



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

September 3, 2013

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

ATTN: Mr. Eric Alsmeyer
NCDOT Division 5 Coordinator

SUBJECT: **Application for Section 404 Nationwide Permits 13, 23, and 33, Section 401 Water Quality Certification, and Tar-Pamlico Riparian Buffer Authorization** for the replacement of Bridge No. 53 over Sandy Creek on SR 1523 (Southerland Mill Road), Vance County, North Carolina. Federal Aid Project No. BRZ – 1523(6), TIP No. B-4827.

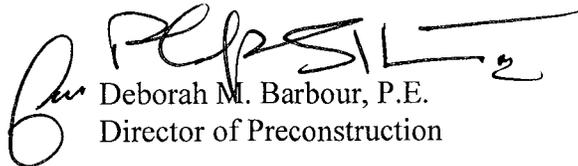
Debit \$240.00 from WBS Element No. 38597.1.1

Please find enclosed the Pre-construction Notification (PCN), U.S. Army Corps of Engineers (USACE) Jurisdictional Determination, U.S. Fish and Wildlife Service (USFWS) concurrence letter, N.C. Division of Water Resources (NCDWR; formerly Division of Water Quality [NCDWQ]) State Stormwater Permit, Stormwater Management Plan, permit drawings, buffer drawings, and roadway design plans for the subject project. A Programmatic Categorical Exclusion (PCE) was completed for this project in March 2012 and distributed shortly thereafter. Additional copies are available upon request.

The proposed let date for this project is February 18, 2014, with a let review date of December 31, 2013. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at: <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jim Mason at either jmason@ncdot.gov or (919) 707-6136.

Sincerely,



Deborah M. Barbour, P.E.
Director of Preconstruction

cc: NCDOT Permit Application Standard Distribution List

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100

FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

PHYSICAL ADDRESS:
Century Center - Building B
1020 Birch Ridge Dr
Raleigh, NC 27610-4328



Office Use Only:
 Corps action ID no. _____
 DWQ project no. _____
 Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

| | | |
|--|---|--|
| 1a. Type(s) of approval sought from the Corps: | <input checked="" type="checkbox"/> Section 404 Permit | <input type="checkbox"/> Section 10 Permit |
| 1b. Specify Nationwide Permit (NWP) number: 13 23 33 or General Permit (GP) number: | | |
| 1c. Has the NWP or GP number been verified by the Corps? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| 1d. Type(s) of approval sought from the DWQ (check all that apply): | | |
| <input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input checked="" type="checkbox"/> Riparian Buffer Authorization | | |
| 1e. Is this notification solely for the record because written approval is not required? | For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program. | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| 1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below. | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| 1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

2. Project Information

| | |
|--|--|
| 2a. Name of project: | Replacement of Bridge No. 53 over Sandy Creek on SR 1523 (Southerland Mill Rd) |
| 2b. County: | Vance |
| 2c. Nearest municipality / town: | Vicksboro |
| 2d. Subdivision name: | <i>not applicable</i> |
| 2e. NCDOT only, T.I.P. or state project no.: | B-4827 |

3. Owner Information

| | |
|--|---|
| 3a. Name(s) on Recorded Deed: | North Carolina Department of Transportation |
| 3b. Deed Book and Page No. | <i>not applicable</i> |
| 3c. Responsible Party (for LLC if applicable): | <i>not applicable</i> |
| 3d. Street address: | 1598 Mail Service Center |
| 3e. City, state, zip: | Raleigh, NC 27699-1598 |
| 3f. Telephone no.: | (919) 707-6136 |
| 3g. Fax no.: | (919) 212-5785 |
| 3h. Email address: | jsmason@ncdot.gov |

| | |
|---|---|
| 4. Applicant Information (if different from owner) | |
| 4a. Applicant is: | <input type="checkbox"/> Agent <input type="checkbox"/> Other, specify: |
| 4b. Name: | <i>not applicable</i> |
| 4c. Business name (if applicable): | |
| 4d. Street address: | |
| 4e. City, state, zip: | |
| 4f. Telephone no.: | |
| 4g. Fax no.: | |
| 4h. Email address: | |
| 5. Agent/Consultant Information (if applicable) | |
| 5a. Name: | <i>not applicable</i> |
| 5b. Business name (if applicable): | |
| 5c. Street address: | |
| 5d. City, state, zip: | |
| 5e. Telephone no.: | |
| 5f. Fax no.: | |
| 5g. Email address: | |

| B. Project Information and Prior Project History | |
|--|--|
| 1. Property Identification | |
| 1a. Property identification no. (tax PIN or parcel ID): | <i>not applicable</i> |
| 1b. Site coordinates (in decimal degrees): | Latitude: 36.2902 (DD.DDDDDD) Longitude: - 78.2909 (-DD.DDDDDD) |
| 1c. Property size: | 0.6 acres |
| 2. Surface Waters | |
| 2a. Name of nearest body of water (stream, river, etc.) to proposed project: | Sandy Creek |
| 2b. Water Quality Classification of nearest receiving water: | B NSW + |
| 2c. River basin: | Tar Pamlico |
| 3. Project Description | |
| 3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: SR 1523 is classified as a Rural Minor Collector. Land use within the vicinity includes Forested Land, Agriculture, Silviculture, and Low-Density Residential. | |
| 3b. List the total estimated acreage of all existing wetlands on the property: 0.01 acres | |
| 3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 273 linear feet | |
| 3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge. | |
| 3e. Describe the overall project in detail, including the type of equipment to be used: The project consists of replacing the existing six-span, 121-foot long bridge with a three-span, 142.5-foot bridge. The new structure will be constructed on the existing alignment. Traffic will be maintained via off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used. | |
| 4. Jurisdictional Determinations | |
| 4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: JD obtained 11/12/2009 (Action ID 2009-01485) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown |
| 4b. If the Corps made the jurisdictional determination, what type of determination was made? | <input checked="" type="checkbox"/> Preliminary <input type="checkbox"/> Final |
| 4c. If yes, who delineated the jurisdictional areas? Name (if known): Principal Investigator: Lindsey Riddick | Agency/Consultant Company: NCDOT Other: |
| 4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. November 12, 2009 | |
| 5. Project History | |
| 5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown |
| 5b. If yes, explain in detail according to "help file" instructions. | |
| 6. Future Project Plans | |
| 6a. Is this a phased project? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 6b. If yes, explain. | |

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

- Wetlands Streams - tributaries Buffers
 Open Waters Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

| 2a. Wetland impact number – Permanent (P) or Temporary (T) | 2b. Type of impact | 2c. Type of wetland (if known) | 2d. Forested | 2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other) | 2f. Area of impact (acres) |
|---|-----------------------|-----------------------------------|--|---|-------------------------------|
| Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T | Permanent Fill | Headwater Forest | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ | <0.01 |
| Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T | Temporary Fill | Headwater Forest | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ | <0.01 |
| Site <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Corps <input type="checkbox"/> DWQ | |
| Site <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Corps <input type="checkbox"/> DWQ | |
| Site <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Corps <input type="checkbox"/> DWQ | |
| Site <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Corps <input type="checkbox"/> DWQ | |
| 2g. Total wetland impacts | | | | | <0.01 Perm. <0.01 Temp. |

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

| 3a. Stream impact number - Permanent (P) or Temporary (T) | 3b. Type of impact | 3c. Stream name | 3d. Perennial (PER) or intermittent (INT)? | 3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other) | 3f. Average stream width (feet) | 3g. Impact length (linear feet) |
|---|--------------------------------------|-------------------------------|---|---|------------------------------------|------------------------------------|
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T | Bank Stabilization | Sandy Creek | <input checked="" type="checkbox"/> PER <input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ | 46 | 32 |
| Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T | Temp. Rock Causeway/ Bent Removal | Sandy Creek | <input checked="" type="checkbox"/> PER <input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ | 46 | 23 |
| Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T | Bank Stabilization | UT of Sandy Creek (Stream SA) | <input type="checkbox"/> PER <input checked="" type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ | 2-3 | 21 |
| Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T | Temporary Fill | UT of Sandy Creek (Stream SA) | <input type="checkbox"/> PER <input checked="" type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ | 2-3 | 6 |
| Site <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> PER <input type="checkbox"/> INT | <input type="checkbox"/> Corps <input type="checkbox"/> DWQ | | |
| Site <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> PER <input type="checkbox"/> INT | <input type="checkbox"/> Corps <input type="checkbox"/> DWQ | | |
| 3h. Total stream and tributary impacts | | | | | | 53 Perm 29 Temp |

| | | | | | | | | | |
|---|--|--------------------------------|--------|---|------------------------------|--------|-----------|-------------------------------|--|
| 3i. Comments: | | | | | | | | | |
| 4. Open Water Impacts | | | | | | | | | |
| If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below. | | | | | | | | | |
| 4a. Open water impact number – Permanent (P) or Temporary (T) | 4b. Name of waterbody (if applicable) | 4c. Type of impact | | | 4d. Waterbody type | | | 4e. Area of impact (acres) | |
| O1 <input type="checkbox"/> P <input type="checkbox"/> T | | | | | | | | | |
| O2 <input type="checkbox"/> P <input type="checkbox"/> T | | | | | | | | | |
| O3 <input type="checkbox"/> P <input type="checkbox"/> T | | | | | | | | | |
| O4 <input type="checkbox"/> P <input type="checkbox"/> T | | | | | | | | | |
| 4f. Total open water impacts | | | | | | | | 0 Permanent 0 Temporary | |
| 4g. Comments: | | | | | | | | | |
| 5. Pond or Lake Construction | | | | | | | | | |
| If pond or lake construction proposed, then complete the chart below. | | | | | | | | | |
| 5a. Pond ID number | 5b. Proposed use or purpose of pond | 5c. Wetland Impacts (acres) | | | 5d. Stream Impacts (feet) | | | 5e. Upland (acres) | |
| | | Flooded | Filled | Excavated | Flooded | Filled | Excavated | Flooded | |
| P1 | | | | | | | | | |
| P2 | | | | | | | | | |
| 5f. Total | | | | | | | | | |
| 5g. Comments: | | | | | | | | | |
| 5h. Is a dam high hazard permit required? | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, permit ID no: | | | | | |
| 5i. Expected pond surface area (acres): | | | | | | | | | |
| 5j. Size of pond watershed (acres): | | | | | | | | | |
| 5k. Method of construction: | | | | | | | | | |

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

| | | | | | |
|---|--------------------------|--------------------|--|---|------------------------------------|
| 6a. Project is in which protected basin? | | | <input type="checkbox"/> Neuse <input type="checkbox"/> Catawba | <input checked="" type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman | <input type="checkbox"/> Other: |
| 6b. Buffer impact number – Permanent (P) or Temporary (T) | 6c. Reason for impact | 6d. Stream name | 6e. Buffer mitigation required? | 6f. Zone 1 impact (square feet) | 6g. Zone 2 impact (square feet) |
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T | Bridge | Sandy Creek | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 3,221 | 1,049 |
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T | Road Crossing | Sandy Creek | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 0 | 144 |
| <input type="checkbox"/> P <input type="checkbox"/> T | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 6h. Total buffer impacts | | | | 3,221 | 1,193 |
| 6i. Comments: The UT of Sandy Creek (Stream SA) is not buffered | | | | | |

D. Impact Justification and Mitigation

1. Avoidance and Minimization

- 1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.
 An off-site detour will be employed; The new bridge will be longer than the existing; A special cut ditch will be installed from STA. -L- 17+00 to 18+00 LT; A lateral base ditch will be installed from STA. -L- 16+50 to 17+00 LT; Stormwater from the bridge deck will be collected via drop inlets, piped, and then treated through a Class B rip rap pad in the southwest quadrant of the project, outside of the riparian buffer.
- 1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.
 NCDOT Best Management Practices for Construction and Maintenance Activities will be implemented during the removal of the existing bridge; Best Management Practices for the Protection of Surface Waters will be employed; Due to the project being in a buffer basin, Design Standards in Sensitive Watersheds will be Employed.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

| | |
|--|--|
| 2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Permanent wetland impacts are minimal and permanent stream impacts are in the form of bank stabilization and are less than 150 lin. ft. along either stream |
| 2b. If yes, mitigation is required by (check all that apply): | <input type="checkbox"/> DWQ <input type="checkbox"/> Corps |
| 2c. If yes, which mitigation option will be used for this project? | <input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation |

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

| 3b. Credits Purchased (attach receipt and letter) | Type | Quantity |
|---|------|----------|
| 3c. Comments: | | |

4. Complete if Making a Payment to In-lieu Fee Program

| | |
|---|---|
| 4a. Approval letter from in-lieu fee program is attached. | <input type="checkbox"/> Yes |
| 4b. Stream mitigation requested: | linear feet |
| 4c. If using stream mitigation, stream temperature: | <input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold |
| 4d. Buffer mitigation requested (DWQ only): | 0 square feet |
| 4e. Riparian wetland mitigation requested: | 0 acres |
| 4f. Non-riparian wetland mitigation requested: | 0 acres |
| 4g. Coastal (tidal) wetland mitigation requested: | 0 acres |
| 4h. Comments: | |

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation? Yes No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

| Zone | 6c. Reason for impact | 6d. Total impact (square feet) | Multiplier | 6e. Required mitigation (square feet) |
|--|--------------------------|--------------------------------------|-------------------|---|
| Zone 1 | | | 3 (2 for Catawba) | |
| Zone 2 | | | 1.5 | |
| 6f. Total buffer mitigation required: | | | | 0 |

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

| E. Stormwater Management and Diffuse Flow Plan (required by DWQ) | |
|--|--|
| 1. Diffuse Flow Plan | |
| 1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: See attached buffer permit drawings. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. Stormwater Management Plan | |
| 2a. What is the overall percent imperviousness of this project? | N/A |
| 2b. Does this project require a Stormwater Management Plan? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2c. If this project DOES NOT require a Stormwater Management Plan, explain why: | |
| 2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings. | |
| 2e. Who will be responsible for the review of the Stormwater Management Plan? | <input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> DWQ 401 Unit |
| 3. Certified Local Government Stormwater Review | |
| 3a. In which local government's jurisdiction is this project? | not applicable |
| 3b. Which of the following locally-implemented stormwater management programs apply (check all that apply): | <input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other: |
| 3c. Has the approved Stormwater Management Plan with proof of approval been attached? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 4. DWQ Stormwater Program Review | |
| 4a. Which of the following state-implemented stormwater management programs apply (check all that apply): | <input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input checked="" type="checkbox"/> Other: B NSW +; upstream of ORW waters |
| 4b. Has the approved Stormwater Management Plan with proof of approval been attached? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 5. DWQ 401 Unit Stormwater Review | |
| 5a. Does the Stormwater Management Plan meet the appropriate requirements? | <input type="checkbox"/> Yes <input type="checkbox"/> No N/A |
| 5b. Have all of the 401 Unit submittal requirements been met? | <input type="checkbox"/> Yes <input type="checkbox"/> No N/A |

| F. Supplementary Information | |
|--|--|
| 1. Environmental Documentation (DWQ Requirement) | |
| 1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. Violations (DWQ Requirement) | |
| 2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 2b. Is this an after-the-fact permit application? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s): | |
| 3. Cumulative Impacts (DWQ Requirement) | |
| 3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary. | |
| 4. Sewage Disposal (DWQ Requirement) | |
| 4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable | |

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat?

Yes No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts?

Yes No

5c. If yes, indicate the USFWS Field Office you have contacted.

Raleigh
 Asheville

5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat?

NC Natural Heritage Program data, USFWS website, NCDOT field surveys. USFWS concurrence received June 5, 2013 (see attached letter).

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as essential fish habitat?

Yes No

6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat?

NMFS County Index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?

Yes No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources?

NEPA Documentation

8. Flood Zone Designation (Corps Requirement)

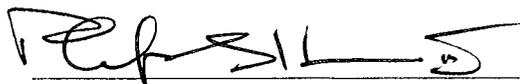
8a. Will this project occur in a FEMA-designated 100-year floodplain?

Yes No

8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA

8c. What source(s) did you use to make the floodplain determination? FEMA Maps

 Deborah M. Barbour, P.E.,
Director of Preconstruction
Applicant/Agent's Printed Name


Applicant/Agent's Signature
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

09/03/2013
Date

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action ID. 2009-01485

County: Vance and Warren U.S.G.S. Quad: Vicksboro

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: NCDOT; Division of Highways
Address: ATTN: Gregory J. Thorpe, Ph.D
1598 Mail Service Center
Raleigh, North Carolina 27699-1598
Telephone No.: (919) 431-6602 (Lindsey Riddick)

Property description: **Study area for TIP #B-4827; On SR 1523 (Southerland Mill Road), BR 53 over Sandy Creek, southeast of Henderson, NC.**

| | | | |
|------------------|--------------------|--------------|------------------------------------|
| Size (acres) | <u>N/A</u> | Nearest Town | <u>Henderson</u> |
| Nearest Waterway | <u>Sandy Creek</u> | River Basin | <u>Tar</u> |
| USGS HUC | <u>03020101</u> | Coordinates | N <u>36.9202</u> W <u>-78.2909</u> |

Preliminary Determination

- Based on preliminary information, there may be waters of the U.S. including wetlands on the above described project area. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).
- The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact Eric Alsmeyer at 919-554-4884, Ext. 23.

Remarks

9/15/2009 field inspection. The drawing, T.I.P. No. B-4827, Figure 3 (copy att.), submitted on 7/27/20098, generally depicts the aquatic features of the US within the subject study area.

Corps Regulatory Official  Date: **11/12/2009** Determination Expiration Date: **11/12/2014**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at <http://regulatory.usacesurvey.com/> to complete the survey online.

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 11/12/2009

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Lindsey Riddick
NCDOT
1598 Mail Service Center
Raleigh, NC 27699-1598

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: CESA-W-RG-R;
NCDOT/B-4827/SR1523/Southern Mill Rd/BR53/2009-01485

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
B-4827, SR 1523 over Sandy Creek, Vance & Warren Counties

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: North Carolina County/parish/borough: Vance & Warren City:
Henderson

Center coordinates of site (lat/long in degree decimal format):
Lat. 36.290216 ° N, Long. -78.290913 ° W.
Universal Transverse Mercator: zone 17
Name of nearest waterbody: Sandy Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 640' linear feet: varies width (ft) and/or
acres.

Cowardin Class: PFO1

Stream Flow: intermittent and perennial

Wetlands: 0.17 acres.

Cowardin Class: Forested

Name of any water bodies on the site that have been identified as Section 10
waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): 9/15/2009

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report.

Data sheets prepared by the Corps:

Corps navigable waters' study:

U.S. Geological Survey Hydrologic Atlas:

USGS NHD data.

USGS 8 and 12 digit HUC maps.

U.S. Geological Survey map(s). Cite scale & quad name:1:24000; .

USDA Natural Resources Conservation Service Soil Survey.

Citation:

National wetlands inventory map(s). Cite name:SAW shapefile.

State/Local wetland inventory map(s):

FEMA/FIRM maps:

100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

Photographs: Aerial (Name & Date):
or Other (Name & Date):

Previous determination(s). File no. and date of response letter:

Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Erin C. Kelly 11/17/2009

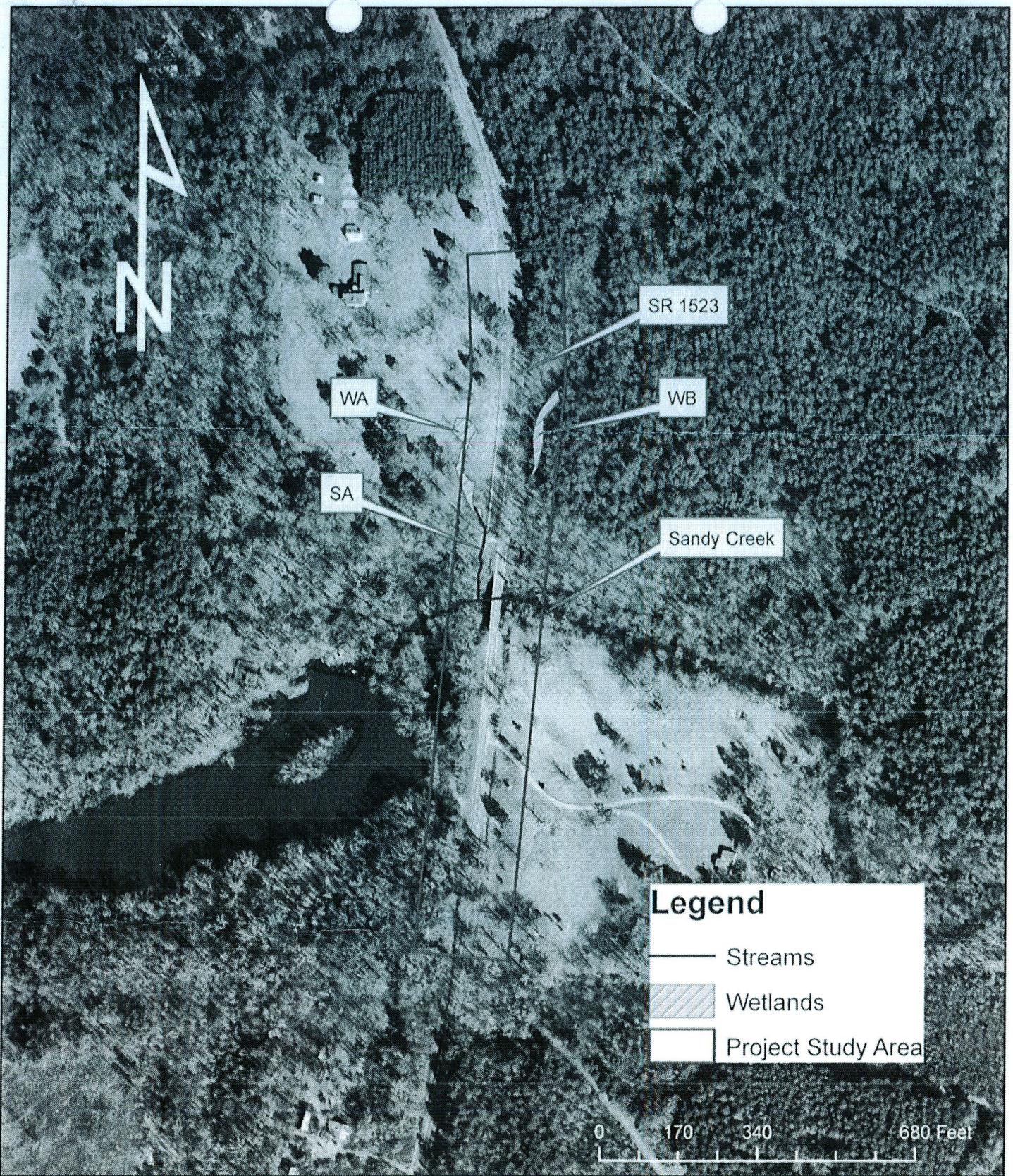
Signature and date of
Regulatory Project Manager
(REQUIRED)

7/27/09
Thomas J. [Signature]

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

| Site number | Latitude | Longitude | Cowardin Class | Estimated amount of aquatic resource in review area | Class of aquatic resource |
|--------------------|-----------------|------------------|-----------------------|--|---|
| SA | 36.290486 | -78.291042 | | 200' | Intermittent stream upstream of driveway pipe, perennial downstream |
| WA | 36.290992 | -78.291199 | | 0.10 ac | Headwater forest wetland |
| WB* | 36.291152 | -78.290613 | | 0.07 ac | Headwater forest wetland |
| Sandy Creek | 36.290240 | -78.290913 | | 200 | Perennial stream |
| | | | | | |

* WB is connected to Sandy creek by a non-404-jurisdictional discrete surface drainage feature.



NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL ANALYSIS

T.I.P. No. B-4827
 Replacement of Bridge No. 53
 over Sandy Creek on SR 1523
 WBS Element 38597.1.1
 Vance and Warren Counties

Figure 3



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

June 5, 2013

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of May 22, 2013 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation that the replacement of Bridge No. 53 on SR 1523 (County Line Road) over Sandy Creek in Vance/Warren County (TIP No. B-4827) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmodonta heterodon*) and Tar River spiny mussel (*Elliptio steinstansana*). These comments are provided in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

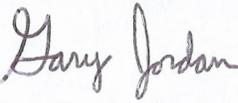
The Service previously provided concurrence with this biological conclusion with a letter dated November 9, 2009. However, detailed project designs were not available at the time. Since then, project design has been completed, and it has been determined that additional impacts may occur with a temporary causeway, with interior bent removal, and from permanent bank stabilization.

According to information provided, mussel surveys were conducted at the project site on June 25, 2009 and April 19, 2013. The 2009 survey extended 100 meters upstream and 400 meters downstream of SR 1523, and the 2013 survey extended 100 meters upstream and 200 meters downstream of SR 1523. Neither of the federally listed species was found, but good quality habitat for the two species was present. In the 2009 survey, the Tar River spiny mussel species associate Atlantic pigtoe (*Fusconaia masoni*) was observed. The nearest known occurrence of either listed species is a record for the Tar River spiny mussel approximately 25 km downstream.

Based on the mussel survey results and other available information, the Service concurs with your determination that the proposed project may affect, but is not likely to adversely affect the dwarf wedgemussel and Tar River spiny mussel. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,


for Pete Benjamin
Field Supervisor

Electronic copy: Eric Alsmeyer, USACE, Wake Forest, NC
Travis Wilson, NCWRC, Creedmoor, NC
Felix Davila, FHWA, Raleigh, NC
Jim Mason, NCDOT, Raleigh, NC

MWC



North Carolina Department of Environment and Natural Resources

Division of Water Quality

Pat McCrory
Governor

Thomas A. Reeder
Acting Director

John E. Skvarla, III
Secretary

June 26, 2013

David S. Chang, Ph.D., P.E.
State Hydraulics Engineer
1590 Mail Service Center
Raleigh NC 27699-1590

RECEIVED
JUN 28 2013

SUBJECT: Permit No. SW5130502
B-4827 Bridge Replacement
Southerland Mill Rd (SR1523)
Stormwater Project – Sandy Creek
Vance County

DIVISION OF HIGHWAYS
HYDRAULICS UNIT

Mr. Chang:

The Raleigh Regional Office received the Stormwater Application for the Replacement of Bridge No. 53 on SR 1523 in Vance County on May 1, 2013 with additional information dated received May 17, 2013. Staff review of the plans and specifications has determined that the project, as proposed, will comply with the Stormwater Regulations set forth in Title 15A NCAC 2H.1000. We are forwarding Permit No. SW5130502, dated June 26, 2013, to you.

This permit shall be effective from the date of issuance until rescinded and shall be subject to the conditions and limitations as specified herein.

If any parts, requirements or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within thirty (30) days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made this permit shall be final and binding.

If you have any questions, or need additional information concerning this matter, please contact me at (919) 791-4252.

Sincerely,

S. Daniel Smith, Supervisor
Raleigh Regional Office
Surface Water Protection Section

cc: Transportation Permitting Unit
RRO-file



North Carolina Department of Environment and Natural Resources
Division of Water Quality

Pat McCrory
Governor

Thomas A. Reeder
Acting Director

John E. Skvarla, III
Secretary

STATE STORMWATER MANAGEMENT PERMIT

OTHER DEVELOPMENT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRANTED TO

NCDOT Hydraulics Unit

Replace Bridge no. 53 (TIP B-4827)

SR 1523, Vance County

FOR THE

construction, operation and maintenance of a 21,344.4 square feet (0.49 acres) of impervious surface with an increase of 3049.2 square feet (0.07 acres) of bridge and roadway in compliance with the provisions of 15A NCAC 2H .1000 and S.L. 2006-246 (hereafter referred to as the "*stormwater rules*") and the approved stormwater management plans and specifications, and other supporting data as attached and on file with and approved by the Division of Water Quality and considered a part of this permit.

The Permit shall be effective from the date of issuance until rescinded and shall be subject to the following specific conditions and limitations:

I. DESIGN STANDARDS

1. This permit covers the construction of 21,344.4 square feet (0.49 acres) of built-upon area for bridge and roadway.
2. Approved plans and specifications for projects covered by this permit are incorporated by reference and are enforceable parts of the permit.
3. The only runoff conveyance systems allowed are: 1) deck drains and rip rap pads (rip rap pads are to be installed outside of the riparian buffer), 2) for the northwest quadrant a ditch with Class '1' rip rap (due to steep slopes), and 3) vegetated conveyances such as swales with minimum side slopes of 3:1 (H:V) to the maximum extent practical as defined in the stormwater rules and approved by the Division.
4. All swales shall that discharge into a wetland shall do so at a non-erosive velocity for the 10 year storm.

II. SCHEDULE OF COMPLIANCE

1. The permittee is responsible for verifying that the proposed built-upon area does not exceed the allowable built-upon area.

2. The Director may notify the permittee when the permitted site does not meet one or more of the minimum requirements of the permit. Within the time frame specified in the notice, the permittee shall submit a written time schedule to the Director for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the Director that the changes have been made.
3. This project may not be sold or subdivided in whole or in part without first receiving a permit modification from the Division.
4. Filling in or piping of any vegetative conveyances (ditches, swales, etc.) associated with the permitted development, except for average driveway crossings, is strictly prohibited by any persons.
5. The permittee shall submit to the Director and shall have received approval for revised plans, specifications, and calculations prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:
 - a. Any revision to the approved plans, regardless of size.
 - b. Project name change.
 - c. Transfer of ownership.
 - d. Redesign or addition to the approved amount of built-upon area.
 - e. Further subdivision, acquisition, or sale of the project area in whole or in part. The project area is defined as all property owned by the permittee, for which Sedimentation and Erosion Control Plan approval was sought.
 - f. Filling in, altering or piping any vegetative conveyance shown on the approved plan.
8. Swales and other vegetated conveyances shall be constructed as proposed in the permit application dated received February 26, 2013 with additional information dated received March 4, 2013, and be operational for their intended use prior to the construction of any built-upon surface.
9. During construction, erosion shall be kept to a minimum and any eroded areas of the swales or other vegetated conveyances will be repaired immediately.
10. The permittee shall at all times provide the operation and maintenance necessary to operate the permitted stormwater management systems at optimum efficiency to include:
 - a. Inspections
 - b. Sediment removal.
 - c. Mowing, and re-vegetating of the side slopes.
 - d. Immediate repair of eroded areas.
 - e. Maintenance of side slopes in accordance with approved plans and specifications.
11. Within 30 days of completion of the project, the permittee shall certify in writing that the project has been constructed in accordance with the approved plans.

12. The permittee shall submit all information requested by the Director or his representative within the time frame specified in the written information request.

III. GENERAL CONDITIONS

1. This permit is not transferable to any person or entity except after notice to and approval by the Director. The Director may require modification or revocation and re-issuance of the permit to change the name and incorporate such other requirements as may be necessary. In the event of a name or ownership change, a completed Name/Ownership Change form, signed by both parties, must be submitted to the Division of Water Quality accompanied by the supporting documentation as listed on page 2 of the form. The approval of this request will be considered on its merits, and may or may not be approved.
2. The permittee is responsible for compliance with all permit conditions until the Director approves a transfer of ownership. Neither the sale of the project nor the transfer of common areas to a third party, such as a homeowner's association, constitutes an approved transfer of the stormwater permit.
3. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to an enforcement action by the Division of Water Quality, in accordance with North Carolina General Statutes 143-215.6A to 143-215.6C.
4. The issuance of this permit does not prohibit the Director from reopening and modifying the permit, revoking and reissuing the permit, or terminating the permit as allowed by the laws, rules, and regulations contained in Session Law 2006-246, Title 15A of the North Carolina Administrative Code, Subchapter 2H.1000; and North Carolina General Statute 143-215.1 et. al.
5. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by the Division, such as the construction of additional or replacement stormwater management systems.
6. The permittee grants permission to DENR Staff to enter the property during normal business hours, for the purpose of inspecting all components of the stormwater management facility.
7. The permit issued shall continue in force and effect until revoked or terminated. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and re-issuance, or termination does not stay any permit condition.
8. Unless specified elsewhere, permanent seeding requirements for the swales must follow the guidelines established in the North Carolina Department of Transportation's BMP Manual.
9. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of the permit.
10. The issuance of this permit does not preclude the Permittee from complying with

SW5130502

11. any and all statutes, rules, regulations, or ordinances, which may be imposed by other government agencies (local, state and federal), which have jurisdiction.
12. The permittee shall notify the Division in writing of any name, ownership or mailing address changes at least 30 days prior to making such changes.

Permit issued this the 26th day of June, 2013.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION



for Thomas A. Reeder, Acting Director
Division of Water Quality
By Authority of the Environmental Management Commission



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



(Version 1.2; Released July 2012)

Project/TIP No.: B-4827 **County(ies):** Vance **Page** 1 **of** 3

General Project Information

| | | | | | |
|---|---|--|--|--------------|-----------|
| Project No.: | B-4827 | Project Type: | Bridge Replacement | Date: | 8/19/2013 |
| NCDOT Contact: | Marshall Clawson, PE | Contractor / Designer: | HDR Engineering - James Rice, PE | | |
| Address: | 1591 Mail Service Center Raleigh, NC 27699 | Address: | 3733 National Dr Suite 207 Raleigh, NC 27612 | | |
| Phone: | (919) 707-6713 | Phone: | (919) 232-6621 | | |
| Email: | mclawson@ncdot.gov | Email: | james.rice@hdrinc.com | | |
| City/Town: | Henderson | County(ies): | Vance | | |
| River Basin(s): | Tar-Pamlico | CAMA County? | No | | |
| Primary Receiving Water: | Sandy Creek | NCDWQ Stream Index No.: | 28-78-1-(8) | | |
| NCDWQ Surface Water Classification for Primary Receiving Water | Primary: Class B | Supplemental: Nutrient Sensitive Waters (NSW) | special management strategy ORW r | | |
| Other Stream Classification: | None | | | | |
| 303(d) Impairments: | None | | | | |
| Buffer Rules in Effect | Tar-Pamlico | | | | |

Project Description

| | | | | | |
|---|--|------------------------------|---------------------------------------|--|--|
| Project Length (lin. Miles or feet): | .123 miles | Surrounding Land Use: | Residential / Woods | | |
| | Proposed Project | | Existing Site | | |
| Project Built-Upon Area (ac.) | 0.49 ac. | | 0.42 ac. | | |
| Typical Cross Section Description: | (2) 11 foot lanes with a 1' paved shoulder | | (2) 8' lanes with 3' unpaved shoulder | | |
| Average Daily Traffic (veh/hr/day): | Design/Future: 2200 | Existing: | 1100 | | |

General Project Narrative:

For this project (B-4827) the existing 121 foot long 6-span bridge with a 140 foot long 3-span 33' wide cored slab bridge. The approach lanes will be widened from 8' to 11'. Deck drains will be required on both sides of the proposed bridge, but no drains will discharge over open water. Several options were considered for the treatment of stormwater before entering the buffers. The driving factor for stormwater treatment on the project is the jurisdictional stream in the Northwest quadrant which limits the available stormwater features that can be utilized. The following options were considered/incorporated into the design:

- Grass Swales – The majority of this project will be in fill except for one ditch in the Northwest quadrant that ties to the jurisdictional stream. This ditch will be far too steep to attain non-erosive velocities and will require class 'I' rip rap.
- Level Spreader – the terrain is too steep to allow for a level spreader before tying into the jurisdictional stream in the Northwest quadrant. With the incorporation of deck drains, there is only 0.1 cfs of discharge coming from the structures on the south side of the bridge. This small amount of water does not require the use of a level spreader, so a rip rap pad will be utilized. The rip rap pad will be installed outside the buffer area.
- Pre-formed Scour Hole (PSH) –With the incorporation of deck drains, there is only 0.1 cfs of discharge coming from the structures on the south side of the bridge. This small amount of water does not require the use of a PSH, so a rip rap pad will be utilized. The rip rap pad will be installed outside the buffer area.
- Reduce Direct Discharge into open water - The existing bridge has open rails that discharge the deck drainage directly into the water. With the added deck drains, no water will be dropping directly into the stream and will be discharged on the overbanks onto Class 'II' rip rap.

Reduce erosion from deck drains -Class 'II' rip rap will be placed on the overbanks under the entire bridge except for a 10' section for animal passage at the top of bank. This rock will help dissipate the energy of the water discharging from the deck drains.

References

| | | | |
|-----------------|-----------------------------|--------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | B-4827 | 1 | |
| STATE PROJ. NO. | P.A. PROJ. NO. | DESCRIPTION | |
| 38597.1.1 | BRZ-1523(6) | P.E. | |
| 38597.2.1 | BRZ-1523(6) | ROW & UTIL | |
| 38597.3.1 | BRZ-1523(6) | CONSTRUCTION | |



PERMIT DRAWING
SHEET 1 OF 5

B-4827 WETLAND
STREAM IMPACTS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

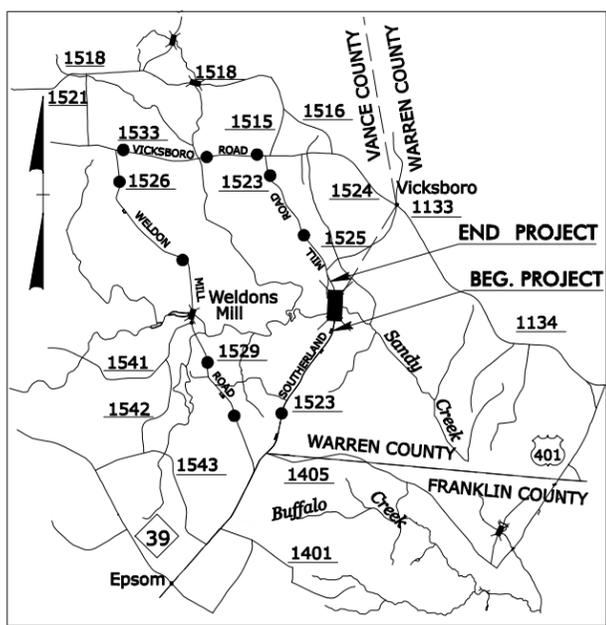
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE COUNTY

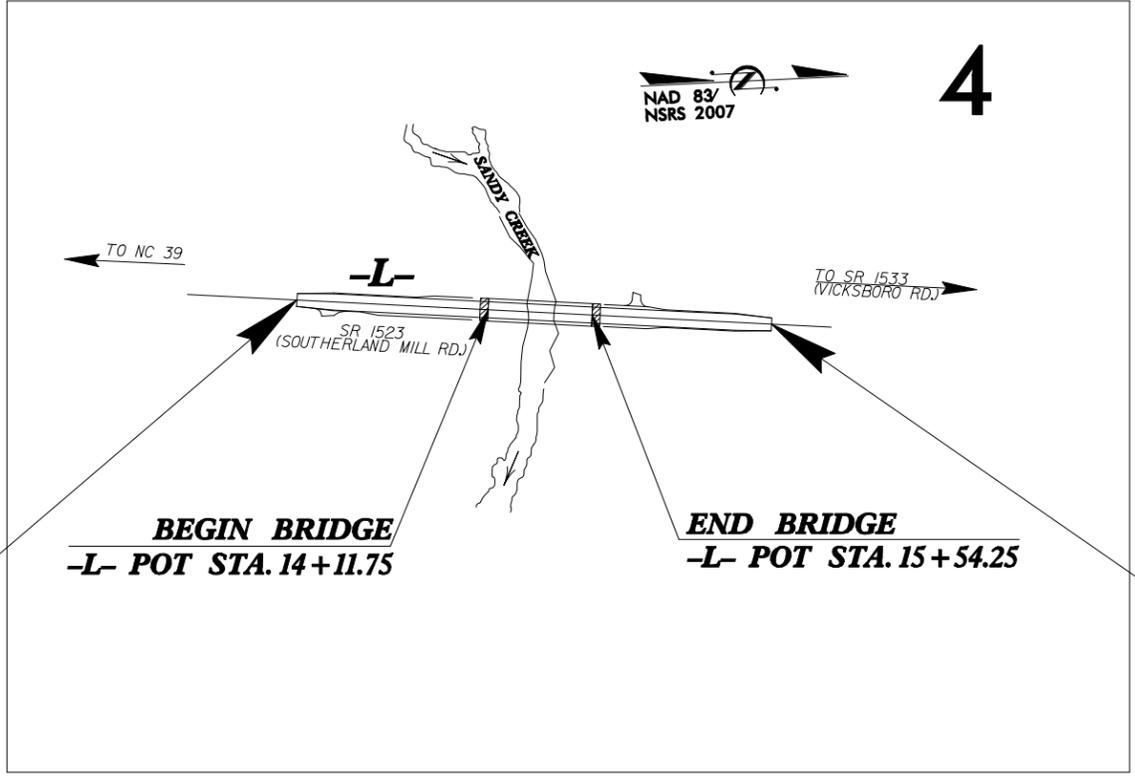
LOCATION: BRIDGE NO. 53 OVER SANDY CREEK
ON SR 1523 (SOUTHERLAND MILL RD.)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbology



VICINITY MAP SHOWING LOCATION OF PROJECT B-4827
●—● OFFSITE DETOUR



BEGIN TIP PROJECT B-4827
-L- POT STA. 11+50.00

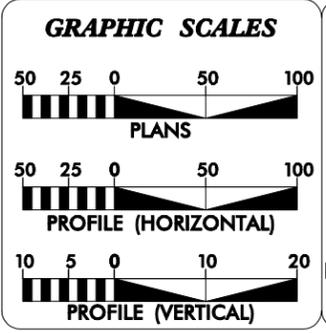
END TIP PROJECT B-4827
-L- POT STA. 18+00.00

THIS PROJECT WAS DESIGNED USING
THE SUB REGIONAL TIER DESIGN GUIDELINES
FOR BRIDGE PROJECTS

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

TIP PROJECT: B-4827

CONTRACT:



DESIGN DATA

| | |
|-----------------------|-----------------|
| ADT 2013 = | 1,024 |
| ADT 2033 = | 1,639 |
| DHV = | 11 % |
| D = | 55 % |
| T = | 8 % * |
| V = | 50 MPH |
| * (TTST 2% + DUAL 6%) | |
| FUNC CLASS = | RURAL COLLECTOR |

PROJECT LENGTH

| | | |
|-------------------------------------|---|-------------|
| LENGTH ROADWAY TIP PROJECT B-4827 | = | 0.096 MILES |
| LENGTH STRUCTURE TIP PROJECT B-4827 | = | 0.027 MILES |
| TOTAL LENGTH TIP PROJECT B-4827 | = | 0.123 MILES |

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 18, 2012

LETTING DATE:
FEBRUARY 18, 2014

TONY HOUSER, PE
PROJECT ENGINEER

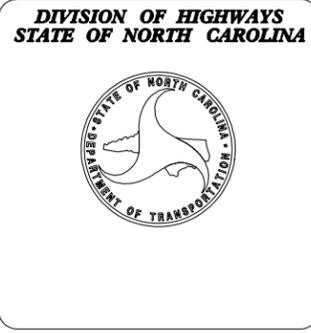
LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



09/06/99
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DCN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

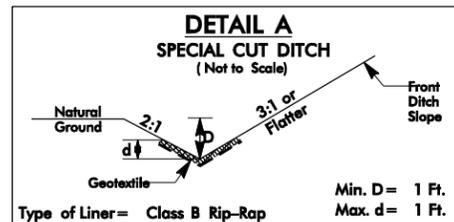
| | |
|--|---------------------|
| PROJECT REFERENCE NO. B-4827 | SHEET NO. 4 |
| R/W SHEET NO. 4 | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
| HDR HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | |

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

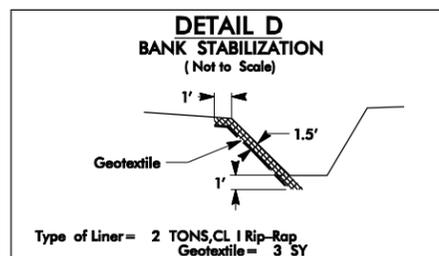
DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER



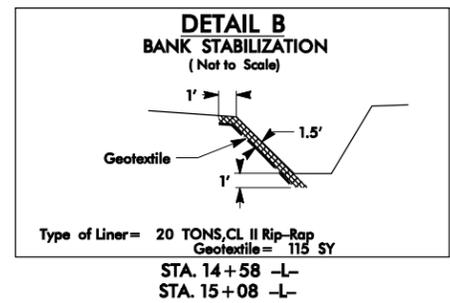
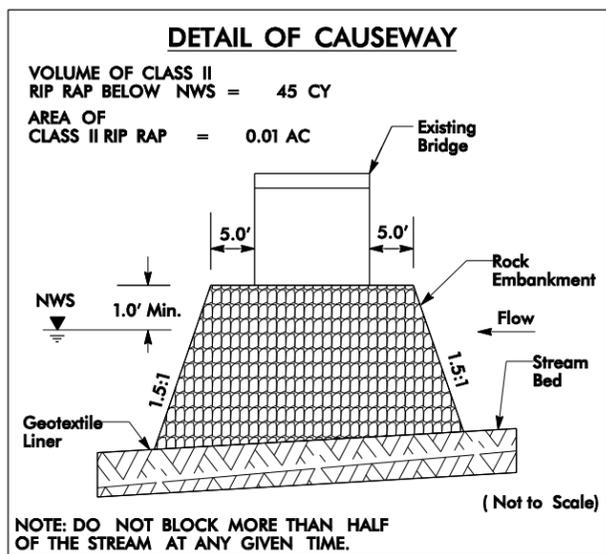
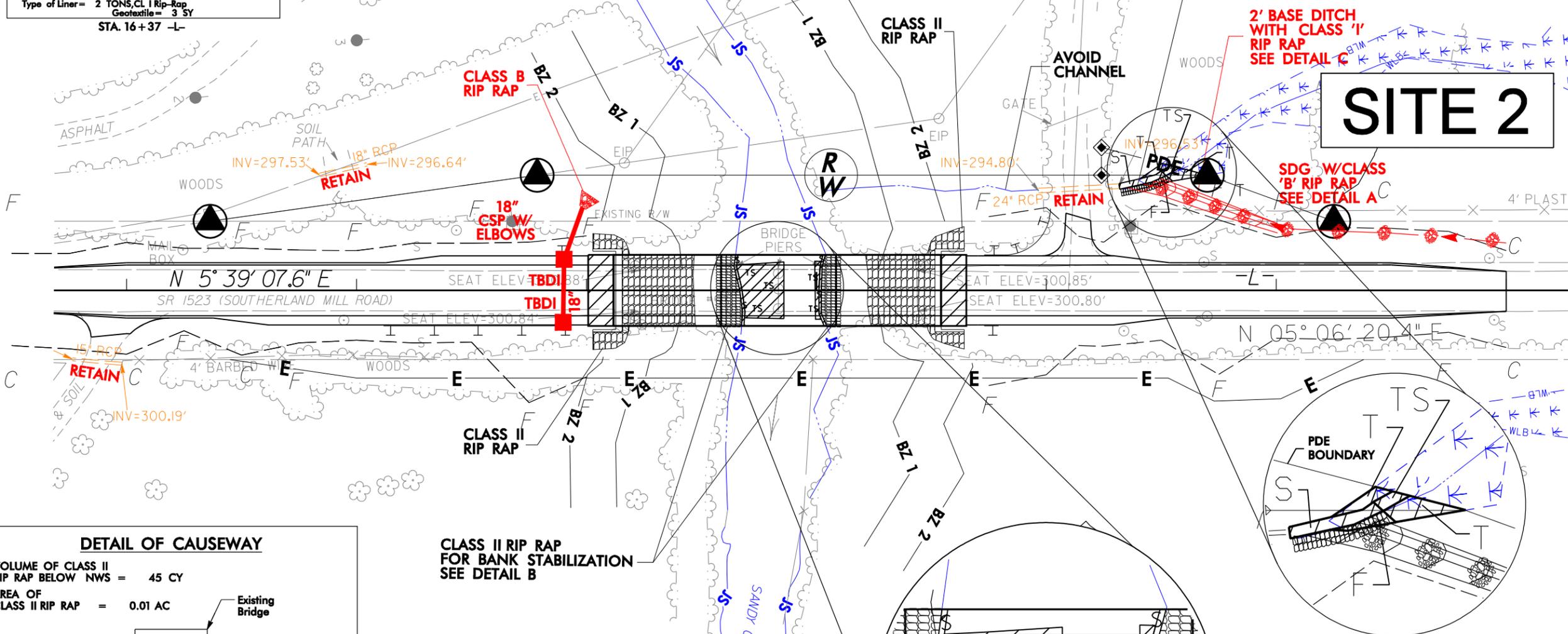
NAD 83/NSRS 2007



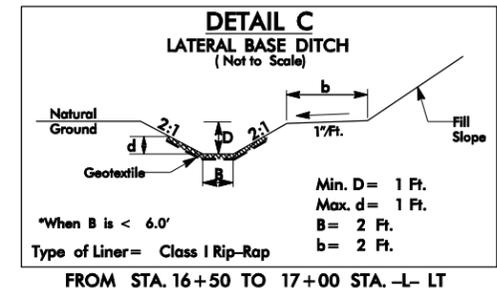
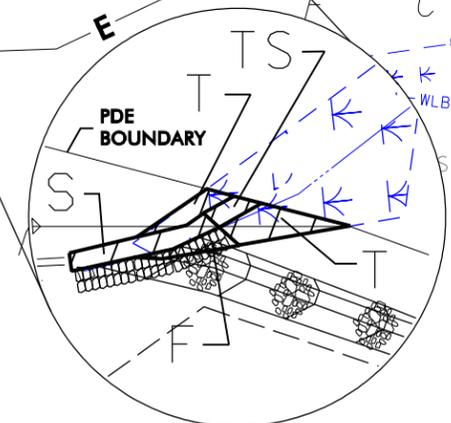
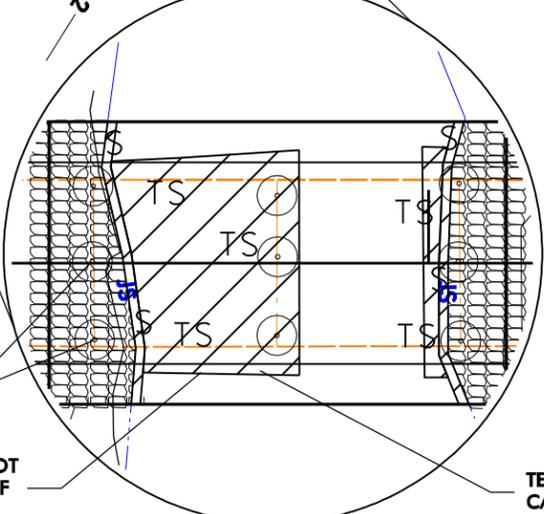
SITE 1

CLASS I RIP RAP FOR BANK STABILIZATION SEE DETAIL D

PERMIT DRAWING SHEET 2 OF 5



OLD WOOD AND CONCRETE PILINGS TO BE REMOVED
TEMPORARY CAUSEWAY WILL NOT OBSTRUCT MORE THAN 50% OF STREAM CROSSING



REVISIONS

8/17/99

8/26/2017 HYD_PRRM_PSH.dgn

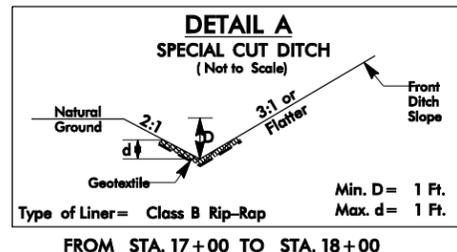
| | |
|--|---------------------|
| PROJECT REFERENCE NO. B-4827 | SHEET NO. 4 |
| R/W SHEET NO. 4 | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
| HDR HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | |

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

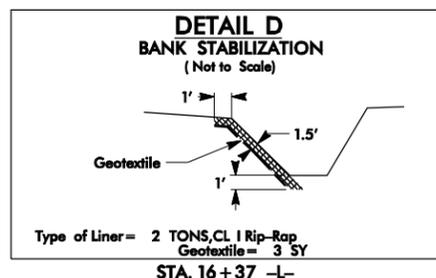
DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER



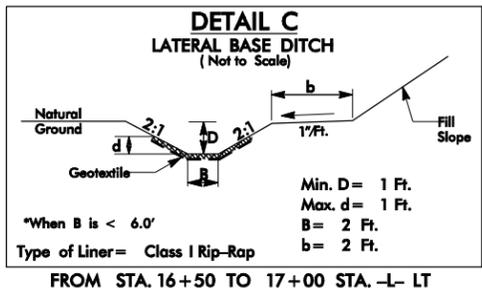
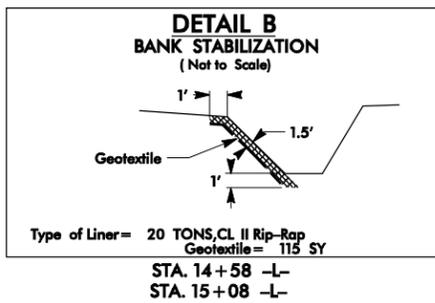
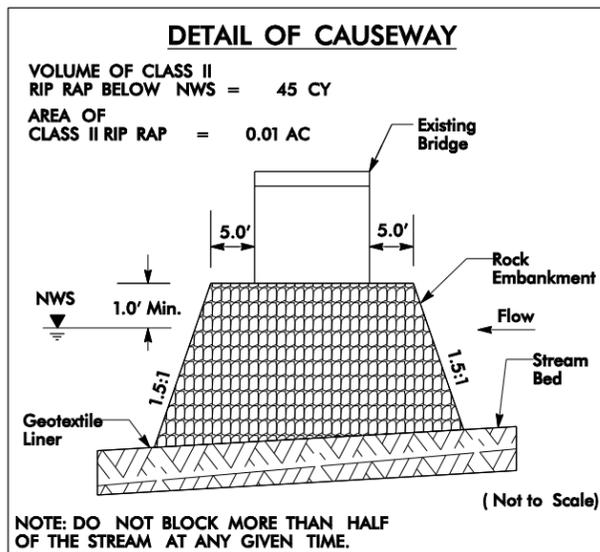
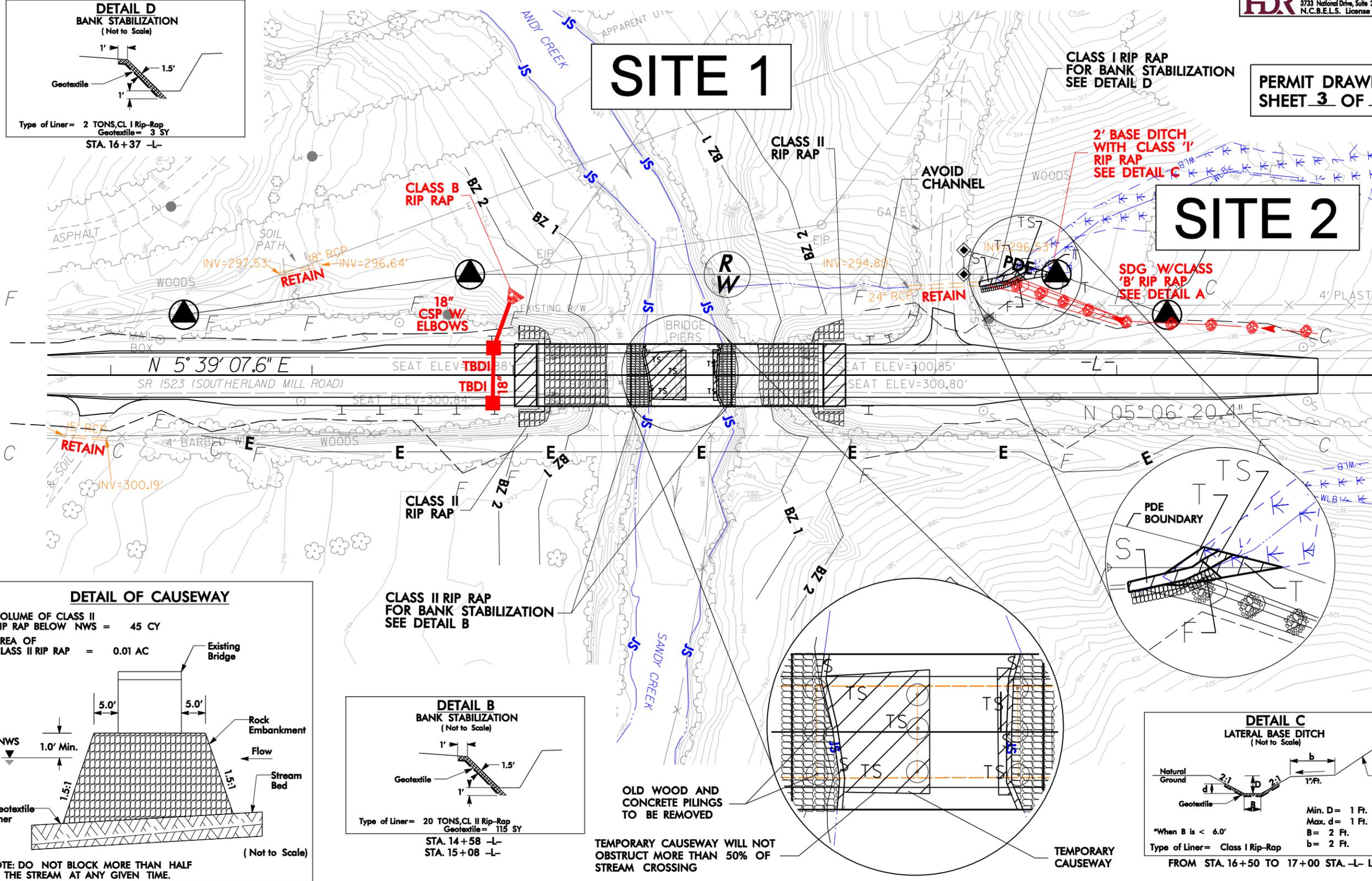
NAD 83/NSRS 2007



SITE 1

SITE 2

PERMIT DRAWING
SHEET 3 OF 5



REVISIONS

8/17/99
8/26/2017 HYD. PRM. PSH.dgn
10/16/13

5/14/99

| | |
|--|---------------------|
| PROJECT REFERENCE NO. B-4827 | SHEET NO. 5 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

**PERMIT DRAWING
SHEET 4 OF 5**

BM 1
ELEV. = 304.60'
N = 924,735 E = 2,208,767
-BL- STA. 34+08.37 185.62' LT
SURVEY BENCH TIE NAIL IN
BASE OF 18" MAPLE

BM 2
ELEV. = 294.78'
N = 925,224 E = 2,209,609
-L- STA. 14+21.86 89.92' RT
-BL- STA. 39+35.33 74.45' RT
SURVEY BENCH TIE NAIL IN
BASE OF 17" HICKORY

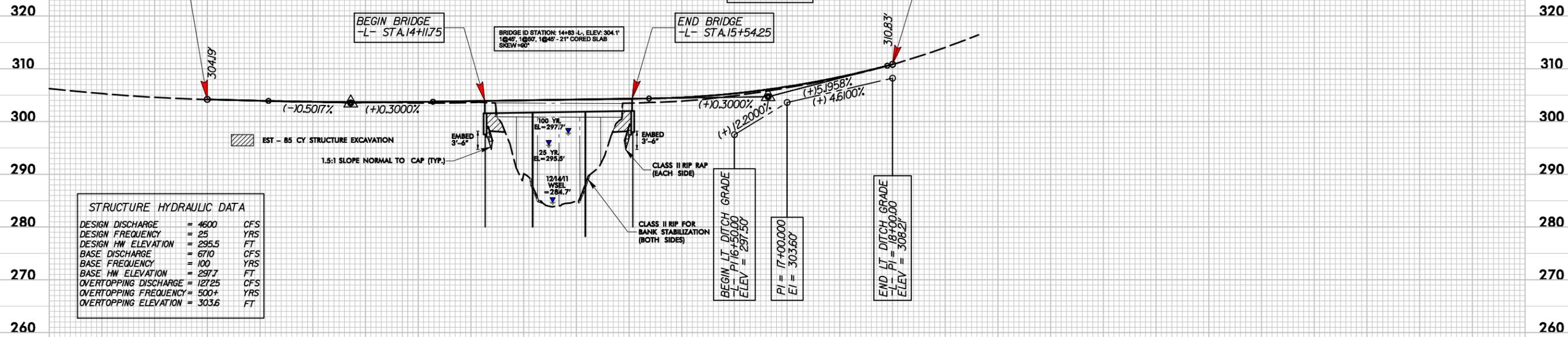
BM 3
ELEV. = 328.60'
N = 925,818 E = 2,209,117
-BL- STA. 45+32.06 69.02' RT
SURVEY BENCH TIE NAIL IN
BASE OF 17" PINE

BEGIN GRADE
-L- STA. 11+50.00
EL = 304.19'
MATCH EXISTING

PI = 12+86.00
EL = 303.51'
VC = 156'
K = 195
DS = 70 MPH

PI = 16+82.00
EL = 304.70'
VC = 226'
K = 46
DS = 30 MPH

END GRADE
-L- STA. 18+00.00
EL = 310.83'
MATCH EXISTING



STRUCTURE HYDRAULIC DATA

| | | |
|-----------------------|---------|-----|
| DESIGN DISCHARGE | = 4600 | CFS |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN HW ELEVATION | = 295.5 | FT |
| BASE DISCHARGE | = 670 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 297.7 | FT |
| OVERTOPPING DISCHARGE | = 12725 | CFS |
| OVERTOPPING FREQUENCY | = 500+ | YRS |
| OVERTOPPING ELEVATION | = 303.6 | FT |

BEGIN BRIDGE
-L- STA. 14+11.75

BRIDGE ID STATION: 14+83 L., ELEV. 304.1'
1@45', 1@50', 1@45' - 21" CORED SLAB
SKEW = 60°

END BRIDGE
-L- STA. 15+54.25

BEGIN LT DITCH GRADE
-L- PI 16+50.00
ELEV = 297.50'

PI = 17+00.000
ELEV = 303.60'

END LT DITCH GRADE
-L- PI 18+00.00
ELEV = 308.21'

10:50:39 AM
D:\887\Rail\p1.psh.dgn
baterf

| | | | |
|-----------------|-----------------------------|--------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | B-4827 | 1 | |
| STATE PROJ. NO. | P.A. PROJ. NO. | DESCRIPTION | |
| 38597.1.1 | BRZ-1523(6) | P.E. | |
| 38597.2.1 | BRZ-1523(6) | ROW & UTIL | |
| 38597.3.1 | BRZ-1523(6) | CONSTRUCTION | |



BUFFER DRAWING SHEET 1 OF 3

B-4827 BUFFER IMPACTS

**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

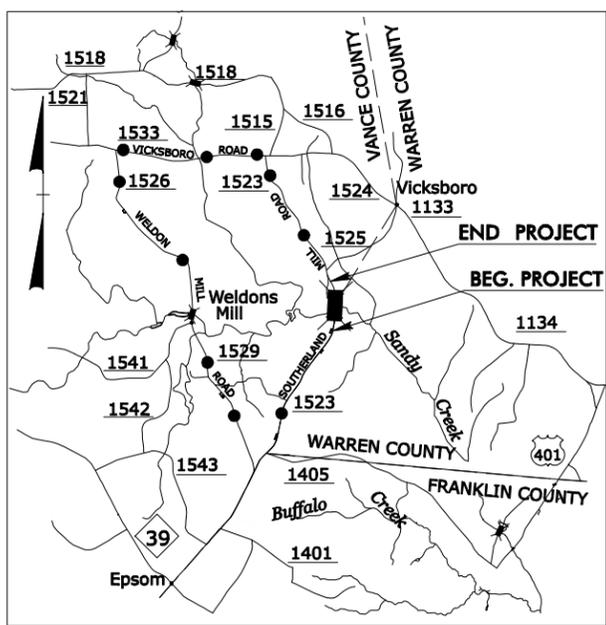
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE COUNTY

**LOCATION: BRIDGE NO. 53 OVER SANDY CREEK
ON SR 1523 (SOUTHERLAND MILL RD.)**

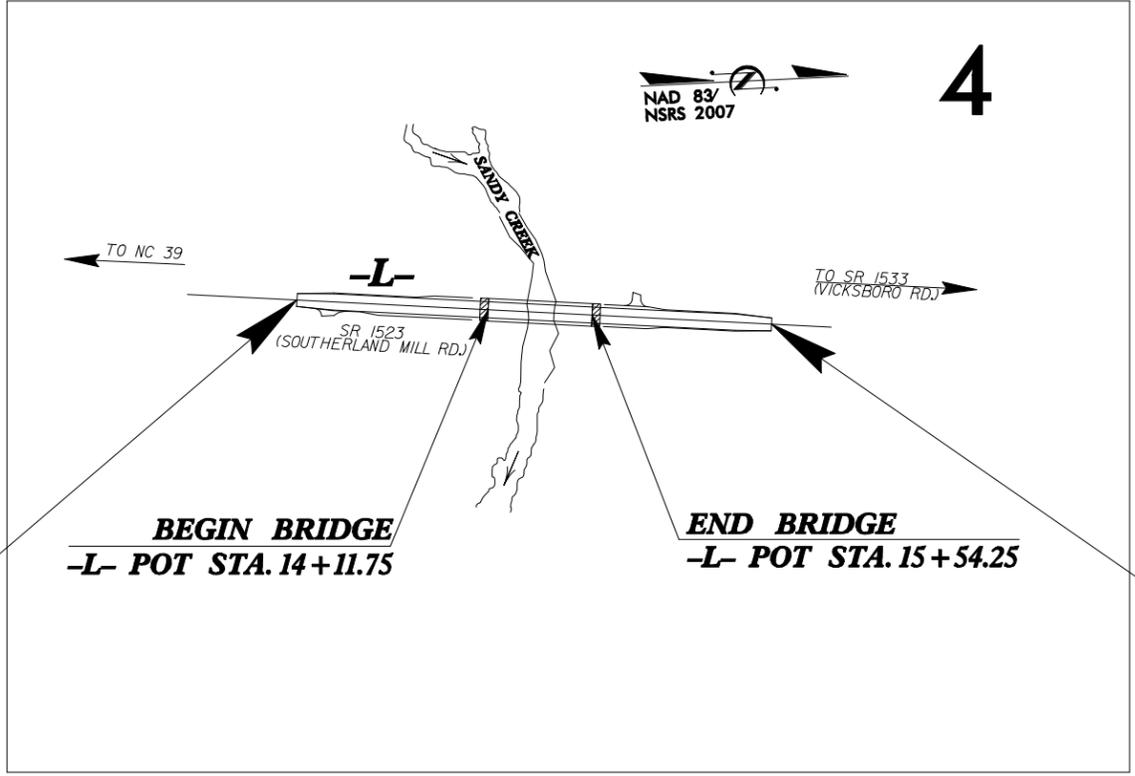
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbology



VICINITY MAP SHOWING LOCATION OF PROJECT B-4827

●●● OFFSITE DETOUR



**BEGIN TIP PROJECT B-4827
-L- POT STA. 11+50.00**

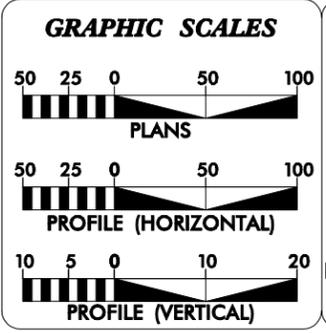
**END TIP PROJECT B-4827
-L- POT STA. 18+00.00**

**THIS PROJECT WAS DESIGNED USING
THE SUB REGIONAL TIER DESIGN GUIDELINES
FOR BRIDGE PROJECTS**

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

TIP PROJECT: B-4827

CONTRACT:



DESIGN DATA

| | |
|-----------------------|-----------------|
| ADT 2013 = | 1,024 |
| ADT 2033 = | 1,639 |
| DHV = | 11 % |
| D = | 55 % |
| T = | 8 % * |
| V = | 50 MPH |
| * (TTST 2% + DUAL 6%) | |
| FUNC CLASS = | RURAL COLLECTOR |

PROJECT LENGTH

| | | |
|-------------------------------------|---|-------------|
| LENGTH ROADWAY TIP PROJECT B-4827 | = | 0.096 MILES |
| LENGTH STRUCTURE TIP PROJECT B-4827 | = | 0.027 MILES |
| TOTAL LENGTH TIP PROJECT B-4827 | = | 0.123 MILES |

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 18, 2012

LETTING DATE:
FEBRUARY 18, 2014

TONY HOUSER, PE
PROJECT ENGINEER

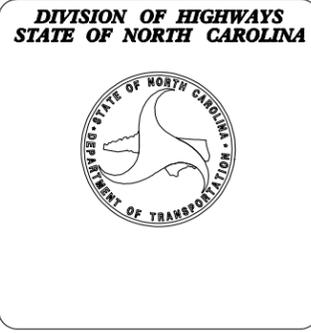
LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

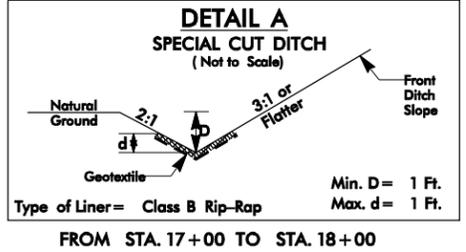


09/06/99
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DCN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

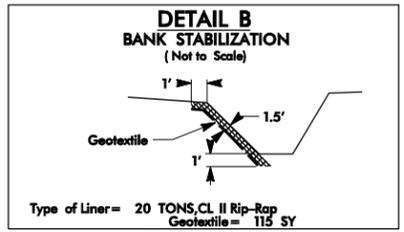
| | |
|---|---------------------|
| PROJECT REFERENCE NO. B-4827 | SHEET NO. 4 |
| RW SHEET NO. 4 | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
| HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | |

LEGEND

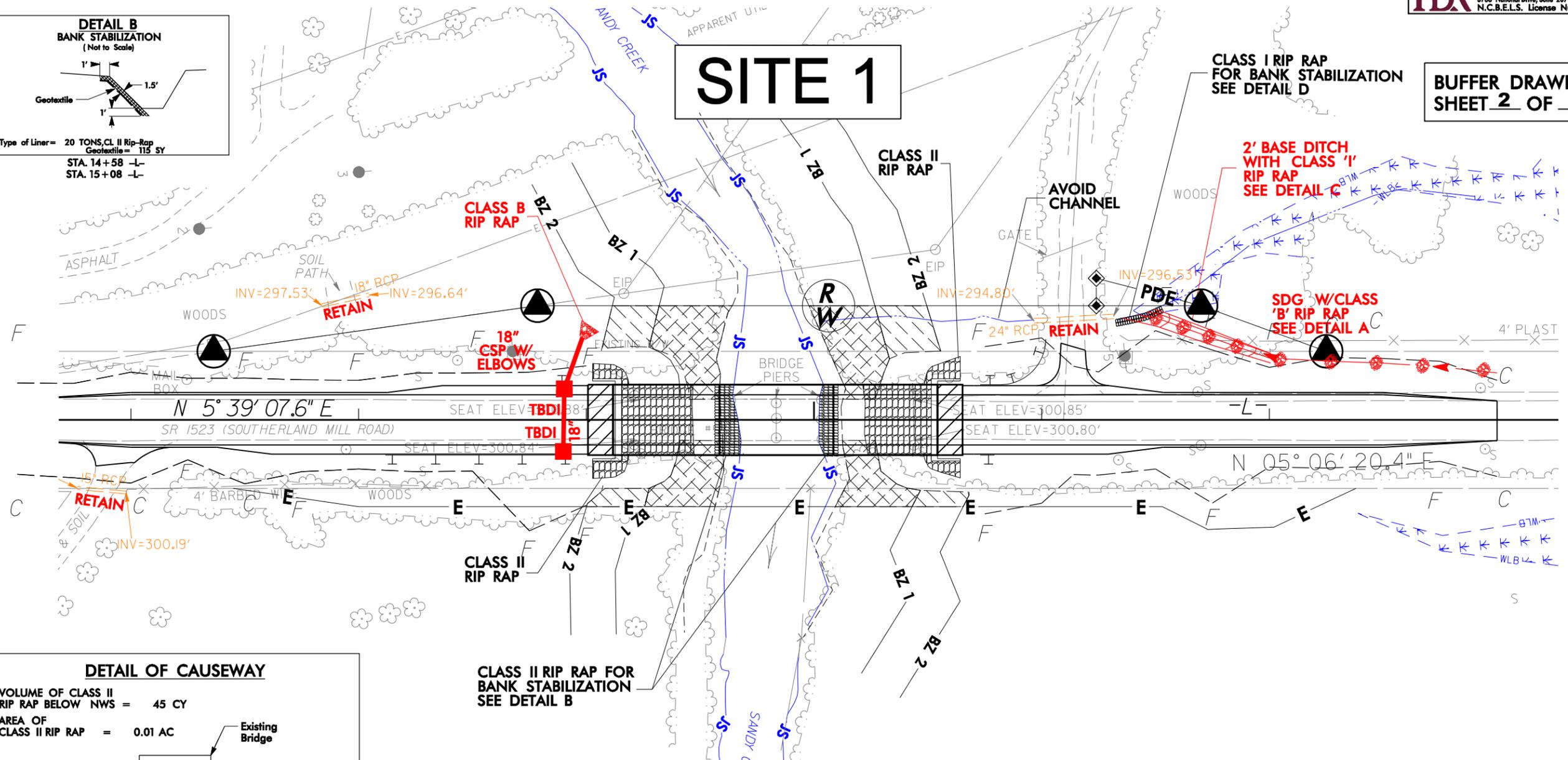
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2



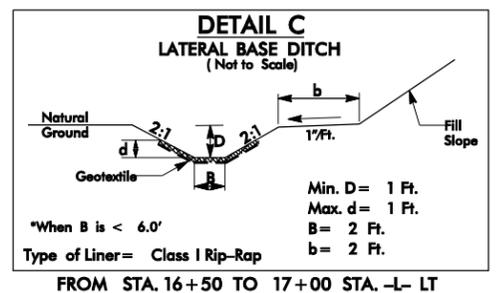
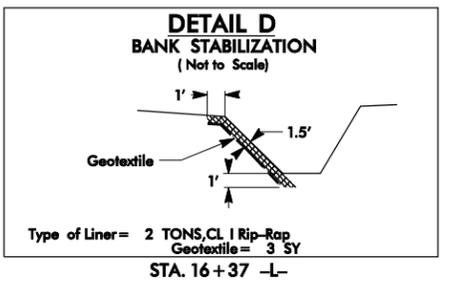
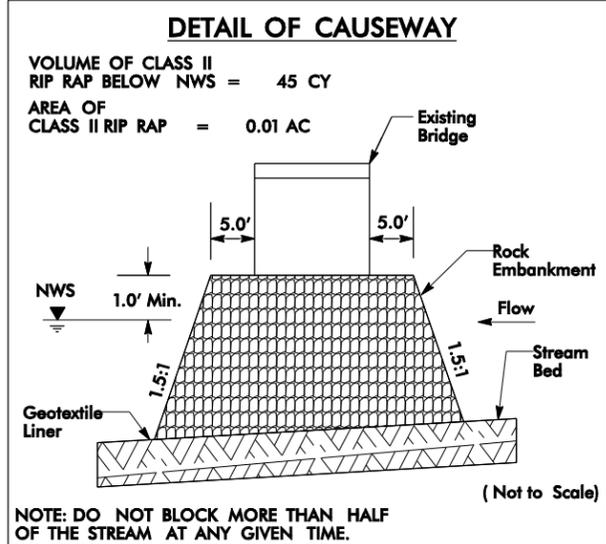
NAD 83/NSRS 2007



SITE 1



BUFFER DRAWING SHEET 2 OF 3



REVISIONS

8/17/99

8/26/2017 HYD_PRRM_PSH.dgn

BUFFER IMPACTS SUMMARY

| SITE NO. | STRUCTURE SIZE / TYPE | STATION (FROM/TO) | IMPACT | | | | | | | | | BUFFER REPLACEMENT | |
|---------------|------------------------|-------------------|---------------|--------|-----------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|
| | | | TYPE | | | ALLOWABLE | | | MITIGABLE | | | ZONE 1 (ft ²) | ZONE 2 (ft ²) |
| | | | ROAD CROSSING | BRIDGE | PARALLEL IMPACT | ZONE 1 (ft ²) | ZONE 2 (ft ²) | TOTAL (ft ²) | ZONE 1 (ft ²) | ZONE 2 (ft ²) | TOTAL (ft ²) | | |
| 1 | 140' Cored Slab Bridge | 14+12 to 14+64 | | X | | 1662.0 | 437.0 | 2099.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1 | 140' Cored Slab Bridge | 15+02 to 15+54 | | X | | 1559.0 | 612.0 | 2171.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1 | Roadway Fill | 14+00 to 14+12 | X | | | 0.0 | 123.0 | 123.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1 | Roadway Fill | 15+54 to 15+68 | X | | | 0.0 | 21.0 | 21.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
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| | | | | | | | | | | | | | |
| TOTAL: | | | | | | 3221.0 | 1193.0 | 4414.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

* Note - Unnamed Tributary not buffered in this location

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 VANCE COUNTY
 PROJECT: 38597.1.1 (B-4827)

 3/18/2013
 SHEET 3 OF 3

09/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbolology

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE COUNTY

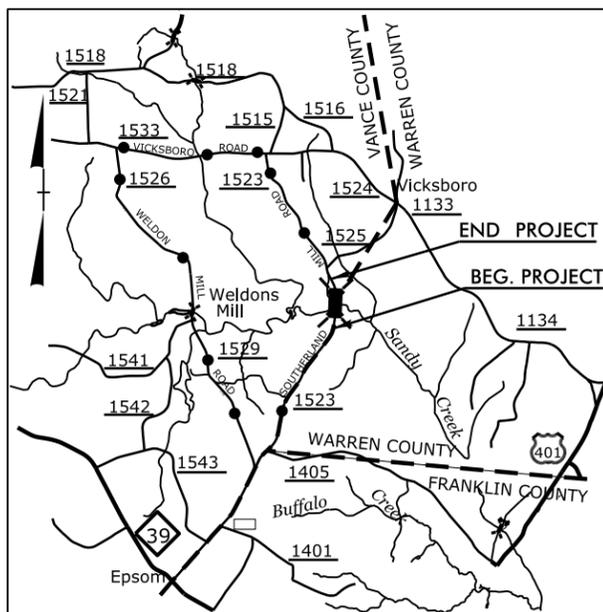
LOCATION: BRIDGE NO. 53 OVER SANDY CREEK
ON SR 1523 (SOUTHERLAND MILL RD.)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|--------------|--------------|
| N.C. | B-4827 | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 38597.1.1 | BRZ-1523(6) | P.E. | |
| 38597.2.1 | BRZ-1523(6) | ROW & UTIL | |
| 38597.3.1 | BRZ-1523(6) | CONSTRUCTION | |
| | | | |
| | | | |

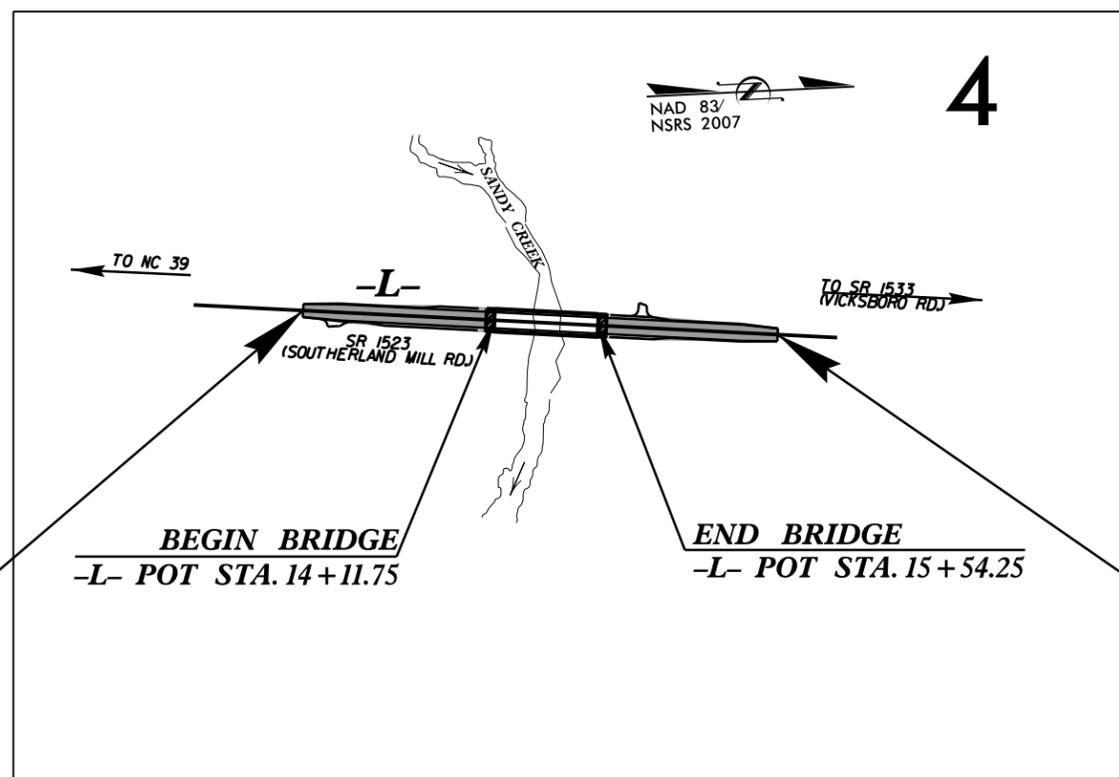


TIP PROJECT: B-4827



VICINITY MAP SHOWING LOCATION OF PROJECT B-4827

●—● OFFSITE DETOUR



BEGIN TIP PROJECT B-4827
-L- POT STA. 11+50.00

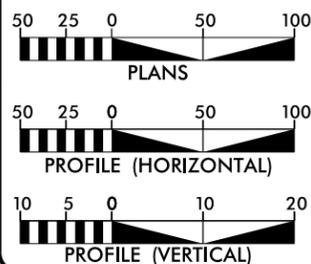
END TIP PROJECT B-4827
-L- POT STA. 18+00.00

THIS PROJECT WAS DESIGNED USING THE SUB REGIONAL TIER DESIGN GUIDELINES FOR BRIDGE PROJECTS

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 1,024
ADT 2033 = 1,639
DHV = 11 %
D = 55 %
T = 8 % *
V = 50 MPH
* (TTST 2% + DUAL 6%)
FUNC CLASS = RURAL COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4827 = 0.096 MILES
LENGTH STRUCTURE TIP PROJECT B-4827 = 0.027 MILES
TOTAL LENGTH TIP PROJECT B-4827 = 0.123 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS
RIGHT OF WAY DATE:
DECEMBER 18, 2012

LETTING DATE:
FEBRUARY 18, 2014

TONY HOUSER, PE
PROJECT ENGINEER

LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



22-AUG-2013 11:50
R:\Roadway\Proj\B4827_Rdy_t.sh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

CONTRACT:

12/05/11

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4827
SHEET NO. I-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

| | |
|--|--------------|
| State Line | ----- |
| County Line | ----- |
| Township Line | ----- |
| City Line | ----- |
| Reservation Line | ----- |
| Property Line | ----- |
| Existing Iron Pin | ○ IP |
| Property Corner | ----- |
| Property Monument | □ EDM |
| Parcel/Sequence Number | ①②③ |
| Existing Fence Line | -x-x-x- |
| Proposed Woven Wire Fence | ○ |
| Proposed Chain Link Fence | □ |
| Proposed Barbed Wire Fence | ◇ |
| Existing Wetland Boundary | ----- MLB |
| Proposed Wetland Boundary | ----- MLB |
| Existing Endangered Animal Boundary | ----- EAB |
| Existing Endangered Plant Boundary | ----- EPB |
| Known Soil Contamination: Area or Site | ☠ ☠ |
| Potential Soil Contamination: Area or Site | ☠ ? |

BUILDINGS AND OTHER CULTURE:

| | |
|-------------------------------|-------------|
| Gas Pump Vent or U/G Tank Cap | ○ |
| Sign | ○ ○ ○ |
| Well | ○ # |
| Small Mine | ✕ |
| Foundation | □ |
| Area Outline | □ |
| Cemetery | □ + |
| Building | □ |
| School | □ + |
| Church | □ + |
| Dam | ----- |

HYDROLOGY:

| | |
|------------------------------------|---------------|
| Stream or Body of Water | ----- |
| Hydro, Pool or Reservoir | □ |
| Jurisdictional Stream | ----- JS |
| Buffer Zone 1 | ----- BZ 1 |
| Buffer Zone 2 | ----- BZ 2 |
| Flow Arrow | ← |
| Disappearing Stream | ----- |
| Spring | ○ |
| Wetland | ----- W |
| Proposed Lateral, Tail, Head Ditch | ----- FLM |
| False Sump | ----- |

RAILROADS:

| | |
|--------------------|-----------------------------|
| Standard Gauge | ----- CSX TRANSPORTATION |
| RR Signal Milepost | ○ MILEPOST 35 |
| Switch | □ SWITCH |
| RR Abandoned | ----- |
| RR Dismantled | ----- |

RIGHT OF WAY:

| | |
|---|--------------|
| Baseline Control Point | ◆ |
| Existing Right of Way Marker | △ |
| Existing Right of Way Line | ----- |
| Proposed Right of Way Line | ----- RW |
| Proposed Right of Way Line with Iron Pin and Cap Marker | ----- RW |
| Proposed Right of Way Line with Concrete or Granite RW Marker | ----- RW |
| Proposed Control of Access Line with Concrete C/A Marker | ----- C/A |
| Existing Control of Access | ----- C/A |
| Proposed Control of Access | ----- C/A |
| Existing Easement Line | ----- E |
| Proposed Temporary Construction Easement | ----- E |
| Proposed Temporary Drainage Easement | ----- TDE |
| Proposed Permanent Drainage Easement | ----- PDE |
| Proposed Permanent Drainage / Utility Easement | ----- DUE |
| Proposed Permanent Utility Easement | ----- PUE |
| Proposed Temporary Utility Easement | ----- TUE |
| Proposed Aerial Utility Easement | ----- AUE |
| Proposed Permanent Easement with Iron Pin and Cap Marker | ----- ◆ |

ROADS AND RELATED FEATURES:

| | |
|----------------------------|-------------|
| Existing Edge of Pavement | ----- |
| Existing Curb | ----- |
| Proposed Slope Stakes Cut | ----- C |
| Proposed Slope Stakes Fill | ----- F |
| Proposed Curb Ramp | ----- CR |
| Existing Metal Guardrail | ----- |
| Proposed Guardrail | ----- |
| Existing Cable Guiderail | ----- |
| Proposed Cable Guiderail | ----- |
| Equality Symbol | ⊕ |
| Pavement Removal | ----- |
| Single Tree | ☼ |
| Single Shrub | ☼ |
| Hedge | ----- |
| Woods Line | ----- |

VEGETATION:

| | |
|----------|-------------------|
| Orchard | ----- |
| Vineyard | ----- Vineyard |

EXISTING STRUCTURES:

| | |
|--|------------------|
| MAJOR: | |
| Bridge, Tunnel or Box Culvert | ----- CONC |
| Bridge Wing Wall, Head Wall and End Wall | ----- CONC WW |
| MINOR: | |
| Head and End Wall | ----- CONC HW |
| Pipe Culvert | ----- |
| Footbridge | ----- |
| Drainage Box: Catch Basin, DI or JB | □ CB |
| Paved Ditch Gutter | ----- |
| Storm Sewer Manhole | ⊕ |
| Storm Sewer | ----- |

UTILITIES:

| | |
|-------------------------------------|------------|
| POWER: | |
| Existing Power Pole | ● |
| Proposed Power Pole | ○ |
| Existing Joint Use Pole | ● |
| Proposed Joint Use Pole | ○ |
| Power Manhole | ⊕ |
| Power Line Tower | ⊗ |
| Power Transformer | ⊗ |
| U/G Power Cable Hand Hole | □ |
| H-Frame Pole | ● |
| Recorded U/G Power Line | ----- P |
| Designated U/G Power Line (S.U.E.*) | ----- P |

TELEPHONE:

| | |
|---|---------------|
| Existing Telephone Pole | ● |
| Proposed Telephone Pole | ○ |
| Telephone Manhole | ⊕ |
| Telephone Booth | □ |
| Telephone Pedestal | □ |
| Telephone Cell Tower | ⊗ |
| U/G Telephone Cable Hand Hole | □ |
| Recorded U/G Telephone Cable | ----- T |
| Designated U/G Telephone Cable (S.U.E.*) | ----- T |
| Recorded U/G Telephone Conduit | ----- TC |
| Designated U/G Telephone Conduit (S.U.E.*) | ----- TC |
| Recorded U/G Fiber Optics Cable | ----- T FO |
| Designated U/G Fiber Optics Cable (S.U.E.*) | ----- T FO |

WATER:

| | |
|-------------------------------------|--------------------|
| Water Manhole | ⊕ |
| Water Meter | ○ |
| Water Valve | ⊗ |
| Water Hydrant | ⊕ |
| Recorded U/G Water Line | ----- |
| Designated U/G Water Line (S.U.E.*) | ----- |
| Above Ground Water Line | ----- A/G Water |

TV:

| | |
|--|----------------|
| TV Satellite Dish | ☼ |
| TV Pedestal | □ |
| TV Tower | ⊗ |
| U/G TV Cable Hand Hole | □ |
| Recorded U/G TV Cable | ----- TV |
| Designated U/G TV Cable (S.U.E.*) | ----- TV |
| Recorded U/G Fiber Optic Cable | ----- TV FO |
| Designated U/G Fiber Optic Cable (S.U.E.*) | ----- TV FO |

GAS:

| | |
|-----------------------------------|------------------|
| Gas Valve | ◇ |
| Gas Meter | ⊕ |
| Recorded U/G Gas Line | ----- G |
| Designated U/G Gas Line (S.U.E.*) | ----- G |
| Above Ground Gas Line | ----- A/G Gas |

SANITARY SEWER:

| | |
|--|-----------------------------|
| Sanitary Sewer Manhole | ⊕ |
| Sanitary Sewer Cleanout | ⊕ |
| U/G Sanitary Sewer Line | ----- SS |
| Above Ground Sanitary Sewer | ----- A/G Sanitary Sewer |
| Recorded SS Forced Main Line | ----- FSS |
| Designated SS Forced Main Line (S.U.E.*) | ----- FSS |

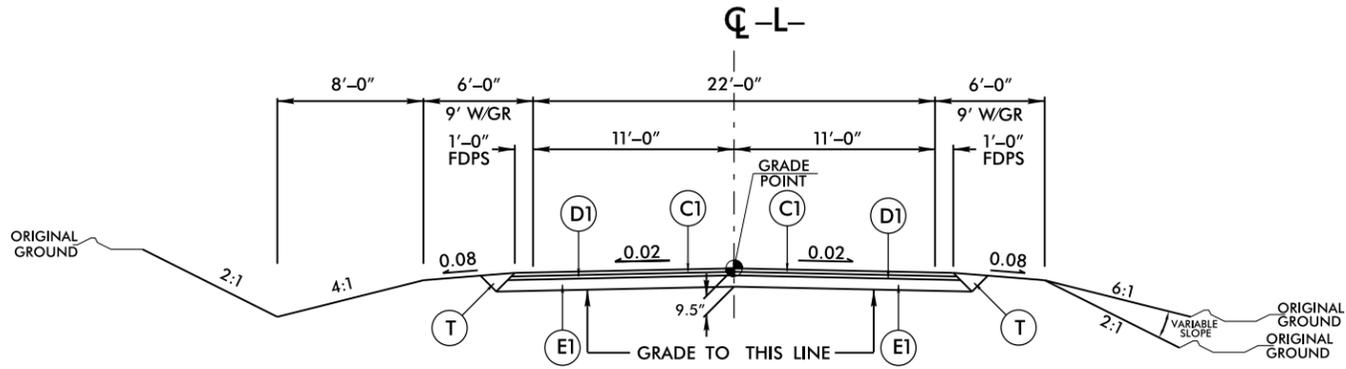
MISCELLANEOUS:

| | |
|--|---------------|
| Utility Pole | ● |
| Utility Pole with Base | □ |
| Utility Located Object | ○ |
| Utility Traffic Signal Box | □ |
| Utility Unknown U/G Line | ----- TUUL |
| U/G Tank; Water, Gas, Oil | □ |
| Underground Storage Tank, Approx. Loc. | ⊕ UST |
| A/G Tank; Water, Gas, Oil | □ |
| Geoenvironmental Boring | ⊗ |
| U/G Test Hole (S.U.E.*) | ⊗ |
| Abandoned According to Utility Records | AATUR |
| End of Information | E.O.I. |

| | |
|---|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-4827 | 2 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

| PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN) | |
|--|---|
| C1 | PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C2 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH. |
| D1 | PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH. |
| E1 | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| E2 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH. |
| R | SHOULDER BERM GUTTER |
| T | EARTH MATERIAL. |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (WEDGING DETAIL) |

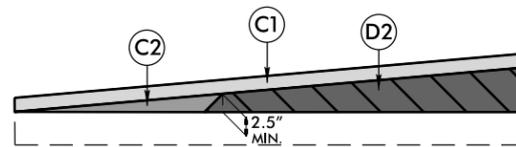
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



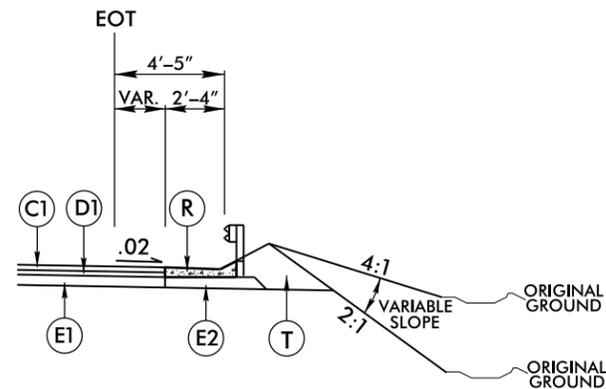
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 11+50.00 TO -L- STA. 14+11.75 (BEGIN BRIDGE)
-L- STA. 15+54.25 (END BRIDGE) TO -L- STA. 18+00.00



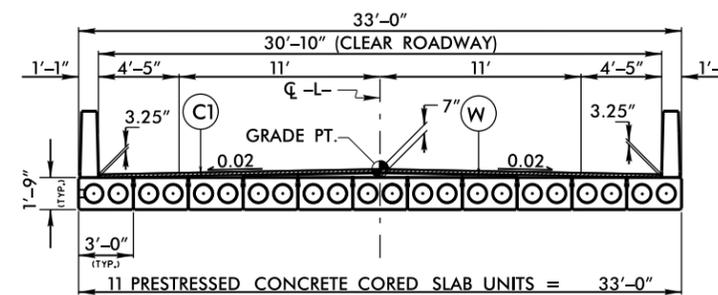
WEDGING DETAIL ON BRIDGE



DETAIL SHOWING PAVED SHOULDER IN RELATION TO GUARDRAIL

USE SHOULDER BERM GUTTER:

-L- STA. 13+90.00 TO -L- STA. 14+00.75 (BEG. APPROACH SLAB) LT
-L- STA. 13+90.00 TO -L- STA. 14+00.75 (BEG. APPROACH SLAB) RT
-L- STA. 15+65.25 (END APPROACH SLAB) TO -L- STA. 15+70.25 LT
-L- STA. 15+65.25 (END APPROACH SLAB) TO -L- STA. 15+70.25 RT



BRIDGE TYPICAL SECTION

USE BRIDGE TYPICAL SECTION

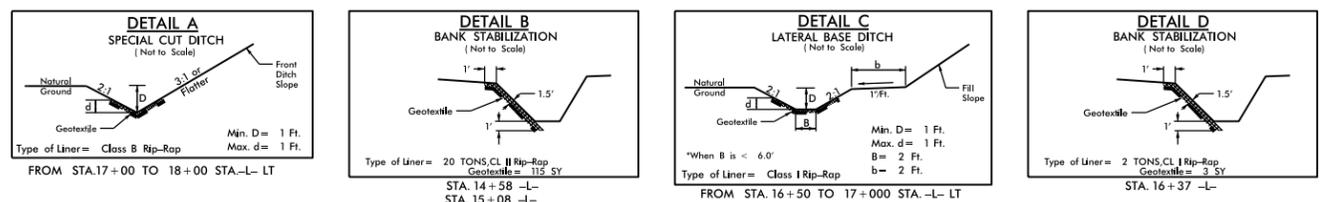
-L- STA. 14+11.75 TO -L- STA. 15+54.25

REVISIONS

8/17/99

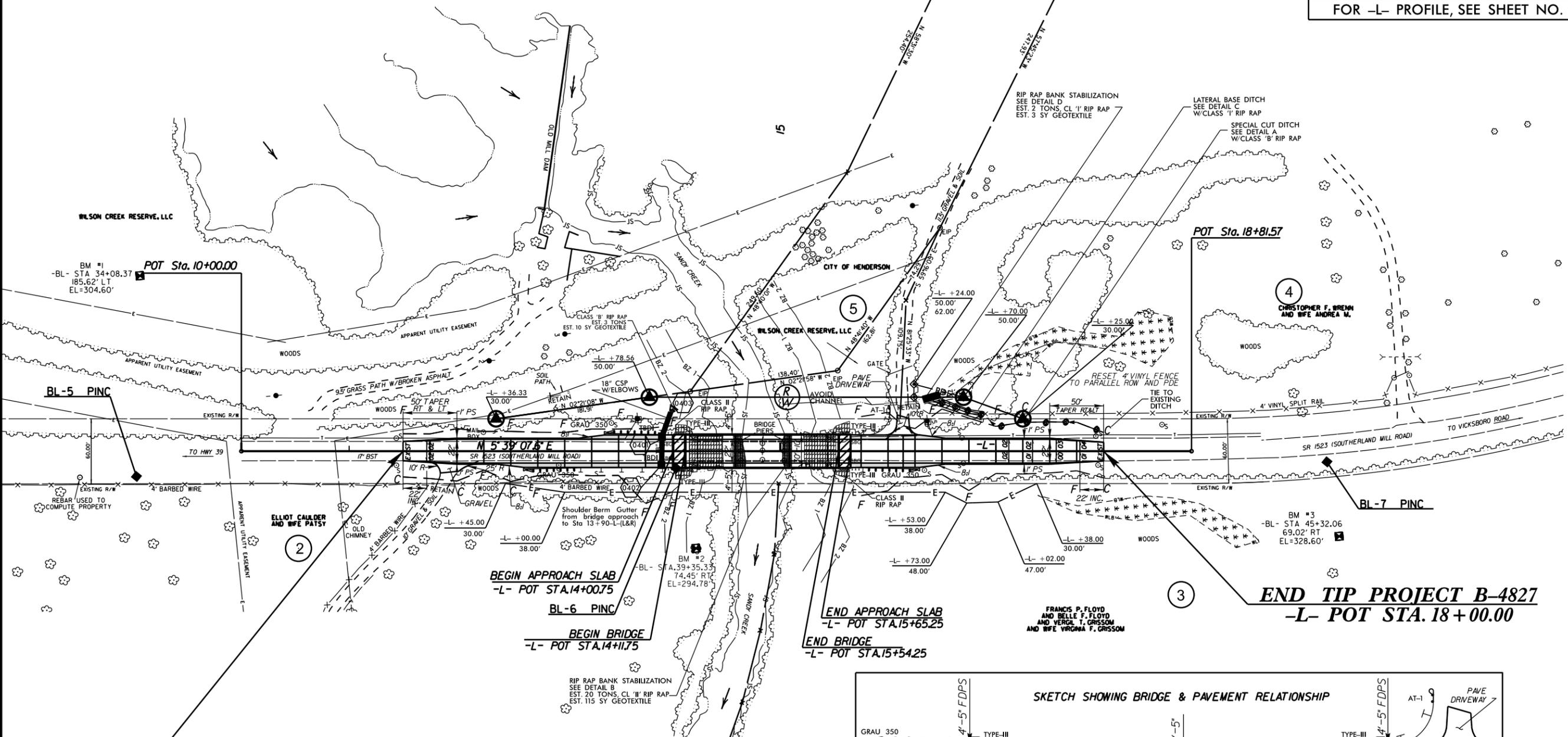
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R:\Roadway\104827-Rdy-tyr.dgn
33

NAD 83/NSRS 2007



FOR -L- PROFILE, SEE SHEET NO. 5

REVISIONS
 RIGHT OF WAY REVISIONS: 8/22/13, PARCEL #1 REMOVED BECAUSE NO CLAIM; PARCEL #3 REVISED TO PARCEL #5, WILSON CREEK RESERVE, LLC; PARCEL #4, CHRISTOPHER F. WRENN, RIGHT OF WAY AND PERMANENT DRAINAGE EASEMENT REDUCED WITH NOTE TO REMOVE AND RESET FENCE; CORRECTED ROW FLAG FROM 13+82.50 TO 13+78.56, LT.



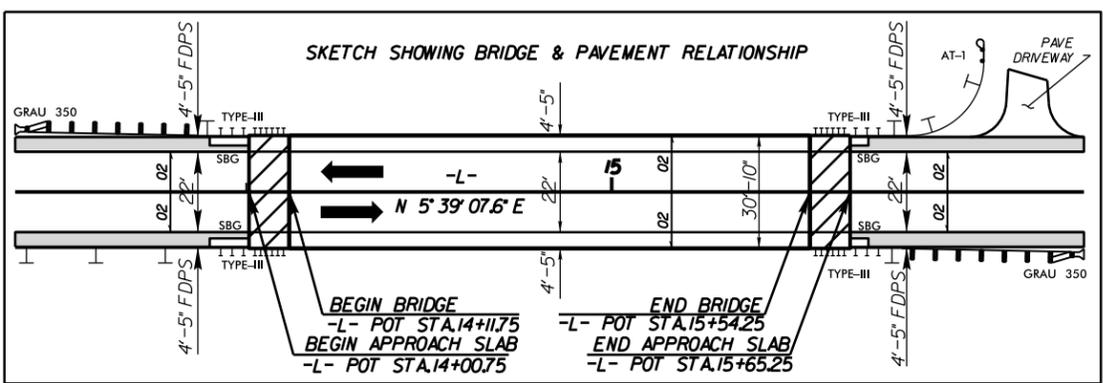
BEGIN TIP PROJECT B-4827
-L- POT STA. 11 + 50.00

BEGIN BRIDGE
-L- POT STA. 14 + 11.75

END BRIDGE
-L- POT STA. 15 + 54.25

END TIP PROJECT B-4827
-L- POT STA. 18 + 00.00

| SHOULDER BERM GUTTER LOCATIONS | |
|--------------------------------|--|
| -L- | FROM STA. 13+90.00 TO STA. 14+00.75 (BEGIN APPROACH SLAB) LT |
| -L- | FROM STA. 13+90.00 TO STA. 14+00.75 (BEGIN APPROACH SLAB) RT |
| -L- | FROM STA. 15+65.25 (END APPROACH SLAB) TO STA. 15+70.25 LT |
| -L- | FROM STA. 15+65.25 (END APPROACH SLAB) TO STA. 15+70.25 RT |



FOR -L- PLAN VIEW, SEE SHEET NO. 4

BM 1
ELEV. = 304.60'
N = 924,735 E = 2,208,767
-BL- STA. 34+08.37 185.62' LT
SURVEY BENCH TIE NAIL IN
BASE OF 18" MAPLE

BM 2
ELEV. = 294.78'
N = 925,224 E = 2,209,069
-L- STA. 14+21.86 89.92' RT
-BL- STA. 39+35.33 74.45' RT
SURVEY BENCH TIE NAIL IN
BASE OF 17" HICKORY

BM 3
ELEV. = 328.60'
N = 925,818 E = 2,209,117
-BL- STA. 45+32.06 69.02' RT
SURVEY BENCH TIE NAIL IN
BASE OF 17" PINE

BEGIN GRADE
-L- STA. 11+50.00
EL = 304.19'
MATCH EXISTING

PI = 12+86.00
EL = 303.5'
VC = 156'
K = 195
DS = 70 MPH

PI = 16+82.00
EL = 304.70'
VC = 226'
K = 46
DS = 30 MPH

END GRADE
-L- STA. 18+00.00
EL = 310.83'
MATCH EXISTING

BEGIN BRIDGE
-L- STA. 14+11.75

END BRIDGE
-L- STA. 15+54.25

BRIDGE ID STATION 14+83 -L- ELEV. 304.1'
1@45' 1@50' 1@45' - 21' CORED SLAB
SKEW = 90°

STRUCTURE HYDRAULIC DATA

| | | |
|-----------------------|---------|-----|
| DESIGN DISCHARGE | = 4600 | CFS |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN HW ELEVATION | = 295.5 | FT |
| BASE DISCHARGE | = 670 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 297.7 | FT |
| OVERTOPPING DISCHARGE | = 12725 | CFS |
| OVERTOPPING FREQUENCY | = 500+ | YRS |
| OVERTOPPING ELEVATION | = 303.6 | FT |

ESY = 85 CY STRUCTURE EXCAVATION

1.5:1 SLOPE NORMAL TO CAR TYP.

EMBED 3'-4"

100' WEL
EL = 297.7

125' WEL
EL = 292.5

124' WEL
EL = 284.7

EMBED 3'-4"

CLASS II RIP RAP (EACH SIDE)

CLASS II RIP RAP FOR BANK STABILIZATION (BOTH SIDES)

BEGIN LT DITCH GRADE
-L- PI = 16+50.00
ELEV = 297.50'

PI = 17+00.000
ELEV = 303.60'

END LT DITCH GRADE
-L- PI = 18+00.00
ELEV = 308.21'

-10.501%

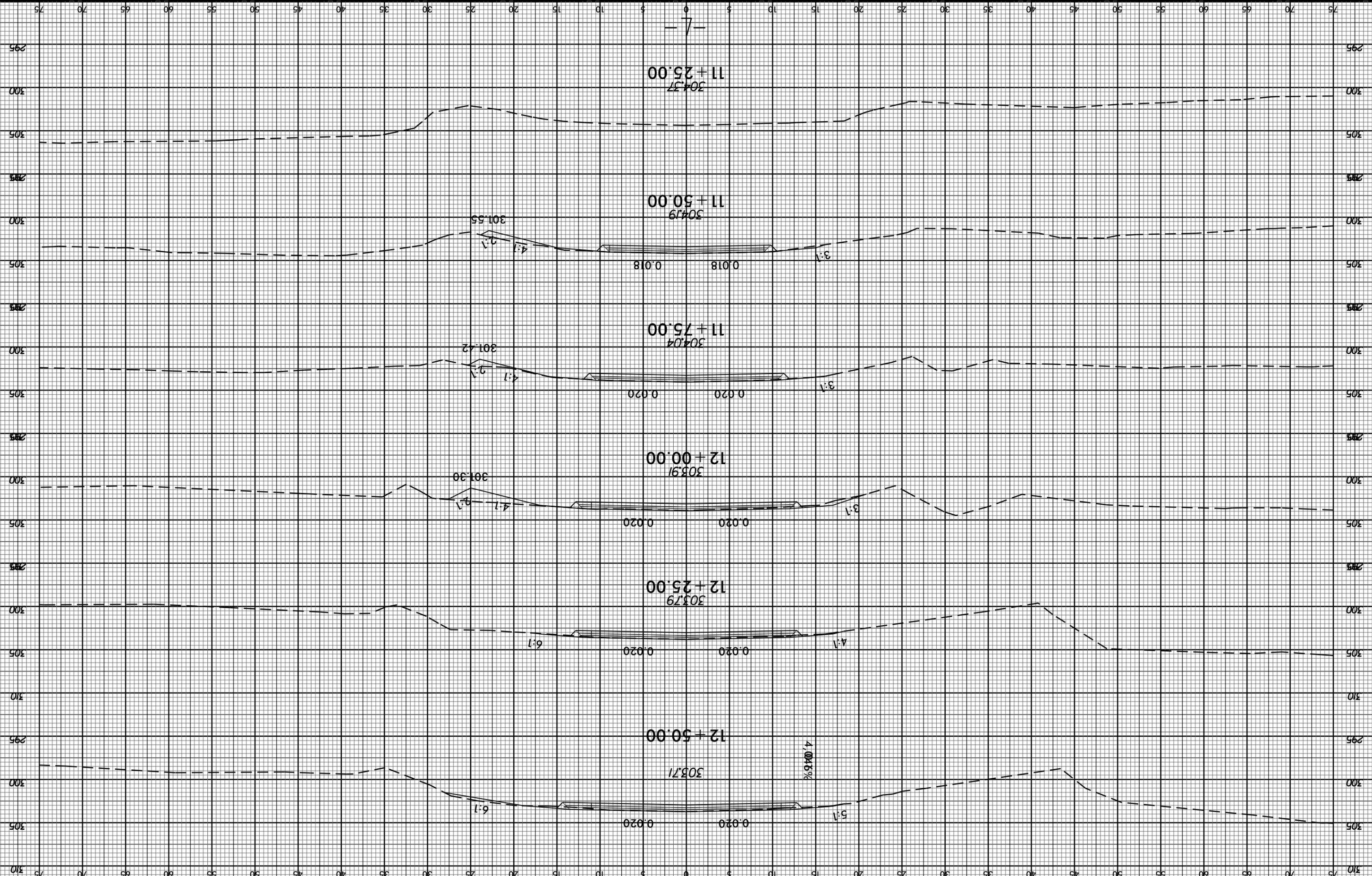
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+10.3000%

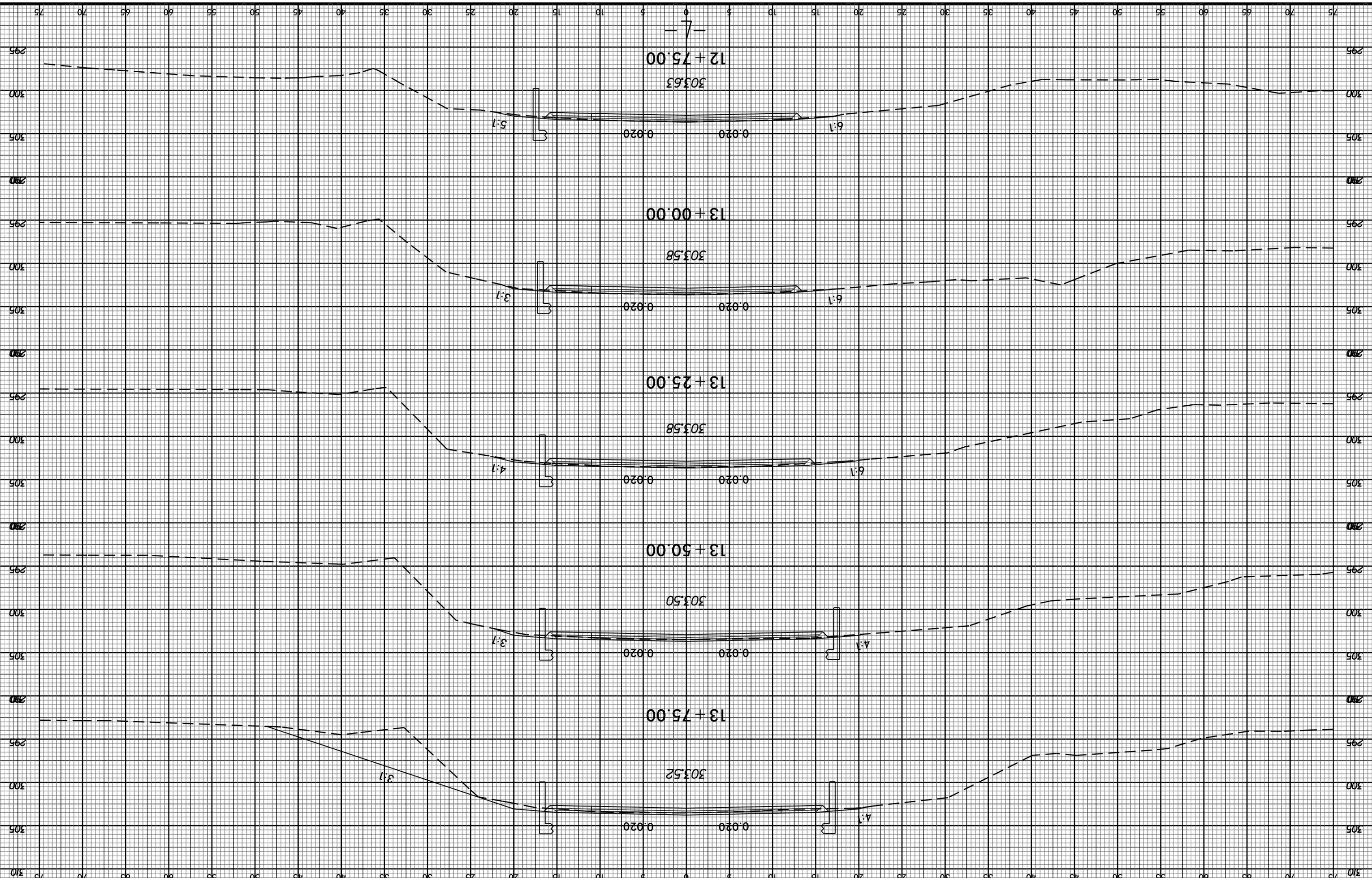
+12.2000%

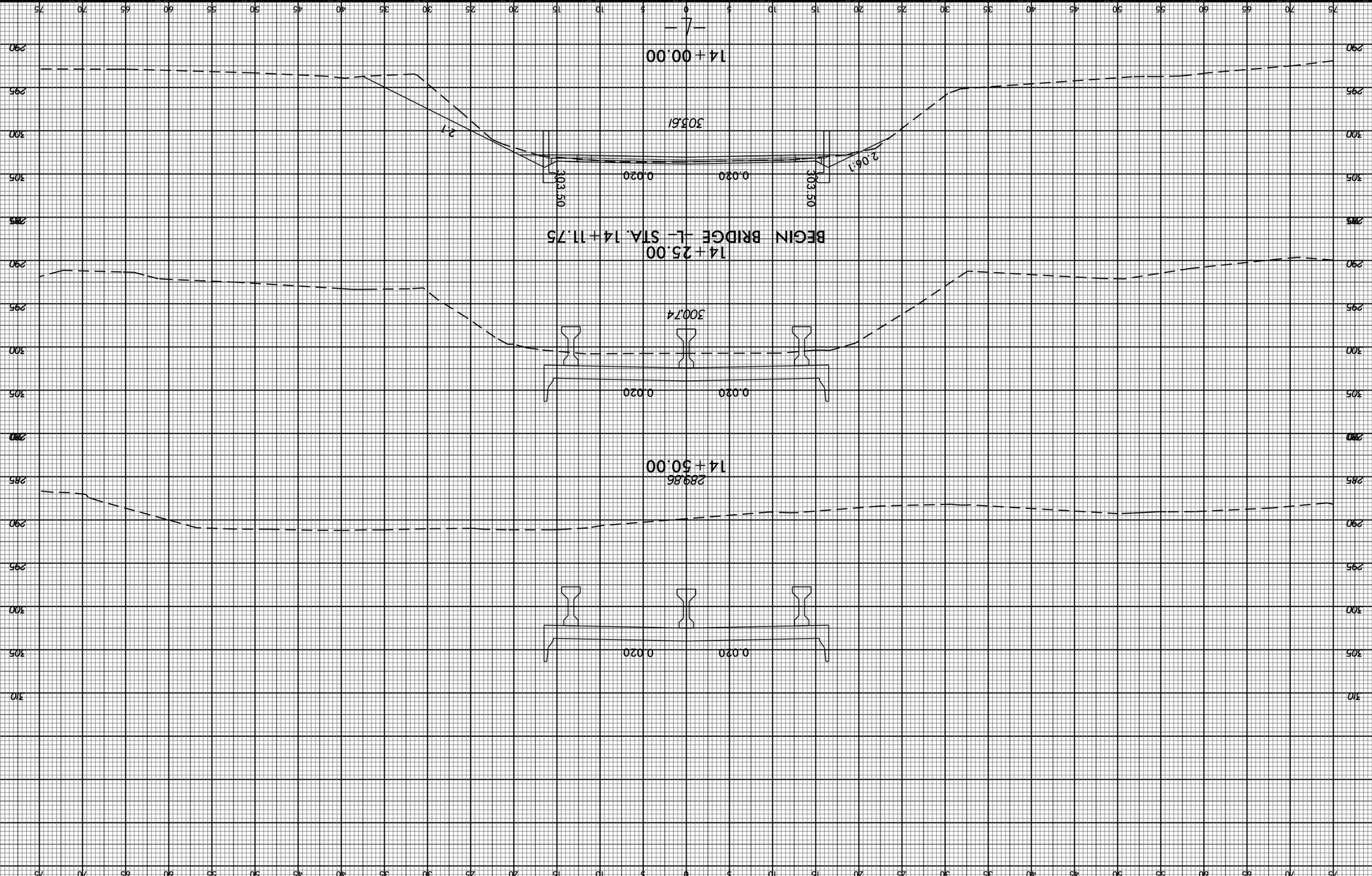
+5.1958%

+4.600%

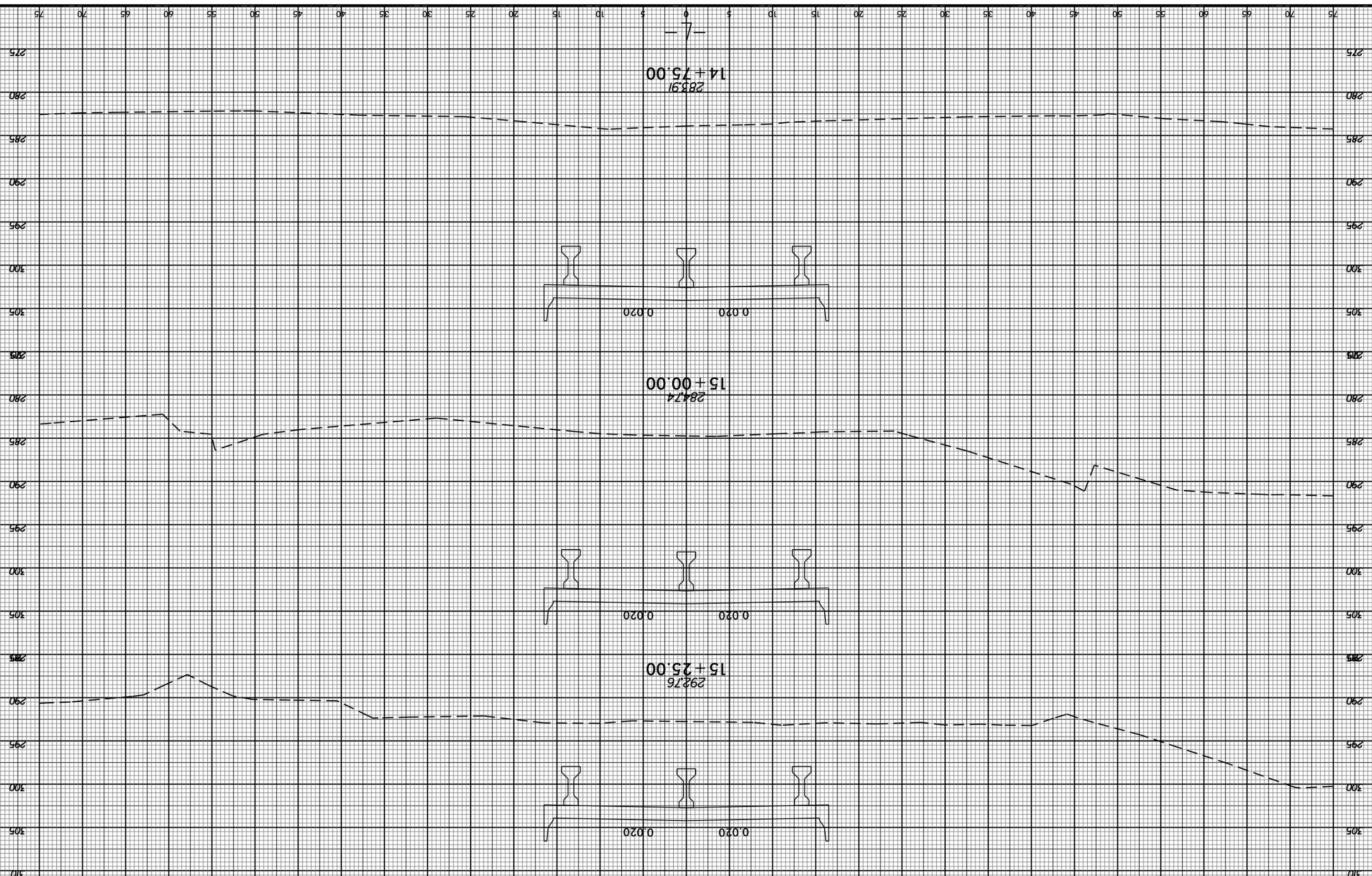


| | | |
|---------|----------------------------|---------------|
| 0 2.5 5 | PROJ. REFERENCE NO. B-4827 | SHEET NO. X-1 |
|---------|----------------------------|---------------|

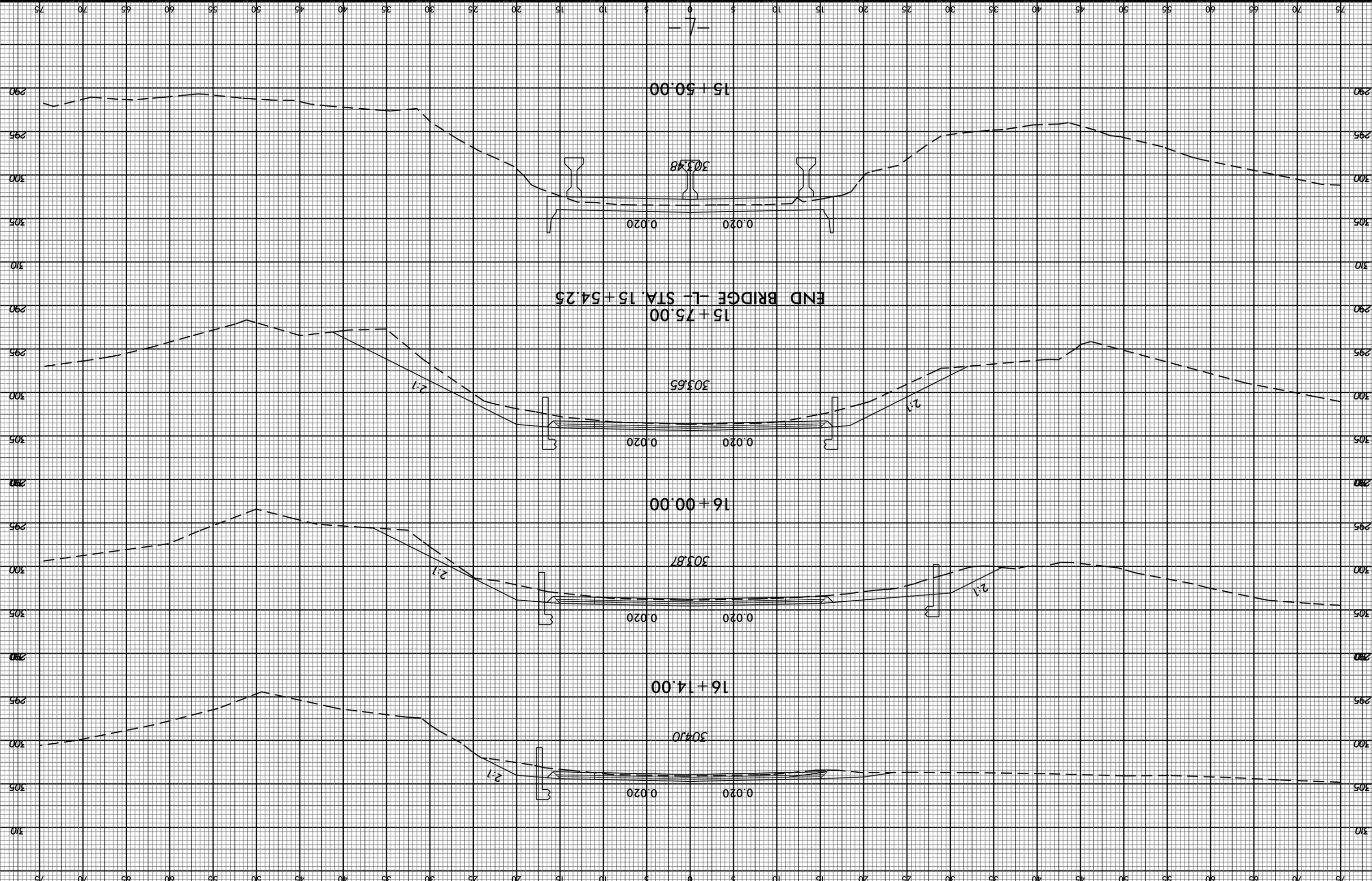


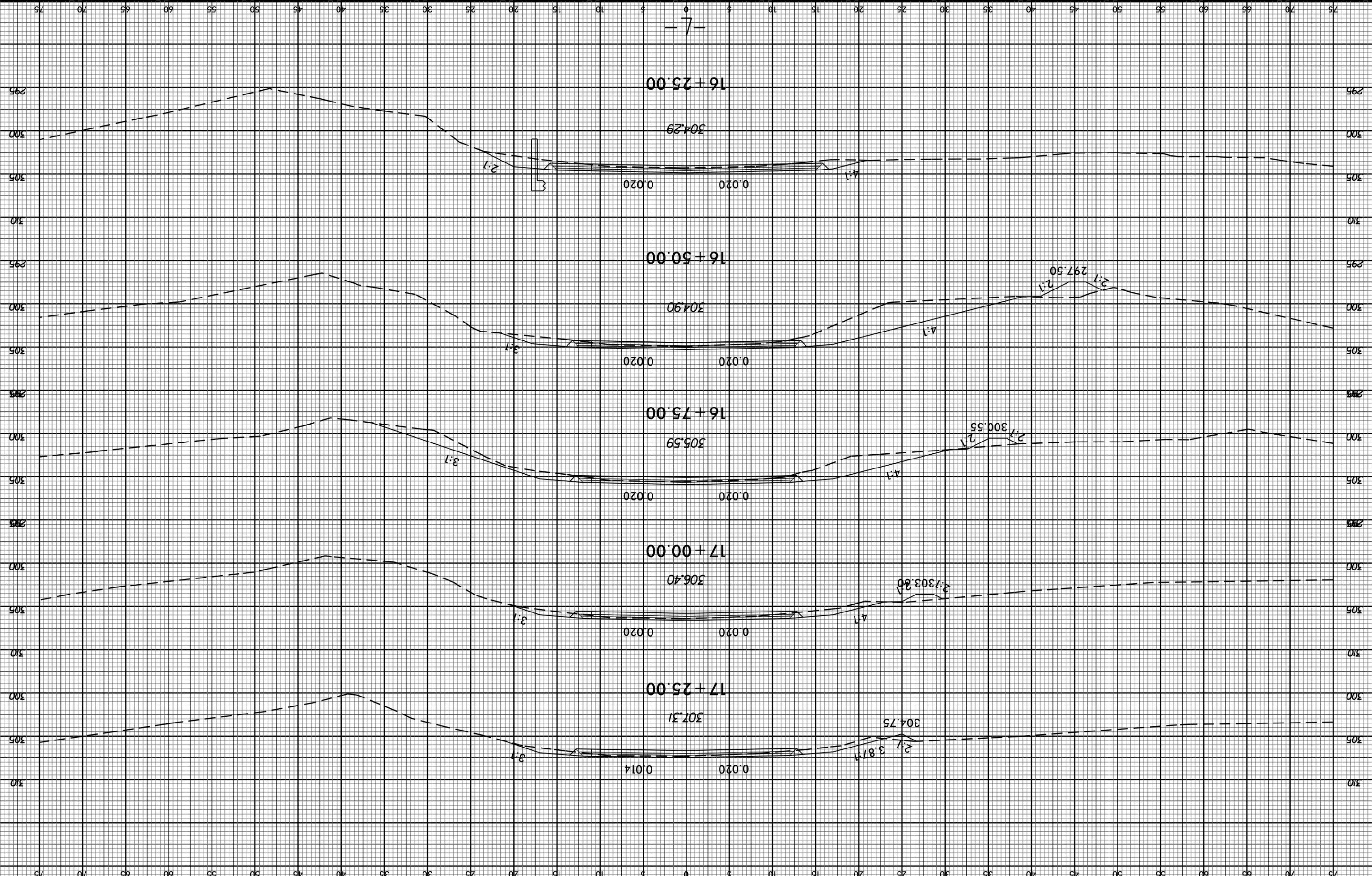


| | | |
|---------|----------------------------|---------------|
| 0 2.5 5 | PROJ. REFERENCE NO. B-4827 | SHEET NO. X-3 |
|---------|----------------------------|---------------|

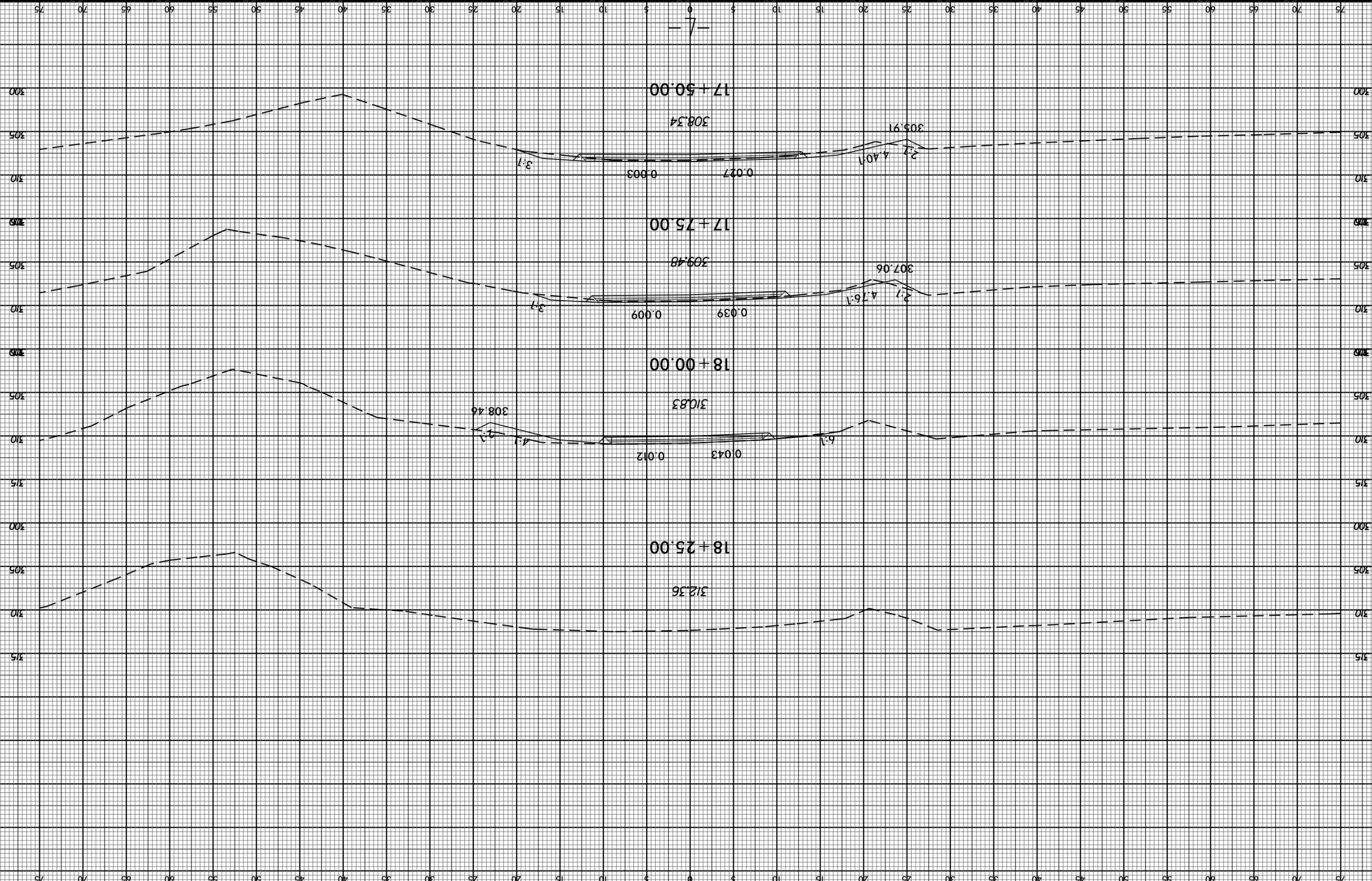


| | | |
|---------|---------------------|--------|
| 0 2.5 5 | PROJ. REFERENCE NO. | B-4827 |
| | SHEET NO. | X-4 |





| | | |
|---------|----------------------------|---------------|
| 0 2.5 5 | PROJ. REFERENCE NO. B-4827 | SHEET NO. X-6 |
|---------|----------------------------|---------------|



| | | |
|---------|----------------------------|---------------|
| 0 2.5 5 | PROJ. REFERENCE NO. B-4827 | SHEET NO. X-7 |
|---------|----------------------------|---------------|