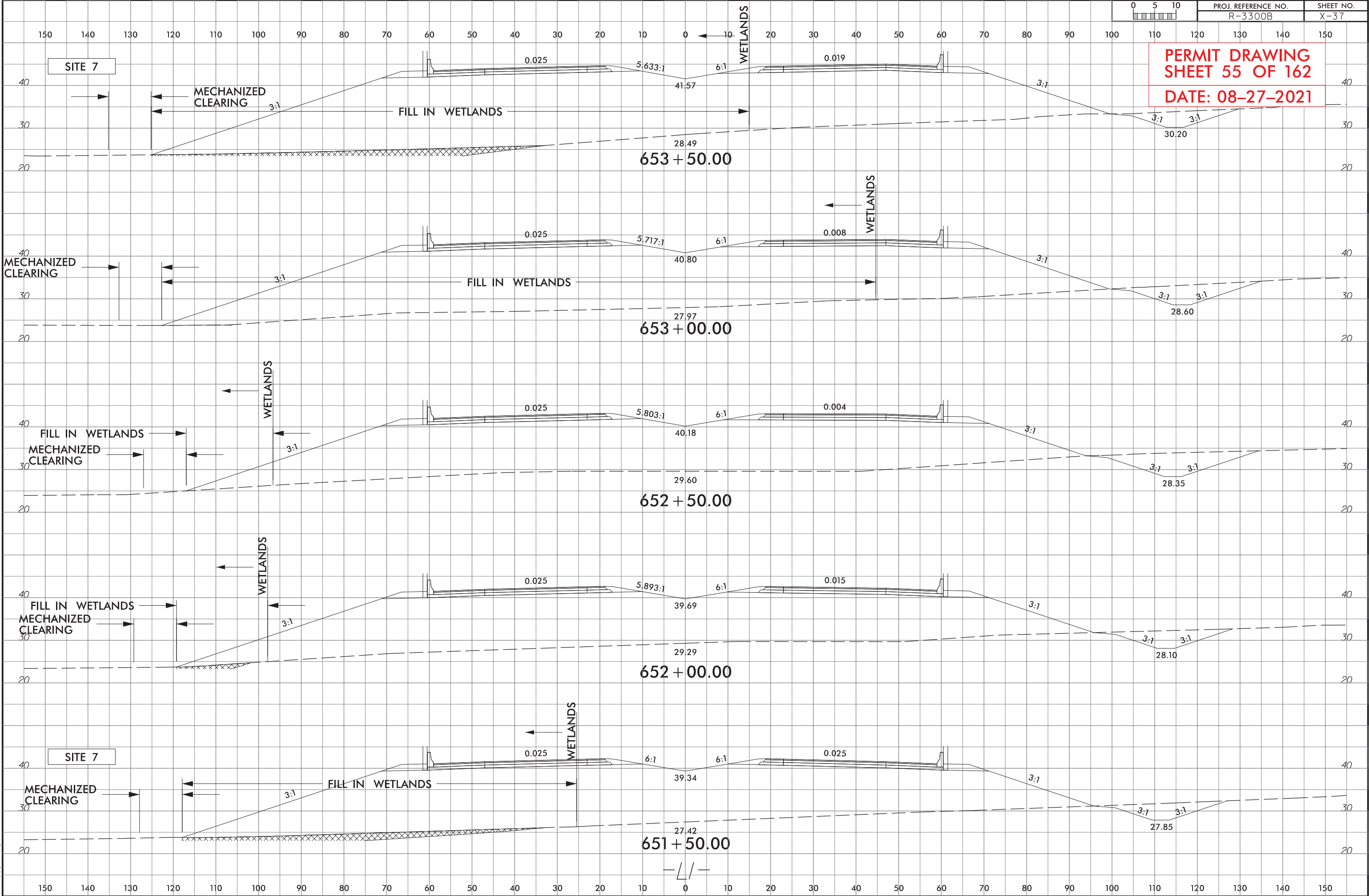
6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-37

PERMIT DRAWING
SHEET 55 OF 162
DATE: 08-27-2021



5/14/99

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

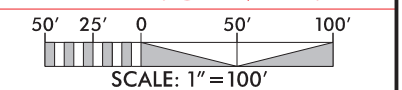
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

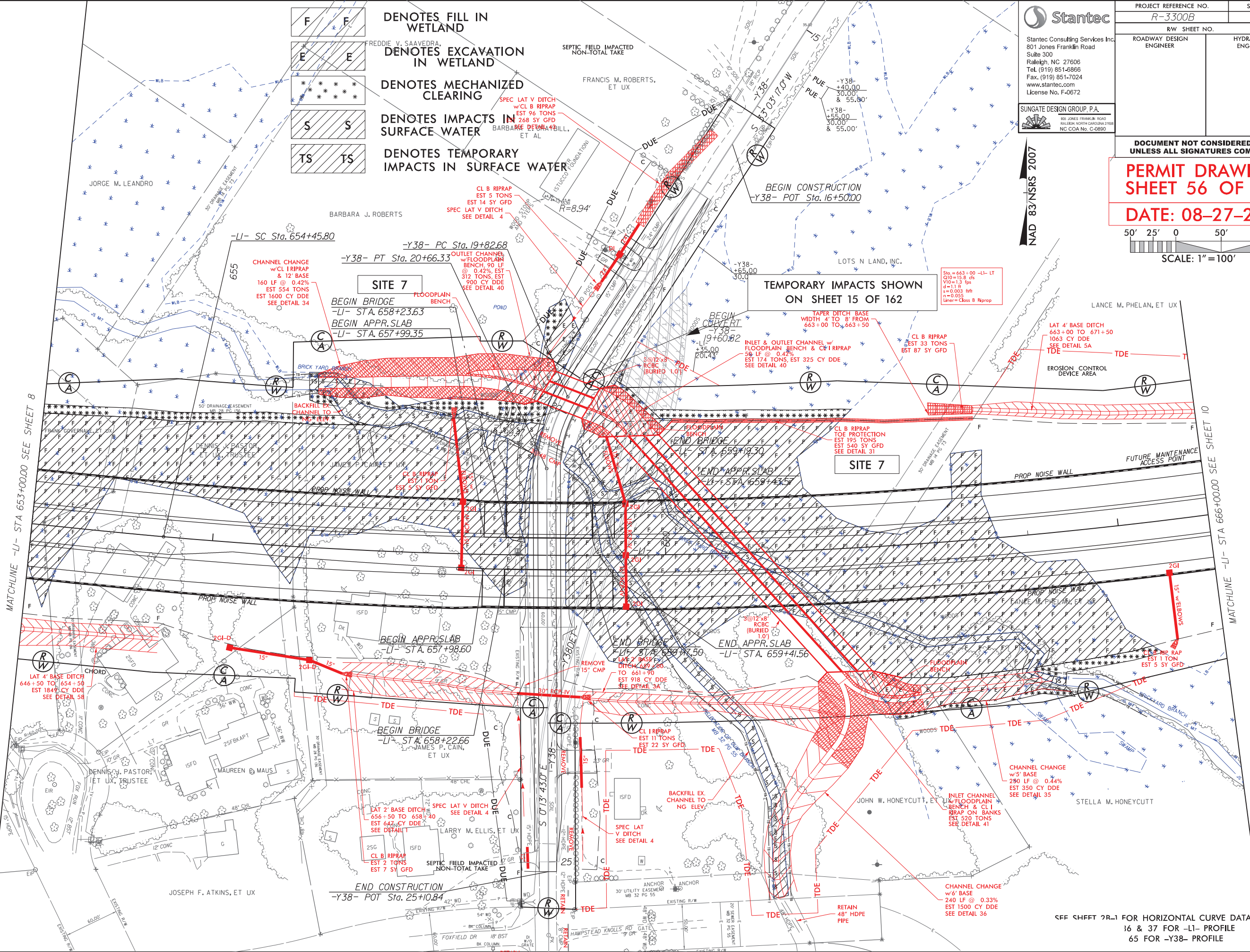
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 56 OF 162

DATE: 08-27-2021



NAD 83/NSRS 2007



SEE SHEET 2R-1 FOR HORIZONTAL CURVE DATA
16 & 37 FOR -LI- PROFILE
65 FOR -Y38- PROFILE

\$\$\$USERNAME\$\$\$
\$\$\$DGN\$\$\$



SEE SHEET 2R-1 FOR HORIZONTAL CURVE DATA
36 & 37 FOR -L1- PROFILE
65 FOR -Y38- PROFILE

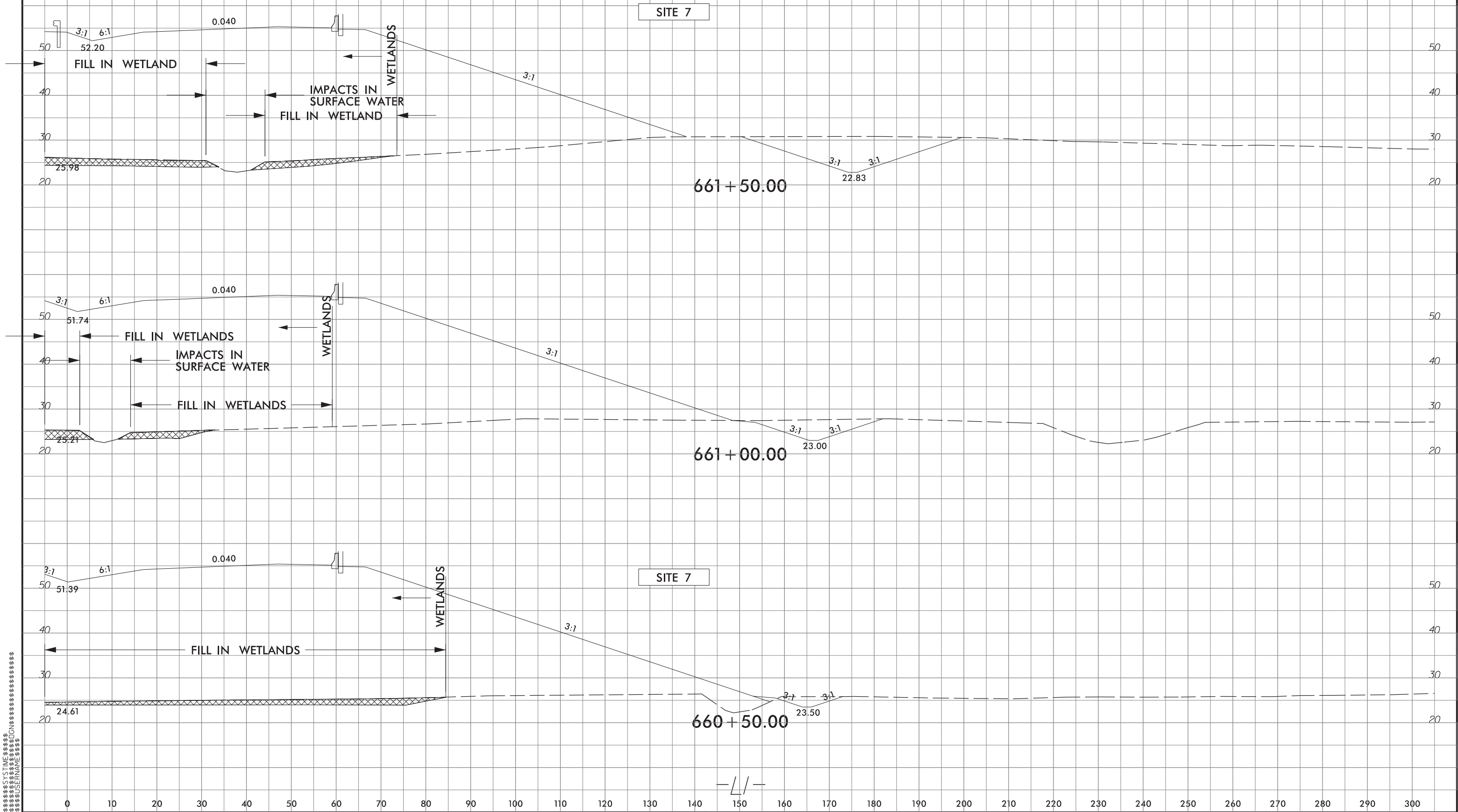
| | | | |
|--|----------------------------|------------------------|-----------|
| Stantec | PROJECT REFERENCE NO. | | SHEET NO. |
| | R-3300B | | 9 |
| | RW SHEET NO. | | |
| | ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | |
| Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672 | | | |
| <div style="border: 1px solid black; padding: 5px; display: inline-block;"> SUNGATE DESIGN GROUP, P.A. </div> | | | |
| <small>950 JONES FRANKLIN ROAD FALLS CHURCH, NORTH CAROLINA 27605 NC COA NO. C-0890</small> | | | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |
| PERMIT DRAWING SHEET 57 OF 162 | | | |
| DATE: 08-27-2021 | | | |
| SCALE: 1" = 100' | | | |

6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-42 |

PERMIT DRAWING
SHEET 58 OF 162
DATE: 08-27-2021



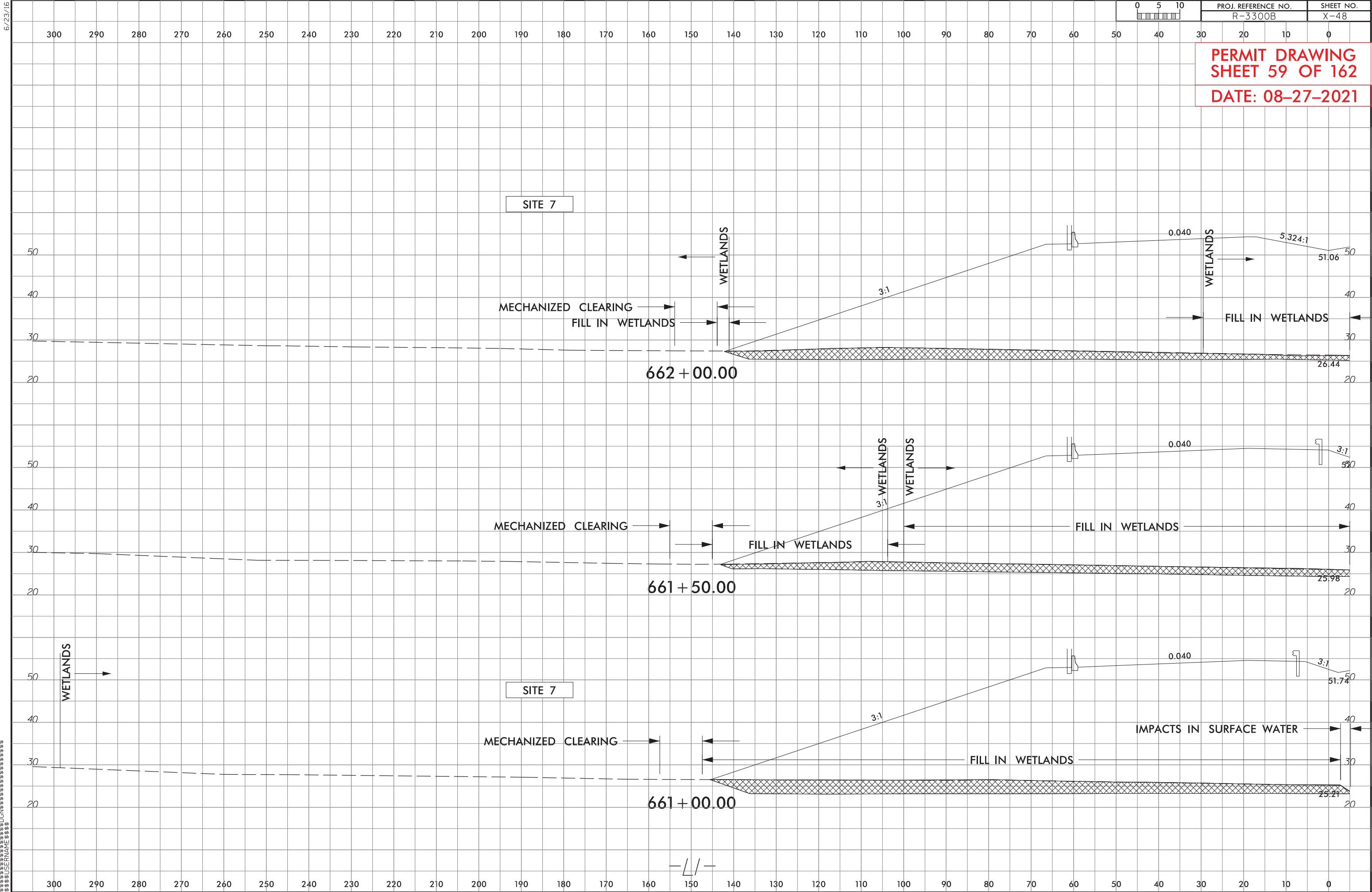
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-48 |

PERMIT DRAWING
SHEET 59 OF 162

DATE: 08-27-2021



5/14/99

5/14/99

PROJECT REFERENCE NO.
R-3300B

ROADWAY DESIGN
ENGINEER

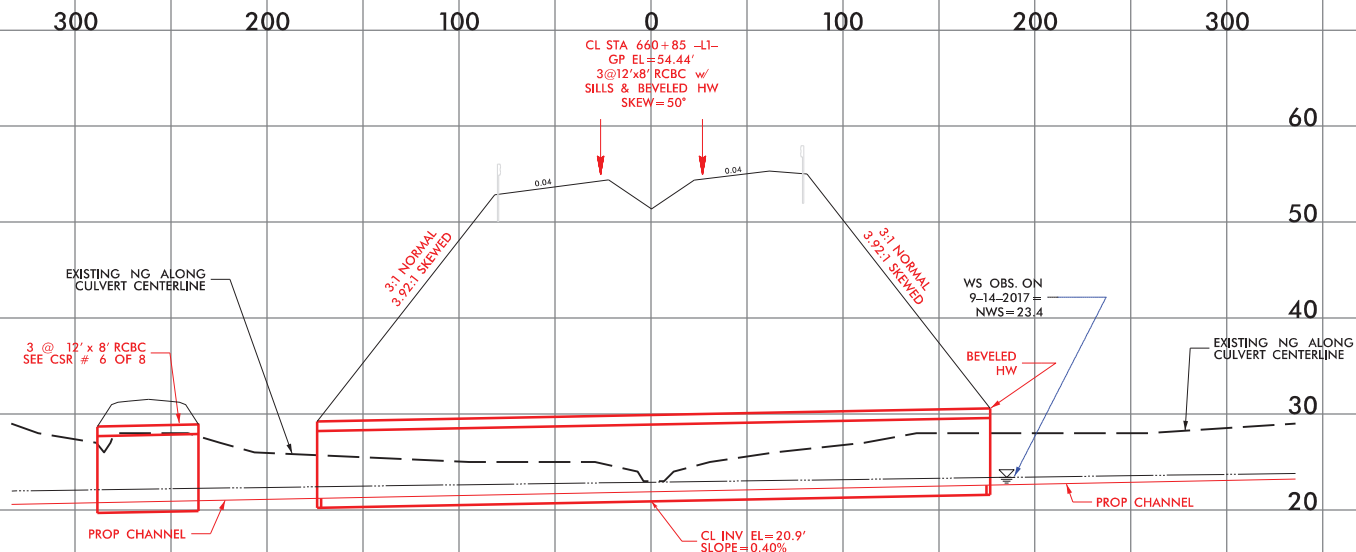
SHEET NO.

HYDRAULICS
ENGINEER

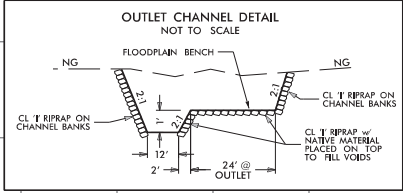
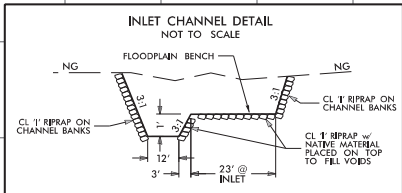
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 60 OF 162

DATE: 08-27-2021



SITE 7



**SKEWED MULTI-BARREL CULVERT
LOW FLOW CHANNEL, SILLS
AND FLOODPLAIN BENCH**
(NOT TO SCALE)

*NOTES:

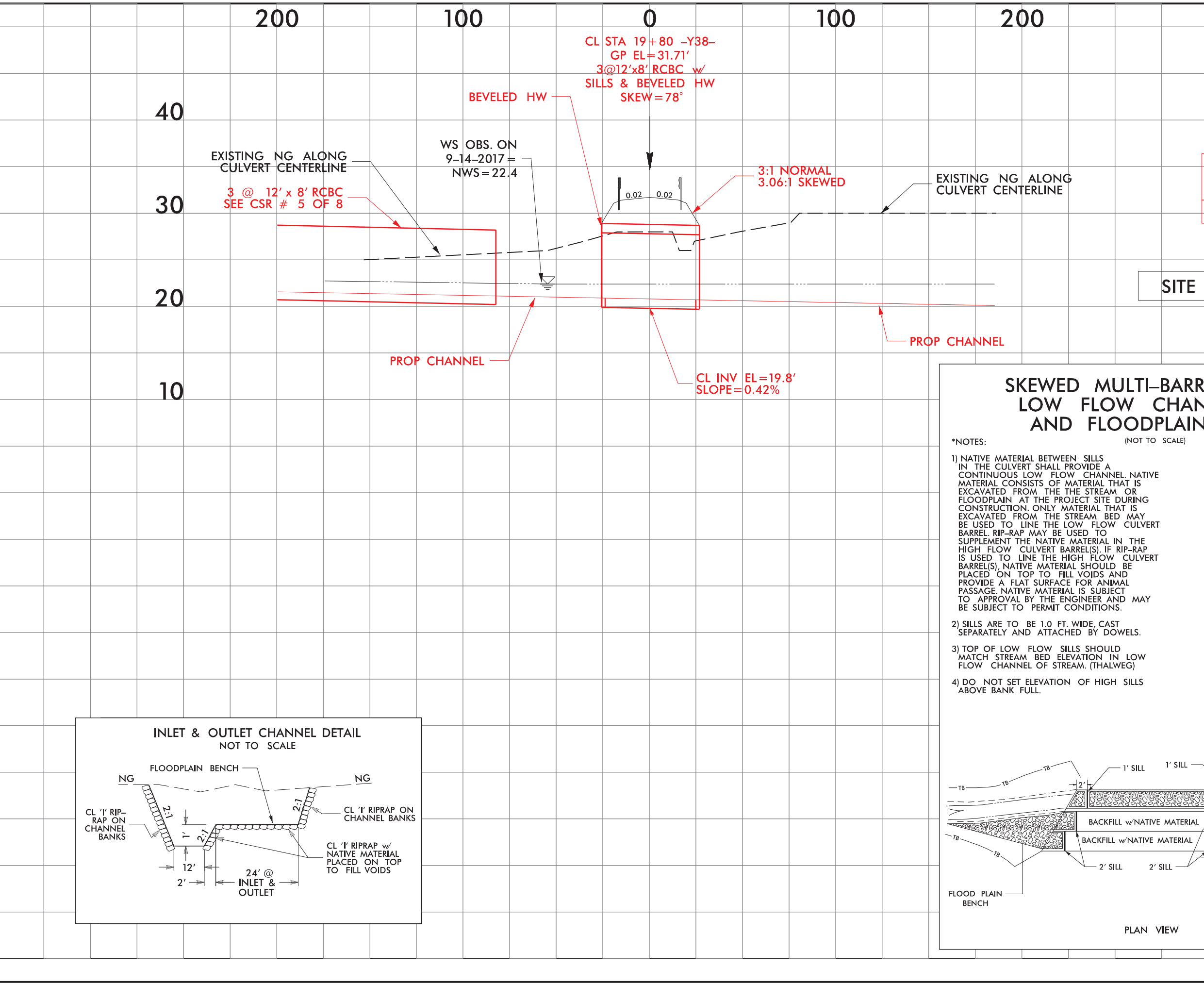
- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIPRAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIPRAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
- 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM (THALWEG).
- 4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

SILLS AT INLET AND OUTLET

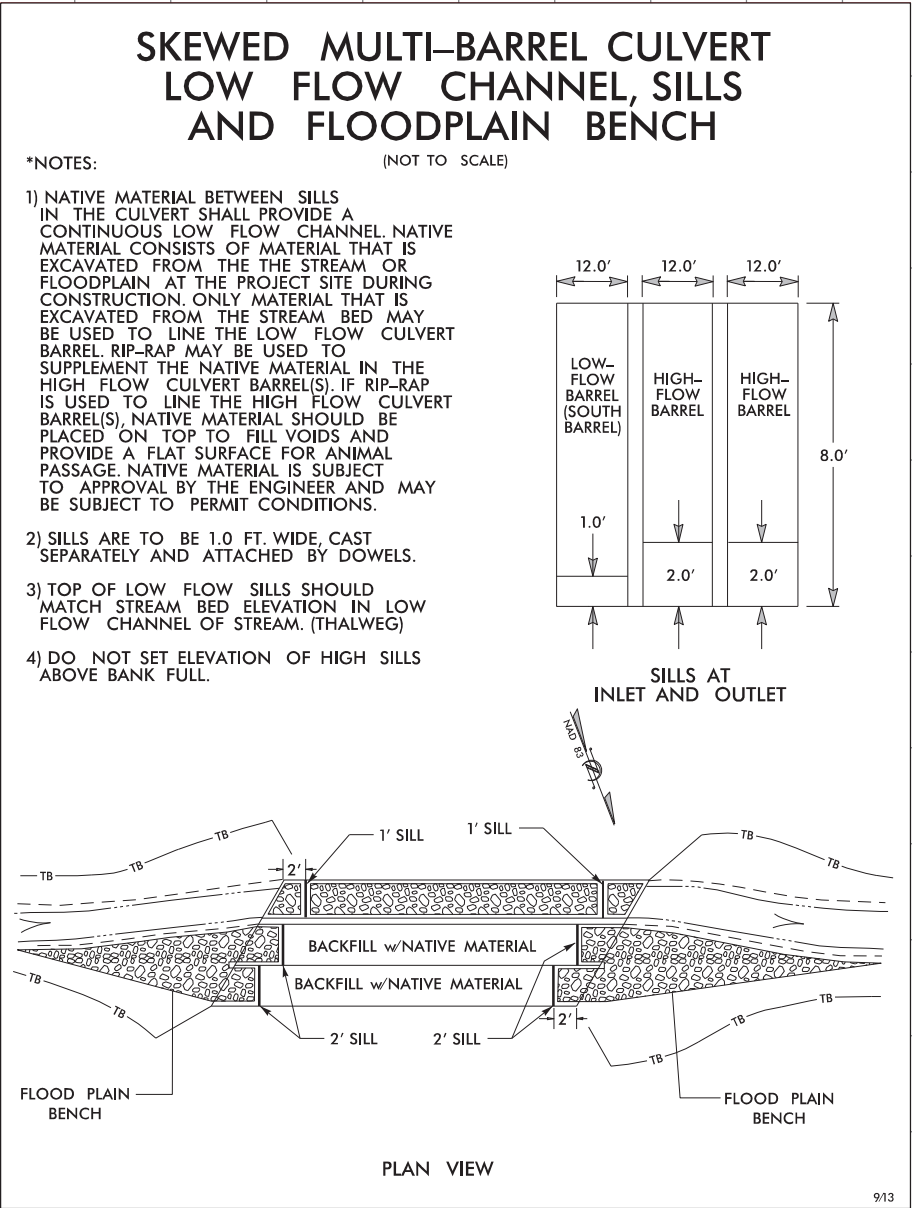
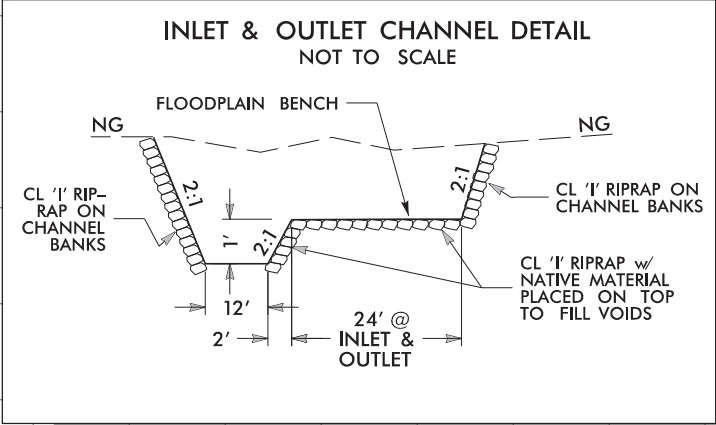
PLAN VIEW

5/14/99

CONSTRUCTION

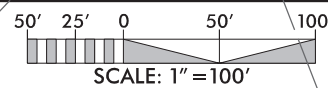


| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-3300B | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |
| PERMIT DRAWING SHEET 61 OF 162 | | | |
| DATE: 08-27-2021 | | | |



5/14/99

5/14/99



MICHAEL M. SPAHR

NAD 83 NSRS 2007

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

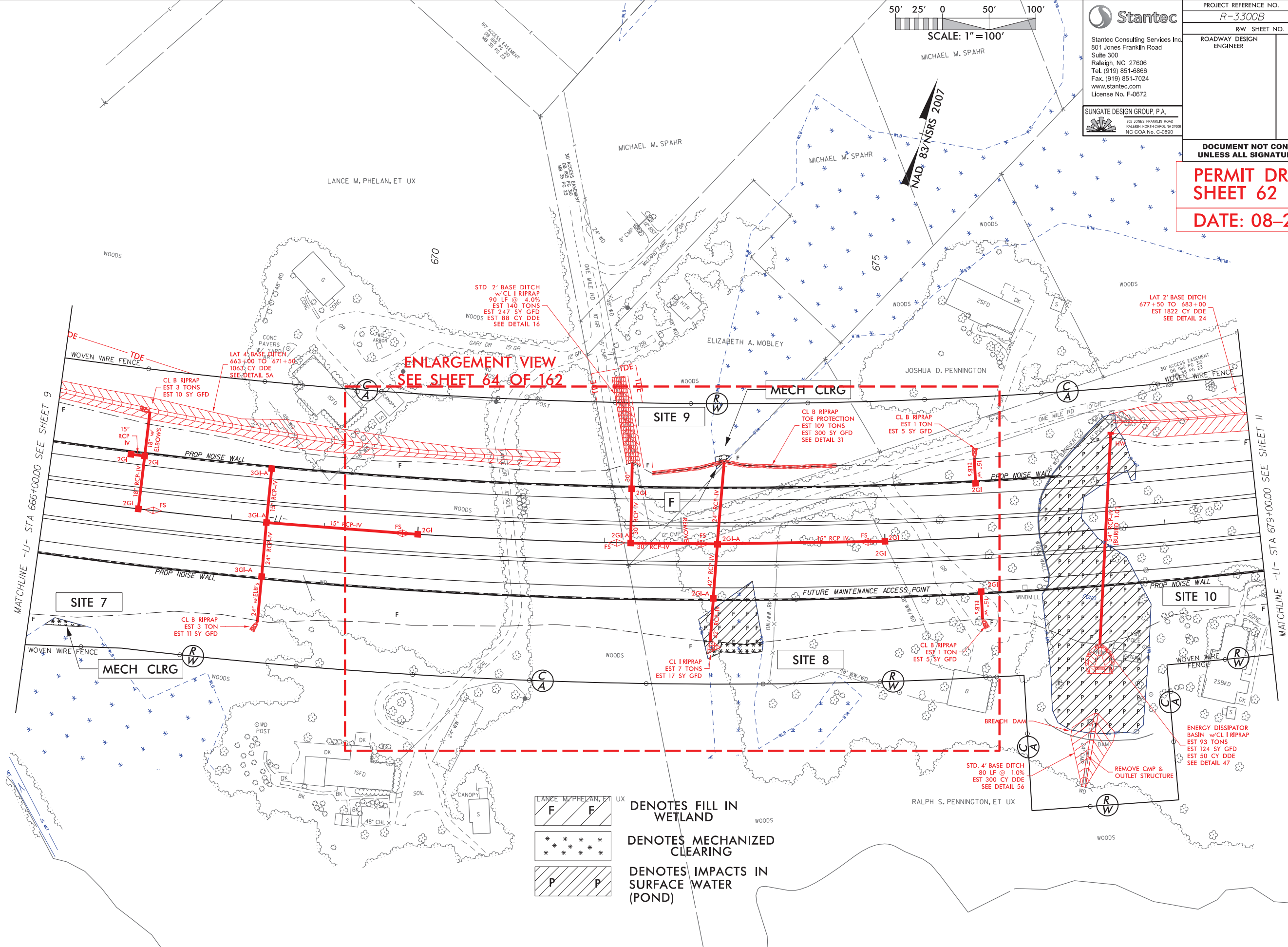
SUNGATE DESIGN GROUP, P.A.

800 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | | | |
|---|--|------------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. <i>10</i> | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 62 OF 162
DATE: 08-27-2021



F F

LANCIE M. PHELAN, ET UX

DENOTES FILL IN WETLAND

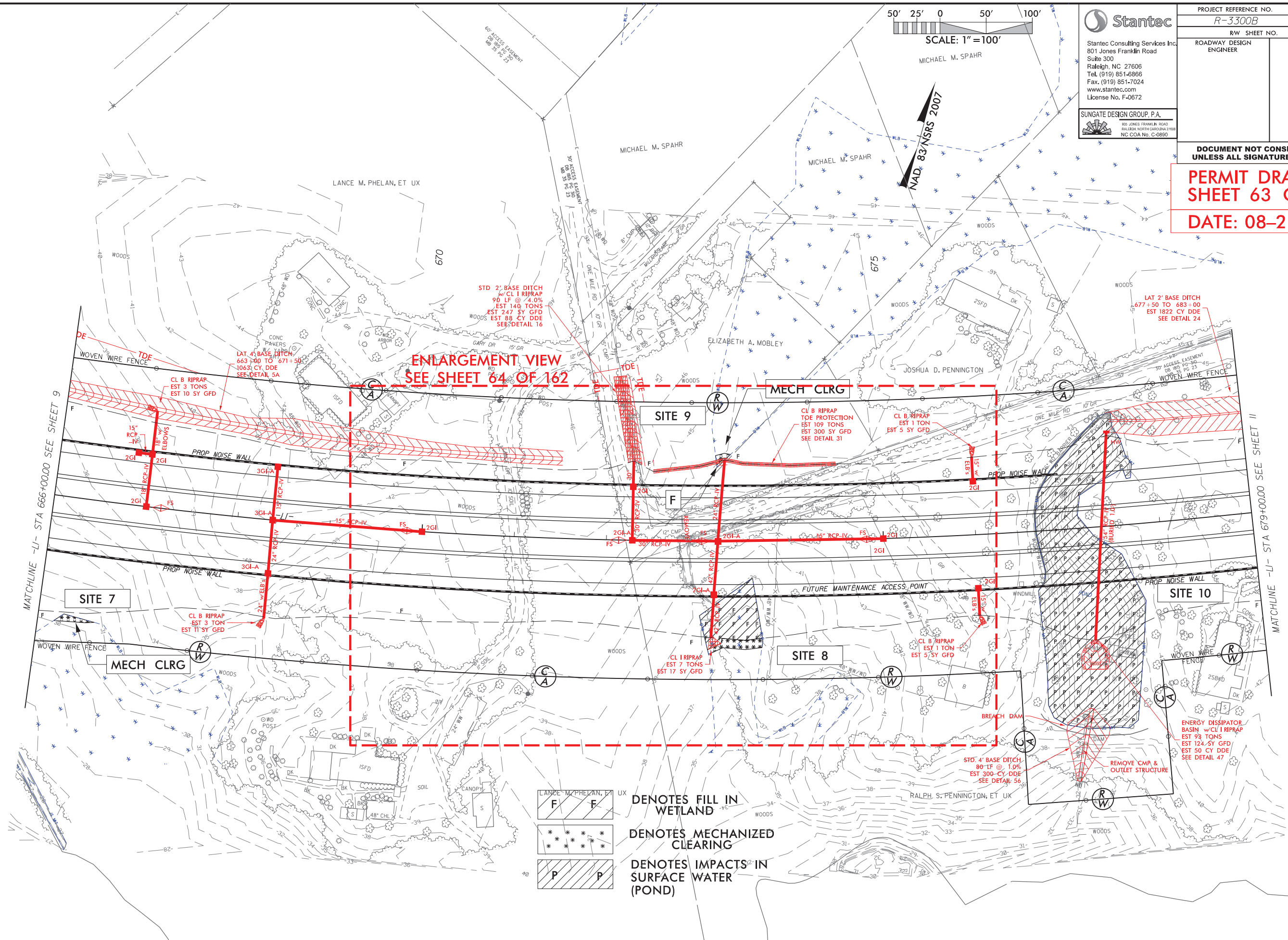
* * *

DENOTES MECHANIZED CLEARING

P P

DENOTES IMPACTS IN SURFACE WATER (POND)

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 FOR -LI- PROFILE



 **Stantec**

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.

 902 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27601
NC COA NO. C-0890

| | | | |
|----------------------------|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| <i>R-3300B</i> | | <i>10</i> | |
| R/W SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 63 OF 162

DATE: 08-27-2021

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 FOR -L1- PROFILE

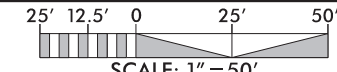
8/17/99



DENOTES FILL IN WETLAND



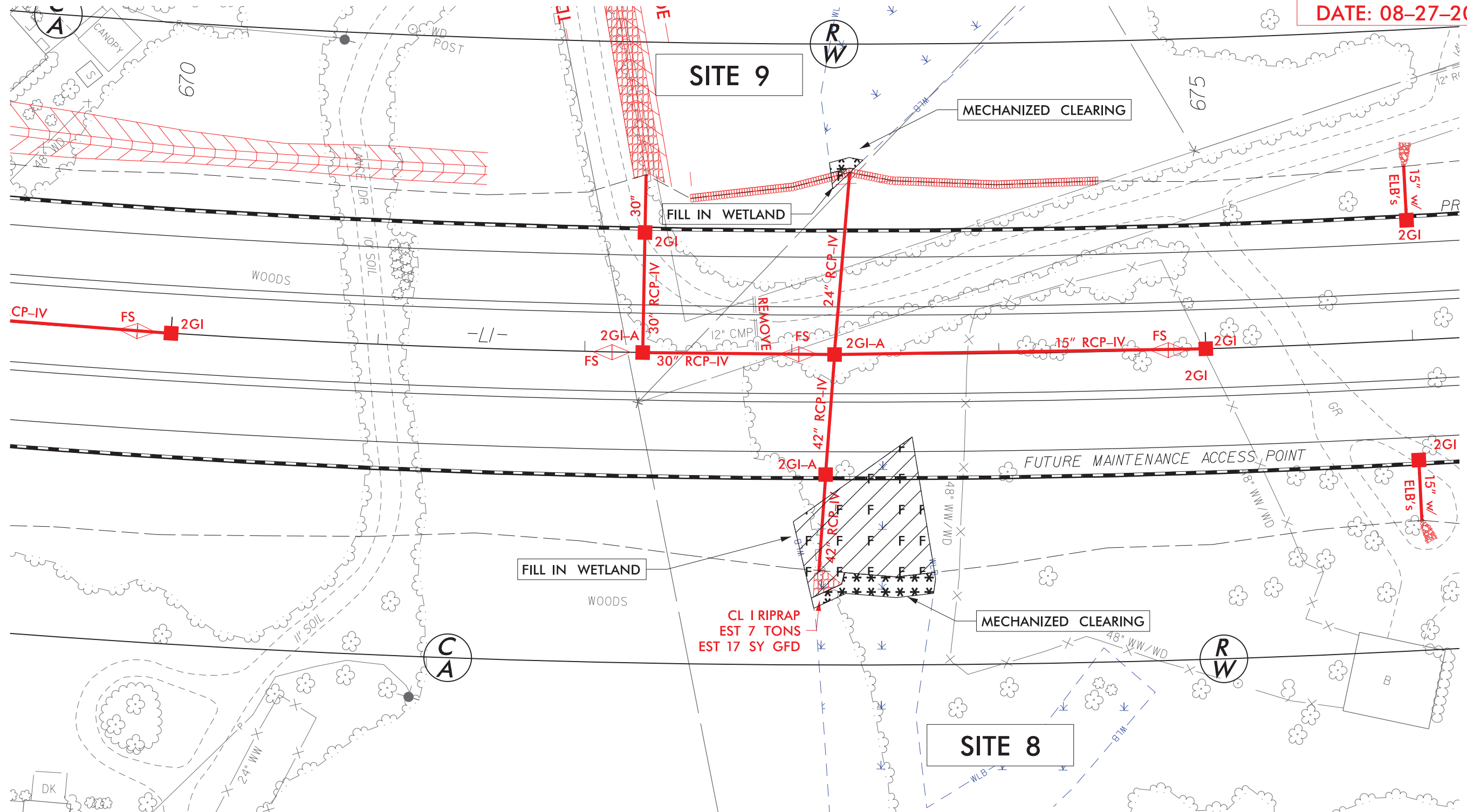
DENOTES MECHANIZED CLEARING

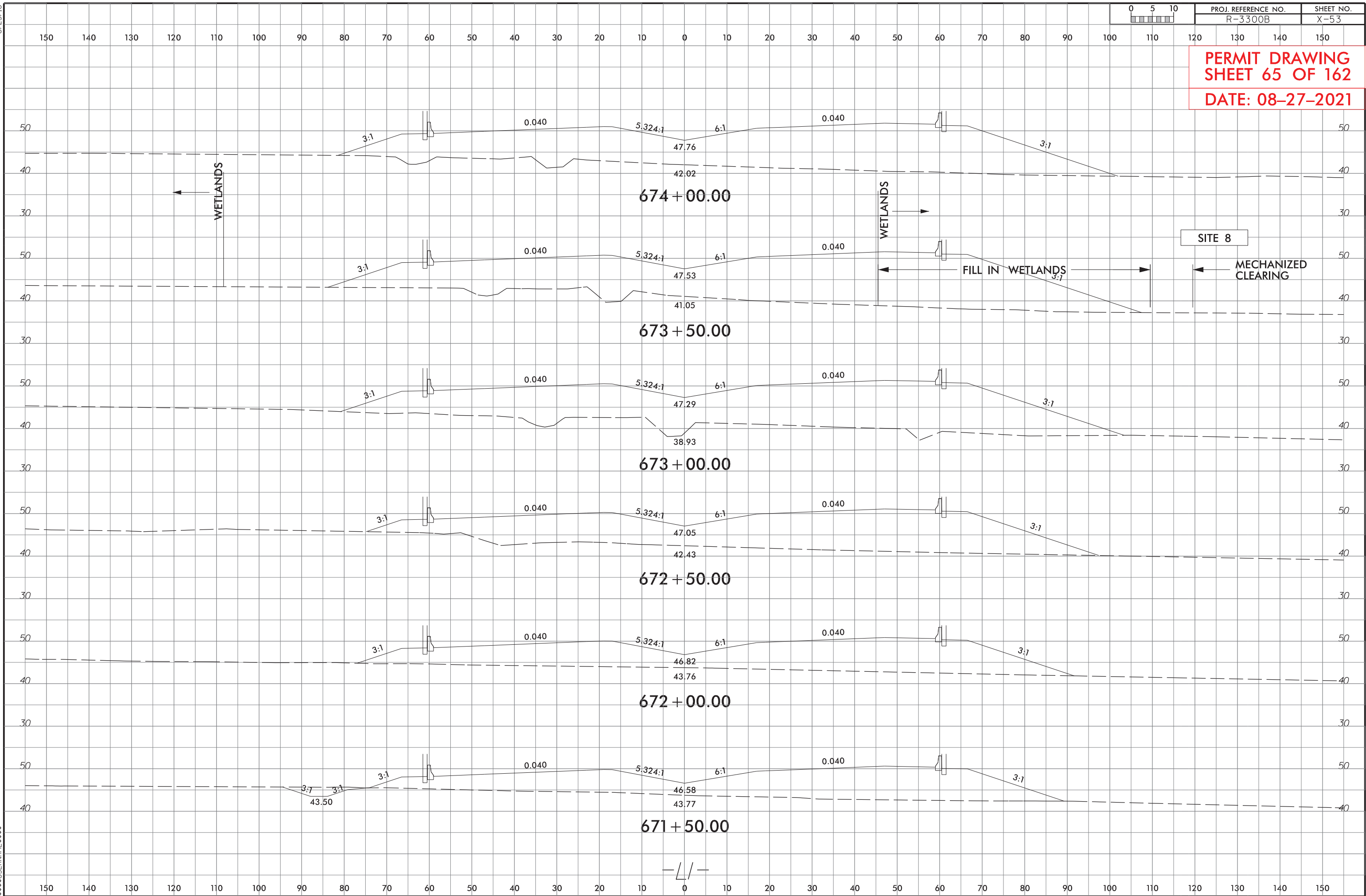


| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-3300B | | | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| | | | |
| | | | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

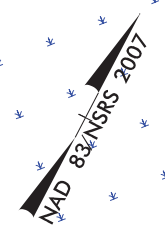
PERMIT DRAWING
SHEET 64 OF 162

DATE: 08-27-2021



[illegible]

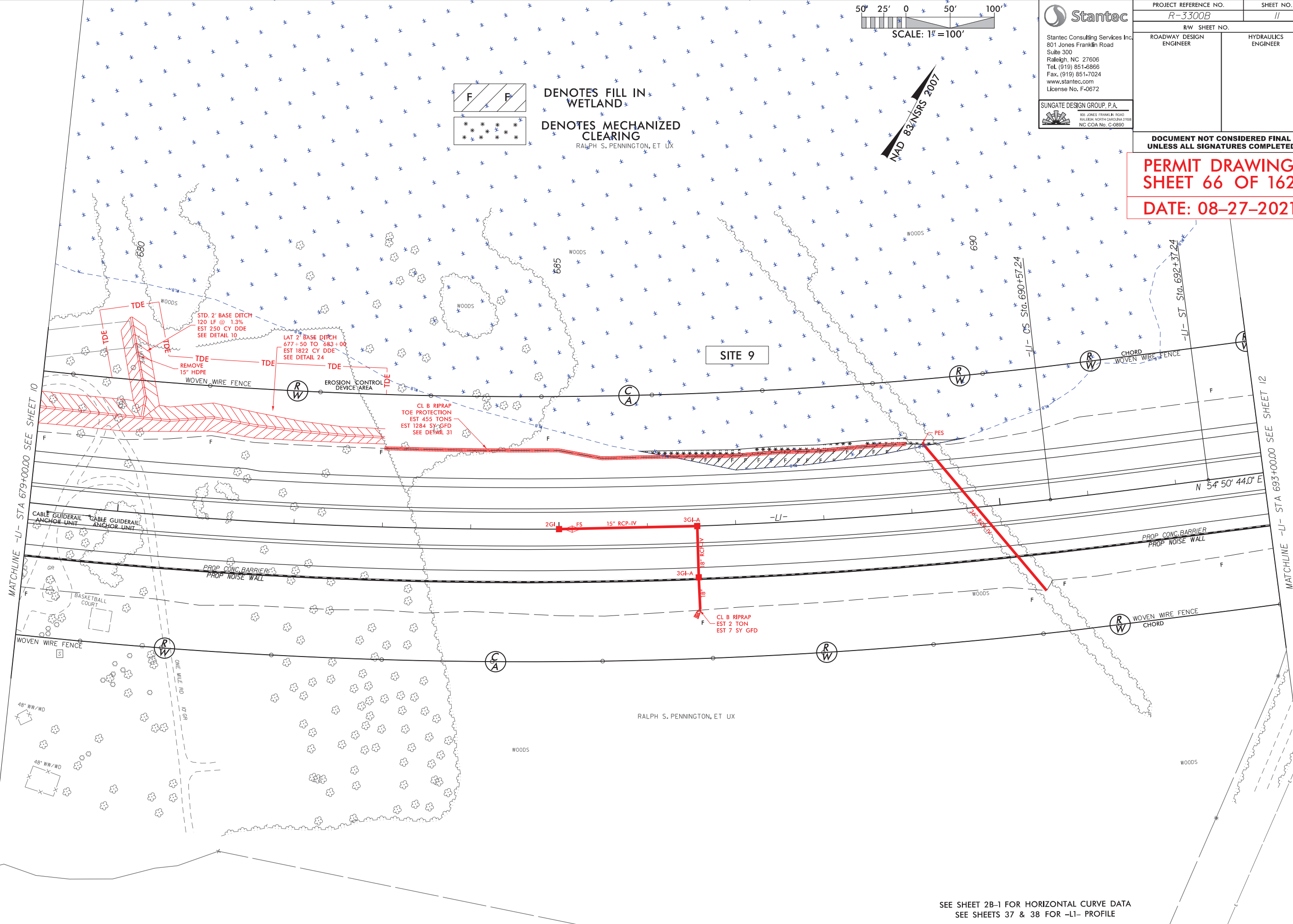
\$\$\$ USERNAME \$\$\$



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

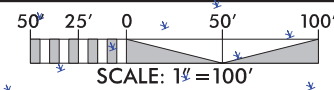
PERMIT DRAWING
SHEET 66 OF 162

DATE: 08-27-2021



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 & 38 FOR -L1- PROFILE

5/14/99



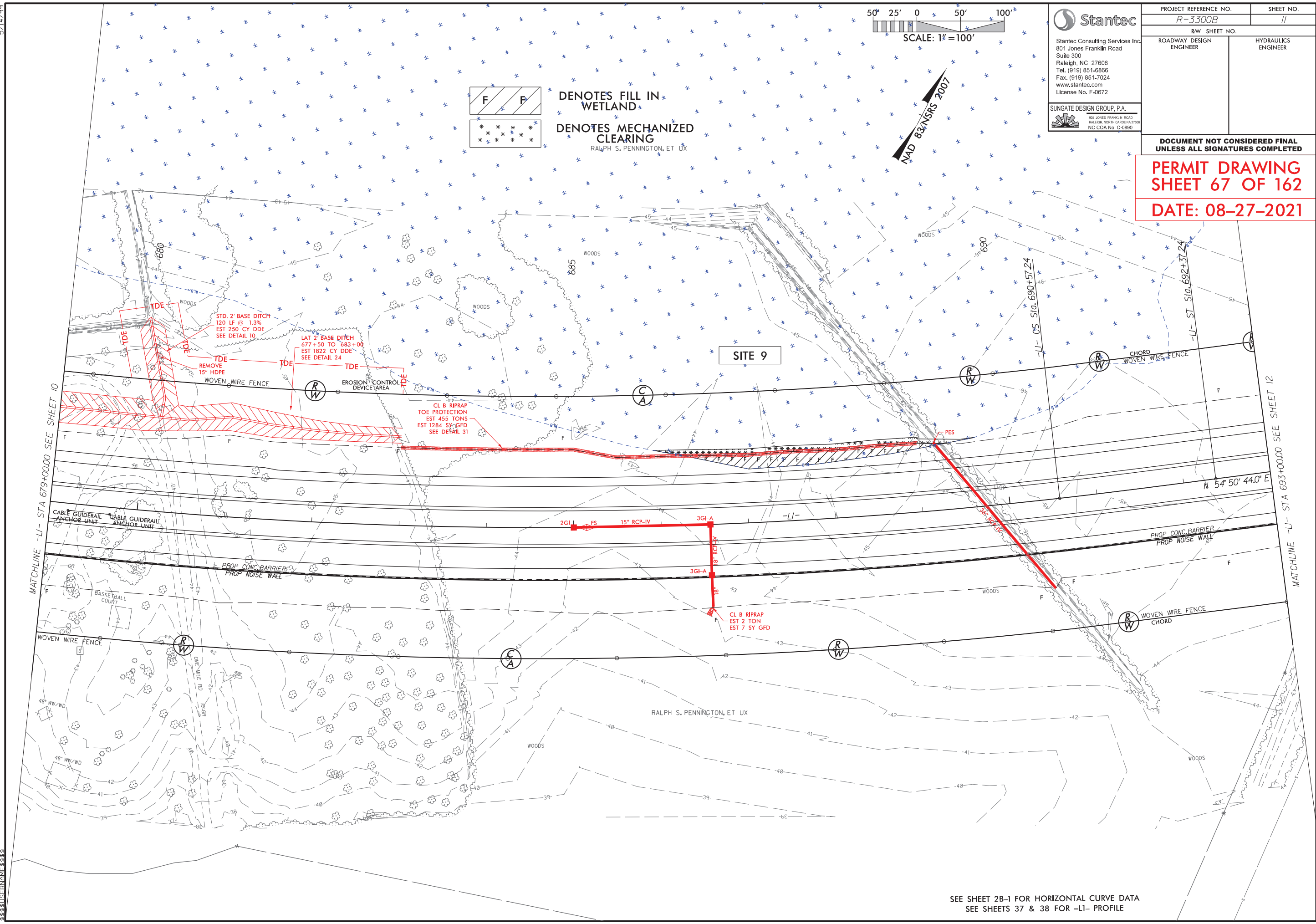
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 11 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

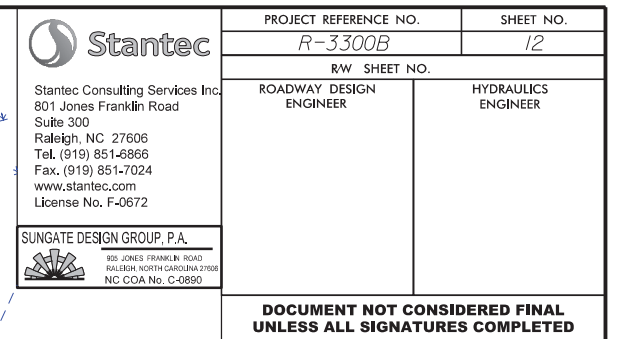
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 67 OF 162
DATE: 08-27-2021



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 & 38 FOR -LI- PROFILE

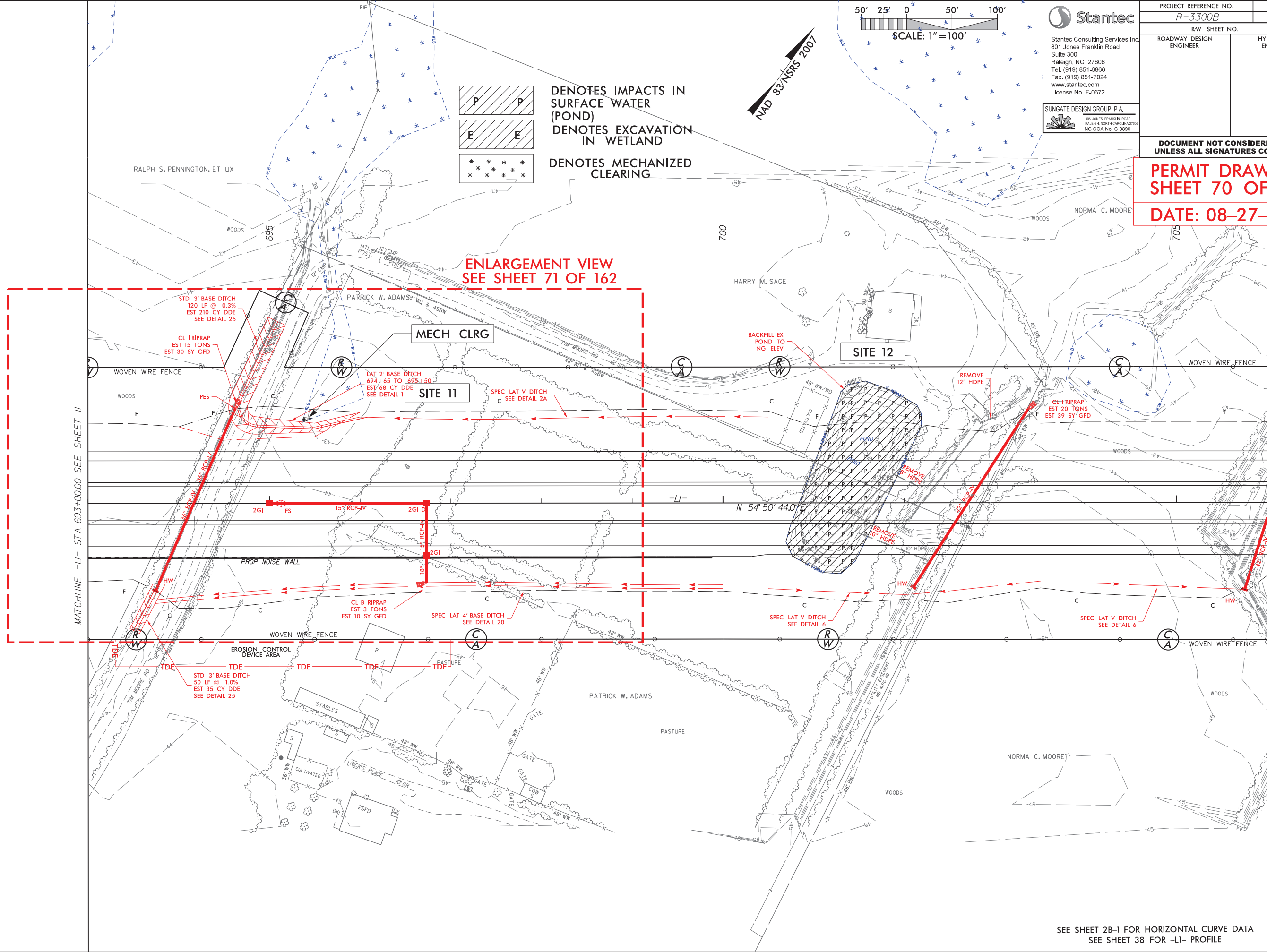




SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 38 FOR -L1- PROFILE

5/14/99

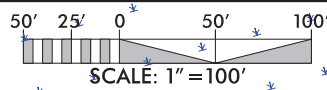
STATIONING: STA 693+00.00 TO STA 706+00.00



P P
E E
* * * * *

DENOTES IMPACTS IN SURFACE WATER (POND)
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING

ENLARGEMENT VIEW
SEE SHEET 71 OF 162



NAD 83 NTS 2007

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.
R-3300B

RW SHEET NO.
12

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 70 OF 162

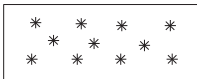
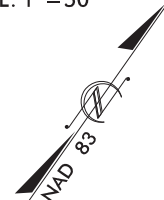
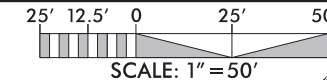
DATE: 08-27-2021

MATCHLINE -LI- STA 693+00.00 SEE SHEET 11

MATCHLINE -LI- STA 706+00.00 SEE SHEET 13

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 38 FOR -LI- PROFILE

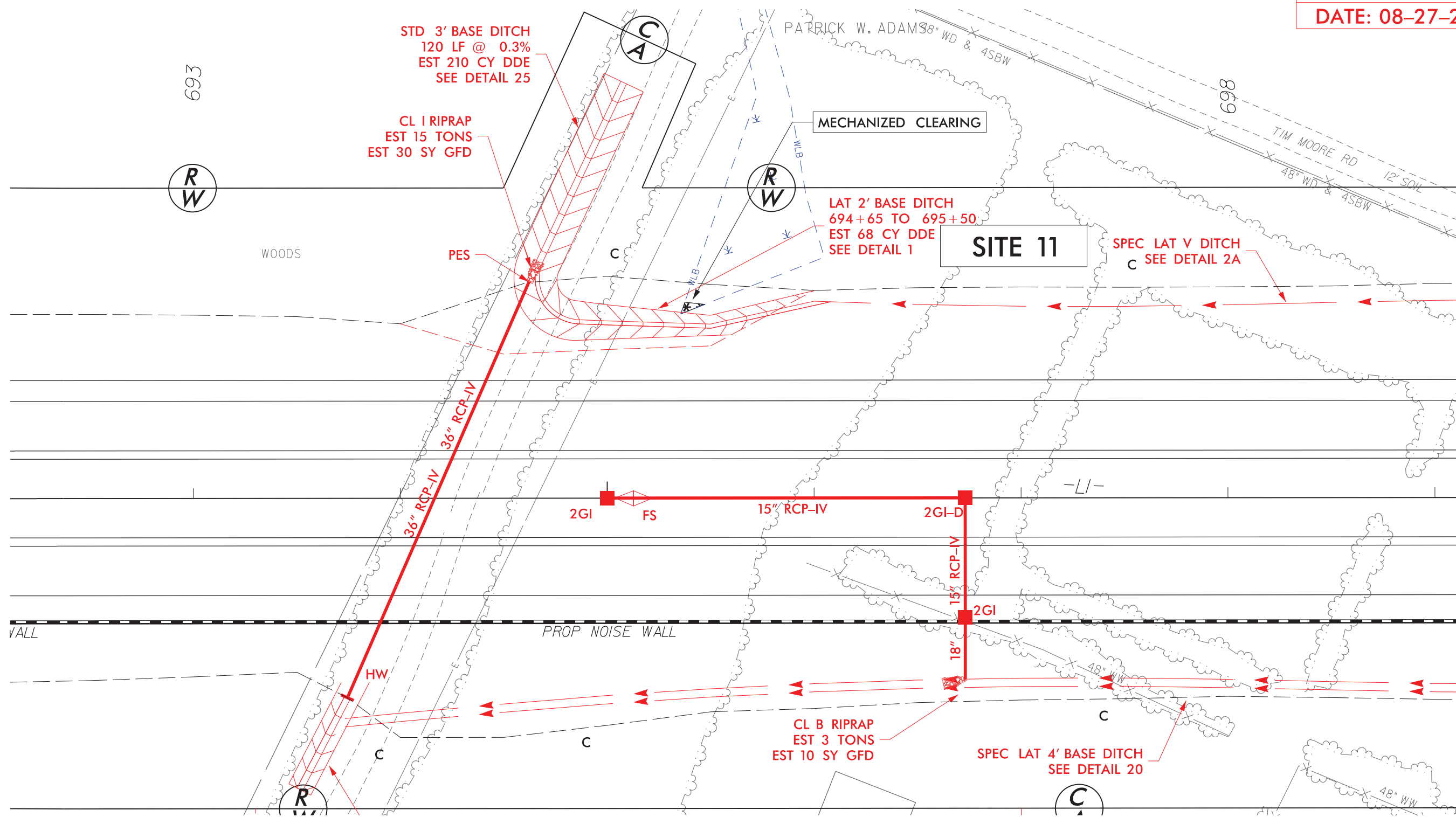
8/17/99



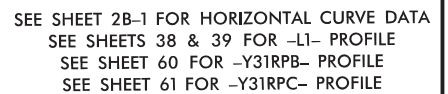
DENOTES MECHANIZED
CLEARING

| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

PERMIT DRAWING
SHEET 71 OF 162
DATE: 08-27-2021



DATE: 08-27-2021



5/14/99

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

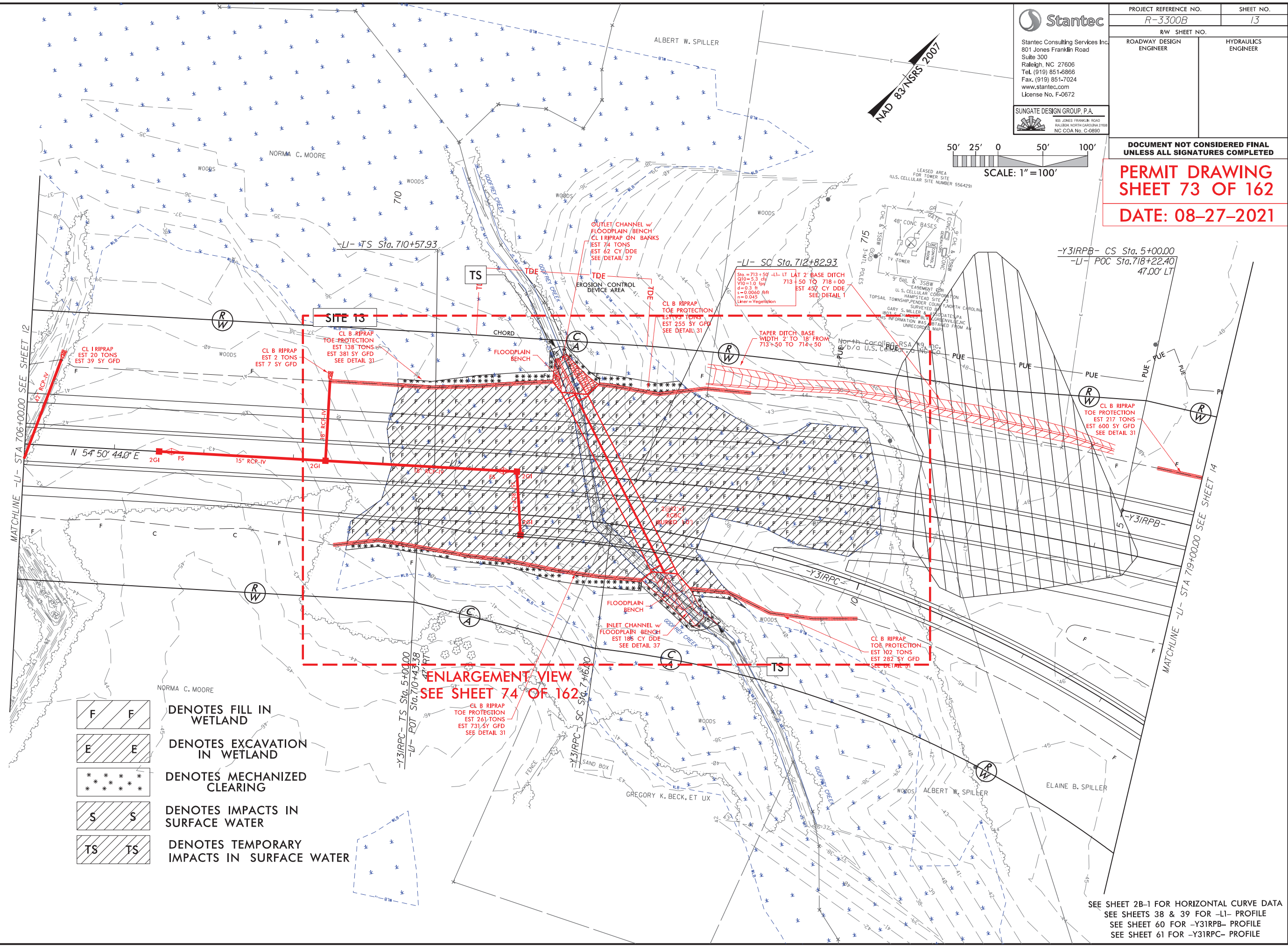
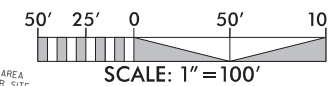
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 13 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

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

**PERMIT DRAWING
SHEET 73 OF 162**

DATE: 08-27-2021

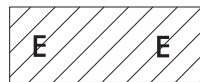


- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

**ENLARGEMENT VIEW
SEE SHEET 74 OF 162**

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 38 & 39 FOR -LI- PROFILE
SEE SHEET 60 FOR -Y3IRPB- PROFILE
SEE SHEET 61 FOR -Y3IRPC- PROFILE

8/17/99



DENOTES EXCAVATION
IN WETLAND



DENOTES IMPACTS IN
SURFACE WATER



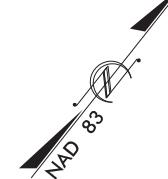
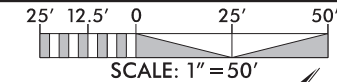
DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO. SHEET NO.

R-3300B

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 74 OF 162

DATE: 08-27-2021

SITE 13

CL B RIPRAP
TOE PROTECTION
EST 138 TONS
EST 381 SY GFD
SEE DETAIL 31

OUTLET CHANNEL w/
FLOODPLAIN BENCH
& CL I RIPRAP
ON BANKS
SEE DETAIL 37

TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

MECHANIZED CLEARING

CL B RIPRAP
TOE PROTECTION
EST 93 TONS
EST 255 SY GFD
SEE DETAIL 31

TAPER DITCH BASE
WIDTH 2' TO 18' FROM
713+50 TO 714+50

LAT 2' BASE DITCH
SEE DETAIL 1

18" RCP-IV

2GI

18" RCP-IV

FS

2GI

15" RCP-N

2@12"x7"
RCBC
(BURIED 10')

FLOODPLAIN
BENCH

INLET CHANNEL w/
FLOODPLAIN BENCH
EST 185 CY DDE
SEE DETAIL 37

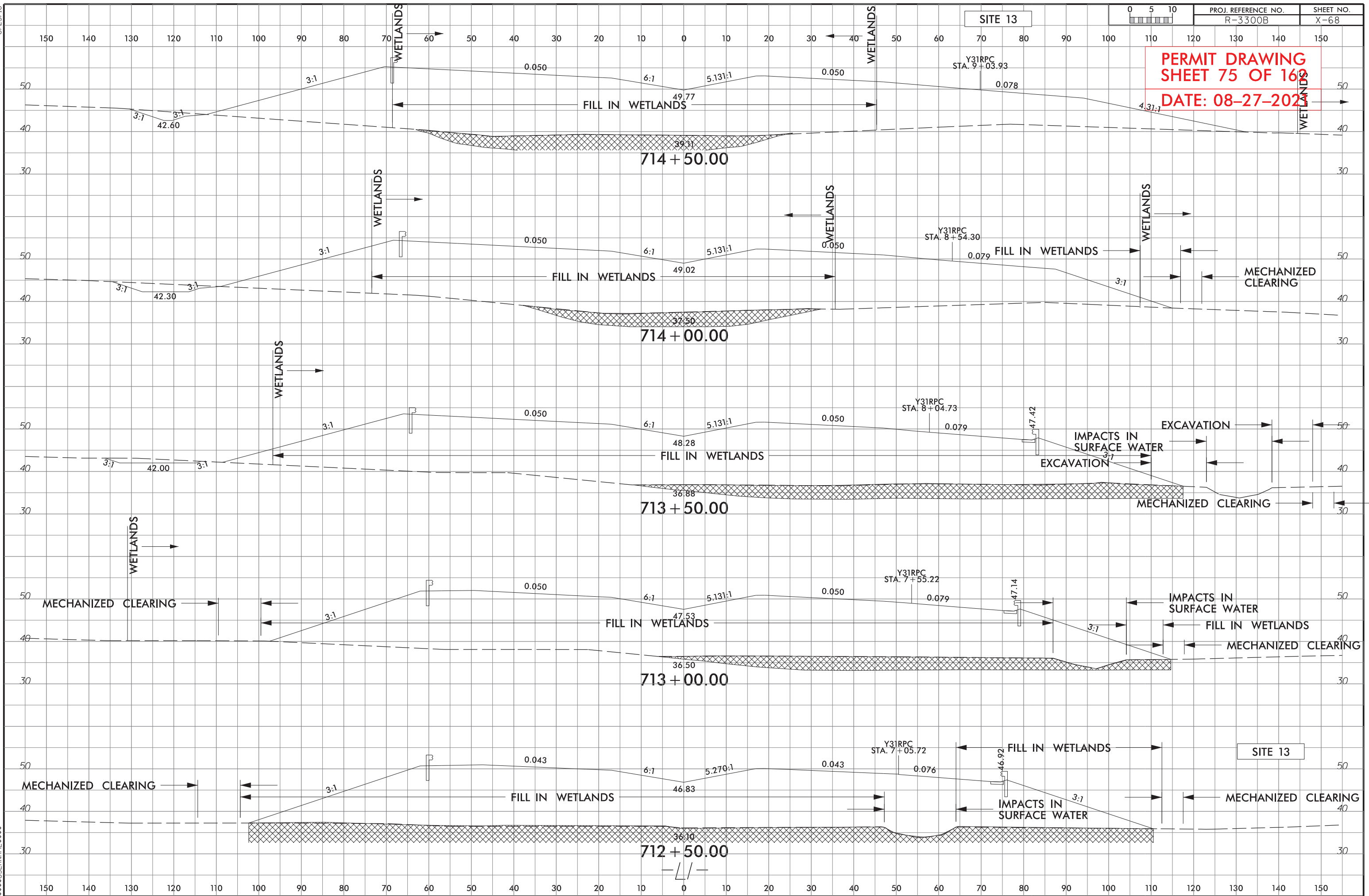
CL B RIPRAP
TOE PROTECTION
EST 261 TONS
EST 731 SY GFD
SEE DETAIL 31

CL B RIPRAP
TOE PROTECTION
EST 102 TONS
EST 282 SY GFD
SEE DETAIL 31

IMPACTS IN SURFACE WATER

TEMPORARY IMPACTS IN SURFACE WATER

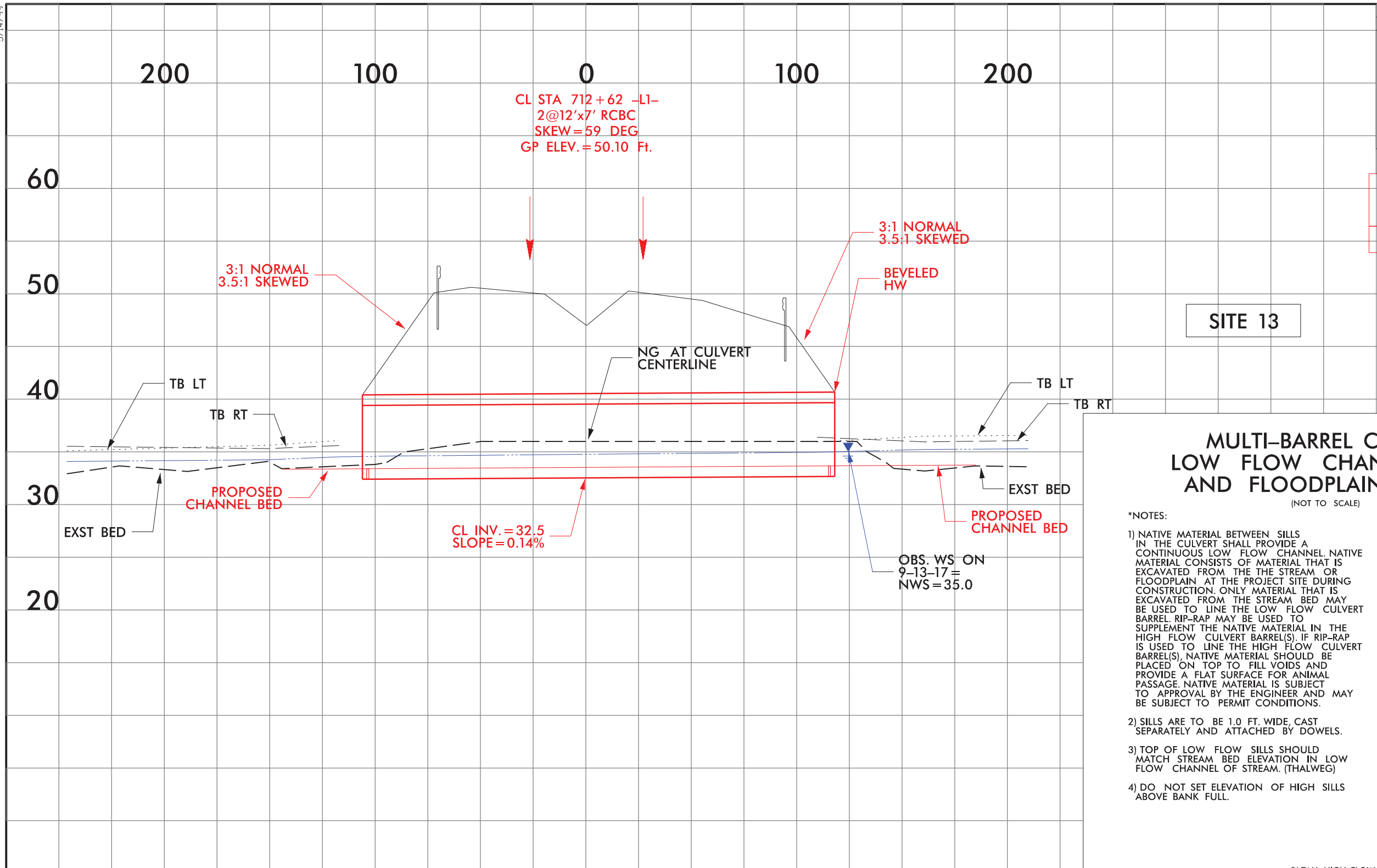
8/17/99



5/14/99

DATE: 08-27-2021

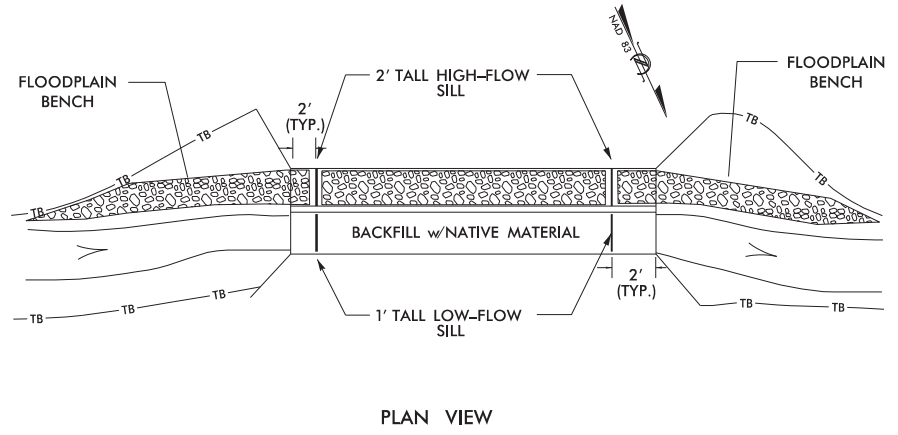
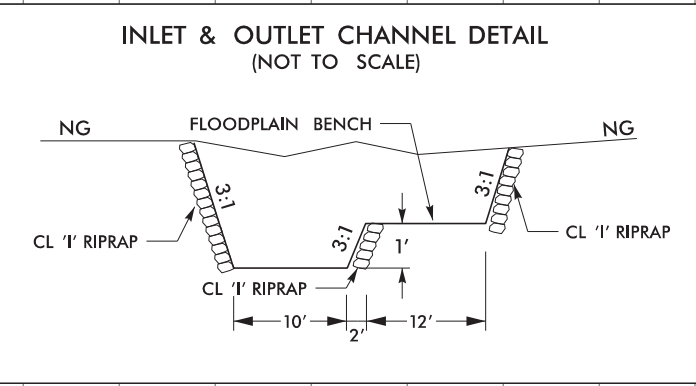
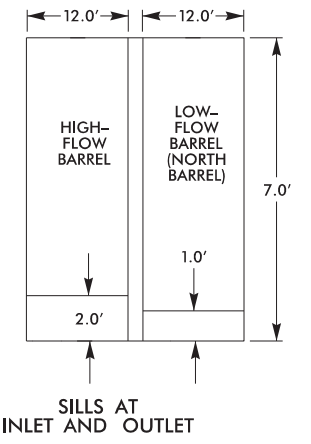
| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |
| PERMIT DRAWING SHEET 76 OF 162 | | | |
| DATE: 08-27-2021 | | | |



MULTI-BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOODPLAIN BENCH

(NOT TO SCALE)

- *NOTES:
- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
 - 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
 - 3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
 - 4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.



5/14/99



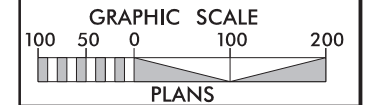
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



SUNGATE DESIGN GROUP, P.A.
895 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27603
NC COA No. C-0890

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 14 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

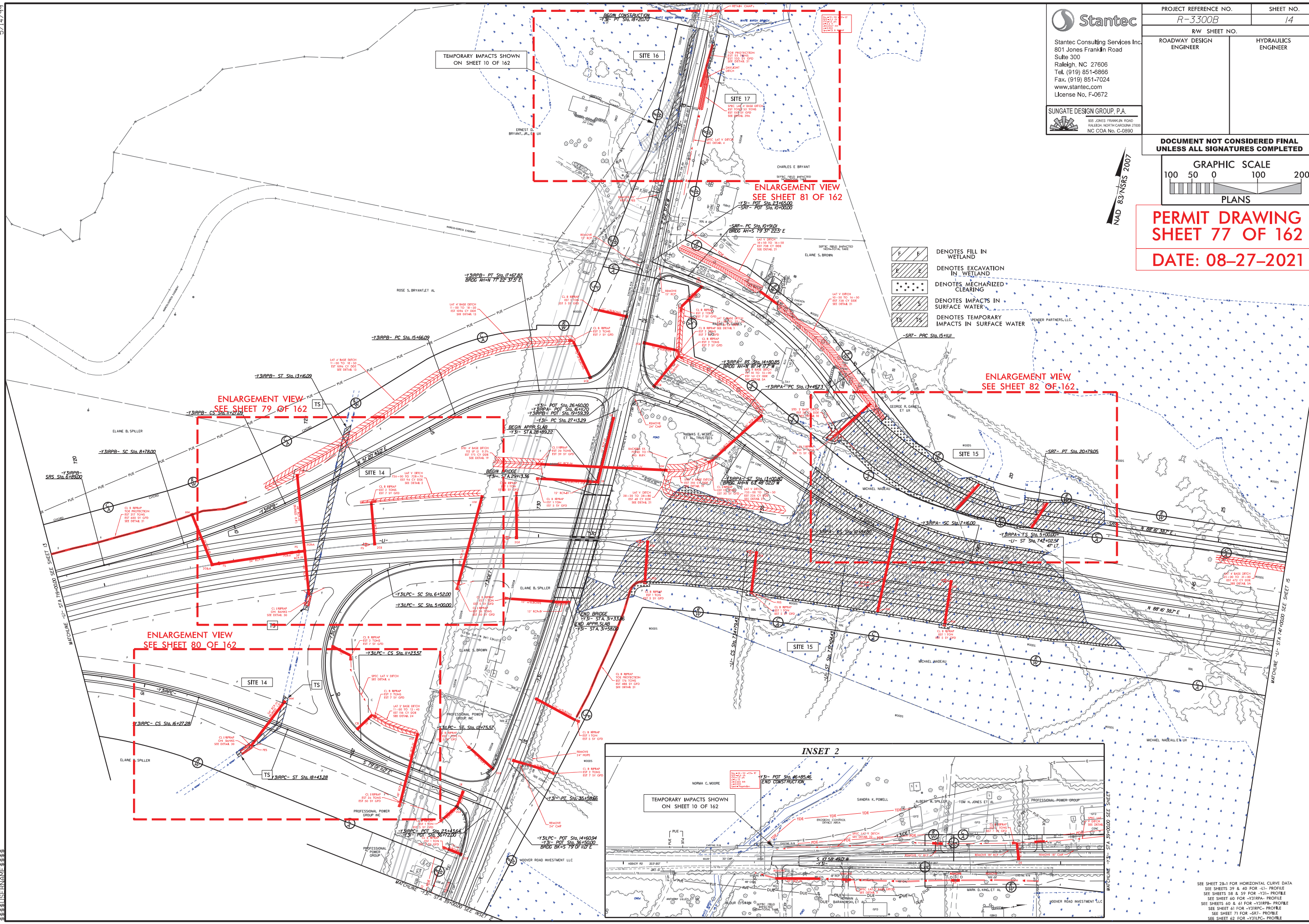
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



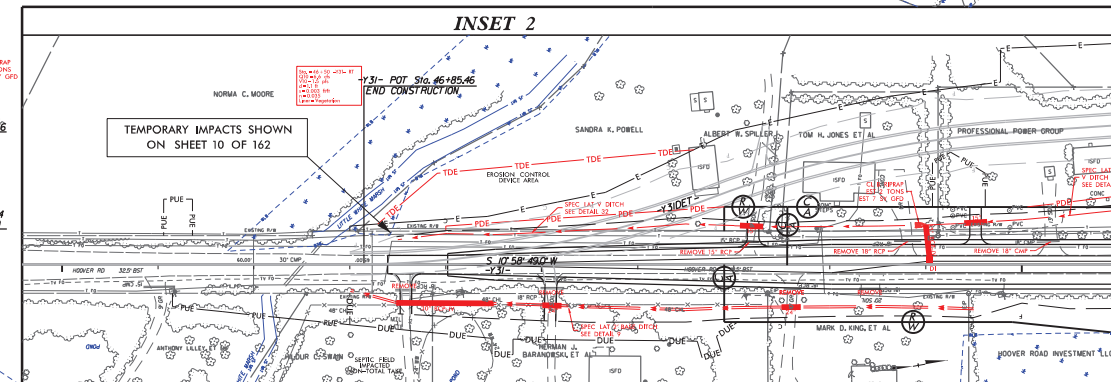
PERMIT DRAWING
SHEET 77 OF 162

DATE: 08-27-2021

NAD 83/NSRS 2007



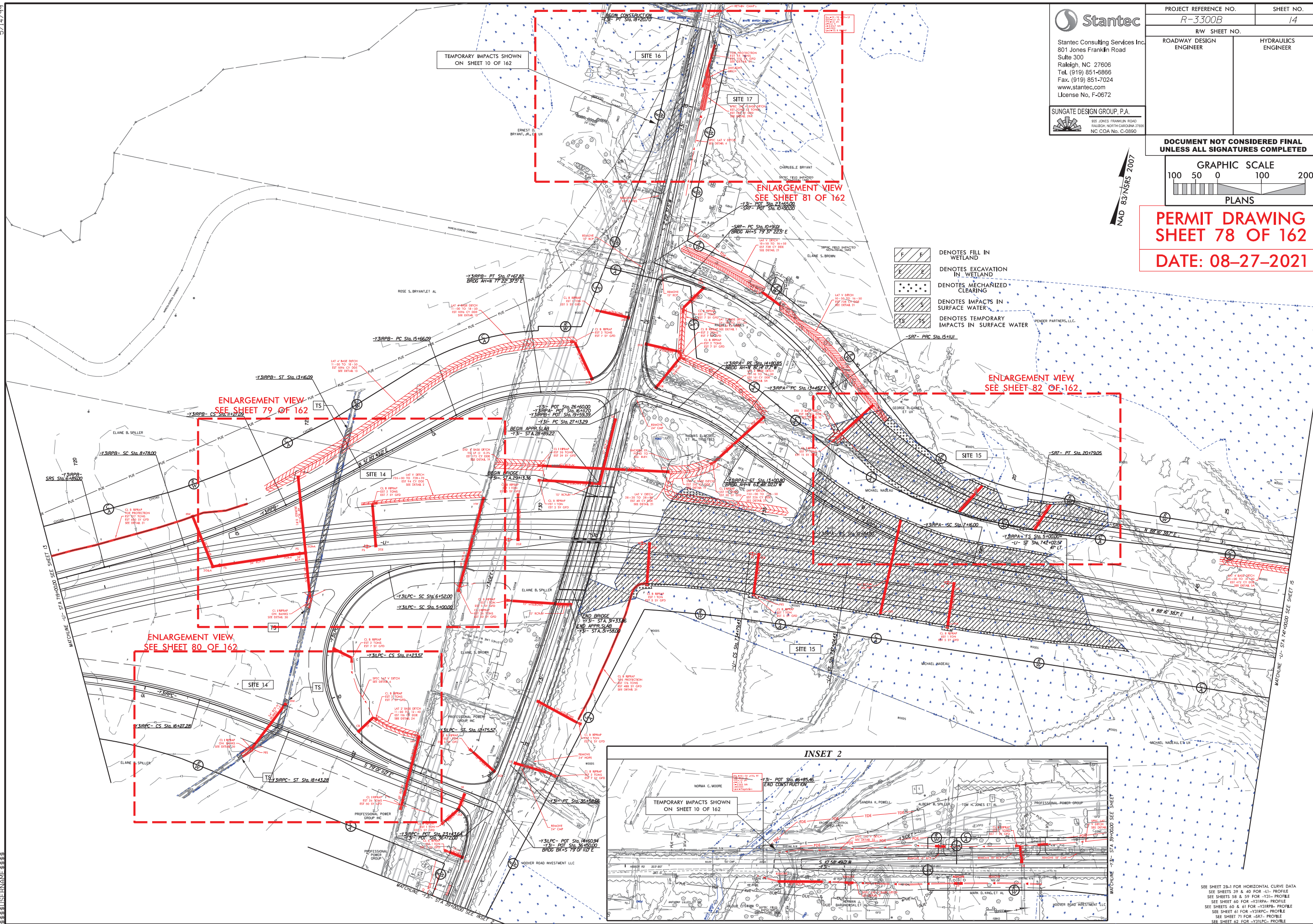
- F F DENOTES FILL IN WETLAND
- E E DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING
- S S DENOTES IMPACTS IN SURFACE WATER
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 39 & 40 FOR -11- PROFILE
SEE SHEETS 58 & 59 FOR -Y31- PROFILE
SEE SHEET 60 FOR -Y31RA- PROFILE
SEE SHEETS 60 & 61 FOR -Y31RPS- PROFILE
SEE SHEET 61 FOR -Y31RPS- PROFILE
SEE SHEET 71 FOR -SRT- PROFILE
SEE SHEET 82 FOR -Y31LPC- PROFILE

5/14/99

69
68
67
66
65
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

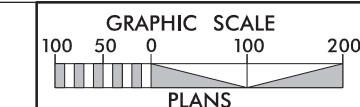


Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
895 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27603
NC COA No. C-0890

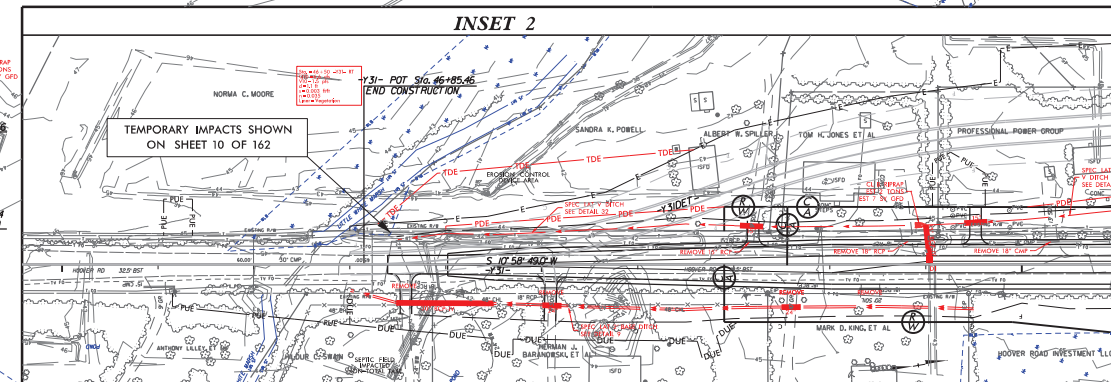
| PROJECT REFERENCE NO. | | SHEET NO. | |
|-------------------------|--|---------------------|--|
| R-3300B | | 14 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



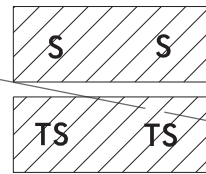
PERMIT DRAWING
SHEET 78 OF 162
DATE: 08-27-2021

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



SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 58 & 59 FOR -Y31- PROFILE
SEE SHEETS 58 & 59 FOR -Y31- PROFILE
SEE SHEETS 60 & 61 FOR -Y31R- PROFILE
SEE SHEET 61 FOR -Y31R- PROFILE
SEE SHEET 71 FOR -SRT- PROFILE
SEE SHEET 62 FOR -Y31L- PROFILE

8/17/99



DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

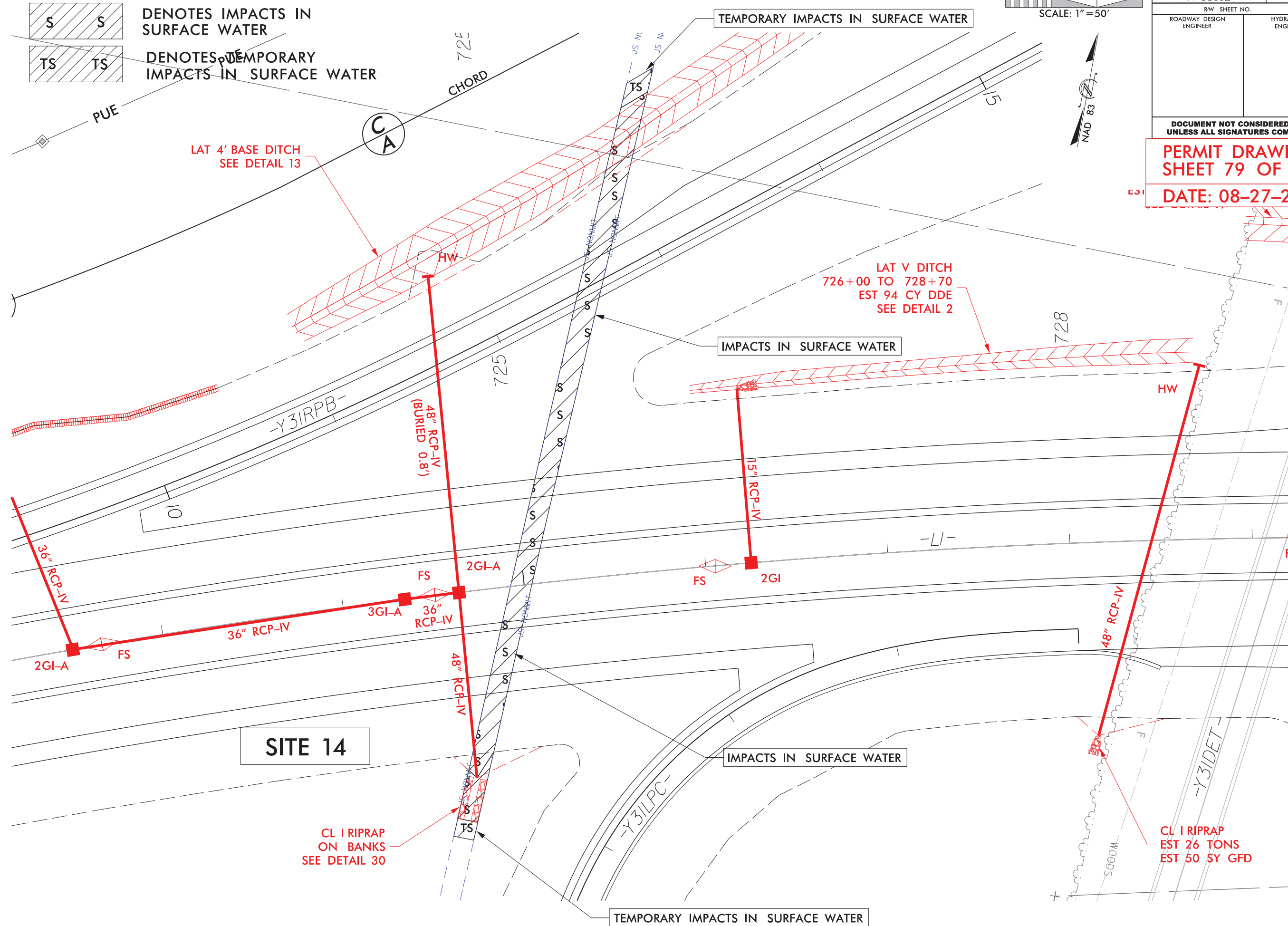


| | | | |
|---|--|---------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

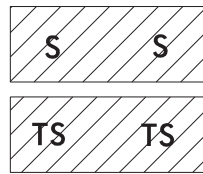
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 79 OF 162

DATE: 08-27-2021

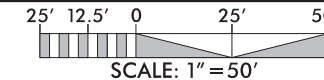


8/17/99



DENOTES IMPACTS IN
SURFACE WATER

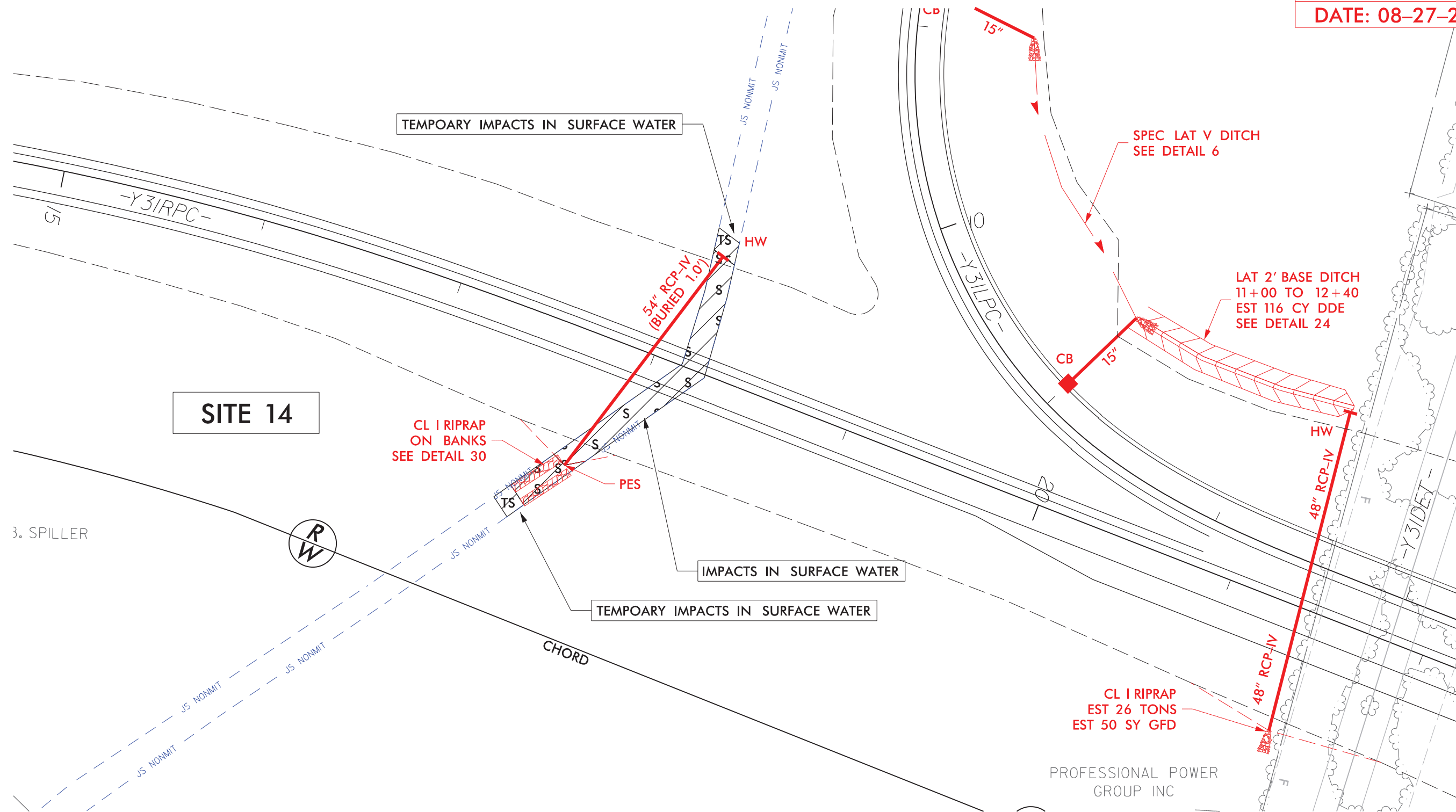
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



| | | |
|--|-----------------------|------------------------|
| 0' | PROJECT REFERENCE NO. | SHEET NO. |
| | R-3300B | |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | |

PERMIT DRAWING
SHEET 80 OF 162

DATE: 08-27-2021





A rectangular block with diagonal hatching from the bottom-left to the top-right. Two bold capital letters 'F' are placed within the block, one on the left and one on the right.

DENOTES FILL IN
WETLAND

DENOTES MECHANIZED
CLEARING

A rectangular block with diagonal hatching from the top-left to the bottom-right. Two capital letters 'E' are placed inside the block, one on the left and one on the right.

DENOTES EXCAVATION
IN WETLAND

LAT V DITCH
SEE DETAIL 21

STD 2' BASE DITCH
EST 20 CY DDE
SEE DETAIL 10

EXCAVATION

EXCAVATION

MECHANIZED CLEARING

SITE 15

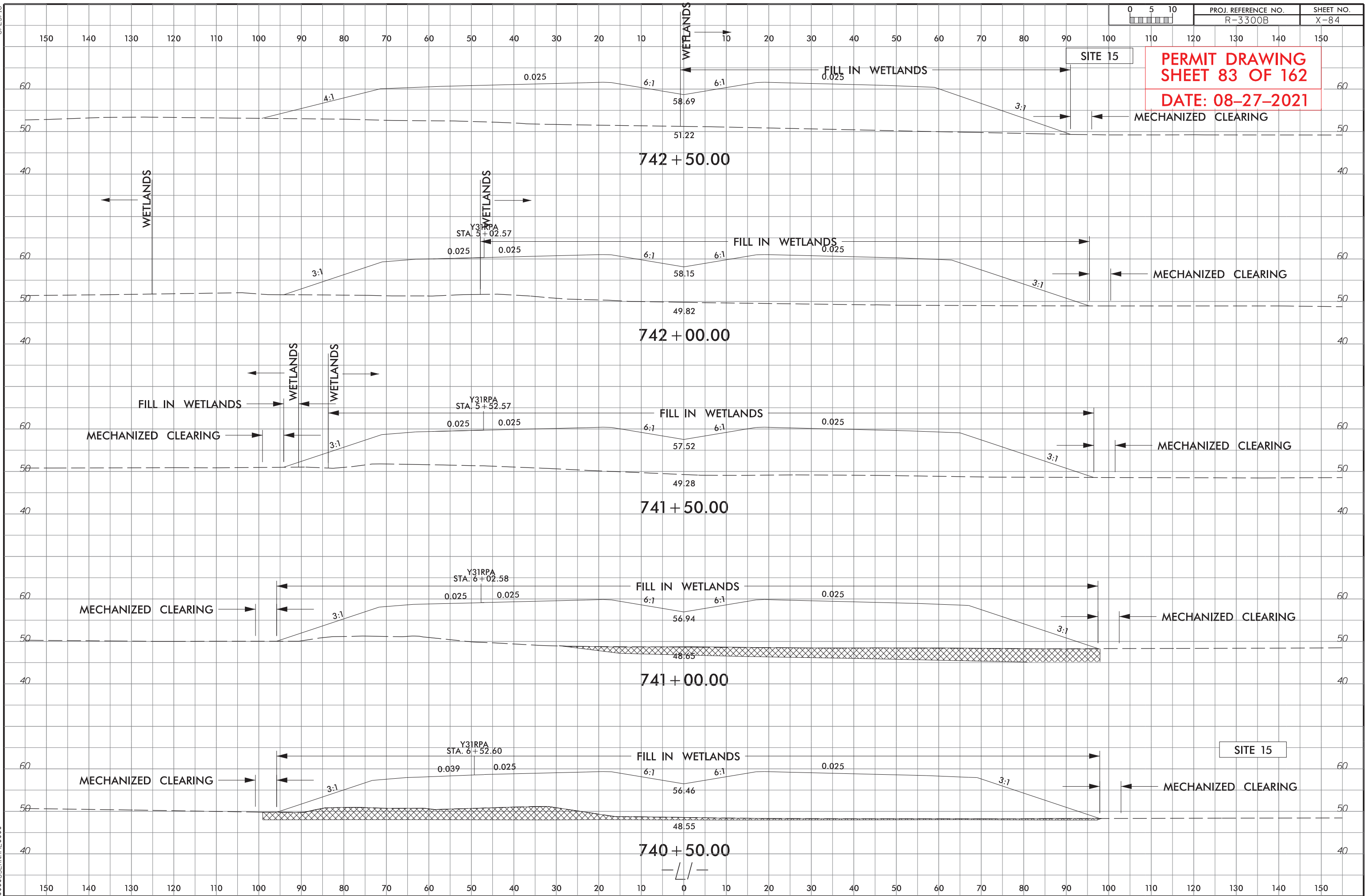
CL I RIPRAP
EST 7 TONS
EST 15 SY GFD

MICHAEL NADEAU

~~CHORD~~

A diagram of a 3D lattice structure, likely representing a crystal or polymer network. The lattice is composed of interconnected nodes and lines. A red line is drawn across the lattice, labeled "RCP IV EQ PIP". The angle between the red line and the horizontal is marked as 36°.

\$SYTIME\$\$\$\$
\$DGN\$\$\$\$\$



6/23/16

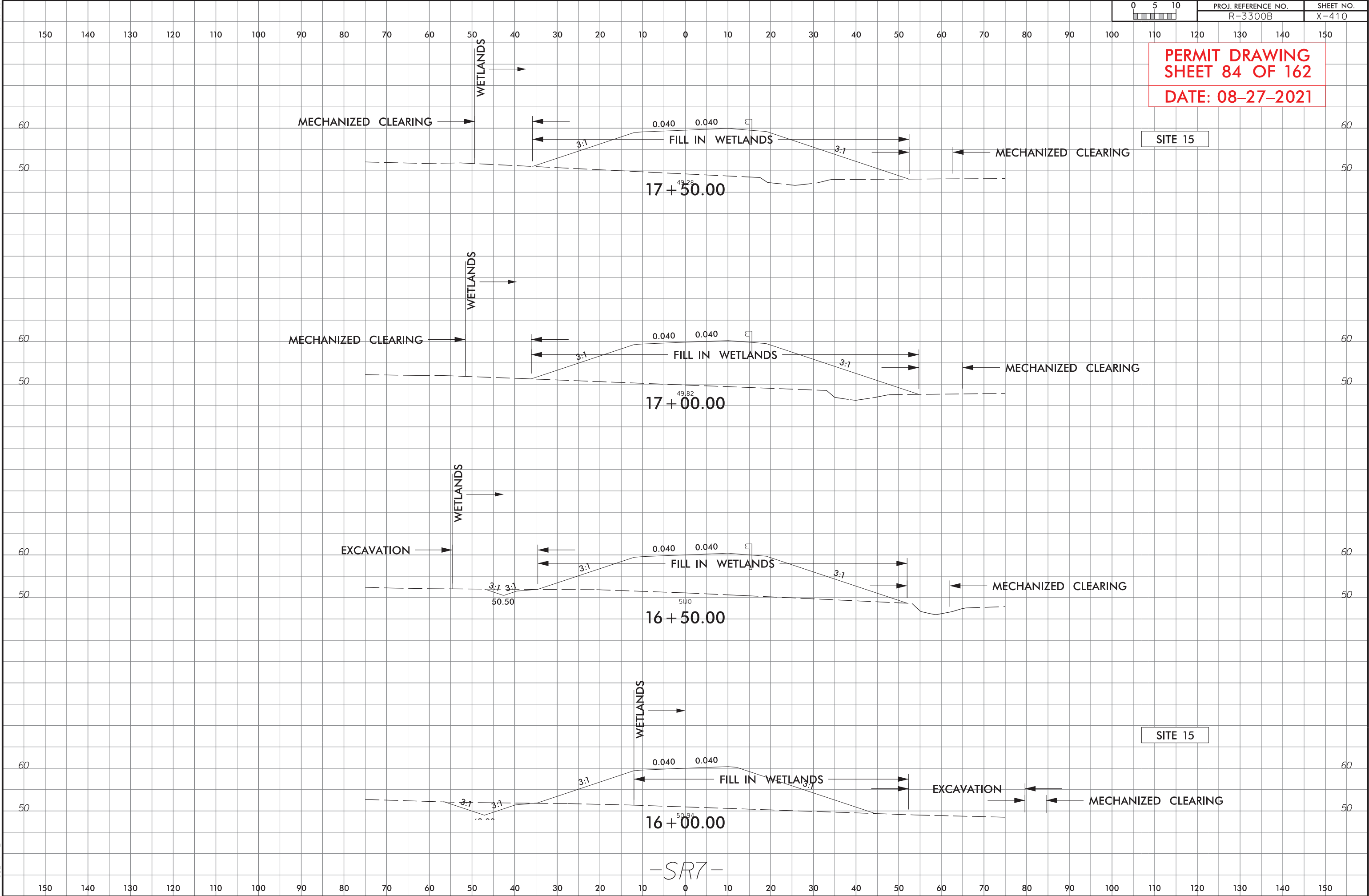


PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-410

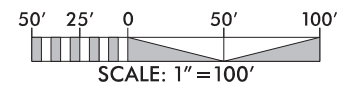
PERMIT DRAWING
SHEET 84 OF 162
DATE: 08-27-2021

SITE 15

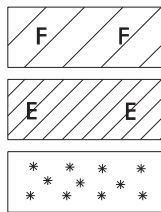


5/14/99

5/14/99



NAD 83/NSRS 2007



DENOTES FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

PENDER PARTNERS, LLC.

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 15 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

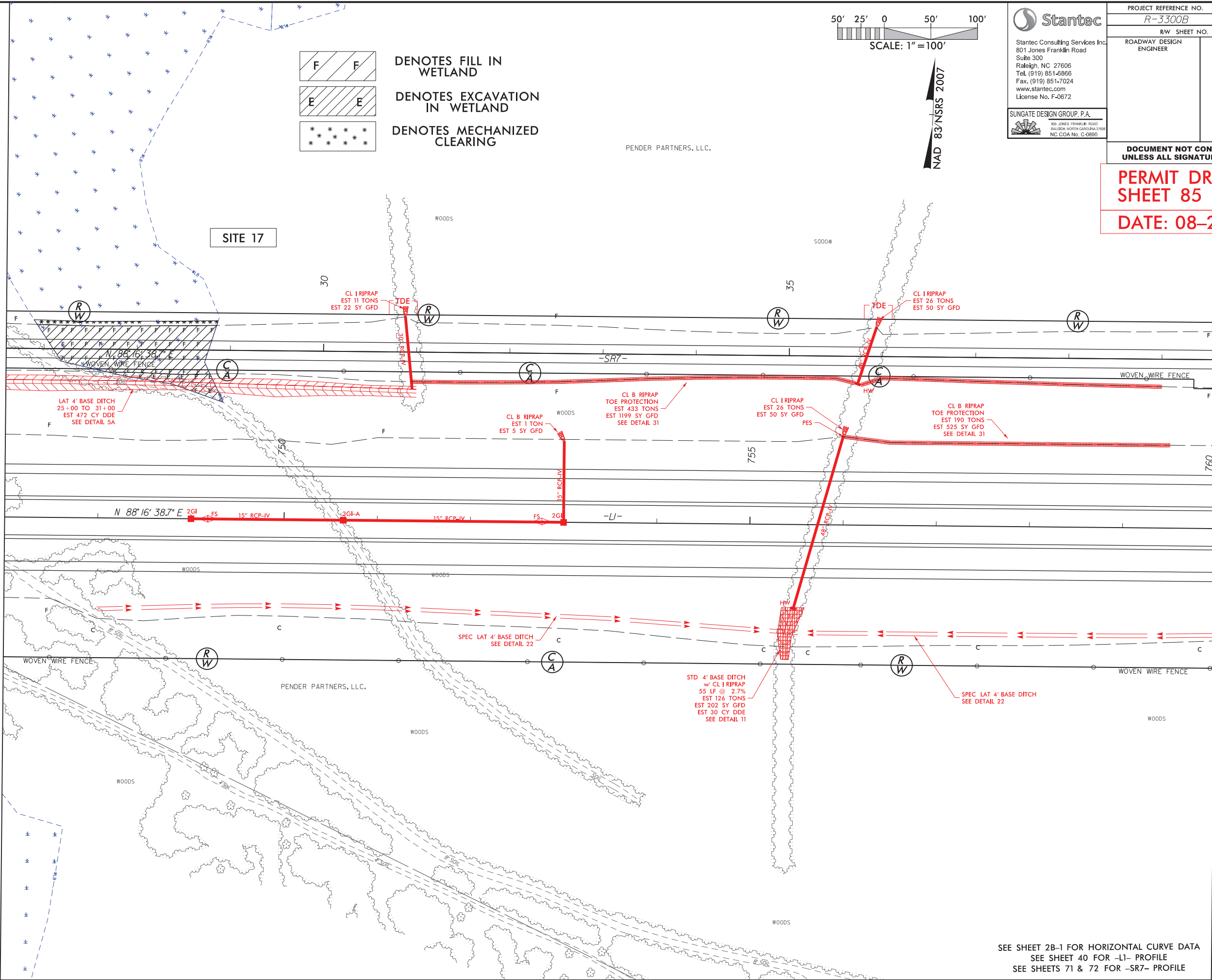
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 85 OF 162

DATE: 08-27-2021

MATCHLINE -LI- STA 747+00.00 SEE SHEET 14

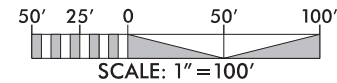
MATCHLINE -LI- STA 760+00.00 SEE SHEET 16



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 40 FOR -LI- PROFILE
SEE SHEETS 71 & 72 FOR -SR7- PROFILE

5/14/99

5/14/99



NAD 83/NSRS 2007

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

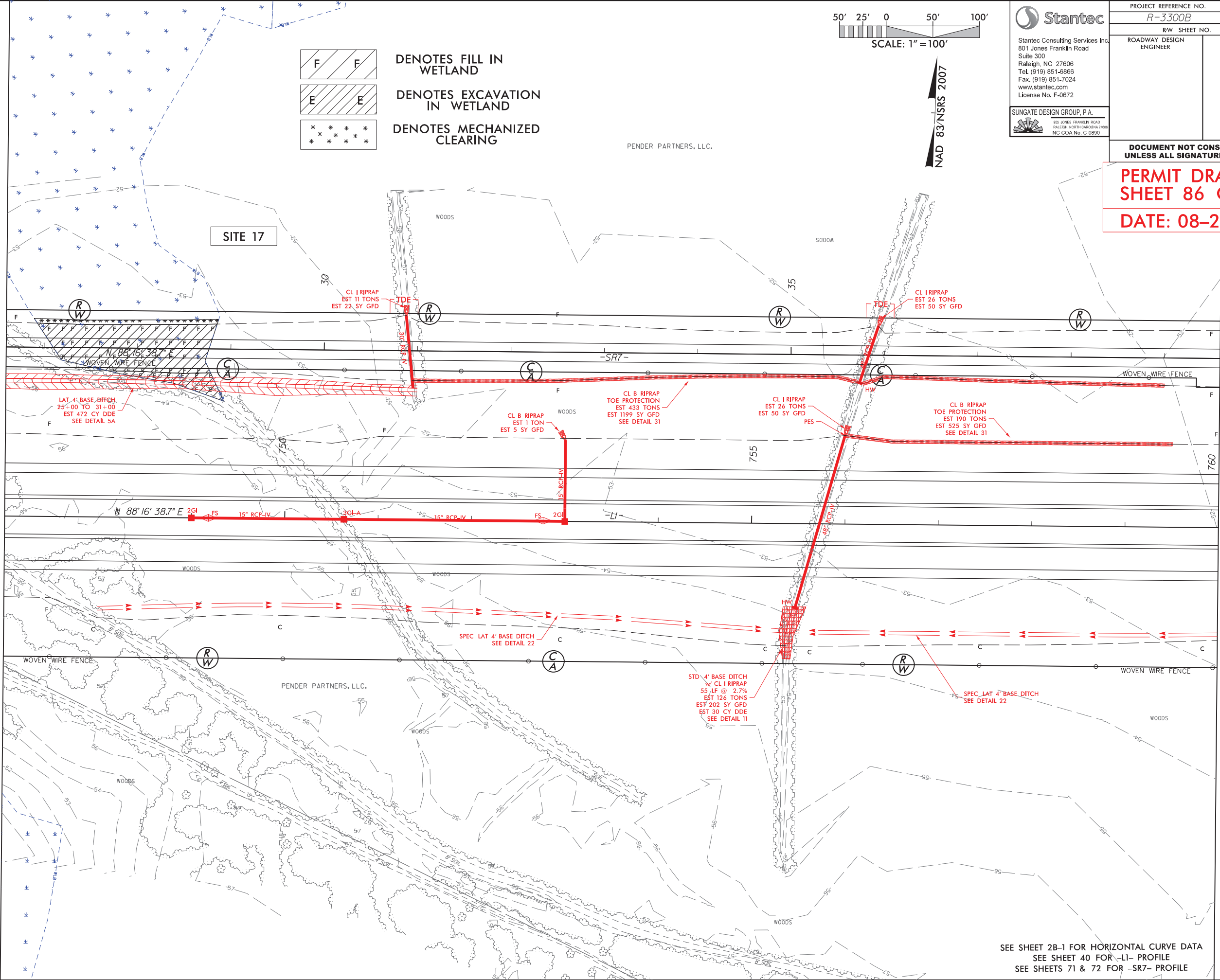
| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 15 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING
SHEET 86 OF 162**
DATE: 08-27-2021

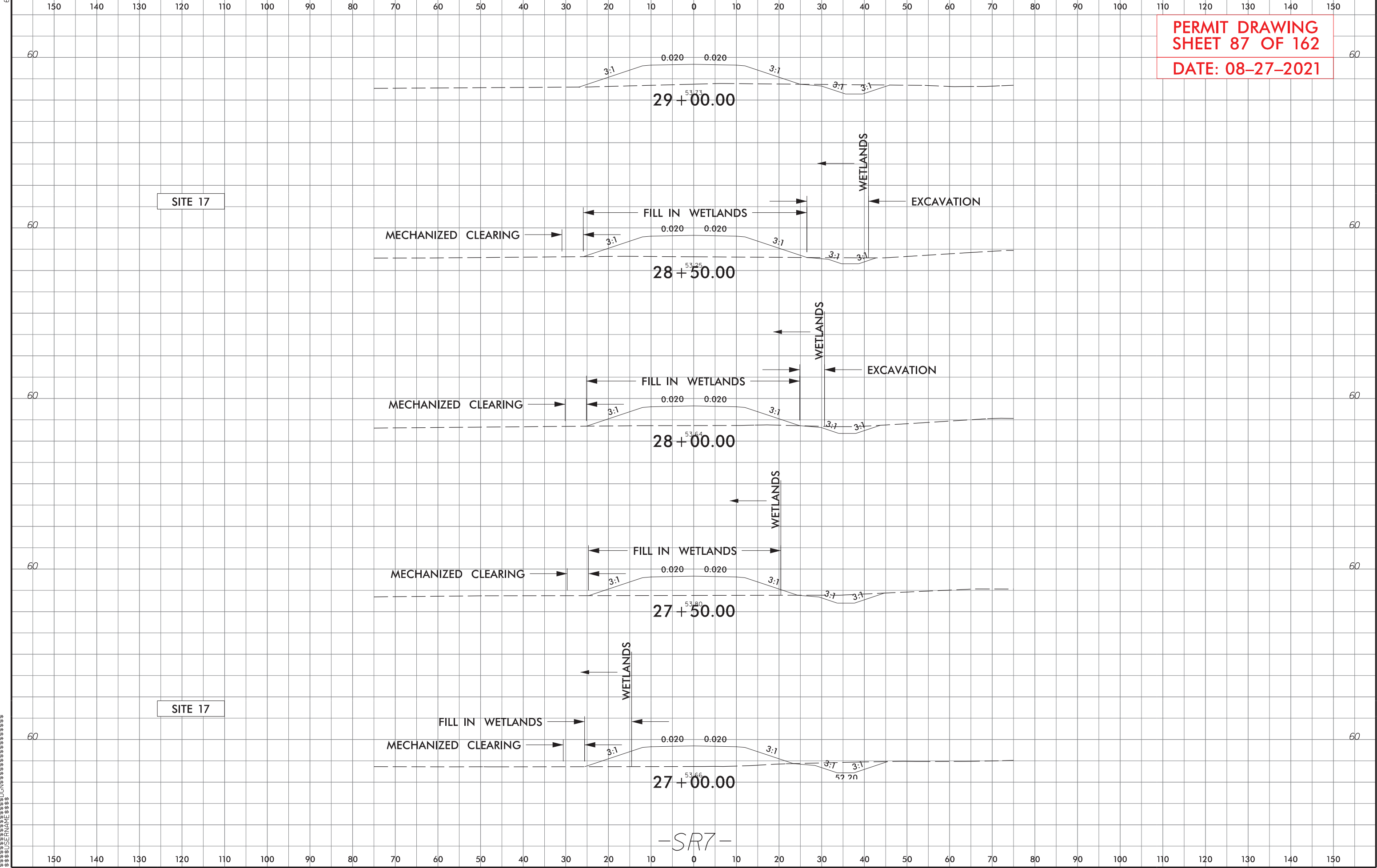
MATCHLINE -LI- STA 747+00.00 SEE SHEET 14

MATCHLINE -LI- STA 760+00.00 SEE SHEET 16

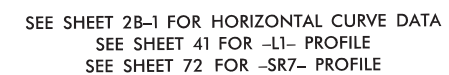


SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 40 FOR -LI- PROFILE
SEE SHEETS 71 & 72 FOR -SR7- PROFILE

6/23/16



DATE: 08-27-2021



5/14/99

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

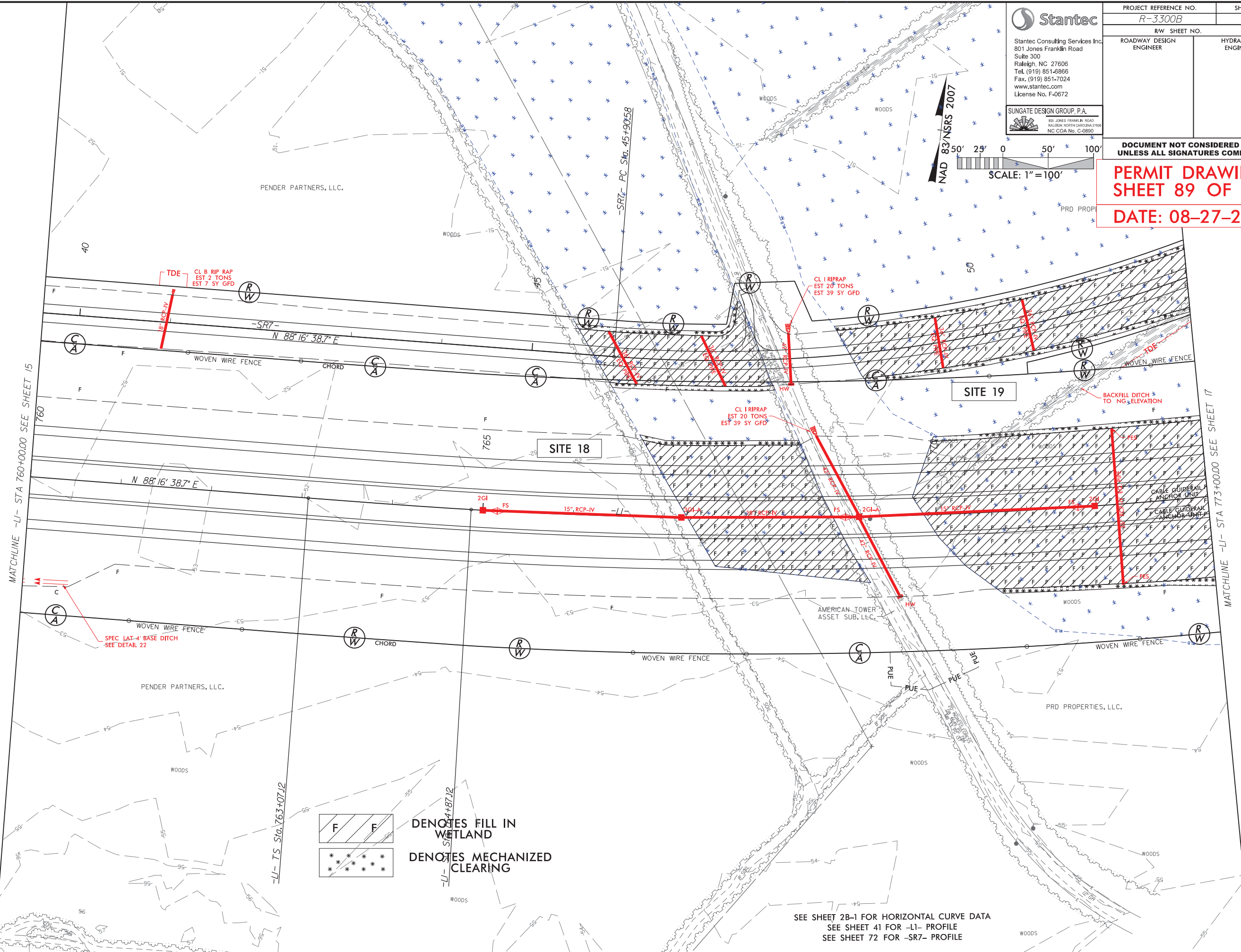
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 16 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

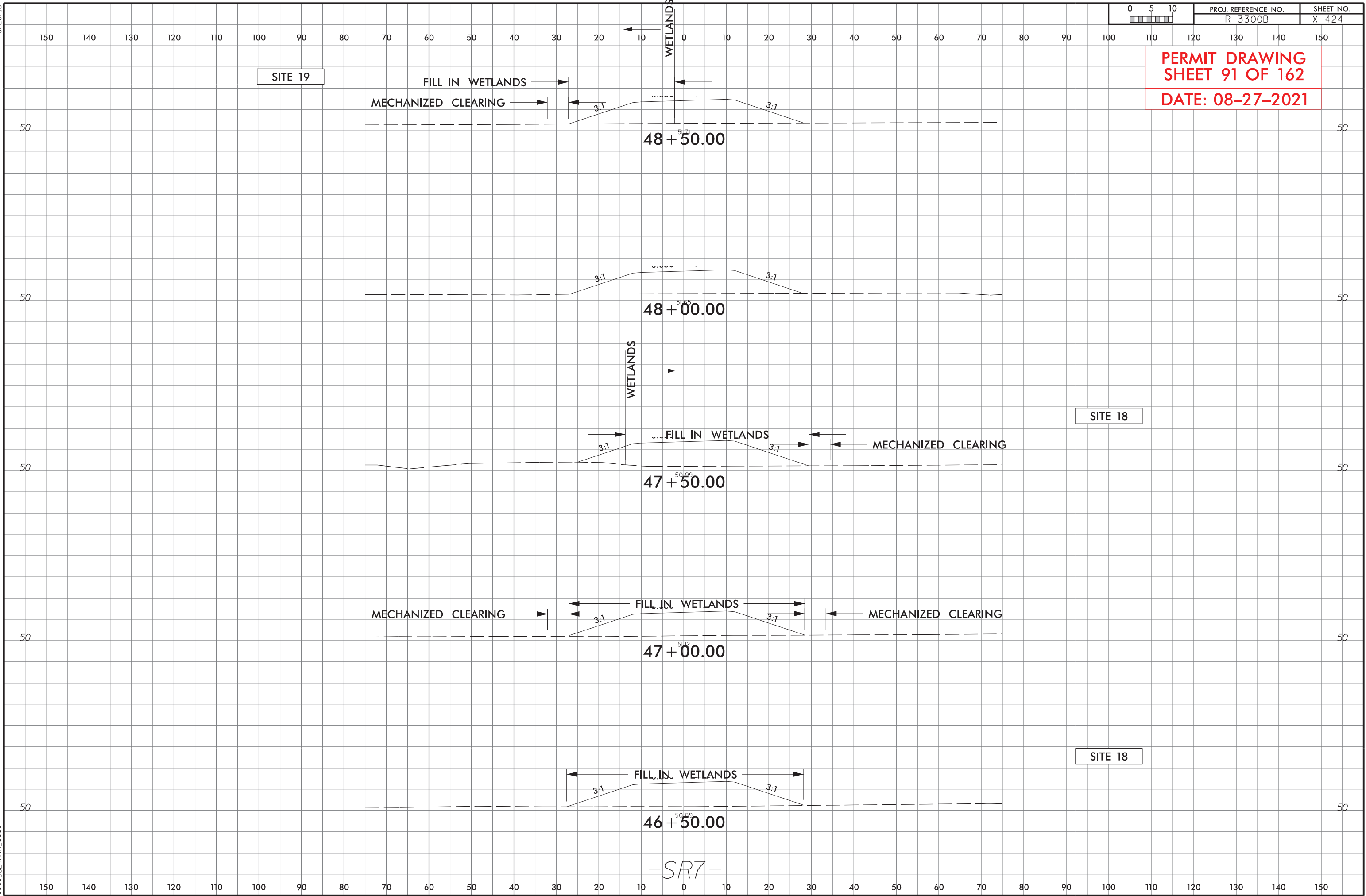
**PERMIT DRAWING
SHEET 89 OF 162**

DATE: 08-27-2021



SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 41 FOR -LI- PROFILE
SEE SHEET 72 FOR -SR7- PROFILE

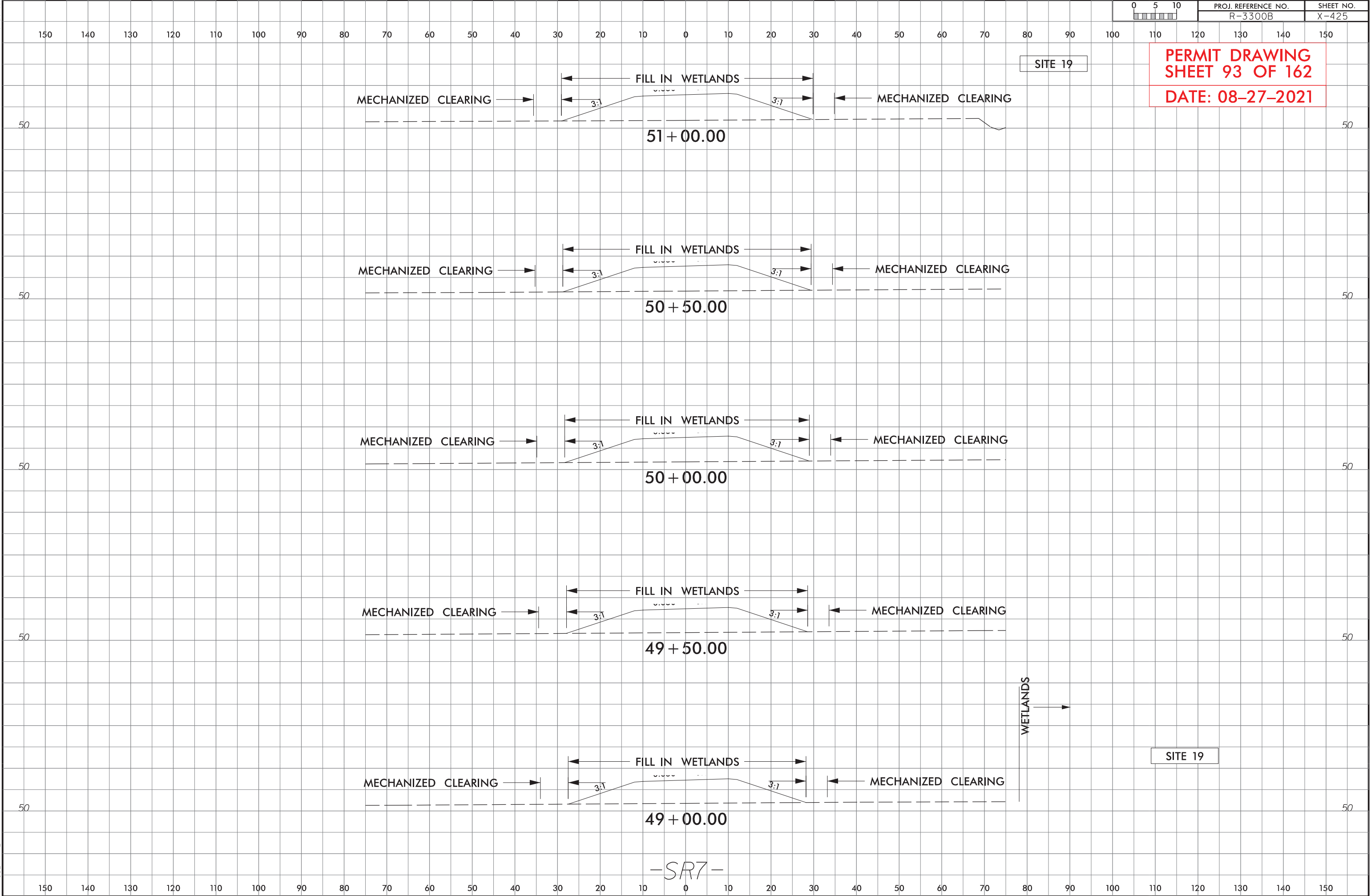






6/23/16

6/23/16
SHEET NO. X-425
PROJECT NO. R-3300B
DATE: 08-27-2021



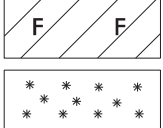
5/14/99

5/14/99

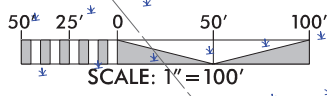
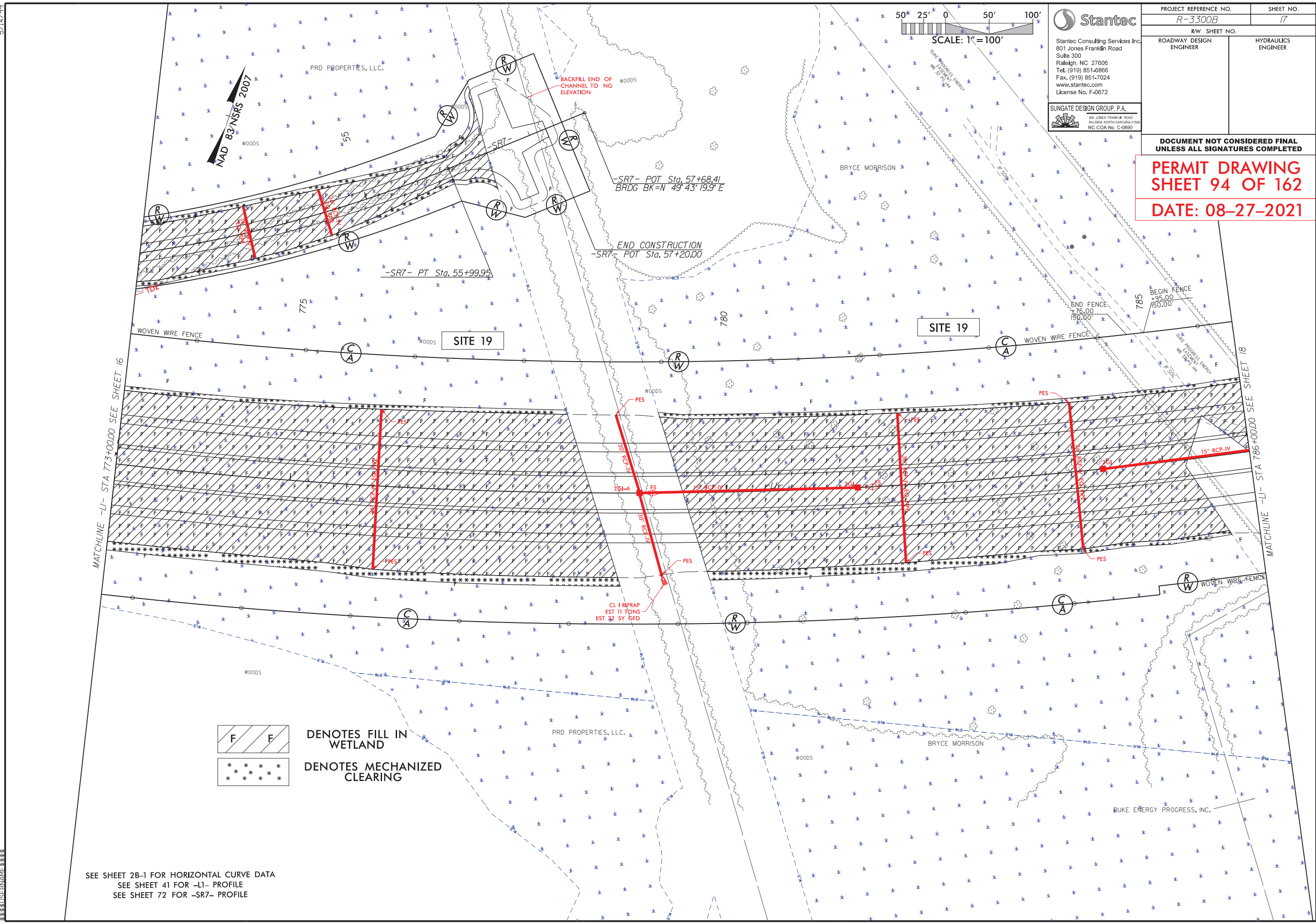
MATCHLINE -L1- STA 773+00.00 SEE SHEET 16

MATCHLINE -L1- STA 786+00.00 SEE SHEET 18

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 41 FOR -L1- PROFILE
SEE SHEET 72 FOR -SR7- PROFILE



DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING



Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
800 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | | | |
|---|--|------------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. <i>17</i> | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 94 OF 162
DATE: 08-27-2021

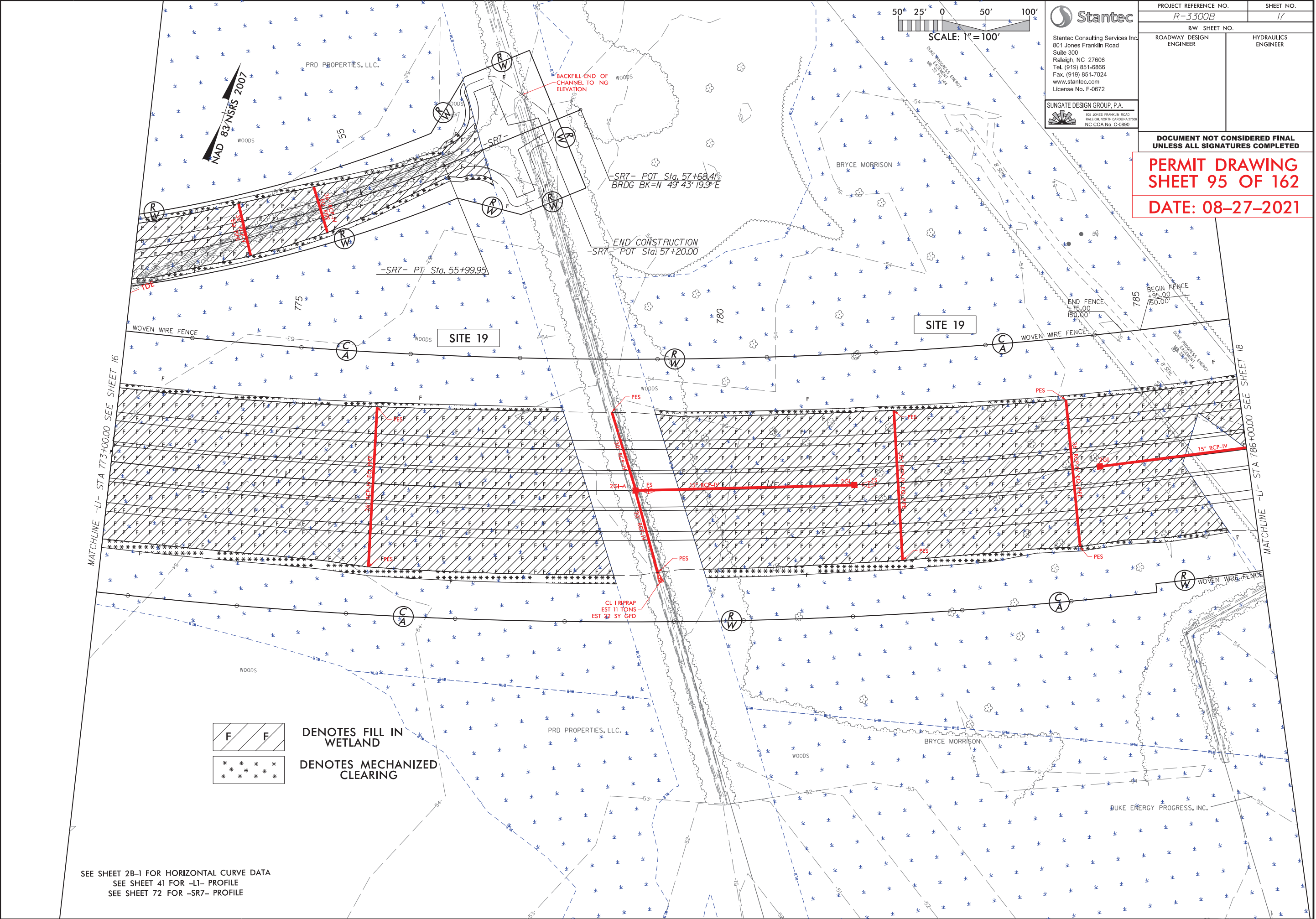
PRD PROPERTIES, LLC.

BRYCE MORRISON

DUKE ENERGY PROGRESS, INC.

5/14/99

5/14/99



Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
800 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 17 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

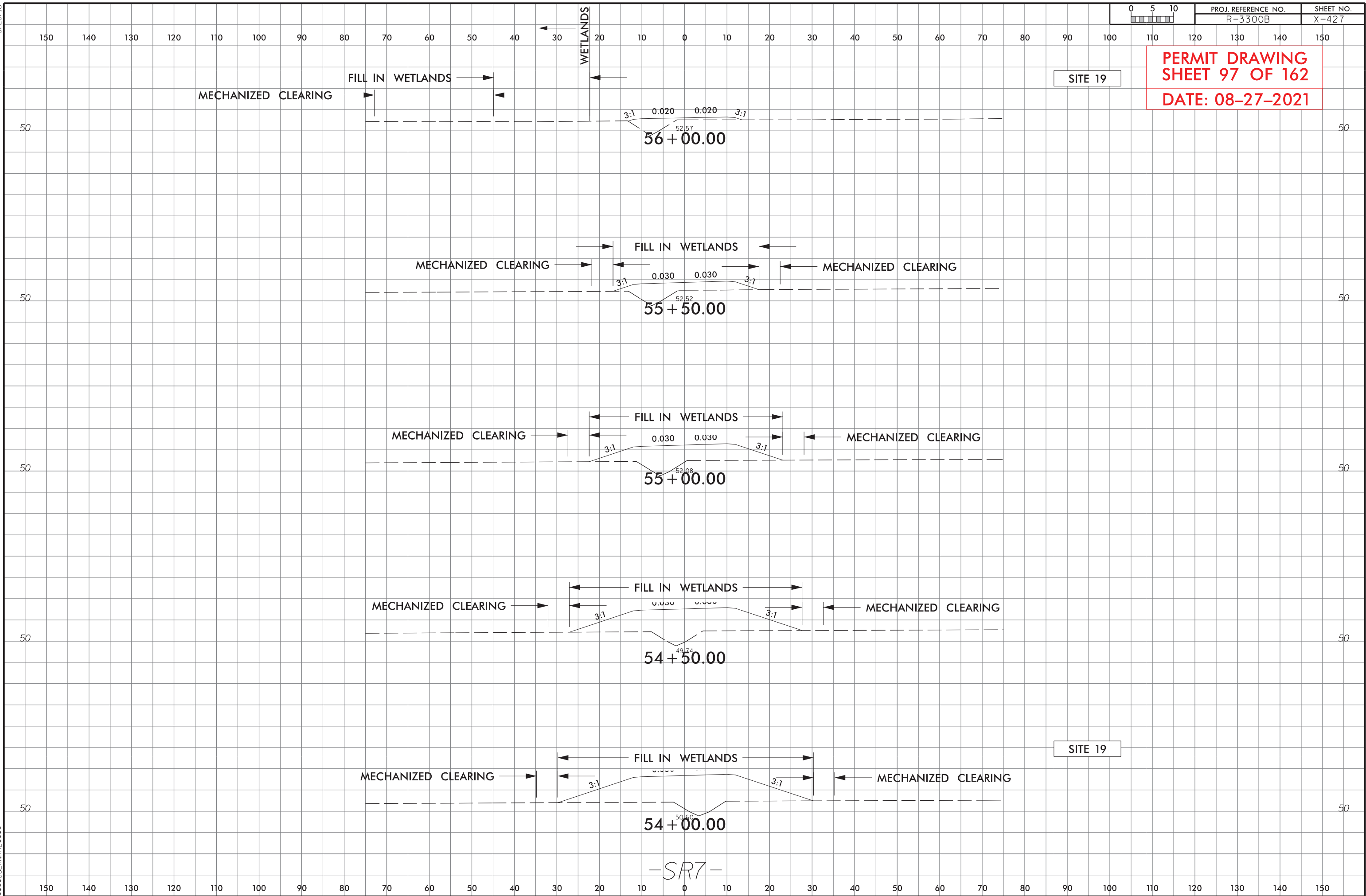
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING
SHEET 95 OF 162**

DATE: 08-27-2021

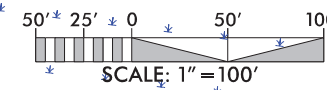
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 41 FOR -L1- PROFILE
SEE SHEET 72 FOR -SR7- PROFILE

USERNAME



5/14/99

5/14/99



NAD 83 NRS 2007

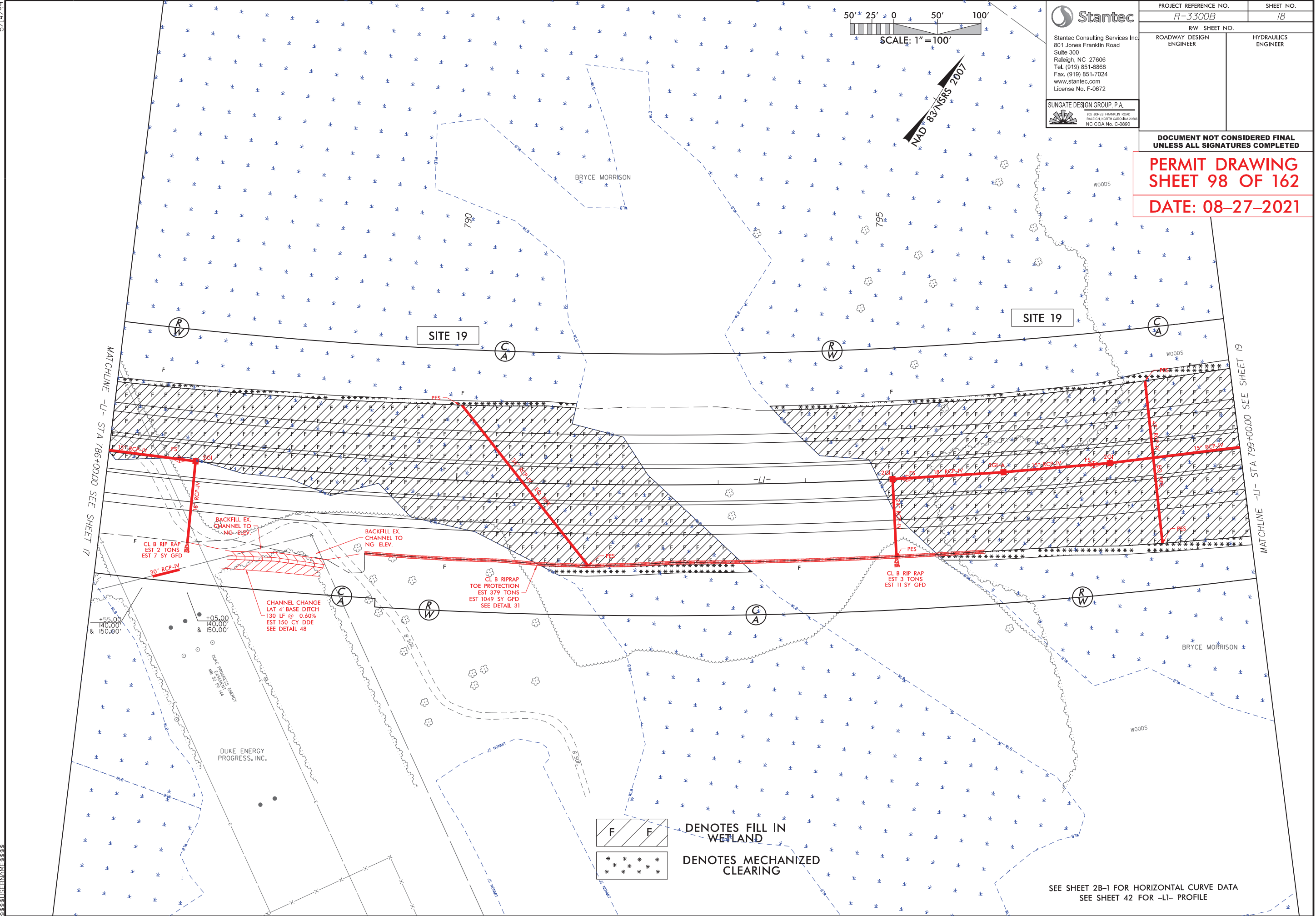
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. | |
|-------------------------|--|---------------------|--|
| R-3300B | | 18 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

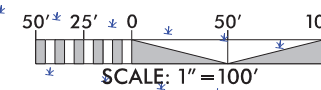
PERMIT DRAWING
SHEET 98 OF 162
DATE: 08-27-2021



DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 42 FOR -LI- PROFILE

5/14/99



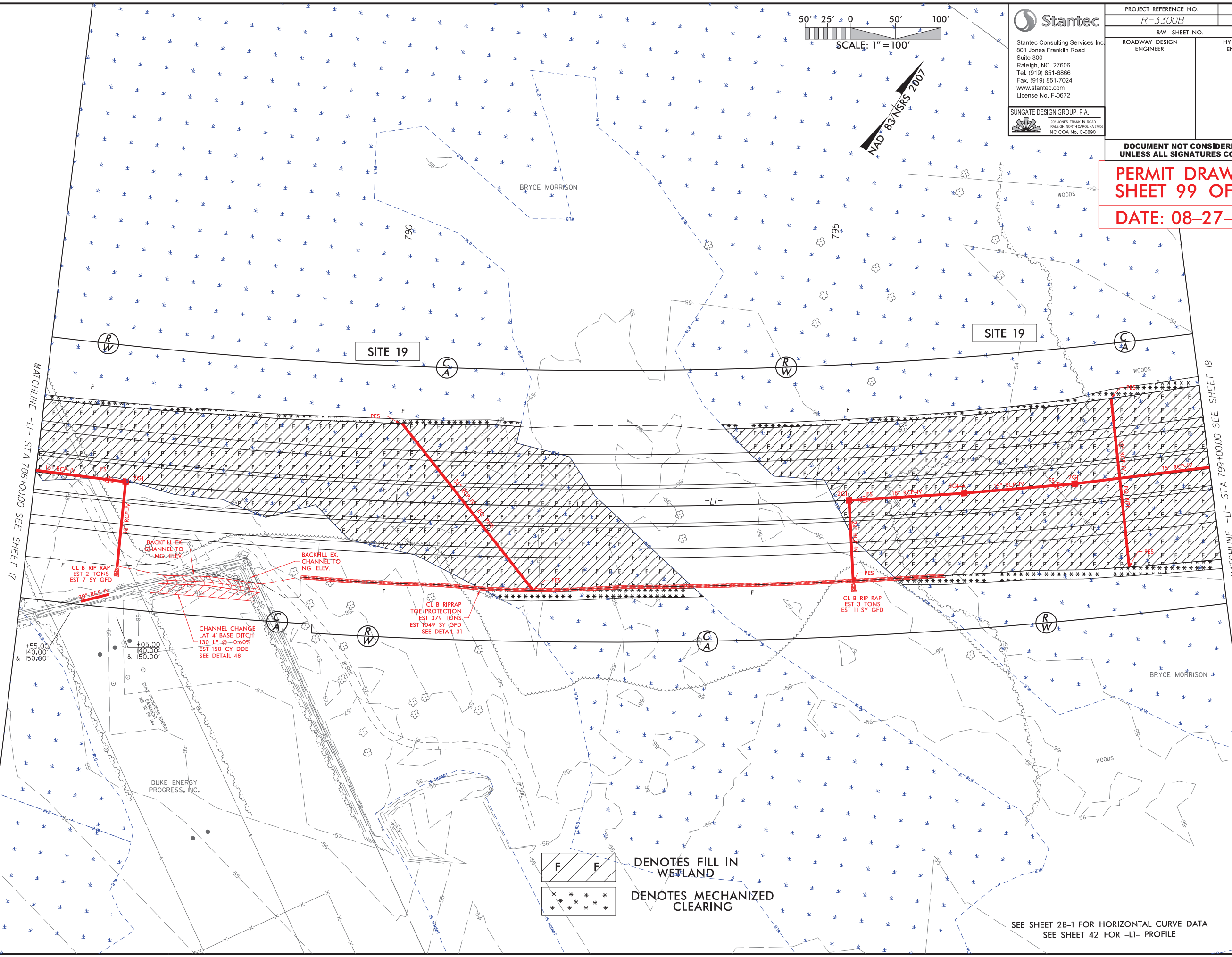
NAD 83 NRS 2007

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| | | | |
|---|--|------------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. <i>18</i> | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

PERMIT DRAWING
SHEET 99 OF 162
DATE: 08-27-2021



DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 42 FOR -LI- PROFILE

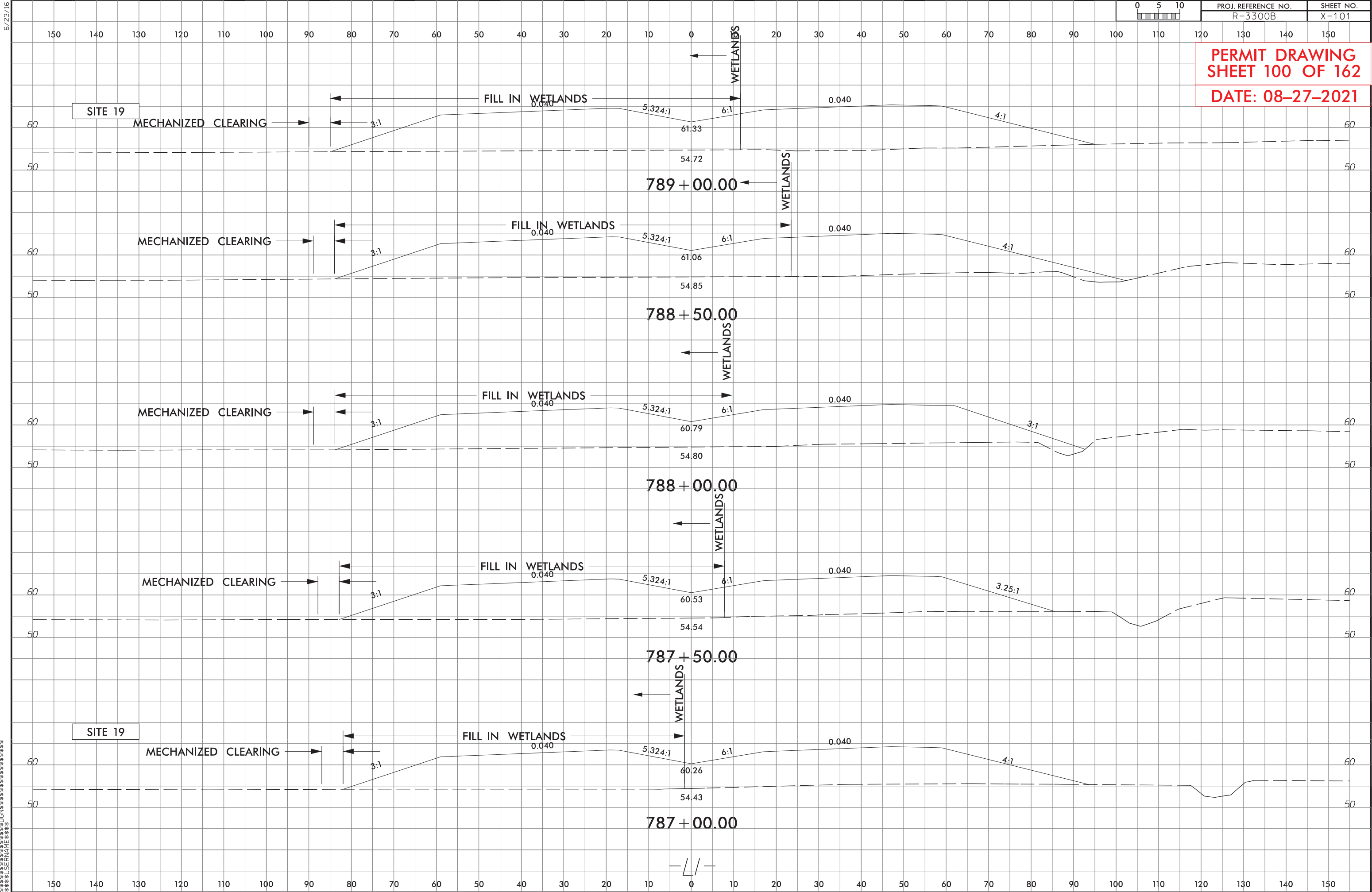
5/14/99

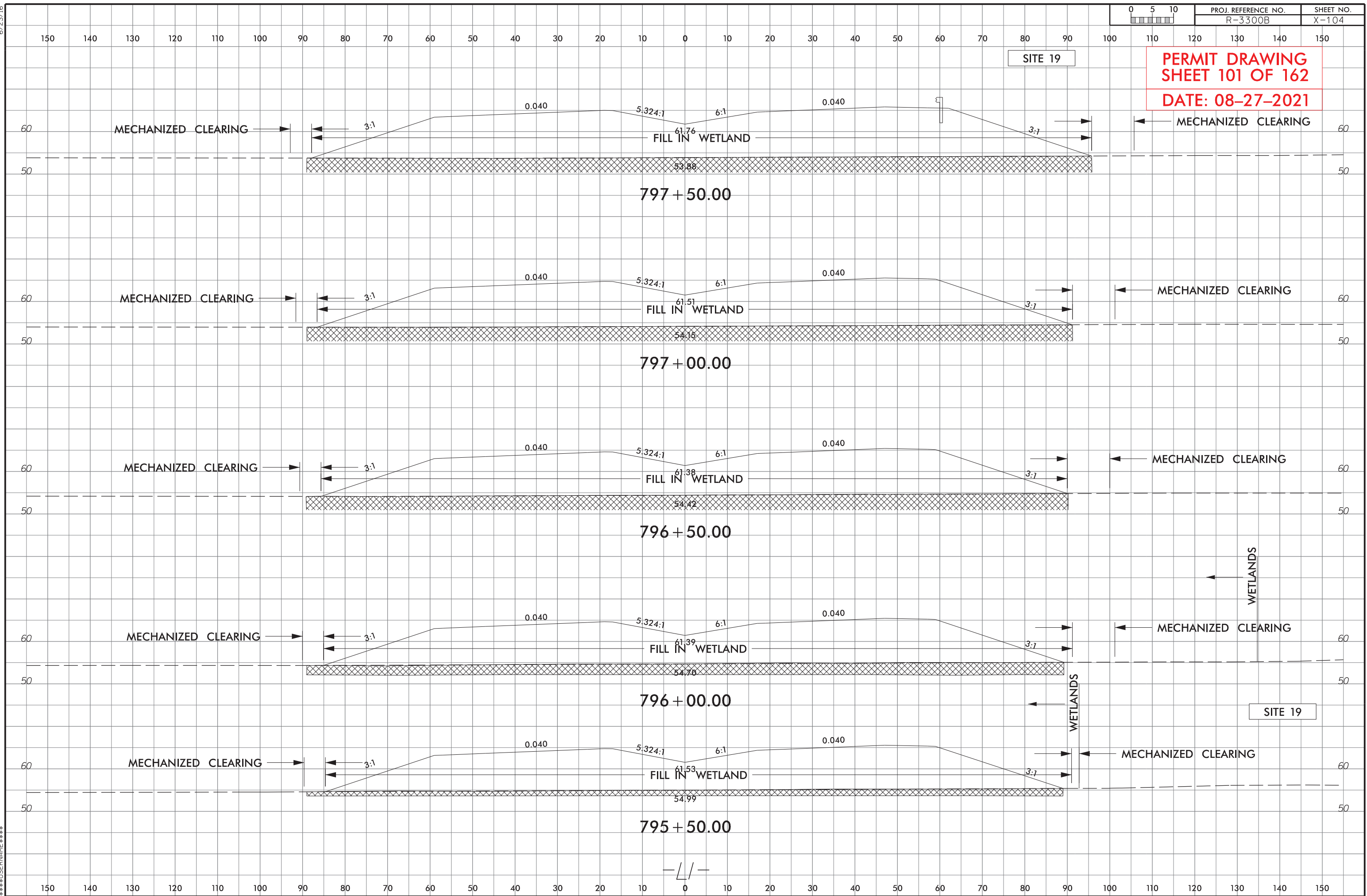
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-101 |

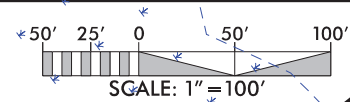
PERMIT DRAWING
SHEET 100 OF 162
DATE: 08-27-2021





5/14/99

5/14/99



Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

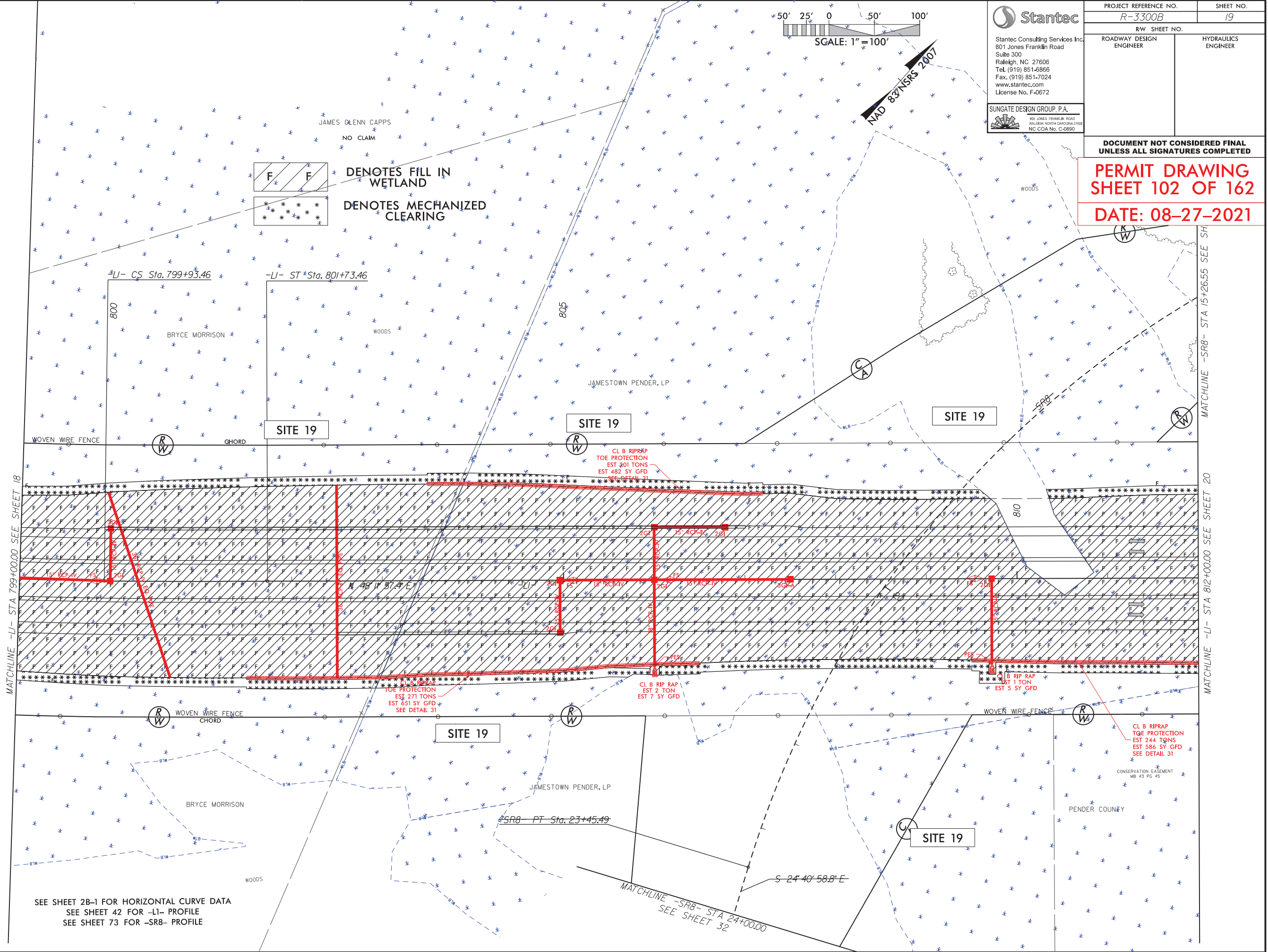
SUNGATE DESIGN GROUP, P.A.

805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 19 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

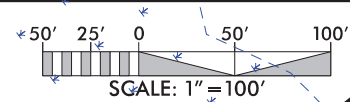
PERMIT DRAWING
SHEET 102 OF 162
DATE: 08-27-2021



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 42 FOR -LI- PROFILE
SEE SHEET 73 FOR -SR8- PROFILE

5/14/99

5/14/99



Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

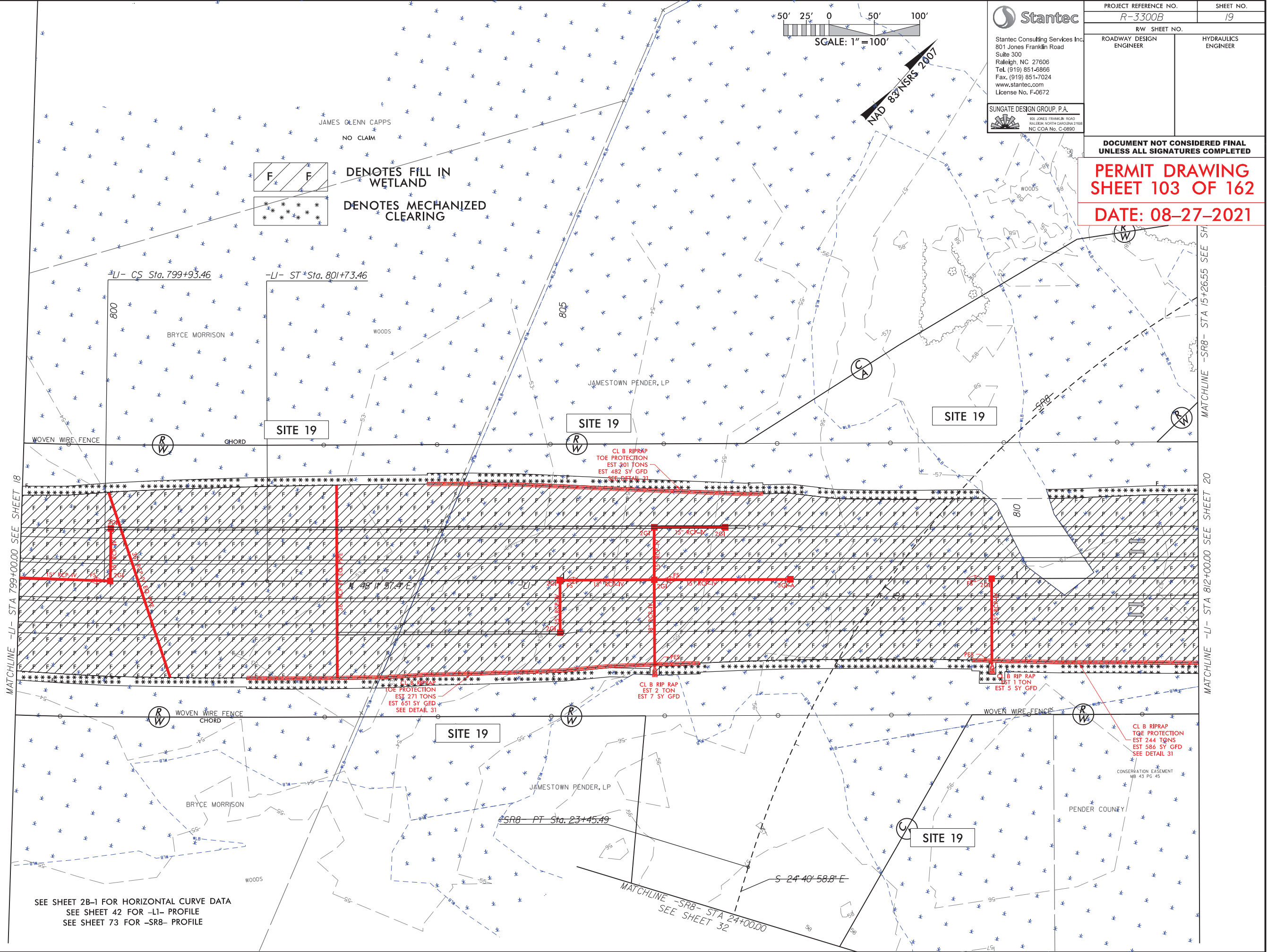
SUNGATE DESIGN GROUP, P.A.

805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 19 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 103 OF 162
DATE: 08-27-2021



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 42 FOR -LI- PROFILE
SEE SHEET 73 FOR -SR8- PROFILE

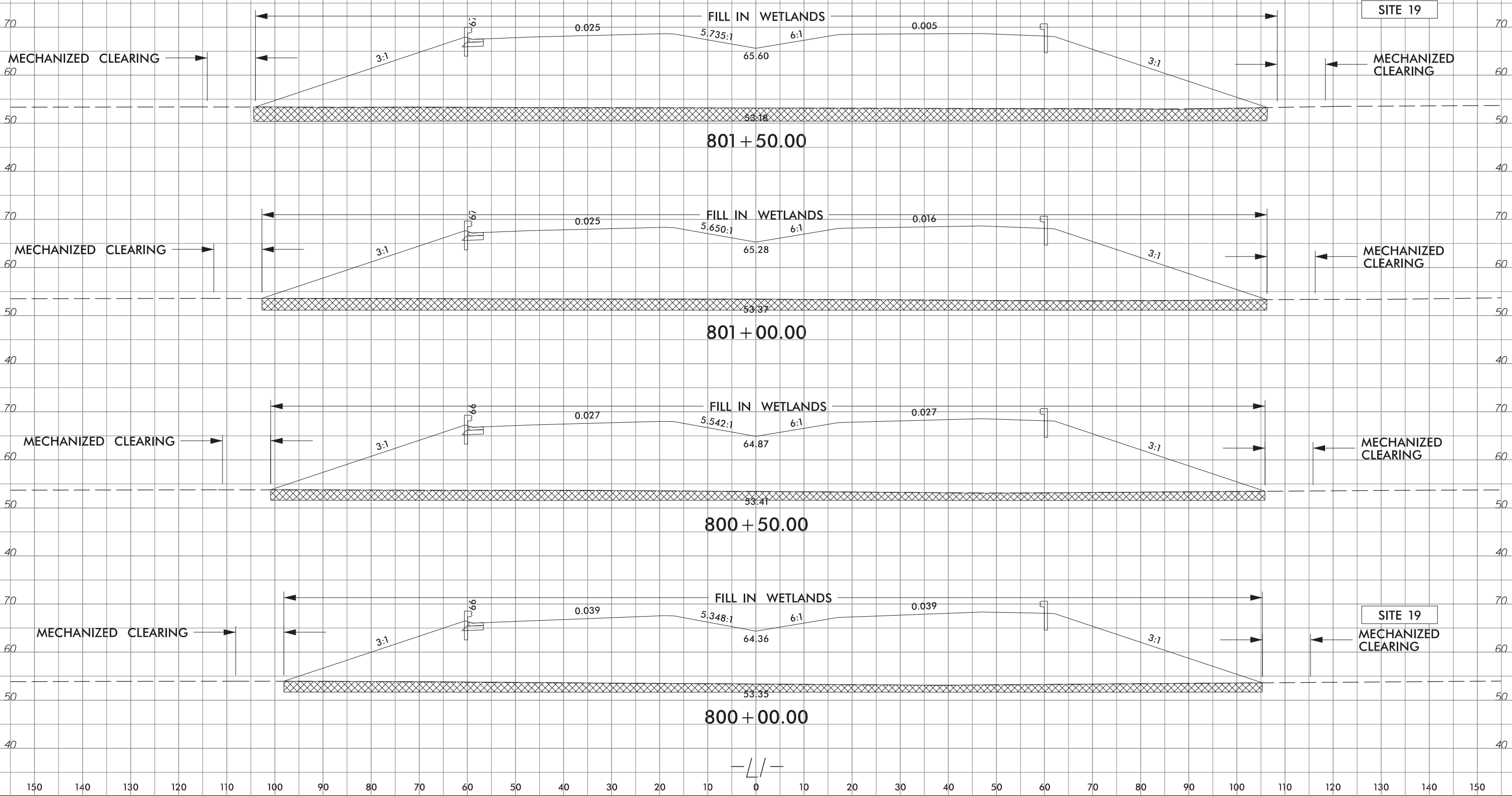
6/23/16

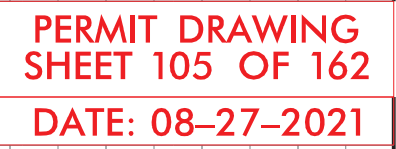


| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-106 |

PERMIT DRAWING
SHEET 104 OF 162

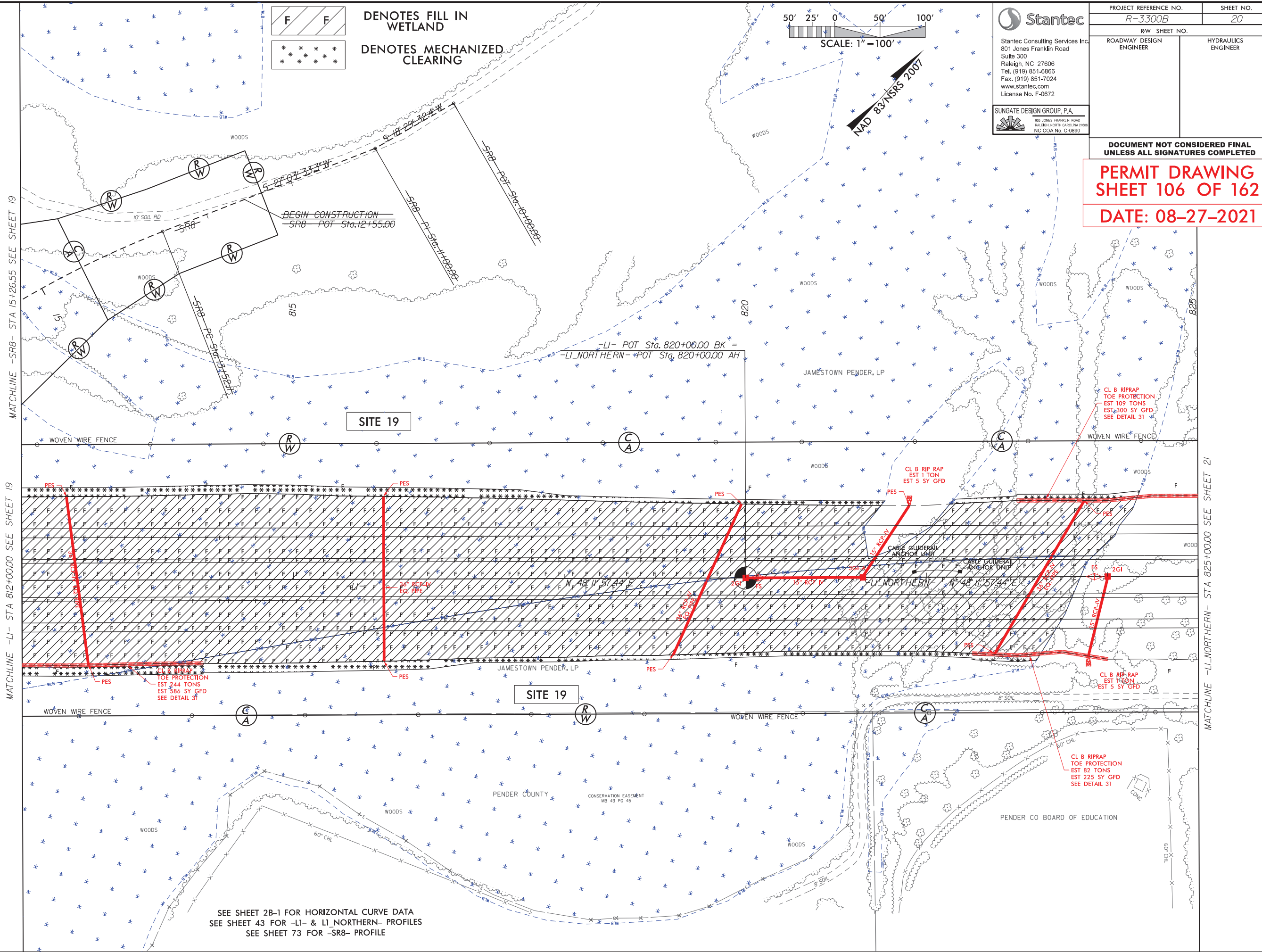
DATE: 08-27-2021



[illegible]

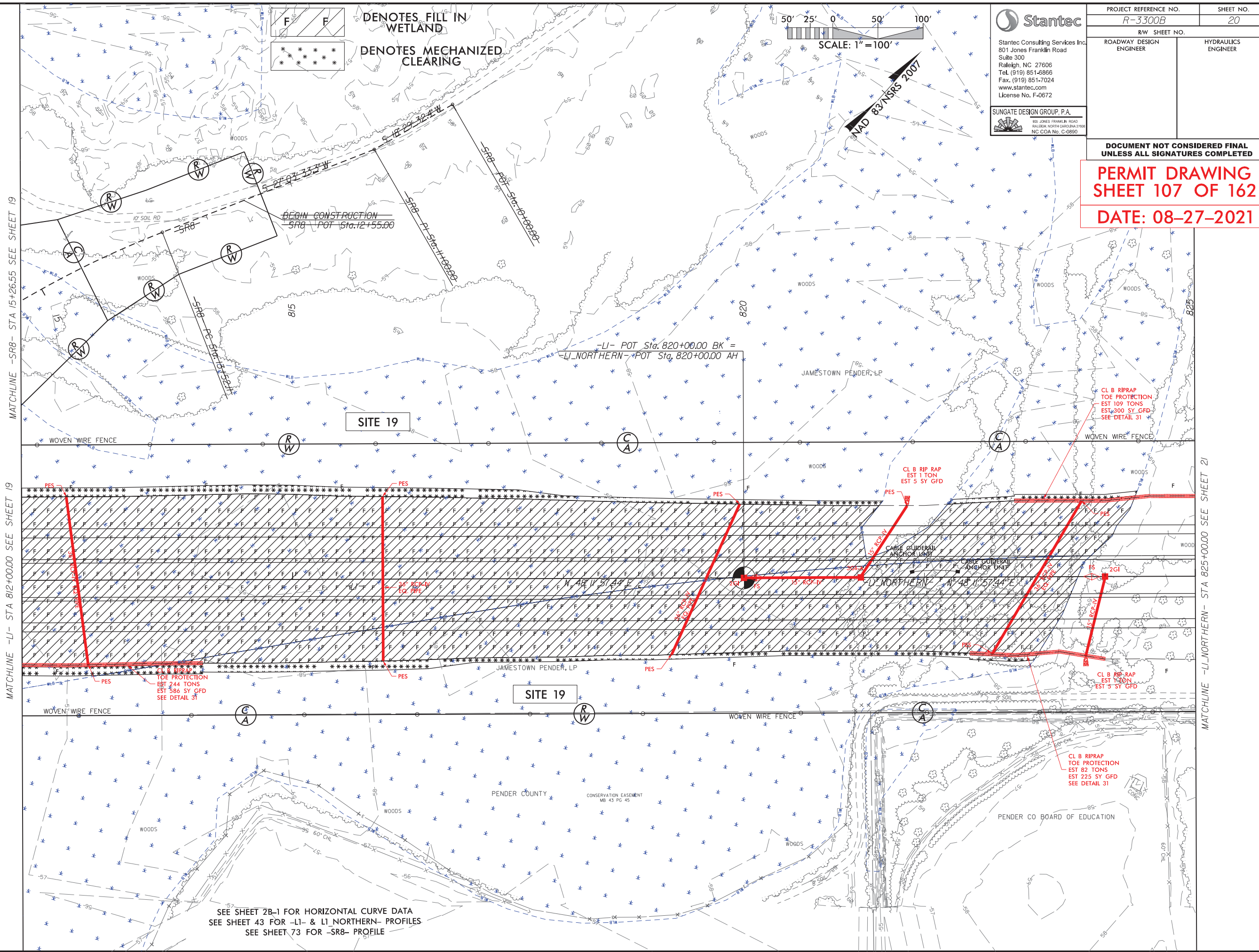
5/14/99



5/14/99



SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 43 FOR -LI- & LI NORTHERN- PROFILES
SEE SHEET 73 FOR -SR8- PROFILE

#####C-FILE#####DCN#####USERNAME#####



| | | | |
|--|--|----------------------------|------------------------|
|  | PROJECT REFERENCE NO. R-3300B | | SHEET NO. 20 |
| | R/W SHEET NO. | | |
| | STANTEC CONSULTING SERVICES INC. 801 JONES FRANKLIN ROAD SUITE 300 RALEIGH, NC 27608 TEL. (919) 851-8866 FAX. (919) 851-7024 WWW.STANTEC.COM LICENSE NO. F-0672 | ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| SUNGATE DESIGN GROUP, P.A.  800 JONES FRANKLIN ROAD RALEIGH NORTH CAROLINA 27608 NC COA NO. C-0880 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | |

PERMIT DRAWING
SHEET 107 OF 162
DATE: 08-27-2021

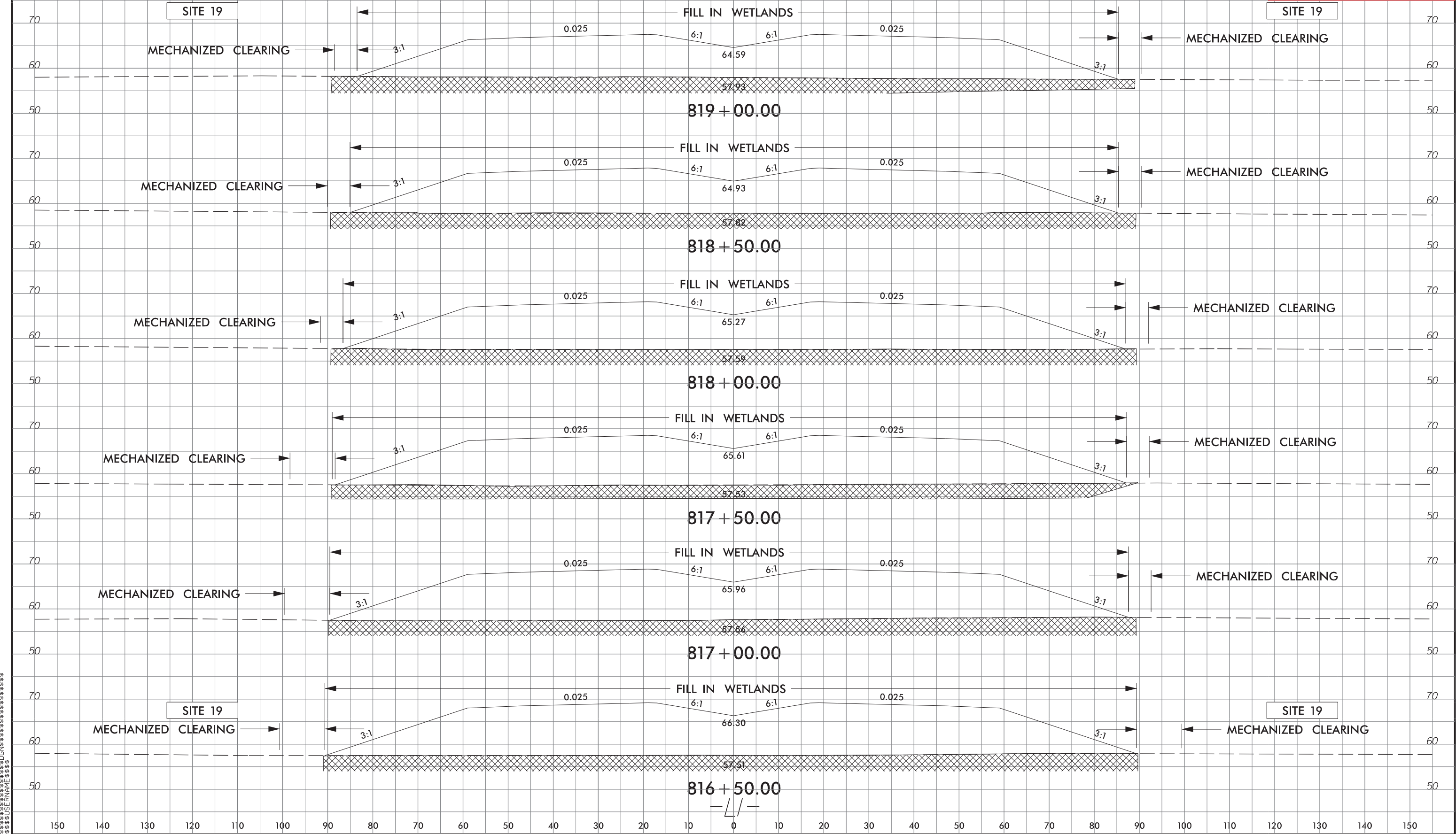
6/23/16



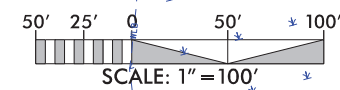
| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-113 |

PERMIT DRAWING
SHEET 108 OF 162

DATE: 08-27-2021



5/14/99



NAD 83 NSRS 2007

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

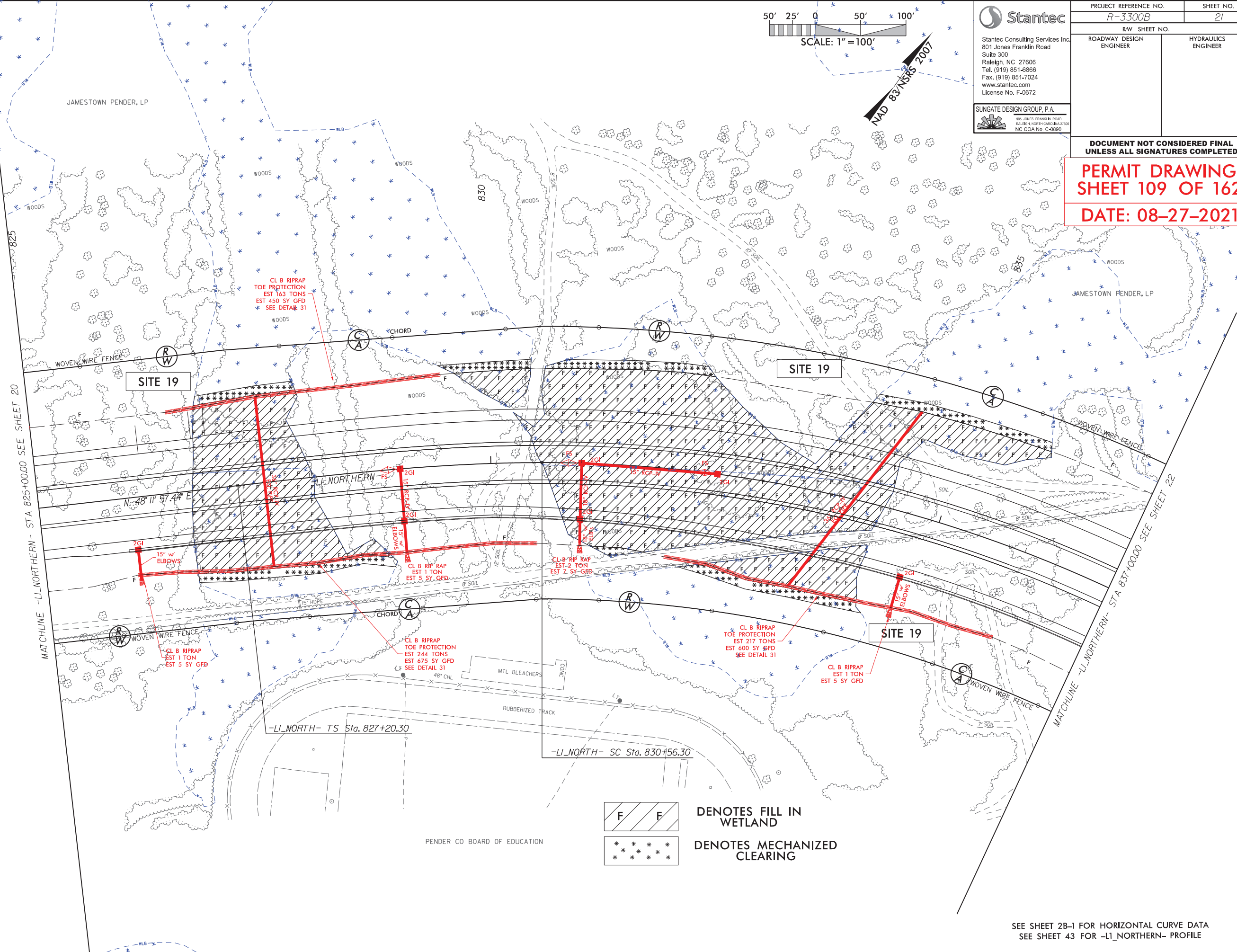
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 21 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

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

**PERMIT DRAWING
SHEET 109 OF 162**

DATE: 08-27-2021



F F

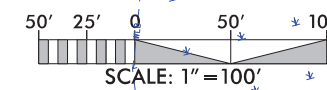
DENOTES FILL IN WETLAND

* * * * *

DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 43 FOR -L1_NORTHERN- PROFILE

5/14/99



NAD 83 NSRS 2007

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

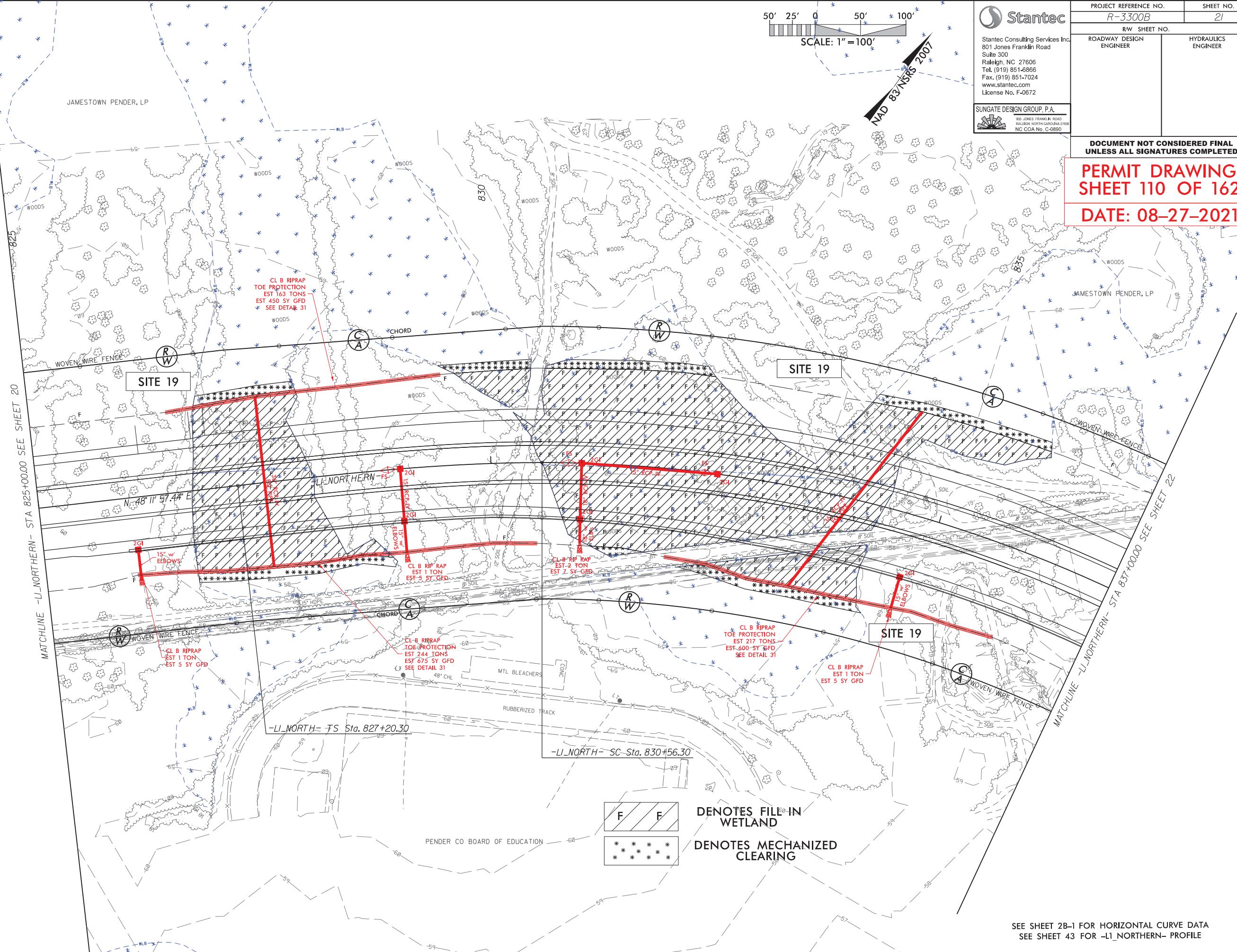
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 21 |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 110 OF 162

DATE: 08-27-2021



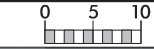
F F

DENOTES FILL-IN
WETLAND

DENOTES MECHANIZED
CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 43 FOR -L1 NORTHERN- PROFILE

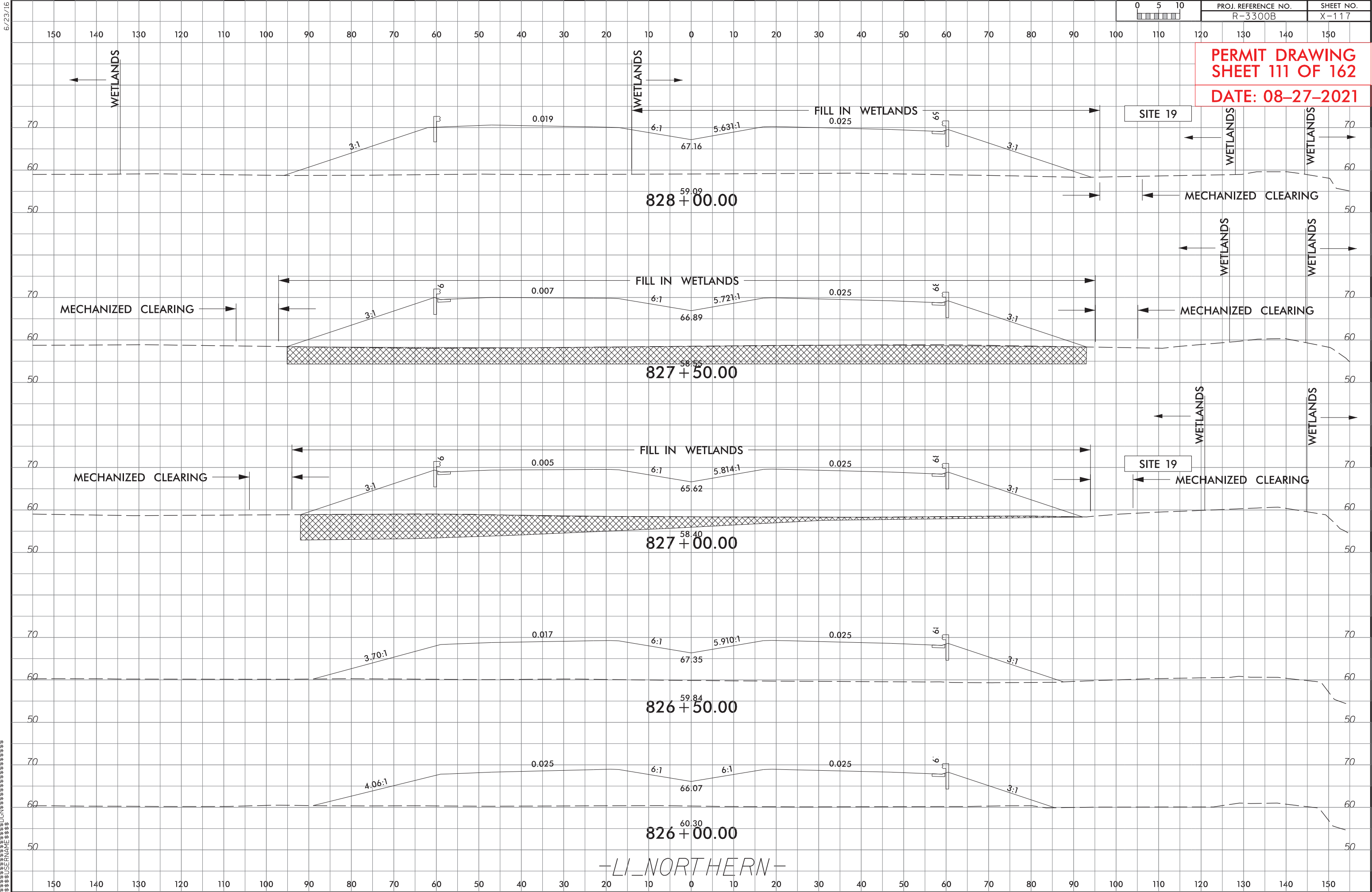
6/23/16

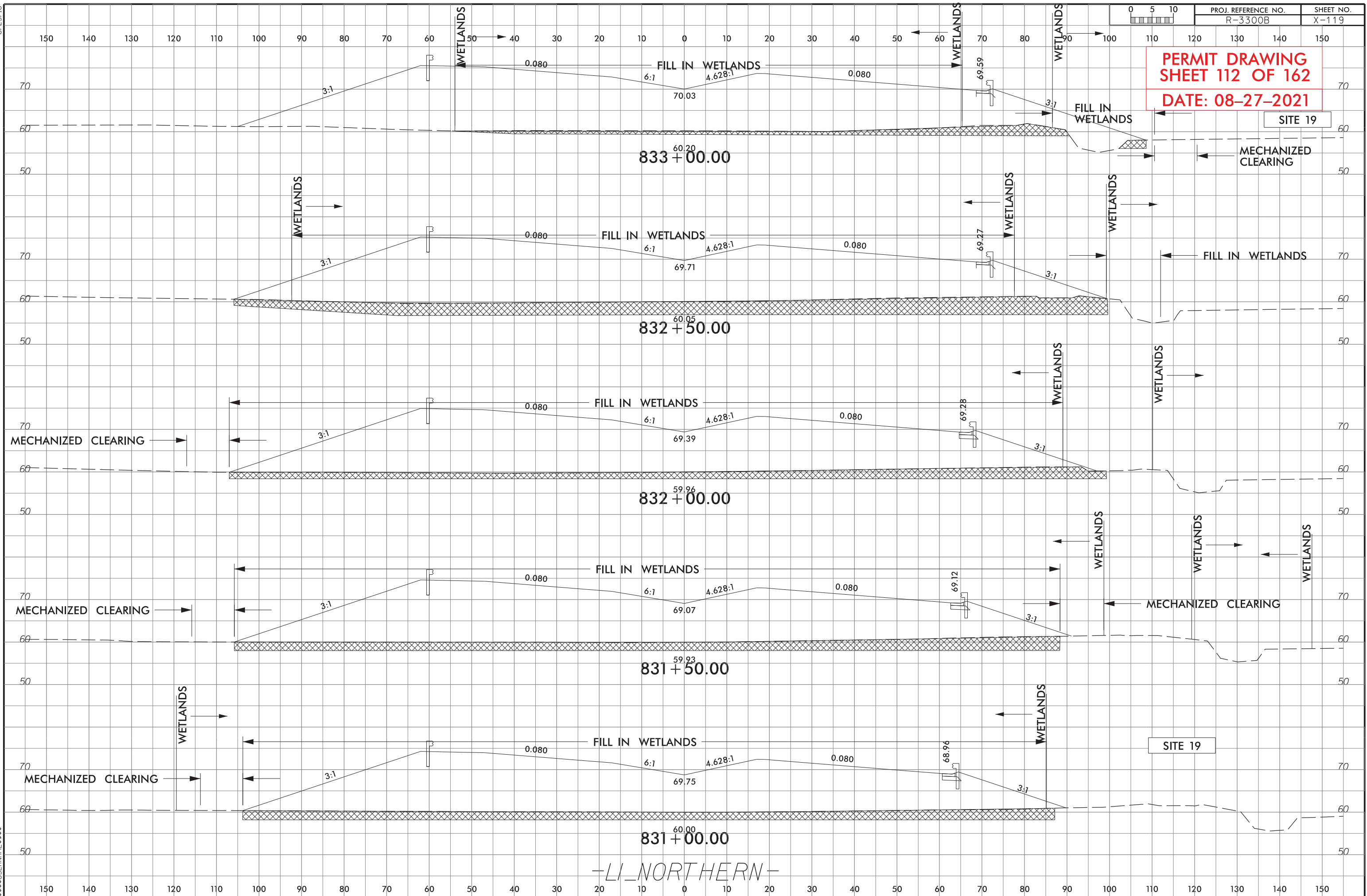


| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-117 |

PERMIT DRAWING
SHEET 111 OF 162

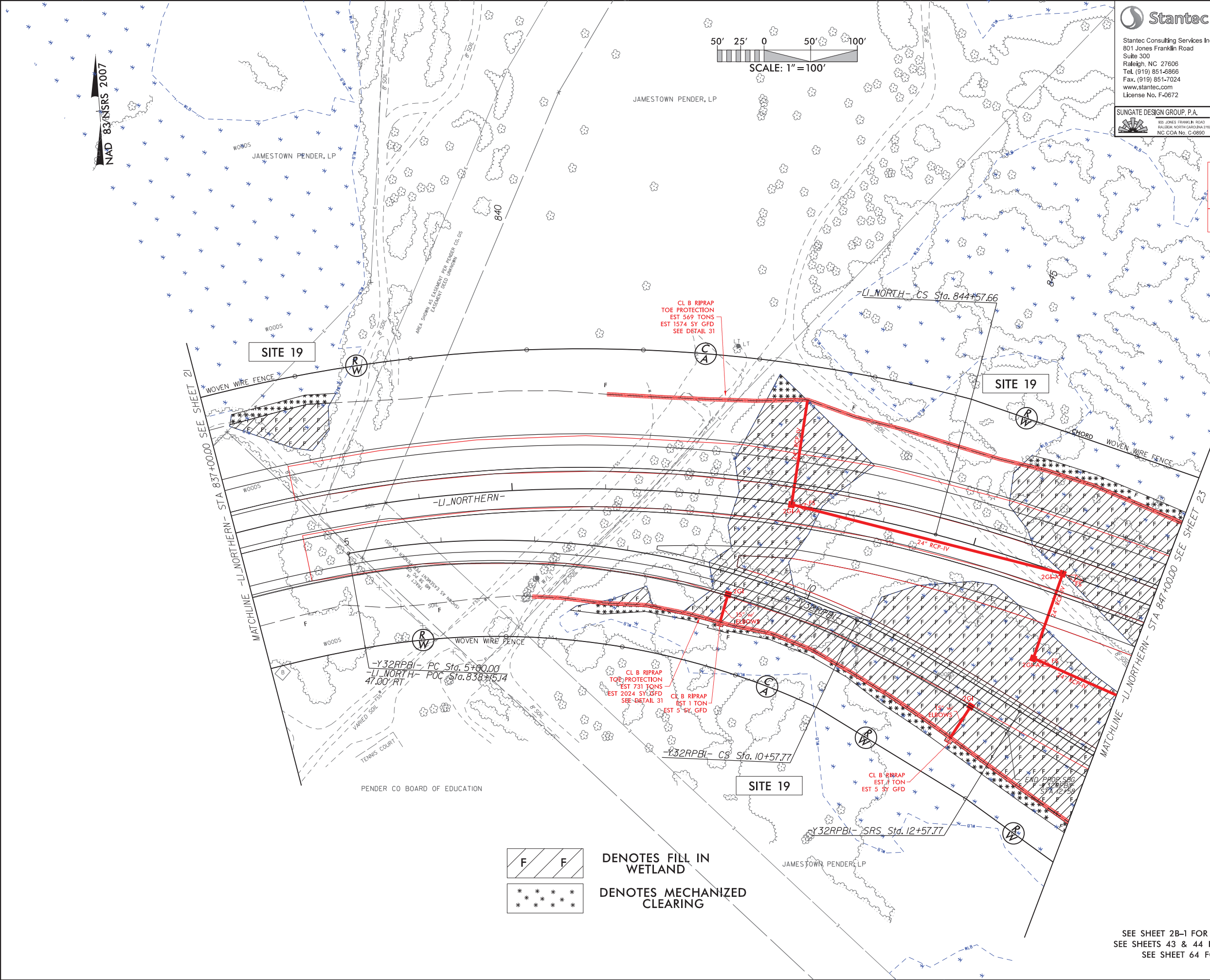
DATE: 08-27-2021





5/14/99

5/14/99



Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | | | |
|---|--|------------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. <i>22</i> | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING
SHEET 113 OF 162**

DATE: 08-27-2021

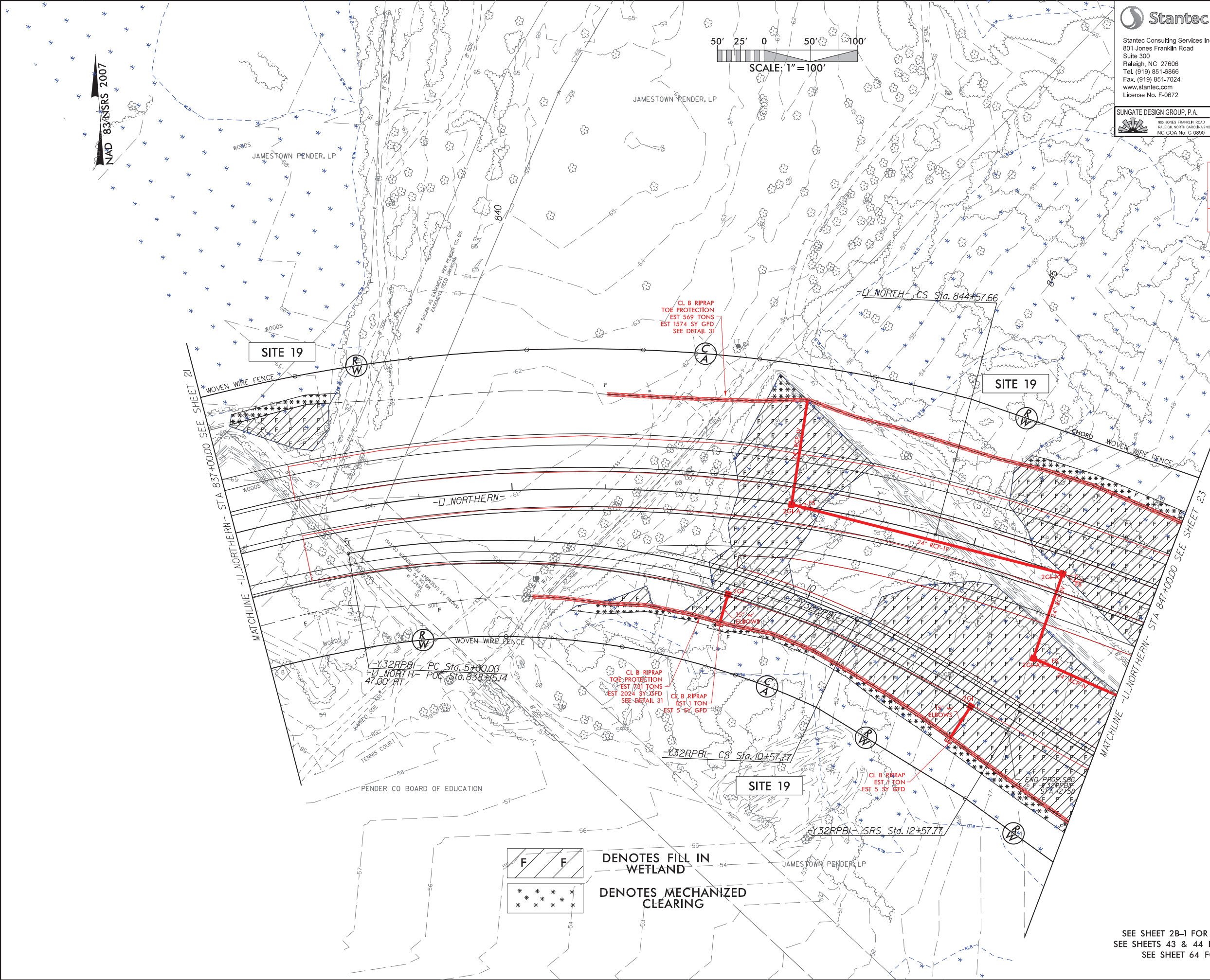
F F
DENOTES FILL IN WETLAND

*** * * * ***
DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 43 & 44 FOR -L1 NORTH- PROFILE
SEE SHEET 64 FOR -Y32RPBI- PROFILE

5/14/99

5/14/99



Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 22 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING
SHEET 114 OF 162**

DATE: 08-27-2021

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 43 & 44 FOR -L1 NORTHERN- PROFILE
SEE SHEET 64 FOR -Y32RPB1- PROFILE

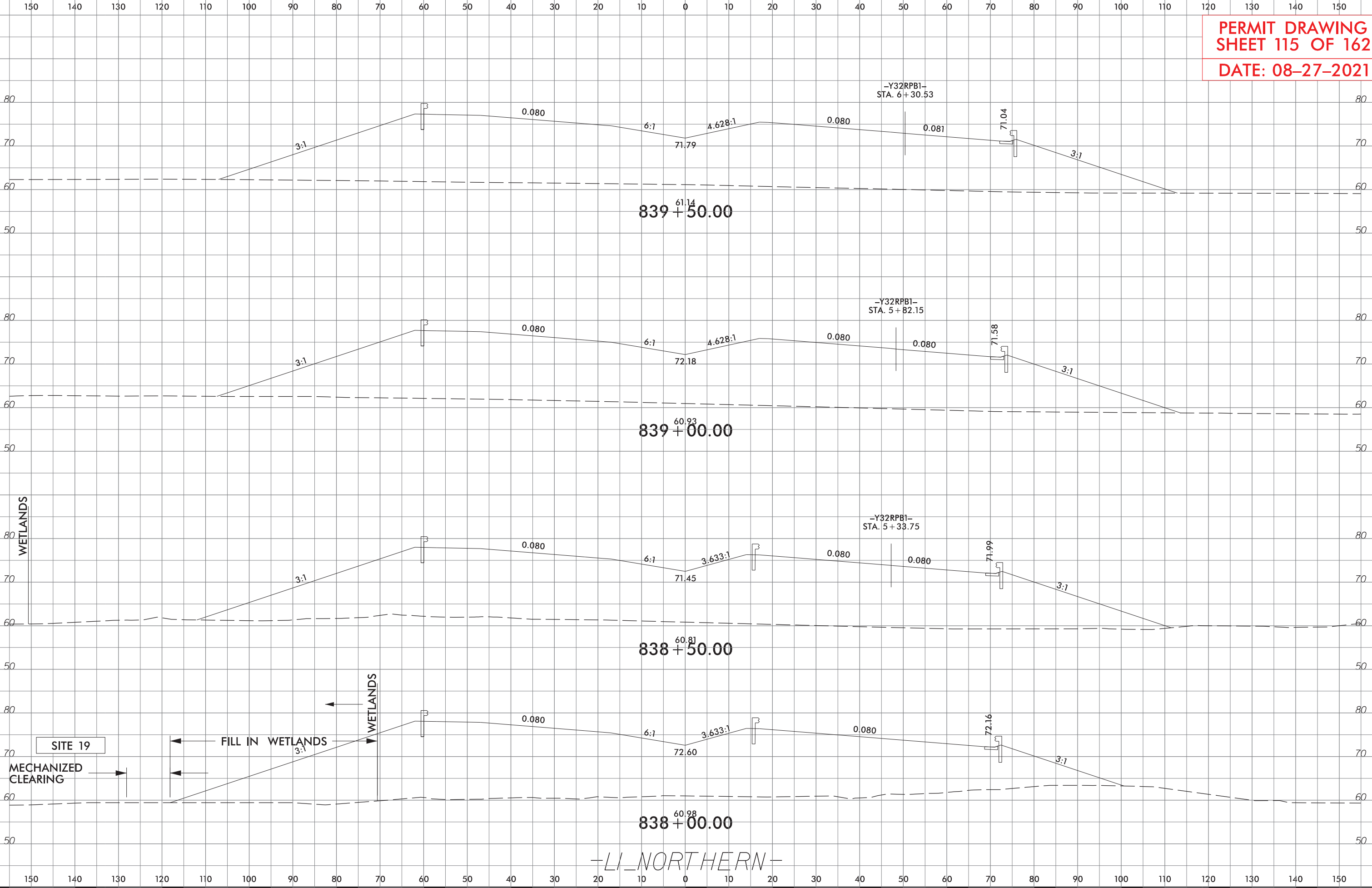
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-122 |

PERMIT DRAWING
SHEET 115 OF 162

DATE: 08-27-2021



-LI_NORTHERN-

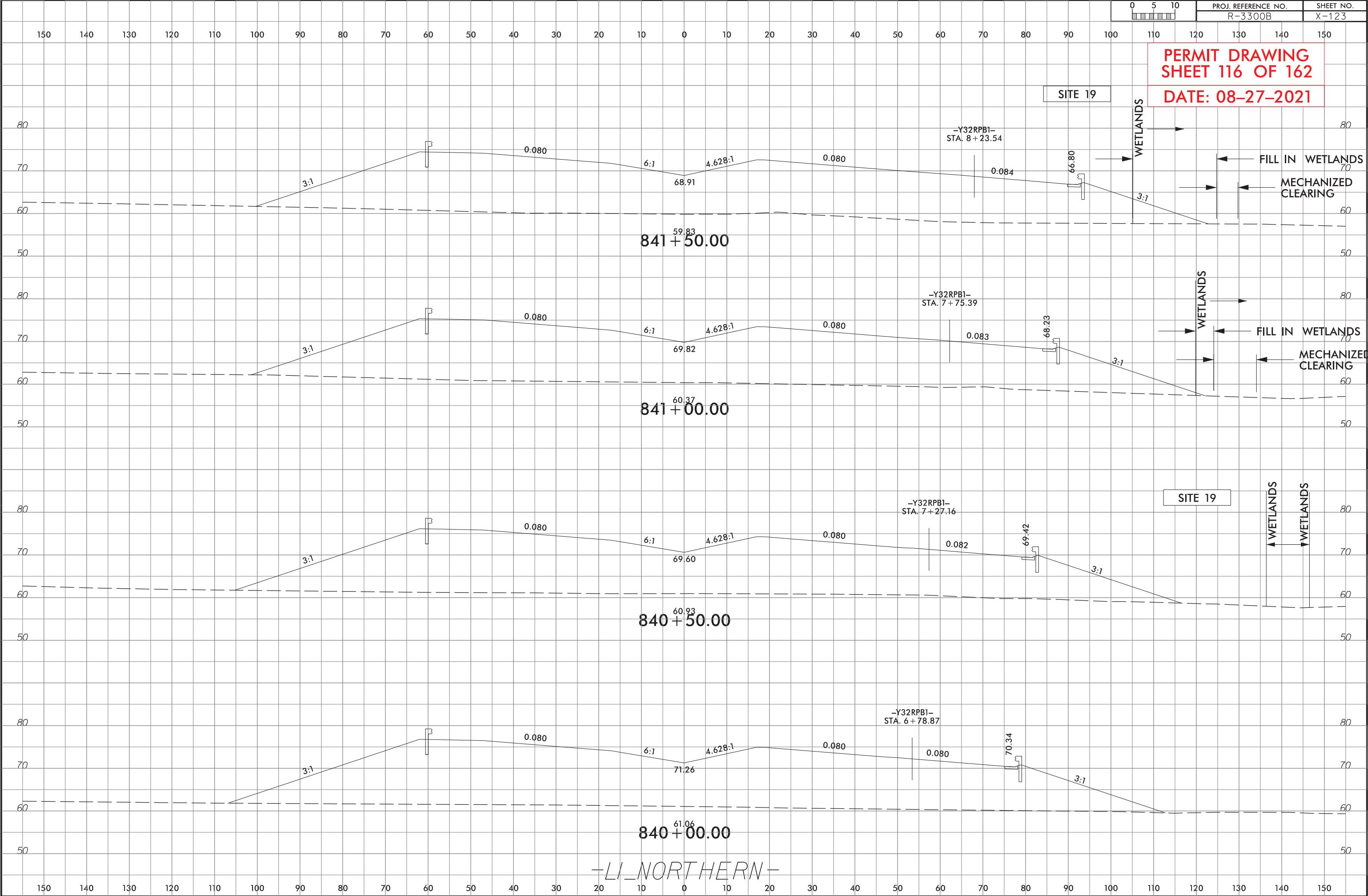
6/23/16

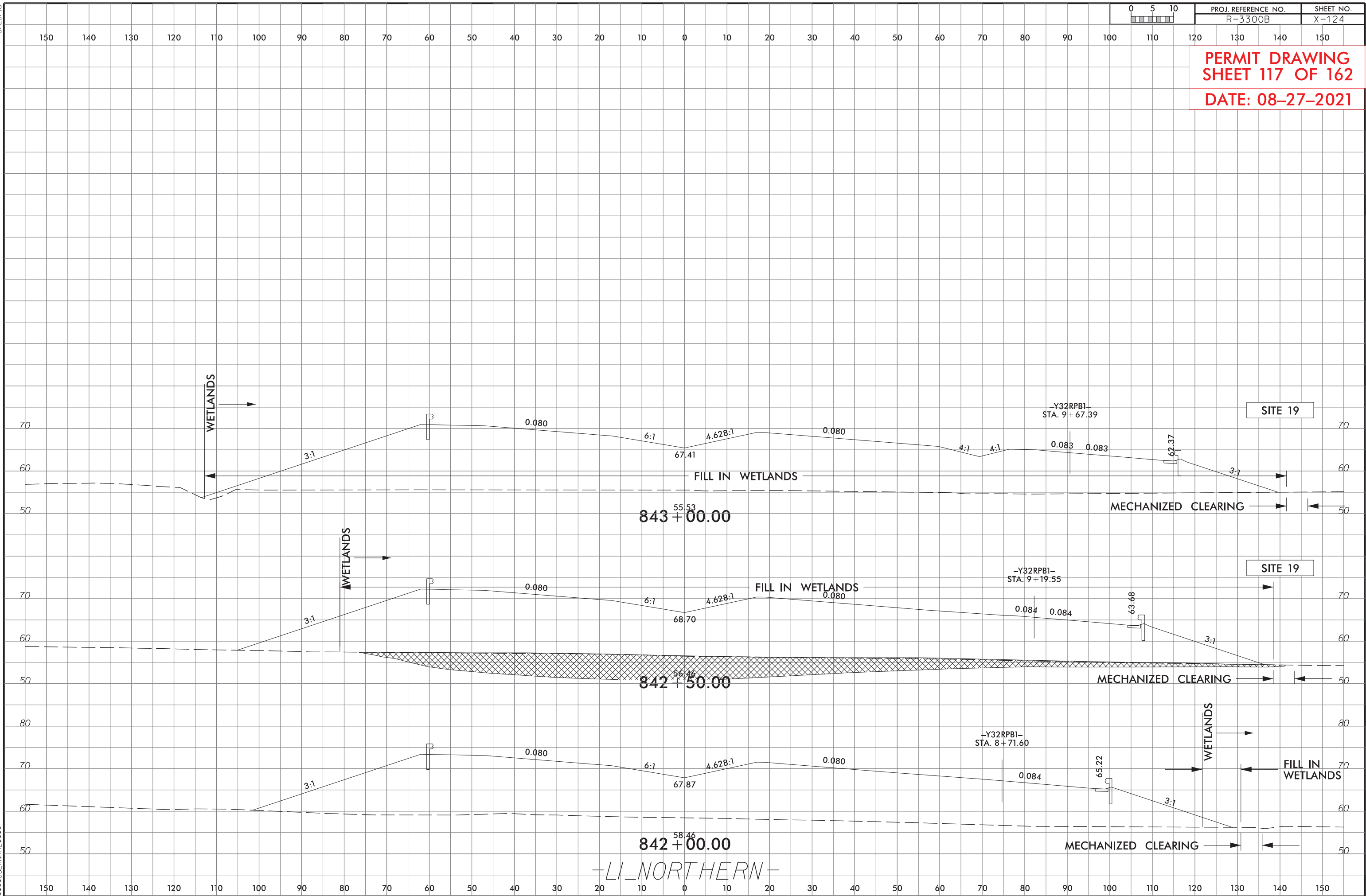


PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-123

PERMIT DRAWING
SHEET 116 OF 162
DATE: 08-27-2021







5/14/99



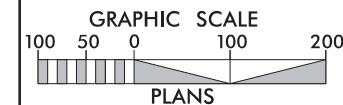
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



SUNGATE DESIGN GROUP, P.A.
895 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27609
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 23 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

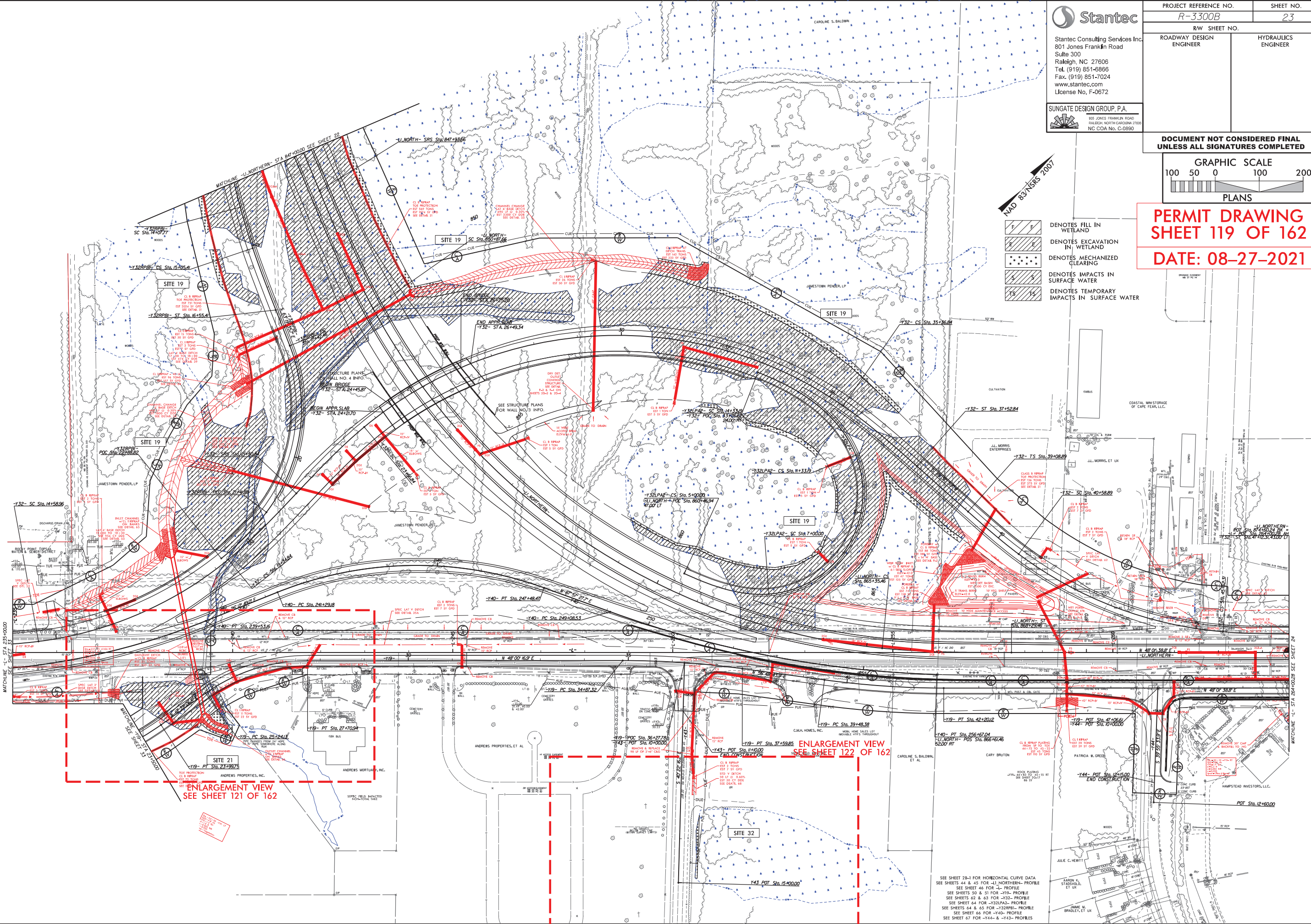


PERMIT DRAWING
SHEET 119 OF 162

DATE: 08-27-2021



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



SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 44 & 45 FOR -L1 NORTHERN- PROFILE
SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 50 & 51 FOR -Y10- PROFILE
SEE SHEETS 62 & 63 FOR -Y32- PROFILE
SEE SHEET 64 FOR -Y32/P2- PROFILE
SEE SHEETS 64 & 65 FOR -Y32/P1- PROFILE
SEE SHEET 66 FOR -Y40- PROFILE
SEE SHEET 67 FOR -Y44- & -Y43- PROFILES

5/14/99



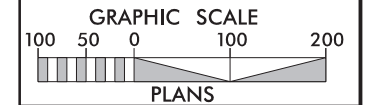
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



SUNGATE DESIGN GROUP, P.A.
895 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27609
NC COA No. C-0890

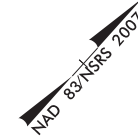
| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 23 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

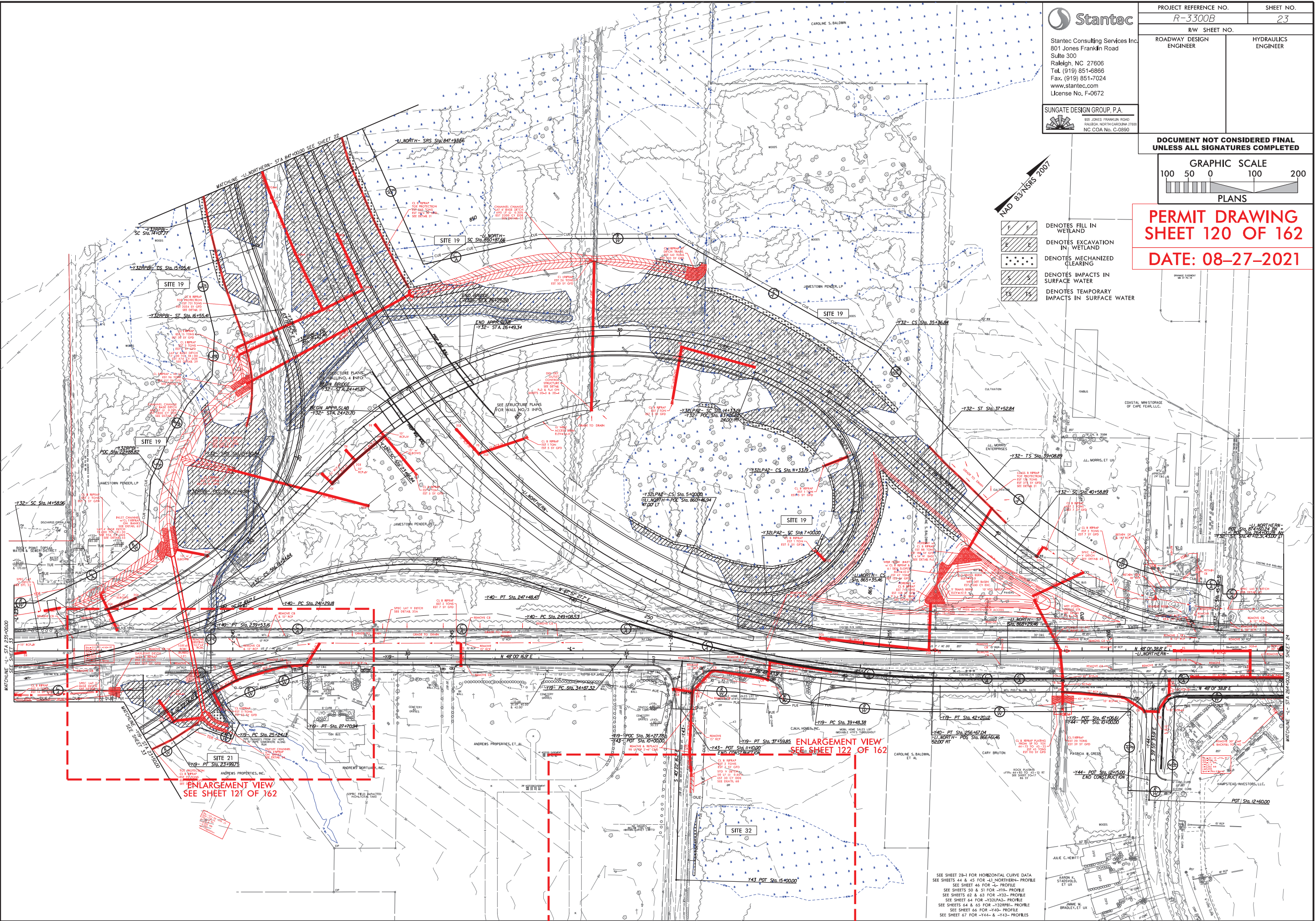


PERMIT DRAWING
SHEET 120 OF 162

DATE: 08-27-2021



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

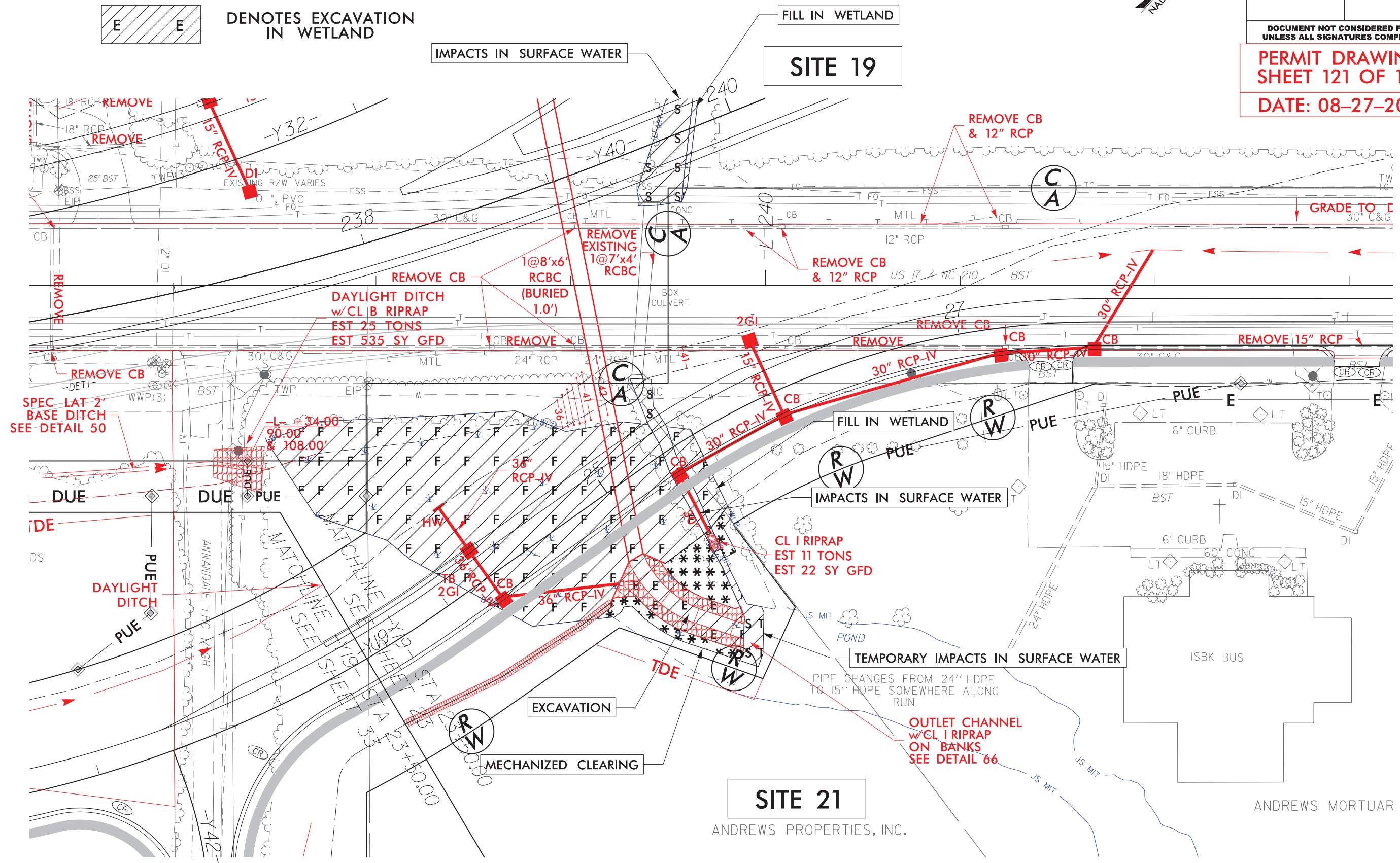
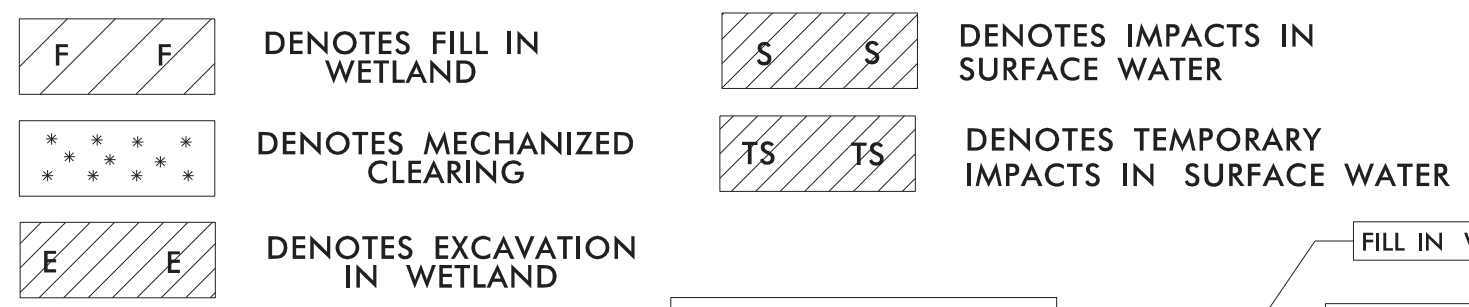


SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 44 & 45 FOR -L1 NORTHERN- PROFILE
SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 50 & 51 FOR -Y10- PROFILE
SEE SHEETS 62 & 63 FOR -Y32- PROFILE
SEE SHEET 64 FOR -Y32/P2- PROFILE
SEE SHEETS 64 & 65 FOR -Y32/P1- PROFILE
SEE SHEET 66 FOR -Y40- PROFILE
SEE SHEET 67 FOR -Y44- & -Y43- PROFILES

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

PERMIT DRAWING
SHEET 121 OF 162

DATE: 08-27-2021

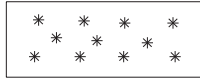


SITE 21

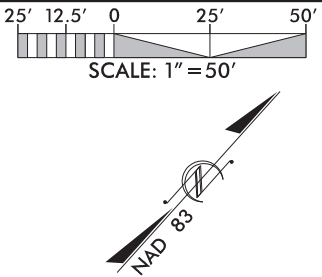
ANDREWS MORTUAR

8/17/99

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN FEET AND INCHES. DIMENSIONS IN PARENTHESES ARE APPROXIMATE. ALL DIMENSIONS ARE TO THE CENTERLINE OF THE ROADWAY UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE TO THE CENTERLINE OF THE ROADWAY UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE TO THE CENTERLINE OF THE ROADWAY UNLESS OTHERWISE NOTED.

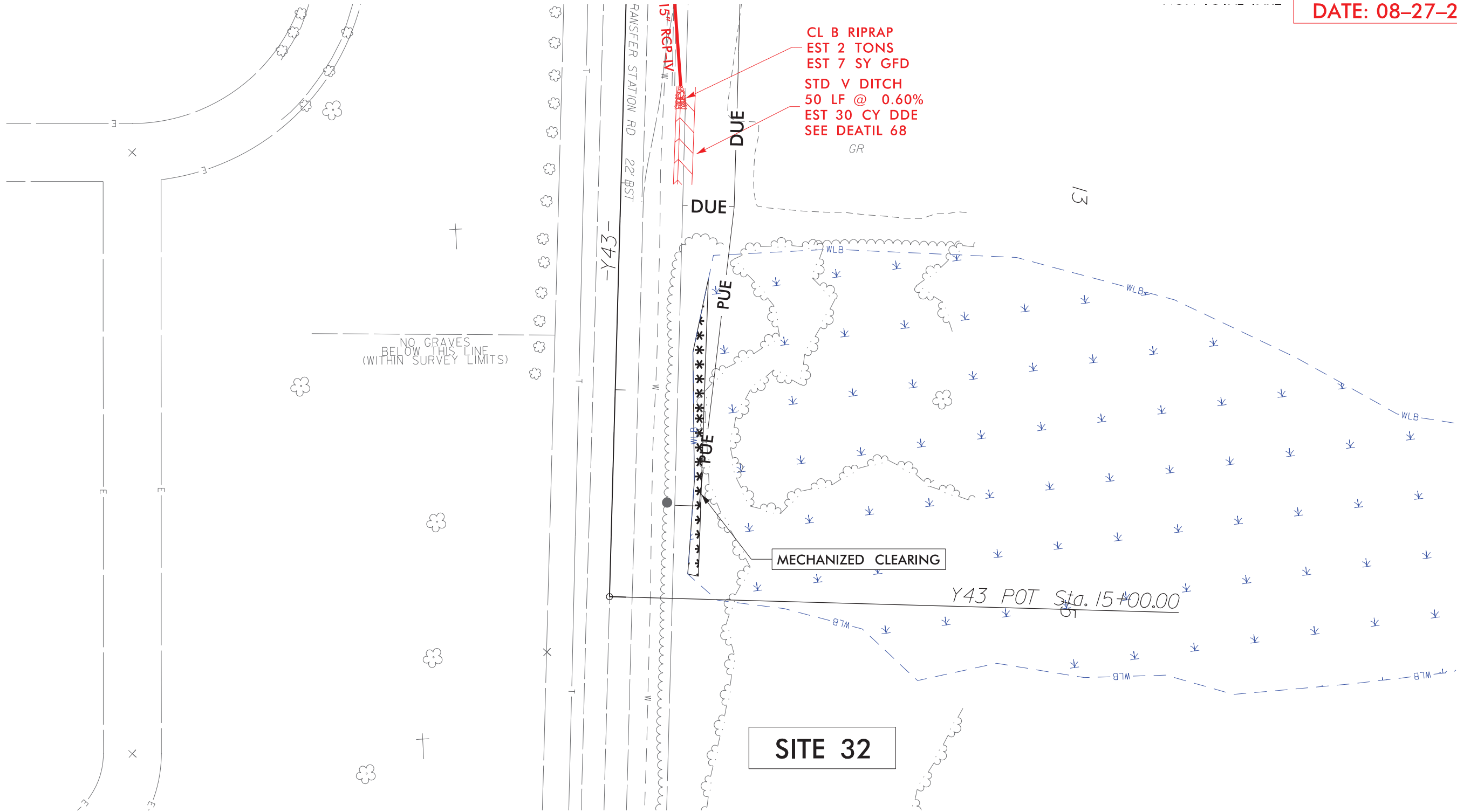


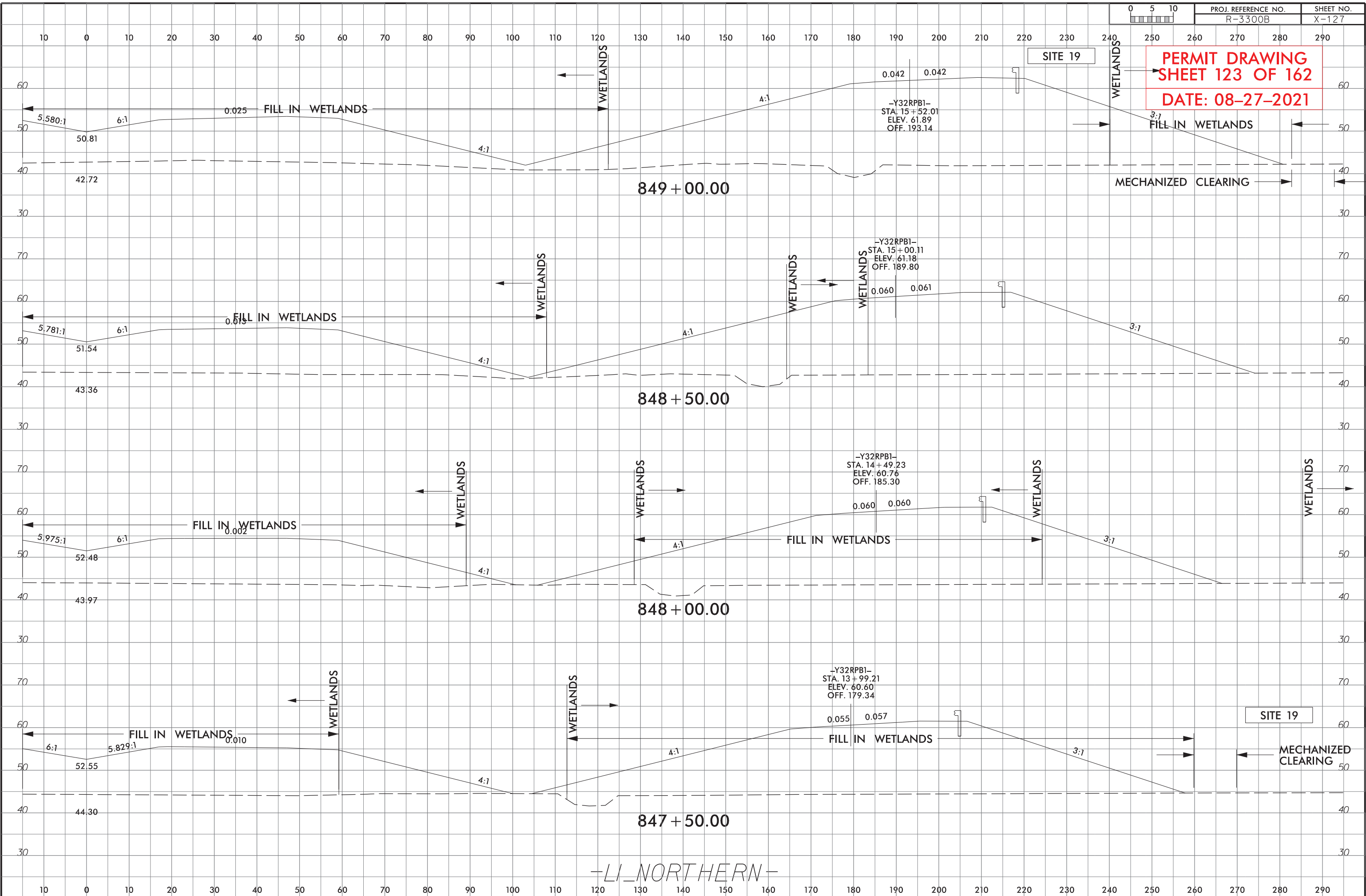
DENOTES MECHANIZED
CLEARING



| | | | |
|----------------------------|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-3300B | | | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

PERMIT DRAWING
SHEET 122 OF 162
DATE: 08-27-2021





6/23/16



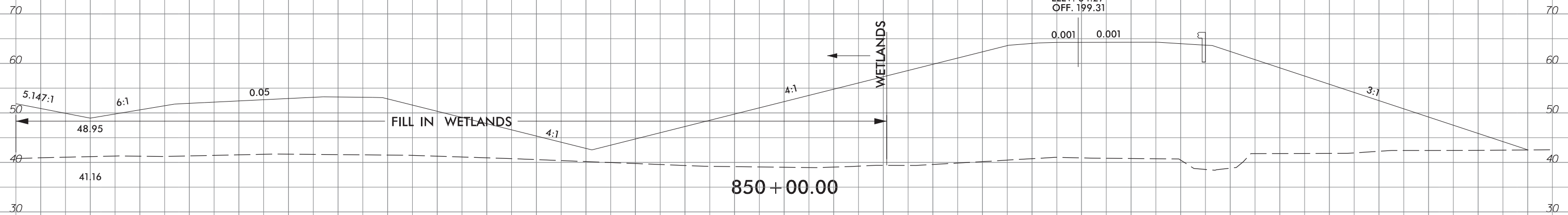
PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-128

PERMIT DRAWING
SHEET 124 OF 162
DATE: 08-27-2021

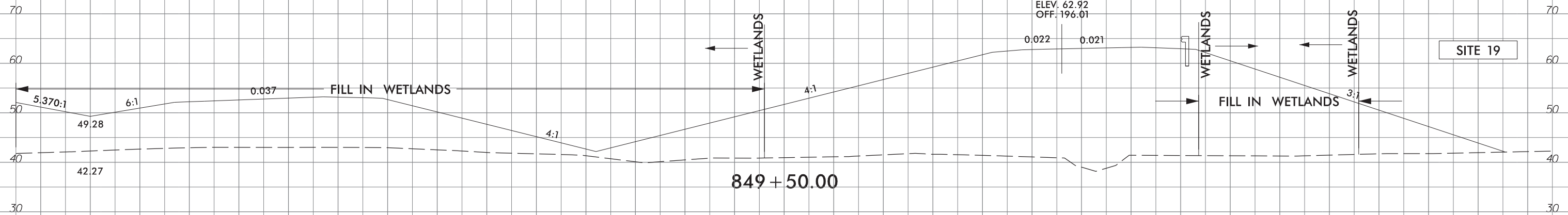
SITE 19

-Y32RPB1-
STA. 16 + 59.24
ELEV. 64.27
OFF. 199.31



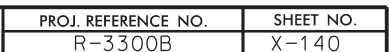
-Y32RPB1-
STA. 16 + 05.02
ELEV. 62.92
OFF. 196.01

SITE 19

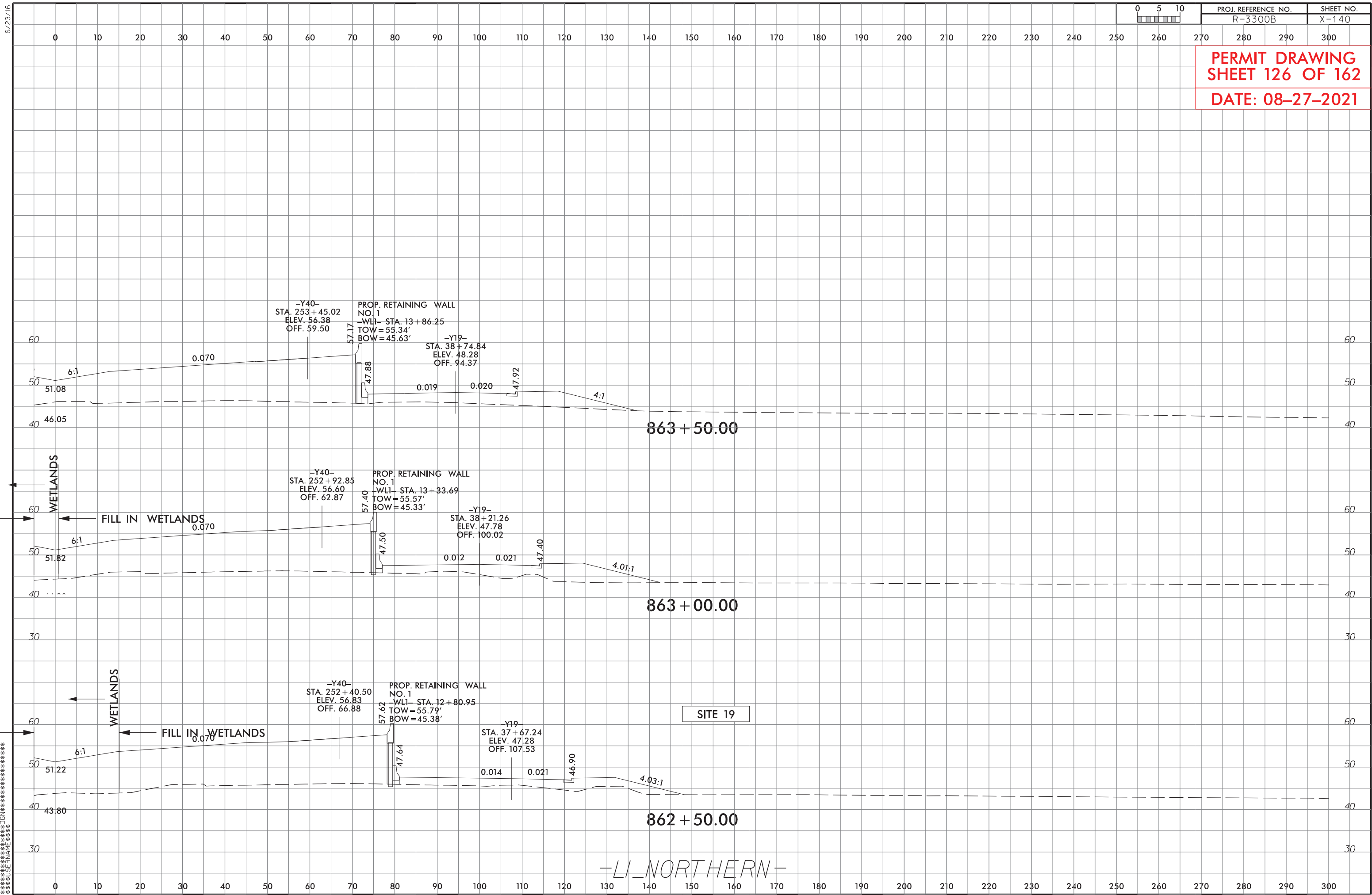


-LI_NORTHERN-



[illegible]

DATE: 08-27-2021



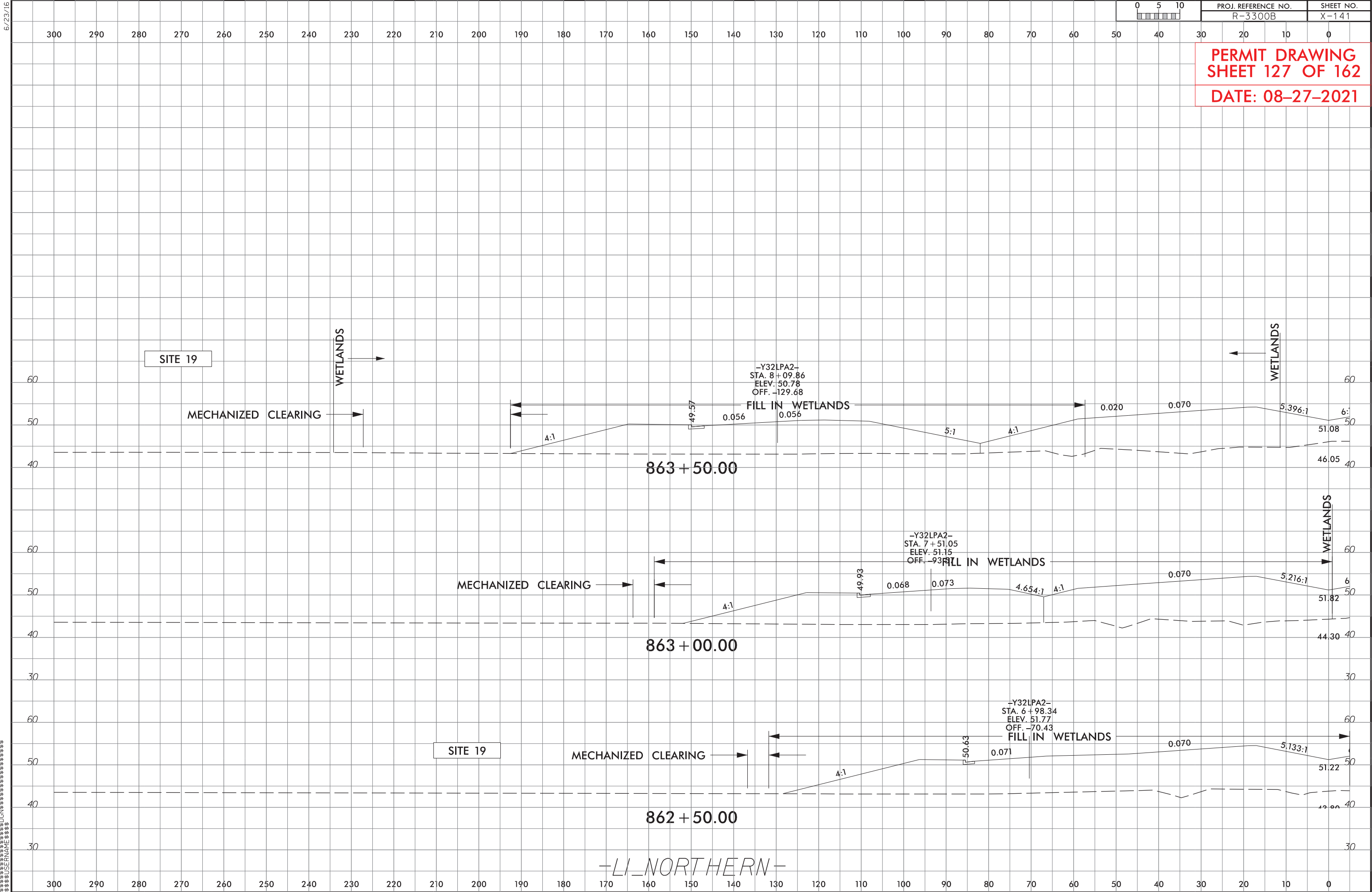
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| R-3300B | X-141 |

PERMIT DRAWING
SHEET 127 OF 162

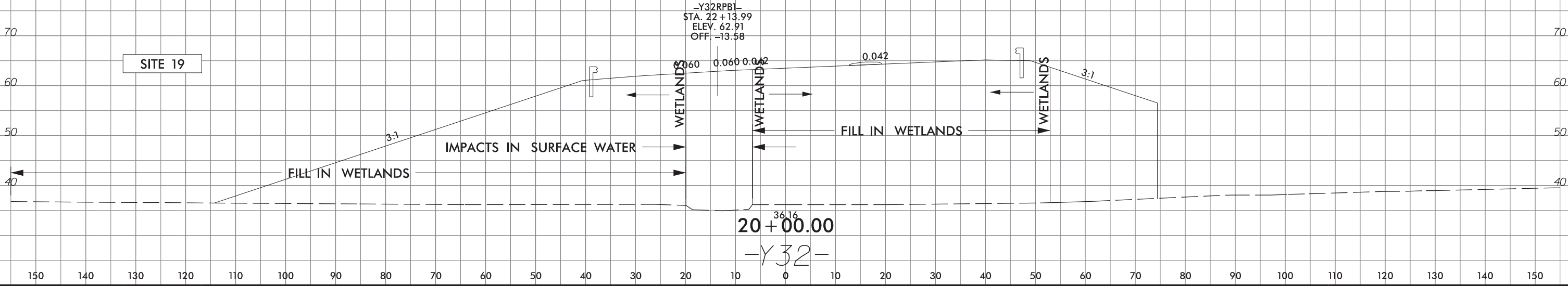
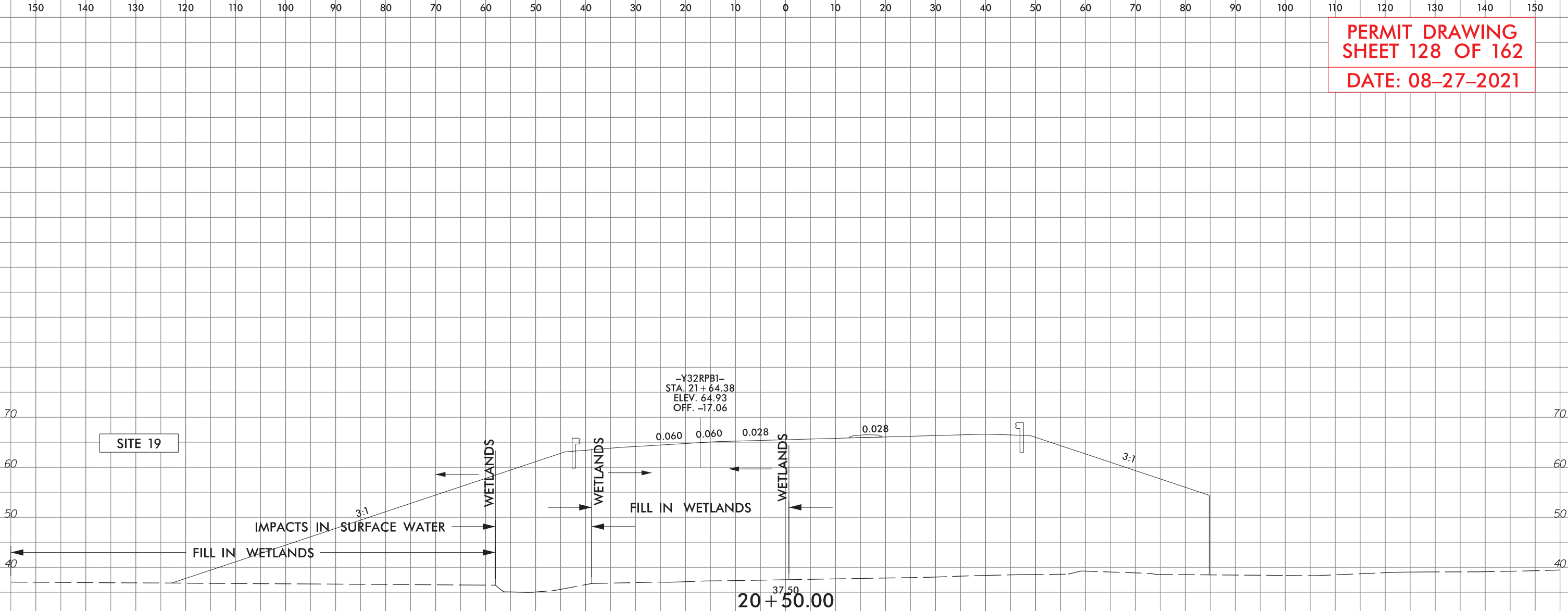
DATE: 08-27-2021



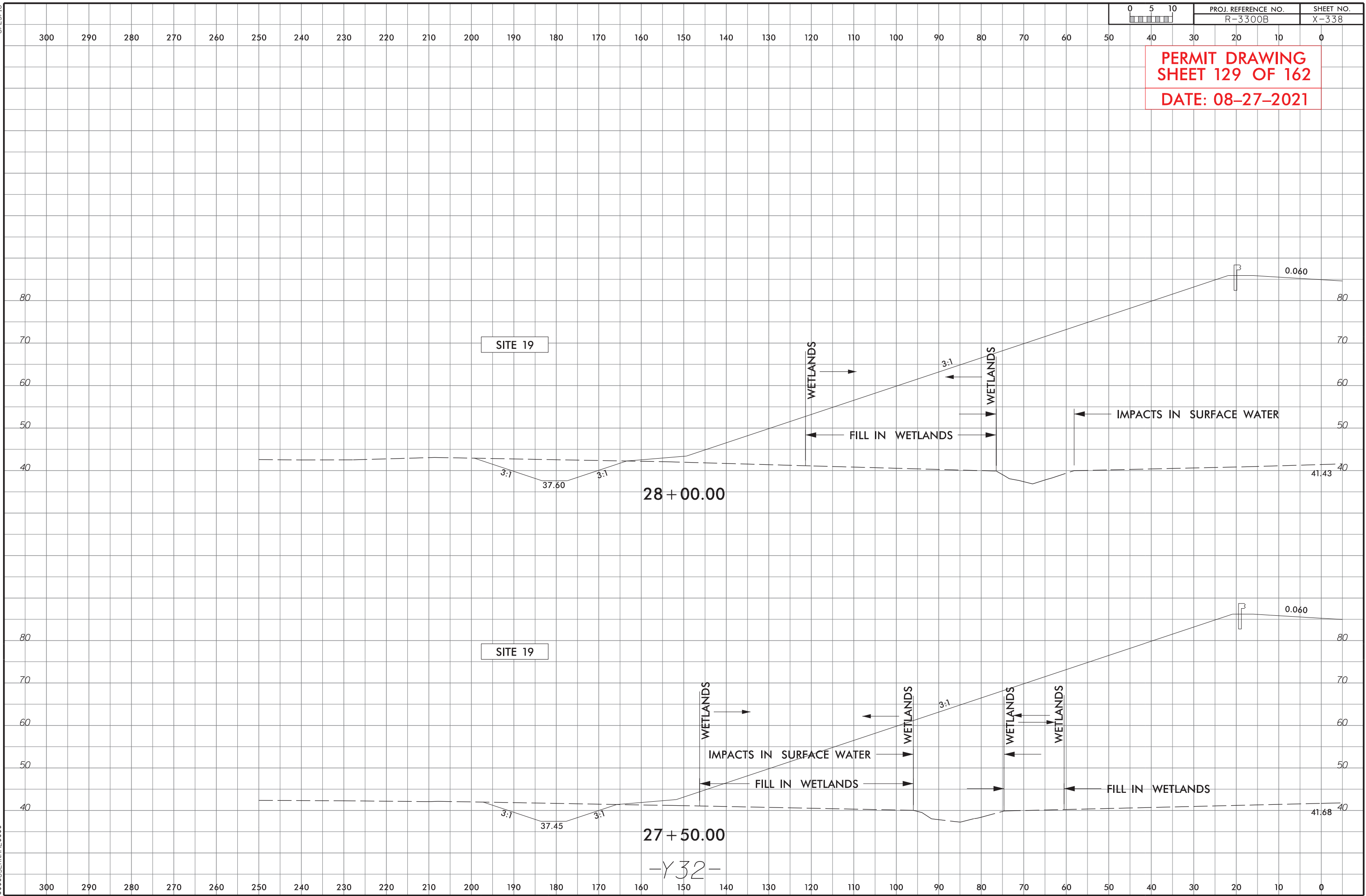
6/23/16

| | | |
|-------------|---------------------|-----------|
| 0 5 10 | PROJ. REFERENCE NO. | SHEET NO. |
| <div></div> | R-3300B | X-325 |

PERMIT DRAWING
SHEET 128 OF 162
DATE: 08-27-2021



6/23/16
SHEET 128 OF 162
DATE: 08-27-2021



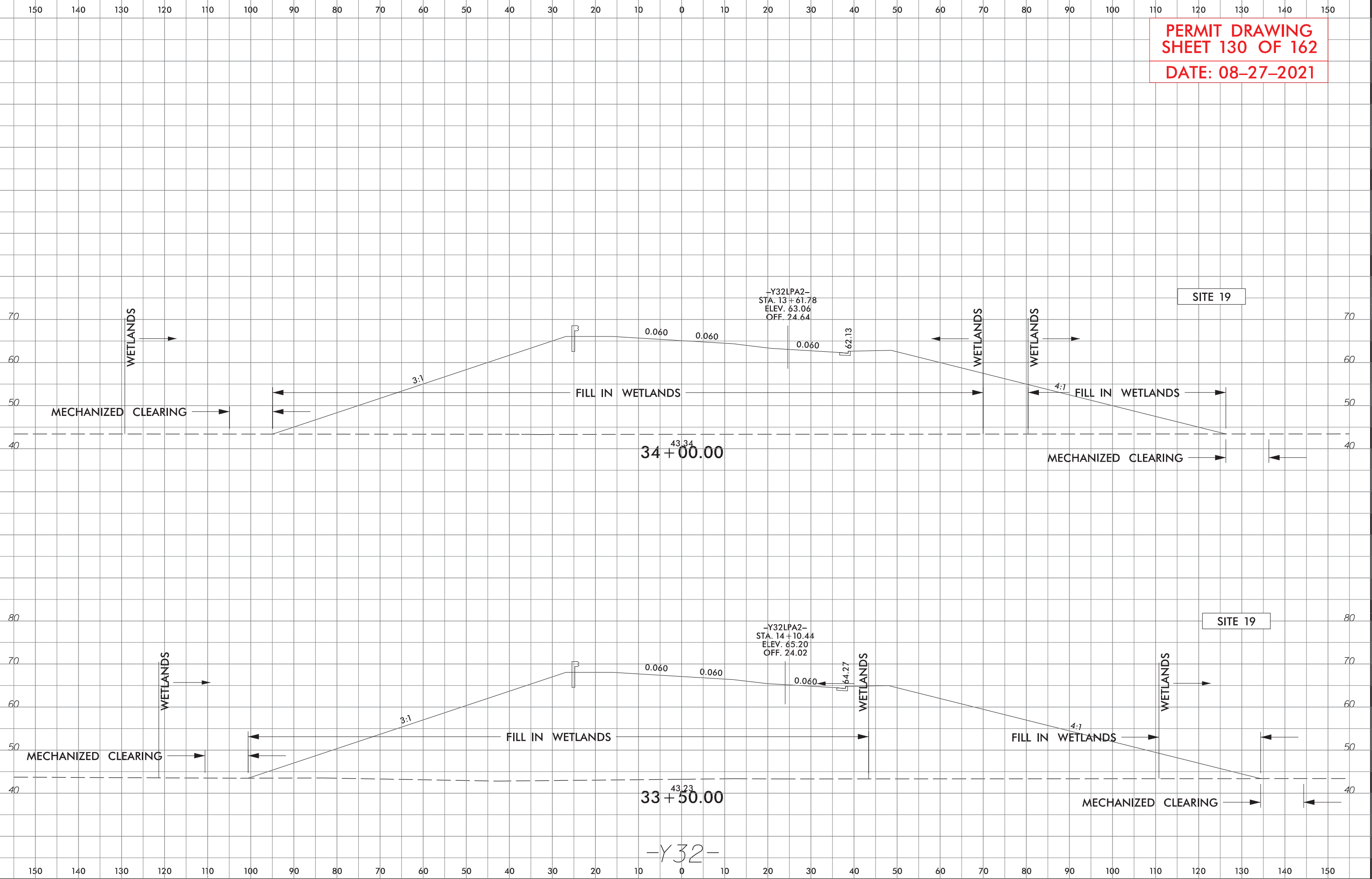
6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-344

PERMIT DRAWING
SHEET 130 OF 162
DATE: 08-27-2021

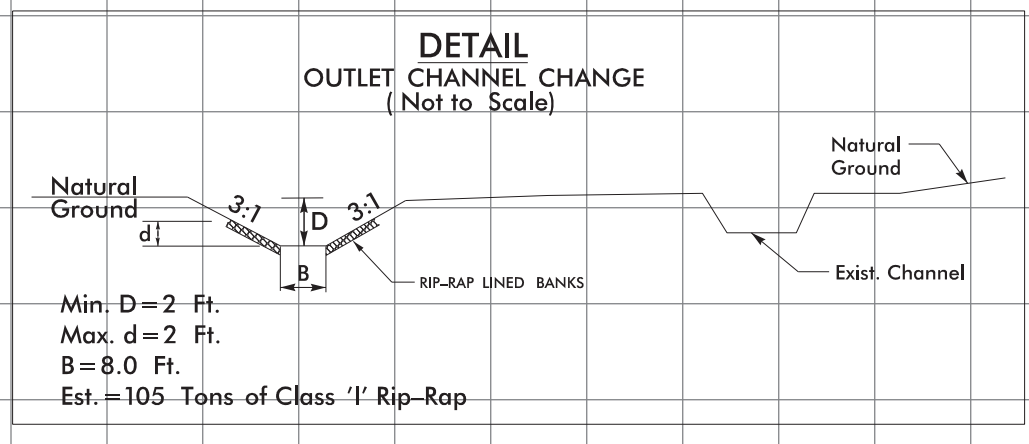
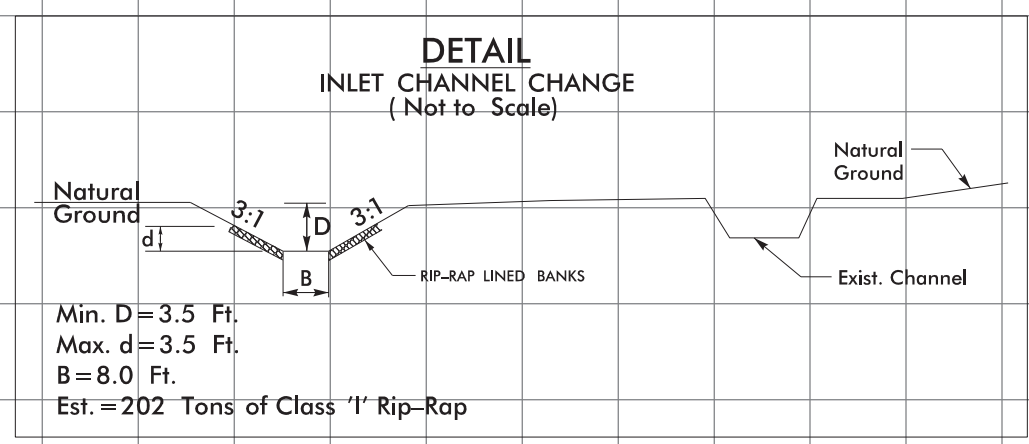
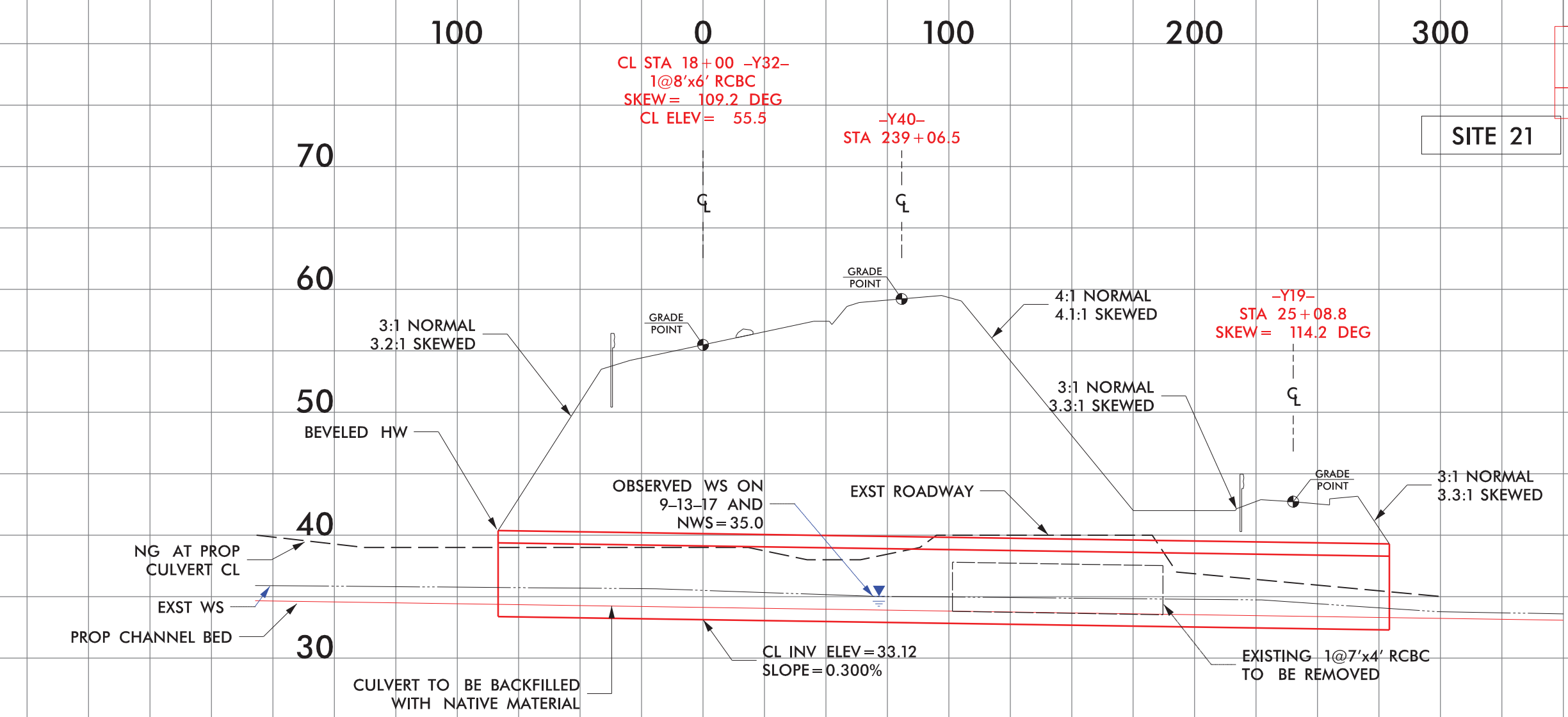


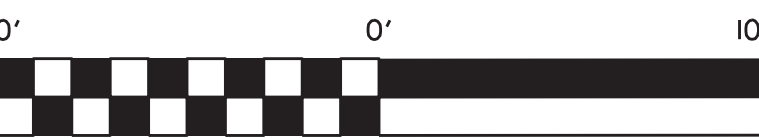


5/14/99

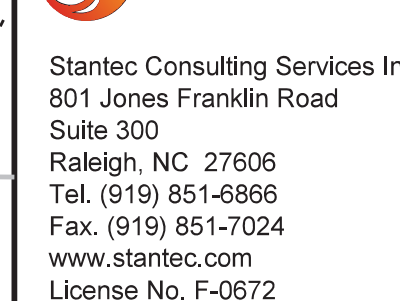
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN FEET AND DECIMALS THEREOF.

| | | |
|--|--|---------------------|
| PROJECT REFERENCE NO. | | SHEET NO. |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | |
| PERMIT DRAWING SHEET 132 OF 162 DATE: 08-27-2021 | | |





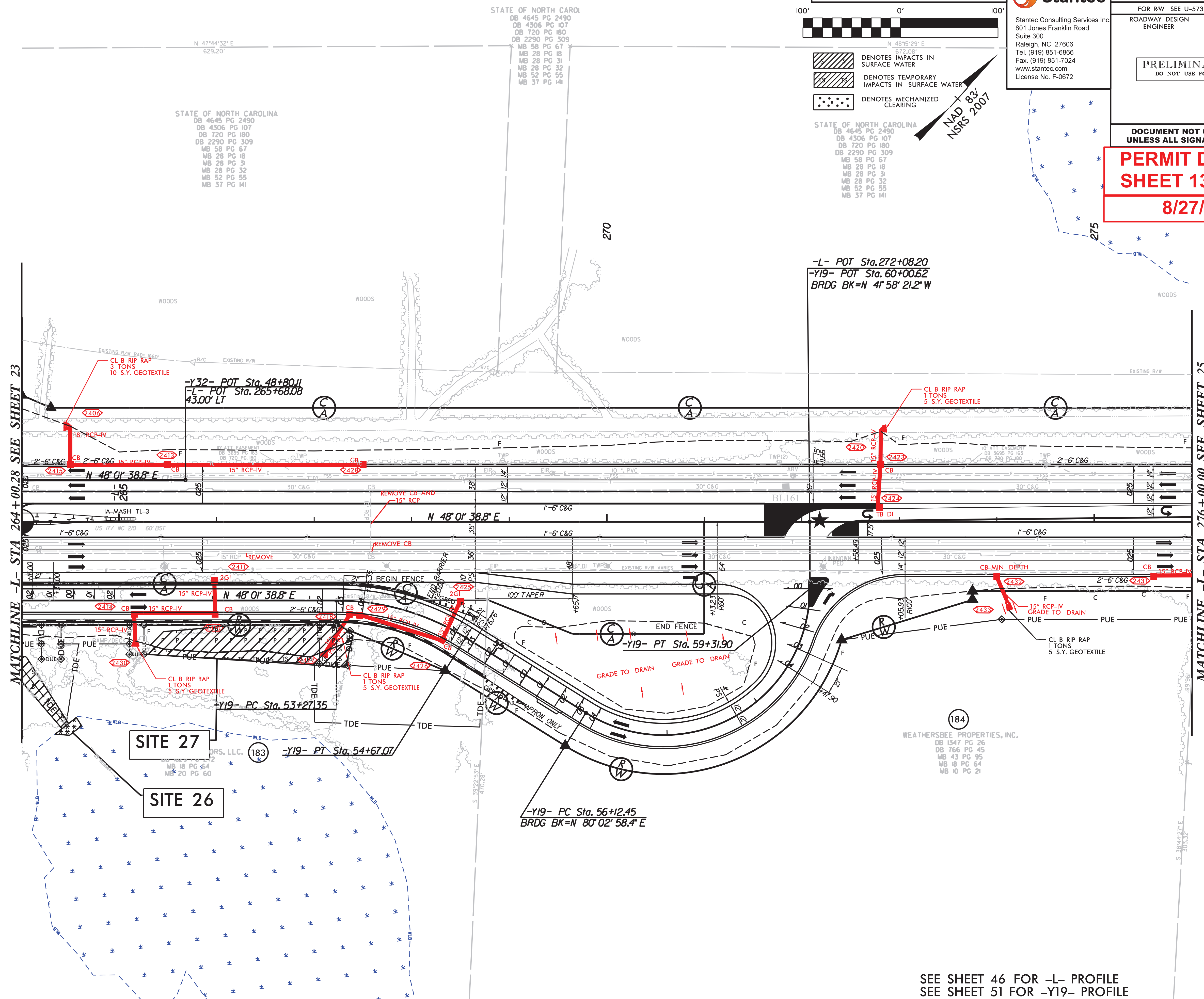
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.993
NC COA No. F-0929



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

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

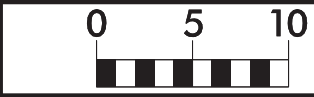
| |
|--|
| PERMIT DRAWING SHEET 133 OF 162 |
| 8/27/2021 |



SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 51 FOR -Y19- PROFILE



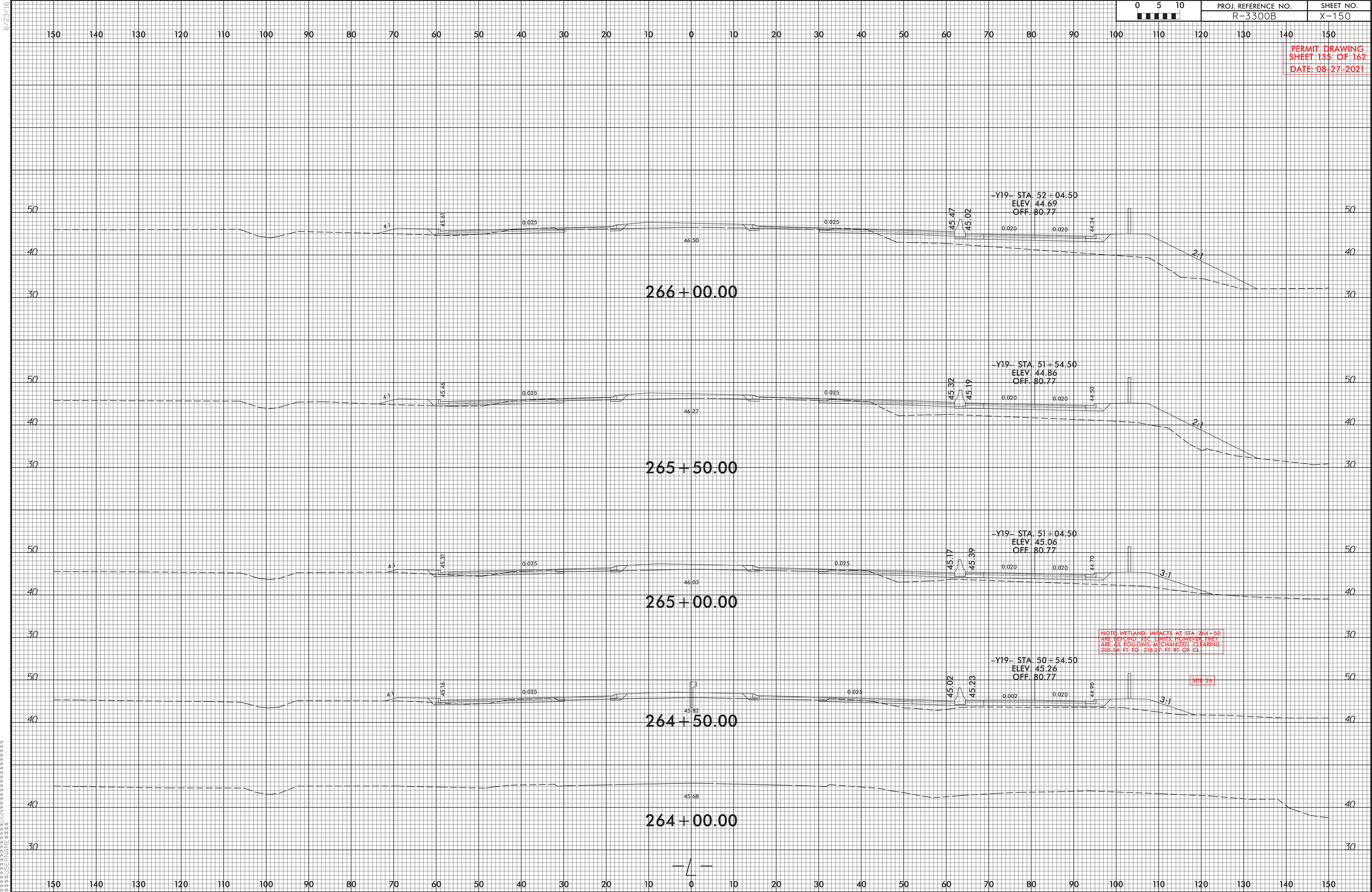
6/23/16

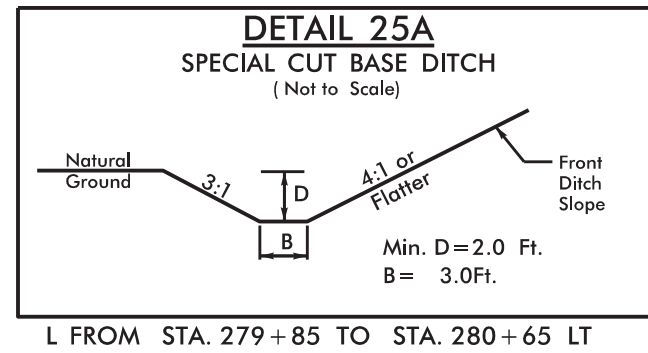


PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-150

PERMIT DRAWING
SHEET 135 OF 162
DATE: 08-27-2021



 **Dewberry**

2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.993
NC COA No. F-0929

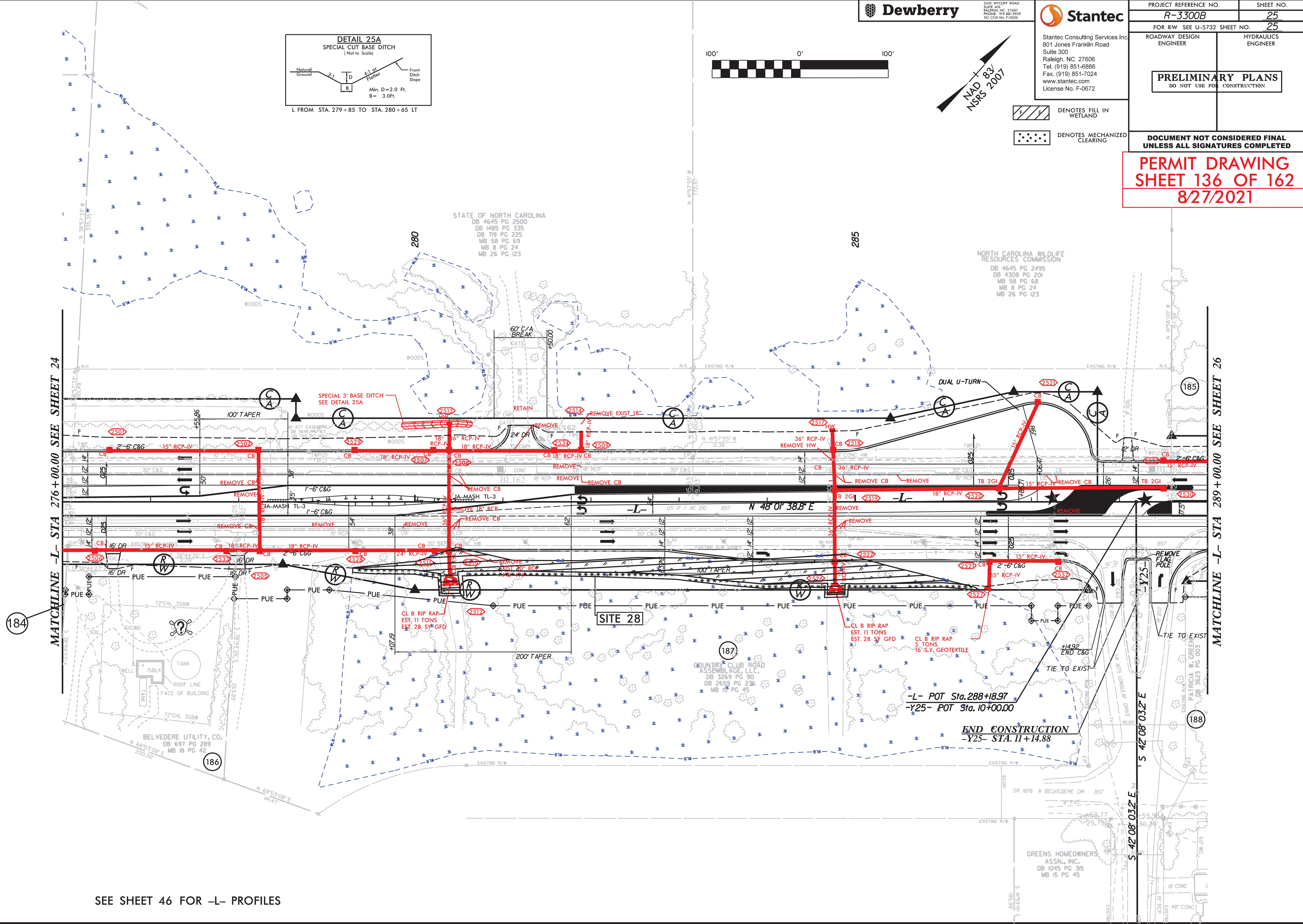


Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

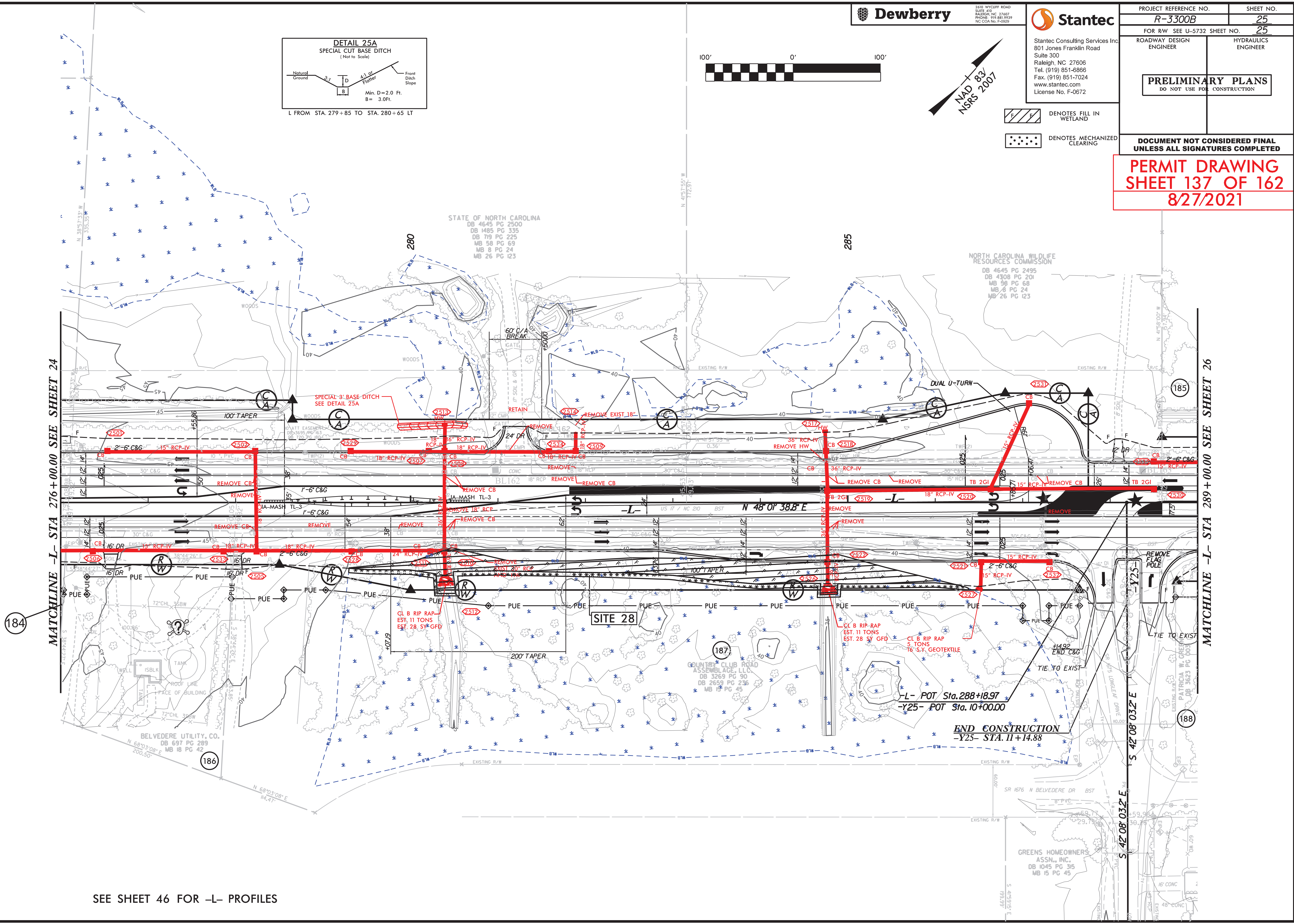
| | |
|--|------------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| <i>R-3300B</i> | <u>25</u> |
| FOR RW SEE U-5732 SHEET NO. | <u>25</u> |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| <div style="border: 2px solid black; padding: 10px; margin: 0 auto; width: 80%;"> <h2 style="margin: 0;">PRELIMINARY PLANS</h2> <p style="margin: 0;">DO NOT USE FOR CONSTRUCTION</p> </div> | |

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

PERMIT DRAWING
SHEET 136 OF 162
8/27/2021



5/14/99
11/8/2019
DEWBERRY
R3300B Permit Drawings, 20191118.pdf



SEE SHEET 46 FOR -L- PROFILES

Dewberry

2410 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

| | |
|------------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 25 |
| FOR R/W SEE U-5732 SHEET NO. | 25 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

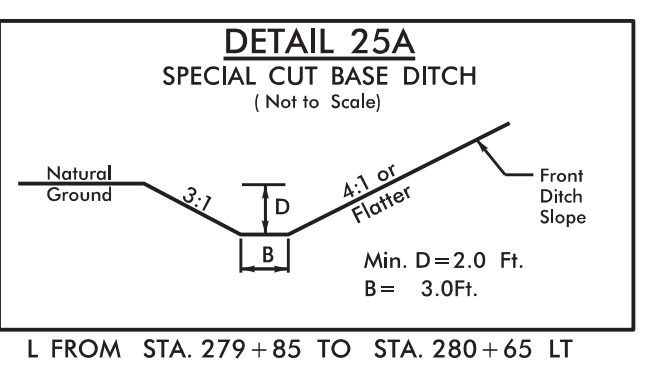
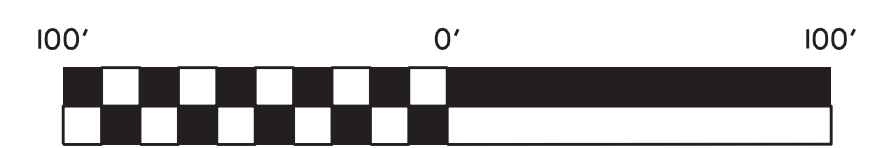
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 137 OF 162
8/27/2021

DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING

NAD 83
NSRS 2007



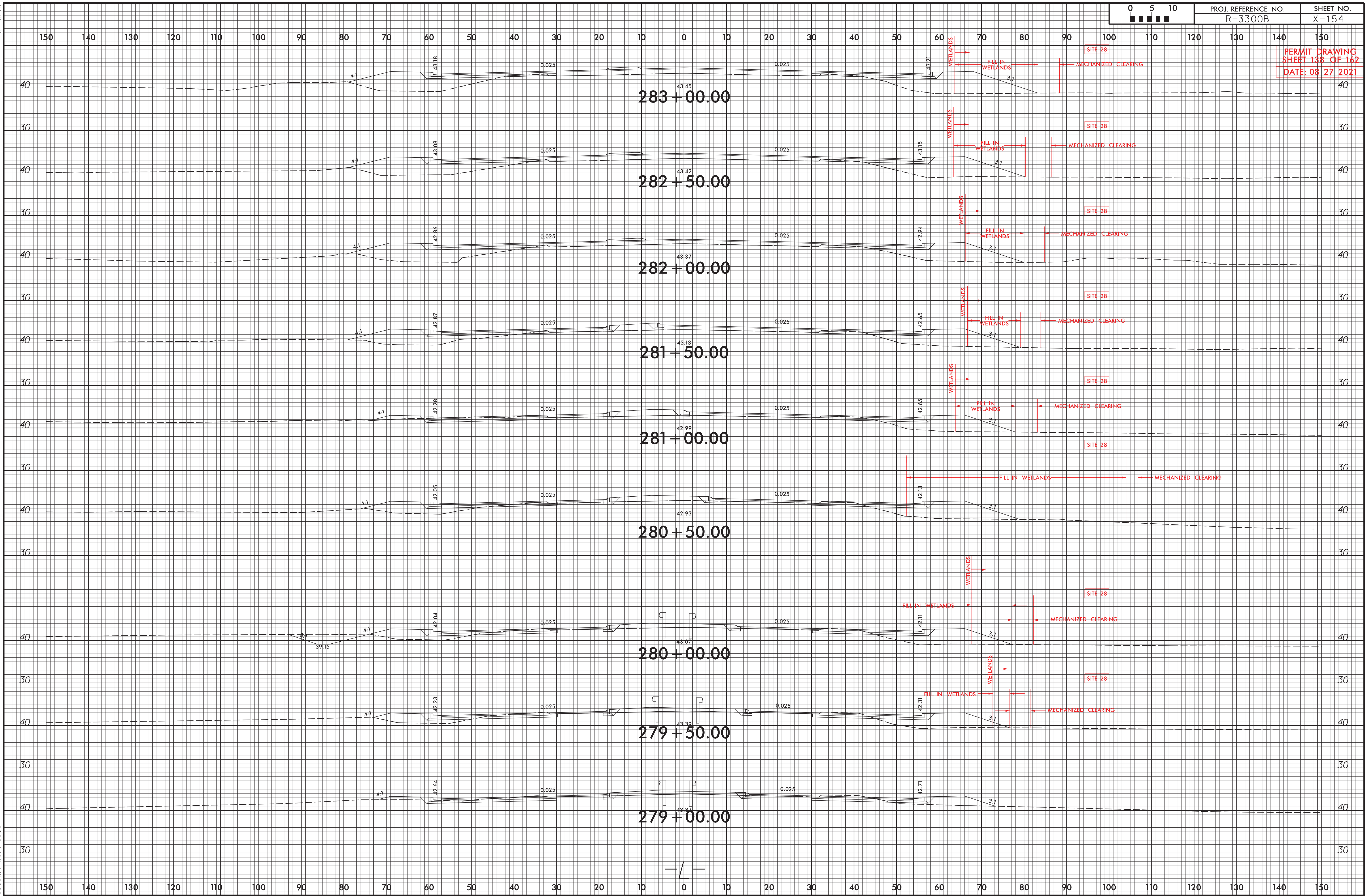
STATE OF NORTH CAROLINA
DB 4645 PG 2500
DB 1485 PG 335
DB 719 PG 225
MB 58 PG 69
MB 8 PG 24
MB 26 PG 123

NORTH CAROLINA WILDLIFE
RESOURCES COMMISSION
DB 4645 PG 2495
DB 4308 PG 201
MB 58 PG 68
MB 8 PG 24
MB 26 PG 123

SITE 28

END CONSTRUCTION
-Y25- STA. 11+14.88

-L- POT Sta. 288+18.97
-Y25- POT Sta. 10+00.00



6/23/16

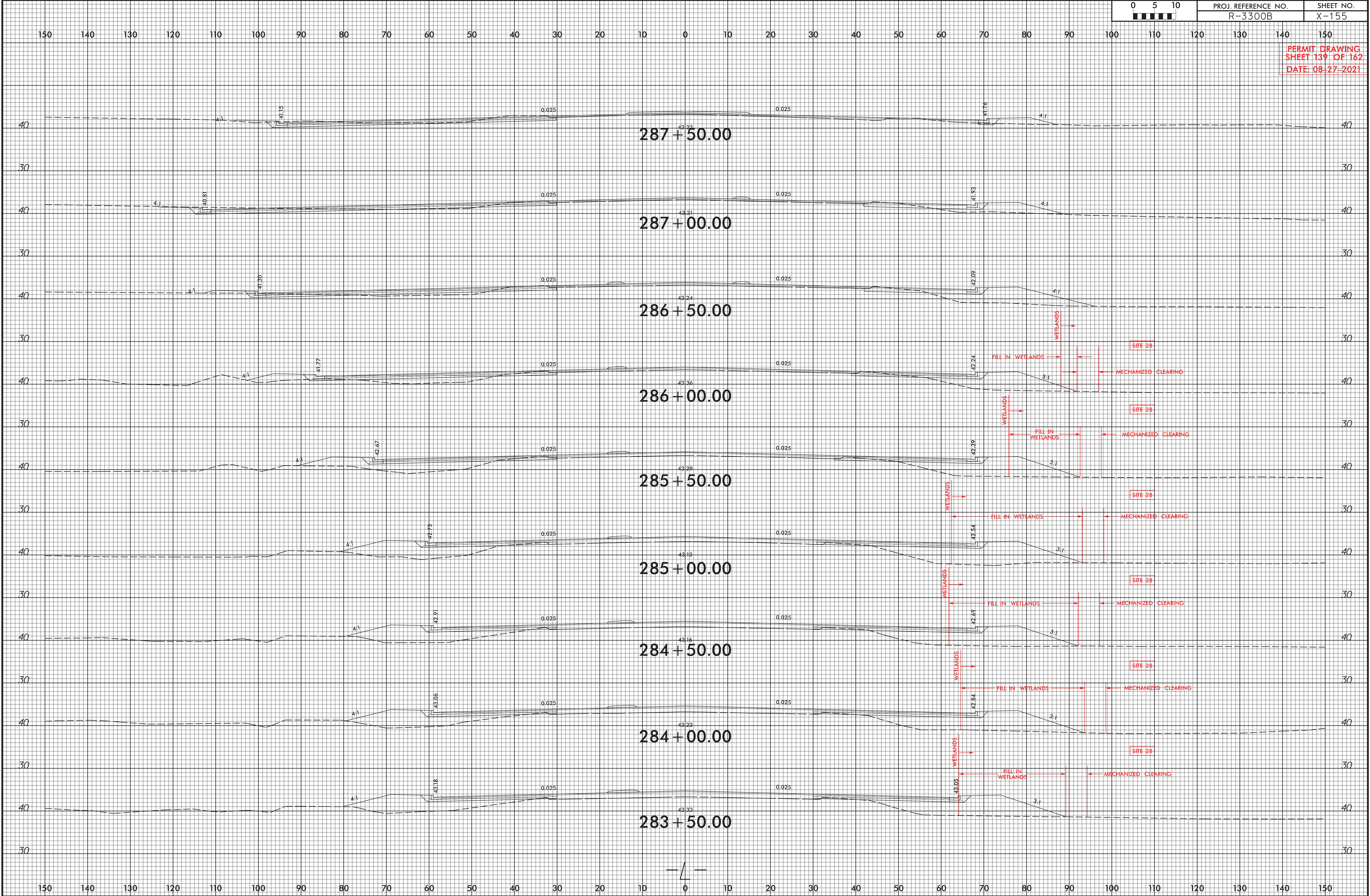
SYSTEMS
DESIGN
DIVISION



PROJ. REFERENCE NO.
R-3300B

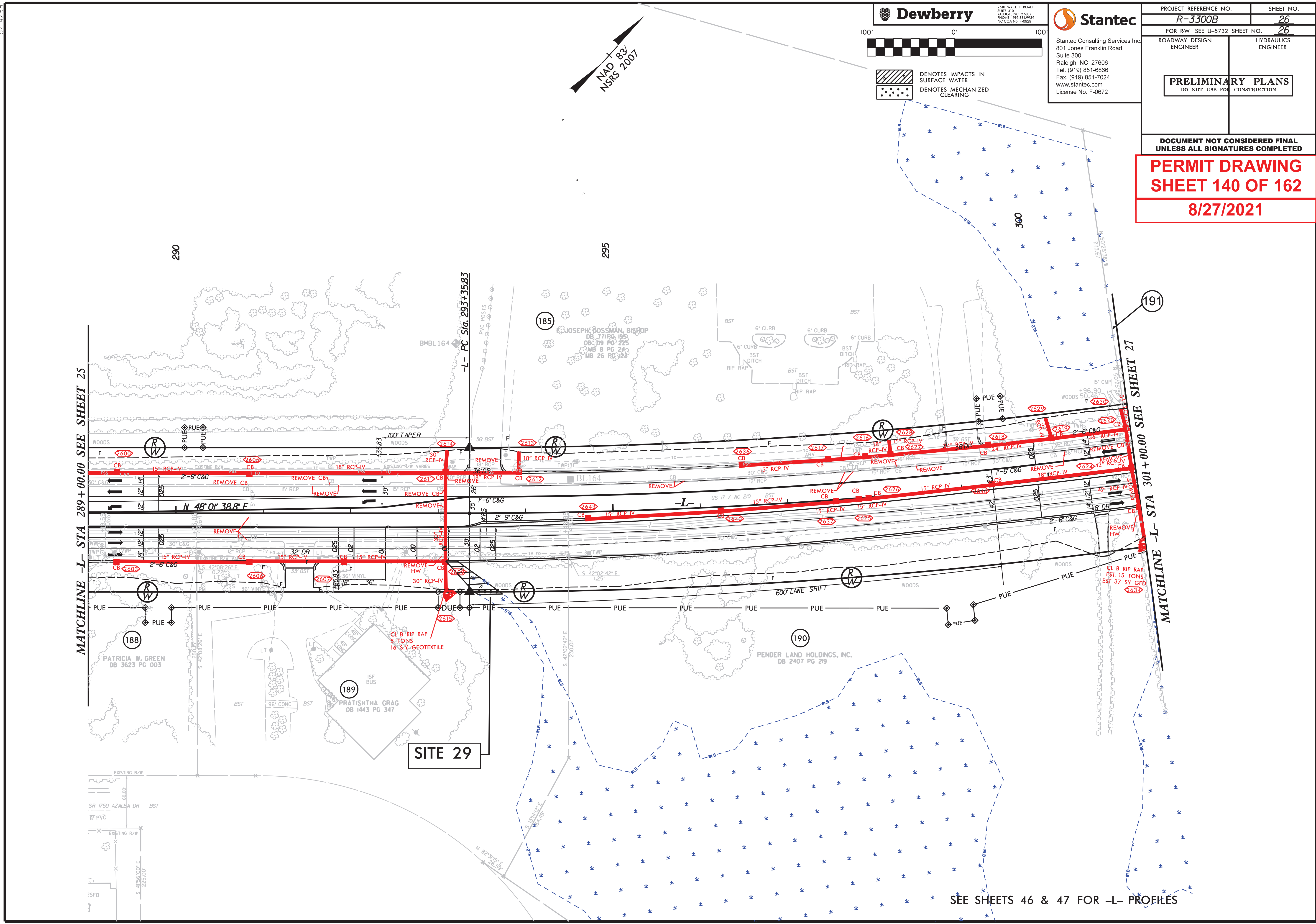
SHEET NO.
X-155

PERMIT DRAWING
SHEET 139 OF 162
DATE: 08-27-2021



5/14/99

11/8/2019
R3300B_Permitt Drawings_20191118.pdf



Dewberry

2410 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

| | |
|------------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 26 |
| FOR R/W SEE U-5732 SHEET NO. | 26 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 140 OF 162
8/27/2021

SEE SHEETS 46 & 47 FOR -L- PROFILES

5/14/2019

1/18/2019
R3300B_Permitt Drawings_20191118.pdf

Dewberry

2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9519
NC CDA No. F-0629

Stantec

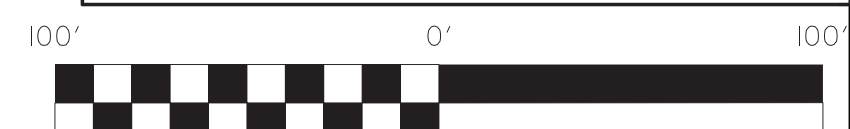
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

| | |
|-----------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3300B | 26 |
| FOR RW SEE U-5732 SHEET NO. | 26 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 141 OF 162
8/27/2021



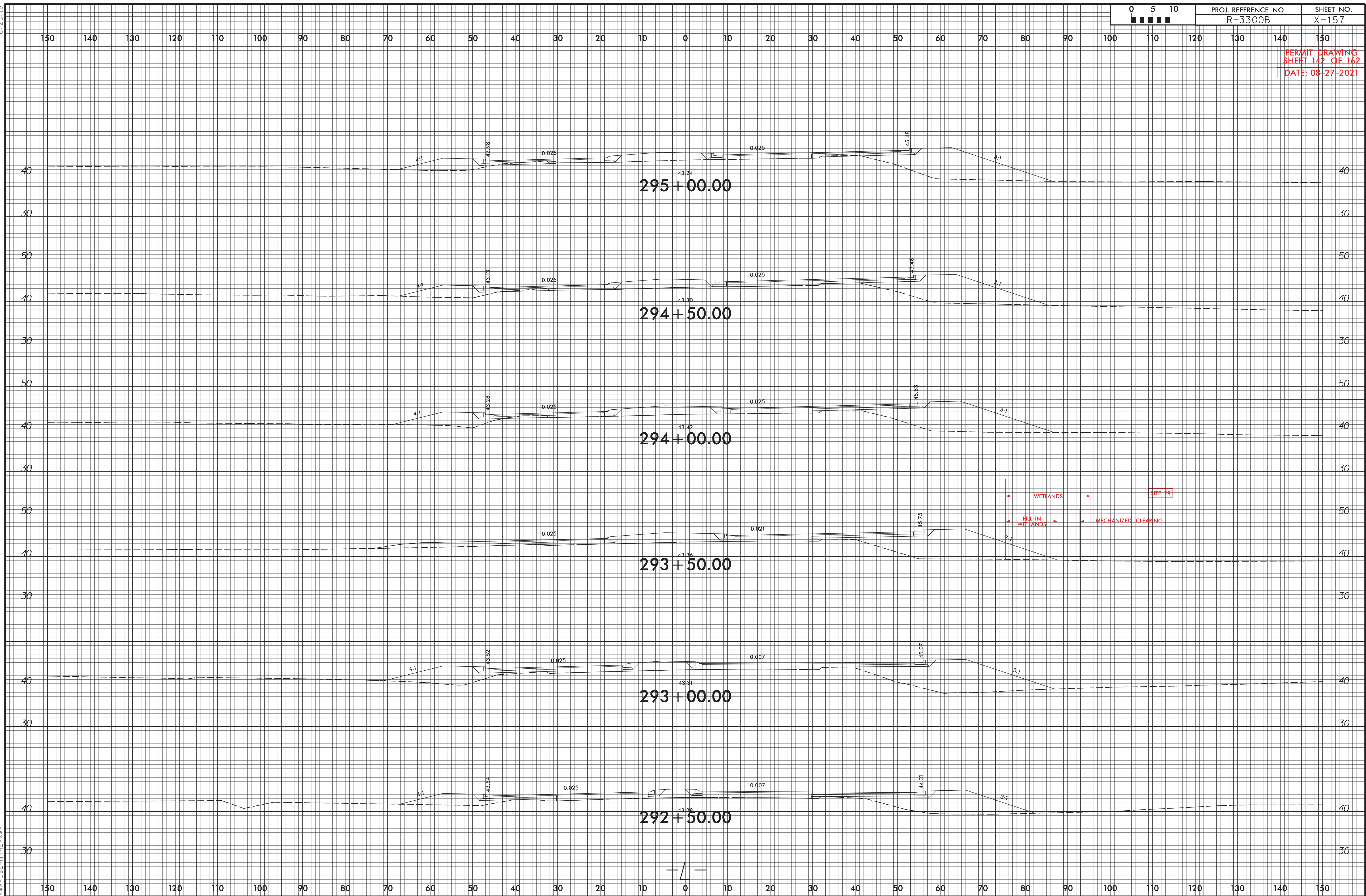
- Denotes IMPACTS IN SURFACE WATER
- Denotes MECHANIZED CLEARING

MATCHLINE -L- STA 289+00.00 SEE SHEET 25

MATCHLINE -L- STA 301+00.00 SEE SHEET 27

SITE 29

SEE SHEETS 46 & 47 FOR -L- PROFILES



REVISIONS

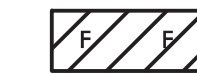
11/28/2018 - RW REVISION: ADDED PARCEL NUMBER 227. - STANTEC

11/28/2019
DEWBERRY
R3300B Permit Drawings_20191118.pdf

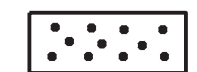
5/14/99

Dewberry

2410 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

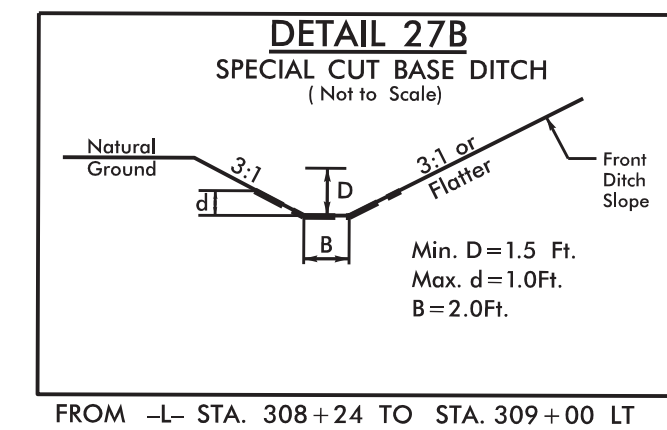
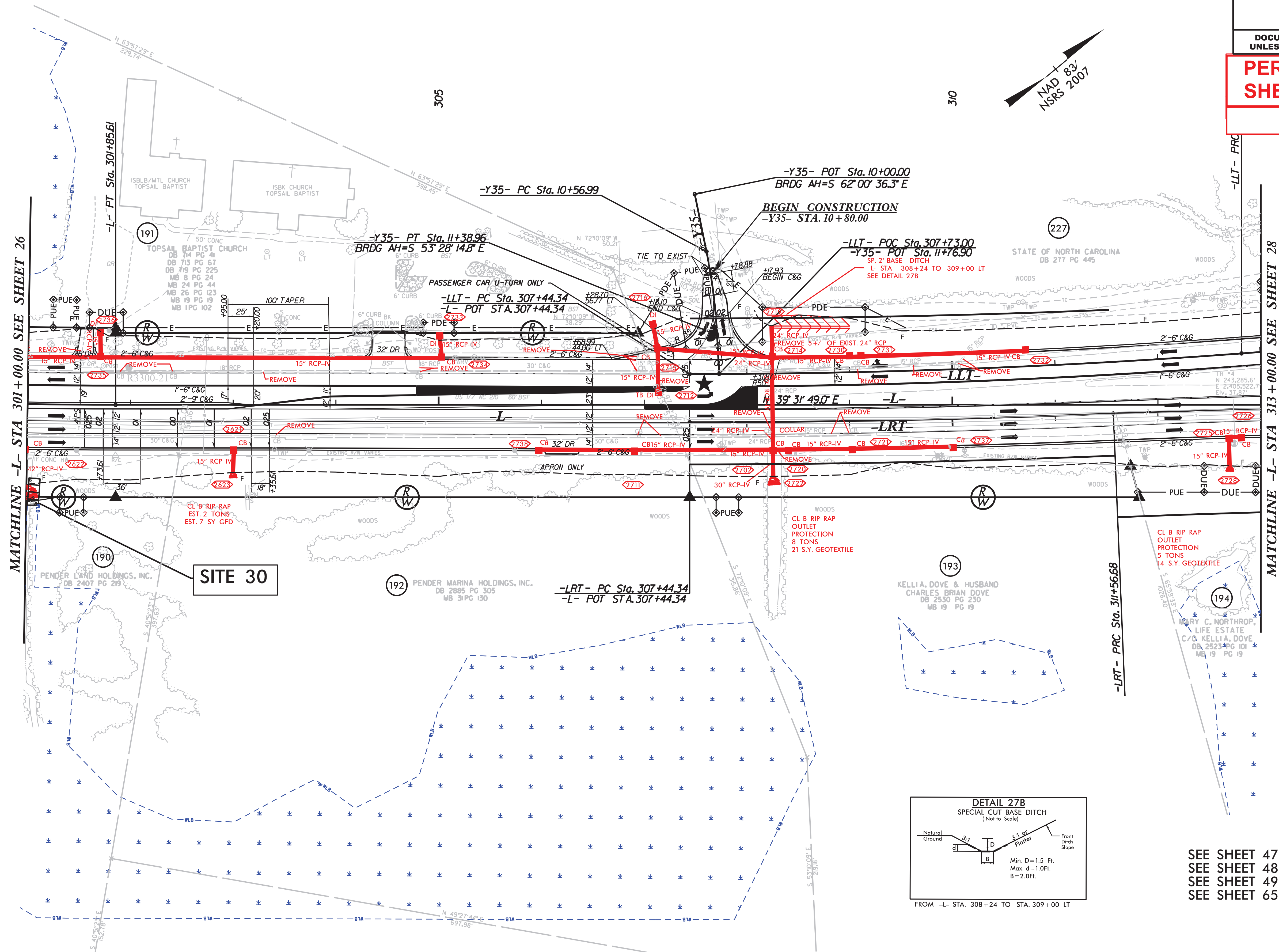
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------------|---------------------|
| R-3300B | 27 |
| FOR RW SEE U-5732 SHEET NO. | 27 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

**PERMIT DRAWING
SHEET 143 OF 162**

8/27/2021



SEE SHEET 47 FOR -L- PROFILES
SEE SHEET 48 FOR -LLT- PROFILE
SEE SHEET 49 FOR -LRT- PROFILE
SEE SHEET 65 FOR -Y35- PROFILE

5/14/99

REVISIONS

11/28/2018 - RW REVISION: ADDED PARCEL NUMBER 227. - STANTEC

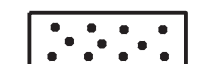
11/18/2019
DEWBERRY
R3300B Permit Drawings_20191118.pdf

Dewberry

2410 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

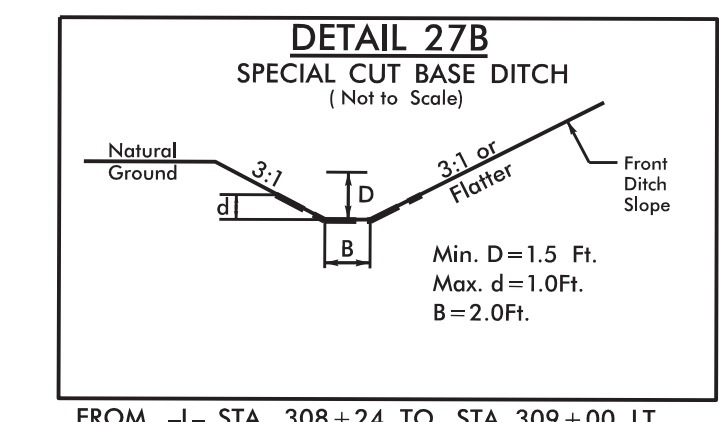
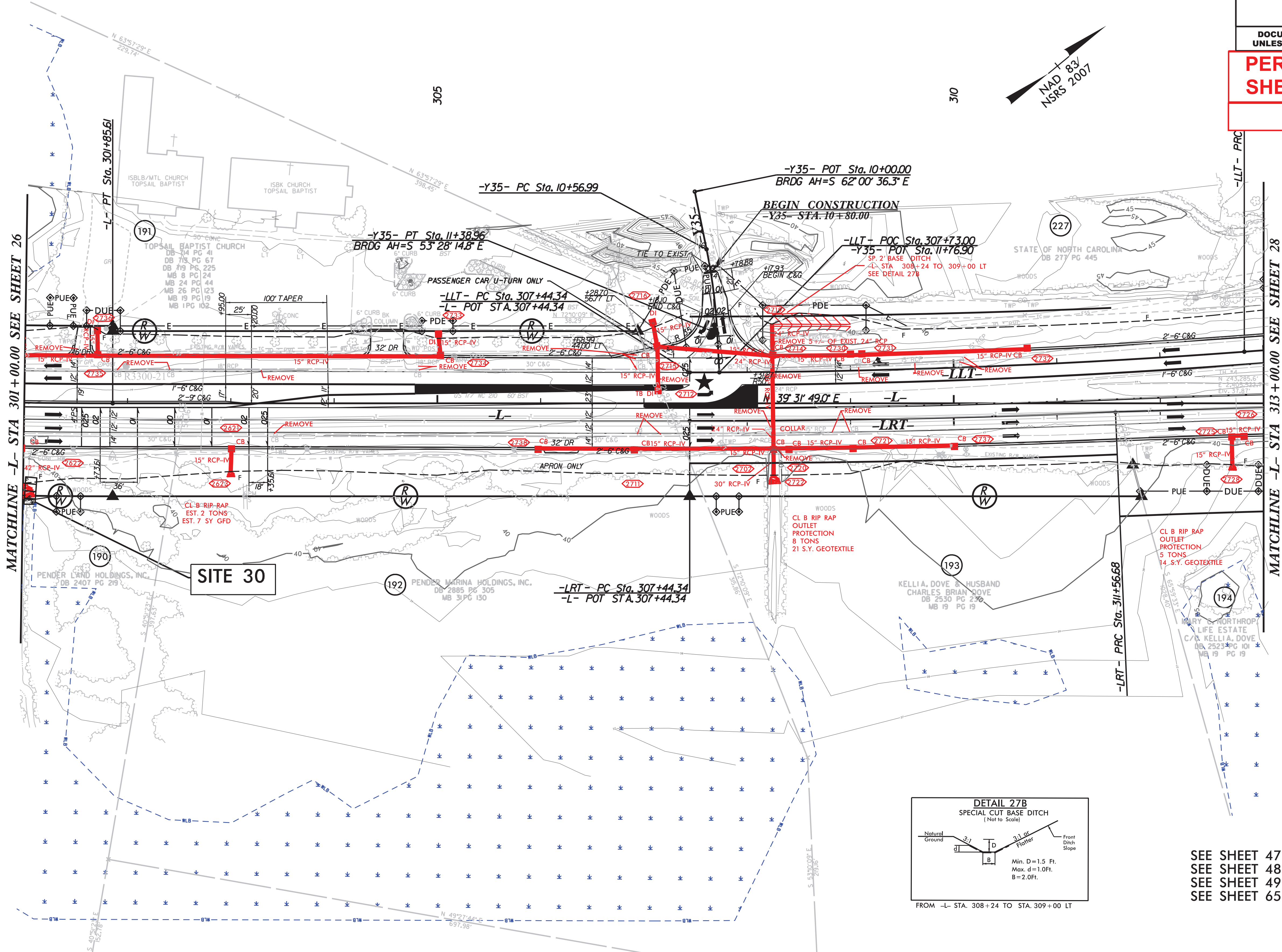
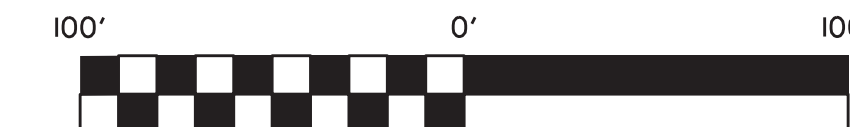
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------------|---------------------|
| R-3300B | 27 |
| FOR RW SEE U-5732 SHEET NO. | 27 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

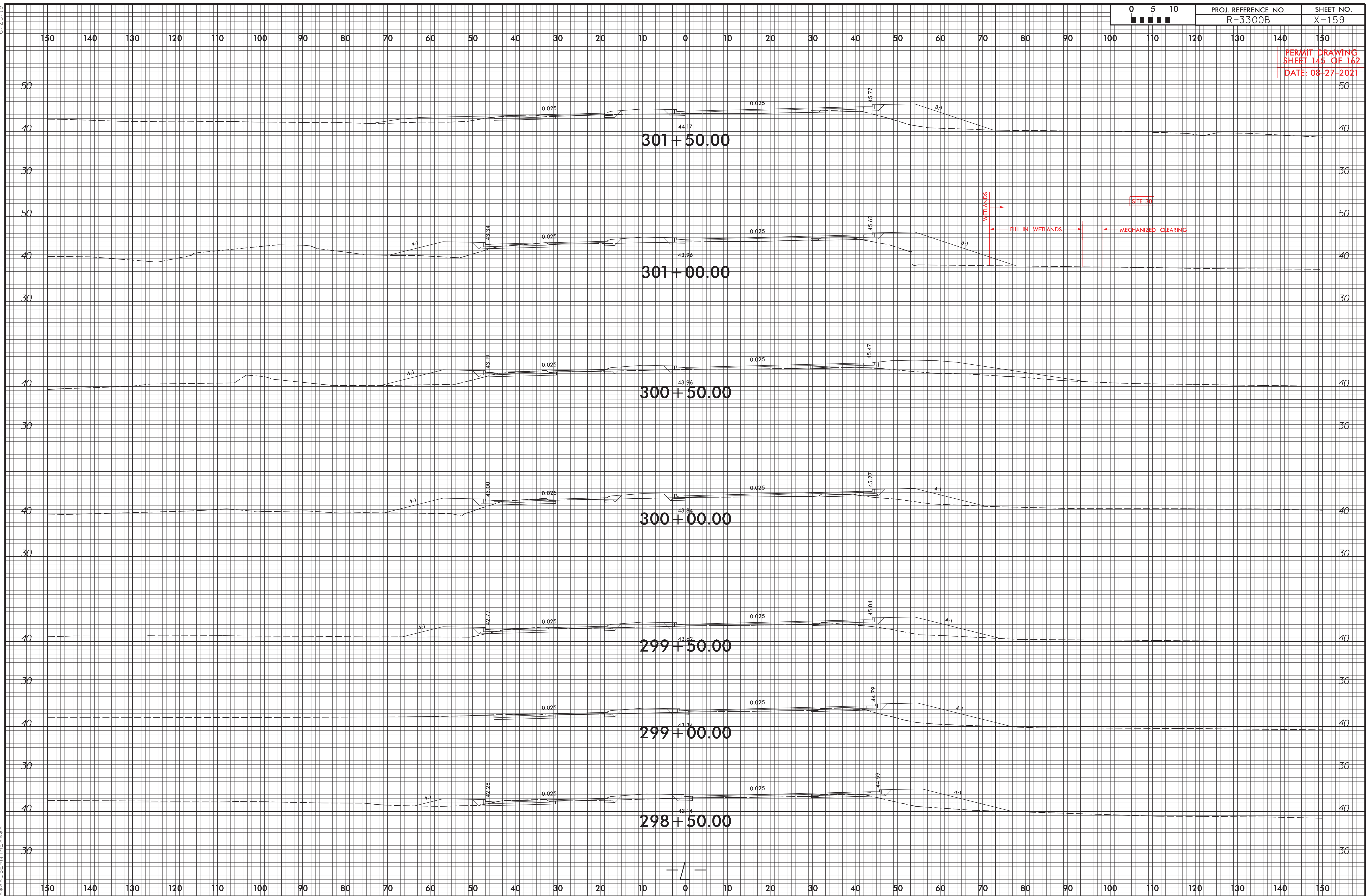
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 144 OF 162

8/27/2021



SEE SHEET 47 FOR -L- PROFILES
SEE SHEET 48 FOR -LLT- PROFILE
SEE SHEET 49 FOR -LRT- PROFILE
SEE SHEET 65 FOR -Y35- PROFILE



5/14/99

REVISIONS

11/28/2018 - RW REVISION: ADDED PARCEL NUMBER 227. - STANTEC

11/8/2019
DEWBERRY
R3300B Permit Drawings_20191118.pdf

Dewberry

2410 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

DENOTES IMPACTS IN
SURFACE WATER
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. SHEET NO.

R-3300B 28

FOR RW SEE U-5732 SHEET NO. 28

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

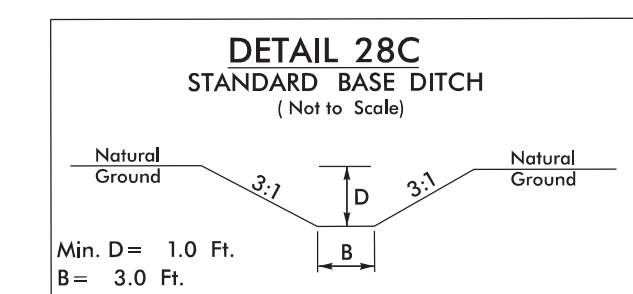
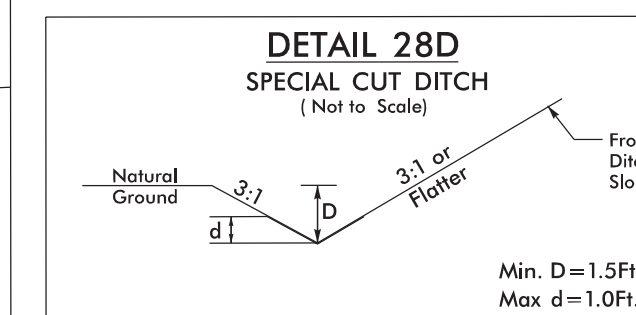
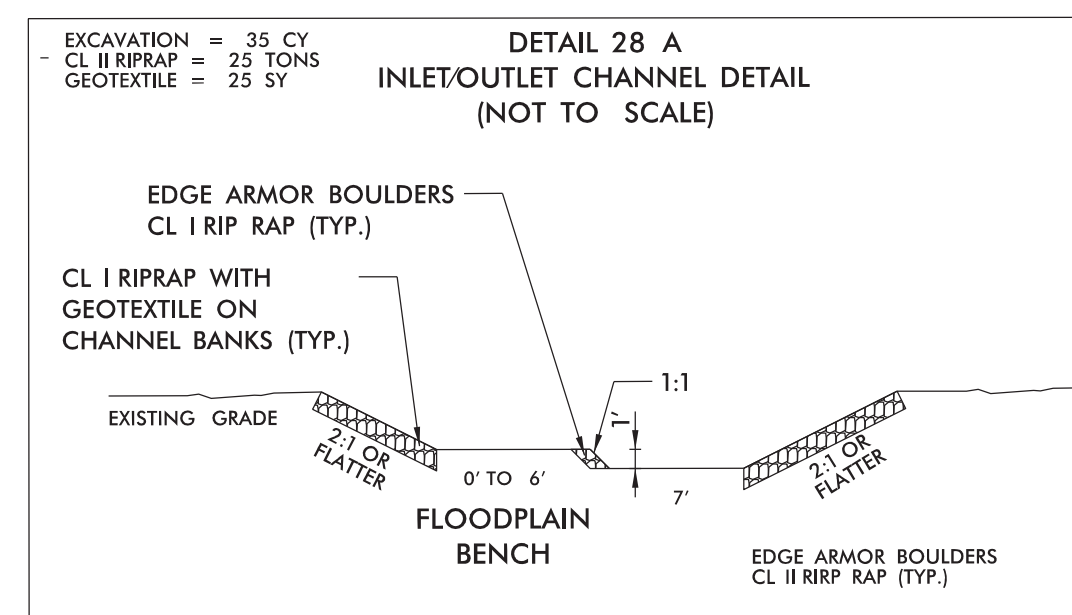
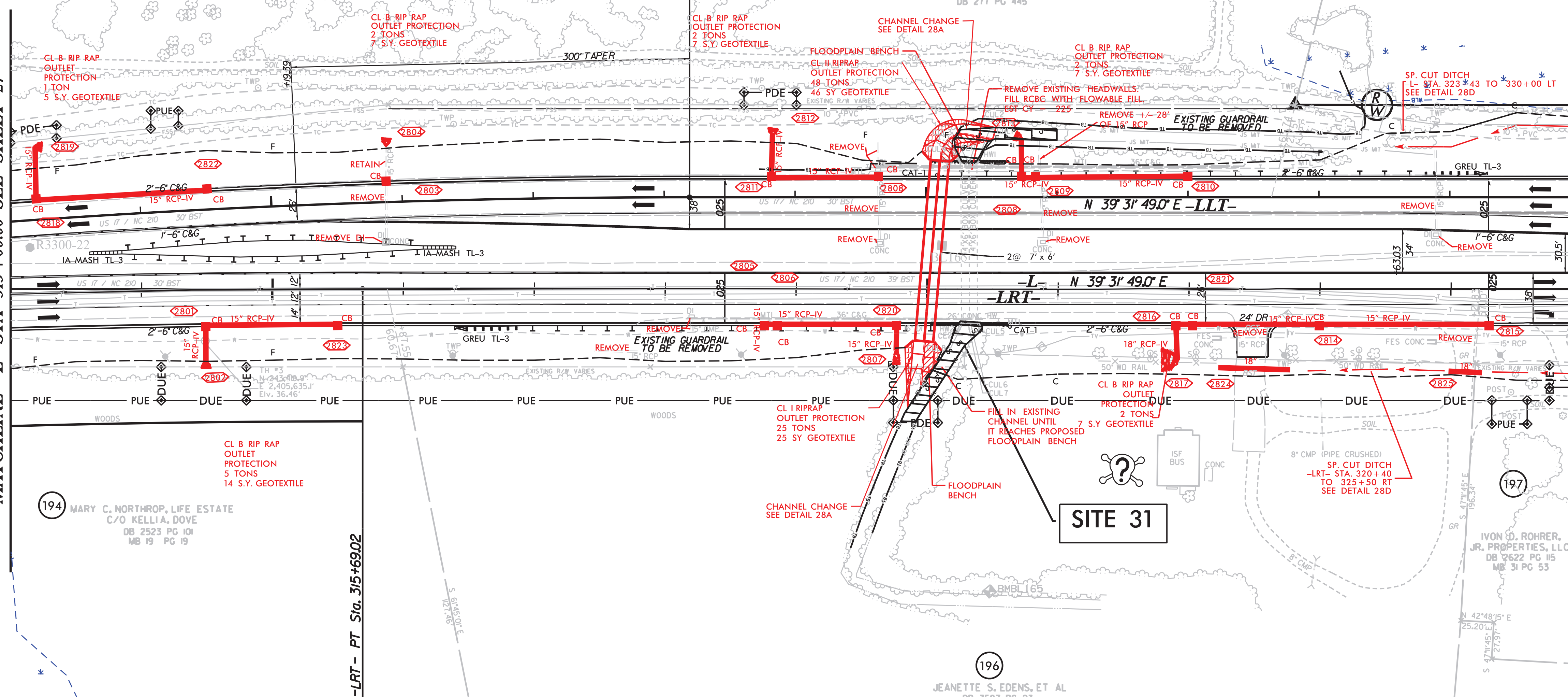
PERMIT DRAWING
SHEET 146 OF 162

8/27/2021

MATCHLINE -L- STA 313+00.00 SEE SHEET 27

-LRT- PT Sta. 315+69.02

MATCHLINE -L- STA 325+00.00 SEE SHEET 29



FROM -L- STA. 323+43 TO STA. 330+00 LT
FROM -LRT- STA. 320+40 TO STA. 325+50 RT

FROM -LLT- STA. 320+00

SEE SHEET 48 FOR -LLT- PROFILE
SEE SHEET 49 FOR -LRT- PROFILE

5/14/99

REVISIONS

11/28/2018 - RW REVISION: ADDED PARCEL NUMBER 227. - STANTEC

11/8/2019
DEWBERRY
R-3300B Permit Drawings_20191118.dwg

Dewberry

2410 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

DENOTES IMPACTS IN
SURFACE WATER
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

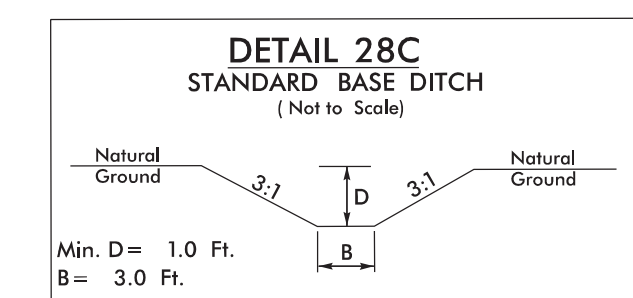
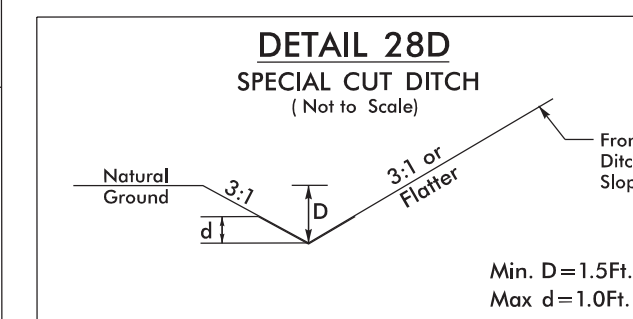
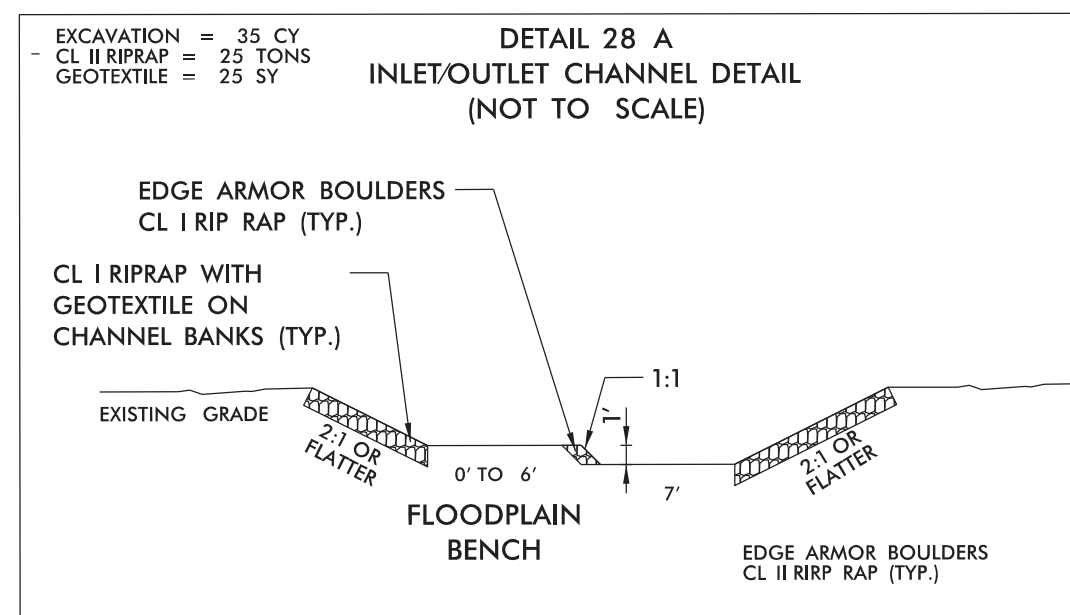
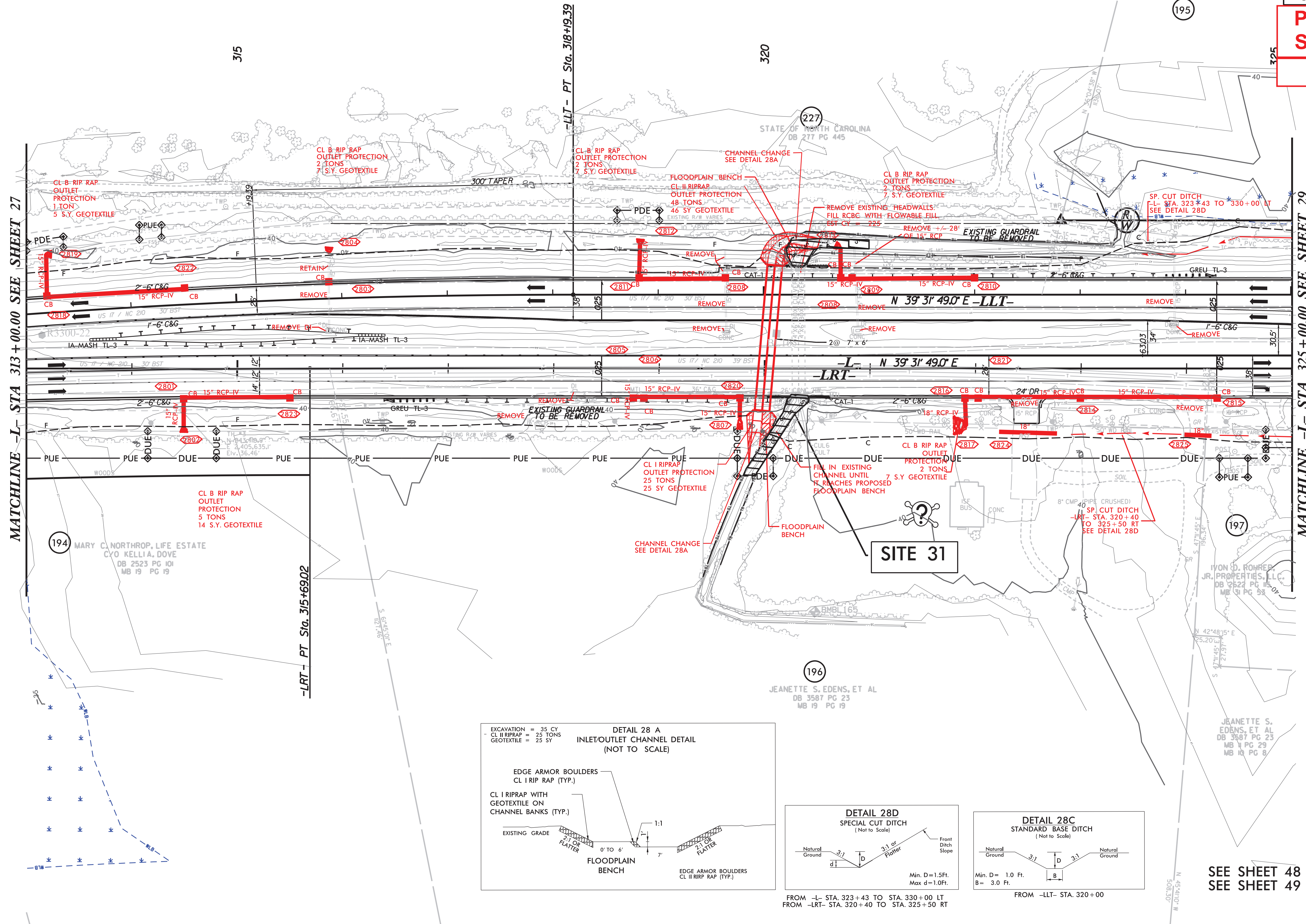
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------------|------------------------|
| R-3300B | 28 |
| FOR RW SEE U-5732 SHEET NO. | 28 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 147 OF 162

8/27/2021



FROM -L- STA. 323+43 TO STA. 330+00 LT
FROM -LRT- STA. 320+40 TO STA. 325+50 RT

FROM -LRT- STA. 320+00

SEE SHEET 48 FOR -LLT- PROFILE
SEE SHEET 49 FOR -LRT- PROFILE

5/14/99 12/2/02 DENVER PERMIT DRAWING 20101202.pdf

PROJECT REFERENCE NO.

SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

DO NOT USE FOR R/W ACQUISITION

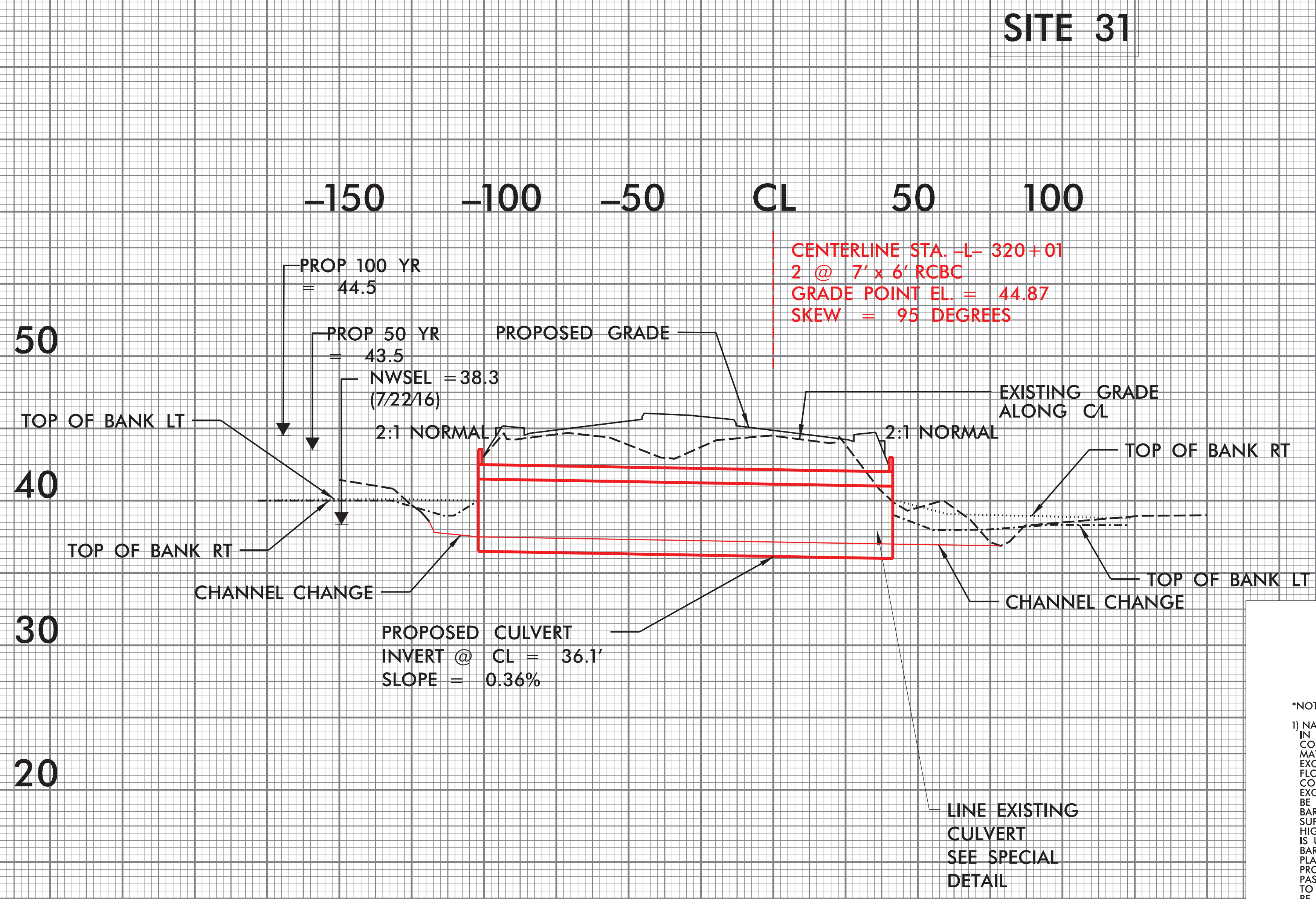
DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING

SHEET 148 OF 162

8/27/2021



MULTI-BARREL CULVERT
LOW FLOW CHANNEL, SILLS
AND FLOODPLAIN BENCH

(NOT TO SCALE)

*NOTES:

1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT. BARREL RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

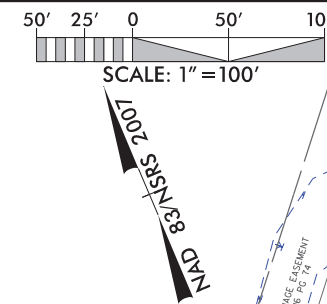
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

5/14/99

5/14/99



Stantec

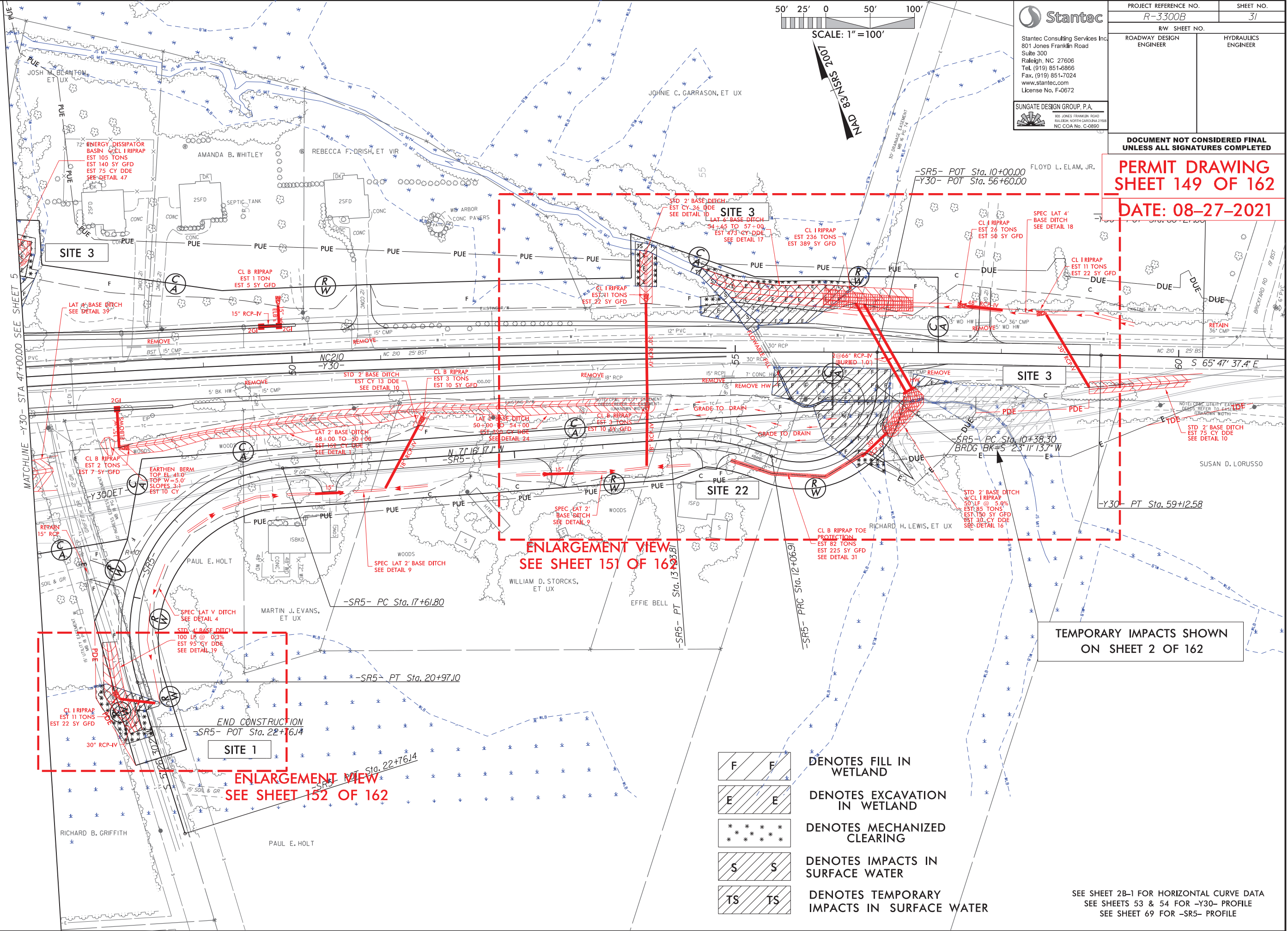
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

| PROJECT REFERENCE NO. | | SHEET NO. |
|-------------------------|--|---------------------|
| R-3300B | | 31 |
| RW SHEET NO. | | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER | | |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 149 OF 162
DATE: 08-27-2021



ENLARGEMENT VIEW
SEE SHEET 151 OF 162

ENLARGEMENT VIEW
SEE SHEET 152 OF 162

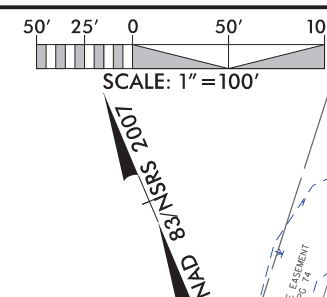
TEMPORARY IMPACTS SHOWN
ON SHEET 2 OF 162

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

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 53 & 54 FOR -Y30- PROFILE
SEE SHEET 69 FOR -SR5- PROFILE

5/14/99

5/14/99



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.
R-3300B

SHEET NO.
31

RW SHEET NO.

ROADWAY DESIGN ENGINEER

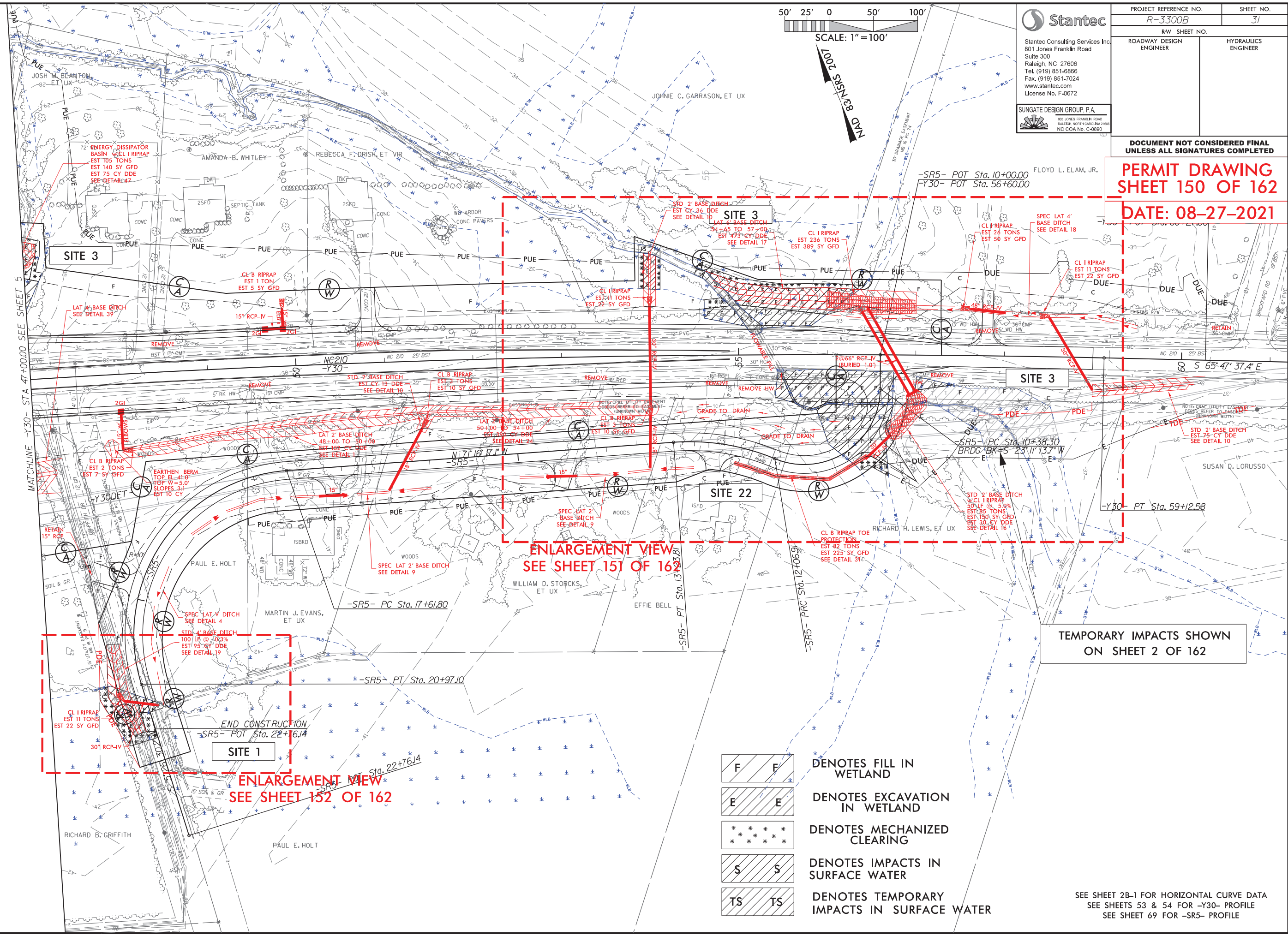
HYDRAULICS ENGINEER

SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
NC COA No. C-0890

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

**PERMIT DRAWING
SHEET 150 OF 162**

DATE: 08-27-2021



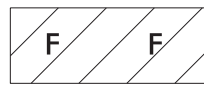
**ENLARGEMENT VIEW
SEE SHEET 151 OF 162**

**ENLARGEMENT VIEW
SEE SHEET 152 OF 162**

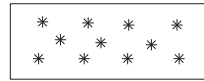
**TEMPORARY IMPACTS SHOWN
ON SHEET 2 OF 162**

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

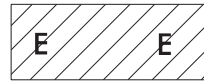
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 53 & 54 FOR -Y30- PROFILE
SEE SHEET 69 FOR -SR5- PROFILE



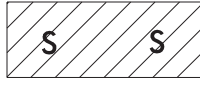
DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING



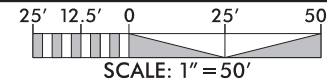
DENOTES EXCAVATION
IN WETLAND



DENOTES IMPACTS IN
SURFACE WATER



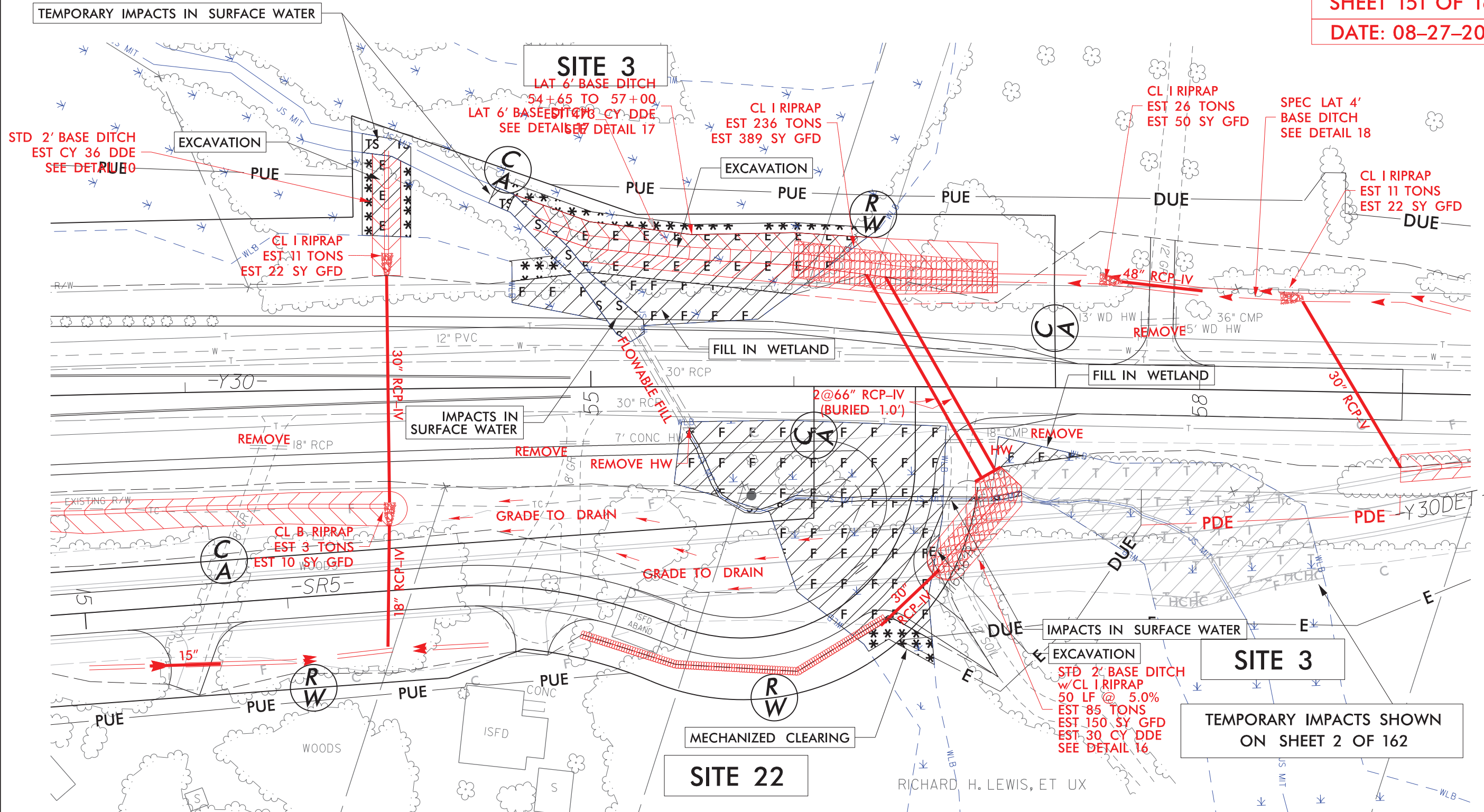
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. <i>R-3300B</i> | | SHEET NO. | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

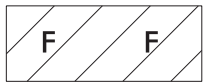
PERMIT DRAWING
SHEET 151 OF 162

DATE: 08-27-2021



8/17/99

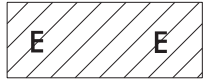
8/17/99



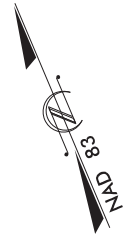
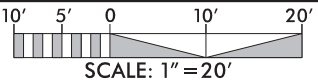
DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING



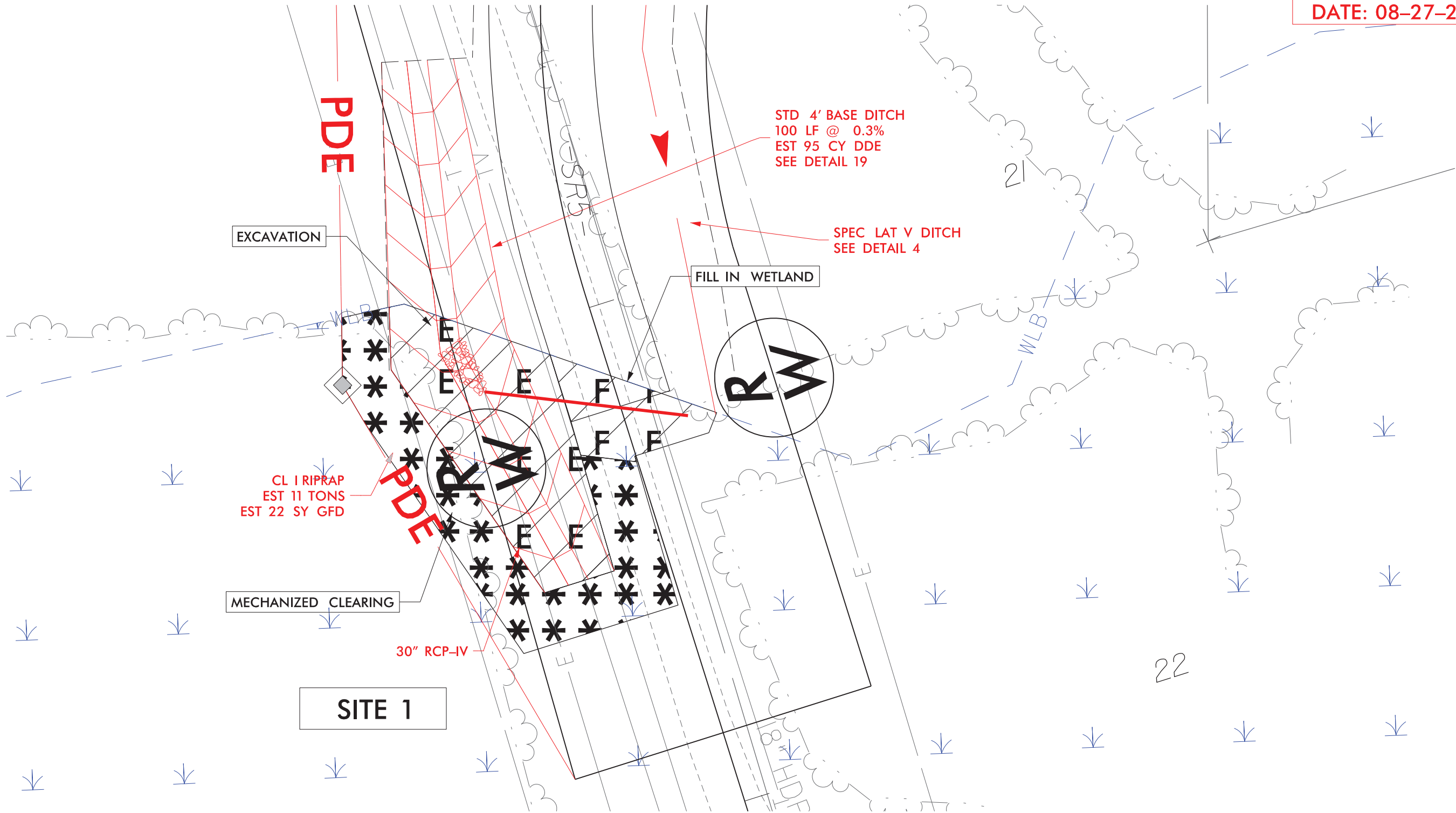
DENOTES EXCAVATION
IN WETLAND

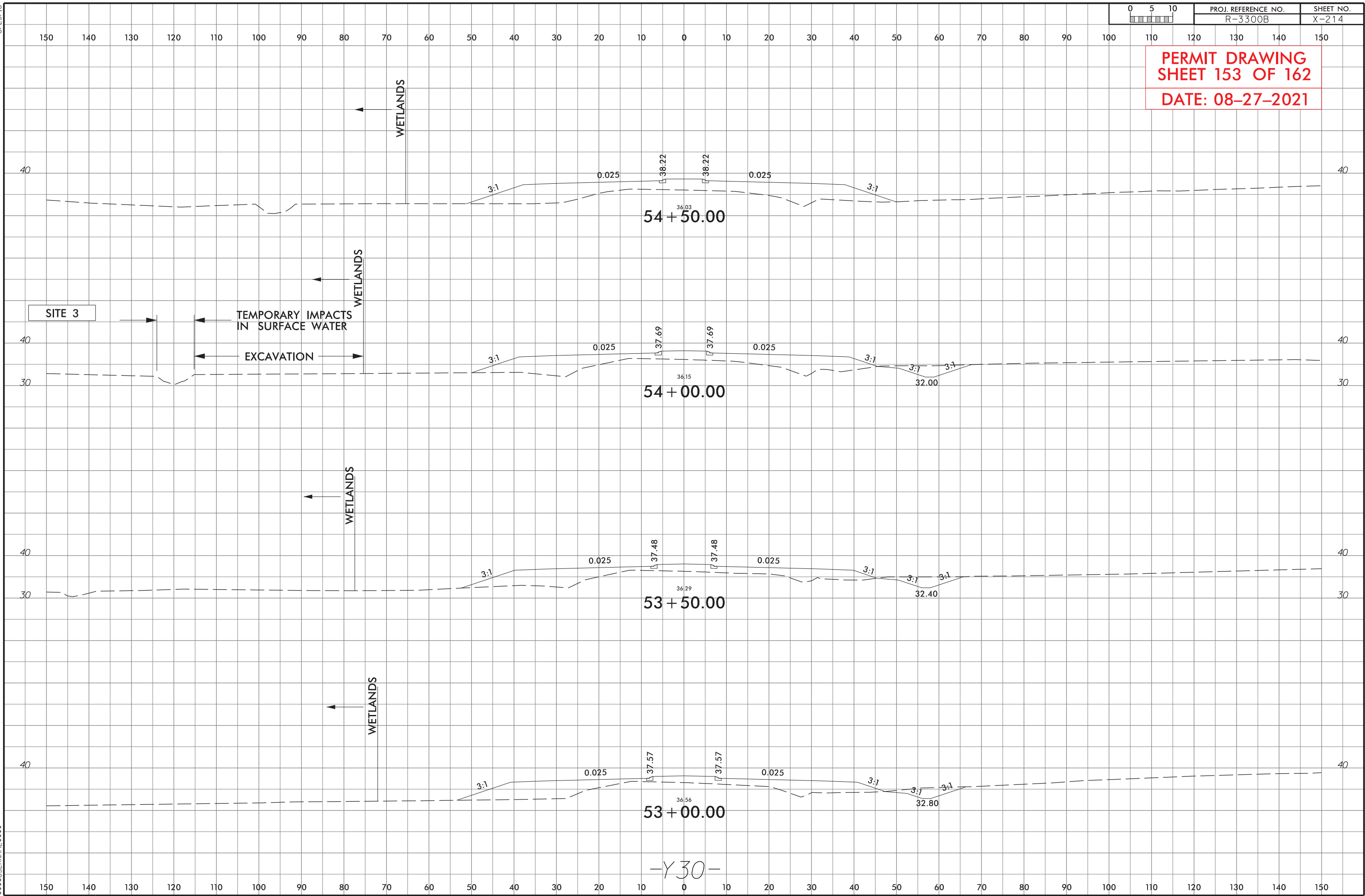


| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-3300B | | | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| | | | |
| | | | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

**PERMIT DRAWING
SHEET 152 OF 162**

DATE: 08-27-2021





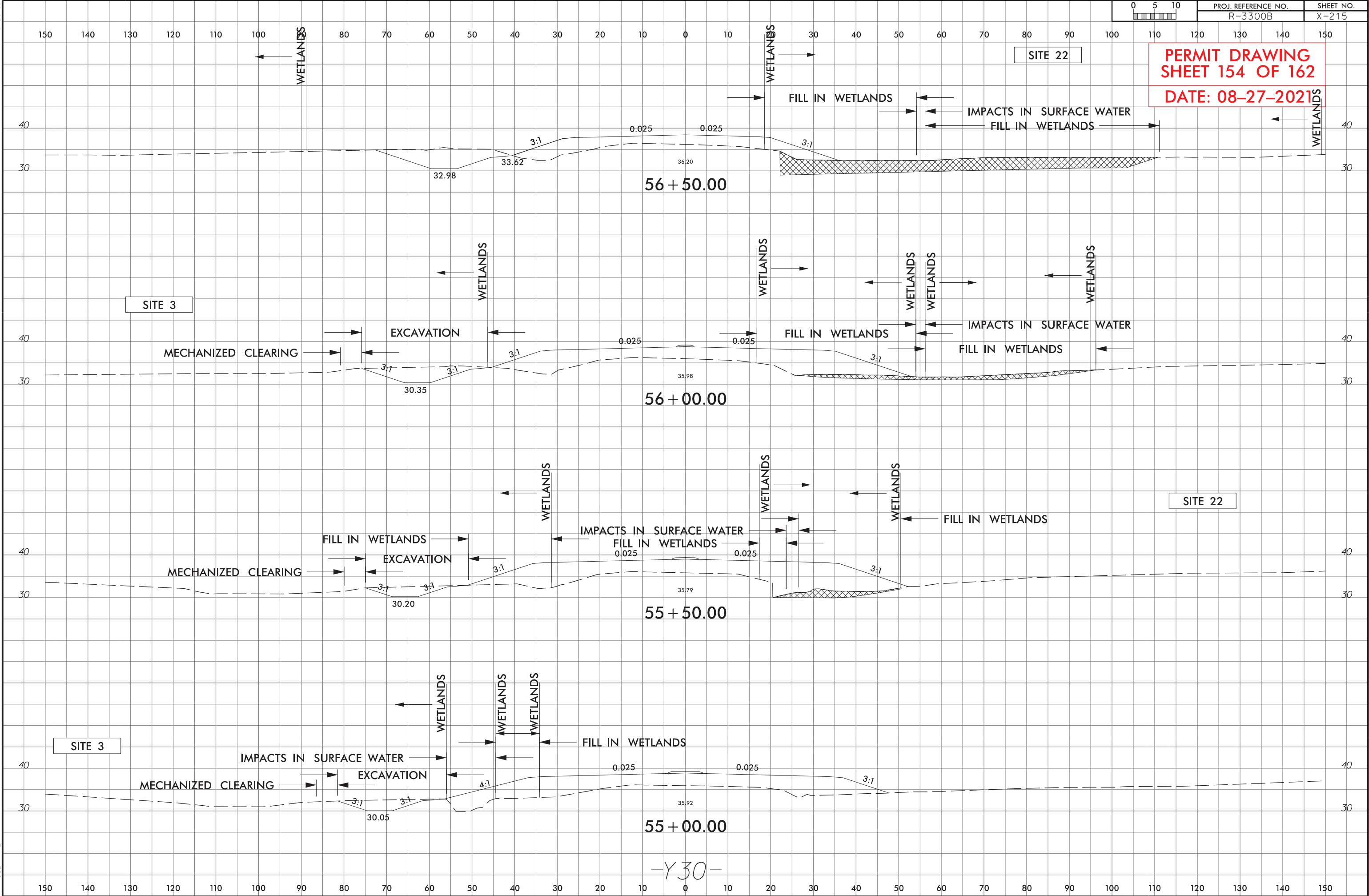
6/23/16



PROJ. REFERENCE NO.
R-3300B

SHEET NO.
X-215

PERMIT DRAWING
SHEET 154 OF 162
DATE: 08-27-2021

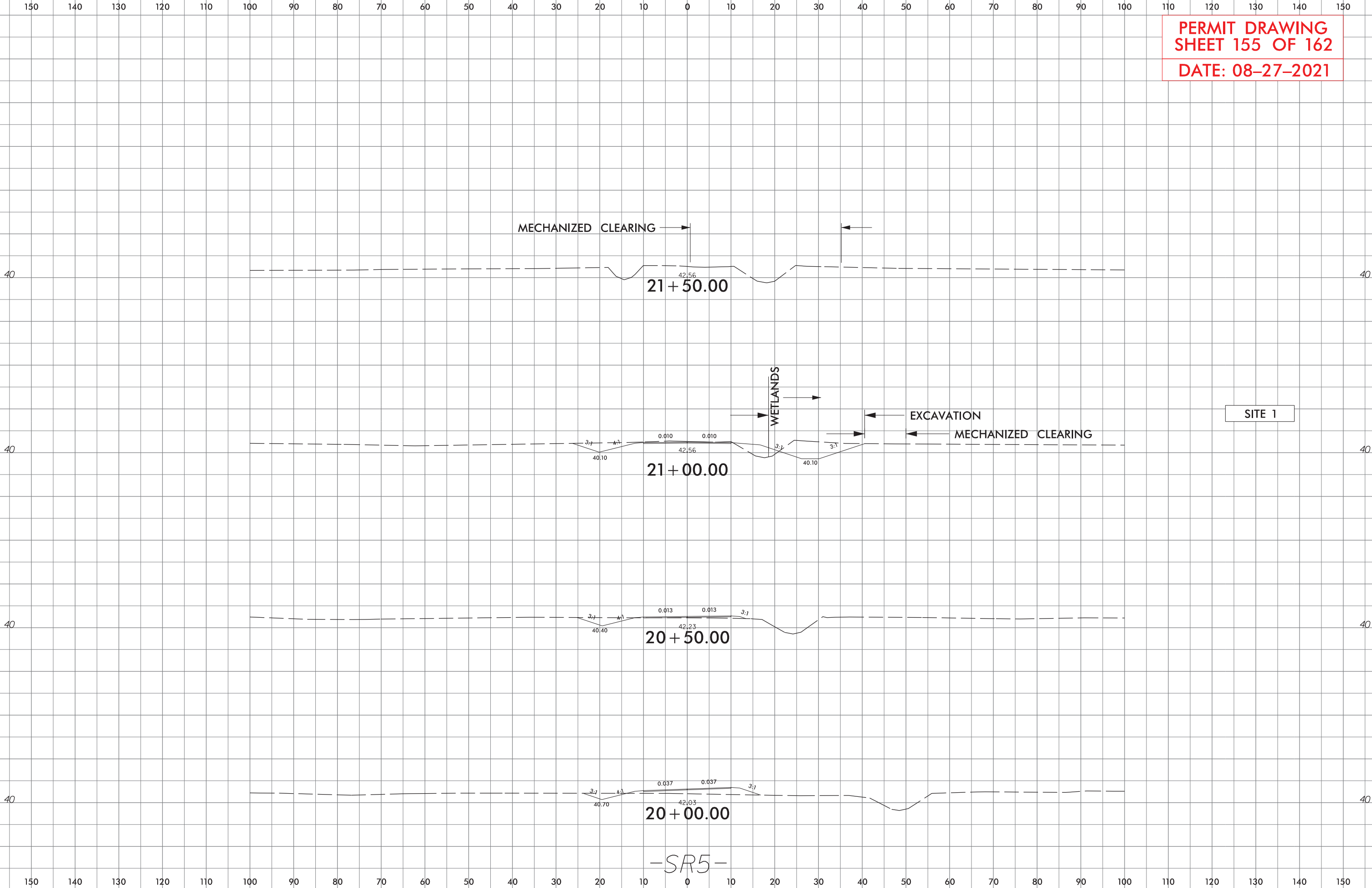


-Y 30-

6/23/16

| | | |
|-----------------------|---------------------|-----------|
| 0 5 10 [Scale Bar] | PROJ. REFERENCE NO. | SHEET NO. |
| | R-3300B | X-393 |

PERMIT DRAWING
SHEET 155 OF 162
DATE: 08-27-2021



5/14/99

CONSTRUCTION

| | | |
|--|---------------------|-----------|
| PROJECT REFERENCE NO. | | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | |
| PERMIT DRAWING SHEET 156 OF 162 DATE: 08-27-2021 | | |

200 100 0 100 200

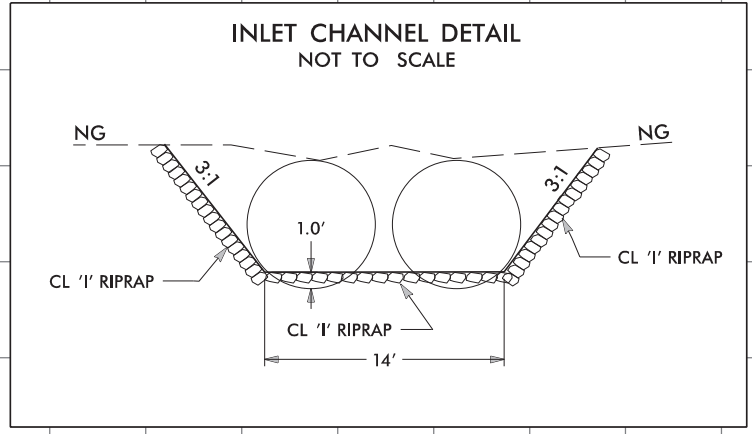
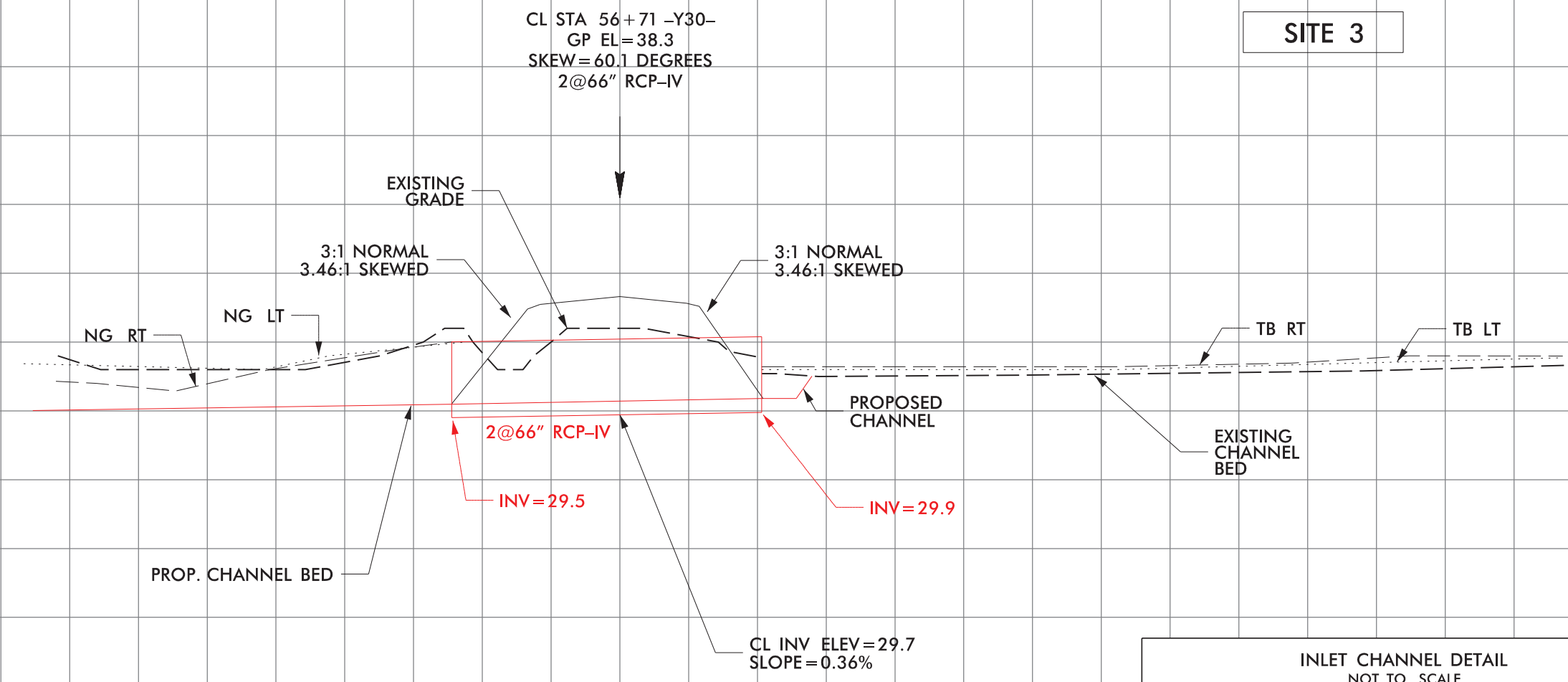
SITE 3

50

40

30

20



| WETLAND AND SURACE WATER IMPACTS SUMMARY | | | | | | | | | | | | |
|--|----------------------------|---------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| Site No. | Station (From/To) | Structure Size / Type | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 1 | 584+18 to 601+51-L1- | ROADWAY FILL | 5.436 | | 0.005 | 0.699 | | | | | | |
| | 5+13 to 5+71-Y30RPB-LT | | | | 0.015 | 0.016 | | | | | | |
| | 13+27 to 18+16-Y30RPB- | | 0.883 | | | 0.118 | | | | | | |
| | 19+30 to 26+02-Y30RPC- | | 1.190 | | 0.025 | 0.080 | | | | | | |
| | 27+65-SR4- | | | | | 0.004 | | | | | | |
| | 20+90 to 21+60-SR5- | | 0.008 | | 0.028 | 0.027 | | | | | | |
| | 43+83 to 44+59-Y30DET-LT | | 0.038 | | | 0.003 | | | | | | |
| 2 | 41+43 to 43+15-Y30-RT | ROADWAY FILL | 0.141 | | 0.022 | | | | | | | |
| | 43+21 to 44+49-Y30DET-LT * | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 3 | 609+50 to 618+70-L1- | ROADWAY FILL | 1.754 | | 0.002 | 0.089 | 0.210 | 0.526 | 0.010 | 419 | 36 | |
| | 611+72 to 611+91-L1-RT | 1 at 12'x7' RCBC | | | | | | | | | | |
| | | INLET CHANNEL | | | 0.004 | | | | | | | |
| | | INLET BANK STABILIZATION | | | | | | | | 33 | | |
| | 611+98 to 612+68-L1-LT | OUTLET CHANNEL | | | | 0.005 | 0.015 | 0.014 | | 56 | | |
| | | OUTLET BANK STABILIZATION | | | | | | | | 38 | | |
| | 45+87 to 47+20-Y30-LT | ROADWAY FILL | 0.180 | | 0.035 | 0.024 | | | | | | |
| | 53+88 to 54+12-Y30-LT | 30" RCP OUTLET DITCH | | | 0.013 | 0.009 | | | 0.005 | | 25 | |
| | 54+51 to 56+42-Y30-LT | 2 at 66" RCP OUTLET DITCH | | | 0.082 | | | 0.019 | 0.002 | 91 | 10 | |
| | 56+99 to 57+43-Y30-RT | ROADWAY FILL | 0.008 | | | | | | | | | |
| | 57+15 to 58+74-Y30DET- | | | 0.149 | | | 0.010 | | 0.006 | | 125 | |
| | 13+40 to 19+59-Y30RPA- | | 1.694 | | 0.045 | 0.188 | | 0.094 | 0.011 | 441 | 55 | |
| | | | | | | | | | | | | |
| TOTALS: | | | 11.332 | 0.149 | 0.276 | 1.262 | 0.235 | 0.653 | 0.034 | 1078 | 251 | 0 |

NOTES:

* Site 2 detour impacts included in roadway fill impacts (Total Take).

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08-27-2021
PENDER COUNTY
R-3300B
40237.2.1

| WETLAND AND SURACE WATER IMPACTS SUMMARY | | | | | | | | | | | | |
|--|--------------------------|--------------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| Site No. | Station (From/To) | Structure Size / Type | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| | | | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 3 | 15+01 to 15+56-Y30RPA-LT | 1 at 12'x7' RCBC INLET CHANNEL | | | 0.020 | | | 0.005 | 0.003 | 29 | 12 | |
| | 26+15 to 26+49-SR6-LT | OUTLET CHANNEL | | | 0.005 | | | | 0.004 | | 14 | |
| | | OUTLET BANK STABILIZATION | | | | | | | | 14 | | |
| | 18+22 to 20+14-Y30RPD- | ROADWAY FILL | 0.470 | | | 0.064 | 0.026 | 0.060 | | 243 | | |
| | 19+69 to 20+05-Y30RPD-LT | 1 at 12'x7' RCBC INLET CHANNEL | | | 0.004 | | | | 0.005 | | 25 | |
| | | INLET BANK STABILIZATION | | | | | | | | 25 | | |
| | 18+99 to 19+24-Y30RPD-RT | OUTLET CHANNEL | | | 0.012 | | | | | | | |
| | | OUTLET BANK STABILIZATION | | | | | | | | 22 | | |
| | | | | | | | | | | | | |
| 4 | 623+04 to 632+02-L1- | ROADWAY FILL | 1.812 | | | 0.131 | | | | | | |
| | 633+70 to 634+01-L1-LT | 30" RCP PIPE OUTLET | | | | 0.005 | | | | | | |
| | | | | | | | | | | | | |
| 5 | 638+99 to 642+01-L1- | ROADWAY FILL | 0.065 | | | | | 0.085 | | 364 | | |
| | | | | | | | | | | | | |
| 6 | 641+99 to 643+06-L1- | ROADWAY FILL | | | | | | 0.121 | 0.010 | 355 | 31 | |
| | | | | | | | | | | | | |
| 7 | 645+01 to 666+60-L1- | ROADWAY FILL | 4.805 | | 0.249 | 0.380 | | 0.606 | 0.012 | 1768 | 52 | |
| | | OUTLET CHANNEL | | | 0.062 | | | | | | | |
| | | OUTLET BANK STABILIZATION | | | | | | | | 34 | | |
| | 18+94 to 20+52-Y38- | ROADWAY FILL | 0.072 | | 0.033 | 0.018 | | 0.112 | | 226 | | |
| | 19+83-Y38-RT | 3 AT 12'x8' RCBC | | | 0.009 | | | | | | | |
| | 19+38 to 20+09-Y38-LT | INLET CHANNEL | | | | 0.007 | | | | | | |
| | 19+57 to 20+40Y38-RT | OUTLET CHANNEL | | | 0.062 | 0.008 | | 0.013 | 0.003 | 32 | 10 | |
| | | | | | | | | | | | | |
| TOTALS: | | | 7.224 | 0.000 | 0.456 | 0.613 | 0.026 | 1.002 | 0.037 | 3112 | 144 | 0 |

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08-27-2021
PENDER COUNTY
R-3300B
40237.2.1

| WETLAND AND SURACE WATER IMPACTS SUMMARY | | | | | | | | | | | | |
|--|------------------------|--------------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| Site No. | Station (From/To) | Structure Size / Type | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 7 | 18+94 to 19+38-Y38- | ROADWAY FILL | | | 0.033 | 0.018 | | | | | | |
| | 11+08 to 12+48-Y38DET- | | | 0.110 | | | 0.020 | | | | | |
| | | | | | | | | | | | | |
| 8 | 673+01 to 673+68-L1-RT | ROADWAY FILL | 0.071 | | | 0.012 | | | | | | |
| | | | | | | | | | | | | |
| 9 | 673+18 to 689+67-L1-LT | ROADWAY FILL | 0.087 | | | 0.041 | | | | | | |
| | | | | | | | | | | | | |
| 10 | 676+64 to 679+37-L1- | DRAIN POND | | | | | | 0.633 | | | | |
| | | | | | | | | | | | | |
| 11 | 695+36 to 695+47-L1-LT | ROADWAY FILL | | | | 0.001 | | | | | | |
| | | | | | | | | | | | | |
| 12 | 700+69 to 702+88-L1- | DRAIN POND | | | | | | 0.416 | | | | |
| | | | | | | | | | | | | |
| 13 | 709+67 to 715+63-L1- | ROADWAY FILL | 2.160 | | | 0.114 | | 0.063 | | 228 | | |
| | 712+83 to 713+95-L1-RT | 2 at 12'x7' RCBC INLET CHANNEL | | | 0.024 | 0.015 | | 0.022 | 0.004 | 78 | 14 | |
| | 711+78 to 712+35-L1-LT | OUTLET CHANNEL | | | 0.021 | 0.010 | | | 0.003 | | 12 | |
| | | OUTLET STABILIZATION | | | | | | | | 42 | | |
| | | | | | | | | | | | | |
| 14 | 724+44 to 725+96-L1- | ROADWAY FILL | | | | | | 0.100 | 0.007 | | | |
| | 724+48 to 724+73-L1-RT | 48" RCP OUTLET STABILIZATION | | | | | | 0.007 | | | | |
| | 17+51 to 18+26-Y31RPC- | ROADWAY FILL | | | | | | 0.035 | 0.006 | | | |
| | 17+57 to 17+87-Y31RPC- | 54" RCP OUTLET STABILIZATION | | | | | | 0.008 | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| TOTALS: | | | 2.318 | 0.110 | 0.078 | 0.211 | 0.020 | 1.284 | 0.020 | 348 | 26 | 0 |

NOTES:
Site 14: JS Non-Mitigable

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08-27-2021
PENDER COUNTY
R-3300B
40237.2.1

| WETLAND AND SURACE WATER IMPACTS SUMMARY | | | | | | | | | | | | |
|--|------------------------|------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| Site No. | Station (From/To) | Structure Size / Type | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 15 | 730+72 to 743+68-L1- | ROADWAY FILL | 4.898 | | 0.060 | 0.228 | | | | | | |
| | 15+72 to 22+37-SR7- | | 1.059 | | 0.014 | 0.193 | | | | | | |
| | 15+91 to 16+09-SR7-RT | 24" RCP OUTLET CHANNEL | | | 0.012 | | | | | | | |
| | | | | | | | | | | | | |
| 16 | 18+25 to 21+01 -Y31-RT | ROADWAY FILL | 0.066 | | | 0.009 | | | | | | |
| | 18+74 to 21+34-Y31DET- | | | 0.082 | | | 0.024 | | | | | |
| | | | | | | | | | | | | |
| 17 | 18+38 to 19+05-Y31-LT | ROADWAY FILL | 0.002 | | | 0.007 | | | | | | |
| | 26+86 to 28+87-SR7- | | 0.190 | | 0.030 | 0.022 | | | | | | |
| | | | | | | | | | | | | |
| 18 | 45+47 to 47+66-SR7- | ROADWAY FILL | 0.252 | | | 0.043 | | | | | | |
| | 766+70 to 769+26-L1- | | 0.534 | | | 0.020 | | | | | | |
| | | | | | | | | | | | | |
| 19 | 769+74 to 854+07-L1- | ROADWAY FILL | 25.219 | | 0.073 | 3.036 | | 0.254 | | 773 | | |
| | 48+38 to 56+57-SR7- | | 1.002 | | | 0.188 | | | | | | |
| | 7+45 to 16+31-Y32RPB1- | | 2.075 | | | 0.156 | | | | | | |
| | 18+01 to 22+37-Y32- | | 1.094 | | 0.054 | 0.002 | | 0.144 | | 484 | | |
| | 29+50 to 39+40-Y32- | | 4.455 | | 0.110 | 0.335 | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| TOTALS: | | | 40.846 | 0.082 | 0.353 | 4.239 | 0.024 | 0.398 | 0.000 | 1257 | 0 | 0 |

NOTES:
Site 20 Combined with Site 19.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08-27-2021
PENDER COUNTY
R-3300B
40237.2.1
SHEET 160 OF 162

| WETLAND AND SURFACE WATER IMPACTS SUMMARY | | | | | | | | | | | | |
|---|--------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| Site No. | Station (From/To) | Structure Size / Type | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 21 | 23+66 to 25+54-Y19- | ROADWAY FILL | 0.372 | | | 0.020 | | 0.014 | | 97 | | |
| | 25+09-Y19- | 1 AT 8'x6' RCBC | | | 0.013 | | | | | | | |
| | 24+82 to 25+32-Y19- | OUTLET CHANNEL | | | 0.033 | 0.010 | | | 0.009 | | 33 | |
| | | | | | | | | | | | | |
| 22 | 10+17 to 12+28-SR5- | ROADWAY FILL | 0.209 | | 0.002 | 0.009 | | 0.007 | | 163 | | |
| | | | | | | | | | | | | |
| 23 | 603+49 to 604+94-L1-RT | POND | | | | | | 0.279 | | | | |
| | | | | | | | | | | | | |
| 24 | 16+83 to 18+03-Y30DET-RT | ROADWAY FILL | | 0.013 | | | 0.012 | | | | | |
| | | | | | | | | | | | | |
| 25 | 46+69 to 46+76-Y31DET-RT | ROADWAY FILL | | | | | 0.001 | | | | | |
| | | | | | | | | | | | | |
| 26 | Y19 50+00 RT | Channel Realignment | | | | 0.005 | | 0.028 | | | | |
| | | | | | | | | | | | | |
| 27 | Y19 51+27 to 53+44 | Roadway Fill | | | | | | 0.117 | 0.046 | | | |
| | | | | | | | | | | | | |
| 28 | L 279+29 to 286+38 RT | Roadway Fill | 0.307 | | | 0.085 | | | | | | |
| | | | | | | | | | | | | |
| 29 | L 293+08 to 293+80 RT | Roadway Fill | 0.016 | | | 0.003 | | | | | | |
| | | | | | | | | | | | | |
| 30 | L 301+00 RT | Roadway Fill | 0.005 | | | 0.001 | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| TOTALS: | | | 0.909 | 0.013 | 0.048 | 0.133 | 0.013 | 0.445 | 0.055 | 260 | 33 | 0 |

NOTES:
Site 26: JS Non-Mitigable

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08-27-2021
PENDER COUNTY
R-3300B
40237.2.1
SHEET 161 OF 162

| WETLAND AND SURACE WATER IMPACTS SUMMARY | | | | | | | | | | | | |
|--|-----------------------|--------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| Site No. | Station (From/To) | Structure Size / Type | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 31 | LLT 320+33 LT | Channel Realignment (LT) | | | | | | 0.015 | | 47 | | |
| | LLT 320+33 RT | CL. B Rip Rap Pad | | | | | | 0.004 | 0.004 | 20 | 20 | |
| | LLT 320+33 RT | Channel Realignment (RT) | | | | | | 0.013 | 0.011 | 48 | 42 | |
| | | | | | | | | | | | | |
| 32 | 13+45 to 14+89-Y43-LT | DITCH | | | | 0.014 | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | TOTALS THIS SHEET | | 0.000 | 0.000 | 0.000 | 0.014 | 0.000 | 0.032 | 0.015 | 115 | 62 | 0 |
| | | | | | | | | | | | | |
| | TOTAL SHEET 157 | | 11.332 | 0.149 | 0.276 | 1.262 | 0.235 | 0.653 | 0.034 | 1078 | 251 | 0 |
| | TOTAL SHEET 158 | | 7.224 | 0.000 | 0.456 | 0.613 | 0.026 | 1.002 | 0.037 | 3112 | 144 | 0 |
| | TOTAL SHEET 159 | | 2.318 | 0.110 | 0.078 | 0.211 | 0.020 | 1.284 | 0.020 | 348 | 26 | 0 |
| | TOTAL SHEET 160 | | 40.846 | 0.082 | 0.353 | 4.239 | 0.024 | 0.398 | 0.000 | 1257 | 0 | 0 |
| | TOTAL SHEET 161 | | 0.909 | 0.013 | 0.048 | 0.133 | 0.013 | 0.445 | 0.055 | 260 | 33 | 0 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| TOTALS: | | | 62.629 | 0.354 | 1.211 | 6.472 | 0.318 | 3.814 | 0.161 | 6170 | 516 | 0 |

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08-27-2021
PENDER COUNTY
R-3300B
40237.2.1

SHEET162OF162