



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

July 10, 2013

U. S. Army Corps of Engineers  
Regulatory Field Office  
151 Patton Avenue, Room 208  
Asheville, NC 28801-5006

ATTN: Ms. Loretta Beckwith  
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 23 and 33 and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 129 over Big Branch on SR 1626 in Alexander County, Federal Aid Project No. BRZ-1626(3), Division 12, TIP No. B-5110, Debit \$240 from WBS 42248.1.1.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 129 over Big Branch on SR 1626 with a 40' long, 10'x10' triple-barrel reinforced concrete box culvert (RCBC) on the existing alignment. Traffic will be maintained during construction via an off-site detour.

There will be 98 linear feet of permanent stream impacts and <0.01 acre (18 linear feet) of temporary stream impacts due to the proposed RCBC and channel realignment into the baseflow cell.

Please see enclosed copies of the Pre-Construction Notification (PCN), EEP acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed in November 2011 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of February 18, 2014 and a review date of December 31, 2013; however, the let date may advance as additional funding becomes available.

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://connect.ncdot.gov/resources/Environmental>. If you have any questions or need additional information, please call Erin Cheely at (919) 707-6108.

Sincerely,



 Gregory J. Thorpe, Ph.D., Manager  
Project Development and Environmental Analysis Unit

cc:  
NCDOT Permit Application Standard Distribution List



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: 23 33 or General Permit (GP) number:  |   |  |
| 1c. Has the NWP or GP number been verified by the Corps?  | <input type="checkbox"/> Yes  | <input checked="" type="checkbox"/> No   |
| 1d. Type(s) of approval sought from the DWQ (check all that apply):   |   |  |
| <input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <span style="margin-left: 100px;"><input type="checkbox"/> Non-404 Jurisdictional General Permit</span><br><input type="checkbox"/> 401 Water Quality Certification – Express <span style="margin-left: 100px;"><input type="checkbox"/> Riparian Buffer Authorization</span> |   |  |
| 1e. Is this notification solely for the record because written approval is not required?  | For the record only for DWQ 401 Certification:<br><input type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> Yes   | <input 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 129 over Big Branch on SR 1626 |
| 2b. County:                                  | Alexander  |
| 2c. Nearest municipality / town:             | Stony Point  |
| 2d. Subdivision name:                        | <i>not applicable</i>                                |
| 2e. NCDOT only, T.I.P. or state project no.: | B-5110   |

#### 3. Owner Information

|  |   |
|--|---|
| 3a. Name(s) on Recorded Deed:                  | North Carolina Department of Transportation |
| 3b. Deed Book and Page No.                     | <i>not applicable</i>                       |
| 3c. Responsible Party (for LLC if applicable): | <i>not applicable</i>                       |
| 3d. Street address:                            | 1598 Mail Service Center                    |
| 3e. City, state, zip:                          | Raleigh, NC 27699-1598                      |
| 3f. Telephone no.:                             | (919) 707-6108                              |
| 3g. Fax no.:                                   | (919) 212-5785                              |
| 3h. Email address:                             | ekcheely@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 (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 (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: 35.82841<br>(DD.DDDDDD) Longitude: - 81.10110<br>(-DD.DDDDDD)                              |
| 1c. Property size:  | 1.7 acres  |
| <b>2. Surface Waters</b>  |  |
| 2a. Name of nearest body of water (stream, river, etc.) to proposed project:  | Big Branch   |
| 2b. Water Quality Classification of nearest receiving water:  | WS-IV  |
| 2c. River basin:  | Catawba  |
| <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>The land use within the vicinity of the project consists of about 30% forest land (including mixed hardwood forests), 20% developed or disturbed lands (roadsides and residential areas) and 50% cultivated land (agricultural fields and pastures). |  |
| 3b. List the total estimated acreage of all existing wetlands on the property:<br>0   |  |
| 3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:<br>160   |  |
| 3d. Explain the purpose of the proposed project:<br>The purpose of this project is to replace a structurally deficient (sufficiency rating of 21.4 of 100) and functionally obsolete (deck geometry appraisal of 3 out of 9) bridge.  |  |
| 3e. Describe the overall project in detail, including the type of equipment to be used:<br>The project involves replacing a 37-foot two-span bridge with a 40' long, 3 @ 10'x10' reinforced concrete box culvert (RCBC) on the existing alignment with an off-site detour. 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: Only perennial streams – no JD needed prior  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown |
| 4b. If the Corps made the jurisdictional determination, what type of determination was made?  | <input type="checkbox"/> Preliminary <input type="checkbox"/> Final                                  |
| 4c. If yes, who delineated the jurisdictional areas?<br>Name (if known): Erin Cheely  | Agency/Consultant Company: NCDOT<br>Other: JD to be issued at permitting time                        |
| 4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.   |  |
| <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 number – Permanent (P) or Temporary (T)  | 2b.<br>Type of impact | 2c.<br>Type of wetland (if known)                         | 2d.<br>Forested   | 2e.<br>Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)        | 2f.<br>Area of impact (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            |                                    |                                    |
| <b>2g. Total wetland impacts</b>   |                       |   |   |   | 0 Permanent<br>0 Temporary         |                                    |
| 2h. Comments: No wetlands within construction limits   |                       |   |   |   |                                    |                                    |
| <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 number - Permanent (P) or Temporary (T)   | 3b.<br>Type of impact | 3c.<br>Stream name  | 3d.<br>Perennial (PER) or intermittent (INT)?                           | 3e.<br>Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)        | 3f.<br>Average stream width (feet) | 3g.<br>Impact length (linear feet) |
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T  | Culvert (RCBC)        | Big Branch  | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input type="checkbox"/> DWQ | 10                                 | 40                                 |
| Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T  | Alignment into RCBC   | Big Branch  | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input type="checkbox"/> DWQ | 10                                 | 58                                 |
| Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T  | RCBC Installation     | Big Branch  | <input checked="" type="checkbox"/> PER<br><input type="checkbox"/> INT | <input checked="" type="checkbox"/> Corps<br><input type="checkbox"/> DWQ | 10                                 | 18<br>(<0.01 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            |                                    |                                    |
| <b>3h. Total stream and tributary impacts</b>  |                       |   |   |   |                                    | 98 Perm<br>18 Temp<br>(<0.01 ac)   |
| 3i. Comments: Replace bridge with 3@10'x10' RCBC. Permanent impacts resulting from new RCBC itself (40') and the slight shifting/realignment of the channel into the baseflow barrel (58'). The temporary impacts (18') at inlet & outlet of proposed RCBC are associated with the culvert installation. |                       |   |   |   |                                    |                                    |

**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 impact number – Permanent (P) or Temporary (T) | 4b.<br>Name of waterbody (if applicable) | 4c.<br>Type of impact | 4d.<br>Waterbody type | 4e.<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: No open water within construction limits.

**5. Pond or Lake Construction**

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

| 5a.<br>Pond ID number | 5b.<br>Proposed use or purpose of pond | 5c.<br>Wetland Impacts (acres) |        |           | 5d.<br>Stream Impacts (feet) |        |           | 5e.<br>Upland (acres) |
|-----------------------|--|--------------------------------|--------|-----------|------------------------------|--------|-----------|-----------------------|
|                       |  | Flooded                        | Filled | Excavated | 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 <input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Other:<br><input type="checkbox"/> Catawba <input type="checkbox"/> Randleman |   |                                    |                                    |
|---|--------------------------|--|---|------------------------------------|------------------------------------|
| 6b.<br>Buffer impact number – Permanent (P) or Temporary (T)              | 6c.<br>Reason for impact | 6d.<br>Stream name   | 6e.<br>Buffer mitigation required?                          | 6f.<br>Zone 1 impact (square feet) | 6g.<br>Zone 2 impact (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 |                                    |                                    |
| <b>6h. Total buffer impacts</b>   |                          |  |   |                                    |                                    |
| 6i. Comments: This project is not located within a protected buffer area. |                          |  |   |                                    |                                    |

|   |   |          |
|---|---|----------|
| <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>The proposed triple-barrel reinforced concrete box culvert (RCBC) will be located on the same alignment as the existing bridge. A floodplain bench on the inlet and outlet ends of the RCBC will direct the stream through the baseflow cell, with the remaining overflow cells being utilized for high-water events. The overflow cells will have a 2.5' sill at each end. The existing stream is incised, and the proposed floodplain benches at each end of the RCBC were designed to match the low flow channel width. Currently, the existing bridge deck drains directly into the stream through the deck. The new culvert will eliminate direct discharge to Big Branch. Roadway runoff will not be concentrated, but allowed to sheet-flow across grassed shoulders before entering the receiving stream. |   |          |
| 1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.<br>Traffic will be maintained off-site during construction, eliminating the need for a temporary on-site detour. Best Management Practices (BMPs) will be utilized during construction to attempt to reduce the stormwater impacts to the receiving stream due to erosion and runoff.   |   |          |
| <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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>If no, explain:  |          |
| 2b. If yes, mitigation is required by (check all that apply):   | <input type="checkbox"/> DWQ <input checked="" type="checkbox"/> Corps  |          |
| 2c. If yes, which mitigation option will be used for this project?  | <input type="checkbox"/> Mitigation bank<br><input checked="" 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 checked="" type="checkbox"/> Yes   |          |
| 4b. Stream mitigation requested:  | 98 linear feet  |          |
| 4c. If using stream mitigation, stream temperature:   | <input checked="" 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: The NCDOT does not propose mitigation for the 18 linear feet (<0.01 ac) of temporary stream impacts. The temporary impacts do not require fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, do not constitute Loss of Waters of the U.S. and are not subject to compensatory mitigation.   |   |          |
| <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.  |   |          |

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

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?

Yes       No

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

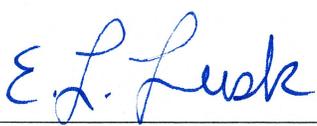
| Zone   | 6c.<br>Reason for impact | 6d.<br>Total impact<br>(square feet) | Multiplier        | 6e.<br>Required mitigation<br>(square feet) |
|--|--------------------------|--------------------------------------|-------------------|---|
| Zone 1                                       |              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

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 not, explain why.<br>Comments: If required from 1a, see attached buffer permit drawings.            | <input type="checkbox"/> Yes <input 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 permit drawings. |   |
| 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 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 N/A  |
| <b>5. DWQ 401 Unit Stormwater Review</b>   |   |
| 5a. Does the Stormwater Management Plan meet the appropriate requirements?   | <input type="checkbox"/> Yes <input type="checkbox"/> No N/A  |
| 5b. Have all of the 401 Unit submittal requirements been met?  | <input type="checkbox"/> Yes <input type="checkbox"/> No N/A  |

|  |  |
|--|--|
| <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: Programmatic Categorical Exclusion (PCE) approved 11/7/11   | <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 type="checkbox"/> Yes   | <input checked="" type="checkbox"/> No |
| 5c. If yes, indicate the USFWS Field Office you have contacted.   | <input 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>There are only two federally listed species for Alexander County – bog turtle and dwarf-flowered heartleaf. The project area was surveyed by NCDOT biologists in 2009 for dwarf-flowered heartleaf, and no individuals of this species were found. No suitable habitat exists within the project area for bog turtle. This project will have no effect on any Federally Threatened or Endangered species listed for Alexander County. |  |  |
| <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  |  |  |
| <u>Dr. Gregory J. Thorpe, Ph D</u><br>Applicant/Agent's Printed Name  | <br>_____<br>Applicant/Agent's Signature<br>(Agent's signature is valid only if an authorization letter from the applicant is provided.) | <u>7.10.13</u><br>Date                 |



July 9, 2013

Mr. Gregory J. Thorpe, Ph.D.  
Manager, Project Development and Environmental Analysis Unit  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

**B-5110**, Replace Bridge Number 129 over Big Branch Creek on SR 1626, Alexander County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on July 3, 2013, the impacts are located in CU 03050101 of the Catawba River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

| Catawba<br>03050101<br>CP | Stream |      |      | Wetlands |              |               | Buffer (Sq. Ft.) |        |
|---------------------------|--------|------|------|----------|--------------|---------------|------------------|--------|
|                           | Cold   | Cool | Warm | Riparian | Non-Riparian | Coastal Marsh | Zone 1           | Zone 2 |
| Impacts<br>(feet/acres)   | 0      | 0    | 98.0 | 0        | 0            | 0             | 0                | 0      |

\*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This impact and associated mitigation need were under projected by the NCDOT in the 2013 impact data. EEP will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill  
EEP Asset Management Supervisor

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office  
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit  
Mr. Alan Johnson, Division of Water Quality – Mooresville Office  
File: B-5110

*Restoring... Enhancing... Protecting Our State*



# **STORMWATER MANAGEMENT PLAN**

NCDOT Project 42248.1.1 (B-5110)

Date: 03/25/2013

Alexander

Bridge No. 129 on SR 1626 over Big Branch

Hydraulics Project Manager: Stephen Morgan, PE

## **PROJECT DESCRIPTION**

The NC Department of Transportation proposes to replace bridge no. 129 with a culvert. The existing structure is a two span bridge 37 feet long with a clear roadway width of 20'. The proposed structure will be a three barrel reinforced concrete box culvert (RCBC) with low-flow sills in the outer barrels and buried one foot below the stream bed. The overall length of the culvert will be 40'. The proposed roadway width is a 20' paved roadway with 3' grassed shoulders. SR 1626 is a rural local collector route with a current traffic count of 318 ADT. Traffic will be detoured off-site during construction along local roads. Roadway improvements will result in no additional impervious area.

## **ENVIRONMENTAL DESCRIPTION**

The project is located in the Catawba River Basin in the piedmont foothills physiographic province. The normal depth of Big Branch at the site is six inches or less. The best usage classification is WS 4. The surrounding area is generally rolling terrain, with natural ground elevations of approximately 920. The land usage is primarily rural, agriculture, or woodlands. At the site the usage is pastureland.

## **BEST MANAGEMENT PRACTICES**

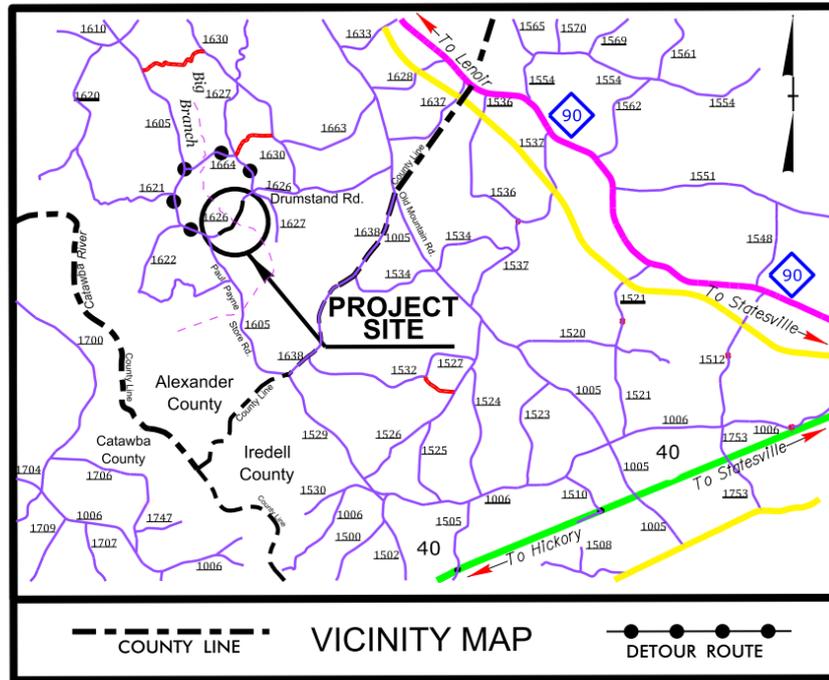
Best management practices are non-structural and are designed to limit impacts and direct storm-water runoff away from receiving streams.

- The roadway typical section will match the existing roadway section, which consists of grassed shoulders, fill slopes and grass lined roadway ditches.
- The existing bridge deck drains directly into the stream through the deck. The new culvert will eliminate direct discharge to the creek. Roadway runoff will not be concentrated, but allowed to sheet-flow across grassed shoulders before entering the receiving stream.
- Due to incisement of the existing stream, the entrance and outlet of the culvert will be reshaped to create appropriate-low flow benches to reduce velocities and bank erosion around the culvert.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

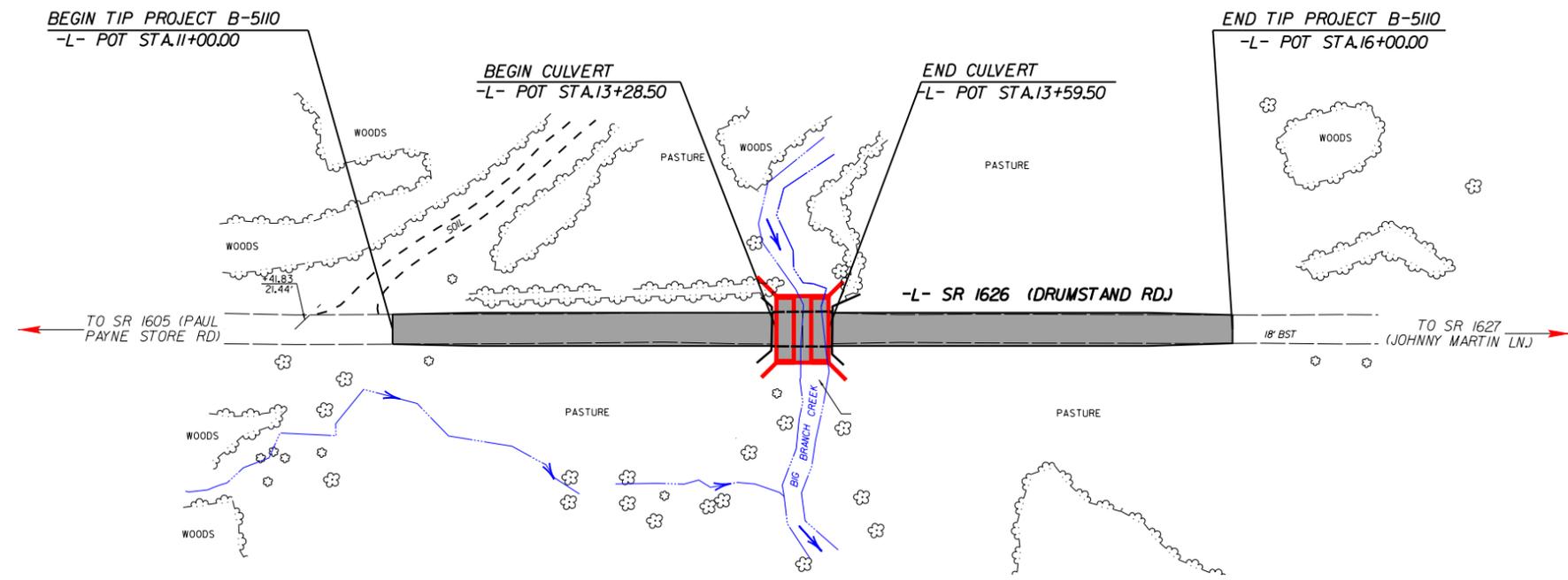
**PERMIT DRAWING**  
**SHEET 1 OF 6**

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | B-5110                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 42248.1.1       | BRZ-1626(3)                 | P.E.        |              |
| 42248.2.1       | BRZ-1626(3)                 | RW/UTIL     |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |



**LOCATION: BRIDGE NO. 129 OVER BIG BRANCH CREEK  
ON SR 1626**

**WETLAND AND SURFACE WATER IMPACTS PERMIT**



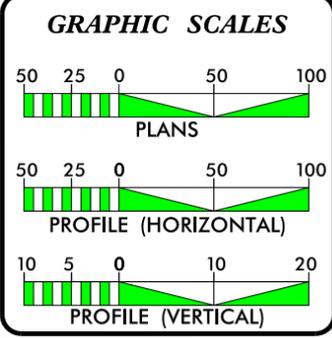
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**TIP PROJECT: B-5110**

**CONTRACT:**



**DESIGN DATA**

|                   |        |
|-------------------|--------|
| ADT 2013 =        | 318    |
| ADT 2035 =        | 450    |
| DHV =             | 10 %   |
| D =               | 60 %   |
| T =               | 5 % *  |
| V =               | 50 MPH |
| * TTST =          | 2      |
| DUAL =            | 3      |
| FUNC CLASS =      | LOCAL  |
| SUB-REGIONAL TIER |        |

**PROJECT LENGTH**

|                                       |           |
|---------------------------------------|-----------|
| LENGTH STRUCTURE TIP PROJECT B-5110 = | 0.006 MI. |
| LENGTH ROADWAY TIP PROJECT B-5110 =   | 0.089 MI. |
| TOTAL LENGTH OF TIP PROJECT B-5110 =  | 0.095 MI. |

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

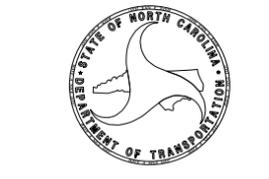
|  |   |
|--|---|
| 2012 STANDARD SPECIFICATIONS               |   |
| <b>RIGHT OF WAY DATE:</b><br>JULY 20, 2012 | <b>JASON MOORE, PE</b><br>PROJECT ENGINEER      |
| <b>LETTING DATE:</b><br>OCTOBER 15, 2013   | <b>BRYAN KEY, PE</b><br>PROJECT DESIGN ENGINEER |

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

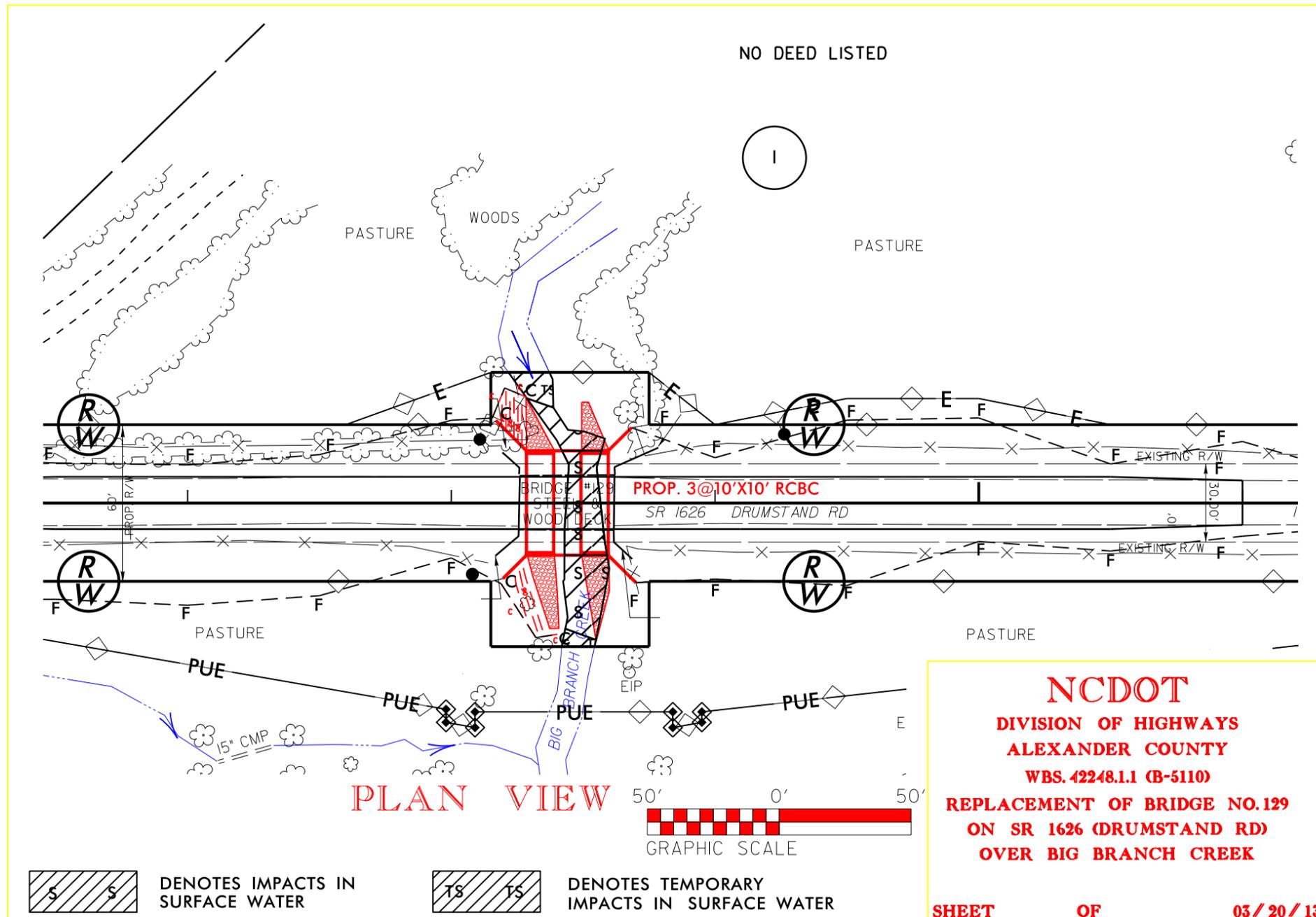


\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$

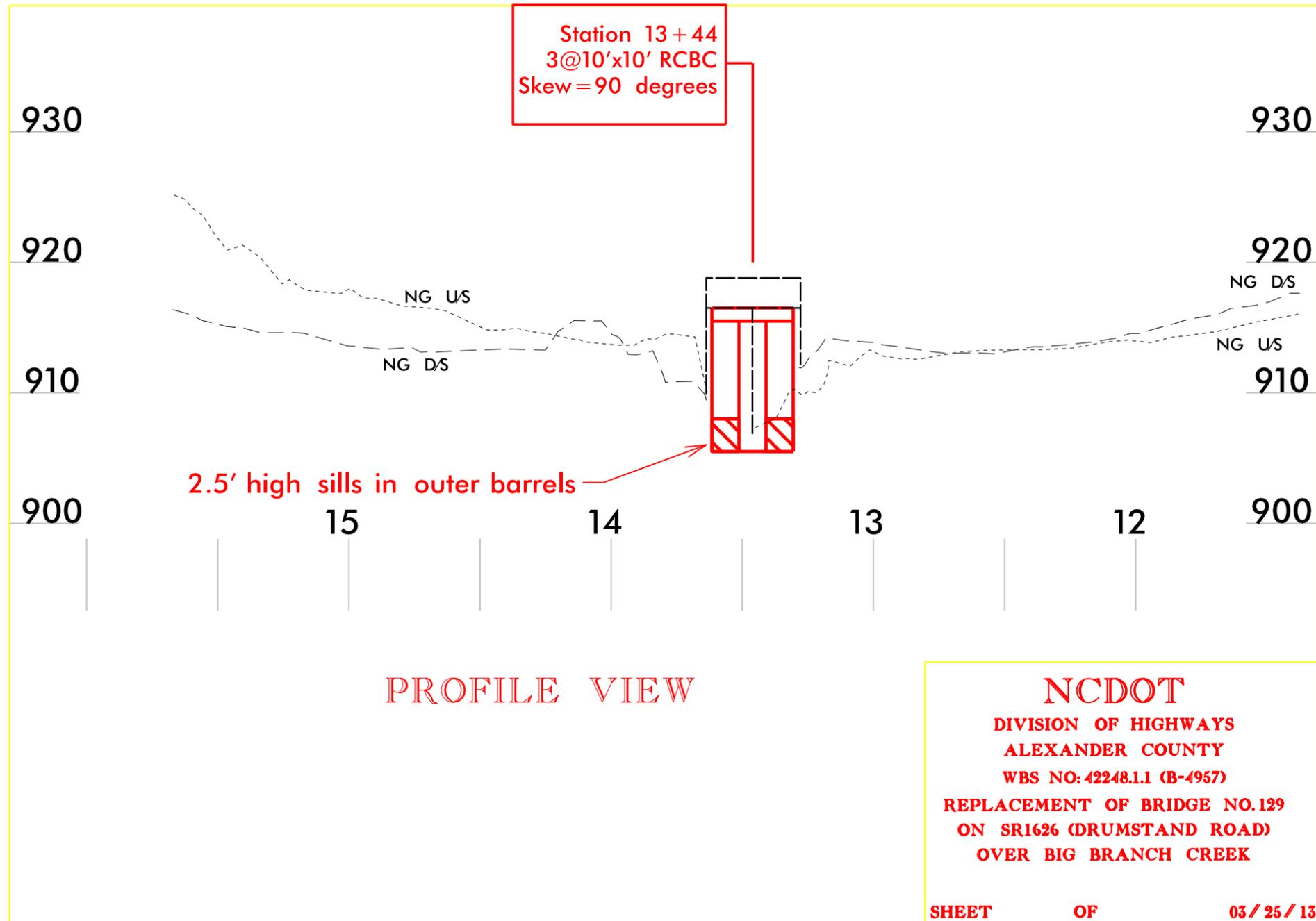




# WETLAND AND SURFACE WATER IMPACTS PERMIT



# WETLAND AND SURFACE WATER IMPACTS PERMIT



**WETLAND PERMIT IMPACT SUMMARY**

| Site No.       | Station (From/To)      | Structure Size / Type | WETLAND IMPACTS                 |                             |                             |                                      |                                | SURFACE WATER IMPACTS     |                       |   |                                     |                            |
|----------------|------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
|                |                        |                       | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
|                | -L- Sta 13+28 to 13+59 | 3@10'x10' RCBC        |                                 |                             |                             |                                      |                                | 0.012                     |                       | 40                                      |                                     |                            |
|                |                        | stream realign        |                                 |                             |                             |                                      |                                | 0.015                     |                       | 58                                      |                                     |                            |
|                |                        | stream realign        |                                 |                             |                             |                                      |                                |                           | 0.004                 |   | 18                                  |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
|                |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |
| <b>TOTALS:</b> |                        |                       |                                 |                             |                             |                                      |                                | 0.03                      | 0.004                 | 98                                      | 18                                  |                            |

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
 ALEXANDER COUNTY  
 WBS - 42248.1.1 (B-5110)

SHEET **6 of 6** 6/6/2013

09/08/99

See Sheet 1-A For Index of Sheets

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## ALEXANDER

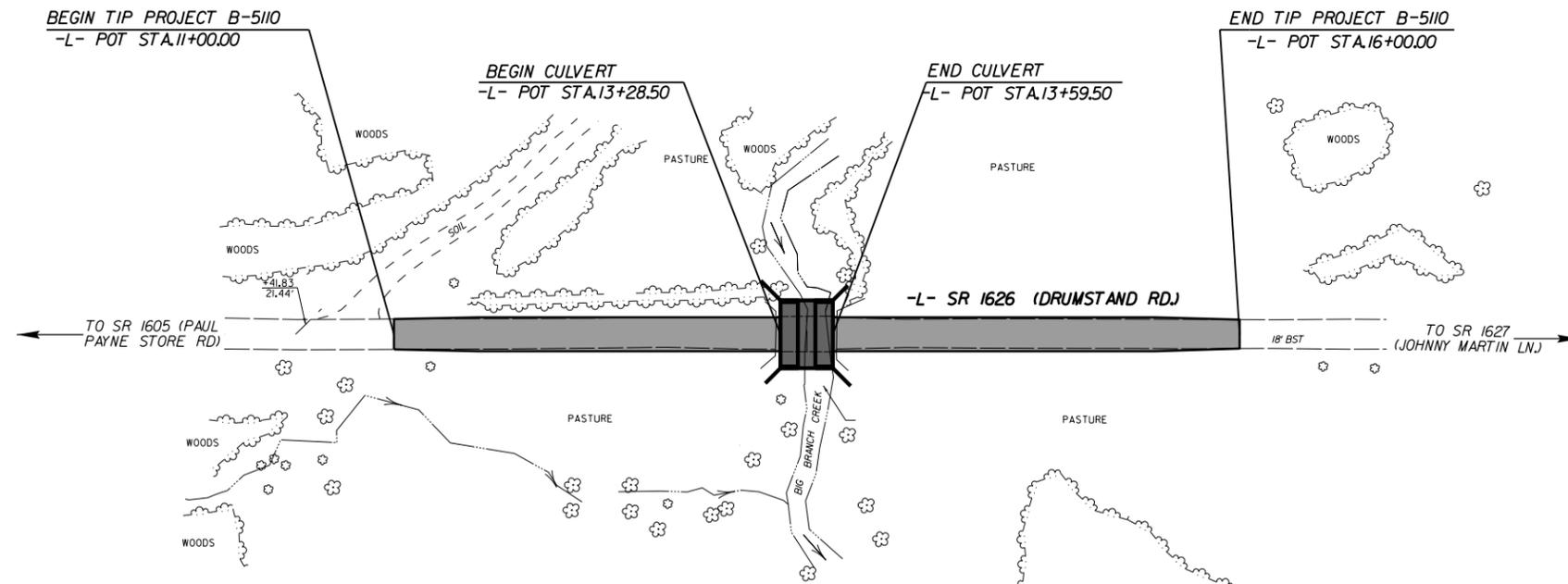
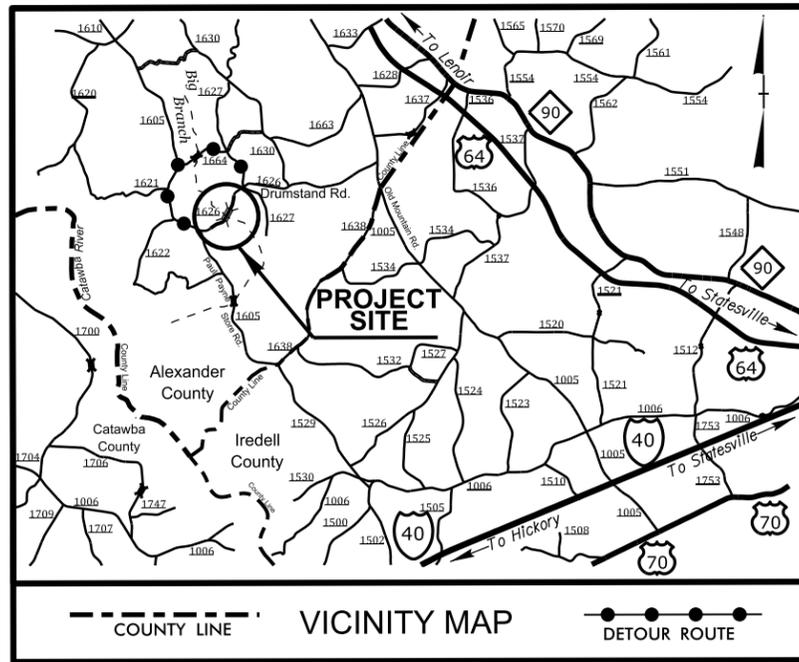
LOCATION: BRIDGE NO. 129 OVER BIG BRANCH CREEK  
ON SR 1626

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

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | B-5110                      | 1           |              |
| STATE PROJ. NO. | P.A. PROJ. NO.              | DESCRIPTION |              |
| 42248.1.1       | BRZ-1626(3)                 | P.E.        |              |
| 42248.2.1       | BRZ-1626(3)                 | RW/UTIL     |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |



TIP PROJECT: B-5110

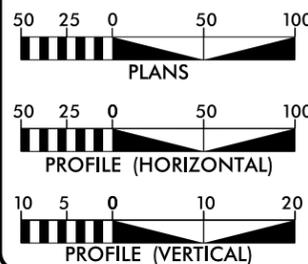


CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

### GRAPHIC SCALES



### DESIGN DATA

ADT 2013 = 318  
 ADT 2035 = 450  
 DHV = 10 %  
 D = 60 %  
 T = 5 % \*  
 V = 50 MPH  
 \* TTST = 2 DUAL = 3  
 FUNC CLASS = LOCAL  
 SUB-REGIONAL TIER

### PROJECT LENGTH

LENGTH STRUCTURE TIP PROJECT B-5110 = 0.006 MI.  
 LENGTH ROADWAY TIP PROJECT B-5110 = 0.089 MI.  
 TOTAL LENGTH OF TIP PROJECT B-5110 = 0.095 MI.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
 JULY 20, 2012

LETTING DATE:  
 OCTOBER 15, 2013

JASON MOORE, PE  
 PROJECT ENGINEER

BRYAN KEY, PE  
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.



05-APR-2013 11:29  
R:\Roadway\PROJ\B5110\_Rdy\_tsh.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

CONTRACT: C203353

04/16/11

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.  
B-510

SHEET NO.  
1-B

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

|  |             |
|--|-------------|
| State Line                                     | -----       |
| County Line                                    | -----       |
| Township Line                                  | -----       |
| City Line                                      | -----       |
| Reservation Line                               | -----       |
| Property Line                                  | -----       |
| Existing Iron Pin                              | ○ EP        |
| Property Corner                                | -----       |
| Property Monument                              | □ EDM       |
| Parcel/Sequence Number                         | ① 23        |
| Existing Fence Line                            | -x-x-x-     |
| Proposed Woven Wire Fence                      | ○           |
| Proposed Chain Link Fence                      | □           |
| Proposed Barbed Wire Fence                     | ◇           |
| Existing Wetland Boundary                      | --- MLB --- |
| Proposed Wetland Boundary                      | --- MLB --- |
| Existing Endangered Animal Boundary            | --- EAB --- |
| Existing Endangered Plant Boundary             | --- EPB --- |
| Known Soil Contamination: Boundary or Site     | ☠ ☠         |
| Potential Soil Contamination: Boundary or Site | ☠ ?         |

## BUILDINGS AND OTHER CULTURE:

|                               |   |
|-------------------------------|---|
| Gas Pump Vent or U/G Tank Cap | ○ |
| Sign                          | ○ |
| Well                          | ♀ |
| Small Mine                    | ⊗ |
| Foundation                    | □ |
| Area Outline                  | □ |
| Cemetery                      | ⊕ |
| Building                      | □ |
| School                        | □ |
| Church                        | ⊕ |
| Dam                           | ▬ |

## HYDROLOGY:

|                                    |              |
|------------------------------------|--------------|
| Stream or Body of Water            | -----        |
| Hydro, Pool or Reservoir           | □            |
| Jurisdictional Stream              | --- JS ---   |
| Buffer Zone 1                      | --- BZ 1 --- |
| Buffer Zone 2                      | --- BZ 2 --- |
| Flow Arrow                         | ←            |
| Disappearing Stream                | →            |
| Spring                             | ○            |
| Wetland                            | ⊥            |
| 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 Marker | ○           |
| Existing Control of Access                                 | ○           |
| Proposed Control of Access                                 | ○           |
| Existing Easement Line                                     | --- E ---   |
| Proposed Temporary Construction Easement                   | --- E ---   |
| Proposed Temporary Drainage Easement                       | --- TDE --- |
| Proposed Permanent Drainage Easement                       | --- PDE --- |
| Proposed Permanent Drainage / Utility Easement             | --- DUE --- |
| Proposed Permanent Utility Easement                        | --- PUE --- |
| Proposed Temporary Utility Easement                        | --- TUE --- |
| Proposed Aerial Utility Easement                           | --- AUE --- |
| Proposed Permanent Easement with Iron Pin and Cap Marker   | ◆           |

## ROADS AND RELATED FEATURES:

|                            |           |
|----------------------------|-----------|
| Existing Edge of Pavement  | -----     |
| Existing Curb              | -----     |
| Proposed Slope Stakes Cut  | --- C --- |
| Proposed Slope Stakes Fill | --- F --- |
| Proposed Curb Ramp         | ○ CR      |
| Curb Cut Future Ramp       | ○ CCFR    |
| 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            | CONC    |
| Bridge Wing Wall, Head Wall and End Wall | CONC WW |
| MINOR:                                   |         |
| Head and End Wall                        | CONC HW |
| Pipe Culvert                             | -----   |
| Footbridge                               | -----   |
| Drainage Box: Catch Basin, DI or JB      | □ CB    |
| Paved Ditch Gutter                       | -----   |
| Storm Sewer Manhole                      | ○       |
| Storm Sewer                              | -----   |

## UTILITIES:

|                                     |       |
|-------------------------------------|-------|
| POWER:                              |       |
| Existing Power Pole                 | ●     |
| Proposed Power Pole                 | ○     |
| Existing Joint Use Pole             | ●     |
| Proposed Joint Use Pole             | ○     |
| Power Manhole                       | ⊕     |
| Power Line Tower                    | ⊗     |
| Power Transformer                   | ⊗     |
| U/G Power Cable Hand Hole           | □     |
| H-Frame Pole                        | ●     |
| Recorded U/G Power Line             | ----- |
| 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:

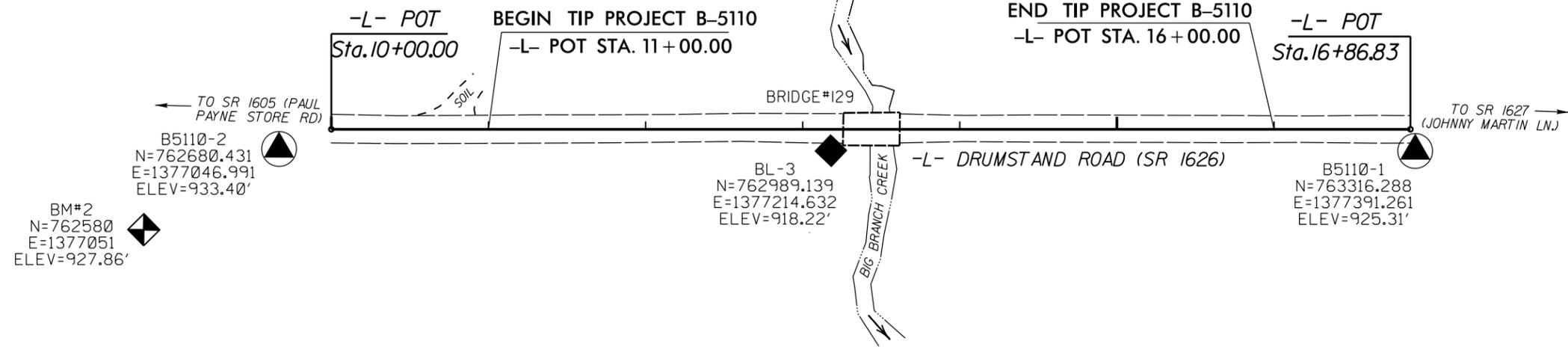
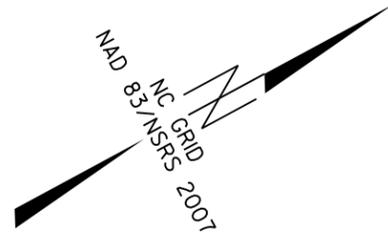
|  |       |
|--|-------|
| Sanitary Sewer Manhole                   | ⊕     |
| Sanitary Sewer Cleanout                  | ⊕     |
| U/G Sanitary Sewer Line                  | ----- |
| Above Ground Sanitary Sewer              | ----- |
| Recorded SS Forced Main Line             | ----- |
| Designated 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 | AATUR  |
| End of Information                     | E.O.I. |

# SURVEY CONTROL SHEET B-5110

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-5110                | I-C       |
| Location and Surveys  |           |



**B5110-2**  
 N=762680.431  
 E=1377046.991  
 ELEV=933.40'  
  
**BM#2**  
 N=762580  
 E=1377051  
 ELEV=927.86'

**BL-3**  
 N=762989.139  
 E=1377214.632  
 ELEV=918.22'

**B5110-1**  
 N=763316.288  
 E=1377391.261  
 ELEV=925.31'

**BM#1**  
 N=763023  
 E=1377445  
 ELEV=914.68'

| BL | POINT | DESC.    | NORTH       | EAST         | ELEVATION | L STATION              | OFFSET   |
|----|-------|----------|-------------|--------------|-----------|------------------------|----------|
| 2  |       | BL5110-2 | 762680.4310 | 1377046.9910 | 933.40    | OUTSIDE PROJECT LIMITS |          |
| 3  |       | BL-3     | 762989.1391 | 1377214.6316 | 918.22    | 13+18.03               | 13.56 RT |
| 1  |       | BL5110-1 | 763316.2880 | 1377391.2610 | 925.31    | OUTSIDE PROJECT LIMITS |          |

## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 762985.5867(ft) EASTING: 1377214.0350(ft) ELEVATION: 918.09(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999883100  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-1" TO -L- STATION 10+00.00 IS S31°00'32.3"W 314.97'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

BENCHMARKS (NAVD 88)  
 \*\*\*\*\*  
**BM#1** ELEVATION = 914.68'  
 N 763023 E 1377445  
 L STATION 14+58.00 200' RIGHT  
 RR SPIKE IN 18-INCH BLACK WALNUT  
 \*\*\*\*\*  
**BM#2** ELEVATION = 927.86'  
 N 762580 E 1377051  
 FROM B5110-2 TO BM#2  
 S 02°24'08" E DIST 100.24'  
 RR SPIKE IN 24-INCH MAPLE  
 \*\*\*\*\*

### NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B5110\_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.

NOTE: GPS-1 HAS SINCE BEEN DESTROYED. TWO NEW GPS PAIRS WERE ESTABLISHED ON OPPOSITE ENDS OF THE PROJECT IN APRIL 2011. BASELINE POINT "B5110-3" WAS ESTABLISHED IN THE VICINITY OF THE DESTROYED "GPS-1".

NOTE: DRAWING NOT TO SCALE

05-APR-2013 11:29  
 I:\Roadwork\Projects\B5110\_LLs\_1.c.dgn  
 \$\$\$\$

# SURVEY CONTROL SHEET B-5110

## PRELIMINARY

DESIGN ALIGNMENT

| L    |          |             |              |
|------|----------|-------------|--------------|
| TYPE | STATION  | NORTH       | EAST         |
| POT  | 10+00.00 | 762715.6326 | 1377051.7726 |
| POT  | 18+00.00 | 763419.8174 | 1377431.4090 |

GRANITE OR CONCRETE MONUMENT

| ALIGN | STATION  | OFFSET | NORTH       | EAST         |
|-------|----------|--------|-------------|--------------|
| L     | 11+00.00 | 30.00  | 762789.4193 | 1377125.6341 |
| L     | 11+00.00 | 15.00  | 762796.5375 | 1377112.4307 |
| L     | 11+00.00 | -15.00 | 762810.7739 | 1377086.0237 |
| L     | 11+00.00 | -30.00 | 762817.8921 | 1377072.8203 |
| L     | 13+15.00 | 30.00  | 762978.6690 | 1377227.6614 |
| L     | 13+15.00 | 55.00  | 762966.8054 | 1377249.6672 |
| L     | 13+15.00 | -50.00 | 763016.6326 | 1377157.2429 |
| L     | 13+15.00 | -30.00 | 763007.1417 | 1377174.8475 |
| L     | 13+75.00 | 55.00  | 763019.6192 | 1377278.1399 |
| L     | 13+75.00 | 30.00  | 763031.4829 | 1377256.1341 |
| L     | 13+75.00 | -30.00 | 763059.9556 | 1377203.3203 |
| L     | 13+75.00 | -50.00 | 763069.4465 | 1377185.7156 |
| L     | 17+08.63 | -30.00 | 763353.6308 | 1377361.6449 |

ROW MARKER PERMANENT EASEMENT - E

| ALIGN | STATION  | OFFSET | NORTH       | EAST         |
|-------|----------|--------|-------------|--------------|
| L     | 11+04.00 | 45.00  | 762785.8221 | 1377140.7358 |
| L     | 11+04.00 | 30.00  | 762792.9403 | 1377127.5323 |
| L     | 11+19.00 | -50.00 | 762844.1074 | 1377064.2320 |
| L     | 11+19.00 | -30.00 | 762834.6165 | 1377081.8366 |
| L     | 11+31.00 | -50.00 | 762854.6701 | 1377069.9265 |
| L     | 11+31.00 | -30.00 | 762845.1792 | 1377087.5312 |
| L     | 12+98.00 | 79.00  | 762940.4524 | 1377262.7254 |
| L     | 12+98.00 | 84.00  | 762938.0796 | 1377267.1266 |
| L     | 13+09.00 | 86.00  | 762946.8131 | 1377274.1071 |
| L     | 13+09.00 | 80.00  | 762949.6604 | 1377268.0257 |
| L     | 13+84.00 | 80.00  | 763015.6777 | 1377304.4166 |
| L     | 13+84.00 | 86.00  | 763012.8304 | 1377309.6980 |
| L     | 13+95.00 | 84.00  | 763023.4620 | 1377313.1575 |
| L     | 13+95.00 | 80.00  | 763025.3602 | 1377309.6366 |
| L     | 16+86.00 | -44.00 | 763340.3511 | 1377338.5807 |
| L     | 16+86.00 | -30.00 | 763333.7074 | 1377350.9039 |
| L     | 17+08.63 | -47.00 | 763361.6943 | 1377346.6789 |
| L     | 17+24.00 | 30.00  | 763338.6835 | 1377421.7505 |
| L     | 17+24.00 | 43.00  | 763332.5144 | 1377433.1935 |

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B5110\_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.

### DATUM DESCRIPTION

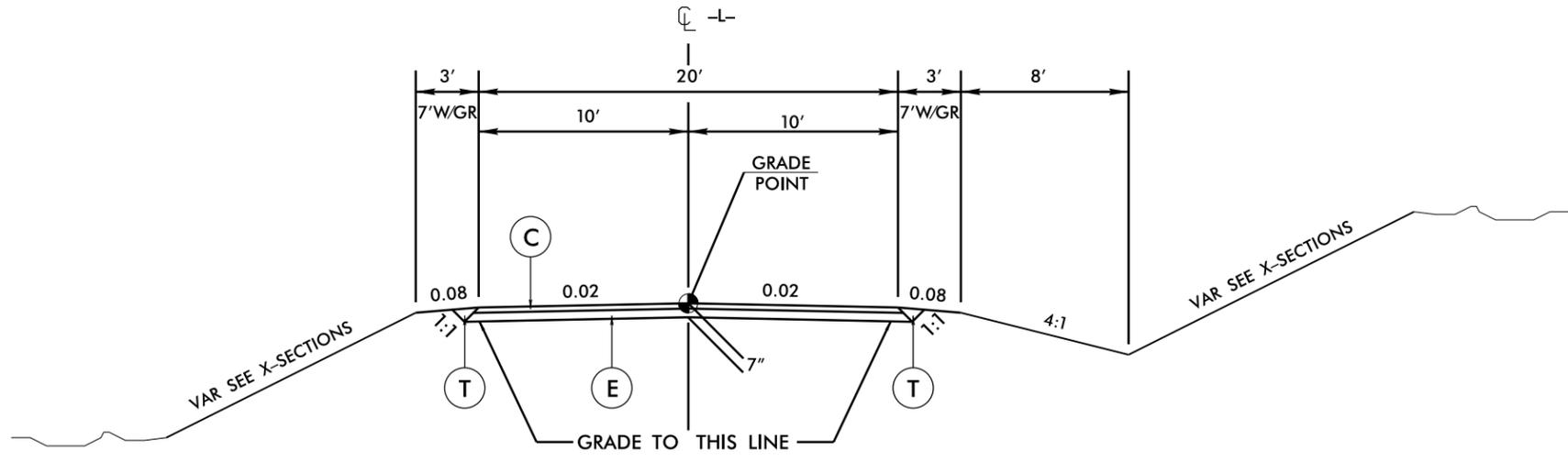
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-1"  
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF  
 NORTHING: 762985.5867(±) EASTING: 1377214.0350(±)  
 ELEVATION: 918.09(±)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999883100  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-1" TO -L- STATION 10+00.00 IS  
 S31°00'32.3"W 314.97'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

NOTE: GPS-1 HAS SINCE BEEN DESTROYED. TWO NEW GPS PAIRS WERE ESTABLISHED ON OPPOSITE ENDS OF THE PROJECT IN APRIL 2011. BASELINE POINT "B5110-3" WAS ESTABLISHED IN THE VICINITY OF THE DESTROYED "GPS-1".

|   |                          |
|---|--------------------------|
| PROJECT REFERENCE NO.<br><b>B-5110</b>                  | SHEET NO.<br><b>2</b>    |
| ROADWAY DESIGN ENGINEER                                 | PAVEMENT DESIGN ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                          |

| PAVEMENT SCHEDULE<br>(FINAL PAVEMENT DESIGN) |  |
|--|--|
| <b>C</b>                                     | PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| <b>E</b>                                     | PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.                             |
| <b>T</b>                                     | EARTH MATERIAL.  |

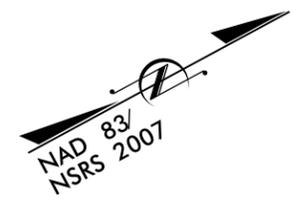
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



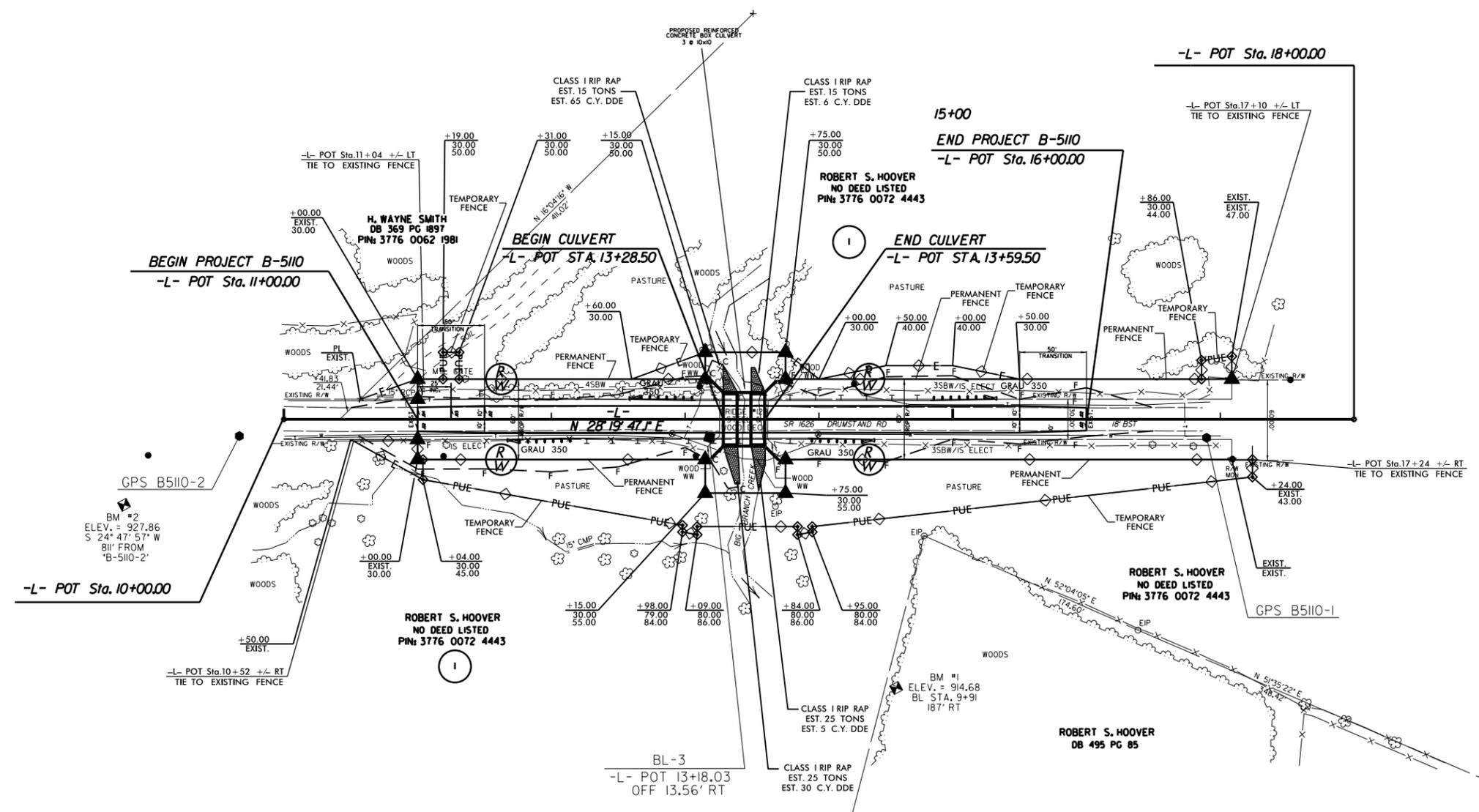
**TYPICAL SECTION NO. 1**

USE TYPICAL SECTION NO. 1  
-L- STA. 11+00.00 TO 16+00.00

|   |                       |
|---|-----------------------|
| PROJECT REFERENCE NO.<br><b>B-5110</b>                  | SHEET NO.<br><b>4</b> |
| RW SHEET NO.  |                       |
| ROADWAY DESIGN ENGINEER                                 | HYDRAULICS ENGINEER   |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                       |



REVISIONS



NOTE: SET TOP OF CLASS 1 RIP RAP LOW FLOW BENCHES AT ELEVATION 908.0 AND TO LIMITS SHOWN

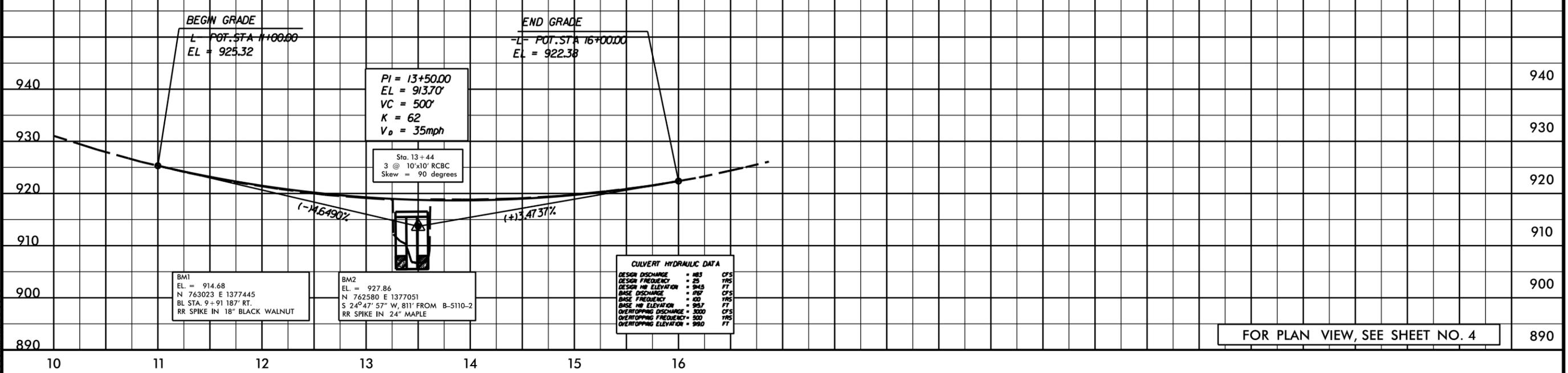
NOTE: USE PERMANENT FENCE ALONG RIGHT OF WAY AND TEMPORARY FENCE ALONG EASEMENTS AS NEEDED. TIE PERMANENT FENCE TO CULVERT WING WALLS.  
FOR -L- PROFILE, SEE SHEET NO. 5

8/17/99  
05-APR-2013 11:29  
R:\Roadway\Projects\B5110.Rdy.psh.dgn  
R:\Roadway\Projects\B5110.Rdy.psh.dgn

5/14/99

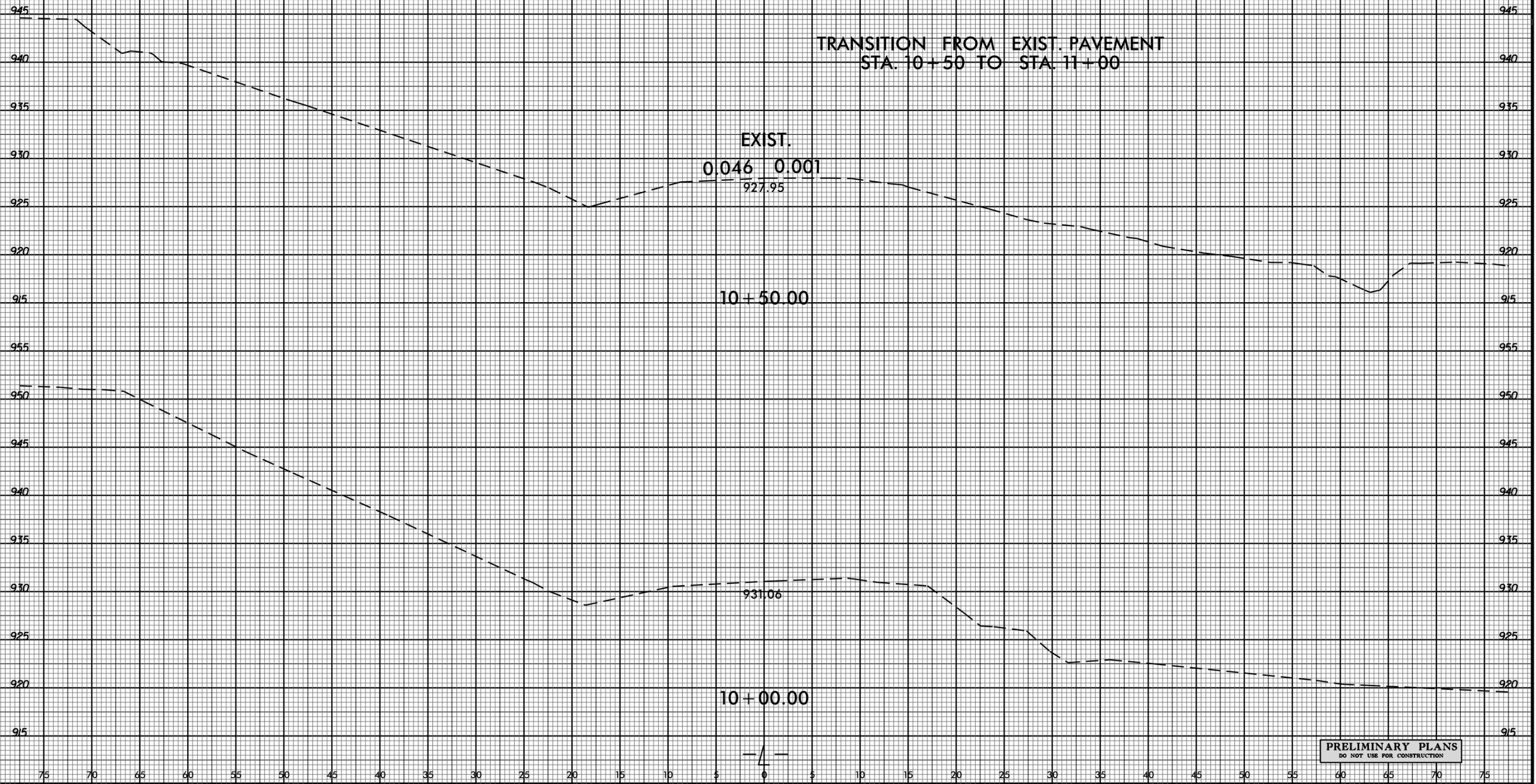
|   |                       |
|---|-----------------------|
| PROJECT REFERENCE NO.<br><b>B-5110</b>                  | SHEET NO.<br><b>5</b> |
| ROADWAY DESIGN ENGINEER                                 | HYDRAULICS ENGINEER   |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                       |

# -L- DRUMSTAND RD

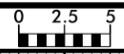


05-APR-2013 11:29  
R:\Roadway\Proj\B5110.Rdy.plt.dgn  
\$\$\$\$\$

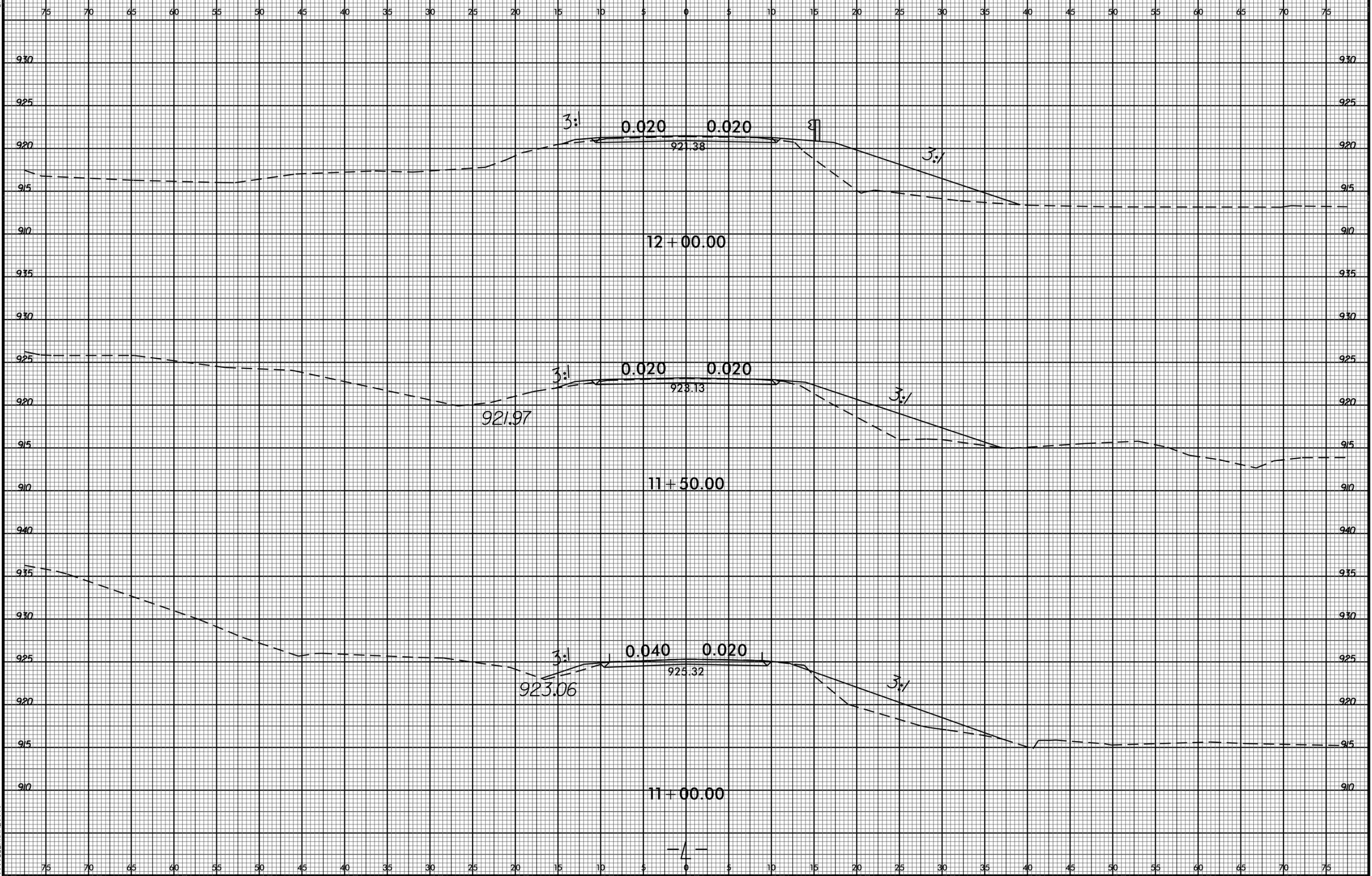
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



8/23/99



|                     |           |
|---------------------|-----------|
| PROJ. REFERENCE NO. | SHEET NO. |
| B-5110              | X-2       |



CE-APP-2013 11:30  
 R:\Roadwork\XSEC\B5110\_Pdu.rpl.dgn  
 \$\$\$USERNAME\$\$\$

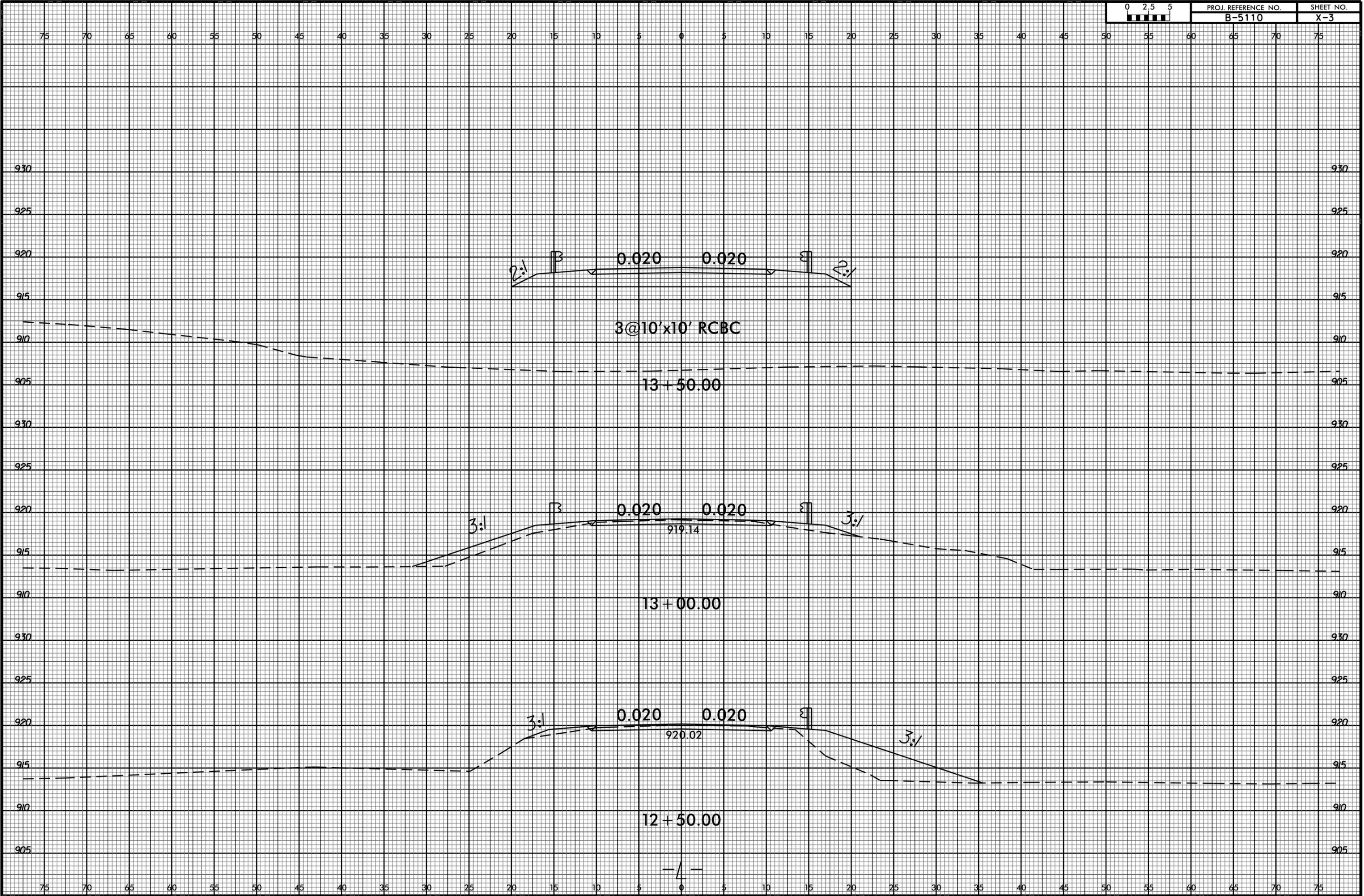
— 4 —

8/23/99



PROJ. REFERENCE NO.  
B-5110

SHEET NO.  
X-3



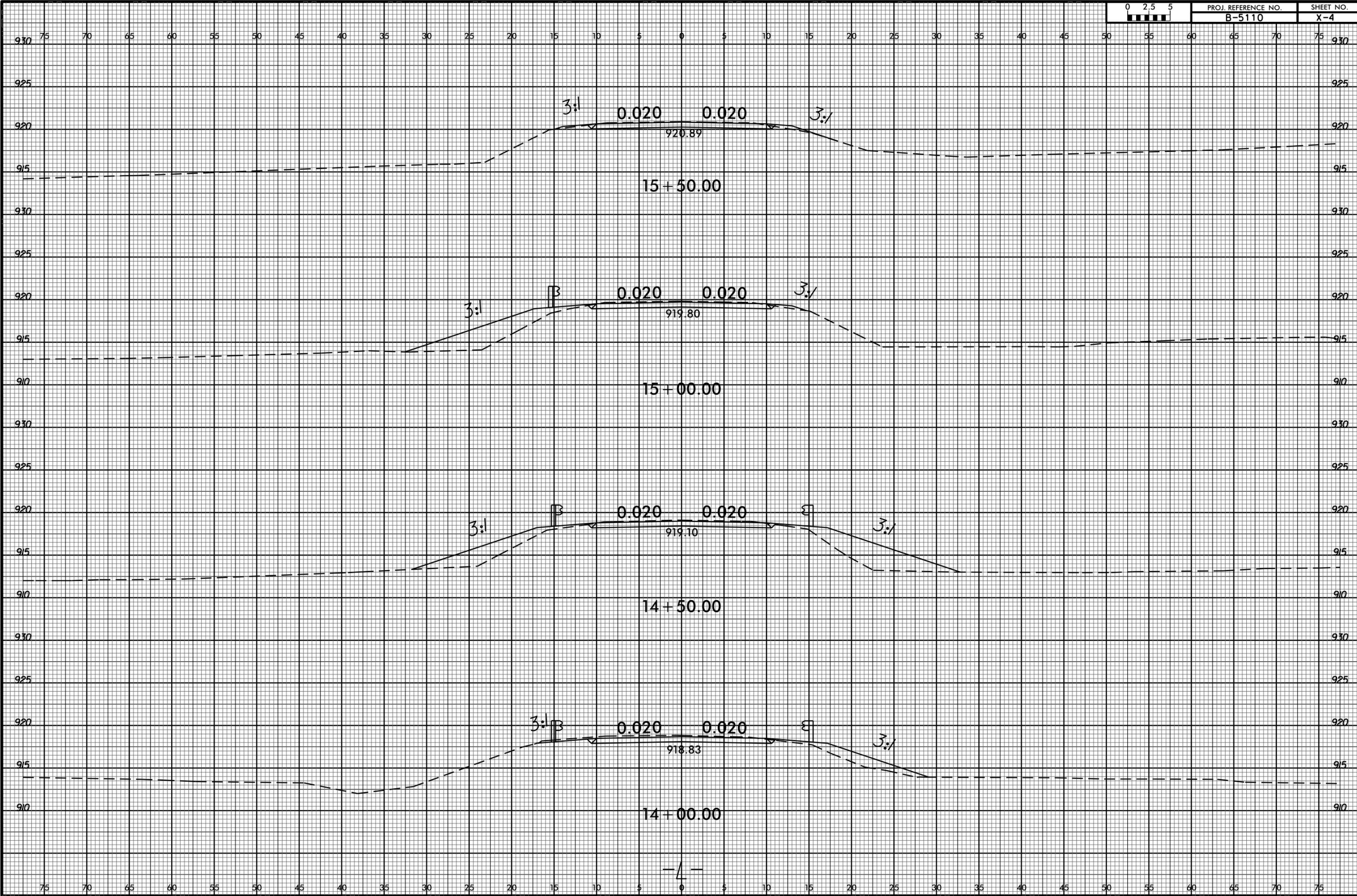
CE-APP-2013 11:30  
R:\Roadwork\XSC\B5110\_Rdu\_wpl.dgn  
\$\$\$\$USERNAME\$\$\$\$

8/23/99



PROJ. REFERENCE NO.  
B-5110

SHEET NO.  
X-4



CE-APP-2013 11:30  
R:\Roadwork\XSC\B5110\_Rdu\_xpl.dgn  
\$\$\$\$USERNAME\$\$\$\$

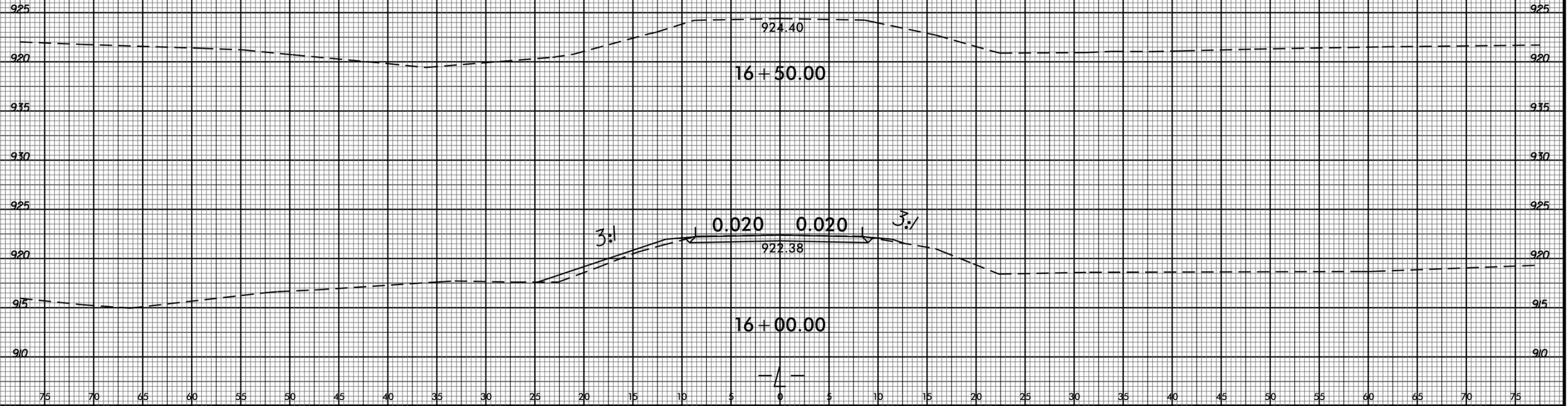
8/23/99



PROJ. REFERENCE NO.  
B-5110

SHEET NO.  
X-5

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



05-APR-2013 11:30  
R:\Road\B5110\_X5C\B5110\_Rdu\_xpl.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$