



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

July 9, 2014

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

ATTN: Mr. Eric Alsmeyer  
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permits 13 and 33** for the proposed replacement of Bridge No. 215 over Little Grassy Creek on SR 1432 (Crawford Currin Road) in Granville County, Federal Aid Project No. BRZ-1432(5); Division 5; TIP No. B-5151

Dear Sir:

Please find enclosed the Pre-Construction Notification (PCN) form, Preliminary Jurisdictional Determination Form, stormwater management plan, permit drawings, and design plans for the above referenced project. For impact totals, please see the PCN.

The proposed let date for the project is February 17, 2015 with a review date of December 30, 2014. 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>, under *Quick Links > Permit Applications*. A copy of the PCE is also available at the above website address under *Quick Links > Environmental Documents*.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jason Dilday at [jldilday@ncdot.gov](mailto:jldilday@ncdot.gov) or (919) 707-6111.

Sincerely,

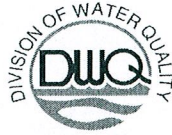
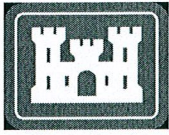
  
for Richard W. Hancock, P.E., Manager  
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List

MAILING ADDRESS:  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT  
1598 MAIL SERVICE CENTER  
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000  
FAX: 919-212-5785  
WEBSITE: [ncdot.gov](http://ncdot.gov)

LOCATION:  
CENTURY CENTER, BUILDING B  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610



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 33 or General Permit (GP) number:                                                                                                                                                                                                                                                                 |                                                                                                                       |                                                                                                              |
| 1c. Has the NWP or GP number been verified by the Corps?                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes                                                                               | <input type="checkbox"/> No                                                                                  |
| 1d. Type(s) of approval sought from the DWQ (check all that apply):<br><input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit<br><input type="checkbox"/> 401 Water Quality Certification – Express <input 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:<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | For the record only for Corps Permit:<br><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 215 over Little Grassy Creek on SR 1432 (Crawford Currin Road) |
| 2b. County:                                 | Granville                                                                            |
| 2c. Nearest municipality / town:            | Stovall                                                                              |
| 2d. Subdivision name:                       | not applicable                                                                       |
| 2e. NCDOT only, T.I.P. or state project no: | B-5151                                                                               |

#### 3. Owner Information

|                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| 3a. Name(s) on Recorded Deed:                  | North Carolina Department of Transportation |
| 3b. Deed Book and Page No.                     | not applicable                              |
| 3c. Responsible Party (for LLC if applicable): | not applicable                              |
| 3d. Street address:                            | 1598 Mail Service Center                    |
| 3e. City, state, zip:                          | Raleigh, NC 27699-1598                      |
| 3f. Telephone no.:                             | (919) 707-6111                              |
| 3g. Fax no.:                                   | (919) 212-5785                              |
| 3h. Email address:                             | jldilday@ncdot.gov                          |



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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>B. Project Information and Prior Project History</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                      |
| <b>1. Property Identification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                      |
| 1a. Property identification no. (tax PIN or parcel ID):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <i>not applicable</i>                                                                                |
| 1b. Site coordinates (in decimal degrees):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Latitude: 36.459149<br>(DD.DDDDDD) Longitude: - 78.606702<br>(-DD.DDDDDD)                            |
| 1c. Property size:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.4 acres                                                                                            |
| <b>2. Surface Waters</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                      |
| 2a. Name of nearest body of water (stream, river, etc.) to proposed project:                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Little Grassy Creek                                                                                  |
| 2b. Water Quality Classification of nearest receiving water:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | C                                                                                                    |
| 2c. River basin:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Roanoke                                                                                              |
| <b>3. Project Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                      |
| 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:<br>Agriculture, forested communities and minor residential development                                                                                                                                                                                                                                                                                                                               |                                                                                                      |
| 3b. List the total estimated acreage of all existing wetlands on the property:<br>0.0 acre                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                      |
| 3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:<br>320 linear feet (200 perennial, 120 intermittent)                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                      |
| 3d. Explain the purpose of the proposed project:<br>To replace a structurally deficient bridge.                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                      |
| 3e. Describe the overall project in detail, including the type of equipment to be used:<br>The project involves replacing a three span, 56-foot bridge with a single span, approximately 85-foot bridge on the existing alignment. Causeways will be used during construction of the new bridge and removal of the existing bridge. Traffic will be maintained on a offsite detour. The new bridge will be built north (downstream) of the existing bridge. Standard road building equipment, such as trucks, dozers, and cranes will be used. |                                                                                                      |
| <b>4. Jurisdictional Determinations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                      |
| 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?<br>Comments:                                                                                                                                                                                                                                                                                                                                                   | <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?<br>Name (if known): Dennis Herman (NCDOT) Eric Alsmeyer (USACE)                                                                                                                                                                                                                                                                                                                                                                                                                           | Agency/Consultant Company:<br>Other:                                                                 |
| 4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.<br>November 2, 2009                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                      |
| <b>5. Project History</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                      |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                      |
| <b>6. Future Project Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                      |
| 6a. Is this a phased project?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                  |
| 6b. If yes, explain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                      |



| <b>C. Proposed Impacts Inventory</b>                                                                                                                                 |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------|
| <b>1. Impacts Summary</b>                                                                                                                                            |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| 1a. Which sections were completed below for your project (check all that apply):                                                                                     |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| <input type="checkbox"/> Wetlands                                                                                                                                    |                       | <input checked="" type="checkbox"/> Streams - tributaries |                                                                         | <input type="checkbox"/> Buffers                                               |                                             |                                       |
| <input type="checkbox"/> Open Waters                                                                                                                                 |                       | <input type="checkbox"/> Pond Construction                |                                                                         |                                                                                |                                             |                                       |
| <b>2. Wetland Impacts</b>                                                                                                                                            |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.                                                       |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| 2a.<br>Wetland impact<br>number –<br>Permanent (P) or<br>Temporary (T)                                                                                               | 2b.<br>Type of impact | 2c.<br>Type of wetland<br>(if known)                      | 2d.<br>Forested                                                         | 2e.<br>Type of jurisdiction<br>(Corps - 404, 10<br>DWQ – non-404, other)       | 2f.<br>Area of impact<br>(acres)            |                                       |
| Site 1 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 2 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 3 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 4 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 1 <input type="checkbox"/> P <input type="checkbox"/> T<br>Utility Impacts                                                                                      |                       |                                                           | <input type="checkbox"/> Yes<br><input type="checkbox"/> No             | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| <b>2g. Total wetland impacts</b>                                                                                                                                     |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| 2h. Comments:                                                                                                                                                        |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| <b>3. Stream Impacts</b>                                                                                                                                             |                       |                                                           |                                                                         |                                                                                |                                             |                                       |
| 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.<br>Stream impact<br>number -<br>Permanent (P) or<br>Temporary (T)                                                                                                | 3b.<br>Type of impact | 3c.<br>Stream name                                        | 3d.<br>Perennial<br>(PER) or<br>intermittent<br>(INT)?                  | 3e.<br>Type of<br>jurisdiction<br>(Corps - 404, 10<br>DWQ – non-404,<br>other) | 3f.<br>Average<br>stream<br>width<br>(feet) | 3g.<br>Impact length<br>(linear feet) |
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T                                                                                              | Bank<br>Stabilization | Little Grassy<br>Creek                                    | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input type="checkbox"/> DWQ      | 25                                          | 77 lf                                 |
| Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T                                                                                              | Causeway              | Little Grassy<br>Creek                                    | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input type="checkbox"/> DWQ      | 25                                          | 0.02 ac.                              |
| Site 2 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> PER<br><input type="checkbox"/> INT            | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 3 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> PER<br><input type="checkbox"/> INT            | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 4 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> PER<br><input type="checkbox"/> INT            | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| Site 5 <input type="checkbox"/> P <input type="checkbox"/> T                                                                                                         |                       |                                                           | <input type="checkbox"/> PER<br><input type="checkbox"/> INT            | <input type="checkbox"/> Corps<br><input type="checkbox"/> DWQ                 |                                             |                                       |
| <b>3h. Total stream and tributary impacts</b>                                                                                                                        |                       |                                                           |                                                                         |                                                                                |                                             | 77 lf Perm<br>0.02 ac.<br>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.<br>Open water<br>impact number –<br>Permanent (P) or<br>Temporary (T) | 4b.<br>Name of<br>waterbody<br>(if applicable) | 4c.<br><br>Type of impact | 4d.<br><br>Waterbody type | 4e.<br><br>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                  |                                                |                           |                           |                                   |
| <b>4f. Total open water impacts</b>                                       |                                                |                           |                           | 0 Permanent<br>0 Temporary        |

4g. Comments:

**5. Pond or Lake Construction**

If pond or lake construction proposed, then complete the chart below.

| 5a.<br><br>Pond ID<br>number | 5b.<br><br>Proposed use or<br>purpose of pond | 5c.<br><br>Wetland Impacts (acres) |        |               | 5d.<br><br>Stream Impacts (feet) |        |           | 5e.<br><br>Upland<br>(acres) |
|------------------------------|-----------------------------------------------|------------------------------------|--------|---------------|----------------------------------|--------|-----------|------------------------------|
|                              |                                               | Flooded                            | Filled | Excavat<br>ed | Flooded                          | Filled | Excavated | Flooded                      |
| P1                           |                                               |                                    |        |               |                                  |        |           |                              |
| P2                           |                                               |                                    |        |               |                                  |        |           |                              |
| <b>5f. Total</b>             |                                               |                                    |        |               |                                  |        |           |                              |

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.<br>Project is in which protected basin?                           |                          |                    | <input type="checkbox"/> Neuse<br><input type="checkbox"/> Catawba |                                       |                                       | <input type="checkbox"/> Tar-Pamlico<br><input type="checkbox"/> Randleman |  |  | <input type="checkbox"/> Other: Jordan |  |  |
| 6b.<br>Buffer impact<br>number –<br>Permanent (P) or<br>Temporary (T) | 6c.<br>Reason for impact | 6d.<br>Stream name | 6e.<br>Buffer<br>mitigation<br>required?                           | 6f.<br>Zone 1 impact<br>(square feet) | 6g.<br>Zone 2 impact<br>(square feet) |                                                                            |  |  |                                        |  |  |
| B1 <input type="checkbox"/> P <input type="checkbox"/> T              |                          |                    | <input type="checkbox"/> Yes<br><input type="checkbox"/> No        |                                       |                                       |                                                                            |  |  |                                        |  |  |
| B2 <input type="checkbox"/> P <input type="checkbox"/> T              |                          |                    | <input type="checkbox"/> Yes<br><input type="checkbox"/> No        |                                       |                                       |                                                                            |  |  |                                        |  |  |
| B3 <input type="checkbox"/> P <input type="checkbox"/> T              |                          |                    | <input type="checkbox"/> Yes<br><input type="checkbox"/> No        |                                       |                                       |                                                                            |  |  |                                        |  |  |
| 6h. Total buffer impacts                                              |                          |                    |                                                                    |                                       | 0                                     |                                                                            |  |  |                                        |  |  |
| 6i. Comments:                                                         |                          |                    |                                                                    |                                       |                                       |                                                                            |  |  |                                        |  |  |

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                  |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>D. Impact Justification and Mitigation</b>                                                                                                                                                                                                                                                                         |                                                                                                                                                                  |          |
| <b>1. Avoidance and Minimization</b>                                                                                                                                                                                                                                                                                  |                                                                                                                                                                  |          |
| 1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.<br>See Stormwater Management Plan. The existing 3 span bridge will be replaced with a single span structure, removing a bent from the channel of stream. An offsite detour will be used during construction. |                                                                                                                                                                  |          |
| 1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.<br>Best Management Practices for Surface Waters will be used during all phases of construction.                                                                                                   |                                                                                                                                                                  |          |
| <b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>                                                                                                                                                                                                                            |                                                                                                                                                                  |          |
| 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                                                                                              |          |
|                                                                                                                                                                                                                                                                                                                       | <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<br><input type="checkbox"/> Payment to in-lieu fee program<br><input type="checkbox"/> Permittee Responsible Mitigation |          |
| <b>3. Complete if Using a Mitigation Bank</b>                                                                                                                                                                                                                                                                         |                                                                                                                                                                  |          |
| 3a. Name of Mitigation Bank: not applicable                                                                                                                                                                                                                                                                           |                                                                                                                                                                  |          |
| 3b. Credits Purchased (attach receipt and letter)                                                                                                                                                                                                                                                                     | Type                                                                                                                                                             | Quantity |
| 3c. Comments:                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  |          |
| <b>4. Complete if Making a Payment to In-lieu Fee Program</b>                                                                                                                                                                                                                                                         |                                                                                                                                                                  |          |
| 4a. Approval letter from in-lieu fee program is attached.                                                                                                                                                                                                                                                             | <input type="checkbox"/> Yes                                                                                                                                     |          |
| 4b. Stream mitigation requested:                                                                                                                                                                                                                                                                                      | 0 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:                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  |          |
| <b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>                                                                                                                                                                                                                                                   |                                                                                                                                                                  |          |
| 5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.                                                                                                                                                                                                          |                                                                                                                                                                  |          |



|                                                                                                                                                                                                                             |                          |                                      |            |                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------|------------|---------------------------------------------------------------------|
| <b>6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ</b>                                                                                                                                       |                          |                                      |            |                                                                     |
| 6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?                                                                                                                |                          |                                      |            | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.<br>Reason for impact | 6d.<br>Total impact<br>(square feet) | Multiplier | 6e.<br>Required mitigation<br>(square feet)                         |
| Zone 1                                                                                                                                                                                                                      |                          |                                      |            |                                                                     |
| Zone 2                                                                                                                                                                                                                      |                          |                                      |            |                                                                     |
| 6f. Total buffer mitigation required:                                                                                                                                                                                       |                          |                                      |            |                                                                     |
| 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:                                                                                                                                                                                                               |                          |                                      |            |                                                                     |

|                                                                                                                                                |                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>                                                                        |                                                                                                                                                                                               |
| <b>1. Diffuse Flow Plan</b>                                                                                                                    |                                                                                                                                                                                               |
| 1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                                                                                           |
| 1b. If yes, then is a diffuse flow plan included? If no, explain why.<br>Comments: Project not within a buffered basin.                        | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                                                                                           |
| <b>2. Stormwater Management Plan</b>                                                                                                           |                                                                                                                                                                                               |
| 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:<br>See attached.       |                                                                                                                                                                                               |
| 2e. Who will be responsible for the review of the Stormwater Management Plan?                                                                  | <input type="checkbox"/> Certified Local Government<br><input type="checkbox"/> DWQ Stormwater Program<br><input checked="" type="checkbox"/> DWQ 401 Unit                                    |
| <b>3. Certified Local Government Stormwater Review</b>                                                                                         |                                                                                                                                                                                               |
| 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<br><input type="checkbox"/> NSW<br><input type="checkbox"/> USMP<br><input type="checkbox"/> Water Supply Watershed<br><input type="checkbox"/> Other:      |
| 3c. Has the approved Stormwater Management Plan with proof of approval been attached?                                                          | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                           |
| <b>4. DWQ Stormwater Program Review</b>                                                                                                        |                                                                                                                                                                                               |
| 4a. Which of the following state-implemented stormwater management programs apply (check all that apply):                                      | <input type="checkbox"/> Coastal counties<br><input type="checkbox"/> HQW<br><input type="checkbox"/> ORW<br><input type="checkbox"/> Session Law 2006-246<br><input type="checkbox"/> Other: |
| 4b. Has the approved Stormwater Management Plan with proof of approval been attached?                                                          | <input type="checkbox"/> Yes <input type="checkbox"/> No      NA                                                                                                                              |
| <b>5. DWQ 401 Unit Stormwater Review</b>                                                                                                       |                                                                                                                                                                                               |
| 5a. Does the Stormwater Management Plan meet the appropriate requirements?                                                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                           |
| 5b. Have all of the 401 Unit submittal requirements been met?                                                                                  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                           |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>F. Supplementary Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                        |
| <b>1. Environmental Documentation (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                        |
| 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.)<br><br>Comments:                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    |
| <b>2. Violations (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                        |
| 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):                                                                                                                                                                                                                                                                                                                                                             |                                                                        |
| <b>3. Cumulative Impacts (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                        |
| 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<br><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.<br><br>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. |                                                                        |
| <b>4. Sewage Disposal (DWQ Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                        |
| 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.<br><br>not applicable                                                                                                                                                                                                                                                   |                                                                        |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                     |                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                     |                                        |
| 5a. Will this project occur in or near an area with federally protected species or habitat?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> Yes                                                                                                                                                                             | <input type="checkbox"/> No            |
| 5b. Have you checked with the USFWS concerning Endangered Species Act impacts?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Yes                                                                                                                                                                             | <input checked="" type="checkbox"/> No |
| 5c. If yes, indicate the USFWS Field Office you have contacted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input checked="" type="checkbox"/> Raleigh<br><input type="checkbox"/> Asheville                                                                                                                                   |                                        |
| 5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat?<br><br>N.C. Natural Heritage Program database; USFWS-Raleigh Field Office website; biological surveys for protected species listed for Granville County, which include the dwarf wedgemussel, harperella and smooth coneflower. Biological Conclusions of "No Effect" were rendered for all species. Habitat does not exist in the study area for harperella and smooth coneflower. Although habitat exists in the study area for dwarf wedgemussel, the project is in the Roanoke River basin, where the species has never been found. |                                                                                                                                                                                                                     |                                        |
| <b>6. Essential Fish Habitat (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                     |                                        |
| 6a. Will this project occur in or near an area designated as essential fish habitat?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> Yes                                                                                                                                                                                        | <input checked="" type="checkbox"/> No |
| 6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat?<br>NMFS County Index                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |                                        |
| <b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                     |                                        |
| 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)?                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Yes                                                                                                                                                                                        | <input checked="" type="checkbox"/> No |
| 7b. What data sources did you use to determine whether your site would impact historic or archeological resources?<br>NEPA Documentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                     |                                        |
| <b>8. Flood Zone Designation (Corps Requirement)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                     |                                        |
| 8a. Will this project occur in a FEMA-designated 100-year floodplain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Yes                                                                                                                                                                             | <input type="checkbox"/> 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                     |                                        |
| for <u>Richard W. Hancock, P.E.</u><br>Applicant/Agent's Printed Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <br>Applicant/Agent's Signature<br>(Agent's signature is valid only if an authorization letter from the applicant is provided.) | 7-9-14<br>Date                         |



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JUN 30 2009

2009-00983  
Regulatory Branch

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): ~~June 30, 2009~~ November 2, 2009

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

North Carolina Department of Transportation  
Philip S Harris, III, P.E., Manager  
Natural Environment Unit  
Attn: Dennis W. Herman  
4701 Atlantic Ave., Suite 116  
Raleigh, NC 27604

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

SAW, NCDOT/B-5151/SR 1432/Currin Rd  
BR 215, 2009-00983.

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

B-5151 Bridge on SR 1432 over Little Grassy Creek, near Stovall, NC

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

State: NC

County/parish/borough: Granville

City: Stovall

Center coordinates of site (lat/long in degree decimal format):

Lat. 36.4593° N, Long. -78.6072° W

Universal Transverse Mercator:

Name of nearest waterbody: Little Grassy Creek

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

Non-wetland waters: 195 linear feet (121' above ground & 74' below ground):

1-2 width (ft) and/or 0.3 acres.

Cowardin Class: ~~Riverine~~ - Intermittent (UTD) Palustrine

Stream Flow: Slow → 2 Perennial (Grassy Creek)

Wetlands: 0 acres.

Cowardin Class:

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

Tidal:

Non-Tidal:

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NOV 3 2009

DIVISION OF HIGHWAYS  
PDEA-OFFICE OF NATURAL ENVIRONMENT



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

- ☒ Office (Desk) Determination. Date: 8/12/2009  
☐ Field Determination. Date(s):

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: Stovall, NC.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 1997. *Soil Survey of Granville County, North Carolina*. Map 7.
- ☐ National wetlands inventory map(s). Cite name: statewide NWI GIS data file from CGIA.
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date):  
or ☒ Other (Name & Date): **UT1 photos; 6/22/09.**
- ☐ 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.**

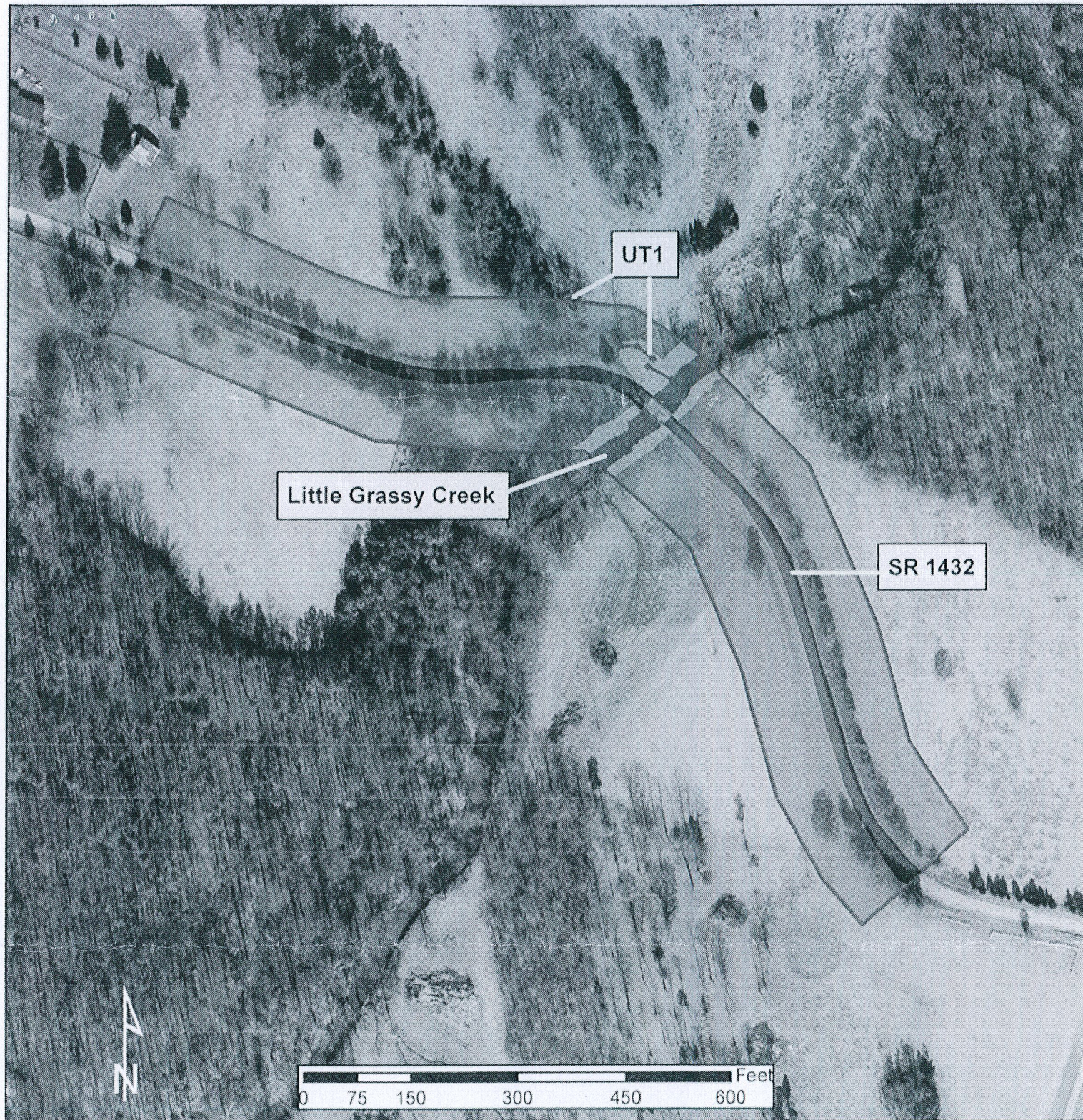


Eric Alley 11/2/2009  
Signature and date of  
Regulatory Project Manager  
(REQUIRED)

Dennis W. Hanna  
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    |
|-------------|----------|-----------|----------------|-----------------------------------------------------|------------------------------|
| S1          | 36.4593  | -78.6072  | Perennial      | 200 feet                                            | Non-section 10 – non-wetland |
| UT1         | 36.4593  | -78.6072  | Intermittent   | 195 feet<br>121' above ground<br>74' below ground   | Non-section 10 – non-wetland |



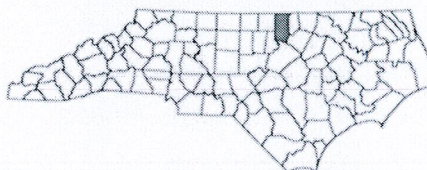


**Figure 3. Terrestrial Communities & Jurisdictional Resources**

GRANVILLE COUNTY  
 REPLACE BRIDGE NO. 215 ON SR 1432  
 OVER LITTLE GRASSY CREEK  
 B-5151

**Legend**

- Jurisdictional Stream
- Little Grassy Creek
- Maintained/Disturbed
- Piedmont/Mountain Bottomland Hardwood
- Impervious Surface
- Study Area







## North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5151 (42312.1.1)

County(ies): Granville

Page 1 of 1

## General Project Information

|                                                                |                                          |                         |                                          |       |          |
|----------------------------------------------------------------|------------------------------------------|-------------------------|------------------------------------------|-------|----------|
| Project No.:                                                   | B-5151 (42312.1.1)                       | Project Type:           | Bridge Replacement                       | Date: | 4/8/2014 |
| NCDOT Contact:                                                 | Linda Johns/Craig Lee                    | Contractor / Designer:  | Linda Johns/Craig Lee                    |       |          |
| Address:                                                       | 1020 Birch Ridge Dr<br>Raleigh, NC 27610 | Address:                | 1020 Birch Ridge Dr<br>Raleigh, NC 27610 |       |          |
|                                                                | Phone:                                   |                         | 919-707-6728 / 919-707-6708              |       |          |
|                                                                | Email:                                   |                         | lmjohns@ncdot.gov / cjlee@ncdot.gov      |       |          |
| City/Town:                                                     | Oxford                                   | County(ies):            | Granville                                |       |          |
| River Basin(s):                                                | Roanoke                                  | CAMA County?            | No                                       |       |          |
| Primary Receiving Water:                                       | Little Grassy Creek                      | NCDWQ Stream Index No.: | 23-2-4                                   |       |          |
| NCDWQ Surface Water Classification for Primary Receiving Water | Primary:                                 | Class C                 |                                          |       |          |
|                                                                | Supplemental:                            |                         |                                          |       |          |
| Other Stream Classification:                                   |                                          |                         |                                          |       |          |
| 303(d) Impairments:                                            |                                          |                         |                                          |       |          |
| Buffer Rules in Effect                                         | N/A                                      |                         |                                          |       |          |

## Project Description

|                                      |                                                                          |                       |                                                         |     |
|--------------------------------------|--------------------------------------------------------------------------|-----------------------|---------------------------------------------------------|-----|
| Project Length (lin. Miles or feet): | 0.13                                                                     | Surrounding Land Use: | Woods/Fields                                            |     |
|                                      | Proposed Project                                                         |                       | Existing Site                                           |     |
| Project Built-Up Area (ac.)          | 0.38                                                                     | ac.                   | 0.33                                                    | ac. |
| Typical Cross Section Description:   | 10' Travel Lanes, 1' Paved Shoulder, 3' Grass Shoulders. 4:1 Side Slopes |                       | 10' Travel Lanes, 3' Grassed Shoulders, 3:1 Side Slopes |     |
| Average Daily Traffic (veh/hr/day):  | Design/Future:                                                           | 125                   | Existing:                                               | 87  |

## General Project Narrative:

The project consists of replacing Bridge# 215 on SR 1432 (Crawford-Currin Road) over Little Grassy Creek. The approach work will consist of raising the existing roadway grade and providing paved and grass shoulders and guardrails. Bridge #215 existing 3 span structure (55.0' total length) will be replaced with a single span (1@85') 33" box beam with 4' caps. Bridge #215 eliminates 1 bent which is in the water and 1 bent on natural ground.

## Best Mgmt. Practices:

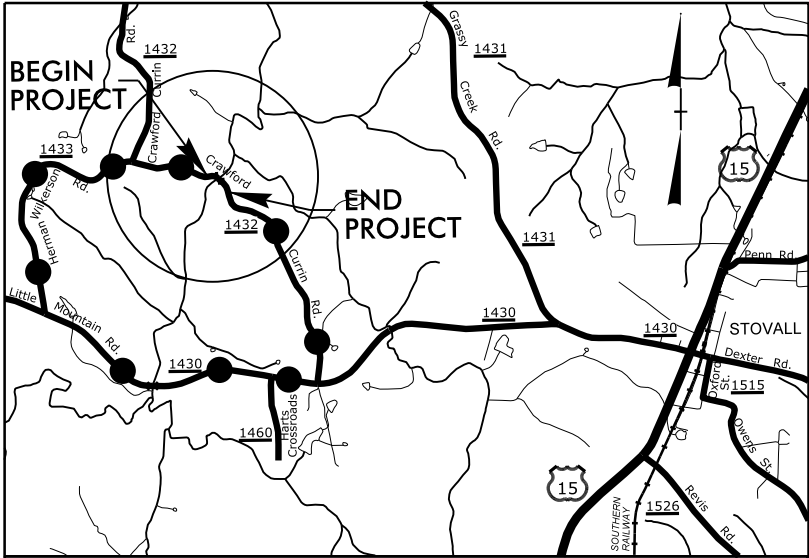
- Promotion of sheet flow and infiltration with grassed shoulders except where shoulder berm gutter to 2GI at bridge.
- Drainage systems outlet to rip rap pads. Systems in SW and SE quad outlets to proposed ditches.
- Elimination of direct runoff from the bridge deck into Little Grassy Creek.
- No Deck Drains required on bridge.
- Removal of existing road fill under bridges will improve bridge conveyance and reduce velocities in bridge opening.
- Rip Rap on embankments to prevent erosion.

## References



09/08/99

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



VICINITY MAP

● — ● — ● OFF-SITE DETOUR

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

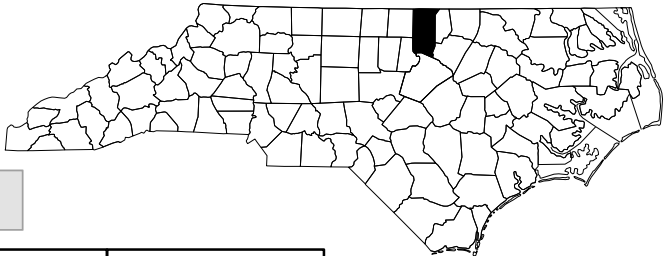
PERMIT DRAWING  
SHEET 1 OF 7

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | B-5151                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 42312.1.1       | BRZ-1432(5)                 | P.E.        |              |
| 42312.2.FD1     | BRZ-1432(5)                 | RW & UTIL.  |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

LOCATION: BRIDGE NO. 215 OVER LITTLE GRASSY CREEK  
ON SR 1432 (CRAWFORD CURRIN RD.)

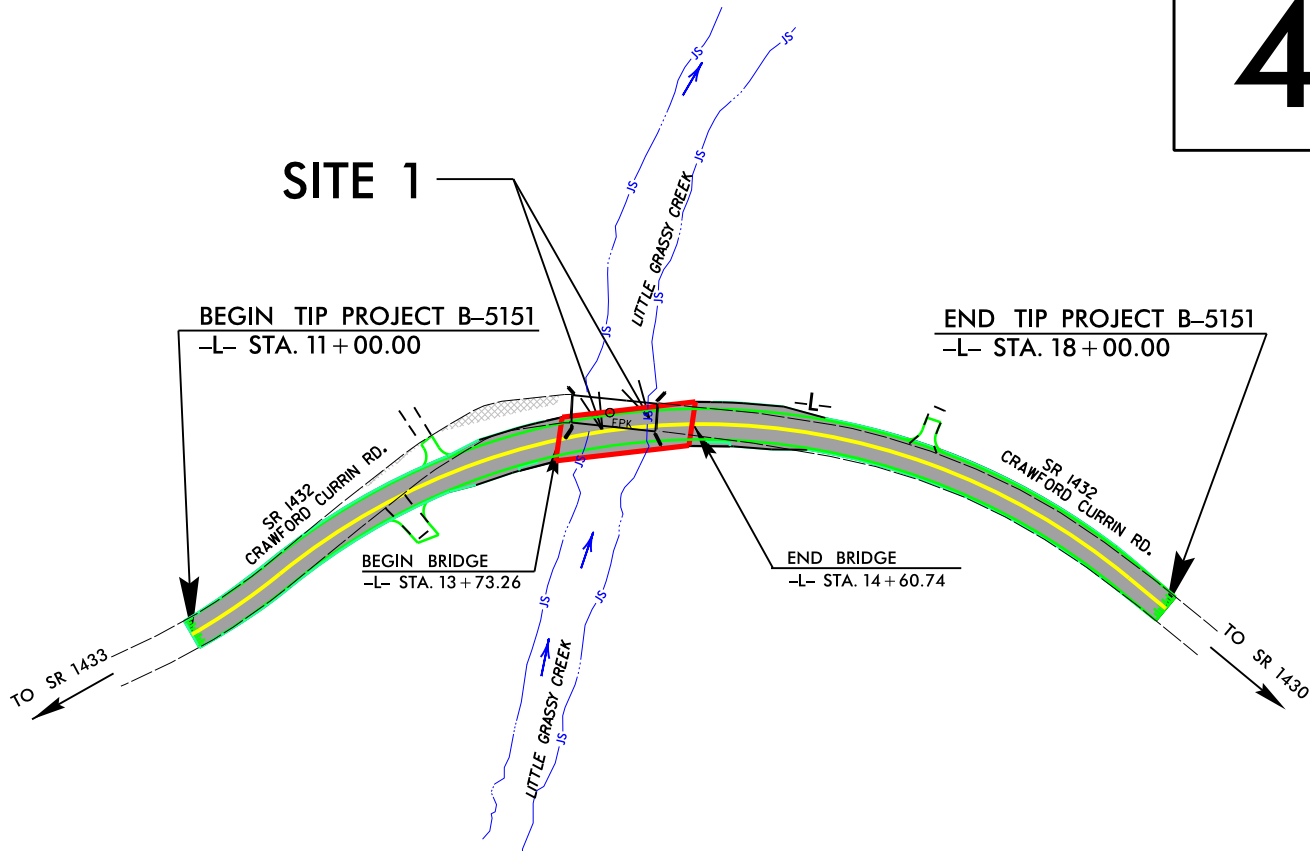
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT



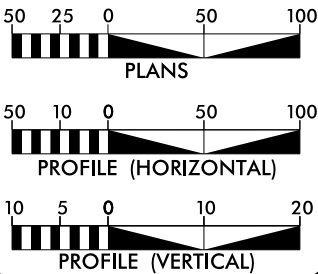
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NAD 83  
N/SRS 2007



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 87 VPD  
ADT 2035 = 125 VPD  
DHV = 10 %  
D = 60 %  
\* T = 3 %  
V = 40 MPH  
\*(TTST 1% + DUAL 2%)  
FUNC. CLASS. = RURAL LOCAL  
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5151 = 0.116 MILE  
LENGTH STRUCTURE TIP PROJECT B-5151 = 0.017 MILE  
TOTAL LENGTH TIP PROJECT B-5151 = 0.133 MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
JANUARY 17, 2014

LETTING DATE:  
FEBRUARY 17, 2015

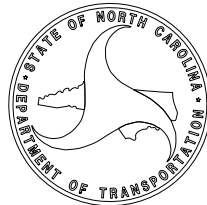
TONY HOUSER, PE  
PROJECT ENGINEER

JEFFREY L. TEAGUE, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS  
ENGINEER

SIGNATURE:  
ROADWAY DESIGN  
ENGINEER

SIGNATURE:

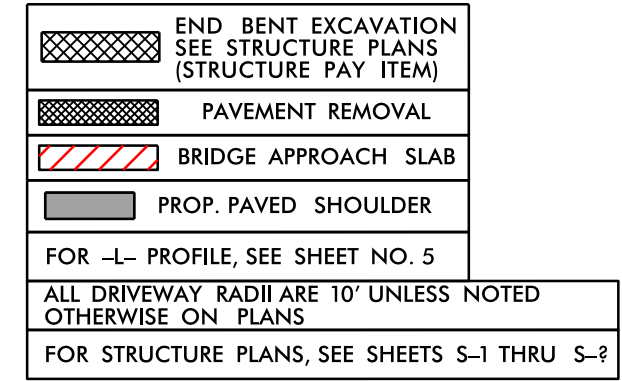


TIP PROJECT: B-5151

CONTRACT:

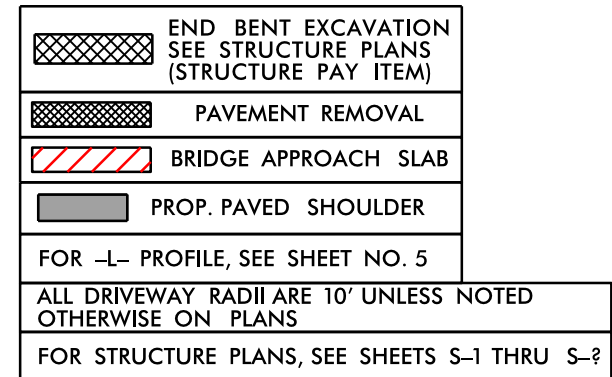
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\$\$\$\$\$USERNAME\$\$\$\$\$



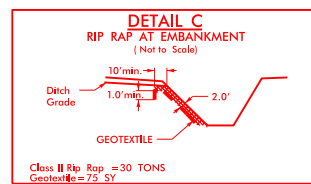




NAD 83/NSRS 2007



# SITE 1



 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

## REVISIONS

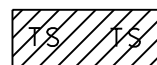
12/29/2014  
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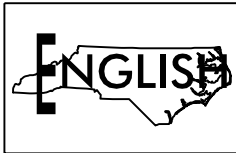
8/17/99

REVISIONS

4/29/2014  
cjlee  
R:\Hydraulics\PERMITS Environmental Drawings\B5151\_hyd\_pdm\_wet\_B\_4a7.dgn  
\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DESIGN\$\$\$\$\$  
\$\$\$\$\$DRAWING\$\$\$\$\$

 DENOTES IMPACTS IN SURFACE WATER  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

20' 0' 20' 40' 60'  
GRAPHIC SCALE

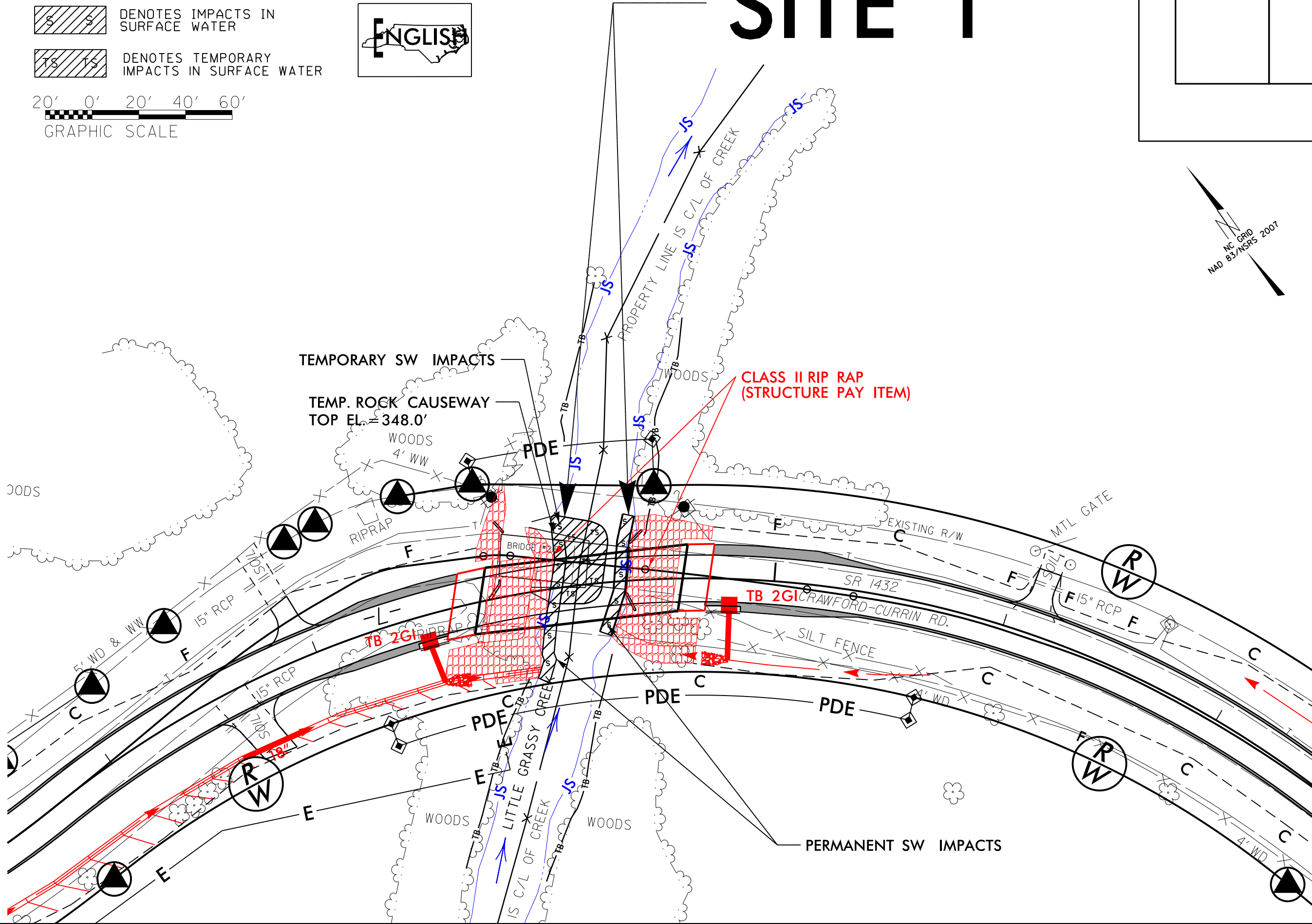


# SITE 1

PERMIT DRAWING  
SHEET 4 OF 7

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

NC GRID  
NAD 83/NSRS 2007





8/17/99

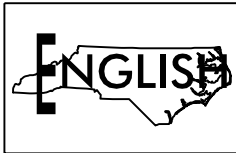
REVISIONS

4/29/2014  
cjee  
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\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DESIGN\$\$\$\$\$  
\$\$\$\$\$DATE\$\$\$\$\$

 DENOTES IMPACTS IN  
SURFACE WATER

 DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

20' 0' 20' 40' 60'  
GRAPHIC SCALE

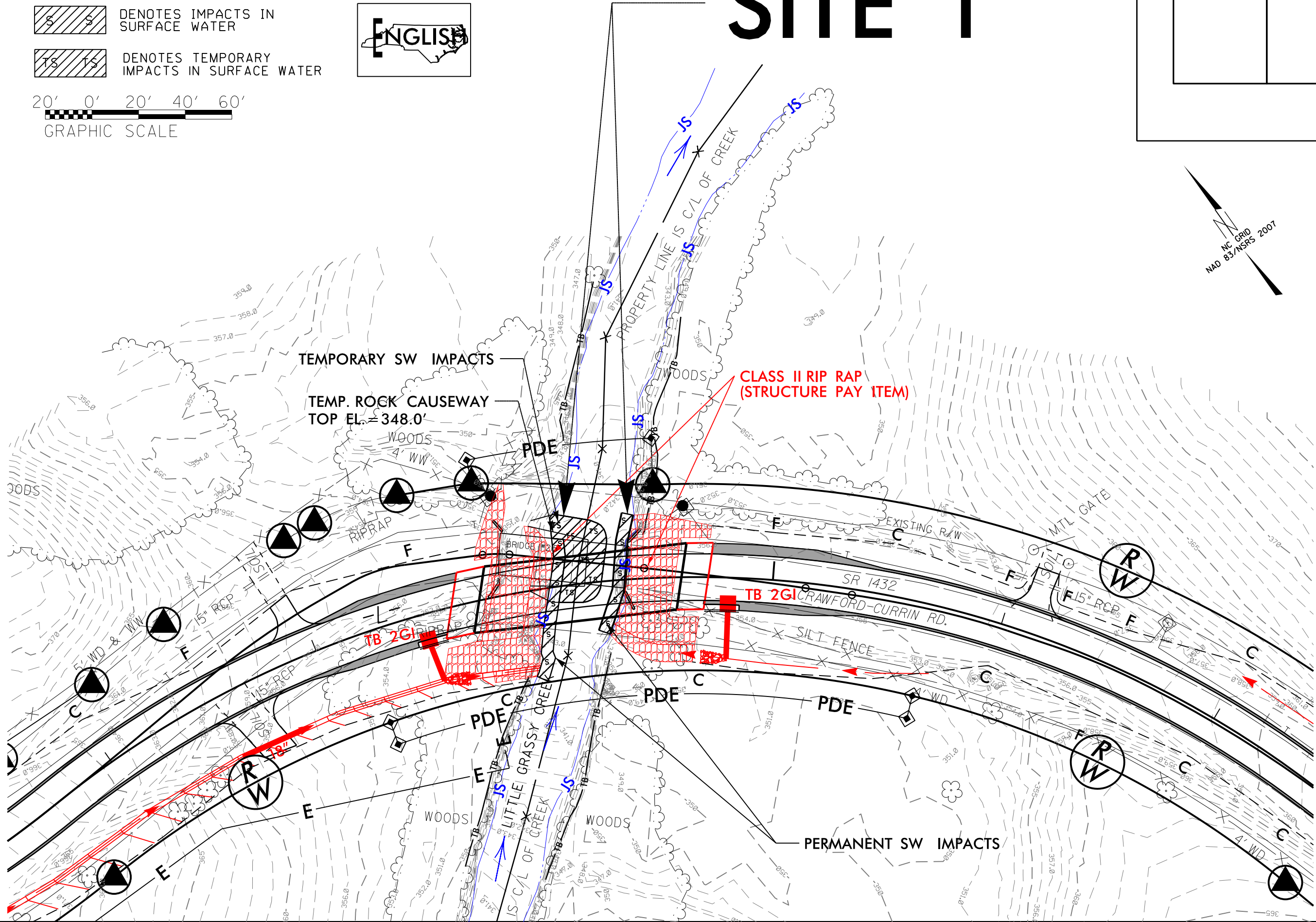


# SITE 1

PERMIT DRAWING  
SHEET 5 OF 7

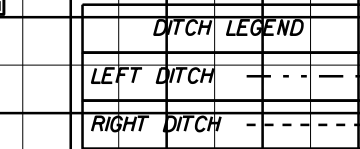
| PROJECT REFERENCE NO.   |  | SHEET NO.           |  |
|-------------------------|--|---------------------|--|
| RW SHEET NO.            |  | HYDRAULICS ENGINEER |  |
| ROADWAY DESIGN ENGINEER |  |                     |  |

NC GRID  
NAD 83/NSRS 2007





| BRIDGE HYDRAULIC DATA            |   |            |    |
|----------------------------------|---|------------|----|
| DESIGN DISCHARGE                 | = | 3200       | CF |
| DESIGN FREQUENCY                 | = | 25         | YR |
| DESIGN HW ELEVATION              | = | 354.5      | FT |
| BASE DISCHARGE                   | = | 4743       | CF |
| BASE FREQUENCY                   | = | 100        | YR |
| BASE HW ELEVATION                | = | 356.87     | FT |
| OVERTOPPING DISCHARGE            | = | 3900       | CF |
| OVERTOPPING FREQUENCY            | = | 50         | YR |
| OVERTOPPING ELEVATION            | = | 355.6      | FT |
| ESTIMATED N.W.S. ELEVATION       | = | 346.0      | FT |
| DATE OF SURVEY                   | = | 10/15/2013 |    |
| W.S. ELEVATION AT DATE OF SURVEY | = | 344.0      | FT |



|                                                                                       |                                              |  |  |  |
|---------------------------------------------------------------------------------------|----------------------------------------------|--|--|--|
|  | END BENT EXCAVATION                          |  |  |  |
|                                                                                       | SEE STRUCTURE PLANS<br>(STRUCTURE PAY ITEM)  |  |  |  |
|                                                                                       | FOR -1- PLAN VIEW, SEE SHEET 4               |  |  |  |
|                                                                                       | FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-? |  |  |  |



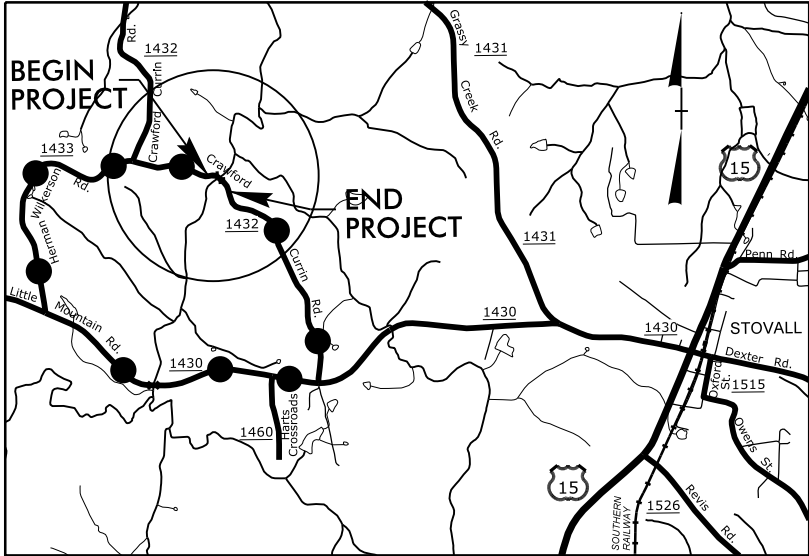
| WETLAND PERMIT IMPACT SUMMARY |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|-------------------------------|--------------------|-----------------------|--------------------------------------|-------------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|-----------------------------------------|-------------------------------------|----------------------------|
| Site No.                      | Station (From/To)  | Structure Size / Type | WETLAND IMPACTS                      |                                     |                             |                             |                                      |                                | SURFACE WATER IMPACTS     |                       |                                         |                                     |                            |
|                               |                    |                       | CAMA Permanent Fill In Wetlands (ac) | 404 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                             | 14+00 to 14+35 -L- | Bank Stabilization    |                                      |                                     |                             |                             |                                      |                                | <0.01                     |                       | 77                                      |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 1                             | 14+10 to 14+30 -L- | Rock Causeway         |                                      |                                     |                             |                             |                                      |                                |                           | 0.02                  |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                               |                    |                       |                                      |                                     |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| TOTALS:                       |                    |                       | 0.00                                 | 0.00                                | 0.00                        | 0.00                        | 0.00                                 | 0.00                           | <0.01                     | 0.02                  | 77                                      | 0.00                                | 0.00                       |

N.C.D.O.T.  
DIVISION OF HIGHWAYS  
GRANVILLE COUNTY  
PROJECT: 42312.1.1 (B-5151)  
BRIDGE #215 on  
SR 1432 (Crawford-Currin Rd)  
over Little Grassy Creek  
SHEET 7 of 7 (04/24/2014)



09/08/99

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



### VICINITY MAP

● — ● — ● OFF-SITE DETOUR

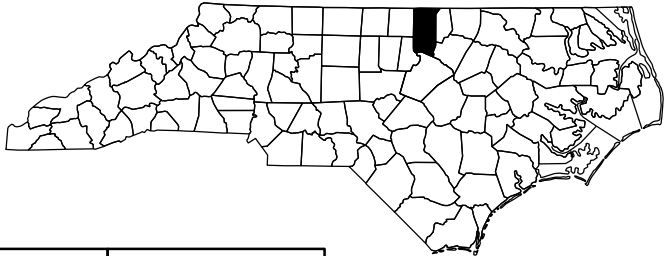
## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# GRANVILLE COUNTY

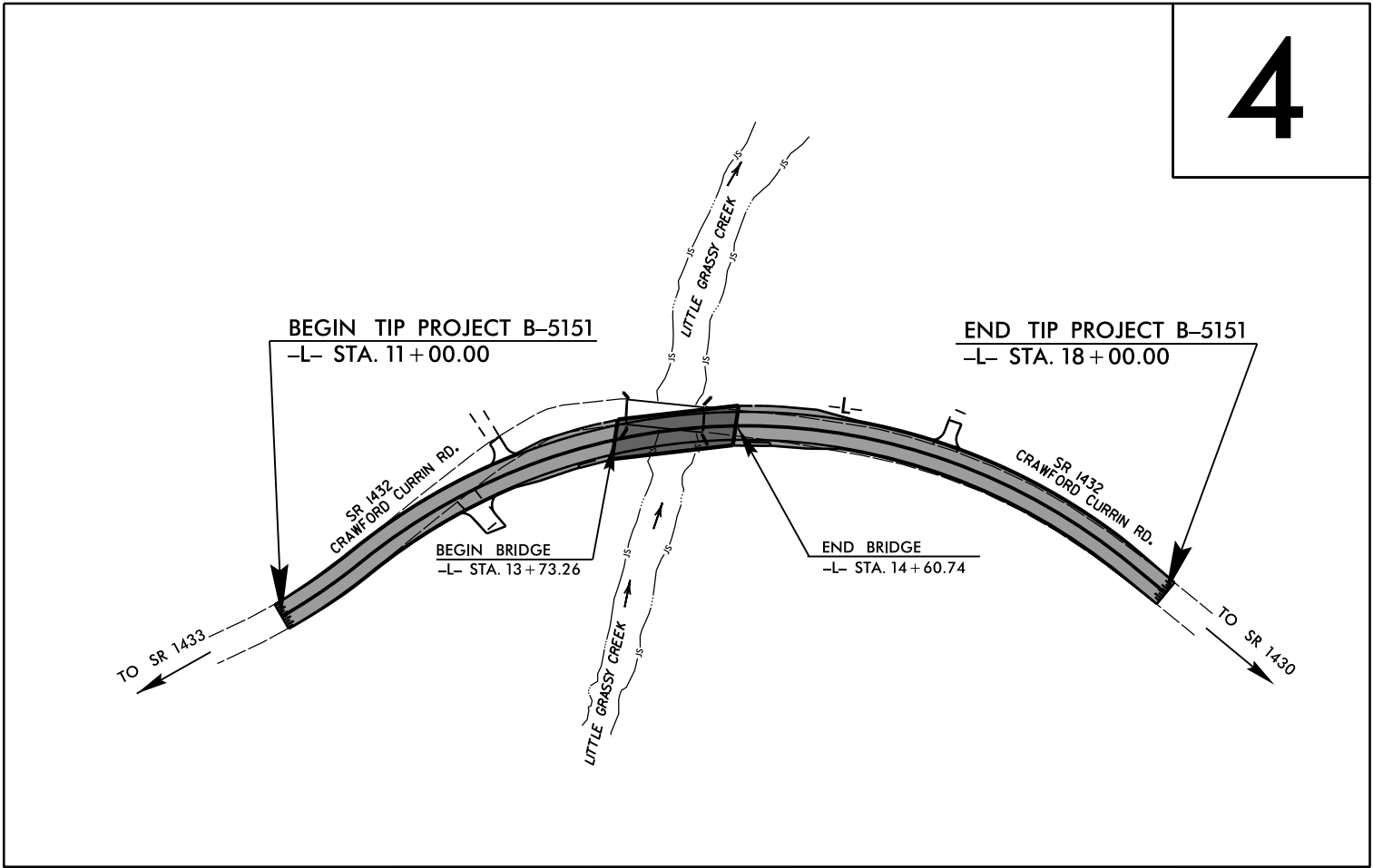
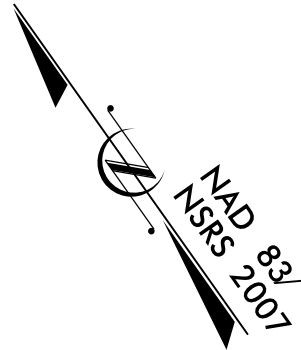
**LOCATION: BRIDGE NO. 215 OVER LITTLE GRASSY CREEK  
ON SR 1432 (CRAWFORD CURRIN RD.)**

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

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | B-5151                      | 1           |              |
| STATE PROJ. NO. | P.A. PROJ. NO.              | DESCRIPTION |              |
| 42312.1.1       | BRZ-1432(5)                 | P.E.        |              |
| 42312.2.FD1     | BRZ-1432(5)                 | RW & UTIL.  |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |



4



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 2015 = 87 VPD  
ADT 2035 = 125 VPD  
DHV = 10 %  
D = 60 %  
\* T = 3 %  
V = 40 MPH  
\*(TTST 1% + DUAL 2%)  
FUNC. CLASS. = RURAL LOCAL  
SUBREGIONAL TIER

### PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5151 = 0.116 MILE  
LENGTH STRUCTURE TIP PROJECT B-5151 = 0.017 MILE  
TOTAL LENGTH TIP PROJECT B-5151 = 0.133 MILE

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

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
JANUARY 17, 2014

**LETTING DATE:**  
FEBRUARY 17, 2015

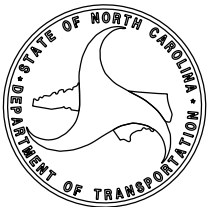
**TONY HOUSER, PE**  
PROJECT ENGINEER

**JEFFREY L. TEAGUE, PE**  
PROJECT DESIGN ENGINEER

**HYDRAULICS  
ENGINEER**

**SIGNATURE:**  
**ROADWAY DESIGN  
ENGINEER**

**SIGNATURE:**



**TIP PROJECT: B-5151**

**CONTRACT:**

25-MAR-2014 12:55  
R:\Roadway\Proj\B5151\_Rdy\_tsh.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$



*Note: Not to Scale*

*\*S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

|                                            |  |
|--------------------------------------------|--|
| State Line                                 |  |
| County Line                                |  |
| Township Line                              |  |
| City Line                                  |  |
| Reservation Line                           |  |
| Property Line                              |  |
| Existing Iron Pin                          |  |
| Property Corner                            |  |
| Property Monument                          |  |
| Parcel/Sequence Number                     |  |
| Existing Fence Line                        |  |
| Proposed Woven Wire Fence                  |  |
| Proposed Chain Link Fence                  |  |
| Proposed Barbed Wire Fence                 |  |
| Existing Wetland Boundary                  |  |
| Proposed Wetland Boundary                  |  |
| Existing Endangered Animal Boundary        |  |
| Existing Endangered Plant Boundary         |  |
| 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              |  |
| Buffer Zone 1                      |  |
| Buffer Zone 2                      |  |
| Flow Arrow                         |  |
| Disappearing Stream                |  |
| Spring                             |  |
| Wetland                            |  |
| Proposed Lateral, Tail, Head Ditch |  |
| False Sump                         |  |

RAILROADS:

|                    |  |
|--------------------|--|
| Standard Gauge     |  |
| RR Signal Milepost |  |
| 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                                    |  |
| Proposed Right of Way Line with Iron Pin and Cap Marker       |  |
| Proposed Right of Way Line with Concrete or Granite RW Marker |  |
| Proposed Control of Access Line with Concrete CA Marker       |  |
| Existing Control of Access                                    |  |
| Proposed Control of Access                                    |  |
| Existing Easement Line                                        |  |
| Proposed Temporary Construction Easement                      |  |
| Proposed Temporary Drainage Easement                          |  |
| Proposed Permanent Drainage Easement                          |  |
| Proposed Permanent Drainage / Utility Easement                |  |
| Proposed Permanent Utility Easement                           |  |
| Proposed Temporary Utility Easement                           |  |
| Proposed Aerial Utility Easement                              |  |

ROADS AND RELATED FEATURES:

|                                                          |  |
|----------------------------------------------------------|--|
| Proposed Permanent Easement with Iron Pin and Cap Marker |  |
| Existing Edge of Pavement                                |  |
| Existing Curb                                            |  |
| Proposed Slope Stakes Cut                                |  |
| Proposed Slope Stakes Fill                               |  |
| Proposed Curb Ramp                                       |  |
| Existing Metal Guardrail                                 |  |
| Proposed Guardrail                                       |  |
| Existing Cable Guiderail                                 |  |
| Proposed Cable Guiderail                                 |  |

|                  |  |
|------------------|--|
| Equality Symbol  |  |
| Pavement Removal |  |
| VEGETATION:      |  |
| Single Tree      |  |
| Single Shrub     |  |
| Hedge            |  |
| Woods Line       |  |

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

EXISTING STRUCTURES:

|                                          |  |
|------------------------------------------|--|
| MAJOR:                                   |  |
| Bridge, Tunnel or Box Culvert            |  |
| Bridge Wing Wall, Head Wall and End Wall |  |
| MINOR:                                   |  |
| Head and End Wall                        |  |
| Pipe Culvert                             |  |
| Footbridge                               |  |
| Drainage Box: Catch Basin, DI or JB      |  |
| 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             |  |
| Designated U/G Power Line (S.U.E.*) |  |

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                |  |
| Designated U/G Telephone Cable (S.U.E.*)    |  |
| Recorded U/G Telephone Conduit              |  |
| Designated U/G Telephone Conduit (S.U.E.*)  |  |
| Recorded U/G Fiber Optics Cable             |  |
| Designated U/G Fiber Optics Cable (S.U.E.*) |  |

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             |  |

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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



6/2/99

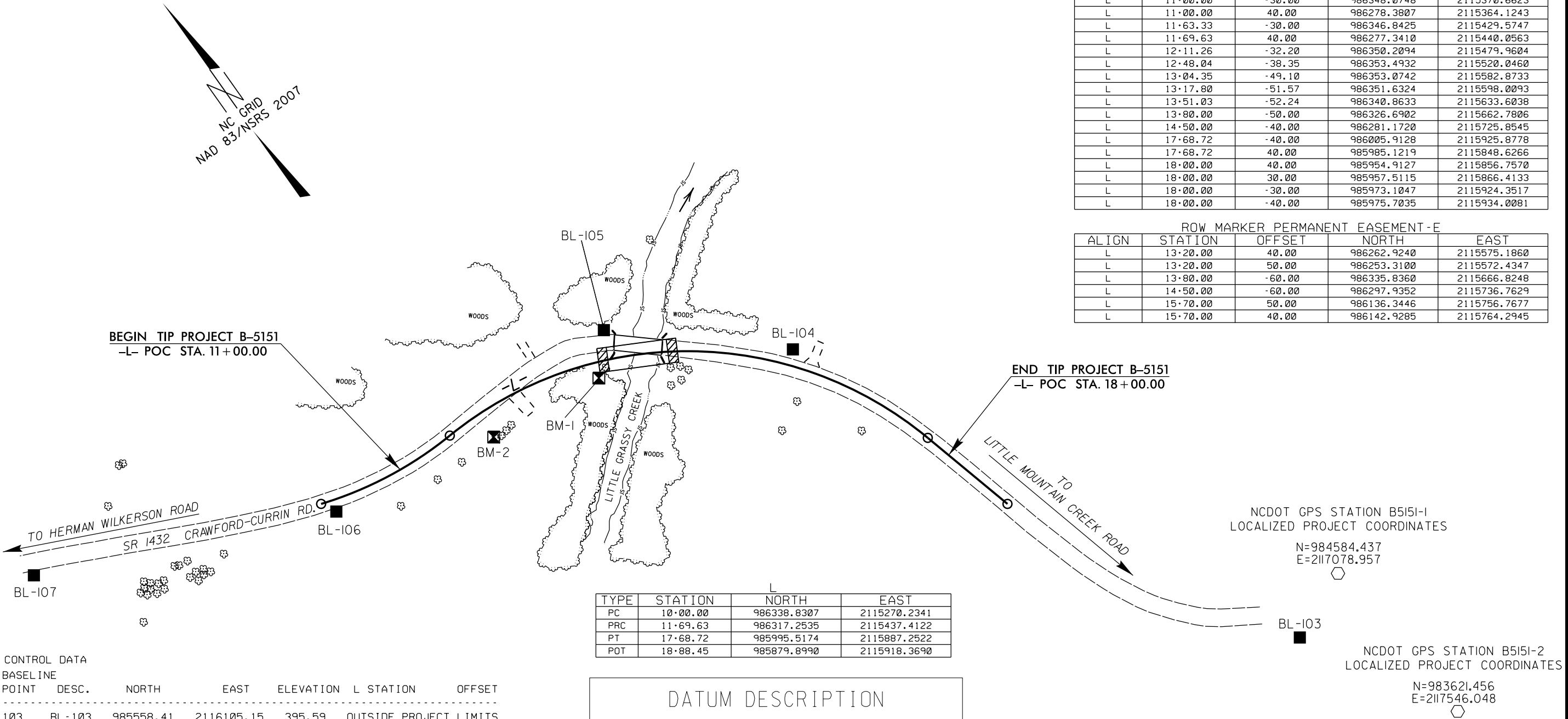
|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-5151                | 1-C       |
| Location and Surveys  |           |

# SURVEY CONTROL SHEET B-5151

LOCATION: BRIDGE NO.215 OVER LITTLE GRASSY CREEK  
ON SR 1432 (CRAWFORD CURRIN RD.)

| ROW MARKER CONCRETE OR GRANITE -E |          |        |             |              |
|-----------------------------------|----------|--------|-------------|--------------|
| ALIGN                             | STATION  | OFFSET | NORTH       | EAST         |
| L                                 | 11+00.00 | 30.00  | 986288.3370 | 2115365.0583 |
| L                                 | 11+00.00 | -30.00 | 986348.0748 | 2115370.6623 |
| L                                 | 11+00.00 | 40.00  | 986278.3807 | 2115364.1243 |
| L                                 | 11+63.33 | -30.00 | 986346.8425 | 2115429.5747 |
| L                                 | 11+69.63 | 40.00  | 986277.3410 | 2115440.0563 |
| L                                 | 12+11.26 | -32.20 | 986350.2094 | 2115479.9604 |
| L                                 | 12+48.04 | -38.35 | 986353.4932 | 2115520.0460 |
| L                                 | 13+04.35 | -49.10 | 986353.0742 | 2115582.8733 |
| L                                 | 13+17.80 | -51.57 | 986351.6324 | 2115598.0093 |
| L                                 | 13+51.03 | -52.24 | 986340.8633 | 2115633.6038 |
| L                                 | 13+80.00 | -50.00 | 986326.6902 | 2115662.7806 |
| L                                 | 14+50.00 | -40.00 | 986281.1720 | 2115725.8545 |
| L                                 | 17+68.72 | -40.00 | 986005.9128 | 2115925.8778 |
| L                                 | 17+68.72 | 40.00  | 985985.1219 | 2115848.6266 |
| L                                 | 18+00.00 | 40.00  | 985954.9127 | 2115856.7570 |
| L                                 | 18+00.00 | 30.00  | 985957.5115 | 2115866.4133 |
| L                                 | 18+00.00 | -30.00 | 985973.1047 | 2115924.3517 |
| L                                 | 18+00.00 | -40.00 | 985975.7035 | 2115934.0081 |

| ROW MARKER PERMANENT EASEMENT -E |          |        |             |              |
|----------------------------------|----------|--------|-------------|--------------|
| ALIGN                            | STATION  | OFFSET | NORTH       | EAST         |
| L                                | 13+20.00 | 40.00  | 986262.9240 | 2115575.1860 |
| L                                | 13+20.00 | 50.00  | 986253.3100 | 2115572.4347 |
| L                                | 13+80.00 | -60.00 | 986335.8360 | 2115666.8248 |
| L                                | 14+50.00 | -60.00 | 986297.9352 | 2115736.7629 |
| L                                | 15+70.00 | 50.00  | 986136.3446 | 2115756.7677 |
| L                                | 15+70.00 | 40.00  | 986142.9285 | 2115764.2945 |



| CONTROL DATA |        |           |            |           |                        |          |
|--------------|--------|-----------|------------|-----------|------------------------|----------|
| BASELINE     |        |           |            |           |                        |          |
| POINT        | DESC.  | NORTH     | EAST       | ELEVATION | L STATION              | OFFSET   |
| 103          | BL-103 | 985558.41 | 2116105.15 | 395.59    | OUTSIDE PROJECT LIMITS |          |
| 104          | BL-104 | 986169.23 | 2115818.95 | 355.13    | 15+85.53               | 18.75 LT |
| 105          | BL-105 | 986313.79 | 2115653.31 | 354.50    | 13+76.81               | 34.39 LT |
| 106          | BL-106 | 986321.51 | 2115279.47 | 378.29    | 10+13.82               | 13.72 RT |
| 107          | BL-107 | 986463.53 | 2114951.25 | 403.72    | OUTSIDE PROJECT LIMITS |          |

| BENCHMARK DATA     |                    |
|--------------------|--------------------|
| *****              |                    |
| BM-1               | ELEVATION = 352.53 |
| N 986272           | E 2115617          |
| L STATION 13+59.00 | 18 RIGHT           |
| RRS IN 18" BIRCH   |                    |
| *****              |                    |
| BM-2               | ELEVATION = 366.56 |
| N 986287           | E 2115478          |
| L STATION 12+11.00 | 32 RIGHT           |
| RRS IN 16" PINE    |                    |
| *****              |                    |

| TYPE | STATION  | NORTH       | EAST         |
|------|----------|-------------|--------------|
| PC   | 10+00.00 | 986338.8307 | 2115270.2341 |
| PRC  | 11+69.63 | 986317.2535 | 2115437.4122 |
| PT   | 17+68.72 | 985995.5174 | 2115887.2522 |
| POT  | 18+88.45 | 985879.8990 | 2115918.3690 |

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5151-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 984584.437(±) EASTING: 2117078.957(±) ELEVATION: 419.95(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00007657

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5151-1" TO -L- STATION 11+00.00 IS N44°37'22.50"W 2435.94'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

- NOTES:
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING NCDOT PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/) THE FILES TO BE FOUND ARE AS FOLLOWS: B5151\_LS\_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

25-MAR-2014 12:55  
R:\Roadway\Projects\B5151\LS.LC.dgn

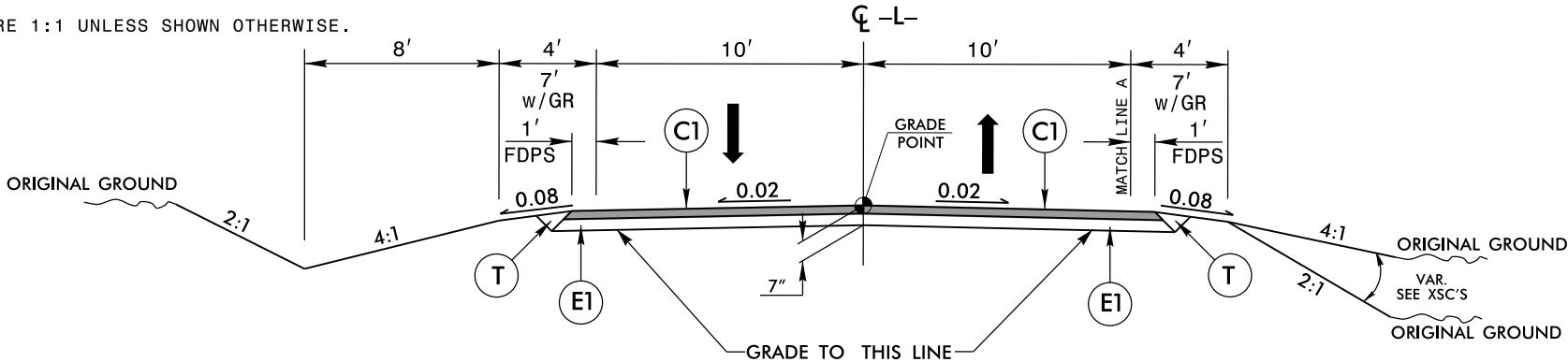


6/2/99

|                                                  |                          |
|--------------------------------------------------|--------------------------|
| PROJECT REFERENCE NO.                            | SHEET NO.                |
| B-5151                                           | 2                        |
| ROADWAY DESIGN ENGINEER                          | PAVEMENT DESIGN ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                          |

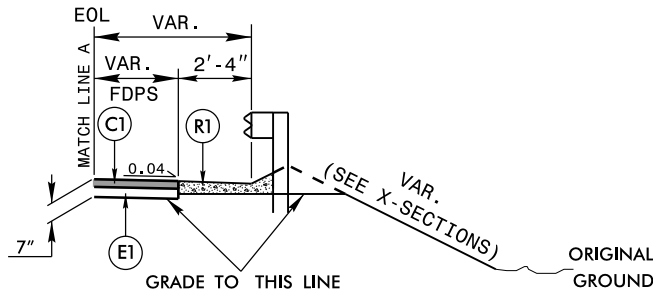
| PAVEMENT SCHEDULE<br>(FINAL PAVEMENT DESIGN) |                                                                                                                                  |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| C1                                           | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E1                                           | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.                           |
| R1                                           | SHOULDER BERM GUTTER.                                                                                                            |
| T                                            | EARTH MATERIAL.                                                                                                                  |

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

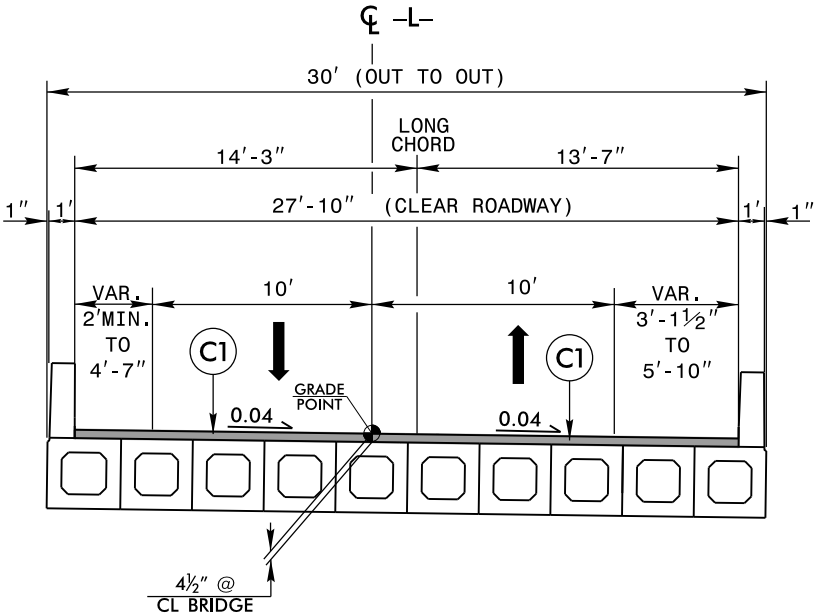


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1  
AT THE FOLLOWING LOCATIONS:  
-L- STA. 11+00.00 TO 13+73.26 (BEGIN BRIDGE)  
-L- STA. 14+60.74 (END BRIDGE) TO 18+00.00

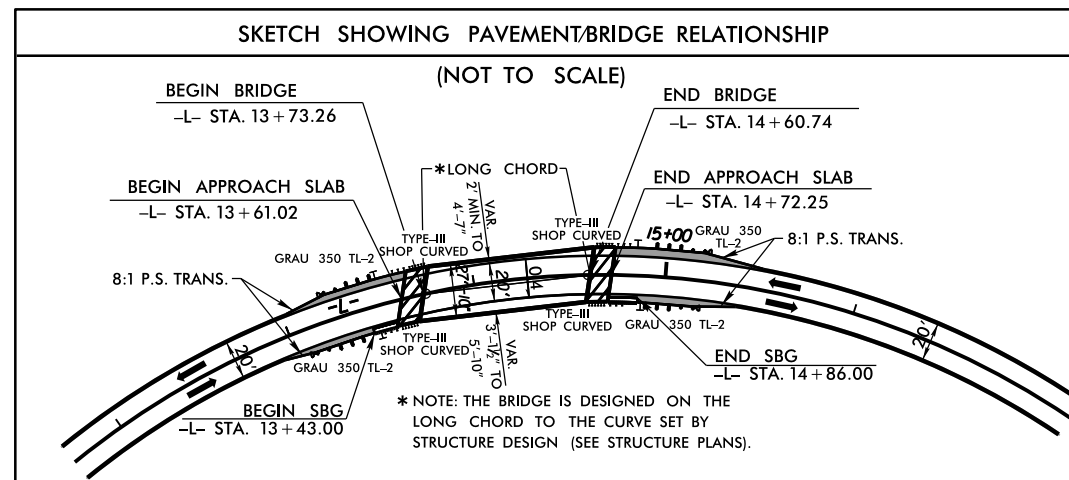


DETAIL SHOWING SHOULDER BERM GUTTER (SBG)  
ON TOP OF SUBGRADE  
USE SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:  
-L- STA. 13+43.00 TO 13+56.80 RT.  
-L- STA. 14+70.22 TO 14+86.00 RT.



TYPICAL SECTION NO. 2  
BOX BEAM BRIDGE  
SEE STRUCTURE PLANS

USE TYPICAL SECTION NO. 2  
AT THE FOLLOWING LOCATION:  
-L- STA. 13+73.26 (BEGIN BRIDGE) TO  
14+60.74 (END BRIDGE)



 END BENT EXCAVATION  
SEE STRUCTURE PLANS  
(STRUCTURE PAY ITEM)

 PAVEMENT REMOVAL

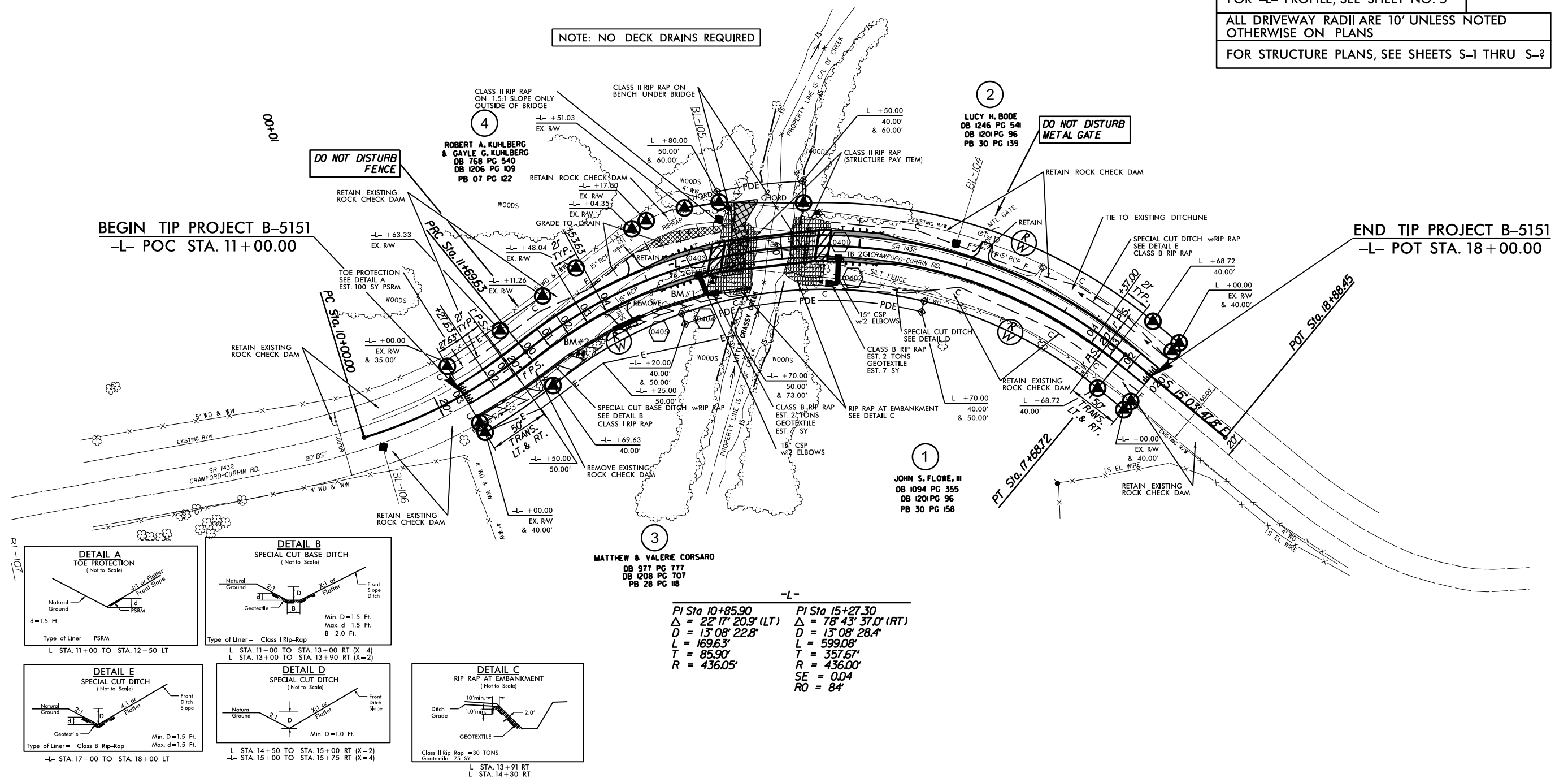
 BRIDGE APPROACH SLAB

☐ PROP. PAVED SHOULDER

FOR -L- PROFILE, SEE SHEET NO. 5

ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE ON PLANS

FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-?



MATTHEW & VALERIE CORSARO  
DB 977 PG 777  
DB 1208 PG 707  
PB 28 PG 118

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| PI Sta 10+85.90                     | PI Sta 15+27.30                     |
| $\Delta = 22^\circ 17' 20.9''$ (LT) | $\Delta = 78^\circ 43' 37.0''$ (RT) |
| $D = 13^\circ 08' 22.8''$           | $D = 13^\circ 08' 28.4''$           |
| $L = 169.63'$                       | $L = 599.08'$                       |
| $T = 85.90'$                        | $T = 357.67'$                       |
| $R = 436.05'$                       | $R = 436.00'$                       |

-7-

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| <i>PI</i> <i>Sia</i> 10+85.90        | <i>PI</i> <i>Sia</i> 15+27.30         |
| $\Delta = 22^{\circ}17' 20.9''$ (LT) | $\Delta = 78^{\circ} 43' 37.0''$ (RT) |
| $D = 13^{\circ} 08' 22.8''$          | $D = 13^{\circ} 08' 28.4''$           |
| $L = 169.63^{\circ}$                 | $L = 599.08^{\circ}$                  |
| $T = 85.90^{\circ}$                  | $T = 357.67^{\circ}$                  |
| $R = 436.05'$                        | $R = 436.00'$                         |
|                                      | $SE = 0.04$                           |
|                                      | $RO = 84^{\circ}$                     |

**DETAIL C**  
**RIP RAP AT EMBANKMENT**  
 (Not to Scale)

Ditch Grade

10' min.

1.0' min.

2.0'

GEOTEXTILE

Class II Rip Rap = 30 TONS  
 Geotextile = 7.5 SY

— STA. 13 + 91 RT  
 — STA. 14 + 30 RT

**DETAIL D**  
**SPECIAL CUT DITCH**  
(Not to Scale)

Natural Ground

2:1

D

1:1 or Flatter

Front Ditch Slope

Min. D=1.0 Ft.

— STA. 14 + 50 TO STA. 15 + 00 RT (X=2)  
— STA. 15 + 00 TO STA. 15 + 05 RT (X=4)

**DETAIL E**  
**SPECIAL CUT DITCH**  
 (Not to Scale)

Natural Ground  
 2:1  
 d  
 D  
 4:1 or flatter  
 Front Ditch Slope  
 Geotextile  
 Type of Liner = Class B Rip-Rap  
 Min. D = 1.5 Ft.  
 Max. d = 1.5 Ft.

—L— STA. 17+00 TO STA. 18+00 LT

**DETAIL B**  
SPECIAL CUT BASE DITCH  
(Not to Scale)

Min. D=1.5 Ft.  
Max. d=1.5 Ft.  
B=2.0 Ft.

type of Liner= Class I Rip-Rap

— STA. 11+00 TO STA. 13+00 RT (X=4)  
— STA. 13+00 TO STA. 13+90 RT (X=2)

**DETAIL A**  
**TOE PROTECTION**  
 (Not to Scale)

4:1 or Flatter Front Slope

Natural Ground

d

PSRM

$d = 1.5 \text{ Ft.}$

Type of Liner = PSRM

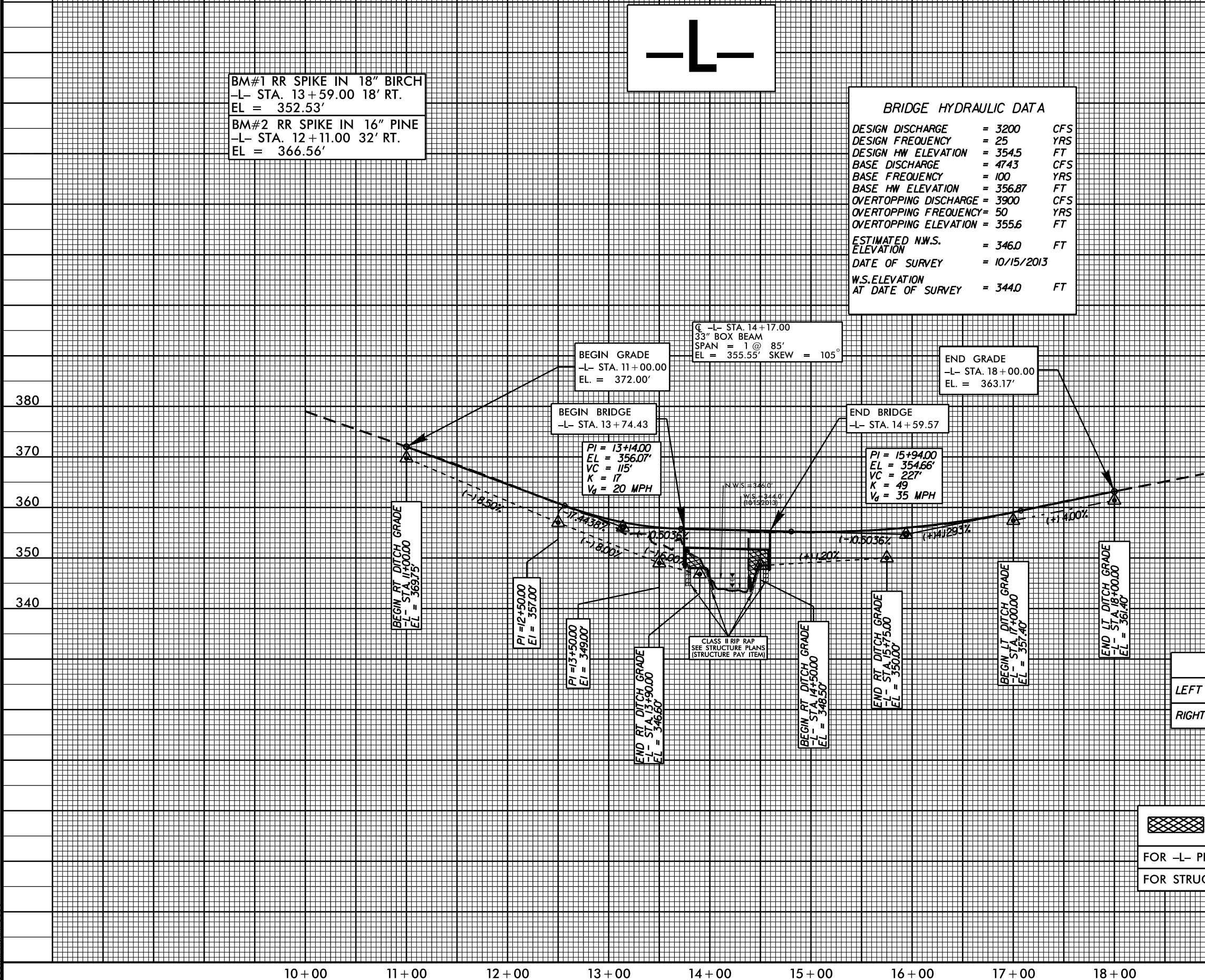
— STA. 11+00 TO STA. 12+50 LT

## REVISIONS

8/17/99

2022-MAY-2014 15:30  
C:\Roadway\Proj\B5151-Rdy-psh.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$





| BRIDGE HYDRAULIC DATA           |              |     |  |
|---------------------------------|--------------|-----|--|
| DESIGN DISCHARGE                | = 3200       | CFS |  |
| DESIGN FREQUENCY                | = 25         | YRS |  |
| DESIGN HW ELEVATION             | = 354.5      | FT  |  |
| BASE DISCHARGE                  | = 4743       | CFS |  |
| BASE FREQUENCY                  | = 100        | YRS |  |
| BASE HW ELEVATION               | = 356.87     | FT  |  |
| OVERTOPPING DISCHARGE           | = 3900       | CFS |  |
| OVERTOPPING FREQUENCY           | = 50         | YRS |  |
| OVERTOPPING ELEVATION           | = 355.6      | FT  |  |
| ESTIMATED N.W.S. ELEVATION      | = 346.0      | FT  |  |
| DATE OF SURVEY                  | = 10/15/2013 |     |  |
| W.S.ELEVATION AT DATE OF SURVEY | = 344.0      | FT  |  |

| DITCH LEGEND |       |
|--------------|-------|
| LEFT DITCH   | ----  |
| RIGHT DITCH  | ----- |

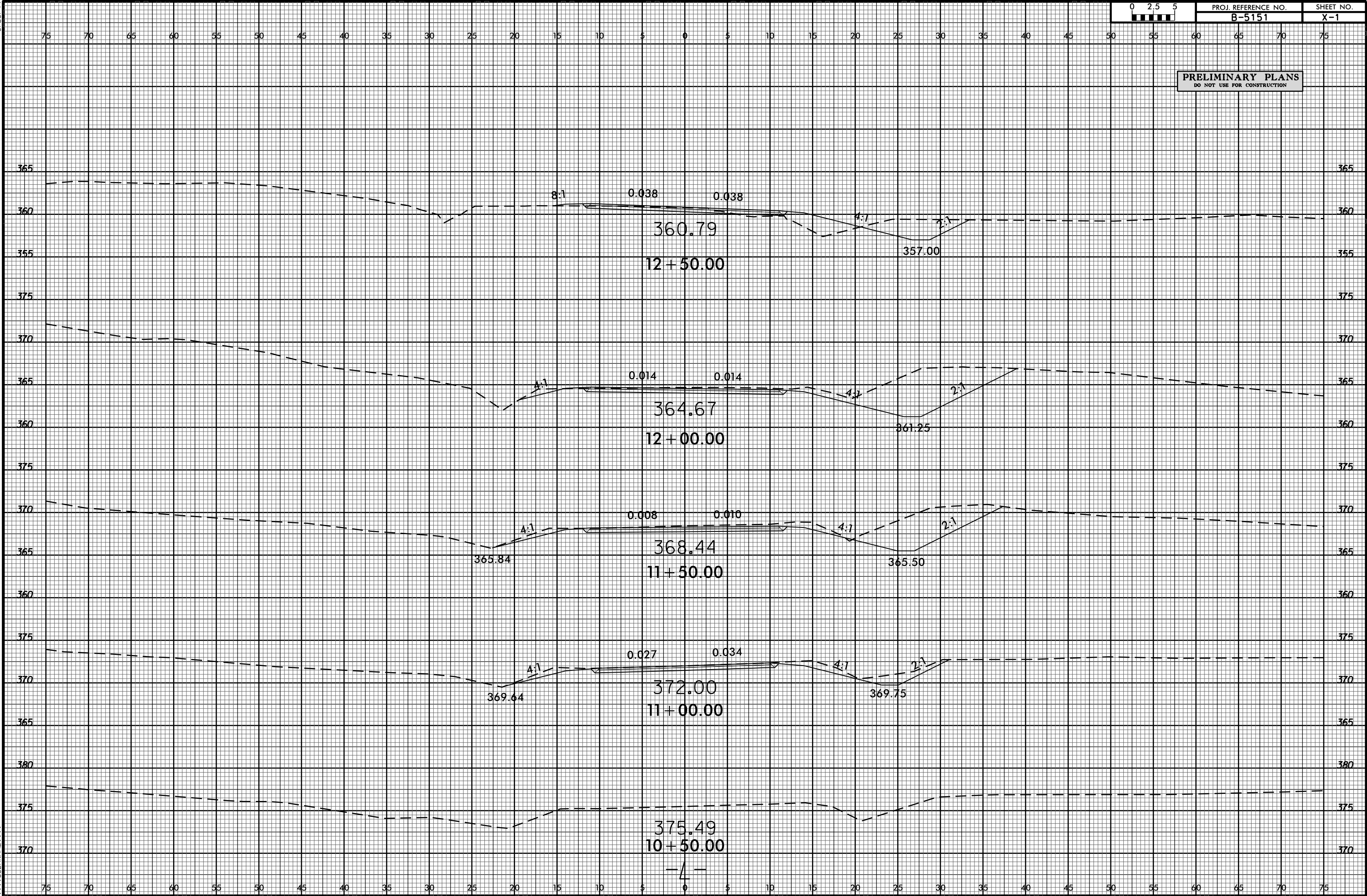
END BENT EXCAVATION  
SEE STRUCTURE PLANS  
(STRUCTURE PAY ITEM)

FOR -L- PLAN VIEW, SEE SHEET 4

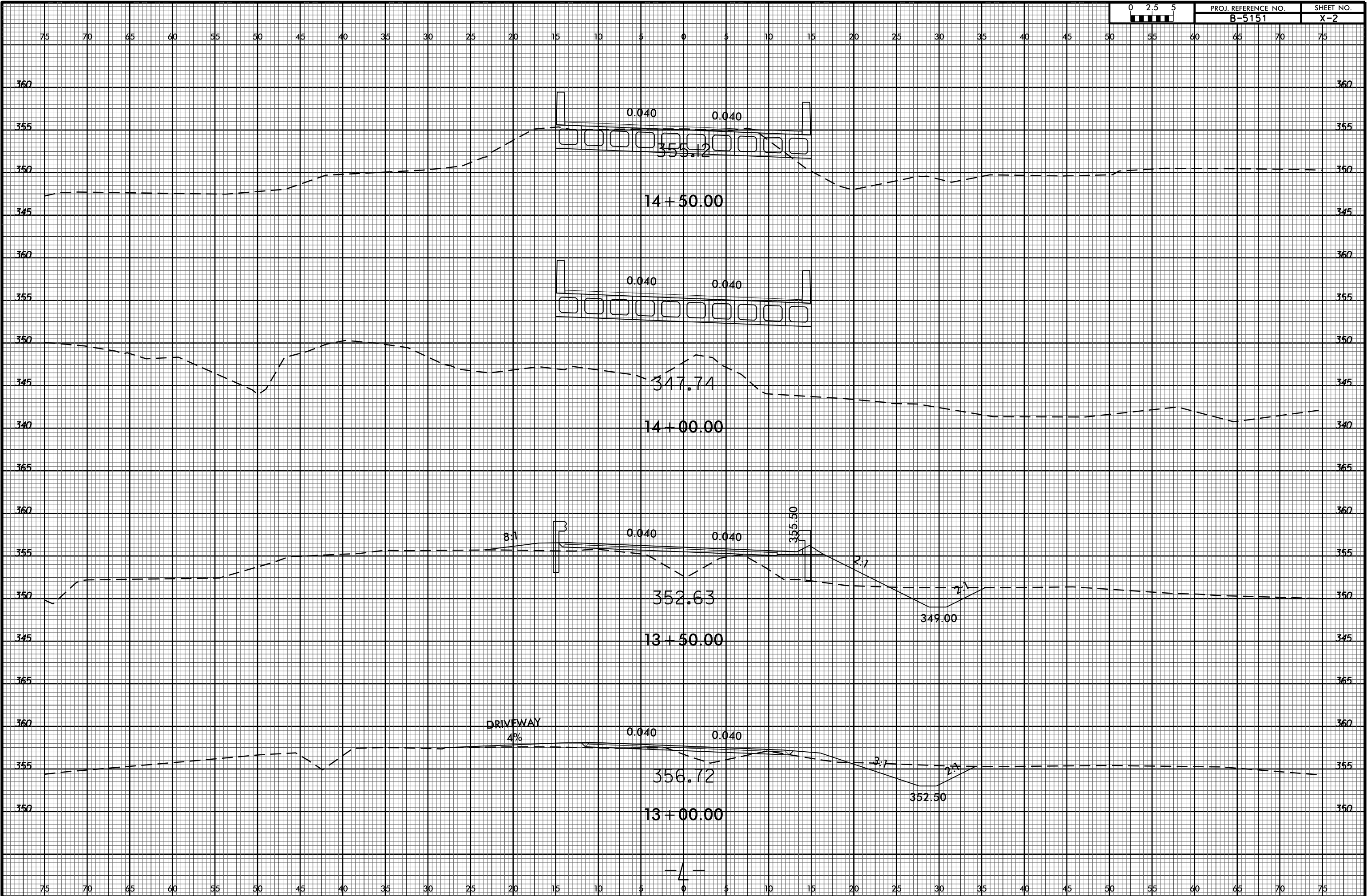
FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-?

8/23/99

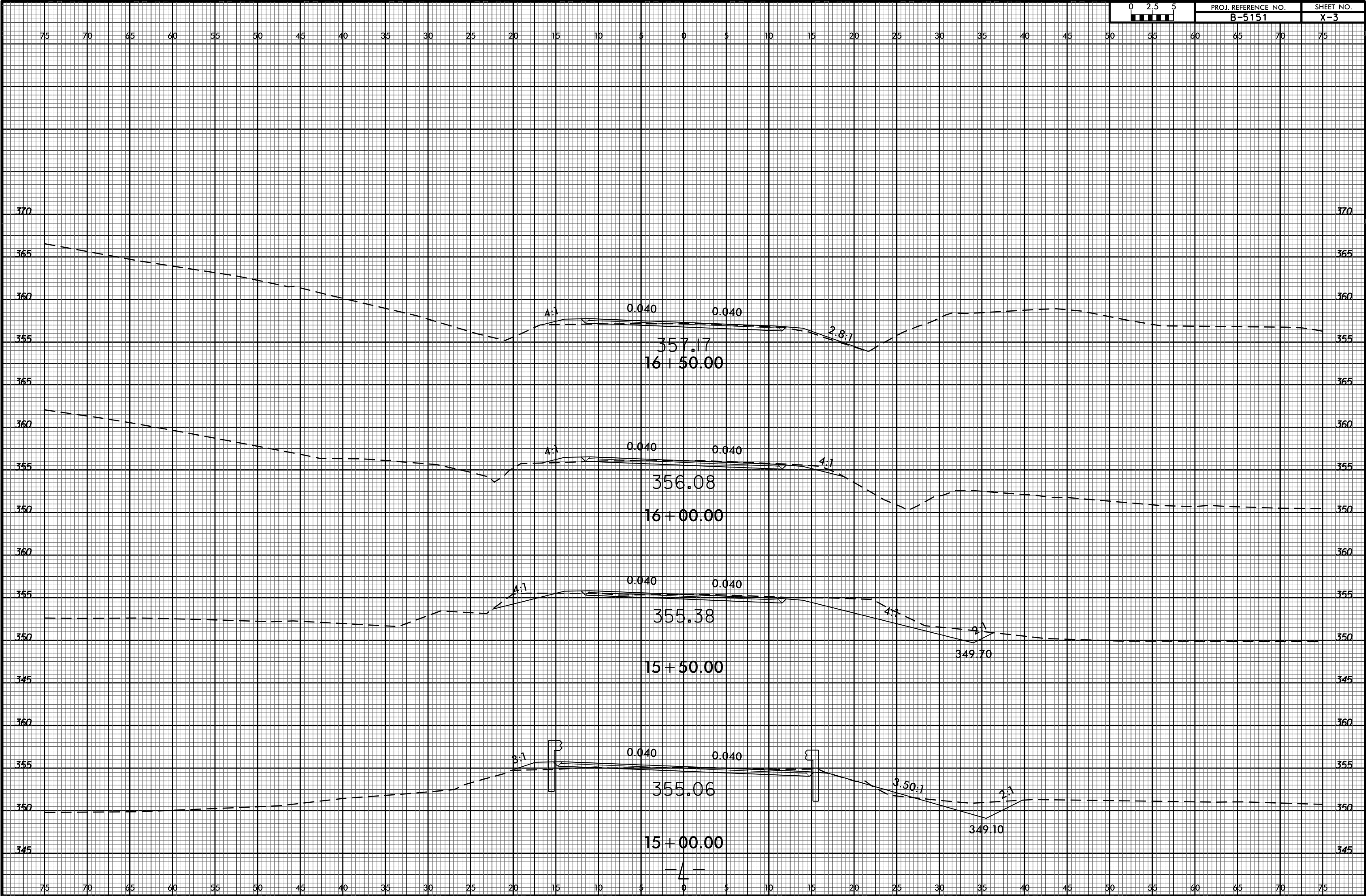
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION







8/23/99





8/23/99

